CONSUMER SPENDING IN AMERICAN CITIES: A SPATIAL EXAMINATION

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The geographical aspects of living costs and consumer behavior in the United States have received little academic attention. This paper focuses upon differences in food and transportation spending at forty cities, and presents a conceptual framework for the analysis of spatial variations pertaining to consumption. It is demonstrated that food and transportation spending by families of equal size and income is related to the population of the city in which they reside, its ethnic makeup, occupational and age structures, income level, public transport facilities, and appeal to tourists.

Geographers, as a professional research group, have largely ignored the macro-consumptive aspects of economies and economic distributions in favor of studies of production. That this is so is particularly surprising when one considers that consumption is the stimulant for much of production, particularly within the capitalistic system. In fact, it is generally assumed that in the more economically advanced countries, continued prosperity is based upon *increasing* consumption. Additionally, it is difficult to understand the absence of concern among geographers for problems in which there is so much popular interest. This lack of interest is especially distressing when contrasted to the growing emphasis on consumer behavior by economists, marketing researchers, the government, and the broad-based consumer lobbies. There is even concern among marketing researchers over the absence of geographical considerations (1).

Moreover, the conceptual fulfillment of economic geography requires an increasing emphasis upon the spatial analysis of consumption. Complaints about lack of data are unjustified, since the discipline has generally failed to make use of those data which are available.

The purpose of this study is to identify and explain the spatial patterns associated with food buying and transportation expenditures in the United States. Further, a conceptual framework for analyzing such patterns is suggested. It is a framework which focuses upon the relationships between expenditure and cost variation on the one hand, and consumer behavior on the other.

CONCEPTUALIZING EXPENDITURES AND CONSUMPTION

In order to analyze spending patterns, it is necessary to understand the characteristics of expenditures in general. It is also essential to appreciate the relationships between expenditures and consumption, between expenditures and costs, and between consumption and costs.

The expenditures of an individual, or a family, are related to, and influenced by, many variables. A family must first obtain basic needs, such as minimal housing and clothing, and sufficient food to maintain health. These and other requirements now considered basic, such as transportation and medical care, can be well-served at relatively modest expenditure levels in the United States and Canada. Several reasonable budgets are available which allow their practitioners to subsist at surprisingly small expenditure levels (2, 3).

However, most U. S. families living in this era of relative affluence are not enamored by the idea of mere subsistence. In addition to purchasing quantities of goods and services to fulfill minimal needs, it is ordinarily expected that a family should have many nonessential goods and services. Such "discretionary" spending might include an occasional dinner out, new appliances and cars, extra clothing, and other items not absolutely essential to the maintenance of health. We see then that as real family income increases, minimum essential spending remains constant, while discretionary spending and savings increase dramatically (4, 5). Those expenditures which can be characterized as non-essentia

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may be the equal of, or may frequently exceed, essential spending (Fig. 1).

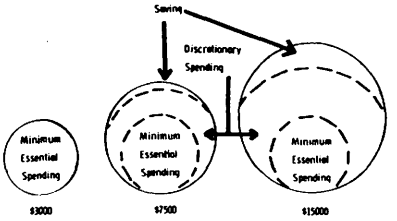

FIGURE 1. Relationships between income levels, spending, and saving.

SPATIAL RELATIONSHIPS OF CONSUMPTION

Living Standards data of the Bureau of Labor Statistics (BLS) rest upon the assumption of spatially *homogeneous* consumption (6). However, there is much evidence suggesting that consumption rates for goods and services are not everywhere the same. In addition to the obvious differences in fuel consumption and clothing recognized by the BLS, urban consumption rates of automobiles, liquor, and farm purchases of television sets, vehicles, or food freezers differ considerably from place to place (7, 8). Even when normalized for income levels, occupations, and family sizes, significant spatial differences in consumption levels are very apparent.

