Urban Change and Poverty

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Income, Opportunities, and Quality of Life of Urban Residents

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This paper reports on the economic well-being of urban residents, using estimates of quality of life as well as traditional measures. Traditional measures include household income, the poverty rate, and the unemployment rate, which are reported for residents of central cities, suburbs, small metropolitan areas, and rural areas. These measures are also disaggregated by demographic group for each residential category. Earnings differences across individuals are explained by observable differences in workers, jobs, and locations. Location-specific amenities are shown to give rise to compensating differences in wages and housing prices. Estimating values for such amenities permits comparisons of the quality of life across areas and the augmentation of traditional measures of well-being. Estimates are based on public-use microdata from the 1980 Census of Population and Housing.

CITIES AND ECONOMIC WELL-BEING

Cities are monuments to the possibilities of civilized cooperation. The benefits that can be realized by common use of sizable production resources and synergistic interactions are a powerful force that

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draws people together (Mills and Hamilton, 1984:Ch. 1). The standard of living in the United States is due in part to the clustering of economic activity. Workers and residents in cities share in these benefits. Nevertheless, there is concern about the economic status of people who live in cities (Tolley et al., 1979). The concentration of poverty in ghettos and the haunting appearance of abandoned factories are particularly striking. To provide some empirical evidence on the advantages and disadvantages of city life, this study focuses on the well-being of people who work and live in cities, compared with people outside of cities.

This paper reviews what is known about the economic status of residents of large central cities compared with residents of suburbs, small metropolitan areas, and rural areas. An ideal measure of economic status would take into account several factors: the future, distinguishing between permanent and temporary situations; the actual decision-making unit, whether independent individuals or close-knit groups; the full resources available, recognizing transactions in kind; the cost of living; and the amenities available, incorporating quality-of-life values (Danziger et al., 1981). In the absence of an ideal measure, we use a set of measures of economic status to reflect the urban situation.

Measures of well-being for metropolitan areas with populations exceeding 1.5 million are computed from the public-use microdata of the 1980 Census of Population and Housing. Comparisons are made across and within metropolitan areas and across demographic groups by type of area. Emphasis is given to annual money income. A hedonic framework of wage determination is offered as an explanation for differences in labor earnings, which account for 70 percent of total national income (Bureau of the Census, 1984:Table 728). Earnings differences can be attributed to observable differences in the characteristics of workers and jobs. Earnings differences also arise because of differences in the amenities available in the area in which the job is located. When these premiums from the labor market are combined with the compensation reflected elsewhere, we can estimate differences in the quality of life in various locations. Quality-of-life differences are then used to augment income differences to provide a better measure of differences in the well-being of urban residents.

TRADITIONAL MEASURES OF WELL-BEING

This section provides an overview of some traditional measures of well-being: household income, the poverty rate, the unemployment and employment rates, the manufacturing employment share, and individual income and annual hours worked. These summary measures are all computed from the 1980 Census 1-in-1,000 Public Use A Sample. In Tables 1-5, the measures are presented by metropolitan area, location of residence within metropolitan areas, region, family composition, race, and age.

Traditional measures of well-being are useful for describing urban conditions. Household income indicates the amount that can be spent on food, housing, and other categories of consumption. The poverty rate indicates the relative size of the group of people whose money incomes are not adequate to meet basic consumption requirements.[1] The unemployment rate shows the relative size of the group of people who are not earning income but are looking for work. The employment rate gives the relative size of the group of people who are working. The manufacturing employment share shows the relative size of the local economic base composed of traditional industry. Urban residents are usually considered to be better off when their incomes and local employment rates are higher and poverty and unemployment rates are lower. In the past, a high share of manufacturing employment was considered a good sign, but recent shifts in the economic structure away from manufacturing and toward the service and information sectors have had a negative effect on urban economies based on manufacturing.

Large Metropolitan Areas

Part A of Table 1 shows traditional measures for the 26 metropolitan areas in the United States with populations of 1.5 million or more, according to the 1980 Census. Part B gives summary statistics and correlation coefficients among the various measures. It is apparent

[1] Families and unrelated individuals are classified as being above or below the proverty level using an index developed by the Social Security Administration in 1964 and revised by federal interagency committees in 1969 and 1980. The poverty index is based on money income and does not take into account noncash benefits such as food stamps and public housing. The poverty thresholds are revised annually to reflect the change in the consumer price index. The average poverty threshold for a family of four was $7,412 in 1979.

TABLE 1 Measures of Economic Status for Residents of Large Metropolitan Areas, 1979-1980

	Part A						
Metropolitan Area (1980 SMSAs)	Population, Rank 1980	Population April 1980 (000s)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Unemployment Rate, April 1980 (%)	Employment Rate, April 1980 (%)	Manufacturing Employment Share, April 1980 (%)
New York, N.Y.-N.J.	1	9,120	19,142	15.8	6.9	54.7	15.7
Los Angeles-Long Beach, Calif.	2	7,478	21,639	11.5	6.0	60.9	23.5
Chicago, Ill.	3	7,104	23,017	11.0	6.8	61.4	24.1
Philadelphia, Pa.-N.J.	4	4,717	20,239	12.1	8.6	54.6	22.1
Detroit, Mich.	5	4,353	23,288	9.1	11.6	55.2	29.6
San Francisco-Oakland, Calif.	6	3,251	23,151	10.3	5.6	63.4	13.6
Washington, D.C.-Md.-Va.	7	3,061	27,295	6.9	3.7	69.6	5.1
Dallas-Ft. Worth, Tex.	8	2,975	21,318	11.1	3.2	65.9	20.5
Houston, Tex.	9	2,905	24,607	10.3	3.2	69.6	18.3
Boston, Mass.	10	2,763	20,518	12.2	3.7	60.6	17.0
Nassau-Suffolk, N.Y.	11	2,606	25,997	6.7	5.6	59.5	15.8
St. Louis, Mo.-Ill.	12	2,356	21,225	10.2	7.6	58.0	21.1
Pittsburgh, Pa.	13	2,264	20,275	9.6	8.2	52.1	24.6
Baltimore, Md.	14	2,174	21,657	11.4	6.1	59.9	17.3
Minneapolis-St. Paul, Minn.-Wis.	15	2,114	23,032	8.5	3.7	67.9	20.0
Atlanta, Ga.	16	2,030	21,189	12.2	4.9	64.4	11.6
Newark, N.J.	17	1,966	23,251	10.4	7.1	57.8	24.9
Anaheim-Santa Ana-Garden Grove, Calif.	18	1,933	26,434	5.1	3.2	68.6	22.6

