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# The Value of the Regional Approach in Economic Analysis

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## *Introduction*

I find it exceedingly difficult to attack the topic assigned to me without penetrating the philosophical and conceptual questions relating to the region. What is a region? What is regional structure? What are the social, economic, and political as well as physical dimensions of a region? What is regional science and analysis? To me, all these basic questions must be thoroughly explored before one can even define what is meant by regional approach. Yet, I gather that extensive discussion of these metaphysical and conceptual questions is precluded in such a volume as this, which is devoted to a discussion primarily of empirical work pertaining to regional income. I shall therefore make no attempt at answering these questions here.<sup>1</sup> A few paragraphs devoted to each would be most inadequate and could not convey the basic relations involved. Hence, what follows is a simple list with accompanying discussion of five basic national economic problems with respect to which the collection and analysis of data by meaningful geographic divisions of the United States can be fruitful. These five problems are fairly representative of many to whose solution a regional approach can contribute significantly.

I must add that to a regional scientist the following list and discussion is a rather sterile presentation. To him the region is a dynamic, social organism possessing an intricate network of internal connections and interrelated via diverse flows to each of an hierarchical array of regional and subregional entities. Mere cataloguing, processing, and analysis of data by standard or other acceptable geographic divisions of the United States without reference to this *live* organism too frequently overlooks basic forces at play in a situation.

NOTE: The writer is indebted to Resources for the Future, Inc. for a grant in support of research from which materials in this paper are drawn.

<sup>1</sup> Some preliminary attempts to answer these questions were presented in the first draft of this paper, which was circulated in connection with this conference. These attempts are contained in Walter Isard, "Regional Science, the Concept of Region, and Regional Structure," *Papers and Proceedings of the Regional Science Association*, Vol. II, 1956.

## VALUE OF THE REGIONAL APPROACH

In line with this view of the regional scientist, I venture to state that, in the future, regional income work will not find its greatest value for the light which it can cast upon solutions to problems such as will be mentioned below and others which were in mind in the calling of this conference. Rather, regional income work will find most significance as the study of a quantitative welfare measure which reflects (1) the functioning of a region as one of many inter-related live organisms, and (2) the aspirations, values, and traits of the people of a region.

### *Value for Resource Use Problems*

Resource use problems of innumerable variety exist and can be employed to illustrate the value of a regional dimension in one's analytic framework. For example, consider the problem of assigning priority to potential resource development projects, with respect to both the stock of available capital and time of initiation.

A customary evaluation procedure has been to compute benefit-cost ratios as a quantitative index of welfare implications.<sup>2</sup> Immediately, it is appreciated that these ratios cannot be based solely upon information relating to the economy of the nation, growth rates of its industries, average labor productivity by kind of activity, and similar national-type information. In general, the construction of any benefit-cost ratio must result from the interweaving of such information with information relating to the region or regions associated with a potential resource development project. This obtains for numerous reasons, of which we list three:

1. The degree of unemployment, or underemployment, differs among regions, ranging from chronic unemployment in certain regions (as in coal-mining areas and northern New England) to zero (excluding frictional) unemployment in other regions (as in the Delaware River economy or rapidly growing metropolitan areas). At the one extreme, expansion of economic activity resulting from a resource development project may sop up idle labor. At the other, this expansion may proceed partly at the expense of normal growth generated by private investment decisions. *Ceteris paribus*, the multiplier effects, and hence the benefit-cost ratios, are significantly dif-

<sup>2</sup> The conceptual issues involved in benefit-cost calculations lie outside the terms of reference of this paper. For pertinent discussion, the reader is referred to *Proposed Practices of Economic Analysis of River Basin Projects* (Report to the Federal Inter-Agency River Basin Committee, May 1950); and *Water Resources and Economic Development of the West: Benefit-Cost Analysis* (Report 3, Committee on the Economics of Water Resources Development, Western Agricultural Economics Research Council, 1955).

## VALUE OF THE REGIONAL APPROACH

ferent in these two instances—a result which would be revealed only by investigations having a regional dimension.

2. Probing more deeply, we perceive the possibility of differential *interregional* effects. Two resource development projects may be envisaged, each for a different “full employment” region. One region of construction may have close bonds with a third region in which chronic unemployment exists. The other region of construction may have direct and indirect links primarily with other “full employment” regions. *Ceteris paribus*, the benefit-cost ratios associated with these two resource development projects will be of different magnitudes, again a result which can only be yielded by a sophisticated regional approach.

