Volume Title: Regional Income

Volume Author/Editor: Conference in Research in Income and Wealth

Volume Publisher: NBER

Volume ISBN: 0-870-14177-5

Volume URL: http://www.nber.org/books/unkn57-3

Publication Date: 1957

Chapter Title: Problems of Assessing Regional Economic Progress

Chapter Author: Harvey S. Perloff

Chapter URL: http://www.nber.org/chapters/c7600

Chapter pages in book: (p. 35 - 68)

Problems of Assessing Regional Economic Progress

HARVEY S. PERLOFF, RESOURCES FOR THE FUTURE, INC.

Introduction

The continent of the United States has a closely knit, highly interdependent national economy. Raw materials and semiprocessed goods, finished products, and capital move in a continual flow from one end of the country to the other. Many products are sold and bought in every section of the country no matter where they are produced, and factors of production tend to be recruited over wide areas. The entire economy moves ahead or slows down in such a way that the various industries, the various economic groups, and the various geographic sections tend to share the movements. Prosperity, recession, and depression tend to be national phenomena.

However, the incidence of change within this vast economic network is not uniform throughout the various regions of the country. Rates of natural increase of population vary significantly from one area to another, and people—at times in large numbers—migrate into and out of the various parts of the country. Similarly, the volume of capital flowing into new and existing productive facilities tends to vary considerably from place to place. The material resources and developed skills of a region come more or less into demand or decline in importance as new technologies influence production, distribution, and consumption. Thus, the whole tempo of development and of economic progress varies from one part of the country to another while all sections are subject to the pervading influence of the national economy and changes within it.

REGIONAL STUDIES

The measurement of regional economic progress, always of lively interest, has assumed greater importance in recent decades. This has grown out of the broadening concern with problems of regional economic development on the part of many groups. Local, state, and regional or interstate agencies, both private and governmental, have been established in increasing numbers in recent decades to study and to promote the economic development of particular areas. These groups have sponsored many studies focusing on the economic problems of specific regions.[1]

[1] The New England Council and Pacific Coast Board of Intergovernmental Relations illustrate such regional development agencies. A number of Federal Re-

The federal government, by the very nature of its organization sensitive to the economic progress of the various sections of the nation, has also sponsored many studies on the measurement and analysis of regional economic growth. Some have been concerned with the measurement of the relative economic status of states or regions to help lay a basis for administrative decisions, while others have been concerned in a more general way with economic policy.[2]

---

serve banks have been engaged in continuing analysis of the problems of economic development in their particular districts. State planning boards or development commissions have in some instances sponsored research dealing with problems of growth or decline, frequently in conjunction with a state university. A number of private research agencies, both on a national and state level, have increasingly interested themselves in research pertaining to regions. Outstanding among these has been the National Planning Association, which, through its committees on the South and New England, has sponsored a series of significant regional studies. These studies include: Glenn E. McLaughlin and Stefan Robock, *New Industry Comes to the South*, May 1949, and *Why Industry Moves South*, July 1949, both published by the National Planning Association; Calvin B. Hoover and B. U. Ratchford, *Economic Resources and Policies of the South*, Macmillan, 1951; and *The Economic State of New England*, Report of the Committee of New England, Yale University Press, 1954. The Tennessee Valley has been one of the most thoroughly studied areas of the country. The Tennessee Valley Authority has carried out a continuing series of economic studies over the past two decades, in large part of a remarkably high quality. A sizeable number of university bureaus of business research have been studying problems of economic development at state or community levels and have conducted many trade area surveys. Chambers of commerce and other local groups have been concerned with developing materials useful in promoting the growth of individual localities.

[2] Of special note are the regional studies sponsored by the National Resources Planning Board and its predecessors between 1934 and 1943. Over the course of almost a decade, it issued a series of regional planning studies dealing with group-of-state regions, river valleys, and metropolitan districts. The question of economic growth was central to most of them. The upsurge of interest in regional problems which developed in the depression was carried forward in the studies of the various federal agencies, especially those of the Departments of Commerce, Agriculture, Labor, and Interior. The Department of Commerce, through its Bureau of the Census, National Income Division, and Area Development Division, has provided both basic data and analytical studies of an over-all nature. The state income-payments series of the Department has been used as the key index for the measurement of regional economic progress in almost every regional study published since 1939 (see Charles A. R. Wardwell, *Regional Trends in the United States Economy*, published as a supplement to the *Survey of Current Business*, Department of Commerce, 1951).

In the late 1940's and early 1950's, the President's Council of Economic Advisers sponsored a number of regional studies through committees of economists. The published reports are: *Economy of the South*, Report of the Joint Committee on the Economic Report on the Impact of Federal Policies on the Economy of the South, Joint Committee on the Economic Report, 81st Cong., 1st Sess., 1949; *The New England Economy*, a report to the President transmitting a study initiated by the Council of Economic Advisers and prepared by its Committee on the New England Economy, July 1951; "The Southwest," mimeographed, Report by the Com-

PROBLEMS IN THE ASSESSMENT OF REGIONAL PROGRESS

A great variety of approaches to the assessment of economic progress has been characteristic of regional studies. Many perplexing questions arise in the measurement of regional economic growth for which no generally acceptable answers are yet available. What areas, for instance, should be included in "regions" to serve as the focus of interest and the basis of comparison? What constitutes "economic progress" and what criteria should be applied in judging the relative achievements or status of an area? What concepts and techniques should be employed in designing measures of progress? This paper attempts to clarify some of the issues and to analyze some of the general principles.

It is necessary to limit its scope because of the great variety of uses for measures of economic progress and the difficulty of elaborating principles that can apply to all of them. For example, quite different considerations are involved in the use of economic-progress data for a specific administrative decision, e.g. the location of a branch plant by a large industrial firm or the design of a tax program by a state, and in their use for an attempt to develop a deeper understanding of the processes involved in national economic growth. I have therefore chosen to take the broadly conceived regional studies (concerned with developments in large multistate sectors of the United States) as a point of departure and have focused attention on what seem to me to be the major problems involved in the measurement of progress in studies of this type—specifically as related to the *key concepts* and *basic statistical data needed.*

Types of Region

A striking feature of the regional studies currently available is the variety of boundaries chosen. A specialized division is to be expected, of course, when a study focuses on a particular problem, e.g. the development of a river basin, or when the boundary is defined by administrative considerations, e.g. the Tennessee Valley Authority. However, even in studies concerned with the economic problems of large sections of the United States—and when the eco-

---

mittee on the Southwest Economy, June 1954. Parallel and expanded studies were later published by Calvin B. Hoover and B. U. Ratchford (*op. cit.*) and by Seymour E. Harris, *The Economics of New England*, Harvard University Press, 1952.

nomic significance of the regional demarcation is implicit in the very undertaking—there are fairly wide variations in the divisions employed. Indeed, the only large region in the United States that is treated consistently is New England. But even here certain difficulties are apparent.[3]

Obviously, there are formidable problems involved in establishing regions for the analysis of economic status or economic progress. I do not suggest a specific set of criteria for regional demarcation, but some factors deserve consideration in regional economic studies of the type mentioned above. These include (1) a dynamic, rather than a static, approach to regional delimitation, (2) the hierarchy of regions in economic development, and (3) the question of the "nodal" region.

A DYNAMIC APPROACH TO REGIONAL DEMARCATION

As long as economic characteristics and interrelationships are subject to continual change, a dynamic approach to demarcation seems essential. I believe that the disregard of this principle has limited the usefulness of many of the regional economic studies.

Economic developments in this vast continent have tended to flow in large waves. Thus, population has moved and once again moves West; an entire industry, e.g. the textile industry, moves from North to South; the grain belt shifts farther West; the cattle industry develops step by step over a vast intermountain and plains area; new areas are opened up for major mineral exploitation and become centers of large new industrial complexes. Not only have such movements been on a broad front but they have occurred at widely separated points in time. The tendency for local differences to characterize economic development in a large country like the United States (stemming from such factors as different resource endowments) was strengthened by a history of settlement that spans centuries in an era of remarkably rapid changes in science, technology, and economic organization. The fact that the various sections of the United States were settled and experienced various stages of development at relatively distant points in time currently influences the nature of their development and rate of growth. Thus, major economic shifts have particular meaning in terms of the historical trends of

[3] Thus, the New England report, sponsored by the Council of Economic Advisers, finds it necessary continually to attach qualifications to its general statements about the region and often to present separate sets of statistics for the three northern states (Maine, New Hampshire, and Vermont) and for the three southern New England states (Massachusetts, Connecticut, and Rhode Island).

development, and the elements of both uniformity and divergence are subject to continuing change.

