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On the regional dimensions of Rostow's theory of growth

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**38th Congress of the European Regional Science Association
Vienna, 28 August - 1 September 1998**

**ON THE REGIONAL DIMENSIONS
OF ROSTOW'S THEORY OF GROWTH**

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ABSTRACT

Rostow's approach to economic development, summarized in *The Stages of Economic Growth*, involved an economy passing through a sequence of well-defined stages. This stages theory of growth was primarily concerned with the national economy. There were, however, more than a few references to regions, although these were not elaborated upon or explored in any detail. The concern here is with examining the possibility that the Rostow analysis might have a relevance at the sub-national or regional scale. This possibility is explored in terms of three distinct perspectives: the regional (where the focus is on the individual region, there being no reference to the nation); the multiregional (involving the outcomes within the various regions that comprise the nation); and the interregional (which deals with the interregional implications of a national economy passing through the sequence of stages).

1. INTRODUCTION

There can be little doubt that the publication of *The Stages of Economic Growth* (Rostow, 1960) had a major impact in the field of development economics and modern economic history. The work, which drew extensively on several earlier studies (notably Rostow, 1953 and 1956), is best summarized by the first few sentences of the introductory chapter: "This book presents an economic historian's way of generalizing the sweep of modern history. The form of this generalization is a set of stages of growth [traditional society, preconditions for take-off, take-off, drive to maturity, and age of high mass consumption]. I have gradually come to the view that it is possible and, for certain limited purposes, it is useful to break down the story of each national economy - *and sometimes the story of regions* - according to this set of stages" (Rostow, 1960, p.1, emphasis added). The approach gained a generally favorable reception in developing countries, though it attracted more than a little criticism elsewhere, perhaps the most fundamental being that of Baran and Hobsbawm (1961). In a subsequent volume edited by Rostow (1963) leading scholars of the day took turns at demolishing the Rostow edifice, with varying degrees of success, the criticisms relating to such issues as the feasibility of dividing economic history into stages, the notion of take-off, the timing of stages, the identification of leading sectors, etc. Rostow (1963, p.xiii-xiv) mused that such adverse reaction may have resulted from the feeling that "the introduction of a new concept (especially a new term) is an act of aggression against respected colleagues and friends." The Strassmann (1964) review of this volume probably represents the most balanced, as well as the most thorough, of those that appeared.

But academic interest is fickle, and the passage of nearly four decades has seen a fading of enthusiasm for the Rostow theory, as well as criticism of it. Nevertheless, very recently a leading exponent of

development economics still felt able to regard Rostow's approach as "one of the leading theories of economic development" (Todaro, 1997, Chap.3). An intriguing feature of Rostow's writings on development is the number of tantalizing references to "regions," including the one cited above. Unfortunately, regions are invariably referred to in passing, with no attempt at elaborating the particular example. This hardly constitutes a criticism of Rostow's work, which was concerned with national economic development. It does, however, prompt the question as to whether the Rostow framework has a relevance at the regional scale. It is a matter of more than passing interest that no attempt appears to have been made to investigate the validity of the framework at a sub-national level. This may have been because regional analysts regarded the Rostow model as too general for their purposes. It seems more likely, however, that they took Rostow at his word, and viewed the framework as essentially national in scope. For whatever reason, a potentially interesting insight into the process of regional development has not been given the consideration that it probably deserves. Such a lacuna forms the basis of this paper, which attempts to explore the Rostow thesis in regional terms, and to relate this to various existing frameworks of regional economic analysis.

2. SUMMARY OF STAGES AND OUTLINE OF PERSPECTIVES

The concern of this section is with specifying the perspectives to be employed in the present examination of Rostow's work. Of necessity, however, this will be preceded by a brief outline of the sequence of stages proposed by Rostow, these forming the building blocks of his analysis.

Sequence of Stages

To quote Rostow (1960, pp.12-13) again: "These stages are not merely descriptive. They are merely a way of generalizing certain factual observations about the sequence of development in modern societies. They have an inner logic and continuity. They have an

analytic bone-structure, rooted in a dynamic theory of production.” The following paragraphs attempt to identify the more salient features of each stage.

Traditional Society: At this stage, science and technology are sufficiently ill-developed that innovation, though it may occur, is not a regular feature of the economy. This imposes an obvious limit on productivity, so that per capita incomes continue to be at a low level. A high proportion of the resources available is expended on food supply, and what is not devoted to this, is often used for non-productive purposes, e.g., wars, religious observance, excessive consumption by privileged élites, etc. Accumulation of capital is at a minimal rate, and the forms of economic organization and production undergo little modification from one generation to the next. Effective political rule exists at the center, but this may be tempered to a considerable extent by powerful landowning interests which hold sway locally. Moreover, this stage represents one in which little encouragement is given to those individuals or groups that might initiate economic change.