3. If we dissect the problem further, we can more cogently illustrate the need for a regional approach, and for the tools and methods of regional science. Let us be concerned with a river basin development program which comprises a set of potential projects. Let power be a commodity whose possible production is associated with each basin project.

Power is a commodity that for the most part does not enter inter-regional trade. Generally speaking, economic considerations dictate its consumption in the region in which it is produced. As a consequence, it becomes essential to project power consumption (and requirements) at different prices for the “power-service” regions associated with the several river basin projects. This in turn involves projections of industrial expansion and population growth. Population growth is partly related to the number of economic employment opportunities in each region (economic factors), to the occupational and spatial mobility of population (sociological and cultural factors), to the attractiveness of climate and other features of the physical environment (geographic factors), and to many other forces. More than this, population growth is associated with the entire set of these factors as they interrelate and blend into one another to yield the region as a functioning organism, as they mould community spirit, morale, organizational and power structure in both a dynamic and national setting. It is in the study of the implications of this functioning organism that the tools and techniques of the regional approach and of regional science bear significantly upon basic economic issues—such as river basin development policy linked as it must be with projections of population and other regional and interregional elements.<sup>3</sup>

<sup>3</sup> National housing, agricultural land, forestry and energy policies, financial policies of investment institutions, public utility, and, in general, industrial expansion decisions and policies, to name a few, can all derive benefit in a similar manner from a regional orientation.

## VALUE OF THE REGIONAL APPROACH

### *Value for Transportation Problems*

Girding the United States with an adequate net of transport facilities, in particular highways, is a major objective of the current administration. The economist is called upon to furnish information on the expected amount of trade and volume of traffic (particularly as they are related to the economics of land use), the location of industry, economic revenue potentials, and related questions. It is clear that all such economic information must be provided on a local-regional as well as a national basis. As in the case of power and housing, most transport services must be produced in the region in which they are consumed. The bulk of transport requirements are for the local movement of people and goods. This necessitates penetrating research into the structure and functioning of urban-metropolitan regions within a framework which recognizes an hierarchy of regions. Population numbers, the spatial spread of population, labor market conditions, journey-to-work patterns, distribution of industries by type and position, and related attributes of any given urban-metropolitan region must be projected. To do so obviously necessitates a regional approach.

A second phase of the transportation problem concerns inter-regional movements of goods and people. Ideally, transport facilities should be constructed to facilitate interregional trade, to avoid future congestion by meeting demands along the various routes, and perhaps to foster desirable changes in the geographic distribution of industry and population, whether in the direction of further equalization among regions, decreased concentration in urban areas, or increased use of particular, localized mineral or human resources. Since projections of interregional trade reflect the extent to which regional economies do, or are made to, complement and compete with each other, the need for a regional approach in a sound formulation of economic policy for a national transportation program is, once again, rather obvious.<sup>4</sup>

### *Value for Cyclical Problems*

Most economists do not consider a regional breakdown in the study of national cycles fruitful. The ups and downs of regional economies, it is claimed, are much like those of the national economy. Differences in the intensity and timing of regional cycles are explained in terms of differences in the sensitivity and responsiveness

<sup>4</sup> The direct bearing of the regional approach upon rate regulation in the transportation industry is equally obvious.

## VALUE OF THE REGIONAL APPROACH

of particular industries. Cycles of a regional economy are simple composites of the cyclical movement of the economy's industries, appropriately weighted.<sup>5</sup>

This point of view is similar to a type of reasoning encountered in much work on income. Differences in income among states and regions are largely explained in terms of differences in productivity and wage and salary payments by industries and of the differences in the industrial mix of states and regions.<sup>6</sup>

Some economists would strongly object to these statements.<sup>7</sup> However, whether or not these statements are valid does not affect the potential value of a regional approach to many cyclical problems. Consider construction activity. It is generally conceded that this activity is of paramount importance in accounting for the cyclical behavior of the national economy. Yet construction is an activity geared to local and regional conditions as well as to national.

It may be argued that factors affecting construction, whether for replacement or expansion, are largely national and relate to conditions such as general business confidence, consumer expenditures, the military situation, credit policy, and federal government activities. Exploring more deeply, however, one finds important regional variations in some of these conditions. And one observes that the nature of these variations can have a significant impact upon the cyclical behavior of the national economy. For example, population shifts among or within regions can and do account for a large fraction of

<sup>5</sup> For discussion of regional cycles, see, among others, Rutledge Vining, "Regional Variation in Cyclical Fluctuation Viewed as a Frequency Distribution" (July 1945, pp. 183-213), "Location of Industry and Regional Patterns of Business-Cycle Behavior" (January 1946, pp. 37-68), "The Region as a Concept in Business-Cycle Analysis" (July 1946, pp. 201-218), all in *Econometrica*, and "The Region as an Economic Entity and Certain Variations to be Observed in the Study of Systems of Regions," *Papers and Proceedings of the American Economic Association*, May 1949, pp. 89-104; F. L. Kidner, *California Business Cycles*, University of California Press, 1946; and Philip Neff and Annette Weifenbach, *Business Cycles in Selected Industrial Areas*, University of California Press, 1949.