What is called for is a modification of the usual "homogeneity" approach; from the search for regions with some supposedly inherent and stable elements of uniformity to *the examination of broad areas of the United States as they develop elements of relative uniformity and of divergence over time, and particularly as they develop interdependent patterns of economic activity.* For purposes of assessing the relative economic status and the economic progress of the various parts of the country, the demarcation of regions must itself be considered an analytical variable.

This conclusion would seem to hold not only for purposes of economic analysis but for other general uses of progress data as well. Thus, for "evaluative" purposes, the criterion for regional demarcation is logically the area of distinctive group consciousness, i.e. the areal extent of the "we" when the question is asked, "How well are we making out, and what can be done to improve our situation?". The degree to which economic considerations are separable from other elements in group consciousness is probably indeterminate, but certainly it must be some sense of mutual dependence and of possible cooperative action which gives rise to an interest in economic-progress data. Group consciousness is undoubtedly subject to "social lag" and is often related to factors that may have been determining in the past but are no longer relevant. Those who provide statistical information and prepare economic analyses should furnish as sound a rationale as possible (within the limits of present knowledge) for group consciousness and cooperative action. Instead of the usual acceptance of some (economically) arbitrary demarcation of the region and a consequent struggle with endless qualifications and halting generalities, regional demarcation should be treated as a variable in economic growth analysis and as a valuable technique for highlighting the *changing* patterns of economic relationships. Such an approach requires that data be available on a county as well as a state basis *throughout the entire country* (and, obviously, on a uniform and annual basis) so that flexible demarcations may be possible.[4]

Where the establishment of specific boundaries is necessary (as in the use of statistical series), a dynamic approach involves recombinations of "core" units, e.g. states and counties, from time to

[4] At the present time, county income figures are available for only certain parts of the country and are calculated (with a few exceptions) on an informal and irregular basis.

time to reflect significant secular changes in regional growth patterns. Comparisons over long periods of time of the same geographic area can always be made as long as the core units remain the same.

The notion of "shifting" regions, far from being a troublesome feature in economic analysis, is essential to any understanding of the continually changing nature of the national space-economy. This would distinguish regional analysis from the analysis of the over-all national economy. Only in the case of the latter does it seem appropriate to organize the account of economic growth within an unchanging boundary so as to reveal the common and the disparate elements in experience, the constant and the variable. Regional analysis must work within this framework and examine economic development within the important and changing locational matrices.

HIERARCHY OF REGIONS AND THE ANALYSIS OF "NODAL" REGIONS

In analyzing the spatial aspects of economic development, the concept of the "hierarchy of regions" developed by geographers, sociologists, and others is pertinent. For economic analysis, a large region must be defined in terms of the unique *combination* of features that characterize the nature of, and developments in, the economy and the activities of its inhabitants. One area within such a large region may specialize in the mining of coal; another may specialize in the growing of grains; a third may be highly industrialized. Throughout, there will be variations in the degree of urbanization, the types of services available, and other features, as well as variations in the structural changes taking place. Such "subregions" may resemble each other more than they do any other areas, yet each may represent some variation of the basic combination of regional characteristics. These subregions in turn may have internal variations of their own worthy of being recognized as unique subareas. Together, they provide the basis for describing and analyzing the internal structure and interrelationships of the large economic region.[5]

Some of the difficulties in the analysis of economic development in certain regional studies seem to stem from too little attention to this structural principle. The very use of the regional framework often seems to encourage a (possibly unconscious) reaching out for uniformities and regularities as the rationale of the study. Actually, the *variations* in activities and developments in a given region—

[5] Employing this concept, Bogue, working with others, has delimited the "economic areas" of the United States, recognizing four levels of generality: (1) economic provinces, (2) economic regions, (3) economic subregions, and (4) state economic areas (Donald J. Bogue, "An Outline of the Complete System of Economic Areas," *American Journal of Sociology*, September 1954, pp. 136–139).

in a relatively unique combination or form—just as do much of the elements of uniformity, give the region its particular character and must be recognized precisely for what they are.

At least equally important is the necessity of recognizing the value of the nodal region.[6] The outstanding trait of this type of region is that the outlying areas are oriented toward a central place or node. The node is a market center, a source of supply of a wide variety of goods and services, and an avenue of access to other nodal points. A metropolitan district, with its suburbs and broad hinterland, typifies the nodal region. The concept of the nodal region is important in that it is essential to an explanation of both the structure of economic activities throughout the nation and within various broad regions and of the nature of the economic development taking place.

Walter Isard and Guy Freutel have pointed to the tendency for economic activities to agglomerate around certain focal points and have suggested that—from the standpoint of economic analysis—the appropriate criterion for regional demarcation should be "internal interdependence of income, as revealed through flow phenomena," and that the definition of a region or the establishment of sets of boundaries are in general "derivable only to the extent that . . . analysis can reveal the role of distance in the functioning of the economic system." [7]

T. W. Schultz has stressed, as have others, the industrial-urban centers as places where economic development principally occurs. "The existing economic organization works best at or near the center of a particular matrix of economic development. . . ." [8]

Study of regional economic development calls for an analysis of the changing influence of the urban-industrial centers within a region, as well as an examination of the channels, composition, and volume of flow of commodities, payments, services, and persons. Both the conceptual framework and the mathematical and statistical procedures for this type of analysis are still in an experimental stage.

[6] Cf. Derwent Whittlesey, "The Regional Concept and the Regional Method," in *American Geography: Inventory and Prospect*, Preston E. James and Clarence F. Jones, editors, Syracuse University Press, 1954, pp. 36–37.

[7] Walter Isard and Guy Freutel, "Regional and National Product Projections and Their Interrelations," in *Long-Range Economic Projection*, Studies in Income and Wealth, Volume Sixteen, Princeton University Press for National Bureau of Economic Research, 1954, pp. 456–457.

[8] T. W. Schultz, *The Economic Organization of Agriculture*, McGraw-Hill, 1953, p. 147. John R. P. Friedmann, in a well-documented study focusing on one section of the United States, has provided empirical evidence for this hypothesis (*The Spatial Structure of Economic Development in the Tennessee Valley*, Program of Education and Research in Planning, University of Chicago, Research Paper 1, March 1955).

Promising avenues of regional analysis have been established through studies of the location of economic activities, computation of distance or time-cost gradients, functional relationships in terms of basic industries producing for export, formulas and principles that account for the reciprocal behavior or interaction between parts (G. K. Zipf, J. Q. Stewart, S. A. Stouffer, J. Reilly, and others), models that illustrate intraregional and interregional flows through input-output and balance of payment analyses, commodity flows through transportation networks, and others. The use of these relatively new tools of analysis, even at this stage of their development, can provide suggestive materials on the importance of the functional relations among regions and within a single region as factors underlying trends in economic growth.

The Concept of Economic Progress

Economic progress is advance to an economic objective or movement in a desired direction. Since objectives vary from place to place and time to time, the element of group value judgments is inherent in the term.

The objective or direction may be explicit and measurable, as in income, employment, or production targets set in a development plan or in a government economic report. In such a case, the definition of progress may be taken as given and only the question of the method of measurement to be employed would remain. Usually, however, the term "economic progress" represents a broad group of economic and social objectives with welfare, efficiency, and volume connotations.

Almost all recent regional economic studies assess progress mainly by the increase in three indexes: (1) income payments (total and per capita), (2) employment (usually with special emphasis on the growth of jobs in manufacturing), and (3) population. According to one study: "Income measures are the best starting point for an economic appraisal because (1) income shows how the economic activities pay off, (2) income payments are closely related to the economic welfare of the people, and (3) it is possible to break down total income into payments from various sources, which can be related to the major types of economic activity in an area." [9] Both the rate of growth in income (absolute as well as relative) and the levels

[9] "Comparative Economic Progress in the Southeast," mimeographed, Tennessee Valley Authority, Division of Regional Studies, Industrial Economics Branch, May 15, 1953.

of income at different periods (absolute as well as relative) tend to be employed in assessing regional economic progress.