Preconditions for Take-Off: It is during this stage that economic progress is deemed, for whatever reason, to be desirable and possible, at least by certain groups within society. It represents an era in which the comfortable certainties of the past are challenged. Among the requirements that have to be satisfied during this stage are the development of social-overhead capital in the broadest sense of the term, the rationalization and modernization of agriculture, along with the import of capital goods, this being facilitated by agricultural or raw-material exports. In political terms this stage sees the emergence of an efficient nation state with the full paraphernalia of government and administration.

Take-Off to Sustained Growth: This stage, viewed by Rostow as the most critical and the most difficult to attain, is the one during which economic growth becomes the normal condition. For this stage to be

achieved, there must be increase in the rate of investment to 10.5-12.5% of the net national product (NNP).¹ There must also be the emergence of one (possibly more than one) leading manufacturing sector. Such a "primary growth" sector generally represents an industry employing the latest technologies, which has the capacity for stimulating "supplementary growth" sectors (via forward and backward linkages) and "derived growth" sectors which expand in relation to overall growth of the economy (Rostow, 1962, pp.299-300). An important feature of the leading sector is its ability to provide substantial external-economy effects. One further requirement that needs to be present at this stage is an institutional framework which is able to support the leading sector and enable the benefits of its expansion to be diffused throughout the economy.

Drive to Maturity: This stage typically begins some 20 years after the start of the take-off stage, the latter stage being of remarkably short duration. During this fourth stage the growth of the leading sector(s) tends to slacken, with other sectors assuming an increasing importance. The distinguishing feature of this stage, however, is that modern techniques of production are no longer confined to the leading sector(s) of the take-off stage, but exist in most sectors of the economy, sometimes being of greater technical sophistication than the earlier leading sectors. Within society in general, growth, though not necessarily taken for granted, is accepted along with the disruptions and necessary economic and social adjustments that it brings in its wake.

Age of High Mass Consumption: A hallmark of the drive to maturity stage is the accumulation of a significant economic surplus. In the disposal of this, society has several choices open to it: the extension of social welfare and social overhead capital; the striving for world power and prestige (usually through colonial acquisitions and the build-up of military power); overseas investment involving the export of capital equipment and technical expertise; and finally the gearing of the

economy around particular patterns of consumption.² The first three possibilities generally result in a prolongation of the drive to maturity stage, while the selection of the fourth involves the economy entering the stage of high mass consumption. Usually emphasized at this stage is the growing importance of housing and consumer durables, but educational, recreational and health services should also be included. It will be noted that whereas the four previous stages each focuses on production (and overcoming the obstacles to this), the final stage is clearly concerned with consumption, although certain of the implications for production are considered.

Such a crude sketch of the five stages hardly does justice to the richness of Rostow's analysis, but may help to convey the general thrust of the argument. Underlying the various stages (particularly the last three) is a "dynamic theory of production," involving a sequence of leading sectors. This is based on the hypothesis that eventual "deceleration is the normal optimum path of a sector" (Rostow, 1960, p.13). A number of factors on both the demand side and supply side cause any single leading sector to have a limited life, so that the overall rate of growth can only be sustained if the sector in question is replaced by other leading sectors. In certain respects Rostow's approach contains features which have a resonance in what has come to be known as "new growth theory," e.g., the importance of increasing returns, the role of technological change, and the endogenous nature of development. The appropriateness of segmenting the gentle unfurling of economic history into stages has been questioned, notably by Eucken (1951), whose objections were admirably summarized by Hoselitz (1960). In a related vein, Kuznets (1963, pp.24-25) has listed five minimum requirements that need to be satisfied before a stages theory can be taken seriously: i) the establishment of a set of features common to the economies experiencing a given stage of modern growth; ii) these features, when considered collectively, must be unique to a particular stage; iii) the

relationship to the previous stage must be specified (the minimum set of developments that must occur before the close of the preceding stage); iv) the relationship to the following stage (the necessary developments that must occur to bring the stage to a close); and v) a statement of the type of economies for which the particular features are being claimed. With some justification it can be argued that Rostow's stages comes close to meeting these requirements, although such a judgement is perhaps better left to those who have pondered the writings of Rostow and Kuznets in this connection.

Perspectives to be Employed

Consideration of the Rostow framework at the regional scale is approached in terms of three distinct, though related, perspectives. The first, the regional, focuses on the individual region, with no direct reference to the national economy. The second perspective is multi-regional in scope, and the argument of the first perspective is extended to consider conditions in the various regions that comprise a nation. Attention is drawn to the progress of the various individual regions through the sequence of stages and how this might be related to the progress of the nation as a whole. A third perspective puts the emphasis on exploring the interregional implications of the national sequence proposed by Rostow. With all three perspectives the question of what type of region is under consideration needs to be specified. Of the various definitions of an economic region that have been proposed, the functional or nodal region probably represents the most suitable. Such a sub-national entity has as its node a major urban center or metropolitan area, around which the economic life of the region revolves. There is a strong complementarity of supply and demand relationships between the metropolitan area (usually a transportation focus) and the rest of the region, the latter part containing a rural population as well as an urban population, usually arranged in a hierarchy of centers. The nature and functioning of the nodal region is

very much consistent with the requirement, suggested by Hoover and Fisher (1949, p.178) and echoed by North (1955, p.257), that a region should represent “an area within which there exists an especially high degree of interdependence among individual incomes.” It is this view of the region that will be employed throughout, along with the assumption that the region exists within a system of regions.