<sup>6</sup> For example, refer to Frank A. Hanna, "Contribution of Manufacturing Wages to Regional Differences in Per Capita Incomes," *Review of Economics and Statistics*, February 1951, pp. 18-28; and to his paper in this volume.

<sup>7</sup> In this connection, recent empirical studies by Federal Reserve Board economists suggest that regional economies are not wholly tuned to the national economy, so far as the business cycle is concerned. Further, the response and behavior of the regional economy can significantly influence the cyclical movements of the national economy, as is partially indicated below.

On the value of the regional approach in explaining current differences in income among regions, some regional scientists might not object to the statement in the text. However, they would insist that if one pursues research at a deeper level and attempts to explain the different industrial mixes of regions and to project regional incomes for future years, he is compelled to engage in basic industrial location and regional resource and development studies. He cannot avoid the framework of regional analysis.

## VALUE OF THE REGIONAL APPROACH

construction activity. Among regions, the magnitude of population shifts is closely related to the absolute and percentage growth or decline of the several regions. Within urban-metropolitan regions, the magnitude of population shifts (rural-urban, central-suburb, or other) is largely determined by the attributes both common to all urban-metropolitan regions and peculiar to each. Clearly, in these connections, the regional approach can contribute to the understanding of the complex web of forces that generates cycles.

Moreover, impulses affecting behavior and movements through all phases of the cycle (whether stemming from the construction industry or other sector of the economy) do not originate in each region at the same time and with the same intensity. Data on debits to deposit accounts and moneyflows, to cite one type of empirical material, suggest considerable variation among the regions of the Federal Reserve System in the timing at which cyclical forces originate and the degree to which they spread. Certain types of regional structures may be more conducive to sparking a recovery, others, to initiating a recession. Or certain types of interregional links may facilitate (or retard) the spread of recovery, and other types, the spread of recession.

Considerations of this kind suggest that the tool kit of the regional scientist is not so irrelevant to the study of national cycles as an orthodox economist might think.

### *Value for Tariff, Depressed Area, and Related Problems*

Policy makers have become increasingly aware of the differential area implications of tariff changes. A reduction in the tariff on a particular product is likely to have two highly contrasting effects, so far as national welfare is concerned, according to whether the product is produced domestically in an area of little resiliency (such as an ore-mining area) or in an area of considerable buoyancy (such as the Gulf Southwest). In both cases, the industry may be depressed to the same extent. In the one case, however, most unemployed workers remain unemployed and have little tendency to migrate elsewhere; in the other, they are largely absorbed into rapidly expanding industries.

Moreover, the beneficial effects stemming from lower prices bear differently upon the several areas of the United States, initially and even in the first indirect round. Since the ability of areas to transmit impulses to other areas can vary widely, an evaluation of the positive aspects of tariff reduction must draw upon investigations of the spa-

## VALUE OF THE REGIONAL APPROACH

tial transmission mechanism, as applied to areas of diverse economic base and structure.<sup>8</sup>

The heart of the problem, at least in its negative aspects, may be deeper and largely coincide with the core of the depressed area problem. The resiliency of any area adversely affected by a change, whether in processes, markets, competition, duties, tastes, etc., is complexly fashioned by a host of factors. Feasible current technological developments in combination with those on the horizon, the situation with respect to existing markets and in particular their prospective growth components, the community power structure as reflected in both formal and informal groups, governmental and social organization, native resources both mineral and human, and other factors interplay to give a local community its particular character. The study of this character and of the points at which a community is highly responsive in a positive sense to the development stimuli falls at least partially within the realm of regional science in that it embraces those fruitful elements of the several social science disciplines that relate to the space and area dimension. Whether regional analysis is in terms of interregional competition, locational cost advantages, labor productivity, employee-management-community relations, availability of local capital, or other aspects of the problem, singly or in combination, its relevance is unquestioned for tariff policy, which necessarily impinges upon regions and communities. And still more apparent is the significance of such regional analysis for national policy directly related to depressed areas, and public works programs in a general depression period.<sup>9</sup>

### *Value for Monetary and Fiscal Policy*

To illustrate the value of the regional approach in the general area of national monetary and fiscal policy, we shall refer to the Federal Reserve System and its operations. In the words of the Board of Governors:

The basic function of the Federal Reserve System is to make possible a flow of credit and money that will foster orderly economic growth and a stable dollar. An efficient monetary mechanism is in-

<sup>8</sup> Some insight into the spatial transmission mechanism is afforded by an interregional input-output scheme. For example, see Walter Isard, "Interregional and Regional Input-Output Analysis: A Model of a Space-Economy," *Review of Economics and Statistics*, November 1951, pp. 318-328.