Increases in total income and in employment in a region have meaning chiefly in relation to the relative growth in population. Thus: "The desirability of population growths can be adequately measured only in relation to resources and economic opportunities available to support an increasing population. Nevertheless, relative trends in population growth taken in conjunction with other data are useful indicators of economic trends." [10]

VARIOUS ASPECTS OF PROGRESS

It is difficult to disentangle the various elements of a broad and value-laden concept such as economic progress and to separate it into unambiguous components. The concept can be sharpened, however, if it is related to the three basic elements inherent in it as it is usually employed—welfare, efficiency, and volume—and to certain key phases of the economic process. These elements may be approached through a series of aggregate measures serving as "indicators" which are broadly representative of the complex socio-economic phenomena involved:

1. Levels of living
   a. Indicators of material state or condition of individuals
   b. Measures of current per capita consumption of goods and services (including individual and collective consumption)
   c. Measures of income received by individuals (and families), disposable income, and personal savings (per capita)
   d. Measures of the proportion of the labor force (actively seeking work) who are employed full time
2. Productive efficiency of the economy
   Measures of value of output of goods and services (value added) per worker
3. Volume of economic activity
   a. Measures of total population, labor force, and employment
   b. Measures of total value of output of goods and services (value added)
4. Potentialities for expansion of volume of economic activity or increase in efficiency inherent in the economic system
   Measures of the relative importance of "growth industries" and other indicators of potentialities for expansion of output and increase in efficiency

[10] *The New England Economy*, p. 12.

One of the suggestive features of this arrangement is that it indicates the performance of the socio-economic system over time. The implications of past, present, and potential performance differ with each group. Thus, while all the items reflect in some degree the past performance of the economy (generally in terms of accumulated capacity), the first group of items—the levels of living—particularly reflects this. Present performance looms large in the two middle groups, while the fourth focuses particularly on future performance—the potentialities for expansion or improvement built into the socio-economic system.

Levels of Living. The material condition of individuals, current consumption, income received, and employment are essentially measures of the "levels of living." This concept has evolved out of efforts to describe and analyze the actual conditions of life. It has come to be distinguished from the concept "standard of living," which refers to aspirations or ideas of what ought to be, that is, the living conditions people seek to attain or regain or regard as proper for themselves.

The state or condition of individuals is usually approached in a pluralistic manner by analysis of various "components" representing widely accepted values, such as health, nutrition, and education, and by the use of various statistical indicators for these components (e.g. life expectancy rates, infant mortality rates, etc., as indicators of health). Often reference is made to nonmaterial aspects of life, but generally measurement is limited to the material components for obvious reasons.[11]

Usually in measures of levels of living, much weight is given to the level of *current consumption of goods and services,* including both individual and collective consumption (public services). The level of consumption is necessarily evaluated in terms of money and prices. This has statistical advantages. It also indicates an acceptance of the values that prevail in the community and of their measurement in the community's own terms. Ordinarily, this measurement is approached by way of consumers' expenditures, i.e. purchases

[11] A committee of experts acting under the auspices of the United Nations suggested the following as "an acceptable international catalogue of the components of the level of living": (1) health, including demographic conditions, (2) food and nutrition, (3) education including literacy and skills, (4) conditions of work, (5) employment situation, (6) aggregate consumption and savings, (7) transportation, (8) housing, including household facilities, (9) clothing, (10) recreation and entertainment, (11) social security, and (12) human freedoms. The committee noted that "the precise connotation of each would to some extent be determined by national attitudes and standards resulting from peculiarities of environmental conditions, cultures, values, and economic, political and social organization" (*Report on International Definition and Measurement of Standards and Levels of Living,* United Nations, 1954, p. 26).

of consumers' goods and services by consuming units. A more refined consumption aggregate requires an accounting for waste between purchase and consumption, for depreciation of consumers' durables, and for similar items. Also, it must include an estimate of collective consumption (value of publicly provided consumers' goods and services). This is important not only because these items are part of individual consumption but also because the proportions of private and public purchases of consumers' goods and services can vary significantly from place to place. Clearly, difficult problems of measurement are involved, especially for nonmarketed goods and services. But an estimate of the consumption aggregate is necessary if the center of interest is in the *actual* goods and services consumed by individuals and families, rather than *potential* consumption (as in the case of output and income measures). The appropriate denominator here is the total population, i.e. the total number of consumers.[12] Thus, the rate of growth of population has special significance for this aggregate.

The third item—income received by individuals, disposable income, and personal savings—provides valuable additional information for a description of levels of living. It provides information on income received from all sources (including transfer payments of various kinds), on how much of this is given up in the payment of personal taxes, and on how much is saved rather than spent (absolute and as a percentage of income). Thus, it furnishes an estimate of the income over which individuals and families have personal control.

Per capita income receipts, per capita consumption, and per capita savings provide information about "average" conditions of residence within an area. A fuller picture would give consideration to distribution among significant classes and groups and to the stability of the aggregates from one period to another. To the extent that the community values equality and stability, these additional measures are important for a description of changes in levels of living over time and comparisons among various regions.[13]

A fourth item may be included in assessing levels of living—the proportion of the total labor force (actively seeking work) who are employed full time. This is based on an implicit value judgment:

[12] Refinements in terms of age categories—to arrive at equivalent consumer units—may be appropriate for certain purposes.

[13] The input side of the picture is also important to a rounded picture of levels of living. The cost involved in acquiring income and enjoying consumption, as expressed in the conditions of work (hours, strain, safety, vacations, etc.) is, however, extremely difficult to measure objectively. This is true also of other possible cost elements involved in achieving the given levels of living, such as smoke, noise, social maladjustment, etc.

that a full-time job for those who wish to work is an essential element in the level of living enjoyed. It assumes that unemployment or underemployment, when involuntary, is an undesirable aspect of living in a given area.

When interest centers on the end results of the economic processes, the items discussed above can be used as meaningful indicators. However, the items in the level of living category throw only indirect light on the productive efficiency of the economy and little if any light on growth possibilities. To get at these, it is necessary to rely on different sets of measures.

Productive Efficiency. Economic progress may be taken to mean improvement in the over-all efficiency of an economy, whether national or regional. The question may be asked: How much does the economy produce at present—in terms of a given set of inputs—compared to its production in the past, or in another region? To answer such a question, we need to have a measure of the total value of output of goods and services as well as an input denominator, since, obviously, volume alone cannot tell anything about efficiency.

The value of output of goods and services can, conceptually at least, be measured at three points in the productive process: at the point where the goods and services are produced, where payments are made to the factors of production (labor and capital) for their contribution to the productive process, and where the goods and services are sold and bought. All of these necessarily measure the same aggregate—the value of the "bundle" of goods and services produced within a given time span, although certain adjustments may be needed to achieve exact equality. But the base of measurement is different in each case. At the point of production, one must aggregate the value added by each productive unit in the economy; payments to the factors of production involve aggregating the various types of payment—wages, salaries, interest, rents, profits, etc.; while at the point of sale and purchase one must aggregate all the expenditures for goods and services made by consumers, government, businessmen (on capital account), and by foreigners. Because each employs a different base of measurement and is made up of different components, each provides different types of itemized information. Therefore, it is valuable to have as many of these measures as possible. Computation of these aggregates on a regional basis involves a variety of methodological and theoretical problems, some of which will be discussed later.

Theoretically, efficiency can be assessed by measuring output in terms of any input element (labor, machinery, materials, etc.), but

in practice only the labor input can be readily used, since only labor comes at all close to being a fairly homogeneous unit (and, even here, homogeneity is only a very rough approximation). There are a number of difficulties involved in using the labor force as a denominator in the measurement of productive efficiency of an area. One problem is the classification of marginal workers, such as unpaid family workers on the farm. But output per worker provides a better measure of efficiency than does output per capita, the measure frequently used. The variation in the number of dependent children and other population and employment characteristics in different regions is great enough to impair the meaningfulness of output per capita as a measure of efficiency.

As Frank Hanna has shown, state differences in population attributes, e.g. age composition and participation in the labor force, are a significant element in the variation in state per capita income payments. According to Hanna, "some 15–25 per cent of the variation found in state per capita incomes [in 1950] is accounted for by differences in the relative number of children below productive ages, of persons 65 years or older, or of the relative number of persons who are in the labor force and thus contributing directly to income production. The largest difference is that associated with the total labor force." [14]

The trend line is clearly of major significance in measuring productive efficiency. For example, two regions may each currently have an output per worker of $3,000. However, if one had a similar value of output two decades ago, while the second increased its output over the period from $2,000 to $3,000, the current status of the two would be significantly different as far as the performance of the economic system over time is concerned.[15]

Volume of Economic Activity. Economic progress may refer to the rate of expansion in the total volume of economic activity within a region.