Spatially heterogeneous propensities to consume must be related in part to price

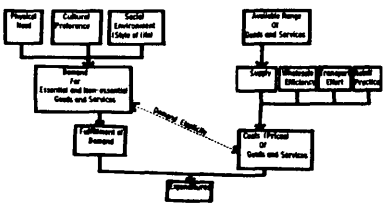

FIGURE 2. Conceptualizing expenditures.

variations (Fig. 2). In another vein, climate certainly contributes to the consumption rates of electricity and heating fuel, as well as to the choice of clothing. But such differences are also functions of dissimilar attitudes, tastes, and social mores, as well as reflections of divergent socio-economic situations. Thus, the social as well as the physical environment are contributory to variations in consumption.

If both consumption rates and prices vary spatially, expenditures must vary as well, for expenditures may be viewed as summarizing actual consumption rates and prices (Fig. 2). The prices of goods and services at a place are established by a combination of factors such as transport costs, wholesaling efficiencies, retail practices, and, to some extent, the nature and extent of demand. Demand is generated by health maintenance requirements, a cultural environment which shapes choices, and the relative costs of these choices. Expenditures represent fulfillment of demand at given price levels, and are responsive to all of the factors which affect either demand or prices.

CONSUMER EXPENDITURES

The *1961 Survey of Consumer Expenditures* (9) provides data on spending for a variety of goods and services in forty United States Standard Metropolitan Statistical Areas (SMSA). Using these data it is possible to portray expenditure patterns for a large number of family size and income groups. For the median sample group, a family of approximately four persons with

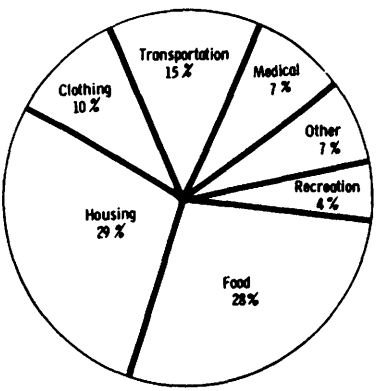

FIGURE 3. Apportionment of expenditures by average sample family having an after-tax income of $6,700. Source: U. S. Bureau of Labor Statistics, *Consumer Expenditures and Income, Urban United States*, 1960-1961, Report 237-238, Washington, D.C., 1964.

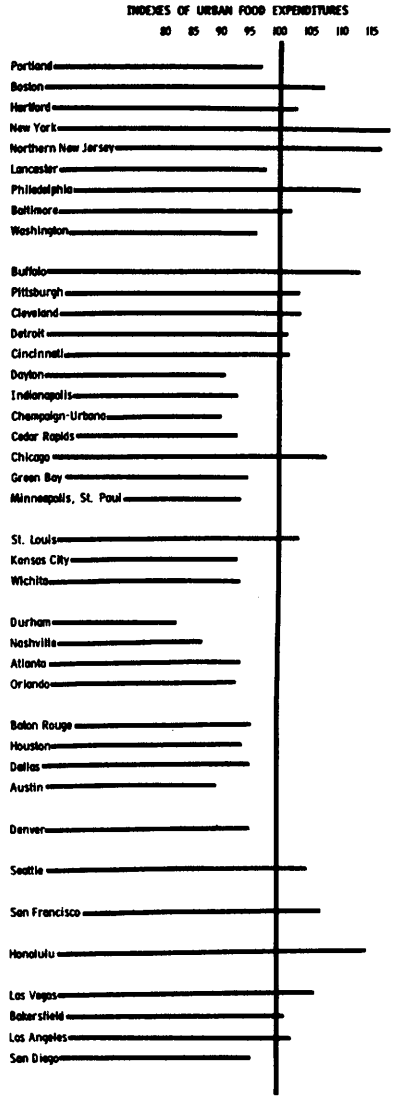

FIGURE 4. The mean for the average income urban family is 100 and represents annual expenditures of approximately $1,800.

an after-tax income of $6,200, over 70% of expenditures are for food, housing, and transportation (Fig 3). As reported elsewhere, it is possible to examine food, housing, clothing, transportation, medical care, and recreation expenditures using data which have been normalized to reflect expenditure behavior of families of the same size and income for forty cities (10).