3. THE REGIONAL PERSPECTIVE

The first perspective on the Rostow framework, which concerns the individual region, considers the extent to which Rostow’s stages are able to cast light on the process of regional growth. There can, of course, be no *a priori* expectation that what might represent a reasonable account of development within a nation should necessarily be valid at the level of the region. Indeed, physical and biological systems abound with examples of explanatory factors being of crucial importance at one scale yet of minor significance at a different scale. For certain regions, however, particularly the regions of Europe and the older parts of the US, which emerged under conditions of relative economic closure, it is possible to identify a series of stages that correspond fairly closely to the Rostow’s national stages. This appears to be the case for Westphalia in Germany, Central Scotland and Northwest England in the UK, as well as New England and the Mid-Atlantic states of the US (North, 1963), especially during the stages up to and including the drive to maturity stage. For other regions, especially regions within the so-called “new countries” (countries of European settlement) the Rostow framework is only applied with difficulty. In such cases the problem appears to lie in the nature of the criteria used to define the various stages. Let us first consider the initial stage, where the definition of traditional society presents certain difficulties. The traditional society in this context has to be defined either in relation to the organization of an indigenous population or to the conditions existing during the very early years of colonial settlement, prior to the commencement of economic

development. In either case the economic and social conditions may well differ substantially from those obtaining in Rostow's characterization of traditional society.

Taken alone, this discrepancy would not appear to be especially important. However, a similar difficulty may arise with respect to the preconditions for take-off. For many individual regions, which were preparing for subsequent development and which could therefore be said to be at the preconditions stage, the Rostow criteria either do not apply or are not relevant. This was certainly the case of the modernization of agriculture. In the opening up of the Midwest and later the Great Plains of the US, for example, modern agricultural techniques were applied from an early period, while for other regions, whose subsequent growth was based on forestry or mining, the modernization of agriculture was relatively unimportant. Although the development of social overhead capital and the import of capital equipment may have been important, this was frequently organized and financed by extraregional agencies, often after active lobbying by the regions concerned (North, 1955, p.246). Moreover, the argument that an established system of government and administration at the regional scale represented an equivalent to the Rostow requirement, would be a weak one. Developments in this connection were usually of a nature which transcended the individual region. For many regions the preconditions stage was essentially a period during which the region was effectively settled, often in anticipation of interregional or international transportation links. The stage usually came to an abrupt end, once such investment was in place.

The problem of the Rostow criteria for stages becomes more serious when we consider the take-off stage of the regional economy. The emergence of a level of investment of around 10% of net regional product (NRP) can be accepted, as can the emergence of a leading sector. However, Rostow's requirement that this must involve a

manufacturing activity which also encourages other indirect effects is simply not necessary at the regional scale.³ Many regions achieve take-off (in the Rostow sense of sustained growth) without the leading sector comprising manufacturing. In this connection, North (1955) has argued that the key determinant of a region's development is the successful establishment of an export base, regardless of whether this involves manufacturing. This difficulty is largely overcome if Rostow's leading sector is interpreted at the regional scale as the dominant element of the region's export base. A problem remains, however. While the leading sector would (as required) have an indirect impact on the regional economy, this would largely involve the development of residentiary or regionally-oriented activities (concerned with consumption and with supporting the leading sector) rather than Rostow's "supplementary growth" sectors based on interindustry linkages. Such linkages to the leading sector of the region may have emerged at this time, but these were often of an interregional character. The possibility (even likelihood) of this external connection of the leading sector during the regional take-off stage represents a significant departure from Rostow's national take-off stage, where such linkages are largely internal.

Turning to the drive to maturity stage, we find that conditions within the regional economy correspond more closely to the Rostow definition. Certainly, the application of modern techniques to the rest of the economy tended to be common. This often involved the build-up of linkages to the original export base, initially as import-substitution activities but subsequently as part of a broadening of the regional export base (Parr, 1999). In one major respect, however, the experience of regions may depart from the Rostow framework. This concerns the emphasis placed on the capital-intensive nature of production and the utilization of mass-production techniques. These need not be important features of individual regions at the take-off stage, particularly where the export base is centered on agriculture and resource exploitation or

even certain types of manufacturing.⁴ In the final stage, the age of high mass consumption, the regional economy tends to exhibit most of the features identified by Rostow at the national level, but more with respect to consumption patterns than in terms of the sectoral structure of production. Thus there is no necessity for consumer goods to be produced within the region, although this tends to be the case for certain consumer services, e.g., education, health care, housing, etc. In keeping with the North (1955) argument, high levels of consumption within a region are made possible by its ability to sustain a successful export base in other lines of activity.⁵ The fact that consumption within the region may rely heavily on imports, represents a further departure from the Rostow framework, in which there is no dependence on externally-produced consumer goods and services at this stage.