In this connection, it is useful to distinguish between two possible

[14] Frank A. Hanna, "Age, Labor Force, and State Per Capita Incomes, 1930, 1940, and 1950," *Review of Economics and Statistics,* February 1955, p. 68.

[15] The question of efficiency is extremely important in the competitive standing of regions. Thus, firms in an area with a high average wage are not necessarily at a competitive disadvantage. What matters is the output per dollar of wages. And, in turn, efficiency is itself a basic element in determining the level of wages paid. For example, wages are high, in terms of averages, in the industrial Midwest in part because of the heavy concentration of metal-using industries, which yield high values of output per man-hour. The South pays much higher wages to skilled labor in pulp and paper mills than the North. In the view of the Department of Labor, the explanation is the more recent development of the industry in the South and hence the use of more modern, wider, and higher-speed paper making machines in that region.

points of view in assessing regional progress, a regional and a national perspective. A regional perspective often reflects a desire to provide local job opportunities for all present members of the labor force as well as for those who might be newly recruited into it. A negative value is thus placed on out-migration. For example, a recent TVA report states: "The need for further industrialization is a pressing one. In spite of the increase in job opportunities in industry and other business enterprises, they were not enough to take care of all the people who left farming plus those who first entered the labor market, and there was substantial migration from the area. The Valley is still relatively undeveloped industrially." [16]

From a national perspective, what is significant is the country's level of output and level of living, even if it involves a substantial interregional shifting around of productive resources, including labor (weighing, however, the losses from migration, e.g. in a lower utilization of existing productive facilities in the area of out-migration and in family dislocation). Obviously, the *net* gain or loss is the important consideration. Migration from a region, as long as it involves a transfer of labor resources to more productive employment without compensating losses, may be considered advantageous from the national viewpoint, even though it may be considered a loss from the regional one.

The volume of economic activity in a region may be measured in terms of the total population (number of consumers), total labor force (number of producers), total employment (number of jobs available), and the total value of output of goods and services. A single index does not suffice, since each of these may be changing at a different rate, and each supplies important information about what is taking place within a region.

The possibility of divergence between the rate of change in the volume of activity and in per capita income is illustrated by a recent regional development. A striking feature of the rise in per capita income since 1929 is the fact that the regions experiencing the largest population increases have rather modest percentage gains in per capita income. Evidently, the large increases in total output and income was absorbed in supporting the increased numbers, while the immigration of workers served to dampen the rise in average wages. The Far West had an increase in total income between 1929 and 1949 of 227 per cent (compared to a national average of 139 per

[16] *TVA: Two Decades of Progress*, Tennessee Valley Authority, 1953, p. 9. For most residents, who stand to gain by a rise in wages which might well accompany the out-migration of others, the feeling about loss of population must be a symbolic one, an intuitive appreciation of the fact that such loss reflects the low-wage standing of the region relative to other regions.

cent) but a per capita increase of only 86 per cent (compared to the national average of 96 per cent).[17] The Northwest, whose total population remained almost stationary during the period had, by contrast, a total increase in income of 150 per cent and a per capita increase of 138 per cent. Between 1929 and 1949, the Far West's population had increased by 75 per cent; that of the Northwest by only 5 per cent. In general, the areas losing population by migration (Southeast, Southwest, and Northwest) showed the largest percentage increase in per capita income—156, 151, and 138 respectively, against a national average of 96 per cent.

Potentialities for Expansion. The analysis of regional economic progress may be focused on progress to date; on the other hand, it may also be directed to the question of inherent potentialities for *future* expansion. The latter consideration is particularly important for a deeper understanding of the process of economic development and for developing an informational basis for national and regional development policies and programs.[18]

A region may be said to have achieved progress when it has been successful in developing the kind of economy that inherently provides the basis for *continued* growth. One might argue for including this criterion in assessing regional economic progress by pointing out that if growth is prized highly—or at least more than decline—then the type of growth that itself provides for further advance is preferable to one that does not provide for cumulation.

Potentialities for further growth can be measured in three ways: as potentialities for increases in the volume of economic activities, as potentialities for increases in efficiency, and as potentialities for increases in levels of living.

The trends of changes in the value of output or of changes in population may indicate the relative degree of general forward movement of a regional economy and of its built-in potentialities. Simple projection in this case may be highly suggestive. On the other hand, important structural changes may be under way which may redirect the trend lines in the near future, or the economy may be particularly vulnerable to exogenous forces in the making (as would be the case, for example, of an area dependent on cotton cultivation whose terrain does not permit mechanization at a time

[17] In evaluating such figures, it is important to note that the in-migrants, as well as the older residents, may have greatly improved their economic status, and also that the *absolute* increases in income have been substantial.

[18] A powerful case for "forward perspective" in regional analysis is presented by Edgar M. Hoover and Joseph L. Fisher in their stimulating article, "Research in Regional Economic Growth," in "Problems in the Study of Economic Growth," mimeographed, National Bureau of Economic Research, 1949, pp. 205–207.

when other cotton areas are mechanizing), or certain of the resources of the region may only now be coming into demand because of an important technological development, e.g. the industrial uses of atomic energy.

When the concept of economic progress includes considerations of future possibilities, as well as of past and present performance, there is need for measures or indicators that can provide useful information about built-in regional potentialities. Obviously, the future of an economy cannot be evaluated in the same way as can the past and the present. An aggregate such as value of output represents the end result of the complex workings of the socio-economic system. Its components may furnish suggestive information about what is behind the performance of the system, but the index itself does not have to carry the burden of evaluating the relative importance of the various causes in order to provide an answer about over-all performance, ex post. However, to represent a region's inherent potentialities for various kinds of expansion, an index must have the evaluative elements built into it. If we had a general theory of economic development with predictive value over time and among places, it might be possible to construct such an index. We do not have such a theory, and the task of assessing economic potentialities clearly cannot be approached through the construction of a single measure. However, useful information can be provided about the future possibilities inherent in a regional economy by an openly evaluative approach.

Although a general theory of economic development is not available, experience, observation, and analysis have brought to the fore certain elements that seem to be essential for economic development under all circumstances. Some are in broad social and psychological realms, such as the existence of a political environment conducive to productive economic effort, the existence of a spirit of entrepreneurship and risk taking, and so on.[19] Other elements are

[19] The importance of this element is highlighted in certain of the regional studies. Thus, the Council's New England report contains the following interesting observation: "New England's industrial leaders of past generations often attained success only after considerable struggle with competitive forces. In later generations the new industrial leaders often attained their position by 'appointment'—a hand-me-down from father to son. Their wits and energies had not been sharpened by the trials and contests of the market place. Moreover, for reasons which are obscure, succeeding generations of management seem to have turned their attention away from industrial progress and have shown, too often, a greater interest in the preservation of the *status quo*. They have often sought safety by minimizing their risks or by exporting capital to other regions. One consequence was to develop an attitude of protection and security rather than a continuation of the earlier drive toward industrial progress" (*The New England Economy*, p. xxii).

related directly to economic activities and can be more or less quantified. These consist mainly of the productive resources available within an area and the effectiveness with which they are used. However, in analyzing the economic potentialities of a region, compared to those of a nation, special problems are involved. Of the three basic types of resources—land (natural resources), labor, and capital—the last two are actually or potentially mobile. One question, then, is: What is the current status of the economy of a region as far as its seeming ability to hold and attract labor and capital resources is concerned?

It would be possible to approach an answer by way of a twofold analysis: first, by the construction of a framework of projections based on well-established trends, followed by a detailed analysis within this framework of the forces at work that may cause a change in direction. A framework in terms of projections of labor force, jobs, and total output might effectively serve these purposes.[20]

The task of determining the built-in potentialities of the economy would remain. This would involve some disaggregation and analysis of the separate components, and especially of the factors that influence the size of the labor force, the shift of workers from farming and other primary employment, the rate of increase of labor productivity, and the shifts of industry because of availability and cost of material and labor resources and the size of markets. A full discussion of the type of analysis involved would be a paper in itself. Since the purpose here is to clarify the concept of regional economic progress, rather than to analyze the processes involved in economic progress, it may suffice to mention some of the more useful indicators of the growth potentialities of a region. These are found mainly in the category of current structural changes. The following, it should be stressed, are merely illustrative.