<sup>9</sup> For relevant impact and local multiplier type studies, see, among others, F. T. Moore and J. W. Peterson, "An Interindustry Model of Utah," *Review of Eco-*



## VALUE OF THE REGIONAL APPROACH

dispensable to the steady development of the nation's resources and a rising standard of living. . . .

In performing its basic function, the Federal Reserve depends chiefly on its ability to increase or decrease the availability, cost and volume of bank reserves. . . . Changes in the reserve position of banks affect directly the flow of bank credit and money.<sup>10</sup>

The question we now pose is whether or not a regional approach to the factors affecting member bank reserves may lead to sounder policy than a purely national one. In more concrete terms, does regional elements analysis lead to more effective policy than merely national elements analysis alone?

In a recent Federal Reserve System conference on the interregional flow of funds, this question was answered in the positive by a task force of the system.<sup>11</sup> Aside from permitting a better understanding of the Reserve regions and their interconnections, a study of the interregional flow of funds, which proceeds hand in hand with regional elements analysis, provides a more dynamic perspective of banking operations and facilitates a more effective use of the several instruments of credit policy. To be specific, it is generally assumed that open market operations, a major tool for credit control, has pervasive effects throughout the entire economy. Reserves put into or drawn from the central money market are postulated to flow out to or away from every Reserve area both automatically and uniformly. Yet experience suggests that this assumption is invalid, that lags of different magnitudes exist, and that regional effects are not of the same intensity. These findings imply that open market operations are offset by other factors to different degrees in the several Reserve districts. Hence, one must study these factors as they operate in each region and reflect the particular attributes and endowment of each region in order to achieve a more effective use of this credit instrument on a national level.<sup>12</sup> Furthermore, in view of the imperfect mechanism by which funds flow from one district to another, and in view of the unique characteristics of each re-

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*nomics and Statistics*, November 1955; and Walter Isard and R. E. Kuenne, "The Impact of Steel Upon the Greater New York-Philadelphia Industrial Region," *Review of Economics and Statistics*, November 1953, pp. 289-301.

<sup>10</sup> *The Federal Reserve System: Purposes and Functions*, Board of Governors of the Federal Reserve System, 1954, pp. 1, 14.

<sup>11</sup> The task force was composed of Norman N. Bowsher, Robert Einzig, and J. Dewey Daane, Chairman. Our discussion which follows draws heavily upon the thinking of these individuals and the interchange of views at the conference, though we take full responsibility for any shortcomings of our presentation.

<sup>12</sup> For a more detailed exposition of this point, see the task force report of the Federal Reserve committee referred to in note 11.

## VALUE OF THE REGIONAL APPROACH

gional organism, it would seem that a more effective national discount rate policy ought to embody differentials in discount rates among districts. This hypothesis finds support in empirical materials. For example, the existence of excess reserves nationally is not typically associated with the existence of the same amount of excess reserves in each district. Rather, at any given time the extent to which excess reserves are present in each district varies considerably; and in some instances a district's reserves may be under pressure when substantial excess reserves persist nationally. This suggests that a policy based on national aggregates alone is an inferior one. A policy oriented to regional as well as to national conditions and credit needs and thereby recognizing the feasibility of differentials in discount rates among regions is more consistent with the Federal Reserve System's objective to foster orderly economic growth.

For example, New England as a region of relatively slow secular growth contrasts with the Pacific Southwest as a region of relatively rapid secular growth. In consequence, the credit needs of these two regions stand in sharp contrast. Likewise do the credit needs of two districts, where one has a chronic adverse balance of payments and the other, a persistent favorable balance. Since the orderly growth of the nation involves the orderly growth of its regions, and since each of its regions have different resource potentials and confront different problems and obstacles to growth, it follows that monetary and fiscal policy based on national aggregates alone generates both retarding factors for some regions (in certain instances, the most rapidly growing regions) and problem-intensifying factors for other regions (in certain instances, most slowly growing regions). I therefore submit that a fuller realization of the objectives of the Federal Reserve System, and in general of monetary and fiscal policy, requires an integrated regional-national approach.<sup>13</sup> In implementing such a policy, one obviously profits from whatever light scientific studies can cast upon the structure and functioning of regions.

