The Ford Foundation
URBAN AND REGIONAL ADVISORY PROGRAM IN CHILE
Santo Domingo 504, Of. 81
Santiago, Chile

# A GENERAL THEORY OF POLARIZED DEVELOPMENT

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December 1967

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| First draft | 6/67 |
| Revised draft | 8/67 |
| Revised draft | 12/67 |

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## Introduction

In many parts of the world today, regional planning is considered along with national planning, as an important aspect of guided change in social systems. Regional planning is characterized by its focus on objectives for territorially organized -- or spatial -- subsystems of national societies and, with growing frequency, also of multi-national systems. Although the practice of regional planning in this sense is becoming increasingly common, it still needs to be put on an adequate theoretical foundation. And the most appropriate theory, it would seem, is one that would set forth and explain systematic interactions between development and space, a theory, in other words, of the development process in its spatial dimension.[1]

Before entering upon a systematic presentation of

this subject, competitive theories will be reviewed.[2] Despite their shortcomings, these theories complement each other in a number of ways and may be relevant for specific kinds of planning analysis. In a number of important respects, however, they are all deficient as a general framework for regional planning.

Classical location theory deals with the optimum location of the firm.[3] More recently, it has been expanded to include industrial complex analysis which, in turn, has led to the theory of "growth centers" as formulated by François Perroux and others.[4] In a perspective of regional planning, however, this theory is deficient because of its concern essentially with point locations rather than regional systems. The link between the location of economic activities and the development of a system of regions is not clearly established.

Spatial organization theory has been specifically advanced as a basis for regional planning.[5] This theory deals with the behavioral characteristics of a system of point locations. To the extent that a systems approach is used, spatial theory represents a marked improvement over classical location theory. It remains unsatisfactory, however, because it is formulated, as a static general

equilibrium model: the theory may explain the patterns of point locations at two time periods; it does not explain the historical path of transformation that connects them.

Regional development theory represents an attempt to overcome this difficulty. Separate theories have been evolved for individual regions[6] and for regional systems.[7] For individual regions , the theory presents some of the same difficulties that beset classical location theory: it falls short in not adopting a systems framework for analysis. In the more elaborate attempt to deal with the development characteristics of a system of regions, the theory is once more stated in the form of a general equilibrium, with interregional flows of labor and capital helping to re-establish a balance that was first disturbed.[8] Although superior to all preceding theories as a foundation for regional planning, this one suffers a serious limitation by being conceived exclusively in economic terms. Only Albert Hirschman and Gunnar Myrdal have attempted to advance beyond these limitations, but their ideas though suggestive, have not been fully elaborated.[9]

Perhaps the best theoretical work on regional

development published until now is that of Horst Siebert which develops models for both an individual region and a system of regions.[10] Although his language is that of an economist, Siebert deals imaginatively with borderline topics such as technical knowledge, diffusion of innovations, and communication which brings his formulation close to the one presented here.

The purpose of this paper then, is to present a theory of the development process in its spatial setting.[11] For this, it is essential to establish a linkage between the theories of social change and territorial organization. The latter refers to an interrelated system of regions and the theory must include space as an independent variable. This space should not be thought of as an expression of physical distance, however, but as a field of forces (e.g., energy levels, decision-making power, communications) which exhibits a certain structure or topography and possesses a characteristic pattern of transformation.[12]

The question remains which of several competing theories of social change should be taken as the starting point for the analysis. There are two principal contenders for attention, those of Everett Hagen and Ralph Dahrendorf.[13]

Hagen's theory is grounded in individual psychology and is consequently difficult to integrate with a theory of spatial organization.

Dahrendorf works with a conflict model of social change in which the chief variable is the pattern of authority-dependency relationships that characterizes any organized social system. Since spatial systems are also social, the Dahrendorf model was accepted as a promising beginning for formulating a general theory of polarized development.[14]

A theory may be thought of as a set of logically related definitions and hypotheses that attempts to explain a given phenomenon. Some of the hypotheses may be tentatively accepted on the basis of existing empirical evidence; others remain to be tested and therefore constitute a challenge to research. The validity of the theory as a whole represents a more serious problem. Partly, it is a question of how well its component elemnnts relate to each other. The theory may be upheld even though minor hypotheses are rejected or modified. The principal test of its validity, however, is whether it can usefully continue to serve as a framework for scientific analysis

and as a source of ideas for the study of specific situations.

A theory may be called general to the extent that it provides an explanation of all historical incidents of a phenomenon in view. But there is left the disconcerting presence of "exceptions" that elude a broader explanation. In the present case, this may occur with spiritual innovations (Buddha, Christ, Mohammed) or the changes in social systems brought on by invading "barbarians" such as the Huns or the Mongolian tribes under the Great Khans.[15] These events clearly limit the applicability of the theory. Still, it may be argued that the theory covers a sufficiently wide spectrum of social change to permit its being labelled "general". In any event, a truly general theory of development in its spatial dimension would have to be a theory of history, and such a theory is not in sight.[16]

The remainder of this paper is divided into two parts. Part I is a statement of the theory; Part II is an application of it to a number of concrete situations and is meant as an illustration of the possible uses of the theory rather than as a systematic effort to marshal evidence in its support.

## Part I. Theory

### 1. Development as innovation.

1.1. (D)* Historical progress may be seen as the temporal succession of one socio-cultural paradigm by another.[17] Simon Kuznets attributes this succession in paradigms to the appearance of "epochal innovations."[18] He writes: "The pattern of life during the epoch must be seen as the realization of the potentialities involved in the single complex identified as the epochal innovation....To put it in technical terms, the epoch must be defined so that a single trend line can be effectively fitted to it."[19] These innovations have the capacity of transforming social values in such a way that all pre-succession history will tend to be rewritten from the vantage point of new perspectives. Generally, epochal innovations are self-validating as initial opposition to them is changed into support and a new world view, expressing the new norms, is born.[20]

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* (D) stands for a statement of definition.

According to Kuznets, the major innovation of our own epoch is the "extended application of science to problems of economic production".[21] This innovation had long antecedents in the past.[22] What has become identified as the epochal innovation of our time is, in fact, a series of isolated innovations that occurred at different moments in history and gradually became linked to each other, inducing a structural transformation of the traditional social system from which they had emerged. This process of development may last for several generations. The transformation towards which contemporary -- or modern -- development is moving is a social system that has a high capacity continuously to generate and adjust to innovative change.[23]

1.2. (D) In accordance with this view, development may be studied as a discontinuous process that occurs as a series of elementary innovations which gradually merge into innovative clusters and finally into linked systems of innovations.[24]

These innovations may be technical or organizational and, if the latter, may be subsumed under the customary categories of social, economic, and political.

1.2.1. (D) "Growth" may be conceptually distinguished from "development." The former refers to the expansion of a system in one or more dimensions without structural change; the latter refers to a change in the structure of a system that may or may not be expanding.

1.2.2. Without structural transformation, systems can generally expand to only a limited extent.

1.3. Development appears as an asynchronic process in which "leading" or innovative forces arise from a matrix of "lagging" or traditional forces.

1.3.1. (D) No particular model of traditional society is proposed; traditional is simply that which is established and with respect to which an innovation is defined.

1.3.2. Innovative forces have a great capacity for transforming the established social matrix

by attracting creative or innovative personalities;[25] encouraging the formation of new values, attitudes, and behavior traits consistent with the innovation;[26] seeking to foment a social environment favorable to innovative activity; and bringing into existence other innovations.[27]

2. The conditions of innovation

2.1. (D) Invention is the act of conceiving and presenting new combinations of facts or ideas; it may also refer to the result of an inventive act: invention is the discovery of something new.

2.2. (D) Innovation is the introduction of discoveries into existing social systems.

2.2.1. (D) Innovations may be based on ideas or prototypes invented, borrowed, or imitated. What is already established in one place may, by borrowing or imitation, become an innovation in another.

2.2.2. Every innovation requires a measure of

organization and adaptation to the conditions and functional requirements of the system into which it is to be introduced.