FOOD EXPENDITURES

In an effort to account for areal expenditure differences, locational, economic, demographic, ethnic, and other miscellaneous data for the sample cities were assembled. The selection of variables was governed by a concern for representing those which have a probable effect on both rates of consumption and the costs of providing food and food services to urban markets. In all, a total of eighty-six variables were tested for their relationship to the expenditure index. These food spending indexes, portrayed by Figure 4, reflect the spending behavior of families of equal size and income in each of the survey cities.

Allocations for food in the cities under study are closely related to their sizes and population densities. The number of eating and drinking establishments is a good indicator of the amount spent for food, and points out the importance of dining out to the total food bill.

TABLE 1. *Variables exhibiting correlation with food expenditure index (at the .05 level of significance).*

Variable	Value of r
Density of population	.78
Tons of water-borne shipping	.75
Percentage foreign born	.74
Mean income (state)	.69
Percentage farm income from dairy products (state)	.61
Percentage incomes under $3,000	−.61
Percentage incomes over $10,000	.58
Number of eating establishments	.58
Mean income	.57
Number of inhabitants	.55
Percentage unemployed	.52
Farm workers (state)	.47
Median age	.44

Four measures of income were significantly correlated with food spending. The correlation suggests that high income environments may exert upward pressures on food expenditures in two ways: (a) a larger proportion of the food budget will be spent in restaurants, and (b) there will

be greater variety of exotic foods in the supermarkets in order to meet wealthy shoppers' demands. These luxury items also tempt the palate and affect the behavior of our middle-income sample group. This is consistent with micro-research findings on reference groups and aspiration levels carried out by marketing research and consumer behavior economists (11, 12, 13).

Population density and the number of SMSA residents are also related to food spending. Perhaps density has an effect on delivery costs, particularly in the relatively crowded northeast. That the number of inhabitants may similarly increase distribution costs through the relationship between income variables and population size cannot be overlooked. Large numbers of foreign-born residents in a city not only exert upward pressures on food expenditures, but also create markets for ethnic and national dishes in the city.

It is interesting to examine expenditures for food and drink consumed in clubs, restaurants, and taverns. Note that here there is much greater range than in the case of total food expenditures (Table 2). As expected, the number of eating and drinking establishments is closely associated with this kind of eating expense. Further, cities characterized by above-average eating-out are major tourist and convention centers. Though clearly a secondary market for these establishments, our middle income sample's propensity to consume is stimulated by the presence of such establishments.

TABLE 2. *Expenditures and food expenditures indexes for total food away from home for selected United States cities.*

City	Food expenditure index	Food away from home index
Las Vegas	1.04	1.27
New York	1.19	1.26
San Francisco	1.05	1.24
Honolulu	1.17	1.22
Newark	1.18	1.16
Atlanta	.93	1.14
Buffalo	1.14	.78
Minneapolis	.94	.78
Cleveland	1.03	.81
Pittsburgh	1.03	.76

TRANSPORTATION

The transportation expenditure category includes expenditures for vehicle purchases and operation, as well as for public