Part A

Metropolitan Area (1980 SMSAs)	Population, Rank 1980	Population April 1980 (000s)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Unemployment Rate, April 1980 (%)	Employment Rate, April 1980 (%)	Manufacturing Employment Share, April 1980 (%)
Cleveland, Ohio	19	1,899	21,461	8.8	8.1	55.6	30.1
San Diego, Calif.	20	1,862	21,114	10.3	4.7	60.9	16.5
Miami, Fla.	21	1,626	18,106	15.8	5.4	56.5	10.8
Denver-Boulder, Colo	22	1,621	22,664	9.1	4.1	66.7	14.3
Seattle-Everett, Wash.	23	1,607	23,075	5.8	7.5	63.2	22.4
Tampa-St. Petersburg, Fla.	24	1,569	16,812	11.9	5.1	49.2	12.8
Riverside-San Bernardino Ontario, Calif.	25	1,558	19,504	11.3	10.1	55.5	15.8
Phoenix, Ariz.	26	1,509	20,874	9.6	6.0	57.9	16.7

Part B

1980 SMSAs	Population	Household Income	Poverty Rate	Unemployment Rate	Employment Rate	Manufacturing Employment Share
Summary statistics						
Mean	3,017	21,957	10.3	6.0	60.4	18.7
Standard deviation	1,995	2,431	2.5	2.2	5.5	5.8
Minimum	1,509	16,812	5.1	3.2	49.2	5.1
Maximum	9,120	27,295	15.8	11.6	69.6	30.1
Correlation coefficients						
Population		-0.032	0.384	0.181	-0.105	0.183
Household income			-0.766	-0.270	0.715	0.055
Poverty rate				0.094	-0.447	-0.227
Unemployment rate					-0.688	0.512
Manufacturing employment share						-0.245

SOURCE: Computed from Bureau of the Census (1983b). Population figures were obtained from Bureau of the Census (1983a).

from the summary statistics that the measures vary widely across metropolitan areas[2] Somewhat surprisingly, population size is not highly correlated with any of the measures of economic status. Although there are several significant correlations among household income, the poverty rate, the unemployment rate, and the employment rate, the poverty rate-unemployment rate correlation is not among them. Metropolitan areas with high unemployment rates do not necessarily have high poverty rates. The unemployment rate, however, is significantly correlated with the manufacturing employment share. This probably reflects the long-term structural shift away from goods-producing jobs and the resulting displacement of workers.

Central-City, Suburban, Small Metropolitan, and Rural Areas

Table 2 presents the measures of economic status for households and persons in and out of metropolitan areas for the entire United States and for the four main Census Bureau regions. Residents of metropolitan areas are broken down further into three groups: residents living in the central city of large (greater than 1.5 million persons) metropolitan areas; those living in the surrounding suburbs; and residents of small (less than 1.5 million persons) metropolitan areas. Looking at averages for the entire United States, nonmetropolitan residents have the lowest incomes and employment rate of the four groups, whereas central-city residents of large metropolitan areas have the lowest manufacturing employment share and the highest unemployment and poverty rates. In contrast, suburban residents of large metropolitan areas have the highest household incomes, employment rate, and manufacturing employment share, as well as the lowest poverty and unemployment rates.

[2] The household income figures reported in Table 1 are not adjusted for differences in the cost of living because of problems in constructing an acceptable index. Consumer price indexes (CPIs) are reported for 22 of the 26 areas by the Bureau of the Census (1984), and household income can be deflated by multiplying it by the average CPI for all areas and dividing by the CPI for the area in question. The cost-of-living factors range from 0.925 for Houston to 1.025 for Atlanta. The correlation between household income and deflated household income is 0.95. However, the CPIs by city are only appropriate for comparisons over time within cities and not across cities at a point in time.

In all four regions, suburban residents are more affluent according to these traditional measures. Yet the lowest incomes and employment rates and the highest unemployment and poverty rates vary from region to region. In the Northeast and Midwest, central-city residents of large metropolitan areas are the poorest, whereas in the South and West the poorest individuals are those living outside metropolitan areas.

Residential Area, Family, and Race

Table 3 gives average household incomes and poverty rates in the different residential locations by family composition and race. In every case, suburban residents again have the highest incomes and lowest poverty rates. Nonmetropolitan residents have the lowest incomes and, except for households headed by white females, they also have the highest poverty rates. Married couples with children have somewhat higher incomes than their counterparts without children, but they also have higher poverty rates. Income levels are substantially lower and poverty rates higher for female householders with children than for married couples with children. For perspective, however, it should be noted that there are more than six times as many white married-couple households with children than female-headed households with children. Among blacks the ratio is more than four to one.

Summary measures of economic status by race and location of residence are shown in Table 4. White household incomes and employment rates are higher and unemployment and poverty rates lower than those of blacks, regardless of location of residence. In virtually every case the measures for Hispanics fall somewhere between those for blacks and whites.

Residential Area, Age, Earnings, and Transfers

In Table 5, household income and poverty rates are given by age of the householder and location of residence. Among 25- to 39-year-old householders, central-city residents have the lowest incomes and highest poverty rates. For householders aged 40 and over, it is rural residents who are the least affluent. Again, suburban residents have higher incomes and lower poverty rates than other groups. There does appear to be some tendency toward higher poverty rates and lower incomes among the elderly, but this is not a universal trend.

TABLE 2 Measures of Economic Status by Size and Location of Area of Residence, 1979-1980

Location of Residence		Percentage of U.S. Households April 1980	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Unemployment Rate, April 1980 (%)	Employment Rate, April 1980 (%)	Manufacturing Employment Share, April 1980 (%)
Northeast							
Metro. area > 1.5 mil.							
	Central city	4.9	16,661	19.2	8.1	51.9	16.0
	Suburbs	5.4	24,173	6.9	6.1	58.9	20.7
Metro. area < 1.5 mil.		6.7	19,737	10.8	6.5	57.4	26.2
Nonmetro. area		4.7	18,829	10.1	6.8	56.7	27.5
Midwest							
Metro. area > 1.5 mil.							
	Central city	2.7	17,357	18.3	10.0	53.9	23.3
	Suburbs	5.0	25,571	5.4	6.6	62.6	25.8
Metro. area < 1.5 mil.		9.5	20,538	10.5	7.4	59.2	25.0
Nonmetro. area		8.7	17,627	12.5	7.2	55.2	21.2

