

JAMES A. GRAASKAMP COLLECTION OF TEACHING MATERIALS

V. INDUSTRY SEMINARS AND SPEECHES - SHORT TERM

I. Other Presentations In Which Either The Date And /
Or Sponsoring Organization Is Missing

5. Market Analysis/Urban Economics/Real Estate
Process

j. "Delineating the Retail Trading Area",
no date

DELINEATING THE RETAIL TRADING AREA

- I. The convenience goods retailer has two problems in evaluating a proposed site:
 - A. First he must evaluate the site on the basis of its profitability as an individual site.
 - B. Then he must relate a store at that site to his overall pattern of market structure.
 - C. Both problems depend on analysis of the trading area. However, the first problem is defining how big the trading area will be and the market penetration in the area. Obviously these companion problems are more difficult for a proposed site than for an existing site.
- II. Defining the trading area is basically an attempt to establish parameters for consumer space preference. These parameters are affected by many factors.
 - A. The level and thoroughness of these ~~parameters~~ analysis of these parameters will vary with the purpose, cost, and sophistication of the retailer.
 - B. There are two basic approaches to defining retail trade area:
 1. The empirical approach-which depends on primary data and is therefore more costly,
 2. Or the gravitational approach which relies on secondary data and may well be less costly.
- III. The empirical approach may rely on primary data collected at the site or at the projected trading area.
 - A. A customer interview at the store takes place after the customer has completed purchasing, using a quota sample or a stratified sample. The principle advantage of the customer interview is its flexibility in providing information in addition to that which defines the trading area. The main disadvantage is ~~cost~~ cost. Interview data is spotted on maps to define trading area and intensity of penetration. A quota sample of one interview per \$100 in sales per week means a cost of \$100 to \$150 per store.
 - B. A second method would be to record auto license plates (other than employees' autos). License reported are recorded by time of day or by the day itself. The license plates are then used to obtain names and addresses from the State Motor Vehicle Department. These addresses are then plotted on the map to define the trading.

Information ^{as} can be obtained quickly and for competitively ~~low~~ locations ~~as~~ well. However, it is expensive when talking about a regional shopping center and unless it is followed with a mail questionnaire nothing is known about the size, type, or place of purchase.
 - C. Prize contests are a way of obtaining the name and address of

customers. Addresses on registration forms are plotted on the trade area map. However the results are distorted to the degree that business increases during the contest and to the degree that the prize list appeals to one segment of customers more than another.

- D. A store can analyze check cashing or credit records. This technique is simple and inexpensive but is distorted unless a high ratio of sales involves checks, payroll check cashing, or credit sales and a homogeneous ethnic, income, age, group.
- E. Home interviewing for an area survey can be done using a probability sample. Field interviews are made regarding shopping habits, attitudes, and the results are expanded to cover the entire area to estimate potential business buying. The home interview approach is the most accurate and useful technique but is high in cost. For a proposed site the total cost would be a small percentage of the total capital cost.
- F. A telephone interview study by trained personnel using a standardized interview guide is cheaper than the home interview. However it is possible to ask fewer questions and experience more partially completed interviews than under the other method.

IV. The gravitational approach is based upon the concept of comparative advantages which states that customers direct their patronage to the retail site where maximum utility return per dollar and time unit may be obtained, Assuming adequate market knowledge of the consumer.

A. The gravitational approach is based on the famous law of William Reilly, who was concerned with the pulling power of competing cities, which stated:

1. Under normal conditions two cities draw retail trade from a smaller intermediate city or town in direct proportion to some power of the population of these cities divided by the distance of each of the cities from the smaller intermediate city.

B. The original formula was:

$$B_a/B_b = (P_a/P_b)^j (D_b/D_a)^j$$

Where -B_a = Business which City A draws from intermediate Town T.

-B_b = Business which City B draws from intermediate Town T.

-P_a = Population of City A.

-P_b = Population of City B.

-D_a = Distance of City A from Intermediate Town T.

-D_b = Distance of City B from Intermediate Town T.

C. A man named Paul Converse then simplified the Reilly formula by assuming B_a equals B_b to determine the break even point for trade flow:

~~Breaking point between~~
~~A and B, miles from B =~~

Breaking Point between
 A and B, miles from B = $\frac{\text{Distance between A and B}}{1 - \frac{\text{Population of Town B}}{\text{Population of Town A}}}$

D. Converse also tried to predict the amount of fashion goods business that could be retained in any town. His formula was:

$$Ba/Bb = (Pa/Hb) (4/d)^2$$

- Where -Ba = Proportion of trade going to the outside town.
 -Bb = Proportion of trade retained by the home town.
 -Pa = Population of the outside town.
 -Hb = Population of the home town.
 - d = Distance to the outside town.
 - 4 = Inertia factor.

(The inertia factor was based on empirical research by Converse in Illinois.)

E. Converse suggested the following factors to measure the fraction of trade flow:

The attraction of a shopping district may be measured by the population of the town, the volume of sales, or the square footage in fashion goods stores. The time and expense factor may be represented by car or bus fare and time when public carriers are used.