### *A Few Concluding Remarks*

In discussing the value of the regional approach for the study of (1) resource use problems, (2) transportation problems, (3) cyclical problems, (4) tariff, depressed area, and related problems, and (5) monetary and fiscal problems, we had in mind the improvement

<sup>13</sup> For discussion of balanced economic development, both within a regional and national framework, see Joseph L. Fisher, "Concepts in Regional Economic Development," *Papers and Proceedings of the Regional Science Association*, 1955.

## VALUE OF THE REGIONAL APPROACH

of national economic policy. Obviously, regional analysis is an essential for the formulation of appropriate and mutually consistent regional policies. However, the attainment of a superior set of regional policies is still more dependent upon penetrating discussion of the philosophical and conceptual questions relating to the region which were raised in the introduction to this paper. Too, an overhauling of the tool kit of the regional analyst must be undertaken. Too many of his tools represent transfers of concepts and methods traditionally used by the national-international type of economist. They are ill-designed to attack many regional problems, in particular those peculiar to regions.<sup>14</sup> Clearly, the new and improved tools, procedures, and frameworks which we must design should center much more than existing ones around the region as a dynamic social organism.

## C O M M E N T

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Walter Isard's work and that of Rutledge Vining have been particularly valuable to us in Canada. I found Isard's paper full of stimulating and provocative insights not only into regional economics but also into the broader aspects of regional science. For several years, I have been interested in the regional approach, although I have not recently been associated with the more theoretical side. Since my present job requires me to concentrate a considerable part of my daily work on recommendations on major public investments, my remarks on Isard's paper will be on the practical value of the regional approach.

Before entering on a detailed discussion, I shall describe the Canadian background to regional economic analysis—how we arrived at the stage, however preliminary, where we are today. First, unlike the United States, Canada, with its population of only 15.5 million and its immense area, has only limited resources to devote to this type of work. This may not be entirely a disadvantage. There are times when it is clearly pointless to insist upon an unrealistic degree of analytical precision in one element of a situation when that element is only part of a complex of uncertainties that includes

<sup>14</sup> Further discussion of these points which was contained in the first draft of this paper and circulated in connection with this conference has been deleted. Such discussion has full significance only against a background presentation of broad philosophical and conceptual questions relating to the region (see Isard, "Regional Science, the Concept of Region, and Regional Structure").

## VALUE OF THE REGIONAL APPROACH

many noneconomic aspects. It would be hard enough to make a good economic forecast even if one could afford to ignore these other factors. As a practical matter, we must try to limit ourselves to the degree of refinement beyond which the expenditure of further time and effort is not warranted in the light of our own particular circumstances.

The second point to bear in mind is that many sectors of the Canadian economy have a simpler structure than the corresponding ones in the United States. However, from the viewpoint of analysis and forecasting, this factor of structural simplicity is offset, to some extent, by the greater dependence of various Canadian regions on international markets, with all their uncertainties.

My views on regions and the regional approach naturally reflect the developments with which I have been associated during the past few years in Canada and, in particular, in the Canadian government service. The federal and provincial governments have played a major role in developing regional concepts and in applying the regional approach to practical ends. The universities, notably McGill, Laval, and Toronto, have, of course, also made significant contributions, and business concerns are becoming increasingly interested in connection with their marketing and investment policies. The prevailing accent has been on applying the regional approach, even though it is still in an early state of development, in order to obtain a better understanding of current economic conditions and to forecast long-term as well as short-term trends.

During and immediately after World War II, considerable work was done in the federal government on probable "danger areas," where it looked as if postwar readjustment was going to be difficult. At about the same time, "commuting areas" were delineated by the Department of Reconstruction and Supply as a basis for determining the possible local employment effects of proposed public projects at the various levels of government.

As the immediate problems of postwar readjustment were overcome, it was realized that an understanding of the Canadian economy, with its almost uniquely rapid growth, called for a longer-term view and for a broader approach than had been used. Further developments along this line were carried out by the Area Studies Division, set up in the fall of 1946 in the Department of Reconstruction and Supply and later transferred to the Department of Trade and Commerce. A tentative regional demarcation was made for the country. To be of practical use, this effort had to be premised upon statistical realities. Initially, at any rate, this meant the use of counties and census districts as pieces in the regional mosaic.

## VALUE OF THE REGIONAL APPROACH

The combining of these pieces was geared to production patterns and market relationships, with the heaviest emphasis on the determinants of economic activity.