Location of Residence		Percentage of U.S. Households April 1980	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Unemployment Rate, April 1980 (%)	Employment Rate, April 1980 (%)	Manufacturing Employment Share, April 1980 (%)
South							
	Metro. area > 1.5 mil.						
	Central city	2.7	19,354	16.4	5.3	61.0	14.6
	Suburbs	4.5	23,948	7.6	3.7	65.1	13.6
	Metro. area < 1.5 rail.	12.9	18,447	14.8	5.9	58.6	15.3
	Nonmetro. area	12.8	16,031	19.7	6.8	52.6	19.9
West							
	Metro. area > 1.5 mil.						
	Central city	3.8	19,802	12.7	6.3	60.2	17.9
	Suburbs	5.6	24,024	7.8	5.3	63.4	20.4
	Metro. area < 1.5 mil.	6.3	20,621	10.7	6.8	59.8	13.1
	Nonmetro. area	3.7	18,263	13.4	7.3	55.4	8.7
United States							
	Metro. area > 1.5 rail.						
	Central city	14.0	18,149	16.8	7.4	56.3	17.6
	Suburbs	20.4	24,383	6.9	5.5	62.3	20.3
	Metro. area < 1.5 rail.	35.6	19,574	12.2	6.6	58.7	19.6
	Nonmetro. area	30.0	17,165	15.3	7.0	54.3	20.1

SOURCE: Computed from Bureau of the Census (1983b).

TABLE 3 Income and Poverty by Family Composition, Race, and Area of Residence, 1979

Race of Householder		Married Couple Without Children			Married Couple With Children			Female Householder With Children		
		Percentage of U.S. Households[a]	Household Income ($)	Poverty Rate (%)	Percentage of U.S. Households	Household Income ($)	Poverty Rate (%)	Percentage of U.S. Households	Household Income ($)	Poverty Rate (%)
Whites										
	Metro. area > 1.5 mil.									
	Central city	2.6	25,897	3.4	1.7	26,471	7.2	0.4	11,965	37.4
	Suburbs	5.9	28,669	2.0	6.0	30,850	2.6	0.8	13,876	25.3
	Metro. area < 1.5 mil.	9.8	23,962	3.8	9.5	25,860	5.5	1.6	11,692	31.4
	Nonmetro. area	9.1	20,064	6.1	9.2	21,982	8.5	1.1	10,876	34.9
Blacks										
	Metro. area > 1.5 rail.									
	Central city	0.6	20,062	10.7	0.7	22,286	12.2	0.2	9,583	51.5
	Suburbs	0.2	24,279	6.3	0.4	25,730	6.3	0.1	10,488	40.9
	Metro. area << 1.5 mil.	0.6	16,934	13.1	0.9	20,425	11.0	0.2	8,989	54.0
	Nonmetro. area	0.4	12,514	22.2	0.6	16,282	23.6	0.1	7,493	64.1
Hispanics										
	Metro. area > 1.5 mil.									
	Central city	0.2	18,767	12.5	0.5	17,375	17.8	0.2	7,636	65.3
	Suburbs	0.2	22,230	6.6	0.5	22,925	8.8	0.1	11,225	43.0
	Metro. area << 1.5 mil.	0.3	17,304	15.6	0.7	18,301	18.4	0.2	8,200	53.1
	Nonmetro. area	0.1	14,610	16.9	0.3	16,557	23.8	0.5	7,310	70.2

[a] Percentage of total U.S. households. Because the categories shown are not exhaustive or mutually exclusive, the percentages do not sum to 100.

SOURCE: Computed from Bureau of the Census (1983b).

TABLE 4 Economic Status by Race and Area of Residence, 1979-1980

Part A

	White Householder			Black Householder			Hispanic Householder		
Area	Percentage of U.S. Households April 1980	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Percentage of U.S. Households April 1980	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Percentage of U.S. Households April 1980	Household Income 1979 ($)	Poverty Rate, 1979 (%)
Metro. area > 1.5 mil.									
Central city	9.2	20,135	11.4	3.6	14,193	27.6	1.6	14,112	27.2
Suburbs	18.4	24,891	5.9	1.2	18,427	18.3	1.1	19,628	14.3
Metro. area < 1.5 mil.	30.8	20,349	9.9	3.5	13,592	28.7	1.5	14,967	25.1
Nonmetro. area	27.3	17,673	13.4	2.0	10,939	39.0	7.3	14,142	27.7

Part B

Area	Whites Percentage of Persons,[a] April 1980	Unemployment Rate, April 1980	Employment Rate, April 1980 (%)	Blacks Percentage of Persons, April 1980 (%)	Unemployment Rate, April 1980	Employment Rate, April 1980 (%)	Hispanics Percentage of Persons, April 1980 (%)	Unemployment Rate, April 1980 (%)	Employment Rate April 1980 (%)
Metro. area > 1.5 mil.									
Central city	8.5	5.3	58.2	3.5		51.4	1.6	8.8	
Suburbs	18.8	5.1	62.3	1.3		61.7	1.3	7.0	
Metro. area < 1.5 mil.	30.5	5.8	59.4	3.6		53.1	1.8	10.0	
Nonmetro. area	27.2	6.5	54.9	2.3		47.2	0.8	7.6	

[a] Percentage of persons aged 16 and over in the United States. Because the categories shown are not exhaustive or mutually exclusive, the percentages do not sum to 100.

SOURCE: Computed from Bureau of the Census (1983b).

TABLE 5 Economic Status by Age and Area of Residence, 1979

	Part A: By Household					
	Householders Aged 25-39			Householders Aged 40-64		
Area	Percentage of U.S. Households, April 1980 (%)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Percentage of U.S. Households, April 1980 (%)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)
Metro. area > 1.5 mil.						
Central City	4.8	18,338	17.0	5.3	22,308	13.7
Suburbs	7.0	24,291	6.7	8.5	30,022	4.4
Metro. area << 1.5 mil.	11.7	20,422	10.6	13.8	24,393	8.6
Nonmetro. area	8.9	18,912	11.6	11.6	20,929	11.9
	Householders Aged 65-71			Householders Aged 72+		
	Percentage of U.S. Households, April 1980 (%)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)	Percentage of U.S. Households, April 1980 (%)	Household Income, 1979 ($)	Poverty Rate, 1979 (%)
Metro. area > 1.5 mil.						
Central City	1.3	14,406	14.4	1.6	11,437	18.4
Suburbs	1.7	16,954	8.1	1.8	12,602	12.7
Metro. area << 1.5 mil.	3.2	13,945	13.1	3.6	10,611	19.0
Nonmetro. area	3.2	12,205	18.0	3.8	9,216	27.3