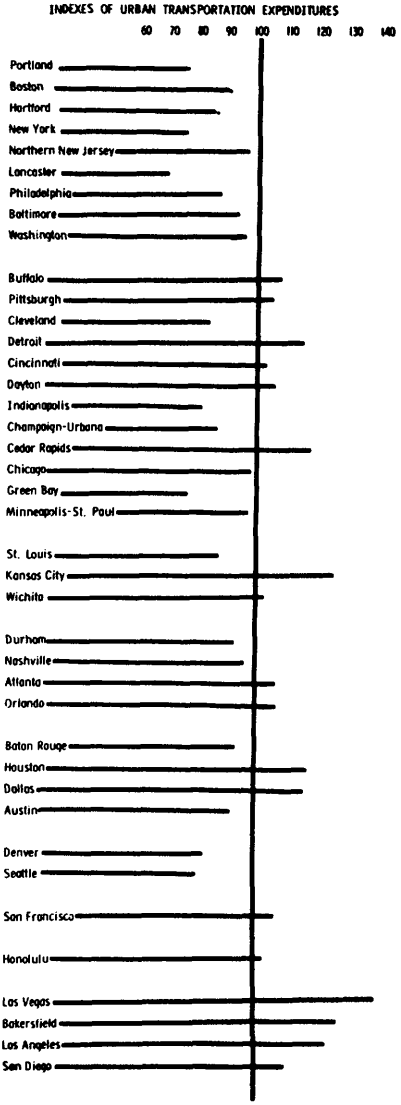

FIGURE 5. The mean for the average income urban family is 100 and represents annual expenditures of approximately $930.

transit. Together these items amount to 14.7% of the spending for our median income sample family.

Spending is generally high in the west and south, and low in the northeast; people in several western cities spend as much as 50% more than New Yorkers (Fig. 5). Possibly, it is the status accorded, by our society, to the automobile, which explains the high spending in places where the seemingly essential food and housing allocations are lower and is it logical to assume that expenditures are a function of such things as urban sprawl, distance from Detroit, petroleum refining capacity, climate, and the availability of public facilities? The data on expenditures substantiate some of these notions (Table 3). There is a strong

TABLE 3. *Correlations with transportation expenditures index (at the .05 level of significance).*

Variable	Value of r
Percentage single females over 14 yrs.	−.61
Percentage increase in SMSA population	.59
Distance from New York City	.54
Percentage over 65 yrs.	−.53
Percentage using public transportation	−.51
Number of rainy days	−.51
Distance from nearest SMSA	.44
SMSA's within 100 miles	−.43
Percentage white collar workers	−.43
Percentage earning over $10,000	.41
Percentage under 18 years of age	.41

positive relationship between metropolitan growth and transportation spending. Increasing distance from New York is associated with increased spending, but distance from Detroit has little bearing. Detroiters themselves, however, are spending on transportation at a rate of 12% over the national transportation mean. Spending goes down as public transportation use rises. It also is lower in cities with high proportions of old people, single females, and white collar workers (Table 4).

The role of climate is difficult to identify. Rainy day frequency is negatively related to transportation spending, but the relationship between snowfall and expenditures is significant. Apparently, money appropriated for snow tires and chains is offset by increased use of public transportation. There is less urban sprawl in the snow belt area, and, perhaps, a generally lower propensity to drive.

TABLE 4. *A comparison of high and low transportation expenditure index cities.*

	Houston	Kansas City	Chicago	New York
Transportation expenditure index	112	121	98	78
Percentage:				
Under 18 years	38	35	33	30
Over 65 years	5	9	9	10
Single females over 14 years	31	33	35	38
White collar workers	46	48	45	50
Incomes over $10,000	18	17	26	22
Rate of urban growth 1950-1960	53	30	25	23
Workers using public transportation	10	12	30	51

CONCLUSIONS

Variation in food expenditures in United States cities is related to a myriad of variables. Expenditures are responsive to heterogeneous consumption habits which are, in part, a function of spatial differences in needs. In addition, variation in life styles throughout the country affects both the character and quantity of consumption. Differences in diet and styles of dress are exemplary. Expenditures also are a function of price. Costs of food and food services vary partly as a result of site and situation factors which affect the cost of distribution. Relative inaccessibility raises transport costs, and high land values result in higher rents and prices. Inaccessibility can also reduce competition. The high cost of food in many of the captive-audience university and ghetto sections of certain United States cities are cases in point.

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