While it is possible to find individual regions whose passage through the stages parallels very closely that of the nation (in terms of qualitative similarity of the stages, though not necessarily their timing), this is certainly not the case for all regions. At one or more of the stages the experience of many regions deviates significantly from that of the nation. Such a difference seriously weakens the generality of the Rostow argument. More importantly perhaps, it draws attention to the fact that the regional economy is not simply a scaled-down version of the national economy, and therefore needs to be treated in a manner which reflects this. Of particular importance here is the openness of the regional economy, relative to the national economy. The following comment by Stabler (1968, p.13, footnote 7), in a somewhat different connection, is apposite: "even in the heyday of free trade and laissez-faire, the nations of the world resembled closed economies" so that "to base the theory of regional development in an open economy on the pattern experienced in a system of partially closed economies may not be entirely valid."

It follows from this that if the Rostow framework is to be applied at the regional level, there is a need for the stages to be defined in more general terms (along the lines discussed), so as to accommodate the distinctive nature of the regional economy and the diversity of forms which regional development may take. Related to the relative openness of the region is the question as to whether a particular stage may be skipped. In the Rostow analysis this possibility was not discussed. Indeed, the nature of Rostow's definitions of national stages virtually precludes this.⁶ In the case of a region, however, the possibility is somewhat greater. It is not difficult to isolate cases where either the preconditions stage or the drive to maturity stage is skipped or of very short duration. The skipping of the take-off stage is difficult to imagine, however, even though for certain regions the character of this stage may not be as striking as the take-off stage nationally.

4. THE MULTI-REGIONAL PERSPECTIVE

The argument of the previous section may be extended to consider the various regions that comprise a nation. The concern is with all regions passing through the sequence of stages which are now defined more broadly (we assume the availability of an acceptable set of criteria for each regional stage). It is usually the case that the regions of a nation reach a given stage at different times, the difference being sometimes considerable. For example, Rostow (1960, p.38 and p.67) noted that for the US the take-off stage commenced as early as the 1820s in New England but as late as the 1930s in the South. Hoffmann (1963, p.96) drew attention to the differences in timing of the preconditions for take-off and the take-off stages among the regions of Germany in the nineteenth-century.⁷ While particular regions may be in the forefront of change, in the sense that these always reach a given stage relatively early, other regions will consistently be late in attaining a given stage. It is possible, of course, for a region to have a mixed record, being ahead over certain extended periods and behind over others.

Given the fact that regions pass through the sequence of stages at varying rates, it follows that at any point in time, the various regions will be at different stages. Furthermore, the extent of variability among regions in the stage attained is not likely to be constant over time. Such a pattern is indicated in Table 1 for five arbitrary points in time. The table is presented as an illustrative example for a 10-region nation, with no consideration given yet to the relative importance of the various regions. Reading across a given row from the left, we have a particular time t and then a series of values, each referring to the number of regions that have attained a particular stage (defined along the lines of the previous section). It can be seen that at time t_1 and also time t_5 the variability is relatively low, whereas at the other times the variability is more pronounced, especially at time t_3 . Some of the reasons for the changing temporal pattern are discussed in the next section. We may note in passing that at any point in time the variability in stages among regions within a nation is likely to be less than the variability among nations, due largely to the fact that intranational frictions to economic interaction and the transmission of growth are less formidable than international ones.

Table 1. Variability in Stages attained by Regions at Different Years

Time	number of regions at given stage (N = 10)				
	TS	PC	TO	DM	MC
t_1	8	2	0	0	0
t_2	2	6	2	0	0
t_3	2	4	3	1	0
t_4	0	1	3	5	1
t_5	0	0	1	2	7

TS = traditional society; PC = preconditions for take-off; TO = take-off; DM = drive to maturity; MC = age of high mass consumption.

Table 1 simply provides an indication of the qualitative variability in the stages attained by individual regions at particular times, this

being an important facet of the second perspective. The question now arises as to how a situation involving the various regions being at different stages at a given point in time might be related to the overall national stage, which has been defined with reference to the Rostow criteria. Consideration of this question is necessary as a check on the accuracy with which the various regions have been identified as being at particular stages. One preliminary approach to such a question lies in the estimation of some "multi-regional average stage" which is then related to an independently-determined "national stage." The procedure involves assigning to each region an integer value corresponding to the stage attained (the traditional society stage having a value of 1, the preconditions for take-off stage a value of 2, and so on), with weights applied to the various regional values to take account of regional size differences. The multi-regional average value is then derived.⁸ As to the weighting system employed, the use of regional shares of national population or employment would clearly be unsuitable. Regional shares of NNP or of net investment nationally would represent better systems of weighting, although these may not be wholly satisfactory. Other factors intervene, including the location of the region with respect to other regions, a factor which may influence a region's relative importance within the nation. The incorporation of regional location into the overall weighting scheme can be undertaken in a variety of ways, to reflect such factors as centrality within the nation, population potential, minimum distance to an international port, etc. Once the value for the multi-regional average stage has been estimated, it is then related to the value for the national stage (each national stage carries the same numerical value as the corresponding regional stage indicated above).⁹ Assuming that the definitions of the regional stages are valid and that the national stage has been correctly identified, any significant difference between the multi-regional average value and the national value would reflect one (or a combination) of two

factors: an erroneous assessment of the stage attained in the case of one or more regions; an inappropriate system of weightings.¹⁰