	Part B: By Individual							
	Individuals Aged 25-39				Individuals Aged 40-64			
Area	Earnings 1979[a] ($)	Transfers, 1979[b] ($)	Other Income, 1979[c] ($)	Annual Hours Worked 1979	Earnings 1979 ($)	Transfers 1979 ($)	Other Income 1979 ($)	Annual Hours Worked 1979
Metro. area >1.5 mil.								
Central city	10,116	270	461	1421	10,365	467	1,297	1244
Suburbs	12,488	103	488	1536	13,603	284	1,571	1386
Metro. area << 1.5 mil.	10,608	125	424	1506	10,962	370	1,411	1329
Nonmetro. area	9,502	115	383	1496	9,005	408	1,170	1308

	Individuals Aged 65-71				Individuals Aged 72+			
Area	Earnings 1979[a] ($)	Transfers, 1979[b] ($)	Other Income, 1979[c] ($)	Annual Hours Worked 1979	Earnings 1979 ($)	Transfers 1979 ($)	Other Income 1979 ($)	Annual Hours Worked 1979
Metro. area > 1.5 mil.								
Central city	2,826	2,644	2,515	348	1,119	3,008	2,866	107
Suburbs	3,309	2,777	3,695	364	701	2,949	3,415	82
Metro. area < 1.5 mil.	2,266	2,761	2,934	312	637	2,866	2,768	94
Nonmetro. area	1,970	2,668	2,341	319	795	2,661	2,087	127

[a] Earnings include wage and salary and self-employment income.
[b] Transfers include social security and public assistance income.
[c] Other income includes interest, dividend, and net rental income, and income from all other sources.
SOURCE: Computed from Bureau of the Census (1983b).

Among central-city residents the poverty rate is higher for 25- to 39-year-old householders than for 65- to 71-year-old householders.

The rest of Table 5 is devoted to a breakdown of individual income into earnings, transfers, and other income, along with information on annual hours worked. In general, suburbanites have the highest earnings (annual and hourly), other income, and hours worked, whereas transfer income appears to be greatest in the central city. To the extent that, nationally, the poverty rate is highest for central-city residents, there is some evidence that transfer payments are going to those who need them most. As individuals age, it is apparent that transfers and other income partly replace earnings. Among 25- to 39-year-old central-city residents, earnings are 93 percent of total income. This percentage drops to 85 percent for 40- to 64-year-olds, 35 percent for 65- to 71-year-olds, and 16 percent for those aged 72 and older.

Tables 1-5 present traditional measures of economic well-being by metropolitan area, location of residence, region, family composition, race, and age. By looking at several traditional measures and disaggregating them in various ways, it is possible to obtain an overview of the economic well-being of urban residents. Yet, the traditional measures ignore quality-of-life factors, which can be important components in well-being. As a first step toward incorporating quality of life into the analysis, the next section develops a framework for explaining earnings differences among urban residents. With this framework, and the estimates that can be obtained, it is also possible to examine the specific factors that contribute to earnings and income differences across individuals. The framework and estimates further our ability to explain differences in the economic status of different groups in the urban population.

EARNINGS DETERMINATION

Framework

Individuals earn different amounts in the labor market for a variety of reasons. Perhaps the most important cause of observed earnings differences is differences in skills or training. When individuals invest in themselves to enhance their future earnings, they are investing in human capital. These investments may take the form of formal schooling, on-the-job training, job searches, or even diet and exercise to improve or maintain health (Becker, 1975; Mincer, 1974).

Controlling for other factors, individuals with greater investments in human capital should have higher earnings. Those with more schooling or job experience, for example, should earn more than those with less.

Even among individuals with the same investments in human capital, however, earnings may differ. For example, employers may find it necessary to pay workers a premium in dangerous or unpleasant jobs. These premiums are compensating wage differentials. They exist because jobs have different sets of characteristics, some of which workers find more valuable than others. Workers pay for pleasant job characteristics, such as flexible hours, and receive premiums for unpleasant ones. The magnitude of observed earnings differences because of compensating wage differentials is determined by the tastes of workers, their ability to move from one job to another, and the range of job characteristics offered by employers in the labor market (R. Smith, 1979).

In addition to the characteristics of a job, characteristics associated with the area of a worker's residence may produce compensating wage differentials if enough workers are mobile across areas. Examples of these types of quality-of-life factors are crime, air quality, and climate. If it were assumed that compensation for these amenities and disamenities takes place only in the labor market, then workers in desirable areas would pay for their quality of life through lower earnings. How much compensation of this type occurs in the labor market is determined by the distribution of quality-of-life factors across areas, the tastes and mobility of workers, and the existence of other markets for which compensation may occur (V. Smith, 1983).

Earnings differences may also be caused by other factors. For example, an observed difference in the earnings of two groups may be attributable in part to discrimination in the labor market instead of being explained fully by differences in investment in human capital or other factors. Earnings may differ across jobs because of unionization, which may alter the workings of the market. Variations in earnings may exist across geographic areas because of cost-of-living differences. These other factors must also be kept in mind when interpreting differences in earnings across the population.

Empirical Model and Results

In this section, we estimate a regression model that explains average hourly earnings as a function of a number of variables designed to

capture the effects of human capital investments, job characteristics, and quality-of-life factors. The data on individuals that have been used to estimate the model are obtained from the 1-in-1,000 Public Use A Sample of the 1980 Census. Data on job and location characteristics are obtained from a variety of sources and are merged with the census data by county, metropolitan area, or industry. Included in the sample are 46,004 individuals living in 253 urban counties in 185 metropolitan areas from which complete data to estimate the model are available. These individuals are at least 16 years of age or older; they all reported their 1979 earnings, hours, and weeks; had some wage and salary earnings; and had positive total earnings.

The individual characteristics that are incorporated into the estimated wage equation are years of labor market experience (age - schooling - 6); experience squared; years of schooling; number of children; and dummy variables for race, gender, enrollment in school, marital status, and the presence of health limitations. These variables are included in the model alone and are made to interact with one another as appropriate. For example, gender can Be made to interact with experience and with experience squared to capture differences between men and women in their profiles of earnings over the life cycle. The variables measuring individual characteristics control for differences in human capital investments and possibly some other factors such as discrimination.

The variables designed to capture the effects of differences in job characteristics are five dummies that control for six broad occupational categories and the unionization rate in the worker's industry.

Sixteen quality-of-life factors are also included in the model. Six of these variables control for climatic differences, and six capture differences in environmental quality. Others are dummies for the location of the worker's residence in the central city of the metropolitan area or in a county bordering a seacoast or the Great Lakes, the violent crime rate, and the teacher/pupil ratio in the county of residence. The teacher/pupil ratio is designed to be a measure of the quality of local publicly provided services.