2.2.3. It also requires someone who will innovate, who will organize the necessary resources and assume the risks of failure; every innovation requires an innovator.[28]

2.3. The probability of innovation is a function of four conditions:

2.3.1. First, the number of problems resistant to solution by traditional means.[29] This may be said to represent the demand for innovation.

2.3.2. Second, the probability that two or more previously unconnected mental frames of reference have for mutual confrontation.[30]

2.3.2.1. (D) This probability may be expressed in terms of interaction or information exchange in open systems.

2.3.2.1.1.(D) For every territorially organized social system -- henceforth to be called spatial system -- a communication field may be defined in which the probability of information exchange varies

from 0 to 100, forming a spatial frequency distribution.[31]

2.3.2.1.2. Innovations are more likely to occur at those points in the communication field where the probability of information exchange is relatively high (see 2.3.2.)

2.3.3. Third, the receptivity of existing social organization to innovations in spatial systems (see 2.3.2.1.1.)[32]

2.3.3.1. Rigid, hierarchical, centrally controlled spatial systems (Type I) tend to have a low capacity for innovation.[33]

2.3.3.2. Fluid, non-hierarchical, multi-centric, horizontally integrated spatial systems (Type II) tend to have a high capacity for generating innovations.[34]

2.3.3.2.1. If power is fairly evenly distributed among multiple decision centers and agreement on objectives is lacking, Type II systems may also display a low capacity for innovation due to the ability of clashing interests to produce a deadlock to the initiatives of any one of them.[35]

2.3.3.3. The optimal system of social organization, from the standpoint of innovative capacity, appears to be some combination of Types I and II where leadership, central information.. and conflict resolution functions are hierarchically superimposed upon Type II systems.[36]

2.3.4. Fourth, the frequency of innovative personality traits in the population of a given spatial system.[37]

2.3.4.1. Socio-cultural systems will differ in the proportion of innovative personalities they produce.

2.3.4.2. Innovative capacity may also be the result of the social position occupied by certain groups in a society. Foreign immigrants or local sub-cultures have often accounted for a major share of total innovative activity in spatial systems.[38]

2.4. Historically, conditions favoring a high probability of innovation have been found in

large cities or urbanized regions. Ten conditions favor innovations in the urban complex (see 1.3.2.):

2.4.1. The pressure of new problems resulting from rapid growth, high densities, and the presence of culturally heterogeneous population groups in large cities creates demand for solutions (see 2.3.1.);

2.4.2. The traditional frames of reference are incapable of solving many of the new problems arising from rapid urbanization (see 2.3.1.);

2.4.3. The bankruptcy of traditional mental frames leads to the intense search for new and adequate solutions (see 2.3.1.);

2.4.4. A relatively heavy volume of information flows from outside the urban center transmits new knowledge together with a new way of looking at the world. Elements of exotic culture encounter in the city a fabric of traditional culture with which they come into conflict (see 2.3.2.1.2. and 2.3.4.2.);

2.4.5. The resulting clash of new and old culture

elements in an environment of high potential interaction leads to substantial exposure to different mental frames of reference (see 2.3.2.);

2.4.6. The large city or urbanized region tends to have a relatively loose if complex social structure as well as a relatively diffused structure of power; both conditions facilitate experiment and innovation (see 2.3.3.);

2.4.7. The large city tends to attract creative personality types in greater proportion than their frequency in the population as a whole (see 2.3.4.);

2.4.8. The large city provides exceptional opportunities for the marshalling of the requisite human and financial resources for innovation (see 2.2.2.);

2.4.9. The large city reinforces creative responses to new situations by economic, social, and political rewards;

2.4.10. A process of innovation sustained over long

periods of time may lead to the institutionalization of this process.

2.5. These ten conditions, however, are not equally satisfied in all urban systems. Holding size constant, urban systems may differ, for example, with respect to their rates of growth ( and consequently the urgency of their demands), cultural heterogeneity, degree of openness to external information, and social organization.[39]

2.5.1. The historical correlation between large city size and innovation seems nevertheless to be well-established, especially if it is borne in mind that innovation may follow borrowing and imitation as much as invention itself (see 2.2.1.)[40]

3. Innovation ,power ,and authority in spatial systems.

3.1. (D) Relative autonomy in decisions over a given environment and the ability to carry them out will be called power.[41]

3.1.1. Any successful innovation gives to the innovators an initial advantage over possible

competitors in manipulating an environment. Successful innovation increases the potential power of the innovators.

3.2. The full possibilities for increased control over an environment can be extracted from an innovation only when the power potential inherent in it is institutionalized, in other words, when the exercise of power is accepted as socially legitimate.

3.2.1. (D) Legitimate power will be called authority.[42]

3.2.2. Innovators will always seek to transmute a prospective gain in power into (legitimate) authority.[43]

3.3. Their aspiration to legitimatize a prospective power gain will put innovators in conflict with the holders of established authority within a given spatial system (see 1.3).

3.3.1. Individuals or groups seeking to legitimatize prospective gains in power frequently seek alliances among themselves in order to confront established authorities from a position of collective and, consequently, greater strength.

3.3.2. (D) Such alliances lead to the formation of counter-elites to established authority.

3.4. (D) The presence of groups exercising authority within a spatial system implies the existence of other groups dependent on them for vital decisions.[44]

3.4.1. Spatial systems are integrated through a given structure of authority-dependency relations that is maintained partly by a belief in the legitimacy of the relation itself and partly by coercion.[45]

3.5. The conflict between innovating counter-elites and established authorities (see 3.3.) is a conflict over the legitimacy of any or all authority-dependency relations within a spatial system.[46] It is consequently a conflict that bears directly on the social bases for integration of the system (see 3.4.1.)

3.5.1. This conflict can have four possible outcomes:

3.5.1.1. Suppression: counter-elites are prevented from gaining access to positions of authority (their attempt to legitimatize prospective gains in

power is frustrated).

3.5.1.2. Neutralization: established authorities oscillate between acceptance and rejection of innovations, adopting their external forms but managing them so as to neutralize their effects.[47] Counter-elites fail in gaining full access to authority.

3.5.1.3. Coöptation: counter-elites are "coöptated" into the established structure of authority.[48]

3.5.1.4. Replacement: counter-elites are successful in replacing the established authorities.

3.5.2. Conflict over authority may be either legitimate or illegitimate.

3.5.2.1. (D) Conflict is legitimate when it (a) occurs within a framework of rules established for regulating social conflict and (b) does not challenge the fundamental bases for social integration of the spatial system (see 3.4.1).

3.5.2.2. (D) Conflict is illegitimate when it fails to meet either of these two criteria.

3.6. Where the outcome of conflict over authority is

resolved clearly in favor of the counter-elites (see 3.5.1.3 and 3.5.1.4), the existing structure of authority-dependency relations and, consequently the social bases for integration of the spatial system, will be transformed (see 3.5.)

3.6.1. The magnitude of this transformation will depend on the extent of the claims made on authority.

3.6.1.1. Since authority in complex spatial systems is fragmented, it may be possible for the system to absorb relatively minor innovations without a change in fundamental structure; the effects of innovation are contained.

3.6.1.2. Substantial transformation occurs when authority-dependency relations important for the social integration of the system are successfully challenged.

3.6.2. If counter-elites continue to be absorbed into the established ruling stratum as successive waves of innovation are generated (see 3.5.1.3.), the transformation of the social bases for

integration will tend to occur as an evolutionary process.

3.6.3. If the conflict is resolved with innovating groups replacing the established authorities (see 3.5.1.4), the consequent changes in the social bases for integration will tend to be violent, rapid, and far-reaching.

3.6.4. Having once gained access to positions of authority, former counter-elites may either foreclose further innovation or create a social environment capable of absorbing successive innovating groups into an adaptable system of authority-dependency relations (see 3.6.1.) This is what is meant by the "institutionalization of the innovative process" (see 1.1, and 2.4.10).