Without this exercise of relating the multi-regional average stage to the national stage, the second perspective is of little value, being merely an unrelated series of conclusions about conditions within the various regions of a nation. It is worth mentioning that for many nations the strict application of the Rostow criteria in the definition of regional stages would almost certainly cause the multi-regional average value to differ from the national value, generally in a downward direction. The desirability of defining the regional stages in a more general manner (as discussed in the previous section) again becomes apparent. This multi-regional perspective on Rostow's thesis suffers from certain limitations. Since it takes an essentially bottom-up view of the economic system, it inevitably carries the implication that the national economy is little more than an aggregation of the various regional economies, which is obviously not the case. In economic terms, as in many other respects, the nation is more than the sum of its regional parts. Relatedly, the second perspective tends to convey the impression that the regions represent a series of autonomous economic entities, also an inaccurate characterization of actual conditions. Most importantly, this perspective fails to emphasize the existence of powerful economic relationships among regions. For these reasons it is necessary to employ a further perspective in examining the Rostow framework at the regional scale. As will be seen, this involves an essentially top-down view of the national economy

5. THE INTERREGIONAL PERSPECTIVE

The premise underlying the third perspective is that if the Rostow analysis can be accepted as having a validity at the national level, in whatever approximate sense, then it must be capable of being expressed in interregional terms. We therefore revert to Rostow's original stages formulation at the national level, and attempt to sketch out for each

stage an interregional scenario or set of regional outcomes which does not do violence to the realities of economic history nor the tenets of regional-development theory. As with the previous two perspectives, each regional stage is defined less restrictively than Rostow's corresponding national stage. Of particular concern are the economic interrelations among regions, and how these change during the passage through the national stages. Brief consideration is also given to the internal or spatial structure of regional economies.

The Early Stages

The distinguishing feature of the traditional society stage is the high degree of economic closure of each region and the resulting low level of interregional interaction. Within the nation the bulk of trade is of a local or intraregional character. Since the national economy (if such a term can be meaningfully employed at this stage) is static or growing at a very slow rate, the level of interregional income inequality remains virtually unchanged at a relatively low level. At the regional level, there is little urbanization and regional spatial structure is characterized by a relatively low level of concentration.¹¹

Eventually, the nation moves into the preconditions for take-off stage. Some regions reach this stage before the nation as a whole, while other regions remain at the traditional society stage. Among the more important developments nationally are the laying down of social overhead capital, improvements in agriculture (which have the effect of releasing labor for other types of economic activity), the emergence of an entrepreneurial class, the formation of financial institutions for mobilizing local and regional savings, and the gathering pace of non-agricultural activity. These developments do not take place evenly among the regions, and as mentioned previously not all regions attain this preconditions for take-off stage. The determining factors here tend to be access to raw materials, the availability of energy sources, location with respect to regional and extraregional markets, as well as the

existence of mercantile connections with other regions and nations. Interregional trade, based on emerging regional specializations, becomes more pronounced, though still at a relatively low level, and there is a general increase in the openness of each region.

Since this preliminary phase of economic development tends to be of an uneven nature, a core-periphery contrast begins to manifest itself, an occurrence which may be encouraged by the fact that the general improvements in transportation within the nation as a whole tend to have a differential impact on regions and urban centers. More generally, the level of interregional income inequality tends to increase, in keeping with the temporal pattern discussed by Williamson (1965). In addition to the growing differences among regions, development tends to occur unevenly within those regions that have reached the preconditions stage. Many of the trends outlined above are confined to urban centers, so that this stage witnesses an increased level of urbanization. But since urban growth takes place selectively, there is a tendency for the extent of interurban concentration (i.e., city-size inequality) to increase, this being part of the broader trend toward concentration of the regional spatial structure (Parr, 1987).

The Take-Off Stage

The take-off stage nationally typically involves a relatively small number of regions each acquiring a leading sector of economic activity, which may well vary from region to region. The United Kingdom was unusual in this regard, since more than “a relatively small number of regions” was involved, some of which had already achieved take-off in the previous national stage.¹² The leading sector, which forms the basis for each regional export specialization, bears more than a passing resemblance to the Perroux (1954) notion of an *industrie mottrice* or propulsive industry, by virtue of its association with decisive entrepreneurial activity, its high level of productivity, its capacity to innovate, its position of economic dominance, and its ability to stimulate

forward and backward linkages (although as argued in Section 3, these may be located in other regions). Moreover, such a propulsive industry forms the basis of a related Perroux concept: the *pôle de croissance* or growth pole. Although this was initially portrayed as a dynamic entity in abstract economic space, the influence of internal economies of scale and other agglomeration economies provides the concept of a growth pole with an obvious territorial dimension, something that Perroux (1954, p.317-318) clearly recognized (Parr, 1973). It is factors of this type, together with the externality implications contained therein, which underlie the phenomenon of increasing returns and the tendency to interregional dualism analyzed by Krugman (1991a, 1991b, 1991c).