Table 6 presents the wage-equation regression estimates, standard errors, and means of the independent variables. The exact functional form that was used was chosen on the basis of the results of a Box-Cox maximum likelihood search procedure. It consisted of transforming the hourly wage (W) to ($W.^{1}$ - 1)/.1 and entering the independent variables in linear form. The parameter estimates presented in Table 6 have Been linearized so that they are estimates of

TABLE 6 Regression Estimates of the Hedonic Wage Equation, 1980

Independent Variable	Units	Mean	Linearized Coefficient[a]	Linearized Standard Error
Experience	Age - schooling - 6, years	17.44	0.310	0.008
Experience squared		513.90	-0.005	0.0002
Schooling	Years	12.76	0.442	0.010
Race	Nonwhite=1, white=0	0.153	-0.959	0.091
Gender	Female=1, male=0	0.452	-0.312	0.100
Enrolled in school	Yes=1, no=0	0.149	-0.600	0.073
Marital status	Married=1, unmarried=0	0.586	1.441	0.077
Health limitations	Yes=1, no=0	0.048	-0.885	0.108
Gender x experience		7.598	-0.132	0.012
Gender x experience squared		221.30	0.0023	0.0002
Gender x race		0.075	1.102	0.128
Gender x marital status		0.237	-1.392	0.106
Gender x children		1.118	-0.254	0.025
Professional or managerial	Yes=1, no=0	0.232	2.499	0.088
Technical or sales	Yes=1, no=0	0.336	1.214	0.076
Farming	Yes=1, no=0	0.012	0.129	0.219
Craft	Yes=1, no=0	0.113	1.437	0.098
Operator or laborer[b]	Yes=1, no=0	0.173	0.690	0.088
Industry unionization	Percent	23.35	0.038	0.001
Precipitation	Inches/year	32.01	-0.014	0.004

Independent Variable	Units	Mean	Linearized Coefficient[a]	Linearized Standard Error
Humidity	Percent	68.27	0.0072	0.006
Heating degree days	Degree days/year	4,326.0	-0.000035	0.000025
Cooling degree days	Degree days/year	1,162.0	-0.00022	0.00005
Windspeed	Miles/hour	8.895	0.096	0.022
Sunshine	Percent of days	61.12	-0.0092	0.006
Coast	Yes=1, no=0	0.330	-0.031	0.063
Central city	Yes=1, no=0	0.290	-0.454	0.065
Violent crime	Crimes/100,000 pop./year	646.80	0.00062	0.0001
Teacher/pupil ratio		0.080	-5.45	1.848
Visibility	Miles	15.80	-0.0026	0.0028
Total suspended particulates	Micrograms/cubic meter	73.24	-0.0024	0.0015
Water effluent dischargers	Number/county	1.513	-0.0051	0.012
Landfill waste	Hundred million metric tons/county	477.50	0.00009	0.00002
Superfund sites	Number/county	0.883	0.107	0.017
Treatment, storage and disposal sites	Number/county	46.44	0.0013	0.0006
Intercept		-	2.76	0.867

NOTE: R^2= .3138; F = 601; and n = 46,004. The dependent variable is the hourly wage, which is estimated by dividing 1979 annual earnings by the product of 1979 weeks worked and 1979 usual hours worked per week. The sample mean for the hourly wage is $8.04.

[a] The hedonic wage equation is estimated with the dependent variable (W) as $(W^{.1} - 1)/.1$ and the independent variables in the usual arithmetic units. The choice was based on a Box-Cox maximum likelihood search for functional form. The coefficients are linearized by multiplying each coefficient by $(W^{.9})$ where W is average hourly wage.

[b] The omitted occupation is service.

the effects on hourly wages of one-unit changes in each variable. For example, the schooling coefficient is .442. It indicates that an extra year of schooling increases the hourly wage by 44 cents, consistent with greater investments in human capital as schooling increases.

The experience coefficient is .310; the experience-squared coefficient is -.005, implying that male earnings rise at a decreasing rate over the career and eventually turn downward at about 31 years of experience. This same pattern is observed in Table 5 if hourly earnings are calculated for the various age groups shown. On-the-job training is accumulated toward the beginning of the career and eventually depreciates. For women, the gender-experience interactions must be taken into account to determine the experience earnings profile. The negative gender-experience and positive gender-experience squared coefficients indicate that female earnings rise less quickly with experience and are flatter over the life cycle. Women appear to accumulate human capital more slowly than men because of intermittent work histories or discrimination in the provision of on-the-job training opportunities and promotions.

To determine the total estimated difference by gender, after controlling for other characteristics, one must account for the gender coefficient and the gender interactions. The gender coefficient is -.312, which is the estimated difference in hourly earnings between white, unmarried men and women with no labor market experience. The gender difference for nonwhites and married individuals at various levels of experience can be determined by summing across the appropriate estimated coefficients.

Table 3 shows that female-headed households with children had lower income than other types of households. The estimated earnings equation illustrates the adverse effect of children on female earnings. The gender-children coefficient is -.254; that is, each child reduces a woman's wage by 25 cents per hour on average, presumably by restricting the range of accessible jobs in the labor market.

Table 4 reveals that white household incomes exceed those of nonwhites. The estimates in Table 6 imply that nonwhite men earn approximately 96 cents per hour less than white men, but nonwhite women earn about 15 cents more (1.102 - .959) per hour than white women. Apparently the higher household income of whites does not exist because white women actually receive higher hourly wages than nonwhite women with similar characteristics.

The estimates in Table 6 also illustrate the existence of wage differences that are the result of differences in job characteristics.

The included occupational categories all earn more than the excluded service occupations category; the differences range from 13 cents per hour for farmers to $2.50 per hour for professionals and managers. Workers in industries that are more extensively unionized also receive higher wages.

The coefficients for the quality-of-life factors show the compensation that takes place in the labor market for differences across urban areas in climate, environmental quality, crime, and so forth. To obtain estimates of the full compensation for these amenity differences, the housing market must be taken into account (see the next section). But labor-market compensation alone is of some interest. According to the estimates for location-specific amenities, shown as the regression coefficients for the last 16 variables in Table 6, lower wages are received in sunny areas, a finding consistent with workers considering sunshine an amenity; higher wages are received in humid and windy areas. Workers also pay implicitly in the labor market for central-city locations, high teacher/pupil ratios, and greater levels of visibility. Compensation is provided for living with more crime and greater quantities of toxic waste.