4. Authority-dependency relations in a communication field

4.1. Development, viewed as a process of innovation (see 1.2.), has its origin in a relatively small number of centers of change that are located at points of high potential interaction within a communication field (see 2.3.2.1.2.);

development tends to spread outwards from these centers to areas where the probability of potential interaction is lower.[49]

4.1.1. (D) Major centers of change will be called core regions; all other areas within a given spatial system will be called peripheral regions.[50]

4.1.2. (D) The periphery is defined by its relation of dependency to the core.

4.1.3. (D) Core and periphery together constitute a complete spatial system or subsystem.

4.1.4. A spatial system is integrated through a pattern of authority-dependency relationships that is focussed on the dominant core regions (see 3.4.1.).

4.1.4.1. Core region dominance of the periphery is the result of earlier innovations that have become legitimized and incorporated into the central authority structure (see 3.5.1.3. and 3.5.1.4.)

4.1.5. The conflict over the legitimacy of established authority-dependency relationships resulting

from continuing core region development will render the social bases for integration of the spatial system permanently unstable, giving rise to successive rearrangements in the pattern of role allocation among component elements of the system (see 3.6.)[51]

4.2. Four major propositions may be advanced concerning the relation of core regions to their peripheries:

4.2.1. First, core regions impose a condition of organized dependency on their peripheries.

4.2.1.1. This dependency relation results from a penetration of the periphery by institutions that are controlled by core region authorities (see 5.2.1.)

4.2.1.1.1. In the perspective of the periphery, many of these institutions are regarded as innovations (see 2.2.1 and 4.1.4.1.).

4.2.1.1.2. Local authorities established in the periphery will consequently attempt to resist their introduction (see 3.3.)

4.2.1.1.3. From the standpoint of the periphery, core region authorities will appear as counter-elites attempting to usurp peripheral authority positions (see 3.3.2.).

4.2.1.1.4. Massive psychological, material, and coercive resources at the disposal of core region authorities give them a notable advantage in their struggle to reduce peripheral areas to a status of permanent dependency.

4.2.1.2. (D) Successful penetration of the periphery by core region institutions means that decisions vitally affecting local populations will be made by core region authorities (but see 4.2.4.).

4.2.2. The process by which core regions consolidate their dominance over the periphery tends to be self-reinforcing. This may be ascribed to six feedback effects of core region development.

4.2.2.1. Dominance effect, or the continued weakening of the periphery by a net-transfer of natural, human and capital resources to the core.[52]

4.2.2.2. Information effect, or the increase in potential

interaction within a given core region resulting from its internal growth in population, production and income. Specifically, this effect will tend to induce a higher rate of innovation (see 2.4.4. and 2.4.5).[53]

4.2.2.3. Psychological effect, or the creation of conditions favorable to continued innovation at the core, such as rendering the opportunities for innovation more visible, reducing the risks of innovation through imitation, and creating expectations for further innovation (see 2.4.5. and 2.4.9.).[54]

4.2.2.4. Modernization effect, or the transformation of existing social values, behavior and institutions in the direction of greater acceptance of and conformity with rapid change through innovation (see 1.3.2.).[55]

4.2.2.5. Linkage effects, or the tendency of innovations to breed other innovations by creating new service demands as well as new markets for the services the core region is itself able to supply to other areas. However, not all

innovations will have the same capacity in this respect; the multiplier or linkage effects of some innovations will be greater than of others.[56]

4.2.2.6. Production effects, or the creation of an attractive reward structure for innovative activity operating through the exploitation by innovators of their temporary monopoly position, the appearance of linked systems of innovations, and growing specialization -- all of which tend to increase economic returns, whereas increasing external economies of scale and urbanization economies ( e.g., greater efficiency in the use of social overhead facilities) will tend to reduce the costs of innovation (see 2.4.10).[57]

4.2.3. Planting core region innovations in the periphery will increase the flow of information to the dependent region from the core (see 4.2.1.1.).

4.2.3.1. Sustained contact with the core region will tend to make peripheral populations more aware

not only of possible new ways of life but also of their own disadvantage in gaining access to them. New desires and frustrations will encourage demands for greater regional autonomy in vital decision areas and may lead to open conflict with the core.[58]

4.2.3.2. Individuals and groups most directly exposed to information originating in core regions will be acutely aware of the periphery's and their own dependency and will be among the first to demand greater autonomy for the periphery.

4.2.3.3. Taking advantage of this situation, core region counter-elites may succeed in assimilating the periphery's quest for greater autonomy to their own. To obtain the support of peripheral populations in their own drive for authority, core region counter-elites may advocate a policy of regional decentralization that will project the establishment in the periphery of new core regions.

4.2.4. If the outcome of this conflict is favorable

to the interests of counter-elites, subsequent acceleration of spread effects to the regions will eventually lead to a sharing of authoritative decisions between old and new core areas (see 3.5.1.4.)

4.2.4.1. This sharing of authority is unlikely to be equal, however. In many important respects, the spatial system will continue to be dominated by the older core regions.

4.2.4.2. But this is not a necessary outcome. In the process of extending their institutions into the periphery, the older core regions may "exhaust" their capacities for creative response and may be gradually reduced to a subordinate, peripheral position relative to the cores they helped to bring into existence.

4.2.4.2.1. Specifically, former counter-elites which have succeeded in becoming established authorities may foreclose further innovative activity (see 3.6.4.), while the positive feedback effects of core region development (see 4.2.2.) may be weakened.

5. Polarized development in spatial systems.

5.1. (D) Core regions may be defined as spatial subsystems that possess a high capacity for innovation and are located within a set of larger spatial systems (see 2.4).

5.1.1. (D) Possible spatial systems are the world, the multi-nation region, the nation, the sub-national region, and the province.

5.1.2. A given spatial system may have more than one core region. This is true especially for higher-order spatial systems.

5.1.3. The territorial extent of a given core region will tend to vary with the physical size of the relevant spatial system. For the world as a whole, the appropriate core region may be a vast urbanized area such as Megalopolis in the northeastern part of the United States; at the level of provincial systems, the relevant core may be a single city of moderate size, together with its immediately surrounding supply and service areas.

5.1.4. Core region generally perform a broad variety

of services for their dependent areas; some specialization may occur, however, especially in the cores for lower-order spatial systems.[59]

5.2. Five propositions concerning core regions and their role in the development of spatial systems may be stated.

5.2.1. Core regions organize the dependence of their peripheries through supply, market, and administrative areas, (see 4.2.1).[60]

5.2.1.1. As production and consumption centers, core regions organize the periphery as a continuing source of supply of raw materials, food stuffs, and semi-processed goods.

5.2.1.2. As supply centers, core regions organize the periphery as a set of market areas (e.g., the territorial distribution of sales and service offices of core region firms, the pattern of transport and communication services).

5.2.1.3. As centers of legitimate decision-making power, core regions organize the periphery as an administrative and political space for the purpose of securing central domination.

5.2.2. For a given spatial system, a hierarchy of core regions may be defined according to the functional importance of the core for desired characteristics and levels of system performance.[61] However, the hierarchy of core regions may be asymetrical with regard to functions, some functions tending to place it at one level of the hierarchy, while others indicate a different position.

5.2.2.1. For a given spatial system, core regions of approximately the same level in the hierarchy will tend to have a greater volume of trade and other relations with each other than with lower-order regions.

5.2.2.2. For a given spatial system, the competition for the exploitation of opportunities for innovation will be greatest among core regions of the same relative order in the hierarchy. This condition will tend to maintain a given hierarchical ordering over relatively long periods of time.[62]

5.2.2.3. A core region may, at the same time, belong

to the hierarchies of two spatial systems. Thus, a second-order core region for a higher spatial system may also appear as a first-order core region for a lower-ranking system. The inverse of this situation is not possible.

5.2.3. Core regions systematically transmit impulses of innovation to the peripheries they dominate (see 4.2.1.1).[63] Three further propositions may help to clarify this process.

5.2.3.1. The rate of innovation is greatest in core regions corresponding to high-level systems and are propagated from there downwards to lower-order core regions of the same spatial system or laterally to similarly ranking core regions.

