Consumer expenditures in different-size cities

Patterns of spending differ between metropolitan and nonmetropolitan cities; large-city households spend more on housing, dining out, and public transportation, while small-city units spend more on food at home and private vehicles

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The 1980's were a decade of metropolitan migration, with large cities continuing to house a growing percentage of our population. The Bureau of the Census recently reported that:

> More than 3 of every 4 people live in the country's 282 designated metropolitan areas. . . .The metropolitan increase [between 1980 and 1987] was 8.5 percent (14.6 million), more than twice the 4.1 percent increase (2.2 million) in nonmetropolitan territory. National growth since 1980 has amounted to 7.4 percent.[1]

The growth of U.S. metropolitan areas may affect consumption if these areas have different patterns of expenditures. Two questions can be raised with respect to urban areas: Do earning and spending patterns differ with city size? and, If so, are these differences similar to those between urban and rural areas? To answer these questions, this article presents a comparison of the average annual expenditures and income in metropolitan (large) and nonmetropolitan (small) cities.

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Data

The data are from the 1987 Bureau of Labor Statistics Consumer Expenditure Interview Survey. This is a continuous survey in which information on income and expenditures of consumer units[2] is collected in five consecutive quarterly interviews following a rotating panel design with approximately 5,000 consumer units each quarter. The data are collected on an ongoing basis in 101 primary sampling units (PSU's) across the country. The comparisons made here are based on weighted data which represent the U.S. population.

For the purpose of this study, a large city is considered to be any urban area classified as a Metropolitan Statistical Area (MSA) by the Bureau of the Census, including rural areas within MSA's. A small city is considered to be any non-MSA urban area.[3]

Statistical method and results

Table 1 shows the differences between the average metropolitan consumer unit and the average

nonmetropolitan consumer unit. A chi-square in testing the significance of the difference between expenditure shares is[4]

$$\chi^2 = \frac{N\,(a_i d_i - b_i c_i)^2}{k l m_i n_i}$$

where:

a_i, c_i = the average expenditure on line item i for metropolitan and nonmetropolitan cities, respectively;

b_i, d_i = the total of average expenditures on all line items other than line item i for metropolitan and nonmetropolitan cities, respectively;

k = average total expenditures, metropolitan cities;

l = average total expenditures, nonmetropolitan cities;

$m_i = a_i + c_i$;

$n_i = b_i + d_i$;

$N = k + l$.

On average, metropolitan households have more earners per household and slightly larger households. They also have higher levels of education, are more likely to hold a mortgage, and are more likely to own at least one vehicle.

Income and expenditures. As might be expected, average income and expenditures are notably higher in metropolitan cities. Note, however, that although on average households in larger urban areas earn and spend more, they spend a smaller percentage of their income than households in small cities. Large-city dwellers spend only 84 percent, while those in smaller cities spend 91 percent, of their reported income. As might also be expected, housing expenditures account for a higher share of total expenditures in metropolitan areas in comparison with nonmetropolitan areas. Expenditure shares on shelter are significantly different at 19 percent and 14 percent, respectively. Conversely, expenditures on utilities account for a higher share of total expenditures in nonmetropolitan areas than in metropolitan areas. There is evidence that this is due to the inclusion of at least one utility in the cost of rent in metropolitan areas: 30 percent of all metropolitan consumer units report that at least one utility is included in their rent, as compared with 20 percent in nonmetropolitan consumer units. Food expenditures also follow expected trends. While the expenditure shares for total food in both classifications are similar, those for "at home" and "away from home" expenditures are very different: nonmetropolitan consumer units spend a significantly higher proportion of expenditures on food at home, while metropolitan consumer units spend more away from home.

Table 1 reveals some interesting results with respect to out-of-pocket health care expenditures.[5] The difference in expenditure shares between metropolitan and nonmetropolitan consumer units is highly significant at 4.2 and 5.7 percent, respectively. Table 2 shows the component differences in health care expenditures. Nonmetropolitan consumer units allocate a much higher share for health insurance and prescription drugs, while metropolitan con-

Table 1. Selected characteristics and average annual expenditures of metropolitan and nonmetropolitan urban consumer units, 1987