Given the emphasis on the location of a worker's residence, the differences in the wages of workers who reside in the central city and those who reside outside it bear further examination. The central-city coefficient is -.454, which is the estimated effect of living in the central city when the effects of other characteristics are held constant. Thus, workers living in the central city pay for their location through lower wages.[3] But the observed characteristics of residents and nonresidents of central cities differ as well. Accordingly, one can estimate the implied difference in the wages of the typical central-city resident and the noncentral-city resident that is due to differences in characteristics, in addition to the "pure" effect of holding characteristics constant. Table 7 presents such estimates, which account for differences in characteristics. The total estimated wage difference produced by differences in characteristics is quite small (6 cents) compared to the pure effect (45 cents); however, some of the effects of differences in individual characteristics are quite sizable. For instance, central-city residents face much higher crime rates and earn higher wages as a result (33 cents per hour). Other noticeable differences include those attributable to race, gender, and

[3] An alternative explanation is that unmeasured characteristics of the workers living in central cities or of the jobs they hold lead to lower wages.

TABLE 7 Factors Explaining the Difference in Central and Noncentral-City Wages

	Mean Values				
Factor	Central City (n = 13,358)	Non-Central City (n = 32,646)	Difference	Implied Wage Difference	Percentage of Predicted Difference
Experience (years)	17.39	17.46	-0.07	-0.02	-4
Experience squared (years^2)	523.24	510.12	13.12	-0.07	-13
Schooling (years)	12.70	12.79	-0.09	-0.04	-8
Race	0.281	0.100	0.18	-0.17	-34
Gender	0.465	0.447	0.02	-0.01	-1
Enrolled in school	0.158	0.146	0.01	-0.01	-1
Marital status	0.498	0.621	-0.12	-0.18	-35
Health limitations	0.053	0.046	0.01	-0.01	-2
Gender x experience	7.905	7.472	0.43	-0.06	-11
Gender x experience squared	235.800	215.30	20.50	0.05	9
Gender x race	0.138	0.049	0.09	0.10	19
Gender x marital status	0.206	0.250	-0.04	0.06	11
Gender x children	1.116	1.119	-0.003	0.00	0
Professional or managerial	0.225	0.235	-0.01	-0.02	-5
Technical or sales	0.336	0.337	-0.001	-0.00	-0
Farming	0.008	0.014	-0.01	-0.00	-0
Craft	0.097	0.119	-0.02	-0.03	-6
Operator or laborer	0.181	0.169	0.01	0.01	1
Industry unionization	22.72	23.61	-0.89	-0.03	-7
Precipitation (inches/ year)	30.99	32.42	-1.43	0.02	4

Factor	Mean Values: Central City (n = 13,358)	Non-Central City (n = 32,646)	Difference	Implied Wage Difference	Percentage of Predicted Difference
Humidity (percentage)	67.96	68.39	-0.43	-0.00	-1
Heating degree days	4,034.00	4,445.00	-411.00	0.01	3
Cooling degree days	1,179.00	1,155.00	24.00	-0.01	-1
Windspeed (miles/ hour)	8.67	8.99	-0.32	-0.03	-6
Sunshine (percent of days)	61.70	60.88	0.82	-0.01	-1
Coast	0.404	0.300	0.10	-0.00	-1
Violent crime	1,026.00	492.00	534.00	0.33	65
Teacher/pupil ratio	0.076	0.082	-0.006	0.03	6
Visibility (miles)	15.42	15.95	-0.53	0.00	0
Total suspended particulates	78.53	71.08	7.45	-0.02	4
Water effluent dischargers	1.874	1.366	0.51	-0.00	1
Landfill waste	733.9	372.6	361.3	0.03	7
Superfund sites	0.794	0.919	-0.125	-0.01	3
Treatment, storage, and disposal sites	64.80	38.92	25.88	0.03	7
Sum of non-central-city factors				-0.06	12
Central city location	1	0	1	-0.45	88
Total predicted wage difference[a]				-0.51	100

[a] This table shows how much of the predicted difference between average central-city wages and average non-central-city wages ($-0.51) can be attributed to various factors. The actual difference between the sample average central city wage ($8.34) and the sample average non-central-city wage ($7.92) is $0.42.

marital status, a pattern that reflects differences in the demographic makeup of the central-city and noncentral-city populations.

QUALITY-OF-LIFE COMPARISONS

Economic Status and Quality Of Life

In the preceding sections, we presented an economic model of wage determination that explains differences in wages. Schooling, experience, occupation, unionization, and other job-related characteristics were shown to be determining factors of wage differences. In addition, we found that wages are also affected by sunshine, the crime rate, the teacher/pupil ratio, and other amenities of the area in which the job is located. Taken as a group these results demonstrate that workers pay attention to amenities and that amenity levels affect labor earnings and thus income.[4] The results suggest that we can infer from the relationship between wages and amenities the values people place on amenities. These quality-of-life values can then be used, along with traditional measures of economic status, to reflect more fully the well-being of urban residents in various locations. Our measure of quality of life thus augments traditional measures such as household money income.

Labor Markets, Housing Markets, and Quality Of Life

Our approach to measuring the value of the quality of life in different locations is based on the notion that people choose the amenity "bundle" they desire by locating in areas with the amenities they want. They also pay for those amenities in observable markets. If the trade-off were solely between wages and amenities, one would expect workers who live in areas with high amenity levels to earn less. In other words, those workers pay for amenities through a corresponding reduction in wages. The difference in wages for similar workers in similar jobs but in different locations could be attributed to the difference in amenities. These wage differences would measure the value of the quality of life in different locations.

In Hoehn et al. (1987), we develop a more comprehensive frame

[4] In their book on urban amenities, Diamond and Tolley (1982) conclude that amenities strongly shape economic activity. One impact is their effect on wages.

work that incorporates this notion of implicit markets for amenities. The framework is a hedonic model of interregional wages, rents, and amenity values. The model expands the principle of compensating differences to allow for trade-offs between housing prices (or rents) and amenities, as well as between wages and amenities. The results of the housing hedonic regression for the areas and amenities corresponding to those in the wage hedonic regression reported in Table 6 are shown in Table 8.

Housing prices are also affected by amenities factors such as sunshine, violent crime, and the teacher/pupil ratio. In the context of the housing market alone, one might expect to find a trade-off in the form of higher housing prices for more amenities. Our more comprehensive model, which allows for compensation in multiple markets, shows that the value of amenities is the sum of partial compensations in the housing and labor markets. For an amenity, even though the sum must be positive, it is not necessary that the housing price differential be positive and the wage differential be negative. The requirement is only that the sum of the housing price differential and the (negative of the) wage differential be positive. Because the model considers geographic city size, population city size, agglomeration effects, and the costs of production for firms, as well as residential location and utility for individuals, one differential may be negative as long as it is offset by the compensation implied by the other differential. The full amenity values, based on the impact of amenities on both wages and housing prices, are used to calculate a quality-of-life index for metropolitan areas.