5.2.3.2. The successful spread of innovations from given core regions will depend, first, on the structural and behavioral characteristics of the receiving areas which must, in at least some respects, be consistent with those of the sending area;[64] second, on the ability of the innovative forces to overcome the

resistance likely to be offered by the local authorities (see 4.2.1.1.2); and third, on the general conditions prevailing in the receiving areas which may favor or not an accelerated process of innovation (see 2.3.3).

5.2.3.3. Because of their greater and more effective influence over both external and policy variables, higher-order core regions are more autonomous than lower-order cores with regard to their ability to make critical decisions.[65]

5.2.4. Up to a certain point, the self-reinforcing character of core region development (see 4.2.2) will tend to have positive results for the development process of the spatial system as a whole; beyond that point, however, it will tend to become dysfunctional unless the spread effects of core region development to the periphery can be accelerated, and the periphery's dependence on the core reduced (see 4.2.3.).[66] The approach of this critical point will be reflected in the growing political and social tensions between core and periphery.

5.2.5. The probability of innovation will increase over the surface of a given spatial system with increases in the probability of information exchange over the system. This trend--the results of population growth, urbanization, rising levels of education, and improvements in transportation and communications technologies--will induce the physical expansion of existing core regions, the multiplication of core regions on the periphery, and the absorption of portions of the periphery into one or more system cores.[67]

5.2.5.1. The theoretical upper limit of core region spread is given by the extension of a single core region over the inhabited parts of the entire globe.

## Part II: Some Applications of the Theory

The usefulness of the theory described in Part I may be illustrated by applying it as a source of hypotheses in the analysis of concrete historical situations. A few lines of possible application will be suggested below without, however, pretending to present a complete analysis. Since

one feature of the theory is its intended validity for all spatial systems, from the smallest to the largest, the examples to be given are divided between spatial systems involving international relations and those involving only interregional relations at the national level.

## 6. The operation of the theory at the level of international relations.

### 6.1. Integration and competition among core regions.

If spatial systems are integrated by core regions (see 5.2.1.), and if their development is consequently determined by the character and pace of development in the core region itself, the whole economic and political weight of a nation can be brought into play in the analysis of international relations whenever relatively complete integration of the national space (in term of economic, political and social relations) has been achieved.[68] Where only partial integration has been attained, the potential effect of core region influence will be proportionately weakened. Accordingly, it should be possible to apply the theory of polarized development, for example, to

Soviet-American relations, treating both the Soviet Union and the United States as competitors in a struggle for position as dominant cores for an amerging world system.

The U.S.S.R. is a new claimant to a position which had been occupied, for a short period, exclusively by the United States.[69] But a sharing of world system dominance by the two core region powers would suggest the applicability of the hypotheses stated in paragraphs 5.2.2.1. and 5.2.2.2. that, for any given spatial system, both the volume of trade and the level of competition will be greater between core regions of the same relative level in the hierarchy than between these regions and lower-order cores. The first of these relations points to a complementarity, the second to a divergence of core region interests. The strategic problem, therefore, is how the forces of conflict and divergence may be reduced while those contributing to complementarity and integration may be strengthened.

In present U.S.- Soviet relations, the conflict forces appear, indeed, to be stronger than those which favor integration, to a degree that competition between the two world cores (5.2.2.2.) is near to destroying the bases for eventual accomodation (5.2.2.1.). In very general terms, this problem suggests two broad approaches to solution. First, the forces of system integration should be strengthened by encouraging an increased volume of trade and other forms of exchange between the U.S. and Soviet cores. Second, joint efforts should be undertaken in extending development assistance to the world peripheries or, where this would not be feasible, the contributions of both core regions to multinational assistance should be increased. In this way, the exclusive orientation of peripheral nations to one or the other pole might be reduced, permitting each country to follow more autonomous courses of action.

6.2. Resistance to incorporation into a spatial system. The recent conflict between the Arab states and Israel also lends itself to interpretation in terms of theory here proposed. Accordingly, Israel appears to be the logical core region for a potential system of Middle Eastern nations. If the Arab states were to be incorporated into such a system, they would soon be reduced to peripheral status relative to a core region with different cultural traditions and a different socio-economic and political structure. Since peripheral status is defined as a dependency relation (see 4.1.2), however, it is natural that Arab states not only should resist their incorporation into a spatial system based on Israel as a core region, resist in other words the establishment of normal, peaceful, relations with Israel, but also should interpret Israel's intentions as a form of imperialistic aggression (see 4.2.1. and 5.2.1).[70] On the other hand, Israel's own development is impeded by being deprived of

a periphery. Israel may thus be regarded as a truncated core region on the outer rim of Europe and, as such, occupies an extremely vulnerable position.

6.3. The challenge of core region dominance. The under-developed countries are national sub-systems located in the periphery of world core regions; they are consequently, and in a multiplicity of ways, dependent on these regions. The dependence of the periphery on core region markets for their products, on core region capital for a substantial share of their total investment, and on core region science for their technological development, combine to make the drive for national autonomy one of the most explosive features of the last two decades.

One may attribute to this quest for national autonomy some of the more characteristic features of the Third World countries. (The socialist countries constituted until quite recently a whole system apart in which the

giants -- the Soviet Union and China -- were able to maintain a fairly complete autonomy with respect to their own development). The desire for rapid economic growth through industrialization, aggressive nationalism, and increasing radicalization of political life may all be traced to the vital impulse to create new core regions in the periphery by a sheer act of political will (see 4.2.3. and 4.2.4). In most cases, this has involved skillful efforts to oblige core region powers to reverse the "dominance effect" (4.2.2.1) at least with regard to the flow of capital and to assure for the periphery a minimum of political self-determination by subtly playing the two great world powers against one other.

Economic development appears, in this view, as a fundamental requirement for greater autonomy rather than as an end in itself. If this is accepted, the paradoxical behavior of some countries, claiming to desire economic development but engaging in apparently non-rational

action, becomes perfectly comprehensible. Their behavior is intended to be rational with respect to the major goal of increased national autonomy; but in some situations, economic growth--though internationally legitimated in ways that greater national autonomy is not -- is judged to be of less functional importance than some other set of considerations; for example, creating a powerful modern army or impediments to the import of foreign private capital. In summary, it may be more useful to analyze national development in terms of core-periphery relations than economic backwardness. The internal dynamics of the development process are to a marked extent conditioned by this fundamental relation of dependency.[71]

6.4. Multiple forms of conflict over authority. Current conflict patterns in Latin America mirror the two opposing tendencies that are typical of peripheral regions generally. While established authorities are resisting the

introduction of innovations that may undermine them (see 3.3.), counter-elites within the region are striving to reduce the region's dependency relation to the core (see 4.2.3.1. and 4.2.3.2.). In both cases, the external point of reference is chiefly the United States.[72]

Established authorities in Latin America are not so much opposed to change as such as they are to changes that would threaten the "principle of authority" or, more concretely, their own privileged positions. This is especially true of the urban middle sectors in countries such as Venezuela or Chile. The Alliance for Progress was enthusiastically endorsed by these groups for the sake of ideological convenience: it promised reforms within an unchanging system of authority-dependency relationships.[73] More than this, the Alliance converted these sectors (and the authorities espousing their particular ideology) into favored client groups. The

Alliance would, they hoped, protect them against the rising national counter-elites (see 3.5).

These counter-elites are today forcefully demanding a reduction in the dependency of Latin American countries on the United States and a progressive "internalization" of the national development process.[74] But to achieve their aim, they believe that the existing national elites must be removed from their positions of exclusive authority (see 3.5.1.4).[75] In many countries, legal channels for accomplishing this aim do not exist; Janio Quadros, for example, lasted for less than a year in the Presidency of Brazil mainly because he advocated a foreign policy that aspired to be independent of the United States. Only Chile has so far managed to walk a precarious line of political autonomy, though President Frei is now coming under attack, even by groups within his own party, for a reputed failure to carry through a forthright program of "internalization". Some Latin American

counter-elites still advocate a legitimate process of change; the intransigence of the established authorities, however, is pushing growing numbers of the counter-elite over the border line of legitimacy to the overt advocacy of violent revolution.[76]

Typical of political behavior in peripheries is the search for powerful allies on part of the contending elites. Established authorities in Latin America generally choose the United States which, in turn, is interested for political more than for economic reasons, in maintaining its domination of the periphery. The counter-elites, quite naturally, look for alliance with the biggest competitor to United States supremacy (see 6.1.), the Soviet block and specifically Russia.[77] Counter-elites more disposed to illegitimate forms of conflict, seek ideological, if not material, backing in Fidel Castro's Cuba, while still others -- a minority -- disdain to look for any external "protector" in their struggle for national renewal. These different

positions often degenerate into factional splits among the counter-elites and tend to debilitate their capacity for concerted action. On the other hand, the system of alliances on the part of both elites and counter-elites tends to transform the struggle for national independence into an incident in the larger struggle for power between the major world core regions.