1. *Change in per capita expenditures for plant, equipment, and other productive capital outlays within the region.* This provides an indication not only of the trend in expansion of productive capacity but also the relative attractiveness of the region for investors. The latter is especially significant in the case of market-oriented industries, since an optimistic view of market possibilities can be partly self-fulfilling. Expenditures for "social overhead" items (transportation, power, water works, schools, etc.) should also be considered

[20] Cf. *State and Regional Variations in Prospective Labor Supply*, Bureau of Labor Statistics, Bull. 893, 1947. A highly suggestive discussion of the methods which might be employed in projecting gross state or regional product is provided by Isard and Freutel (*op. cit.*, pp. 427–471).

under the heading of expansion of productive capacity but would have to be weighed differently than expenditures for plant and equipment.

2. *The average rate of increase in labor productivity in industries in the region.* This is a companion indicator to the first, but it also tells something significant about the efficiency of the industries in the region. Thus, it reflects not only the capital-labor ratio (which may vary from region to region in the same industry) but also the relative effectiveness of management and labor (which would certainly tend to influence future performance of the regional economy). Applied to farming and other primary industries, this index provides a basis for projecting the labor force being released for other jobs.

3. *The rates of return on investment in the industries in the region compared to other regions.* This provides an indication of the likely attractiveness of these industries for future investment.

4. *The proportion of total workers in, and total value of product derived from, industries in the region with a greater than average recent growth (on a national basis).* Growth industries in this sense can be described as those with a greater than average increase in earning per worker and greater than average increase in value of product, or both, during, say, the past decade. The industry mix of a region and the relative proportion of fast-growing industries are clearly significant indicators of growth potentialities.[21]

Other useful *general* indexes which are suggestive of growth as a compound of many forces and which, in the past, have shown themselves to be closely correlated with expansion of output and income are:

5. *The relative growth of urban and rural population.*

6. *The relative growth in the size of cities in the region.*

7. *The rates of change in the proportion of population in the labor force.*

8. *The rate of change in the median years of schooling of males twenty years of age and over.*[22]

[21] The regional distribution of growth industries and the importance of this item are analyzed in *Regional Trends in the United States Economy, Supplement, Survey of Current Business*, Dept. of Commerce, 1951, pp. 5–6.

[22] For discussion of the relationship of these and related indices to regional economic growth, see Herbert E. Klarman, "A Statistical Study of Income Differences Among Communities" in *Studies in Income and Wealth, Volume Six*, National Bureau of Economic Research, 1943, and comments by Daniel S. Gerig, Jr., Laura Wendt, and Dwight B. Yntema in the same volume (pp. 226–235); Henry M. Oliver, Jr., "Income, Region, Community-Size and Color," *Quarterly Journal of Economics*, August 1946, pp. 588–599; John L. Fulmer, "Factors Influencing State Per Capita Income Differentials" (pp. 259–278), and Jesse W. Markham, "Some

Actually, of course, an attempt to evaluate regional potentialities would also have to include a detailed analysis of the competitive situation of the region in terms of material and labor costs, markets, tax burdens, and, in general, relative locational advantages for various types of economic activities. It would have to reckon with discernible trends in the flow of federal government funds into and out of the various regions and in federal locational policies as well as with the general flows of goods and funds among regions. For analysis of the last item, regional input-output and balance of payments analyses might prove helpful.[23]

STANDARDS OF JUDGMENT

Not only can the concept of economic progress be interpreted in a number of different ways, but various criteria can be employed for assessing whether "progress" has in fact been made, and at what rate. Progress can be defined in terms of the expansion of some particular value, e.g. the productive efficiency of the economy. Once the value itself is defined, e.g. efficiency = output per worker, then any increase in the value (output per worker) can be said to represent progress. Using this criterion, the method of measuring progress involves a measure of *absolute* rate of change. In one sense or another, all attempts to measure regional progress make use of this criterion.

However, progress can also be expressed by references to some more or less arbitrarily selected standard. This method involves a measure of *relative* rates of change.[24] Often the comparison is made on an interregional basis as well as on a national basis, or on a regional–rest-of-the-nation basis.[25] The important point here is that the standard for judgment is necessarily arbitrary. Thus, the Southeast may be "poor" or "underdeveloped" relative to the nation, yet it has a higher per capita income than Great Britain.

A third standard for judging progress is possible: the rate of increase achieved in a selected index toward some specific target. This involves some notion of adequacy, and with it, the ability to say

---

Comments Upon the North-South Differential" (pp. 279–283), both in *Southern Economic Journal*, January 1950.

[23] Cf. Walter Isard, "Regional Commodity Balances and Interregional Commodity Flows," *American Economic Review, Papers and Proceedings*, May 1953, pp. 167–180; Penelope C. Hartland, *Balance of Interregional Payments of New England*, Brown University Press, 1950; and "Interregional Payments Compared with International Payments," *Quarterly Journal of Economics*, August 1949, pp. 392–407.

[24] Harris, *op. cit.*, pp. 7–8. [25] E.g. *Economy of the South*, pp. 17–21.

whether the rate of progress was just right, too slow or even possibly too fast. Such a standard requires the existence of specific regional goals to be used as criteria of adequacy.[26]

We have noted that there are at least four different facets to the idea of regional progress, as expressed in the concepts of level of living, productive efficiency, volume of economic activity, and potentialities for expansion. There are, in addition, a number of standards of judgment. It is useful to distinguish among these. There are, however, a considerable number of conceptual and methodological difficulties in establishing adequate measures of economic growth in any of these cases.

Problems in Measurement of Regional Economic Progress

Since 1939, when the Office of Business Economics of the Department of Commerce first made available the state income-payments series,[27] almost every study concerned with regional economic problems has used it as the central measure of changes in regional economic activities and of relative progress. In the September 1955 issue of the *Survey of Current Business*, the Department of Commerce presented new estimates of income by states for the years 1929–1954 based on the personal income concept. The new state

[26] Other standards of judgment are conceivable. For example, the rate of increase (in whatever index is employed) might be judged in terms of the quantity and quality of the natural endowment, so that one might say: the rate of progress is high (low) considering the relative poverty (wealth) of the material resources in the area. Or, if one had some preconceived notions about what rate of growth could be expected at various stages in the developmental process, then one might judge the rate of growth achieved by the expected rate considering the stage of development of the region. Obviously, these types of judgment are necessarily highly qualitative and are in a somewhat different category from the standards discussed above.

[27] In April 1940, the *Survey of Current Business* carried, for the first time, estimates of the incomes of the states covering the years from 1929 to 1938 inclusive, and in October of that year estimates for 1939 were added to the series. Every year since then, one of the summer issues has carried the state estimates for the preceding year. See John L. Lancaster, *County Income Estimates for Seven Southeastern States* (Report of the Conference on the Measurement of County Income, Bureau of Population and Economic Research, University of Virginia, 1952) for a valuable account of the historical development of statistics on income in the United States and of the concepts and definitions employed in the state series (pp. 7–12). Charles F. Schwartz and Robert E. Graham, Jr. describe the nature of the data and the procedures involved in estimating state income payments in the Technical Notes appended to their article "State Income Payments in 1949" (*Survey of Current Business*, August 1950, pp. 22–24). The same authors describe the new personal income series in their article, "Personal Income by States, 1929–54" (*Survey of Current Business*, September 1955, pp. 12–22, 32).

personal income series conforms with the national personal income series.[28]

The components of the new series, as well as of the income payments series, are:

1. The wages and salaries received by individuals for their labor
2. The income received by individuals as owners of noncorporate businesses, including the income of farm proprietors and self-employed professional people
3. The income received by individuals for the use of their property or capital (dividends, interest, net rents, and royalties)
4. Various types of supplementary earnings termed "other labor income," and government and business transfer payments (consisting, in general, of disbursement to individuals for which no services are rendered currently, such as social security benefits)

The new estimates involve important improvements, both conceptually and statistically. They are more comprehensive, e.g. they provide broader coverage of income in kind, and are more consistently on a where-received basis.

The name of the earlier series, stressing the word "payments," seemed to have caused some confusion in its use. In some instances it was employed in regional studies to represent alternatively total income receipts and total value of production of goods and services. With the state estimates now clearly labeled as being on a personal-income basis, it will be evident that what is being measured is the value (cash and imputed) of income *received* by individuals. Assuming that full adjustments are made for a where-received basis of estimation, it will also be evident that what is being measured is the total income available to the residents of a state or region and not the value of what they produced.