Item	Expenditures		Shares		Chi-square statistic
	Metropolitan	Nonmetropolitan	Metropolitan	Nonmetropolitan	
Number of consumer units (thousands)	71,765	8,968	—	—	—
Consumer unit characteristics:					
Income before taxes[1]	$29,330	$19,879	—	—	—
Persons in consumer unit	2.5	2.4	—	—	—
Age of reference person	47	47	—	—	—
Earners per consumer unit	1.4	1.2	—	—	—
Percent attended college	46	39	—	—	—
At least one vehicle owned	85	81	—	—	—
Housing tenure (percent):					
Homeowner with mortgage	38	33	—	—	—
Homeowner without mortgage	21	25	—	—	—
Renter	41	42	—	—	—
Average annual expenditures	$24,616	$18,078	—	—	—
Food	3,736	2,831	15.2	15.6	1.82
At home	2,576	2,081	10.5	11.5	*11.75
Away from home	1,161	750	4.7	4.1	*7.86
Alcoholic beverages	287	158	1.2	.9	*8.64
Housing	7,722	5,145	31.3	28.4	*42.24
Shelter	4,641	2,574	18.9	14.3	*157.70
Utilities	1,676	1,556	6.8	8.6	*48.02
Household operations	407	258	1.7	1.4	3.50
Housefurnishings and equipment	998	756	4.0	4.1	.37
Apparel and services	1,302	917	5.4	5.2	0.67
Transportation	4,771	3,427	19.4	18.9	1.40
Health care	1,036	1,026	4.2	5.7	*48.65
Entertainment	1,210	872	4.9	4.8	.11
Personal care	233	164	.9	.9	.18
Reading	150	108	.6	.6	.03
Education	346	247	1.4	1.4	.12
Tobacco and supplies	223	219	.9	1.2	9.47
Miscellaneous	535	422	2.2	2.3	1.22
Cash contributions	770	786	3.1	4.3	44.05
Personal insurance and pensions	2,293	1,755	9.3	9.7	1.84

[1] Income values are derived from "complete income reporters" only. The distinction between complete and incomplete income reporters is based in general on whether the respondent provided values for at least one major source of income, such as wages and salaries, self-employment income, or Social Security income.

NOTE: Asterisk indicates significance at the 5-percent level.

Table 2. **Selected average annual health care expenditures of metropolitan and nonmetropolitan urban units, 1987**

Item	Expenditures		Shares		
	Metropolitan	Nonmetropolitan	Metropolitan	Nonmetropolitan	Chi-square statistic
Health care	$1,036	$1,026	100.0	100.0	—
Health insurance	370	423	35.7	41.2	*6.62
Medical services	482	370	46.5	36.1	*23.27
Prescription drugs	131	185	12.7	18.0	*11.53
Medical supplies	53	48	5.1	4.7	0.21

NOTE: Asterisk indicates significance at the 5-percent level.

sumer units spend a higher share for medical services. Thirty percent of all metropolitan consumer units reported paying the total premium on their health insurance, compared with 50 percent of all nonmetropolitan consumer units. Thus, nonmetropolitan households are not necessarily spending more on health care, but merely paying a higher portion of health costs out of pocket. The differences in expenditure shares for prescription drugs and medical services are also a reflection of the difference in insurance coverage between the two city types.

Transportation expenditures are highlighted in table 3. The differences in expenditure shares between metropolitan and nonmetropolitan urban areas are highly significant with respect to public transportation, although there is virtually no difference in private vehicle purchases across the two city types. Table 3 shows that those who live in metropolitan-area cities are less likely to use their private vehicles than are nonmetropolitan-area dwellers, whose gasoline and motor oil expenditures account for a significantly higher share of their transportation expenditures. A strong difference in modes of transportation thus exists between the two city types, with public transportation replacing a significant portion of private vehicle usage in metropolitan areas. This is especially evident in airline fares and mass transit expenditures.

While total entertainment expenditures do not exhibit any significant difference between metropolitan and nonmetropolitan cities, there are some interesting comparisons between the disaggregated expenditure items of the two city types, as shown in table 4. Foremost of these is the large difference in expenditures on fees and admissions and on televisions and radios and sound equipment between metropolitan and nonmetropolitan cities: metropolitan-area dwellers spend significantly more on fees and admissions, while nonmetropolitan-area dwellers spend a significantly higher amount on television sets.

Perhaps a more indicative statistic, however, is the percentage of those interviewed who reported expenditures on these items. Of the metropolitan consumers interviewed, 60 percent reported expenditures on fees and admissions, while there were 46 percent reporting in the nonmetropolitan sample. Similarly, 64 and 79 percent reported expenditures on television and radios and sound equipment in metropolitan and nonmetropolitan areas, respectively. Greater accessibility to out-of-home activities in metropolitan areas probably accounts for much of these differences.