## 7. The operation of the theory on the level of inter-regional relations at the national level

### 7.1. Core region expansion and communication fields.

A high probability of information exchange was advanced as the principal variable to account for the appearance of innovations and core regions (see 4.1. and 5.1).[78] As the probabilities of interaction which are initially distributed quite unevenly over a given spatial system become more equally distributed, together with an increase in their overall potential, the capacity of the system for self-generating change will be increased (see 5.2.5.). This raising and simultaneous levelling of the

interaction surface, which is a characteristic consequence of modern development, results in the physical expansion of core regions and has its theoretical limit in a complete identity of core and spatial system in which any peripheral remnants of dependency will have completely dissappeared.[79] At this point, innovative capacity will reach astronomical proportions (see 5.2.5.1).[80]

7.2. The superposition of dependency relations.

Any given place may be submerged under several layers of peripheral dependency (see 5.2.2). Thus, a small backward coal-mining region in the South of Chile (Arauco) may simultaneously be peripheral to world, Latin American, national, and provincial core regions. This condition will show up not only in the pervasive poverty of local populations but also in their complete helplessness in the face of the multiple problems which beset them. It will also set severe limits to the regions realistic expectations for self-development. The relevant centers of decision-making of Arauco are found

anywhere but in the region's capital itself: in Concepción, for example, or in Santiago, or in New York. Confronting this hierarchy of powerful external forces, the region is reduced to being a passive object of "exploitation". Massive emigration from the region appears as the only stable solution to this otherwise intractible problem.[81]

7.3. Innovation spread, communications, and cultural convergence. Innovations within a spatial system generally filter down from higher ranking to lower-ranking core regions (see 5.2.3.1). This "filtering" occurs essentially as a communication process that requires both a sender and a receiver. The receiver--usually some organization -- must possess structural characteristics that enable it to receive the information; specifically, it must have structural and behavioral characteristics that resemble those of the sender (see 5.2.3.2). To qualify for a loan from the national development bank, for instance, a firm must conform to certain standard performance

requirements imposed by the lending institution. To receive a grant from an international foundation, a university must exhibit some features that enable it to sustain a dialogue with the foundation: some of its administrative and teaching staff must be bi-lingual and preferably trained abroad, its internal structure and curriculum must be consistent with internationally recognized standards, and so forth.

It should scarcely be surprising, therefore, that the Middle East Technical University in Ankara is a more likely foreign grant recipient than a Moslem religeous school in Saudi Arabia. Institutions which are thus "tuned in" to external information inducing or reinforcing innovations may be called modernizing institutions.

The development process requires that modernizing institutions -- and especially those with large potential linkage effects (4.2.2.5)-- be implanted at an accelerated pace into lower-order core regions. This fact

will tend to encourage a gradual convergence of different core region cultures, partly because of the structural effects alluded to above and partly because high innovation systems tend to have firms of social organization that are structurally similar (see 2.3.3). This is obviously true within a single national system where regionalisms tend to become encrusted with elements of a metropolitan (national) culture. It is also to some extent true of multi-national and even world systems where a frank cosmopolitanism is increasingly noticeable at the major nodes of information exchange.

7.4. Core region reinforcement and the crises of growing imbalance. Unless the spread of core region development is sufficiently rapid to balance possible backwash effects, the reinforcement of development trends in the original core (see 4.2.2.) will tend to widen the existing imbalances between core and periphery and strengthen rather than reduce the latter's dependence on the former. At the level of

the world system, this situation will result in heightened international conflict (see, for example, 6.2); at the level of a national system, growing imbalance between cores and their peripheries will be partly counteracted by accelerated migration from periphery to core. This condition, typical of many transitional societies, has multiple consequences for the development of the system as a whole. Generally favorable for political change, accelerated urban migration will tend to be unfavorable for economic growth.[82]

7.5. Political alliances and the reduction of dependency. An interesting instance of how innovating core region groups look to the periphery for political support in their effort to advance to positions of authority, and how they transform this personal quest into a national movement, is given by the emergence of nationalizing parties in several of the "developing" countries (see 4.2.3.3).[83] In these countries, innovating groups, usually of urban middle-class origin, are seeking to

replace the established authorities -- whose political base is generally narrow -- by addressing their appeals directly to all the population sectors, and especially to those that have been incompletely merged into the political system.[84] There are essentially two population groups in this category of "marginals": the urban proletariat and peripheral (rural, small-town) populations.[85] The appeal made to these groups may be primarily demagogic and once a populistic regime has gained control of the state apparatus, the innovations necessary to establish a truly national system in which the "crisis of inclusion" is overcome may not be carried out.[86] In this event, force may have to be used to maintain core region dominance over the system. This has occurred, at various times, in India, Indonesia, and Nigeria, all of them federal state systems.

A truly nationalizing party, however, that takes its program seriously will need

to establish a democratic "reconciliation system" in which diverse interests, formerly marginal to the system in terms of participation, will be given appropriate attention within a framework of national policies.[87]

7.6. The spread of core region innovations and the demand for regional autonomy. Penetration of the periphery by core region institutions will stimulate demands for greater autonomy over decisions by the periphery (see 4.2.3). This proposition accounts not only for the outbursts of anti-colonial movements in Africa and the Far East following World War II -- Algeria is a recent example, the struggle is still going on in Viet Nam -- but also for the "liberation" of peripheral regions within national territories.[88]

An outstanding example of the latter is furnished by the Brazilian Northeast, a region that has carried on a struggle for "liberation" from internal colonial domination for more than half a century.[89] In the course of several decades of exploitation by the national core

regions of Sao Paulo and Rio de Janeiro, innovating institutions gradually penetrated the periphery from the outside. This penetration, led by new Federal universities established in a number of northeastern states, the national petroleum corporation (Petrobras), and a regional development Bank (Banco do Nordeste do Brasil) and supplemented by substantial improvements in interregional transportation, was not only a response to a rising feeling of dissatisfaction on part of the regional population but itself contributed to the ever-mounting pressures for public recognition of regional backwardness, isolation, and dependency. Local innovative groups clustered around these institutions and were eventually successful in shifting the locus of decision-making authority to the region.[90]

An important step in this sequence of "liberation" efforts was the formation in the late fifties of a Regional Development Corporation (SUDENE) with headquaters in Recife, Pernambuco, Until then, all but one of the

national institutions that had been created to promote the region's development had followed the practice of establishing their main offices in Rio de Janeiro, maintaining only operational branch offices in the northeastern periphery. SUDENE represented an important departure from custom in this respect and a victory for the forces of regional autonomy.[91] Under the capable leadership of its first President, Celso Furtado, himself a nordestino, the Corporation rapidly grew into an important instrument for regional development. And as new opportunities for innovation were created within the traditional Northeast, the traditional authority-dependency relations to national core regions were successfully challenged. In time, the outbound flow of capital resources was reversed and came to converge upon new core regions centered on Recife, Salvador and Fortaleza. Traditional regional authorities -- representing landed interests -- were being rapidly replaced by new, urban groups that worked to accelerate the process of regional transformation.

Revolutionary unrest resulted from the clash between established and counter-elites and finally precipitated a political crisis of national dimensions that led to the removal of Furtado from the Presidency of SUDENE and the imposition of military dictatorship under General Castello Branco. Although not wholly responsible for this turn of political events, the conflict over authority in the Northeast contributed to it in important ways.