Quality of Life In Metropolitan Areas

There are noticeable differences in amenities across urban areas, as there are in income and employment. The mean, standard deviation, minimum, and maximum for each of the 16 amenities in our model are shown in Table 9. Considerable variation is evident; for example, precipitation ranges from 4 to 67 inches per year, violent crime ranges from 63 to 1,650 crimes per 100,000 people per year, and the number of Superfund sites ranges from 0 to 9 per county.

We can sum the impacts on wages and housing prices to obtain the full amenity values after the linearized amenity coefficients in the wage and hedonic regressions are converted to annual values per household. The amenity values are calculated as follows:

TABLE 8 Regression Estimates of the Hedonic Housing Expenditure Equation, 1980

Independent Variable	Units	Mean	Linearized Coefficient[a]	Linearized Standard Error
Units at address		2.667	1.375	1.533
Age of structure	Years	23.73	-2.363	0.099
Height of structure	Stories	2.433	16.52	1.663
Rooms		5.395	40.33	0.921
Bedrooms		3.510	6.485	1.523
Bathrooms		1.486	119.80	2.174
Condominium	Yes=1, no=0	0.032	-84.82	8.011
Central Air	Yes=1, no=0	0.313	55.68	2.877
Sewer	Yes=1, no=0	0.886	10.84	3.547
Lot larger than an acre	Yes=1, no=0	0.062	78.80	4.734
Renter	Yes=1, no=0	0.410	-58.64	12.35
Renter x unit		1.992	-2.580	1.587
Renter x age		9.964	0.899	0.144
Renter x height		1.220	-17.19	1.740
Renter x rooms		1.622	-7.189	1.932
Renter x bedrooms		1.112	2.014	3.070
Renter x bathrooms		0.479	-30.85	4.045
Renter x condominium		0.008	126.87	12.76
Renter x central Air		0.130	50.95	4.592
Renter x sewer		0.395	-39.19	8.468
Renter x acre lot		0.014	-95.75	9.167
Precipitation	Inches/year	32.02	-1.047	0.149

Independent Variable	Units	Mean	Linearized Coefficient[a]	Linearized Standard Error
Humidity	Percentage	68.22	-2.127	0.251
Heating degree days	Degree days/year	4,223.0	-0.014	0.001
Cooling degree days	Degree days/year	1,185.0	-0.076	0.002
Windspeed	Miles/hour	8.872	11.88	0.867
Sunshine	Percentage of days	61.36	2.135	0.235
Coast	Yes=1, no=0	0.345	32.52	2.469
Central city	Yes=1, no=0	0.329	-40.75	2.535
Violent crime	Crimes/100,000 pop./year	681.60	0.043	0.003
Teacher/pupil ratio		0.080	635.30	71.58
Visibility	Miles	15.66	-0.831	0.110
Total suspended particulates	Micrograms/cubic meter	73.72	-0.535	0.058
Water effluent dischargers	Number/county	1.564	-7.458	0.461
Landfill Waste	Hundred million metric tons/county	467.20	0.010	0.001
Superfund sites	Number/county	0.858	13.43	0.693
Treatment, storage and disposal sites	Number/county	47.59	0.218	0.693
Intercept		—	1,256.0	33.80

NOTE: $R^2 = .6624$; F = 1823; and n = 34,414. The dependent variable is the monthly housing expenditures. The sample mean of monthly housing expenditures is $462.93.

[a] The hedonic housing expenditure equation is estimated with the dependent variable (p) as $(p.^{2}-1)/.2$ and the independent variables in the usual arithmetic units. The choice was based on a Box-Cox maximum likelihood search for functional form. The Box-Cox coefficients are linearized by multiplying each coefficient by $(p.^{8})$ where p is average housing expenditure.

TABLE 9 Amenity Values and Variation in Amenities Across Metropolitan Areas

Amenity (unit)	Mean	Standard Deviation	Minimum	Maximum	Amenity Value[a]
Precipitation (inches/year)	34.51	13.38	3.76	67.00	23.50
Humidity (percent)	69.01	6.75	31.50	78.25	-43.42
Heating degree days (degree days/ year)	4,469.00	2,223.00	206.00	9,756.00	-0.08
Cooling degree days (degree days/ year)	1,342.00	976.00	76.00	4,095.00	-0.36
Windspeed (miles/hour)	8.98	1.47	6.10	12.40	-97.51
Sunshine (percent)	60.71	7.96	45.00	86.00	48.52
Coast (1 if on coast)	0.249	0.428	0.000	1.000	467.72
Central city (1 if in city)	0.188	0.261	0.000	1.000	645.02
Violent crime (crimes/100,000 pop./ year)	535.80	268.60	62.80	1,650.30	-1.03
Teacher/pupil ratio	0.084	0.017	0.035	0.211	21,250
Visibility (miles)	18.14	15.36	8.00	80.00	-3.41
Total suspended particulates (micrograms/cubic meter)	69.5	18.9	36.0	166.30	-0.36
Water effluent dischargers (number/ county)	1.02	1.80	0.00	11.00	-76.68
Landfill waste (hundred million metric tons/county)	132.3	631.40	0.0	5,608.80	-0.11
Superfund sites (sites/county)	0.566	1.158	0.000	9.000	106.07
Treatment, storage and disposal sites (sites/county)	15.20	26.0	0.0	230.00	-0.58
Quality-of-life index[b] (1980 $/year/ household)	$270.00	$623.00	-$1,539.00	$3,289.00	—

[a] Dollars per unit per household per year.
[b] The values given here are for the 185 metropolitan areas included in our sample.

$$AV_i = (HC_i)(12) - (WC_i)(1.54)(37.85)(42.79),$$

where AV_i is the amenity value for amenity i, HC_i is the linearized housing coefficient, 12 is the number of months per year, WC_i is the linearized wage coefficient, and 1.54, 37.85, and 42.79 are the sample means for workers per household, hours per week, and weeks per year, respectively. The marginal amenity values for each amenity are shown in the last column of Table 9. The interpretation is that people value a change in an amenity at the amount shown. For example, a reduction in violent crime from 536 to 535 crimes per 100,000 people per year is valued at $1.03 per household per year.

The aggregate value of all amenities in an urban area forms the quality-of-life index (QOLI). The index values are calculated as follows:

$$\text{QOLI}_j = \sum_{i=1}^{16} AV_i S_{ij} \quad j = 1, \ldots, m,$$

where QOLI_j is the quality-of-life index for area j, AV_i is the amenity value for amenity i, S_{ij} is the quantity of amenity i in area j, and m is the number of areas being ranked. Quality-of-life index values for 24 selected large metropolitan areas are shown in Table 10. All of the metropolitan areas for which the traditional measures of economic status were given in Table 1 are included, except for Boston and Miami, which were excluded because of incomplete data. The values are taken from a study by Berger et al. (1987) that estimates the quality of life for 185 metropolitan areas.