Thus, employing the economic progress categories suggested earlier, we can say that the personal income series makes available a significant indicator of the levels of living within states and regions. The usefulness of this series as a measure of state and regional *levels of living* would be enhanced if the estimates provided on a national basis were paralleled on a state basis. The national income statistics include estimates of disposable personal income, personal consumption expenditures, and personal savings. The first

[28] Personal income, as compiled by the Department of Commerce, differs from national income by excluding corporate savings and contributions by both employees and employers to social security funds, and by including direct relief, veterans' pensions, social insurance benefits, retirement payments, and the like. It does not deduct personal taxes.

could readily be provided on a state and regional basis, since personal taxes are, in general, paid by individuals within the state in which the income is received. Estimation of personal consumption expenditures (and personal savings as a residual) on a state basis involves serious difficulties of measurement, but it may be possible to achieve a reasonably accurate measure by allocating the national consumption figures to states by the use of closely related data which can be secured on a state basis. Actually, however, the consumption figures will not provide adequate information on the relative levels of living unless estimates are also available on the value of collective consumption, and unless some adjustments are made for the differences in cost in providing the same degree of comfort, protection, etc., under varying climatic and other conditions. Short of such an elaborate analysis, perhaps estimates of personal income provide as useful an aggregate measure of levels of living as can be made available in an annual series.

Thoroughgoing analyses of changes in the relative levels of living require the refinements of "equivalent consumption units," relative costs of living, and income distribution. Given the larger number of children in rural areas and the lower costs of living compared to those in urban areas, personal income figures on a per capita basis tend to underestimate levels of living in regions with large numbers of rural residents. To make the regional estimates comparable, one must use some form of equivalent consumption unit as a denominator rather than total population and make adjustments for the differences in the costs of living in the rural and urban areas. As far as estimates of income distribution are concerned, significant differences in income distribution may greatly affect actual levels of living. If a large number of wealthy individuals choose to reside in a certain state because of climatic and state tax rates, or both, this may significantly influence the state personal income figures but not necessarily the levels of living of other residents of the state (though it may provide additional income for some individuals in service activities).

Because of the importance of income distribution for measures of levels of living, and because of the difficulties involved in providing such information in annual series, differentials in, and changes in, wage and salary receipts among regions may be the most significant single measure of levels of living that can be readily made available. Certainly, this is the most important component of income for the great majority of families and to a large extent determines the levels of living enjoyed by individuals. However, there are certain limitations to the use of wage and salary receipts as a gen-

eral measure of regional progress. It would tend to skew geographic distribution of income in favor of the regions with a relatively larger number of farm laborers compared to regions with more farm proprietors. Also, it would not reveal the possibly significant item of various types of transfer payments. Weighing the various elements involved, one may conclude that wage and salary receipts provide a better measure of levels of living than personal income taken by itself. The latter series, however, provided in conjunction with income distribution data would be a far superior measure of regional differentials and changes in levels of living than the former. Given estimates of income distribution, with the number of families at the various income levels, all the data provided by the estimates of wage and salary receipts would be available plus a great deal of additional valuable information.

Neither the previous state income-payments series nor the present personal income series furnishes a direct measure of the value of output of goods and services. Theoretically, such a measure could be provided in terms (1) of the value-added concept, (2) of regional income at factor prices (income paid to factors of production), or (3) of regional income at market prices (gross or net regional product or expenditure).

An enormous hurdle in measuring income payments to factors of production is, of course, the problem of measuring returns to capital on a where-produced basis. Normally, the capital items (dividends, interest, net rents, and royalties) are calculated from personal income tax forms, so only the places of residence of the individual recipients are revealed.[29] Data on corporate dividends and interest and corporate savings are not currently available by location of the physical plants. The state tabulation of corporate income tax returns is by the states in which the returns were filed, normally where the principal place of business or principal office of the corporation is located. Many corporations have plants throughout the country and dividends and interest are paid from the place of incorporation or the main office in one state.

Both the dividends and corporate savings of an interstate corporation could be allocated to a particular state on the basis of the ratio of the value of the physical assets there to the value of total physical assets of the corporation. Allocation on this basis would have to assume uniformity of profitability or of contribution by

[29] Even the where-received data are not precise, since some of the individuals are exempt from tax or from filing returns, or receive tax-exempt interest on state and local bonds that they do not report fully, and indirect measures have to be employed.

assets from state to state. Allocation could also be made on the basis of such items as sales or payrolls, where such data are available. Whatever the basis of allocation, certain arbitrary assumptions must be adopted. A fully satisfactory allocation requires a detailed cost accounting system for operations in each state for each corporation with plant and equipment in more than one state.[30]

The measurement of the value of output within each of the states by way of final-product purchases by consumers, and by government and business on capital account (that is, the regional counterpart of GNP) appears impractical. On the other hand, estimation of the net value of all goods and services produced within each state through the value-added approach does not. The measurement of the value added by each of the industries within the various states would, of course, be made easier if the censuses of manufactures, agriculture, and business were carried out simultaneously, regularly, and frequently, and if the coverage of each of the censuses was extended. Under the present census coverage and procedures, the use of a considerable number of indirect measures and special sample studies are necessary for an estimate of value added within each of the states.

An estimate of value of product by way of value added would provide extremely useful information for the assessment of regional economic progress, as well as for other purposes. The totals in such a series would furnish an appropriate indicator of changes in the volume of economic activities within each state and region. When divided by the number of full-time workers, they would provide highly significant measures of the differentials among, and changes in, the productive efficiency of the various regional economies. The components of these aggregates would be especially valuable for analyses of regional economic progress. They would provide suggestive data on changes in economic structures from both the input and output sides. Information on changes within each industry of material inputs, labor requirements, investment in plant and equipment or other capital items, cost structures, output per worker or per man-hour, and similar information would provide a base for analysis in depth of many of the forces at work in the development of the various regional economies, past, present, and potential.

The problems of measurement discussed to this point relate to key indicators for three of the four aspects involved in the broad concept of economic progress—levels of living, productive ef-

[30] Cf. Robert R. Nathan, "Some Problems Involved in Allocating Incomes by States" in *Studies in Income and Wealth, Volume Three,* National Bureau of Economic Research, 1939, pp. 418–422.

ficiency, and volume of economic activities. The fourth aspect—relative growth potentialities inherent in a regional economy—involves different measurement problems, since this measurement must be essentially evaluative in nature. The characteristics of a regional economy, the developments within it considered crucial for future growth, and their weighting must be made explicit before one can hope to judge the relative growth potentials of the various regions. Specific problems of measurement can be discussed only after such prior determinations have been made. What is involved here, clearly, is an analytical study of no mean proportions. Unfortunately, I must retreat to a "beyond-the-scope-of-this-paper" position and end with some comments on a final measurement problem faced in assessing regional economic progress.

SELECTION OF BASE YEAR AND PROBLEM OF MEASURING VALUES AT TWO POINTS IN TIME

It is evident that the selection of specific years for comparisons among states and regions in terms of a statistical index may influence or bias the results. This is particularly true since the various regions tend to be affected somewhat differently by cyclical movements. Thus, all comparisons in regional studies are influenced by the fact that 1929 is almost invariably used as the base year, this being the first year in the Department of Commerce state series. A single year can make a significant difference. Between 1929 and 1930, for example, per capita income payments fell by 19 per cent in the southern states, but only by 11 per cent in the remainder of the country.[31] To take another example, between 1949 and 1950, variations in income payments among the states ranged from an increase of 4 per cent in Oklahoma to an increase of 23 per cent in Montana. (In that year, income payments in agriculture varied from a drop of 28 per cent in Oklahoma to a rise of 64 per cent in Montana.) [32] If Montana's "progress" is assessed by comparing 1949 with 1940, an increase of 145 per cent in total income payments will be recorded, but if 1950 is used, the increase over 1940 will be shown as 199 per cent—a difference of 54 percentage points.[33]

[31] *Economy of the South*, p. 18.

[32] Robert E. Graham, Jr., "State Income Payments in 1950," *Survey of Current Business*, August 1951, p. 13.