In the spring of 1947, the Area Studies Division and the federal Bureau of Statistics collaborated with the statistician of the province of Ontario in laying down the first provincially sponsored economic regions. The province desired this breakdown in order to obtain a better understanding of current conditions and an improved basis for approaching questions of future industrial development. Ontario officially adopted a system of nineteen economic regions in September 1947.

Following this, considerable work was carried out in British Columbia, where a system of economic regions was drawn up, based on combinations of census districts. In Quebec, university economists and geographers collaborated with the provincial authorities in setting up agricultural regions as a step in the direction of general purpose regions.

All of these efforts were based on an acceptance of the counties or census districts as the building blocks of the system. On the other hand, from the practical administrative side, the National Employment Service scheme sought to define suitable Canadian labor market areas regardless of the boundaries of existing statistical units. This *ad hoc* search for meaningful local units resulted in a valuable functional breakdown of the economy into some 250 local areas.

When the Economics and Statistics Branch of the Department of Defence Production was set up under my direction in April 1951, I decided to devote further attention to the regional approach and to achieve a better delineation of regions. The specific purpose was to arrive at a reasonable method of assessing the impact of defence procurement and strategic resource development on different parts of the country. Z. W. Sametz, who had been associated with me in the area studies undertaken in 1946, was brought in to do this work and was later assisted by an economic geographer, James Davy. Following extensive discussions with many interested individuals and groups and a careful examination of work done elsewhere, particularly in the United States, Sametz arrived at a version of economic regions that represented an important further step and involved a system within the provinces of economic regions and zones under them. This delineation was based on a consideration of both structural and functional elements. It thereby attempted to satisfy the requirements which had prompted the original 1946 and 1947 work along structural lines and, at the same

## VALUE OF THE REGIONAL APPROACH

time, took advantage of the empirical functional approach of the National Employment Service.

A brief review of the method adopted in assigning various areas to one zone or the other follows. For the structural factors, *S* is used, and for the functional, *F*. The figures indicate relative weights assigned to each factor:

### Production

*S* 30 = industrial structure (homogeneity rated highly)

*F* 15 = flow of goods being produced (source of industrial inputs and destination of industrial outputs)

### Marketing

*S* 15 = market characteristics (population, size, income characteristics, etc.)

*F* 30 = flow of goods through marketing centers, wholesale and retail (ties in with production *F*)

### Other (social, etc.)

*S* 5 = key institutions (local feelings, etc.)

*F* 5 = human relations (rural, urban)

This last category might be given greater weighting in the development of a regional science that goes beyond the purely economic approach.

At the zonal level, 80+ was required for incorporation of an area within a given zone; if it could not be linked to another area, it was set up as a separate zone. At the economic regional level, 66+ was required, i.e. twice as much in common as in difference.

This structural-functional system permitted increasing attention to be devoted to the regional approach as an aid to administrative decisions, both public and private, as well as to economic analysis, per se. For example, the Central Mortgage and Housing Corporation of the federal government has adopted the zones for administrative purposes and for forecasting housing requirements. Also, many private firms are appreciating the value of the regional approach in marketing and locational analyses.

Continuing interest was shown by the provinces, and the subject was discussed at length during the Dominion-Provincial Conference on Economic Statistics in January 1953. Further exchanges of views between the federal and provincial officials went on, and Ontario decided in the fall of 1954 to further integrate the nineteen regions first outlined in 1947 into nine regions for purposes of guiding future industrial growth. Each region was eligible for planning grants, matched dollar for dollar by regional associations. Separate conferences are being held in each region. These regions coincided gen-

## VALUE OF THE REGIONAL APPROACH

erally with the Department of Defence Production regions, except that two were amalgamated because of administrative considerations. Quebec, the other of the two largest provinces, adopted the agreed system of economic regions and its 1954 statistical yearbook publishes provincial data on this basis. This province desired to have a regional scheme broad and flexible enough to serve many general purposes. A subdivision of the economic regions into subregions, or economic zones, as Sametz suggested, is regarded as essential by the provincial authorities, and the problems involved are currently under study.

The regional approach again received attention at the Dominion-Provincial Conference on Economic Statistics in April 1955. At this conference, the regional approach was found valuable both for immediate and long-term purposes. It was also felt that statistics for economic regions should be supplemented by data for zones within the regions. This latter development is, of course, more difficult because some zones would cut across county or census boundaries. A research program has been undertaken at the federal Bureau of Statistics to examine the practicability of supplying adequate statistical series for both economic regions and zones, with attention concentrated first on the provinces of Ontario and Quebec. The other provinces will be worked in as agreement is reached on their regional models.

