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INTRODUCTION TO REGIONAL SCIENCE

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Discipline: A Review of Walter Isard's
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Niles M. Hansen

What is regional science? Surely anyone posing this question would be well advised to consult a recent introduction to the subject by no less a figure than the father of the discipline. By the time the reader gets through page five he will have discovered that there are at least thirteen definitions of regional science. Moreover, according to Isard, "It is clear from the diversity of definitions that no single one can be considered the best or most complete. Each researcher and student will need to develop or synthesize his own definition after having read this book and other studies." (p. 5). As specific as Isard himself gets with respect to a definition is a statement that "In brief, regional science as a discipline concerns the careful and patient study of social problems with regional or spatial dimensions, employing diverse combinations of analytical and empirical research." (p. 2). In other words, given problems that have a spatial dimension, regional science is what regional scientists do about them. An obvious way to break out of this circularity is to take a look at the nature of the problems that concern Isard and at what he does about them.

However esoteric some of the regional science literature may be, Isard clearly is interested in confronting a wide range of significant social problems and he is concerned, in the Quaker sense, about our potential for doing something constructive about them. Indeed, he is so genuinely concerned that he has a pronounced tendency to dwell on more general examinations of decision making and conflict resolution at

the expense of what is central in all definitions of regional science, namely the spatial element. By my rough calculation one-fourth of the book (Chapters 9, 10, 11, 16 and portions of other chapters) has this orientation; problem situations are illustrated in terms of a region or city, but space seems incidental in comparison with the theoretical mechanics of decision-making processes.

As might be expected in a book on regional science, Isard draws heavily on the economics literature and to a somewhat lesser extent that of the geographers. Many analytic techniques are covered but the reader gets the clear impression that Isard has a predilection for input-output models. Most of Chapter 2 is devoted to the I-O table as a description of a regional economy and the Philadelphia region table is used to suggest how the I-O approach can be used for attacking social and environmental problems. Chapter 7 deals at length in I-O terms with interindustry structure and the indirect effects of growth. Before developing the notationally more convenient matrix shorthand, Isard first takes great pains to show numerically how successive rounds of input requirements are generated, thus giving the beginning student a real feel for the nature of complex economic interdependencies. Here, as in many other parts of the book, he proves to be a remarkably patient and thorough teacher. A number of applications of I-O are suggested in this chapter while the following chapter introduces interregional I-O as a means for studying spatial flows. The I-O format also provides the framework for a chapter on economic-ecological conflict and environmental quality and it returns again in a chapter that uses a case study of Puerto Rico to illustrate regional science in practice. The latter chapter at first appears to be something of a quasi-appendix, but in fact it is a logical and appropriate extension of the I-O theme. The peroration comes in the final chapter, where Isard argues that there is a need for world organization. "Our

concern with the balance between social justice and efficiency, then, must relate to the real-life spatial distributions of all of these [people, resources, economic activities, and organizations]. But to understand these distributions the world and other governmental units must collect and process data relating to all kinds of commodity shipments, migration, capital movements, and other spatial flows. The world unit should develop an interregional input-output flows table for the different world regions, as well as a separate, and perhaps more detailed, input-output table for each region. It will want to give particular attention to the exports and imports between pairs of regions, and must be alert to any undesirable trends or developments." (p. 485).

Isard is, of course, correct in insisting that regions or cities should not be viewed in isolation from the rest of the world. Yet apart from I-O discussions, Chapter 8 ("Trade, Migration, Spatial Flows, and Exploitation in our Multi-Region Society") is the only one explicitly devoted to interregional interactions. Because the book ranges over so many issues, it may perhaps be unfair to fault the author for what he has left out. Nevertheless, it seems to me that some important policy-relevant topics have been given less than their due. For example, human migration among regions is a major concern in most countries' regional policies. The dozen pages allotted in Chapter 8 to migration raise important issues but they do not do justice to the large body of scholarly literature that has been produced on this subject in the past decade.