[33] Year-by-year variations in terms of industry components among states and regions tend to be rather great. In 1949, for example, farm income dropped 22 per cent nationally, but rose 17 per cent in the Southwest (Arizona, New Mexico, Oklahoma, and Texas); in 1950, when farm incomes increased 6 per cent in the country as a whole, it declined 17 per cent in that region. Graham points out that the wide

Clearly, when interested in the more basic long-term developments within regional economies, one should account for both the differential cyclical variations and for the temporary, random elements that influence economic activities and values in any one year.[34] The latter tend to be strongly reflected in the agricultural and governmental income flows, e.g. the vagaries of weather, crop damage from pests and insects, sharp variations in farm prices, disbursement of veterans' bonuses, and relocation of military personnel. These and similar elements can so influence total annual figures that comparisons at two points in time must be made with caution, and for some purpose, private nonfarm income would be an appropriate measure of basic changes in state and regional economic activities. In general, of course, regional economic trends can best be measured through an analysis of absolute and relative changes in income and other indicators over a considerable span, with attention to year-by-year movements of both a cyclical and secular nature.

Summary

This paper is concerned with some of the major problems involved in assessing regional economic progress. Attention was focused on questions of regional demarcation, on criteria appropriate for judging the relative progress or status of a region, and on concepts and techniques in designing economic-progress measures. Because of the wide variety of quite different uses which can be made of progress data, these problems were discussed within the limited framework of the concepts and statistical information required for broadly based studies of the economic growth in large multistate regions in the United States.

Because of the many uses for progress data and the need for a dynamic approach to regional demarcation, the really important

---

fluctuations in farm income reflected sharp declines in the value of both cotton and wheat production in Texas and Oklahoma; the nearly complete destruction of the wheat crop in New Mexico; an increase of more than two-fifths in the value of cotton production in Arizona; and large increases in the value of production of wheat, corn, and other grains in Montana, Nebraska, North Dakota, and South Dakota (*ibid.*, p. 13).

[34] Frank A. Hanna has provided a valuable study of the cyclical, secular, and random elements in state per capita income payments during the period 1929–1950. Frank A. Hanna, "Cyclical and Secular Changes in State Per Capita Incomes, 1929–50," *Review of Economics and Statistics*, August 1954, pp. 320–330. See also Rutledge Vining, "Regional Variation in Cyclical Fluctuation Viewed as a Frequency Distribution," *Econometrica*, July 1945, pp. 183–213, and "Location of Industry and Regional Patterns of Business-Cycle Behavior," *Econometrica*, January 1946, pp. 37–66.

consideration in setting regional limits is the availability of the basic data (including income and output statistics) for all the areal units that can serve as "building blocks" in regional analysis. These are the units that meet the requirements of (relative) *unchangeability and "statistical uniformity,"* that is, they are identifiable both in space and time. In the United States, only officially designated political units meet these criteria—states and counties and other local jurisdictions, e.g. towns in New England. To provide the essential statistical ingredients for regional analyses of progress, the pertinent economic progress data must be available on a county as well as a state basis throughout the entire country and on a uniform and annual basis. Where the establishment of specific regional boundaries is called for, a dynamic approach involves recombinations of "core" units from time to time to reflect important developmental changes taking place. The notion of "shifting" regions and analysis of the functional relations among regions and within a region are essential to any understanding of the continually changing nature of the national space-economy.

The basic data required are those that can provide "indicators" for assessing four fairly distinctive aspects of economic progress. Progress itself can be—and often is—interpreted in terms of several distinct concepts: (1) levels of living (or "welfare"); (2) productive efficiency of the economy; (3) volume of economic activity; and (4) inherent potentialities for continued growth. Assessment of *levels of living* can be made on the basis of indicators of the material conditions of individuals and families, current consumption, income received, and employment. An approximation of the *relative productive efficiency* of a regional economy can be achieved by measuring the value of output of goods and services (in terms of value added) per worker. A number of measures are needed to assess the growth in the *volume of activities* within a given region —increases in total population, total labor force, and total number of jobs, as well as increases in the value of output (employing the net measure of value added). Progress may be assessed in terms of the success of a region in developing an economy that itself provides the basis for continued growth, since different types of development may result in economic structures with varying *potentialities for future expansion.*

The state income-payments series (which, together with indexes of increases in population and employment, have been used as the basic measures of progress in regional economic studies) measured neither total payments to the factors of production nor total income receipts, but something in between. It was not entirely on a where-

received basis or on a where-produced basis, but had elements of both. The new state series has been placed on a consistent personal income where-received basis and provides a significant measure of levels of living in states and regions. But this series alone cannot provide an adequate basis for assessing regional economic progress.

This paper has stressed the desirability, from the standpoint of regional economic analysis, of the regular provision of state (and, ideally, county) series of personal consumption and personal savings, as well as of personal income, and of the value of output of goods and service—on the basis of payments to the factors of production and of value added. While the limitations of statistical data are not nearly so significant in the analysis of regional economic progress as is the underdeveloped state of our knowledge of the forces behind economic development, improvements in statistical information may serve as a lever for advancement in this important field of knowledge.

COMMENT

EDGAR M. HOOVER, Office of Population Research, Princeton University

It is pleasant to begin by agreeing thoroughly with what I understand to be Harvey S. Perloff's view: The ideal boundaries of a region must depend on the specific problem being dealt with at a specific time and therefore cannot generally be uniform for many different problems or different times. I agree that the legitimate and essential role of statistical compiling agencies is not to design regions or provide regional data but rather to provide historically continuous and comparable data for subregional areal components, which Perloff aptly calls "building blocks," and which can be combined flexibly into various regional patterns by analysts faced with specific problems.

Let me put forward the extreme view that there is likely to be little real sense in a study designed simply as "an analysis of the economy of Region A" without any narrowing of its scope, and that the search for a master set of regions that will please everybody is hopeless. So I am probably at odds with some of the implicit assumptions behind the project described in the last part of the paper by Morris B. Ullman and Robert C. Klove. Also, I think that if a regional study is expected to help administrators, it must use a region made up of appropriate administrative areas. The concept of subregions,

referred to by Perloff, implies analysis of the internal structural integration of a region—the relations among its somewhat complementary parts. Thus, there are two criteria of regionality: homogeneity, and intraregional interdependence, which often implies nearly the reverse. Perloff takes account of this, of course, and regards the concept of regional nodality as at least equal in importance to that of homogeneity. I shall try to bring these two criteria together into a single comprehensive rationale or principle of regionality.

First, I assume that marking out a "region" as a unit of study rather than simply "analyzing the space factor" has a practical economic purpose: one hopes to save time in analysis and interpretation by being able to make useful generalizations about fairly extensive areas.

If we are going to lump units of any sort together and talk about them en masse, they must be positively correlated so that what applies to one is likely to apply to most or all of the others. The basic rationale, then, for combining areas into a definite region for a development study is one of demonstrable or expected positive correlation of their economic behavior in the process of development.

This correlation concept is more inclusive than either homogeneity or intraregional integration because it involves both. For example, a large number of counties may display closely similar economic trends, cycles, and developmental behavior in general not by virtue of any economic relations with each other but merely because their economies are powerfully influenced by some common factor, which may be outside the region. Thus, a correlation of the economic fortunes of various areas that would justify their being combined into a region for analysis can arise from any of three circumstances, perhaps generally from two or all three at once:

1. *Similarity of internal determinants of welfare or progress,* e.g. natural resources, climate, character of the people, local institutions
2. *Similarity of external determinants of welfare or progress,* e.g. similar patterns of trade with large extraregional markets, a common outside government or cultural influence
3. *Functional integration among the areas in question,* typically the interchange of goods and services between relatively extensive and relatively concentrated types of areas, partly to lower transportation costs, and partly because in the extraction, processing, distribution, and consumption of a primary material, there is usually at least one intermediate stage where the economies of concentration or scale are so great that materials or semifinished products

are funneled from a large area into a relatively small area, and then perhaps out again.

I have said the regional criterion of correlation involves *positive* correlation. Some may object that while the interdependence of areas must imply some correlation between their economic fortunes, this correlation may often be *negative* rather than positive. For example, the two areas can be interrelated in the sense that they are important competing suppliers for a common outside market and are both rather large suppliers in relation to total demand. In that case, it could be said that when one area gains in this competition, the other is likely to lose: a negative correlation. In such a case, I should not consider the relationship a valid basis for regional aggregation; quite the contrary. As soon as there is such a negative relationship, the whole essence of the problem becomes the rivalry of the two areas, and they should be treated as separate areas or regions for the analysis of that problem. Only when the correlation is positive is any purpose served by combining them.

Now some thoughts about the concept of "economic progress." Perloff is certainly justified in interpreting the term very broadly. Economic progress conveys the idea of "an economic trend in a good direction," a definition that discloses both the breadth and the ultimate subjectivity of the concept. He proceeds to a thorough and lucid analysis of the many more specific senses in which the word is often used. But his analysis impresses upon me the desirability of avoiding the use of the word altogether, except in the all-embracing sense noted above. One word cannot be expected to carry the burden of so many varied meanings.