In September 1954, the federal Department of Public Works added a small group of economic advisors to its organization. This group, of which I am the head, recognized the regional approach as fundamental in arriving at recommendations on the merits, the location, and the timing of public investment proposals.

Our experience in the Department of Public Works, together with that in the provinces and in some private industries, suggests that there is a definite practical value in having a set of general purpose regions into which may be fitted regions delineated for special purposes, e.g. an area dependent upon a given harbor. I recognize that most applications of the economic regional approach fall into the latter category, and that ideally, general purpose regions should only be delineated after much study and experience in such special purpose applications. In spite of this, I see considerable value in a preliminary formulation of general purpose regions, with all their imperfections, as a presently available statistical basis for analysis.

As regards both our general purposes and specific purpose regions, our interest in rapid forecasting of fairly long-term growth trends points up every day the need for a better understanding of the dynamic factors—those “carrier” industries that determine the

## VALUE OF THE REGIONAL APPROACH

levels of regional economic activity. This, of course, requires further improvements in statistical and qualitative data to permit a proper weighting of the economic determinants and to make possible informed and balanced judgments on their individual prospects as affected by interregional relationships, whether domestic or foreign. (Needless to say, technology can change the picture decisively in a short time and adds greatly to the hazards of forecasting.) Ultimately, through this process of progressive improvement through constant use of special and preliminary general purpose regions, we hope to arrive at adequate general purpose regions. But meanwhile, we shall have had important interim benefits and shall have built up a broad basis of support and general acceptance of the regional model and its practical value.

I was naturally very interested in Isard's statements on the value of the regional approach in resource use problems. I would, however, add one point. In practical policy, it is not just a question of deciding which project should have priority in a given year but which of the projects proposed have any real justification for any priority at all. Here the benefit-cost ratio becomes particularly important. In our operations in the Department of Public Works, the first and most fundamental consideration in appraising a public investment proposal, either for service or for development, is: Will it be in harmony with economic trends (stimulating them, if a development project) or will it run counter to such trends and thereby delay necessary adjustments? Only after the proposal has been subjected to this analysis, and the benefits in relation to the costs assessed accordingly, is it feasible to establish priorities among the various projects that can be regarded as essential.

These are generalities; now let me illustrate what actually happens when issues arise in specific cases. In the case of a new harbor development, obviously the first step is to outline the area that might be served by such a harbor; then to ascertain the economic determinants within the area in general and the potential industrial users of such a harbor, also to estimate their prospects. This harbor area is matched against the provincial economic regions and zones to improve interpretation of available data and expert opinion from every suitable source, within government, and outside. The final step before a concrete recommendation is, of course, to weigh the costs against the long-term benefits.

Another type of case is where a whole area with sociological problems is involved, as in parts of Newfoundland. Here, the technological evolution in both the fishing and fish-processing industries has resulted in a reduction of one-third in the number of fishermen



## VALUE OF THE REGIONAL APPROACH

during the last five or six years. The problems of adjustment—and not merely impersonal economic adjustments—will be evident.

Another type of development in Canada with even broader repercussions on investment is the change in energy sources. Apart perhaps from the St. Lawrence Seaway, this is the most pervasive single economic change in Canada in the last decade. The growing availability of petroleum and natural gas from western Canada has reduced the importance of coal, and this, in turn, affects both the producing areas in Canada and the unloading points of imported and domestic coal. These factors must inevitably influence the direction of public investment in service-producing projects, whether harbors or public buildings.

Let me turn in passing to the importance of the regional approach in the location and timing of investment in public buildings—whether in housing, post offices, hospitals, or schools. Since this type of investment is by its nature fairly long term, it is particularly necessary that the services provided be in harmony with the general prospects of the economic region or subregion concerned. Otherwise, there may be a serious waste of public monies on the one hand, or local dissatisfaction on the other.

On transportation problems, I agree entirely with Isard that regional analysis is a condition of sound investment judgment. An appreciation of the economic outlook in the regions concerned and their interrelationship must form a vital part of any sound assessment of traffic potential.

I have made no effort to cover many of the provocative points raised by Isard; for example, I have not touched on cyclical problems, depressed areas, or credit policy. Nevertheless, I agree with him that the regional approach would be valuable in all these directions and perhaps in others. In a brief comment, I felt that I should refer particularly to the experience we have had in Canada with the value of applied regional analysis.

But of course, the regional approach in economic analysis is only part of the picture and does not attain full value without the consideration of many noneconomic factors. As Isard suggests, the growth of "regional science" may well provide the only means of understanding the region as a live organism, whether for economic or for any other type of social analysis.

