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Author
Werner, Christian

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economic principles were actually applied. In their theoretical analysis, they make two major assertions. First, they assert that short-term profit maximization is not the pricing objective of shipping conferences. Instead, they suggest revenue maximization subject to a minimum profit constraint as the true objective. Since no formal model is being presented and then estimated empirically, it is difficult to validate this claim. The second assertion is that shipping conferences that, in fact, are economic cartels, provide a major advantage to shippers in the form of stability in the price structure. Again, there is no way, either empirically or theoretically, to corroborate this claim. The data presented in this chapter are, in my mind, inconclusive and can be interpreted in alternative ways. A fundamental question is why shipping conferences exist at all. Is it because they provide a genuine economic benefit to shippers, e.g. price stability, that cannot be provided efficiently otherwise? Or is it because members of the shipping conferences are inefficient producers relative to tramp ships that operate the same lines and could not have survived without the cartel? I would have liked to see these and other problems thoroughly analyzed in this chapter, followed by an empirical demonstration.

Finally, in reading the book I discovered a large number of typographical errors that should have been detected by the editors. To cite a few: on page 18, eqn (2.3) should be B_{nm} and not B_{am}; the formula on page 22 should be $TC = \beta_0 + \beta_1 + \ldots$, and not $TC = \beta_0 = \beta_1 \ldots$; on page 45, the reference to Goldstern and Moses (1975) does not appear in the reference list; on page 109, total profit is denoted by P, whereas in Fig. 6.1 it is denoted by π; on page 116, Table 6.1, the figures for the conference rates for 1958 and 1959 should be, respectively, 165 and 163, not 1651 and 63 as given in the text.

Joseph Berechman
Public Policy Program
Faculty of Social Sciences
Tel Aviv University
Ramat Aviv, 69978, Israel

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In *Distribution of Distances in Pregeographical Space*, Hans Kuiper calculates mathematical distance distributions in bounded areas of the two-dimensional Euclidean space and compares some of them with empirical distance distributions in selected European countries. To keep the project to a manageable size, he confines himself to a few specific cases of mathematical distributions by restricting the properties of his research objectives to a few specific examples. In particular, he limits his choice of bounded areas A in R^2 to circles, squares, and rectangles; to study distance distributions between pairs of points in A he considers either all points in A or a discrete subset B of A consisting of the vertices of a square grid; and to measure distance between any two points he uses three different distance measures: the Manhattan (or city block) distance, the Euclidean distance, and the maximum of the differences of the x/y coordinates (the three measures corresponding to Minkowski's general distance measure with $p = 1, 2$, and infinity). Finally, he studies only the following three types of distance distributions: "contact distributions," which represent the frequency of pairs of points with distance d, from the set of points under consideration, ordered by d; "distance density functions," which represent, for each distance d, the proportion of pairs of points both of which are located in A, relative to the set of point pairs with one of the points located in A, and the other anywhere; and "road-area density functions," which represent for each distance d, the proportion of pairs of points with distance d or less located with one point located in A, relative to the set of point pairs with distance d or less with one point located in A and the other anywhere.

Thus, selecting a point x at random from a given set S, the three distributions reflect either the actual frequencies of points in S located at distance d from x, or the proportion of points in S relative to all points with distance d from x, or the proportion of "area" in S located within distance d of x relative to the entire area within distance d from x.

It is a matter of simple combinatorics to see that the author has thus defined a total of 54 mathematical distributions, and the largest part of the book consists of painstaking calculations of many of them. For example, section 5.1.1.1 deals with the contact distribution among all points of a square when distance is measured by the Manhattan metric. Notice that the distribution functions are fairly simple in the unconstrained R^2 but can become rather complicated with the restriction of their domain to a bounded area with a particular shape. Within certain intervals of distance d, and for certain subsets of points in A, different expressions have to be computed and aggregated, often requiring extensive applications of integral calculus.

In the last third of the book, the author compares a few of the mathematical frequency or density functions derived earlier with distance distributions among cities of selected European countries. He recognizes the obvious discrepancies in the defining parameters of these distributions: circles or rectangles vs. the irregular shapes of political entities; regular or continuous point patterns vs. the semi-random distribution of cities; and the geometric distance measures defined earlier vs. the road network distances taken from maps.

From the geometric shapes for which distance distributions were calculated, the author selects the rectangle because its shape depends on two rather than one parameter; that is, its sides a,b, and is therefore more flexible. Using the method of maximum likelihood, he determines the values of a and b that define a rectangle whose mathematical distance distribution ("contact" distribution) best approximates the observed distance distribution between a given set of cities in a given country.

This exercise is carried out for 22 sets of cities and for both the Manhattan and Euclidean distance measures. The quality of fit in each of the 44 cases is measured by χ^2, with 34 of the mathematical distributions approximating the corresponding city distance distributions sufficiently well to fall within the 95% significance level. As one would expect, the goodness of fit improves with the number of cities, with the uniformity of their distributions, and with the uniformity of the network interconnecting them.