But the continued development of the region could no longer be held back. A national Ministry of Regional Planning was created under Castello Branco to supervise the flow of national funds to the Northeast and other peripheral regions. Today, force is slowly giving way to compromise in the management of national affairs as it becomes evident that power among old and new core regions must be shared (see 4.2.4).

## Notes

1. Between theory and practice there is inevitable tension. Nevertheless, they mutually enrich and reinforce each other. See John Friedmann and Walter Stöhr, "The Uses of Regional Science: Policy Planning in Chile," Paper read at the European Regional Science Congress in Vienna, August 1966.. A Spanish translation was published in Cuadernos de la Sociedad Venezolana de Planificación. N° 41 (May 1967), pp. 16-39.

2. All of the theories to be mentioned find accomodation within the new field of studies in Regional Science. Regional planning may be thought of as an application of this "science" to problems of public concern.

3. An excellent summary statement of classical location theory is William Alonso's "Location Theory," in John Friedmann and William Alonso, ed., Regional Development and Planning: A Reader. Cambridge: the M.I.T. Press, 1964, pp. 78-106. A more recent and applied formulation is L.H. Klaassen's Methods of Selecting Industries for Depressed Areas. Paris: OECD, 1967.

4. On the subject of industrial complex analysis, chapter 9 of Walter Isard's Methods of Regional Analysis

(Cambridge: The Technology Press of the Massachusetts Institute of Technology, 1960) still serves as a useful introduction to the subject. On the concept of pole de croissance, see François Perroux, L'économie du XX$^{e}$ siécle. Paris: Presses Universitaires de France, 1961, Part II. Other French literature on the subject is cited in Cuadernos de la Sociedad Venezolana de Planificación, Vol. II, N°s. 5-6 (August-September 1963), pp. 74-77, and in Niles M. Hansen, "Development Pole Theory in a Regional Context," Kyklos, Vol. XX, N° 3 (1967), pp. 709-726. An excellent recent contribution to growth pole theory is Heiko Körner, "Industrielle Entwicklungspole als Instrumente der Regionalpolitik in Entwicklungs-Ländern," Kyklos, Vol. XX, N° 3 (1967), pp. 684-708, which also contains comprehensive references.

5. Edwin von Böventer, "Spatial Organization Theory as a Basis for Regional Planning," Journal of the American Institute of Planners, Vol. XXX, N° 2 (May 1964), pp. 90-99; and by the same author, "Toward a Unified Theory of Spatial Economic Structure," Regional Science Association, Papers, Vol. X (Zurich Congress, 1962), pp. 163-188. Other major theoretical statements are: Walter Isard, Location and Space-Economy. Cambridge: The Technology

Press of Massachusetts Institute of Technology, 1956; L. Lefeber, Allocation in Space. Production, Transport and Industrial Location. Amsterdam. North-Holland Publishing Co.,1958.; H.C. Bos, Spatial Dispersion of Economic Activity. Rotterdam: University Press, 1965; and Brial J.L. Berry, Geography of Market Centers and Retail Distribution. Foundations of Economic Geography Series. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967.

6. Harvey S. Perloff (with Vera W. Dodds), How a Region Grows. Area Development in the U.S. Economy, Supplementary Paper N° 17. New York: Committee for Economic Development, 1963; Charles M. Tiebout, The Community Economic Base Study. Supplementary Paper N° 16. New York: Committee for Economic Development, 1962.

7. Harvey S. Perloff, Edgar S. Dunn, Jr., Eric E. Lampard, and Richard F. Muth, Regions, Resources and Economic Growth. Baltimore: The John Hopkins Press,1960; George H. Borts and Jerome L. Stein, Economic Growth in a Free Market. New York and London: Columbia University Press, 1964; John Friedmann, Regional Economic Policy. A Case Study of Venezuela. Cambridge: The M.I.T. Press, 1966.

8. For a critique of equilibrium models in regional analysis, see John Friedmann, op. cit. , chapter I.

9. Albert O. Hirschman, The Strategy of Economic Development, New Haven: Yale University Press, 1958; Gunnar Myrdal, Rich Lands and Poor. The Road to World Prosperity. New York: Harper and Brothers, 1957.

10. Horst Siebert, Zur Theorie des regionalen Wirtschaftswachstums. Tübingen: J.C.B. Mohr, 1967.

11. A precise definition of "development" is given in paragraph 1.2. below.

12. General systems theory is relevant here. See, for example, James G. Miller, "Living Systems: Basic Concepts," Behavioral Science, Vol. 10, N° 3 (July 1965), pp. 193-237; "Living Systems: Structure and Process," Ibid., Vol. 10, N° 4 (October 1965), pp. 337-379; and "Living Systems: Cross-Level Hypotheses," Ibid.,pp. 380-411. On the concept of non-physical space, see François Perroux, "Economic Space: Theory and Applications," in John Friedmann and William Alonso, op. cit., pp. 21-36.

13. Everett E. Hagen, On the Theory of Social Change. Homewood, Ill.: The Dorsey Press, 1962; Ralph Dahrendorf, Class and Class Conflict in Industrial Society. Stanford: Stanford University Press, 1959.

14. This is not the place for a full critique of Dahrendorf's model. Nevertheless, some important qualifications must be mentioned because they are relevant to what follows. According to Dahrendorf, authority-dependency relations are maintained only by restraint and coercion (pp. 158ff). Without denying the fundamental importance of coercion in systems maintenance, it is necessary to point out that social values also play a significant role. This is implicit in the legitimacy which is accorded to authority and, more specifically, to the authority-dependency relation itself. Any conflict arising out of a given authority-dependency relation may therefore be either legitimate or illegitimate. It is illegitimate only when the legitimacy of the authority is itself being challenged. Not all social conflicts, however, turn on this issue.

A second objection to Dahrendorf is his insistence that for any given social system, there is only one authority when, in fact, authority is rarely, if ever, unitary and absolute (pp. 296ff). Any complex organization is structured as a system of polyarchy in which there are many leaders whose authority is limited with regard to both function and the control of the leaders them-

selves and by those who are dependent on them. On this point, see Robert A. Dahl and Charles E. Lindblom, Politics Economics and Welfare. New York: Harper and Brothers, 1953, Part IV.

15. I am indebted to Edward A. Ackerman for raising this issue.

16. It is no accident that historians generally shy away from broad generalizations: there are always too many exceptions to any rule that might be established. In place of theory, therefore, a few historians such as Spengler and Toynbee, have attempted to formulate philosophies of history which suggests that their respective points of view are not really susceptible to methods of scientific verification.

17. This is the basic thesis of Thomas S. Kuhn's excellent study, The Structure of Scientific Revolutions. Chicago: The University of Chicago Press, 1962. A closely related idea is Joseph A. Schumpeter's concept of "creative destruction" explained in Capitalism, Socialism and Democracy. New York and London: Harper and Brothers, 1947, chapter 6.

18. Simon Kuznets, Modern Economic Growth. New Haven and London: Yale University Press, 1966, chapter 1.

19. Ibid., p. 4.

20. Thomas S. Kuhn, op. cit, chapter 10.

21. Ibid., p. 9.

22. Charles C. Gillespie, The Edge of Objectivity. An Essay in the History of Scientific Ideas. Princeton, N.J.: Princeton University Press, 1960.

23. This view of the development process is elaborated in a brilliant essay by Manfred Halpern, "The Revolution of Modernization in National and International Society," in Carl J. Friedrich, ed., Revolution. Year book of the American Society for Political and Legal Philosophy, Vol. VIII. New York: Atherton Press, 1966. According to S.N. Eisenstadt, "the structural propensity to continuous change" is a crucial aspect of modernization. See "Breakdowns of Modernization," Economic Development and Cultural Change, Vol. XII, N° 4 (July 1964), p. 347.

24. The view of development as innovation is fundamental to Everett E. Hagen's analysis, On the Theory of Social

Change, op. cit. Less explicitly, innovation enters as a primary datum in Albert O. Hirschman's well-known study, The Strategy of Economic Development, op. cit.