F. James Rouse was the first to suggest that Reilly's law could be adapted to retail clusters by substituting square feet of retail area for the size of the city and distance to a driving-time distance. Said Rouse:

Retail shopping centers and districts in a metropolitan area attract trade from the neighborhoods and communities comprising the area in direct proportion to the shopping goods presentation at the district or center and in inverse proportion to the square of the driving time distance between the retail districts and centers and neighborhoods and communities.

G. Another approach to retail gravitation has been put forward by one Harry Casey and his formula looks as follows:

$$Bla = \frac{Fa^2}{(Dla)^2} \times B1 \div \left(\frac{Fa^2}{(Dla)^2} + \frac{Fb^2}{(Dlb)^2} + \frac{Fc^2}{(Dlc)^2} + \frac{Fd^2}{(Dld)^2} + \frac{Fe^2}{(Dle)^2}, \text{ etc.} \right)$$

- Where -B1 = Buying power of neighborhood 1.
 Bla = Purchases made by residents of Neighborhood 1 in the Shopping Center A.
 Fa, Fb, Fc, etc. = The square feet of retail space in the Shopping Centers A, B, C, etc.
 Dla, Dlb, Dlc, etc. = Driving time distances between Neighborhood 1 and other retail centers.

- V. The traditional market potential procedure uses distance as an independent variable which it is not. Probably a customer would be influenced by a number of factors such as:
- A. Distance to alternative sources of supply
 - B. Range of products at each alternative supply source
 - C. Prices and price structure at alternative sources of supply
 - D. One measure of the variety of product offerings is the number of square feet of selling area within the individual retail unit.
 - E. Another indication of product variety is growing indications of consumer preference for one-stop shopping.
 - F. Professor La Londe of the University of Colorado has suggested that store size be used as the independent variable. In addition he argues that a store complex should be analyzed as to relative drawing power and per capita sales of retail clusters to analyze importance of rent differentials or scale on revenues. It may be possible to fit a small store to a thin market.
 - G. Professor La Londe worked with Krogers with a study to answer the following questions:
 1. What relationship does store size have to the distance traveled by the customer for food-purchasing purposes?
 2. What relationship does store complex have to the distance traveled by the customer for food-purchasing purposes?
 3. What influence does store size have on the per capita sales of a supermarket?
 4. What influence does store complex have on the per capita sales of a supermarket?
 - H. His two specific hypothesis were:
 1. As the size of store (as measured by square feet of selling area) increases, drawing power of the supermarket increases.
 2. As the size of store (as measured by square feet of selling area) increases, per capita sales of the supermarket increase.
- VI. The research design had three basic problems including definition of survey store classification, including selection criteria, interviewing procedure at the store, and then methods of analysis.
- A. Basically he defines six store types including Urban strip store, urban cluster store, small town store, regional shopping center, community shopping center, and neighborhood shopping center. The last three were planned shopping areas, the first three unplanned but located where population was 7500 people per square mile.

Most of the criteria are not important here other than the fact that only the newer stores were surveyed as sales tend to fall as stores grow older. In addition the interviews were conducted within a year's period and without seasonal distortion, mostly in 1960.

- B. The customer interviewing per store was set at one interview per \$100 sales per week, with sales as the average of four weeks prior to the interview date.
- C. Customer's home addresses were then spotted on a map of a survey area to determine drawing power and per capita sales within areas.
 - 1. Drawing power was defined as the mean average distance traveled by a fixed percentage of customers. Only a percentage of customers is used because some shoppers may be "accidental shoppers", i.e., not regular patrons. Ninety per cent of the customers closer to the site were used to calculate basic drawing power and as a measure of concentration mean average distances were also calculated at the seventy per cent customer level.
 - 2. With a customer spotting map as a base, a transparent overlay with circles scaled to one-eighth of a mile and quadrants were used to measure the distance interval for each spotting for each one-eighth of a mile interval.
 - 3. The main average distance was then calculated:

$$M_1 = \frac{FM}{N}$$

- Where
- M_1 = The mean distance
 - F = Number of customers falling within distance interval
 - M = Mid-point of distance interval
(e.g., .0675 for 1/8 of a mile interval;
.1875 for 1/4 mile interval, etc.)
 - N = Number of customers

- D. Per capita sales within an area or distance from the center is a measure of market penetration. To calculate three types of data must be available.
 - 1. Segment of market must be clearly defined so both population total and sales may be gathered on the same basis.
 - 2. Accurate population data must be available as a basis for the per capita element.
 - 3. Sales figures must be available over a relatively short time span so sales and population are based on the same point in time. The 1960 study waited for 1960 population data .

E. The procedure can be demonstrated as follows:

1. Interviews represented one per \$100 sales per week. Distribution of addresses also means a distribution of sales developed. If in one half square mile area ten customer spottings are made, then it assumed that there were \$1000 in sales per week in that area. If population were 1000, then per capita sales are \$1.00 a week or \$52.00 annually.
2. Thus the market boundaries ~~was~~ ^{were} defined by the first part of the study according to concentric circles.
3. The following formula was used to calculate per capita sales:

$$S_a = \frac{C_a \times 100}{P_a}$$

- Where
- S_a = Per capita sales in Area A
 - C_a = Customer spotting in Area A
 - P_a = Population of Area A

$$S_a = \frac{65 \times 100}{5,500} = \frac{6,500}{5,500} = 1.08$$

4. The total number of interviews for the study was 5,300.