First, in talking about regions, it may be useful to reserve the term "economic growth" for measures that are regional aggregates. Growth implies just that something is getting bigger, not necessarily better. So in speaking of a rising trend in the total income produced or received or spent in an area, or of any aggregative measure of the quantity of economic activity in the area, I should refer to them more specifically as growth, rather than using the overworked and ambiguous term "progress."

I assume that the ultimate economic objective is the economic welfare of the individual, rather than the number of individuals in, or the economic growth of, any area or group. So I should use some such term as "economic improvement" to refer to a rising trend in the individual economic level, measured, say, by per capita production or per capita income. Neither of my categories implies the use of population increase as an indicator. Its main relevance is in

its indirect contribution to, or association with, growth rather than with improvement.

I think a tendency persists to overweight the importance and desirability of growth in a region. Perhaps this bias arises from the fact that there are some individuals and groups in any regional economy whose individual economic improvement depends on its total growth. These groups not unnaturally have a weakness for considering regional growth, rather than regional improvement, the *summum bonum*. They are likely to include (1) the owners of fixed, limited, and more or less permanent, resources in the region and (2) those whose livelihood depends on the level of capital formation (which, of course, is closely related to the rate of growth of the region's economy). It is not surprising to find real estate, utility, construction, and financial interests lined up, rather vocally, on the side of increasing the total economic activity of the region as a primary aim. But they are really speaking in the interest of only certain sectors of the community, rather than of the general welfare.

Perloff considers in some detail the question of measuring a region's potential or prospective growth or improvement. Here, again, I do not question the importance of the concept, but suggest that a separate term is badly needed to avoid confusion. It is certainly not identical with either growth or improvement as defined above, and I am not sure I even like calling it progress. I agree with Perloff that the assessment of a region's future growth or improvement potentialities requires much more than an assortment of current or historical statistical series or indicators—it is a matter of analytical projection that must come after an understanding of the nature and interrelations of regional development. One or two of the indicators sometimes used as rough short-cuts to this appraisal of the future seem to me borderline. In some cases, they are merely indicators of past trends of growth or improvement, to which one may feel justified in ascribing a rather mysterious momentum. In other cases, they merely reflect the collective judgment of bankers or investors or market research men about the future of the region, and the analyst may just be putting more reliance in their crystal balls than in any he has been able to devise himself. Putting too much reliance on the latter type of indicator may, of course, be deceptive, although in economic behavior, one can argue that contagious estimation is often self-fulfilling. If all the various stock market forecasting services, for example, were to base their "feel" of the market on their reading of the other services (as is sometimes darkly suspected to be the case), then obviously they will all agree, and if they all get more and more cheerful, the market will vindicate their

judgment and go up—for quite a while. But there are dangers in such "incestuous forecasting."

Finally, a few odds and ends. I agree with Perloff that regional study appropriately includes a study of the *changing* of regional boundaries and relationships. Thus, use of the phrase "regional analysis" rather than of some such term as "space-economy analysis" is likely to give a misleading impression of study in terms of rigid areas, which of course makes no more sense than does the use of the same regional boundaries for problems of differing character. If one is interested in the general growth of a region and is considering the augmentation of income, production, wealth, capital, population, etc. as aspects of growth, should not an expansion of the area of influence or interdependence also be included as an aspect of regional growth?

Next, in per capita measures of economic improvement, it is not correct to consider the national gain or loss as just an average of the regional gains or losses. For example, there can be a rise in national per capita income and welfare even if every region shows constant or declining per capita income and welfare, provided there is a shift of population from the poorer to the richer regions. Since migration tends to go in that direction, looking at the regional improvement trends alone is likely to give a down-biased view—the national improvement trend may be greater than any one of them.

B. U. RATCHFORD, Duke University

In my few remarks, I do not attempt a general appraisal of Harvey S. Perloff's paper. Rather, I shall comment on only two points.

First, anyone who has done regional research is acutely aware of the many and baffling problems that arise when an attempt is made to mark out an economic region within the boundaries of a national state. Almost every person who works in this field has different ideas about how these problems should be solved, hence the lack of uniformity in defining regions noted by Perloff. Almost every choice of a region involves some arbitrary decisions, and it is doubtful that there is any ideal or perfect solution. That does not mean, however, that the problem is not important.

Perloff's principal suggestion is that a dynamic approach should be adopted. This would probably result in a shifting or variable region, based upon an "examination of broad areas of the United States as they develop elements of relative uniformity and of divergence over time and particularly as they develop interdependent patterns of economic activity." He believes that such an approach is essential, but the reasons for it are not clearly spelled out.

As he has noted elsewhere, perhaps the choice here should depend upon the uses to which the analysis is to be put. If the economist is interested in one or a few particular economic developments, then he should follow where they lead, even if he must change regional definitions from time to time. If, on the other hand, he is interested in the broader problems of the economic process, of the economy as a whole, then he can adopt more permanent boundaries. The latter course, it seems to me, requires choosing a group of people in one part of the world to see how they use their own talents and the economic resources at their command in the effort to increase their real income. As in many other kinds of experiments, their failures as well as their successes may be significant.

An attempt to use the concept of shifting or variable regions would encounter several major problems. First, what criteria should be used to define the region? Perloff suggests two—economic change in the direction of homogeneity, and group consciousness. In point of time, these criteria are at opposite extremes; economic change frequently develops before it is noticed, while group consciousness lingers on long after the economic bases for it have disappeared. More often than not, the two tests would probably give exactly opposite results. Further, what are the "elements of relative uniformity and of divergence" in a region? Are they elements of per capita income, of industrial structure, of sources of income, of urban growth, of the racial composition of the population, of the rate of population growth, or what? The task of deciding on these criteria, of reconciling them when they conflict, and of making the necessary analyses to apply them could make the procedural problem of choosing the boundaries of the region as much work as the substantive problem of gathering and analyzing the data on economic progress. Further, the regional criteria would have to be studied continuously to see when they indicated a change in the regions should be made.

Even all of this work, however, would probably not give neat, exact, and precise boundaries. Because of the many and often conflicting considerations, there would have to be compromises and arbitrary decisions. This would be true even if the uniform and annual data for counties on a nationwide basis, which Perloff considers necessary, were available. Consequently, I do not believe that even variable regions would allow us to avoid the necessity of a "struggle with endless qualifications and halting generalities" that Perloff very properly laments.

Finally, the use of variable regions would require an enormous amount of work to build up a statistical history for a region each time its coverage was changed. The region would be a new entity, and all

past statistics would have to be adjusted. All previous studies made for the components of the new region would have to be re-examined to see whether, and to what extent, they were valid for the new region.

The second major point I shall discuss has to do with the selection of the base year and the period of time covered by comparisons. I agree thoroughly with what Perloff says about the importance of the base year. The period of time covered is also quite important, especially when comparison is made between the first and the last years of the period. For example, in recent years much attention has been given to the substantial rise of per capita income in the South compared with the national average. Measuring from 1929 to 1945, 1950, or to 1953 gives an impressive gain; per capita income in the South rose from about one-half to about two-thirds of the national average. But by the time that this development was generally realized, it had come to an end. Nearly all of the relative growth came between 1932 and 1934 and between 1940 and 1945; since 1945 there has been very little relative gain.

From 1945 through 1953 the eleven states of the Southeast had almost the same rate of growth as the nation (44.7 per cent for the Southeast compared with 43.5 per cent for the United States). Five of the states had higher rates, but only two—Kentucky and South Carolina—had rates significantly higher, and both states received large benefits from expenditures for the atomic energy program. The years of the greatest activity during the Korean War gave a slight boost to the South's income, but that effect was fading by 1953.

The record of North Carolina illustrates how different comparative results are obtained by considering different time periods.

Between 1929 and 1953, North Carolina had one of the highest rates of increase in per capita income in the United States, and that fact is still frequently quoted to show how well the state is faring economically. But from 1947 through 1953, North Carolina's rate of increase in per capita income was below the average of both the nation and the South.

There is a tendency to allow the spectacular results of the war period to overshadow the more recent and perhaps more significant results of the postwar period. One must not only choose the base year with care but must also be alert for changes in trends, especially when a strong movement develops rapidly in a disturbed period, such as during a war or a severe depression.