Table 3. **Selected average annual transportation expenditures of metropolitan and nonmetropolitan urban consumer units, 1987**

Item	Expenditures		Shares		Chi-square statistic
	Metropolitan	Nonmetropolitan	Metropolitan	Nonmetropolitan	
At least one vehicle owned (percent)	85	81	—	—	—
Transportation	$4,772	$3,427	100.0	100.0	—
Vehicle purchases	2,130	1,528	44.6	44.6	0.00
Gasoline and motor oil	873	757	18.3	22.0	*18.04
Public transportation	322	150	6.8	4.4	*20.66
Airline fares	221	112	4.7	3.3	*9.51
Mass transit	69	28	1.5	.8	*6.75
Taxis	14	4	.3	.1	2.84
Other public transportation	14	6	.3	.2	1.15
Other transportation	1,448	993	30.3	29.0	1.79

NOTE: Asterisk indicates significance at the 5-percent level.

Urban versus rural areas. Given the results alone, how comparable are these findings to those of comparisons made between expenditures in urban and rural areas? John Rogers studied urban versus rural differences using 1985 Consumer Expenditure Survey data.[6] The results of his study showed that average income and total expenditures are higher in urban consumer units than in rural consumer units, with much of the difference due to higher food, housing, and health expenditures. Many of Rogers' urban/rural results match those found here. For example:

> In 1985, urban consumer units spent more for housing than did their rural counterparts, and the amount spent accounted for a larger share of total expenditures.[7]

> Rural homeowners were more likely to have paid off their mortgages.[8]

[Utility] costs accounted for a larger share of rural consumers' housing costs than of urban consumers'.[9]

Rural consumers also spent more per unit on health care than did urban consumers. . . . [They] more frequently paid the full cost of their health insurance policies while employers more frequently paid the cost of policies for urban consumers.[10]

In general, the differences between expenditures in urban and rural areas found by Rogers were larger and more often significant than those discussed in this article. A divergence also occurred between specific comparisons. For example, Rogers found transportation expenditures and expenditure shares to be higher in rural areas, whereas here they were found to be larger in metropolitan areas. Also, in Rogers' study, rural consumer units were found to be more likely to own a home, while here metropolitan consumer units had a slightly higher incidence of homeownership. In general, then, most metropolitan/nonmetropolitan comparisons made in this article resemble urban/rural comparisons made by Rogers, although some important differences exist.

Table 4. **Selected average annual entertainment expenditures of metropolitan and nonmetropolitan urban consumer units, 1987**

Item	Expenditures		Shares		Chi-square statistic
	Metropolitan	Nonmetropolitan	Metropolitan	Nonmetropolitan	
Entertainment	$1,210	$872	100.0	100.0	—
Fees and admissions	363	188	30.0	21.6	*18.55
Fees for participant sports	47	25	3.9	2.9	1.57
Admissions to sports events	20	10	1.7	1.1	.91
Admissions to movies, concerts, etc.	67	24	5.5	2.8	*9.40
Club memberships	83	47	6.9	5.4	1.87
Fees for recreation lessons	48	19	4.0	2.2	*5.20
Total out-of-town recreation	98	63	8.1	7.2	.54
Televisions, radios and sound equipment	401	359	33.1	41.2	*14.10
Televisions	271	283	22.4	32.5	*26.25
Radios and sound equipment	130	76	10.7	8.7	2.34
Pets, other entertainment supplies and equipment	446	325	36.9	37.3	.04

NOTE: Asterisk indicates significance at the 5-percent level.

Conclusion

Significant differences exist between average expenditure patterns in metropolitan and nonmetropolitan urban areas. While generally these differences are similar to those of urban/rural comparisons (that is, higher income and expenditures in metropolitan and urban areas), the trends of item-level expenditures often follow very different paths in the two comparisons. With increasing metropolitan migration, this information will be useful in reaching a better understanding of future expenditure patterns nationwide. □

Footnotes

[1] Bureau of the Census, *News Release*, Sept. 30, 1988.

[2] A consumer unit consists of all members of a particular housing unit or other type of living quarters who are related by blood, marriage, or adoption, or who are parties to some other legal arrangement, such as foster children. Determination of membership in a consumer unit in the case of unrelated persons is based on financial independence. The term "household" may be used interchangeably with "consumer unit."

[3] A non-MSA urban area is any city with population between 2,500 and 50,000.

[4] N. M. Downie and R. W. Heath, *Basic Statistical Methods* (New York, Harper and Row, 1974), pp. 193–201.

[5] Health care expenditures include out-of-pocket expenditures only; reimbursed health costs are not recorded as health care expenditures.

[6] John Rogers, "Expenditures of urban and rural consumers, 1972–73 to 1985," *Monthly Labor Review*, March 1988, pp. 41–46.

[7] *Ibid*, p. 42.

[8] *Ibid.*

[9] *Ibid.*

[10] *Ibid.*