The take-off stage and the interregional repercussions of this can also be viewed in terms of the familiar cumulative-causation mechanism proposed by Myrdal (1957). Boiled down to its essentials, the process occurs in the following manner. Certain regions gain a start in the development process as a result of particular initial advantages such as resource endowment, entrepreneurial capacity, a location in the vicinity of political and administrative power, access to national and international markets, etc. This development attracts public expenditures on infrastructure which increases the productivity of private investment. The process is further fueled by inflows of capital and skilled labor from lagging regions. The effect of such factor flows is to increase still further levels of output and productivity in the leading regions, but at the same time to deprive the lagging regions of the vital ingredients for development. In this way development in the leading regions creates so-called “backwash effects” in the lagging regions.¹³

Following the Myrdal line of argument, it can be expected that during the take-off stage nationally the core-periphery contrast will be intensified, and interregional welfare differentials will increase. Nevertheless, development in the leading regions may help the lagging regions via what Myrdal called “spread effects.” These include

increased external demands by the leading regions, the remittance of earnings from these regions, and investment by such regions in the lagging regions (Gaile, 1980). While developments of this kind tend to be more than offset by the backwash effects, the presence of such spread effects may help to draw the lagging regions into the preconditions for take-off stage. Within the regions which have reached take-off the pattern of differential urban growth (in particular, the emergence of growth poles) results in a higher level of interurban concentration and thus a more concentrated spatial structure of the regional economy.

The Later Stages

During the next national stage (the drive to maturity) most regions experience a general broadening of their respective economies. As described in the first perspective, this might be due to the growth of import-substitution activities as regional demand rises and also (but generally later) a diversification of the export base, either process possibly involving forward and/or backward linkages from the pre-existing export activity (Parr, 1999). Regions which were early into the take-off stage are frequently the ones which are early into the drive to maturity stage, in both cases reaching the stage before the nation as a whole, a further example of the process of cumulative causation. There is no inevitability to this, however, and one or more regions which were late into the take-off stage may overtake established regions as a result of their ability to establish specializations in new leading sectors.

The lagging regions generally achieve take-off during this national drive to maturity stage, an occurrence encouraged by the increased food and raw-material requirements of the leading regions, improvements in the terms of trade of the lagging regions, as well as capital inflows from the leading regions (Hirschman, 1958). During this stage interregional interaction, in the form of trade and factor movements, reaches a very high and hitherto unknown level of intensity. Modern methods of production tend to be applied to most activities within every region,

and the remaining vestiges of economic dualism largely disappear. The process of national economic integration, both interregionally and intersectorally, can be said to be complete. It is now that the backwash effects tend to be neutralized by spread effects, so that the core-periphery contrast and the level of interregional income inequality, though probably at their highest levels historically, are increasing very slowly, if at all. Within regions that have reached the drive to maturity stage the trend toward increasing concentration in regional spatial structure continues. Decentralization or suburbanization within the major metropolitan areas tends to occur, although this is very much dependent upon improvements in the technology of urban transportation.

The age of high mass consumption nationally involves the large majority of the regions having attained a high level of NRP per capita, with a significant share of household expenditures directed to consumer durables and (later) education, health care, leisure pursuits, etc. It is possible for one or two regions to have reached this stage during the previous national stage, with one or two others still at the drive to maturity stage or even an earlier stage. This tends to be less likely, however, and for reasons that are not entirely clear the national economy only reaches this stage once most of the regions have come to the end of the drive to maturity stage.¹⁴ Such a tendency represents a further distinguishing feature of the age of mass consumption (recall that in the case of the take-off stage, for example, individual regions may attain this stage long before or long after the national economy has). Although consumption levels within all regions tend to be at high levels, relative to the situation in the previous national stage, only certain regions specialize in the production of consumer goods, the remaining regions specializing in other lines of economic activity and importing their consumer-goods requirements. On the other hand, the location of consumer services (which are also growing steadily during

this stage) have a pronounced local or regional orientation. For this and other reasons the relative importance of the endogenous sectors of most regional economies increases, while the relative importance of their export bases tends to decline (Pfister, 1968, p.151). The overall effect of these trends is for regions to become increasingly similar in terms of their economic profiles.