More curious is the lack of attention to innovation diffusion. The four pages in Chapter 8 on "flow of ideas" do indeed introduce the subject, yet the reader is left unaware of what is probably the most widely accepted general theory of spatial-temporal growth. This theory--developed in the works of B.J.L. Berry, W. Thompson and others--

emphasizes innovation diffusion within the urban hierarchy; it attempts to explain the "why" of dynamic spatial processes. In brief, it maintains that innovation occurs more than proportionally in larger metropolitan areas. Moreover, no matter where a growth-inducing innovation takes place in the nation's system of cities it is likely to appear soon in some or all of the largest cities because of the high "contact probabilities" they have with many other places. Small places tend to adopt innovations late, if at all, because they have relatively few nonlocal goods and services transactions. However, as industries age and their technology matures, skill requirements fall and competition forces them to relocate to lower-wage areas. The lower a city in the skill and wage hierarchy, the older an industry tends to be when it arrives and the slower its national growth rate. Berry's analyses of economic changes within the national urban system and my own studies of the spatial decentralization of industry to nonmetropolitan areas that have grown recently after previous stagnation or decline in population lend support to this theory.

The trickle-down theory just outlined has usually been presented in the context of manufacturing decentralization. It can also be argued that in the electronic age it is no longer necessary to cluster tertiary activities in large urban centers. Thus, most of the functions performed in downtown offices could just as well be done from decentralized places, even from homes; or if this is not yet the case it could be if communications technology were really turned loose. Moreover, many of the consumption amenities that were formerly only available in big cities are now available in the home.

Recent evidence from the U.S. indicates that there is now net migration from SMSAs to nonmetropolitan areas and that tertiary as well as manufacturing activities are decentralizing to nonmetropolitan locations. More detailed

analyses are needed of the relevant tertiary sectors; they may well be lower-order activities rather than those associated with what goes on in metropolitan skyscrapers. In any event, one can envisage new work and residence patterns that may be just as productive for many economic activities as currently prevailing patterns and even more satisfying from the perspective of the household.

It would be valuable to have Isard's intelligence and imagination directed specifically toward the nature, significance and possible policy implications of macro-scale changes in human settlement patterns and interrelated changes in the location of economic activity. Part of the problem may be a lack of data relevant to the economic and, especially, the noneconomic dimensions of such changes. Isard himself points out that "We must break this cycle in which, because of good data on the economic system, the best analysts study it and in turn demand more data on that system. This leads to still more concentrated study of it and still more demands for data on it. On the other hand, few and not nearly as capable analysts study noneconomic systems; thus relatively little demand for data on them is generated. This in turn induces relatively few to study these systems." (p. 24).

One may hope that Isard's own perspective has not been unduly limited in the human settlements area by lack of data, both economic and noneconomic. Even if the I-O framework is not ideal for analyzing the dynamics of spatial-temporal changes, this is still no reason to ignore the writings of Alonso, Berry, Cameron, Cumberland, Friedmann, Hoover, Leven, Pred, Richardson, Rodwin, Thompson, Wingo and others who have made major contributions to our understanding of how and why things happen as they do in a spatial context. I can readily comprehend that so novel and prolific a scholar as Isard would not have time to read a great deal of the work of his colleagues, but then is his book really

an introduction to regional science? Or has he read widely but for some unexplained reasons dismissed much of the urban and regional economics and geography literature as something other than regional science?

As an ideal, I hoped that Isard's text would have done for regional science what Paul Samuelson's Economics has done for that discipline, that is, summarized the state of the art and provided a basis for further research for a whole generation of students throughout much of the world. A large part of Samuelson's achievement as a textbook writer was to elevate Keynesian macroeconomics to a status equal to that of traditional microeconomic theory. I am not prepared to believe that I-O models or decision theory are as important to regional science as macroeconomics is to economics. Moreover, it should be clear by now that I do not regard Isard's text as an adequate state of the art summary, though this may reflect simply my own idiosyncratic shortcomings.

Of course, the Samuelson-Isard comparison that I concocted by no means necessarily reflects Isard's intentions in writing his textbook. He readily accepts that many teachers will need to couple his text with supplementary readings. My students will continue to read a lot of other basic material, but they also will buy Isard's book. It has a good deal of general material they will not readily find elsewhere; and it has a lot of Walter Isard--the scholar and the man--that they would be the poorer for missing. Meanwhile, I continue to wait for the basic text.