A series of 26 figures graphically presents the observed distance distributions of selected cities in selected countries, with the mathematical distance distributions for both Manhattan and Euclidean distances in optimally selected rectangles superimposed. Additional figures show the geometric outlines of the countries and the rectangles corresponding to them. It is not surprising that the rectangles bear only a weak, and only intuitive, resemblance to the shape of the countries to which they refer; in particular, there is only a weak correspondence between the areas of the rectangles and those of the countries to which they refer. The reasons are plain enough: the two mathematical distance measures ($p = 1,2$) usually do not fit empirical network distances; the pattern of cities of a country is no more than a crude representation of the shape and area of that country; and the Manhattan distance between two cities is a function of the orientation of the axes used for measurement, producing different distance distributions when the axes are rotated.

In an effort to use the distance distribution in a country as a measure of the country's shape, the author replaces his samples of cities with the vertices of a square grid pattern covering the entire country; furthermore, to generate a distance distribution characteristic for the shape of that country, he measures the Manhattan and Euclidean distances between the vertices rather than their distance over the country's road network. As before, he calculates for each country the sides a,b of the rectangle whose distance density distribution provides the closest approximation to the one observed. For the particular case of $p = 1$ (i.e. the Manhattan distance measure) he improves the quality of fit by determining the angle by which the rectangle should be rotated so as to minimize the χ^2 value asociated with the two distributions. He then proposes the ratio of the rectangle sides, a/b, as a new shape index measuring the compactness of an irregular area.

Returning to the intercity distance distribution as measured over the country's road network, the author now proceeds to determine the particular value p of the general Minkowski metric, and the particular angle of rotation for the axes relative to which distance is measured, so as to approximate the observed distance distributions as closely as possible. The χ^2 values comparing mathematical and observed distributions are significant for 8 out of 12 countries, with p values ranging from 1.00 to 1.28, and with angles of rotation having no more than minor influence on the quality of fit.

To sum up, *Distribution of Distances in Pregeographical Space* presents the mathematical distributions of distances and distance-related areas for several geometric shapes in R^2, for several different distance measures, and for both continuous and discrete point patterns. Of these, distance distributions in rectangles are subsequently compared with those between cities, and between uniformly spaced points, in selected European countries. Based on the shape of rectangles whose internal distance distribution most closely approximate observed intracountry distances the author proposes a new shape measure of compactness. Finally, the author computes the Minkowski p values that best describe several observed intercity road distance distributions.

It is not particularly difficult to find mathematical functions of two parameters that fit the distance distribution curves between the major cities of a country. Thus, what should be of particular interest in the present study is the fact that the mathematical functions are themselves distance distributions, the difference from reality being that they refer to rectangular areas, and to distances that, aside from the coordinates of the end points, depend on one parameter only. But why would one *want* to know which particular rectangle has an internal distance distribution that most closely resembles the road distances, say, between 44 cities in Great Britain? There is no answer in the book and, one suspects, no answer is given because no reasonable answer exists.

This book is a splendid demonstration of scientific work done without scientific purpose. The mathematical results consisting of a variety of distribution functions do not advance the field of mathematics because, rather than creating new mathematical knowledge, they only apply existing knowledge. That is eminently reasonable in the empirical sciences if the application of mathematical knowledge improves our comprehension of reality, or at least the theoretical constructs with which we try to comprehend it. But that is not the case here. There is no theoretical framework of interlinked assumptions and hypotheses that would suggest why cities are spatially distributed the way they are; the author does not even try to speculate why it is that certain mathematical constructs (and his own in particular) might provide a mapping of both the formal properties of geographic phenomena and their formal interrelations. He introduces a new measure of compactness, but fails to demonstrate that it has any utility. An entire chapter goes under the name of "network analysis," but does not address networks and does not contain analysis; instead, it merely calibrates Minkowsky's general distance distribution for a set of observed intercity road distances.

While the book does not have any overarching framework of concepts and ideas that would provide the reasons why the author does what he does, the individual chapters contain adequate logic once the reader is willing to forego any answer for the book's *raison d'etre*. If the reader wishes to know the Manhattan distance distribution between two squares of equal size, section 6.1.1 provides the answer. If one was in need of characterizing the compactness of an area with a single number, then the index proposed in section 8.3.1 seems, on the face of it, to be as reasonable a measure as those proposed at other times by other authors.

At times, the text contains empty or trivial statements, e.g. when the author groups his data and advises the reader that "one has to look for a balance between generalizations and information retained" (p. 203); or when he states that "the theoretical models that describe observed patterns in a meaningful way should not be too complicated, but still be as useful as possible; finding the right balance will require a lot of effort" (p. 291). As it is, there is no evidence that the models presented are either meaningful or useful.

The organization of the book is quite straightforward, and the text contains only a few errors. Unfortunately, the translation into English is not always successful; this could have been easily avoided. The price of $56.00 for a book that seems to be the photo reproduction of a manuscript is quite a different matter.

It is at least doubtful as to whether there exists an audience of researchers whose work will become more successful thanks to the efforts reported in this book. It does not provide a single example of its utility in understanding—or at least speculating about—the principles that govern the spatial distribution of economic activities. This book consists of a series of mathematical exercises without stated or obvious purpose, and one wonders what the supervisor of this research, Jean Paelinck, had in mind when he states in the preface that this work is "pathbreaking" and that ". . . the methodologies used, in both the theoretical and applied parts, are certainly worthwhile being introduced to." That worth has not been demonstrated, nor is it self-evident.

CHRISTIAN WERNER
School of Social Sciences
University of California, Irvine
Irvine, CA 92717, U.S.A.