During this stage of high mass consumption the extent of interregional economic interaction continues to intensify (certainly in absolute terms), and there is a further integration of the national economy. There may, however, be a realignment in the relative standing of regions. Well-established regions may begin to experience such difficulties as high levels of factor costs, the negative externalities associated with congestion and pollution, and high levels of local taxation. Moreover, certain regions, which were in the vanguard of the take-off stage nationally, may now be suffering severe problems of structural adjustment, and emerging as depressed areas. At the same time and not unrelated to the new patterns of consumption is the tendency for other regions, which were late into the take-off stage and which were at one time adversely affected by an isolated location or unfavorable climate, to capitalize on their current natural-amenity advantage and thus become increasingly attractive to population and economic activity. Facilitating such interregional shifts (popularly termed "the move from rust belt to sun belt") are the continuing improvements in transportation and telecommunications. Such improvements, which are consonant with (and very much part of) the characteristics of Rostow's mass consumption stage nationally, tend to blur the locational distinctiveness of regions.

By now backwash effects have come to be outweighed by spread effects, with the result that a receding core-periphery contrast and interregional convergence (i.e., decreasing income inequality among regions) become the customary trends. These trends may be reinforced

by the initiation of regional policy, particularly with respect to the problem regions referred to above.¹⁵ Regional policy is usually pursued through discriminating expenditures on the part of a national government or by means of more direct measures involving infrastructure investment and/or the availability of financial inducements. More important than regional policy in accelerating the process of interregional convergence is the growth of public expenditures nationally, including fiscal transfers, many of which contain an automatic-stabilizer element. Such expenditures invariably have a pronounced redistributive effect, to the advantage of the less-favored regions (Commission of the European Communities, 1977; Wilson, 1979); see Note 5. Within individual regions there is an increasing tendency for the spatial structure to be less concentrated, a trend made possible by intraregional improvements in communications and, related to this, the changing nature of agglomeration economies (Parr, 1993). Subsumed within such a trend toward regional deconcentration is the continued decentralization of the major metropolitan areas, a process in which suburban housing and automobile transportation are prominent (Rostow, 1960, p.77).

Three important themes underlie this third perspective. The first is that at any given national stage certain regions are still at an earlier (usually the previous) stage, while others have already attained the next stage. Such a situation could be portrayed by means of a table along the lines of Table 1, with the first column now referring to national stages rather than arbitrary points in time. A second theme is that the relative performance of regions may change, not only within stages but, more importantly, among stages. For example, a region may be early into the preconditions stage but late into the drive to maturity stage. This would only be apparent in a modified Table 1, if the individual regions were identified. A third theme is the fact that at a given stage nationally certain regions act as leading regions, in the sense that developments

there induce development in other regions and assist their passage to the next stage. Throughout the long history of national economic development, however, it is unlikely for a given region to be cast in the role of a leading region at all times, as the contrasting experiences of New England and California (or of Central Scotland and Southeast England) bear witness.

6. FURTHER COMMENTS

The scrutiny of an hypothesis or a theoretical framework from a standpoint not critical or integral to the original formulation, may not only shed light on its internal consistency, but may also facilitate its extension or elaboration. In the case of Rostow's stages theory of economic growth, approaches of this type have been pursued by Leibenstein (1963) with respect to population and by Berrill (1963) from the standpoint of foreign capital. The concern here, however, has been with the regional implications of the Rostow framework. Such an exploration is not fundamentally different from an examination of national economic growth in sectoral terms, an approach which has long been commonplace. It is somewhat surprising, therefore, that so little effort has gone into examining the Rostow approach in regional terms, particularly since Rostow (by peppering his various works on this topic with references to the region) suggested or strongly implied such a possibility.

Rostow's concerns were avowedly national in emphasis, and in the foregoing comments there has generally been an implicit acceptance of his argument, the criticisms of his work having already been noted. The examination of Rostow's thesis has involved three spatial perspectives. In the first perspective, the concern is with whether the growth of an individual region can be viewed in terms of a passage through Rostow's suggested sequence of stages. It was argued that this might be the case for some regions, but that the framework would have to be modified or rendered more general in order to reflect the experience of other

regions, particularly with respect to the take-off stage. The more open and less self-sufficient nature of the regional economy, relative to the national, sometimes causes the Rostow stages to appear inappropriate, even clumsy, at the regional scale. And for certain regions the passage through the sequence of stages is less dramatic, less well defined, than that described by Rostow, suggesting in such cases that alternative frameworks for the analysis of long-run regional development might be preferable. The second perspective, the multiregional, is somewhat more satisfactory. It draws attention to the fact that the developmental experience is not the same for all regions, and focuses attention on the tendency for different regions to attain particular stages at different times. This essentially descriptive perspective raises the difficult issue of multi-regional aggregation, and does not deal with the manner in which the various regions are related to one another.