25. For detailed discussion of the concept of creative personality and its possible role in the process of social change, see Everett E. Hagen, op. cit., chapters 5-7.

26. A basic postulate of the theory of "cognitive dissonance" is that perceptions; attitudes, and ultimately values tend to become consistent with experienced reality and thus to maintain (or re-establish) the psychological equilibrium of a person. See Leon Festinger, Theory of Cognitive Dissonance. New York: Harper and Row, 1957.

27. For an extended discussion of this idea, see especially Hirschman, op. cit., chapters 4 and 6, and Gunnar Myrdal, Rich Lands and Poor, op. cit., chapter 3.

28. Our "innovator," of course, is cast here in the image of the classical entrepreneur. See Joseph Schumpeter, The Theory of Economic Development. New York: Oxford University Press, 1961.

29. Kuhn, op. cit., chapters 6-9.

30. Arthur Koestler, The Act of Creation. New York. MacMillan, 1964, passim. Koestler refers to this basic mechanism as "bi-sociation."

31. The concept of a "communication field" is discussed in John Friedmann, "A Strategy of Deliberate Urbanization," Journal of the American Institute of Planners, Vol. XXXIV, N° 3 (May 1968), pp.

32. The relation between organizational structure and innovation is discussed in James G. March and Herbert A. Simon, Organizations. New York and London: John Wiley & Sons, Inc., chapter 7.

33. According to Young and Moreno, historical experience in the United States suggests the following conclusion" "Social rigidity and political rigidity, have been shown to be related to attributes of stagnant economic structure; they are inversely correlated with innovation, risk-taking technical proficiency, organizational complexity, and distributive economic development, over and above the expected value of these attributes based on the general level of industrialization of these areas." Ruth C. Young and José A. Moreno, "Economic Development and Social Rigidity:

A Comparative Study of the Forty-Eight States," Economic Development and Cultural Change, Vol. XIII, N° 4, Pt. I (July 1965), p. 449.

34. This hypothesis is derived from Warren Bennis, "Beyond Bureaucracy" Trans-action, July-August 1965. Reprint.

35. This thesis is brilliantly demonstrated in Edward C. Banfield's study of interest group politics in Chicago. Political Influence. New York: The Free Press, 1961.

36. This appears to be the main conclusion of Emmette Redford, 'Centralized and Decentralized Political Impacts on a Developing Economy: Interpretation of American Experience," CAG Occasional Papers, February 1967.

37. The concept of innovative personality is discussed by Everett Hagen, op. cit., Pt. II.

38. This point is stressed, for example, by Seymour Martin Lipset, "Values, Education, and Entrepreneurship," in Lipset and Solari, eds., Elites in Latin America. New York: Oxford University Press, 1967, pp. 3-60. It is a basic point also in Hagen, op. cit., chapter 12.

39. On the variety of urban structures, see Bert F. Hoselitz, Sociological Aspects of Economic Growth. The Free Press of Glencoe, Illinois, 1960, chapter 8, "Generative and

Parasitic Cities." An especially interesting study, relevant in this context, is A.L. Epstein, "Urbanization and Social Change in Africa," Current Anthropology. Vol. 8, N° 4 (October 1967), pp. 275-284.

40. Oswald Spengler, The Decline of the West. 2 Vols. New York: Knopf, 1928.

41. In this definition, I follow Dahrendorf (op. cit.) who, in turn, bases his concept on Max Weber. For Weber, power is the"probability that one actor within a social relationship will be in position to carry out his own will despite resistance, regardless of the basis on which this probability rests." (Dahrendorf, op. cit., p. 166). I have found it convenient, however, to alter the wording of this definition. See also Hans Gerth and C. Wright Mills, "Power and Authority: A Summary," in Lewis A. Coser and Bernard Rosenberg, Sociological Theory. A Book of Readings. New York: The Macmillan Co., 1957 and 1964, pp. 156-158.

42. Dahrendorf, op. cit., p. 166.

43. "..... all that is creativity, innovation and development ..... is due to no small extent, to the operation of conflicts ....." Dahrendorf, op. cit., p. 208.

44. "Authority relations exist whenever there are people whose actions are subject to legitimate and sanctioned prescriptions that originate outside them but within social structure." Dahrendorf, op. cit., p. 168. See also pp.171 ff.

45. Dahrendorf, op. cit., pp. 162-163. How this integration is achieved specifically through systems of communication is explored in Philip E. Jacob and James V. Toscano, The Integration of Political Communities. Philadelphia and New York: V.B. Lippincott, 1964, especially in the contributions of Karl W. Deutsch.

46. Ibid,, p. 184. See also Gino Germani, "Social Change and Intergroup Conflict," in I.L. Horowitz, The New Sociology. New York: Oxford University Press, 1964, Chapter 23.

47. S.N. Eisenstadt, "The Development of Socio-Political Centers at the Second Stage of Modernization -- A Comparative Analysis of Two Types," International Journal of Comparative Sociology. Vol. VII, N°s 1-2 (March 1966), pp. 119-137.

48. According to the inventor of the concept, "The process of absorbing new elements into the leadership or

policy-determining strata of an organization as a means of averting threats to its existence or stability is called coöptation." Philip Selznick, TVA and the Grass Roots. Berkeley: University of California Press, 1949, p. 259.

49. Kuznets, op. cit., chapters 1 and 9. Of the four variables identified as determining the probability of interaction (see 2.3.), the communication variable is here singled out as having probably greater importance than the remaining ones. The surface of the communication field will subsequently have to be modified to take account of differences in the demand for innovation (s.3.1.), social organization (2.3.3.), and frequency of innovative personality traits (2.3.4.) if it is to give a faithful expression of localized capacity for generating innovations. Though relative values may somewhat change the topography of the communicatinn field as a result of this operation, it is expected that its general morphology will remain the same (see 2.4).

50. The concept of core region and periphery were first introduced to systematic regional analysis in John Friedmann, Regional Development Policy, Cambridge, Mass.: The M.I.T. Press, 1966, especially chapter 2.

51. An excellent example of this process of reallocation of authority as a result of core region development is found in relation to metropolitan political structure in the United States. The literature on this subject is fairly large, but a good recent summary and discussion is contained in Bernard J. Frieden, Metropolitan America: Challenge to Federalism. Washington, D.C.: Advisory Commission on Intergovernmental Relations, 1966.

52. Horst Siebert, op. cit., pp. 57-76.

53. Ibid., pp. 70-74.

54. For a discussion of this effect, see Heiko Körner, op. cit.

55. Ibid.

56. Ibid.

57. Tibor Scitovsky, Papers on Welfare and Growth. Stanford: Stanford University Press, 1964, chapter 3 "Two Concepts of External Economies."

58. The results for political development of a rising want/get ratio are most recently discussed by Daniel Lerner, "Conflict and Consensus in Guayana," in Frank Bonilla and José A. Silva Michelena, Studying the

Venezuela Polity. Cambridge, Mass. and Caracas, Venezuela: Center for International Studies, Massachusetts Institute of Techonology and Centro de Estudios de Desarrollo, Universidad Central de Venezuela, May 1966, pp. 479-512.

59. Evidence is presented in Otis Dudley Duncan et. al., Metropolis and Region. Baltimore: Johns Hopkins Press, 1960, chapter 11.

60. Studies of regional dependency relations are rare, partly, I suppose, because "dependency" is a value-loaded term and, according to the traditional academic view, social science should be neutral with respect to values (Alvin W. Goulder,"Anti-Minotaur: The Myth of a Value-Free Sociology," in I.L. Horowitz, op. cit., chapter 13.) For contributions to the study of regional dependency, however, see Chandler Morse, "Potentials and Hazards of Direct International Investment in Raw Materials," in Marion Clawson, ed., Natural Resources and International Development. Baltimore: The Johns Hopkins Press, 1964, pp. 367-414; Espartaco, "La 'crisis Latinoamericana' y su marco externo," Desarrollo Económico (Buenos Aires), Vol. N° 6, N°s 22-23

(July-December 1966), pp. 319-354; and Oswaldo Sunkel, "Política Nacional del Desarrollo y Dependencia Externa," Estudios Internacionales (Santiago), Vol. I, N° 1 (April 1967), p. 43-75.