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Walter Isard's paper is interesting not only for the problems analyzed but also for the inferences and implications drawn. If Isard had been satisfied to show the value of the regional approach

to selected economic problems and let it go at that, the urge to comment would not be so strong. However, he closes with the following remarks: ". . . an overhauling of the tool kit of the regional analyst must be undertaken. Too many of his tools represent transfers of concepts and methods traditionally used by the national-international type of economist. They are ill-designed to attack many regional problems, in particular those peculiar to regions."<sup>1</sup> And in a note on the passage: "Further discussion of these points which was contained in the first draft of this paper and circulated in connection with this conference has been deleted. Such discussion has full significance only against a background presentation of broad philosophical and conceptual questions relating to the region." These remarks merit looking into.

For present purposes, Isard considers regional analysis from the viewpoint of problems of three sorts: (1) conceptual-metaphysical, on the true nature of regions, (2) regional, arising from secular growth, and (3) short-run cyclical, arising from regional change. Not all of the problems discussed fit this framework, but in many cases this classification gives a perspective. Further, it should be made clear whether one is talking about a general equilibrium analysis for a whole network of regions or a partial analysis where only one region is considered.

If economic analysis is to progress at the regional level, it cannot afford to become too involved in extensive discussions of the metaphysical and conceptual problems concerning the "true" nature of a region. However defined, the region is a complicated organism involving variables outside the range of economic analysis. Nevertheless, it is useful and appropriate to abstract and stay within the realm of analyzing economic, or even selected economic, variables. The important contributions to the field of regional analysis made by Isard himself testify to this conclusion. Thus, I disagree explicitly with Isard's note.

The question then becomes what approach one wishes to use in regional analysis. To solve one basic economic problem, it would be desirable to find some set of variables that measures the economic well-being of a region. Further, it would be desirable if these variables fitted into a convenient analytical framework. Regional social accounts, modified from national accounts, represent one possible framework. If the behavior of these accounts can be understood through the use of structural equations, regional analysts will have a powerful tool.

The conceptual and statistical problems involved in setting up regional social accounts have been discussed by Werner Hochwald.<sup>2</sup>

<sup>1</sup> Page 78.

<sup>2</sup> In this volume.

## VALUE OF THE REGIONAL APPROACH

Naturally, no one measure represents the perfect "quantitative welfare measure" Isard seems to seek.<sup>3</sup> Yet, an extremely useful measure which can serve as a key index for regional analysis is "per capita income accruing to residents." It is closely analogous to per capita personal income in the national accounts. This measure would be useful where questions of regional growth, cyclical stability, and comparative levels of well-being are considered.

Structural equations to explain variations in regional income have their counterpart in econometric forecasting models for the national economy.<sup>4</sup> Insofar as a nation can be considered part of a world region, national income analysis and regional income analysis can proceed along the same lines. Of course, the quantitative importance of the variables changes as a function of regional size. This is a matter of degree, however. In a small region, the "foreign trade multiplier" takes on the role of the national "investment multiplier" in terms of quantitative importance.<sup>5</sup> The "national-international" approach has been valuable in analyzing basic economic problems in small nations. In like manner, identification of exogenous and endogenous variables within a set of structural equations is possible in regional analysis.

In many of the problems with which Isard deals, analysis is concerned with the effect of an autonomous shock on the regional economy. These shocks can come in the form of internal changes in the level of construction activity or from external forces, e.g. changes in monetary and fiscal policy, export demand, or population shifts. The short-run analysis is conveniently handled, in part, within the national-international framework. As Isard points out, secular growth problems need not only the tools of structural interaction but also knowledge of location forces and secular trends.

In summation, per-capita income accruing to residents helps illuminate a basic, regional economic problem—regional well-being. Although conceptual problems concerning the true nature of a region exist, this does not preclude the national-international approach any more than it does the input-output approach. Finally, the national-international approach rejected by Isard can be extremely valuable for some of the very topics Isard himself discusses.

<sup>3</sup> Page 70. Isard goes on to look for "a quantitative welfare measure which reflects (1) the functioning of a region as one of many interrelated live organisms, and (2) the aspirations, values, and traits of the people of a region." The search for such a measure might make a fine hobby but is hardly recommended as a vocation.

<sup>4</sup> I am referring here especially to the works of Lawrence R. Klein.

<sup>5</sup> It is of interest to note that the regional multiplier as seen by Isard comes via the input-output matrix. The foreign trade multiplier referred to here is of the Metzler, Machlup, and Stolper variety.