It is only with the third perspective, the interregional, that we gain some feel for the national economy as a *space economy*. This perspective, which provides us with a spatial articulation of the process of national economic development, considers the fact that regions co-exist in a competitive as well as a complementary manner. It also pays attention to the intricate and changing patterns of interregional interaction with respect to trade, factor movements, transfer payments, and the transmission of growth. Viewed from this third perspective, Rostow's stages theory of economic growth does not appear to be at odds with observed patterns of regional and interregional development nor with the various conceptual frameworks which attempt to generalize these. The perspective is not without problems, however. The attempt at examining each stage cross-sectionally is rendered difficult by the fact that a given stage for the nation invariably involves a pattern of the various regions being at different stages and moving through the sequence at different rates. But it is this very complexity that goes to the heart of national economic development over the long run and thus

makes the process worthy of interest. Indeed, it is here that the Rostow framework has a considerable potential for extension and enrichment. What is lacking in this third perspective (and also in the previous two) is the successful translation of Rostow's skilful account of political, social and institutional changes to the regional scale. So many of the influences in this connection are nationwide in form and operation, and it is extremely difficult to consider these other than in national terms.

An important by-product of this attempt at applying the Rostow analysis of development in a sub-national setting is the confirmation (if one were needed) of the differences that exist between the regional economy and the national economy. Most fundamental in this regard is the relatively high level of endogeneity or self-containment within the national economy. This has important implications for the manner in which the two types of economic unit are viewed. A regional economy is not the national economy writ small, any more than the national economy is a regional economy writ large. It is apparent that the more important determinants of regional economic growth simply do not apply (or are of considerably less significance) at the national level, while many of the forces influencing national development have no clear counterparts at the regional level. Considerations of this type, perhaps more than any other, make the task of exploring the regional implications of Rostow's work a challenging one. Nevertheless, the Rostow approach, when extended in the manner outlined here, does offer a means by which regional and interregional change may be related to national economic performance.

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FOOTNOTES

1. This usually represents a doubling of the rate of investment which existed at the preconditions stage. Such an investment ratio, which is based on a marginal capital-output ratio of 3.5:1 and an annual population growth rate of 1-1.5%, is sufficient to yield an annual growth rate in net national product of around 2% (Rostow, 1960, p.41). Rostow argued that the investment ratio reached this level in Great Britain during the course of its take-off stage from 1783 to 1802. Such a level is consistent with the estimates of Feinstein (1978), but significantly above those provided by Crafts (1983). These latter estimates were constructed on the basis of gross investment and gross national product. A related discussion of this question is provided by Cairncross (1953).
2. Rostow referred only to the first, second and fourth of these possibilities. The third is included, as this represents further possibility for the disposal of the economic surplus.
3. Rostow (1960, p.39, footnote) defines manufacturing extremely broadly, so as to include timber exploitation, meat production, and dairy-products output, for example. The reasons for this stretching of the definition of manufacturing are not clear, except for the fact that the take-offs in such nations as Sweden, Australia and Denmark are not easily related to the growth of conventional manufacturing. Problems of classification in a regional content are discussed by Parr (1997).
4. This would be the case where the growing manufacturing sector had a high handicraft component, as in particular regions of Germany and Italy during the nineteenth century.
5. Where this condition is lacking, relatively high levels of consumption in less successful regions might be maintained by

means of transfer payments from a national government. This will be considered further, in Section 5.

6. Rostow (1960, p.xii) actually allows the opposite phenomenon (namely, the overlapping of stages), although for the large majority of cases there is neither the skipping nor the overlapping of stages.
7. Even though German unification was not complete until 1871, the various nominally independent states could be validly referred to as “regions” after the creation of the *Deutscher Zollverein* in 1834.
8. The use of integer values to characterize the stages of development is obviously in the nature of a simplification. If sufficiently detailed regional data are available (permitting the construction of various time-series indices of development), it might be possible to dispense with the use of integer values.
9. The standard deviation of the multi-regional average provides a convenient measure of the extent of the variability of stages attained among regions.
10. The possibility has to be entertained that the multi-regional average value might approximate the national value as a result of the two types of error canceling out each other.
11. The level of concentration in the spatial structure refers to the unevenness with which economic activity, employment, population, etc. are distributed throughout the region. There exist various standard methods for measuring this unevenness, and in the case of a well-defined nodal region it is possible to employ the concept of a regional density function, from which indices of concentration may be derived (Parr, 1987; Parr and O’Neill, 1989).
12. Although the take-off stage at the regional level is being defined in less restrictive terms than Rostow, the stronger Rostow criteria also tend to apply in those regions which are contributing significantly

to the take-off stage nationally, particularly where the leading sectors of these regions involve manufacturing.

13. Hirschman (1958) uses the terms “polarization” and “trickling down” to correspond broadly to the Myrdal terminology of “backwash” and “spread” which is employed here.
14. Such a tendency might be related to the fact that very large markets are required to secure the necessary economies of scale in production which permit relatively low prices and thus consumption on a mass basis. Nevertheless, one or more regions may enter the high mass consumption stage considerably later than the nation as a whole, e.g., the South in the US and the Mezzogiorno in Italy; see Note 5.
15. Regional policy of some kind may emerge during an earlier stage, if the spread effects are deemed to be excessively dominating the backwash effects (Hirschman, 1958, p.190).

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