61. This hierarchy may be identified by studying the organization of decision-making in the political-administrative space of the system and by the spatial linkages of the different cores to their markets and supply areas. Much empirical work remains to be done in this field.

62. On the stability of urban systems, see, for example, J.R. Lasuén, "Urbanization Hypotheses and Spain's Cities System Evolution." The Hague: Institute of Social Studies, Workshop on Regional Development Planning, October 5-7, 1969, mimeographed.

63. For a fascinating discussion of this subject, suggesting a number of lines of inquiry, see Kuznets, op. cit., chapter 9. Also Torsten Hägerstrand, "The Propagation of Innovation Waves," Lund Studies in Geography, Series B. Human Geography, 1952. And, by the same author, "Aspects of the Spatial Structure of Social Communication and the Diffusion of Information," Regional Science

Association, Papers, Vol. XVI, 1966, (European Congress, 1965), pp. 27-42.

64. For evidence, see Norman E. Whitten, "Power Structure and Socio-Cultural Change in Latin American Communities," Social Forces, Vol. 43, N° 3 (march 1965), pp. 320-329, and John H. Kunkel, "Economic Autonomy and Social Change in Mexican Villages," Economic Development and Cultural Change, Vol. 10, N° 1 (1965).

65. Kuznets, op. cit., chapter 6, for evidence with respect to world patterns of international trade and their bearing on political relations.

66. This hypothesis is consistent with the empirical finding that "rising regional income disparities and increasing North-South dualism is typical of early development stages, while regional convergence and a disappearance of severe North-South problems is typical of the more mature stages of national growth and development." Jeffrey G. Williamson, "Regional Inequality and the Process of National Development," Economic Development and Cultural Change, Vol. XIII, N° 4, Part II (July 1965), p. 44.

67. On the close correlation and interaction between

communications and urbanization indices and the use of these indices for predicting political change, see Phillips Cutright, "National Political Development: Measurement and Analysis," American Sociological Review, Vol. 28, N° 2 (April 1963), pp. 253-264.

68. Amitai Etzioni, (Political Unification. New York: Holt, Rinehart, and Winston, Inc., 1965).

69. For Russia's growing participation in world trade, see Kuznets, op cit ~~ibid.~~, tables 6.3. and 6.4.

70. The aggressive, expansionist tendency of core regions has been noted by Kuznets., ibid., pp. 334 ff.

71. Irving Louis Horowitz, Three Worlds of Development. The Theory and Practice of International Stratification. New York: Oxford University Press, 1966.

72. Traditional authorities may, of course, have coopted earlier innovating groups, rendering them relatively harmless to themselves (see 3.5.1.2. and 3.6.2.).

73. Simon G. Hanson, "The Alliance for Progress: the Fourth Year," Inter-American Economic Affairs, Vol. 20, N° 2 (Autumn 1966), entire issue.

74. See O. Sunkel, op. cit.; Helio Jaguaribe, "Inversiones

extranjeras y desarrollo nacional," Desarrollo Económico (Buenos Aires, Vol. 6, N°s. 22-23 - July-September 1966), pp. 273-294.

75. Theorem 4.2.3.3. is also appropriate here. It may be illustrated by recent pronouncements of counter-elites in the United States exponents of the cultural revolution currently in progress--supporting the principle of national self-determination and specifically favoring the internal counter-elites of Third World nations and the national "liberation" movements which are led by them.

76. It is interesting to note in this connection that modern guerrilla tactics, first developed by Mao Tse Tung and given a "western" expression by Ernesto Guevara, stress the importance of "capturing" the countryside (read "periphery") and from these strategic bases encircle and eventually reduce the urban strongholds (read "core regions").

77. A similar pattern of alliance occurred in the recent Arab-Israeli conflict (see 6.2.), in which the Arab states obtained the support of the Soviet Union, while Israel sought alliances with the United States and other western core-region powers.

78. This point is further developed in Friedmann, "A Strategy for Deliberate Urbanization," op. cit.

79. For empirical evidence regarding this tendency, see John R. Borchert, "American Metropolitan Evolution". The Geographical Review., Vol.LVII, N° 3 (July 1967), pp. 301-332, and John Friedmann and John Miller, "The Urban Field," Journal of the American Institute of Planners, Vol. XXXI, N° 4 (Nov. 1965), pp. 312-320.

80. For evidence on this point, see Derek J. de Solla Price, Science Since Babylon, New Haven and London: Yale University Press, 1961, foreseen by Tailhard de Chardin, The Phenomenon of Man. New York: Harper and Row, 1959, and The Future of Man. New York: Harper and Row, 1959.

81. In 1960, 34.6 percent of Arauco's population in that year resided outside of their native province. (Armand Mattelard and Manuel A. Garreton, Integración Nacional y Marginalidad..Santiago: Editorial del Pacífico, S.A., 1965, Table III).

82. Detailed evidence for Chile is presented in John Friedmann and Thomas Lackington, "Hyperurbanizatinn and National Development in Chile: Some Hypotheses" Urban Affairs

Quarterly, Vol. II, N° 4 (June 1967), pp. 3-26.

83. For the concept of "nationalizing parties," see Joseph La Palombara and Myron Weiner, eds., Political Parties and Political Development. Princeton University Press, 1966, passim.

84. John Friedmann and Thomas Lackington, op. cit., Irving Louis Horowitz, "Electoral Politics, Urbanization, and Social Development in Latin America," Urban Affairs Quarterly, Vol. II, N° 3 (March 1967), pp. 3-35; and Aldo E. Solari, "Impacto Político de las Diferencias Internas de los Países en los Grados e Indices de Modernización y Desarrollo Económico en América Latina," América Latina (Rio de Janeiro), Vol. 8, N° 1 (January-March 1965), pp. 5-35.

85. In this context, the urban proletariat may be regarded as a kind of "internal" periphery, i.e., internal to the core region itself.

86. Examples of populism abound. See, for example, Torcuato Di Tella, "Populism and Reform in Latin America," in Claudio Veliz, ed., Obstacles to Change in Latin America. London, New York, Toronto: Oxford University Press, 1965, pp. 47-74. For the concept of "crisis of inclusion"

see John Friedmann and Thomas Lackington, op. cit.

87. For explanation of the concept of "reconcilation system" see David Apter, The Politics of Modernization. Chicago: The University of Chicago Press, 1965, passim.

88. The different character of "liberation" regimes in contrast to countries such as Thailand and Ethiopia that never experienced colonization, is pronounced and suggests further evidence for the thesis defended here that the struggle for greater autonomy on the periphery is led by innovating groups desiring to legitimize their power. In general, countries that did not pass through a phase of anti-colonialism have more conservative governments than those in which the struggle for liberation raised innovating groups to positions of authority.

89. The story of Brazil's Northeast is told by Albert O. Hirschman, Journeys Towards Progress. New York: The Twentieth Century Fund, 1963, chapter 1; see also Stefan Robock, Northeast Brazil: A Developing Economy. Washington: The Brookings Institution, 1964; Celso Furtado, Dialéctica del desarrollo. Diagnóstico de la Crisis del Brasil, México and Buenos Aires: Fondo de

Cultura Económica, 1965; and Jacques Lambert, "La sociedad del Brasil," in Joseph A. Kahl, ed., La Industrialización en América Latina. México and Buenos Aires: Fondo de Cultura Económica, 1965, pp. 414-435.

90. Felipe Herrera, "Los Polos de Crecimiento: El Caso de Bahia," Banco Interamericano de Desarrollo, September 23, 1967, mimeographed.

91. A regional Council of Governors advisory to SUDENE and with powers to recommend the use of investment funds available to the agency was of major importance in developing support within the region for an institutional innovation imported from Rio de Janeiro and Brasilia. Something similar occurred with the Tennessee Valley Authority in the United States, a case which has been carefully analyzed by Philip Selznick, op. cit.