Given that our bundle of climatic, urban, and environmental amenities represents quality of life, the QOLI measures the value of differences in quality of life among urban areas. The difference between the quality of life in Denver and the quality of life in St. Louis is valued at $2,188 (1,197.96 + 990.10) per year per household. This value is approximately 10 percent of the average household income for the metropolitan areas covered in Table 1.

Table 11 reports the rankings of the 24 large metropolitan areas based on quality of life, household income, poverty rate, and unemployment rate. There is no strong relationship between quality of life and any of the other measures. In fact, quality-of-life considerations can change our comparisons of areas based on traditional economic measures. In Table 12, the QOLI is added to household income to produce a quality-of-life adjusted household income for the 24 metropolitan areas included in Table 10. Although the rankings

produced by household income and quality-of-life adjusted household income are similar, there are noticeable differences for cities with extreme QOLI values. For instance, Denver-Boulder has the 11th highest household income, but the 4th highest QOLI-adjusted household income because of its high quality of life. San Diego and Phoenix also move up the ladder from 18th and 19th to 13th and 14th, respectively, after adjusting for their QOLI values. On the other hand, Detroit and St. Louis drop from 5th and 16th to 10th

TABLE 10 Quality-of-Life Index Values for Large Metropolitan Areas

Metropolitan Area[a] (1980 SMSAs)	Quality-of-Life Index (1979 dollars)[b]
Denver-Boulder, Colo.	1,197.96
San Diego, Calif.	980.83
Phoenix, Ariz.	870.69
Anaheim-Santa Ana-Garden Grove, Calif.	803.49
Nassau-Suffolk, N.Y.	687.80
Los Angeles-Long Beach, Calif.	667.64
Tampa-St. Petersburg, Fla.	191.57
San Francisco-Oakland, Calif.	139.55
Riverside-San Bernardino-Ontario, Calif.	135.46
Philadelphia, Pa.-N.J.	9.21
Washington, D.C.-Md.-Va.	5.08
Newark, N.J.	-11.48
Atlanta, Ga.	-25.74
Seattle-Everett, Wash.	-124.18
Cleveland, Ohio	-190.62
Pittsburgh, Pa.	-330.90
New York, N.Y.-N.J.	-369.20
Minneapolis-St. Paul, Minn.-Wis.	-372.20
Dallas-Fort Worth, Tex.	-399.70
Baltimore, Md.	-422.70
Chicago, Ill.	-822.80
Houston, Tex.	-948.40
Detroit, Mich.	-968.00
St. Louis, Mo.-Ill.	-990.10

[a] are 24 standard metropolitan statistical areas (SMSAs) with a 1980 population exceeding 1.5 million. The 1980 definition of an SMSA is used. Boston, Mass., and Miami, Fla., are omitted because sufficient data were not available to estimate the parameters for the quality-of-life index (QOLI). The mean QOLI for the 24 SMSAs is -11.95.

[b] differences in index values represent the annual premiums households are willing to pay for differences in amenities in different metropolitan areas. The values reported are taken from a study by Berger et al. (1987) that ranks 185 metropolitan areas by quality of life.

and 20th, respectively, after adjusting their household incomes for low measured quality-of-life values.

TABLE 11 Comparisons of Rankings of Metropolitan Areas by Alternative Measures of Economic Status

Metropolitan Area (1980 SMSAs)	Quality of Life (ranked highest to lowest)	Household Income (ranked highest to lowest)	Poverty Rate (ranked lowest to highest)	Unemployment Rate (ranked lowest to highest)
Denver-Boulder, Colo.	1	11	7	6
San Diego, Calif.	2	18	12	7
Phoenix, Ariz.	3	19	9	12
Anaheim-Santa Aria-Garden Grove, Calif.	4	2	1	1
Nassau-Suffolk, N.Y.	5	3	3	10
Los Angeles-Long Beach, Calif.	6	13	20	12
Tampa-St. Petersburg, Fla.	7	24	21	9
San Francisco-Oakland, Calif.	8	7	12	10
Riverside-San Bernardino-Ontario, Calif.	9	22	18	23
Philadelphia, Pa.-N.J.	10	21	22	22
Washington, D.C.-Md.-Va.	11	1	4	4
Newark, N.J.	12	6	15	17
Atlanta, Ga.	13	17	23	8
Seattle-Everett, Wash.	14	8	2	18
Cleveland, Ohio	15	14	6	20
Pittsburgh, Pa.	16	20	9	21
New York, N.Y.-N.J.	17	23	24	16
Minneapolis-St. Paul, Minn.-Wis.	18	9	5	4
Dallas-Ft. Worth, Tex.	19	15	17	1
Baltimore, Md.	20	12	19	14
Chicago, Ill.	21	10	16	15
Houston, Tex.	22	4	12	1
Detroit, Mich.	23	5	7	24
St. Louis, Mo.-Ill.	24	16	11	19

NOTE: SMSAs = standard metropolitan statistical areas.

Similar quality-of-life adjusted household incomes could be calculated for those living in the central city or suburbs, in large or small metropolitan areas, or outside metropolitan areas. As an illustration, the household income figures in Table 2 for those living in metropolitan areas with populations greater or less than 1.5 million can be adjusted using QOLI figures from Table 10 and the study by Berger et al. (1987). The average household income of those living in large (greater than 1.5 million population) metropolitan areas is $21,846, whereas for small (less than 1.5 million population) metropolitan areas it is $19,574. The average QOLI for large metropolitan areas is -$12; for small areas, it is $308, thus producing quality-of-life adjusted household incomes of $21,834 in large areas and $19,882 in

small areas. On average, the quality-of-life value is higher in small areas, and although this offsets somewhat the income advantage of large areas, quality-of-life adjusted income is still higher in large metropolitan areas.

Finally, in Table 13 we present rank correlations between the alternative measures of economic status. The quality-of-life index is not highly correlated with any of the alternative measures of economic status, including quality-of-life income. Quality-of-life adjusted income and household income are highly correlated as expected. The poverty and unemployment rates are more highly correlated with quality-of-life adjusted income than with unadjusted income. From the observed correlations, it is apparent that quality of life adds another dimension to comparisons of the economic well-being of urban residents.

TABLE 12 Comparison of Metropolitan Areas Based on Income and Quality of Life

Metropolitan Area	Household Income, 1979($)	QOLI 1979 ($)	QOLI + Household Income, 1979 ($)
Washington, D.C.-Md.-Va.	27,295	5	27,300
Anaheim-Santa Ana-Garden Grove, Calif.	26,434	803	27,237
Nassau-Suffolk, N.Y.	25,997	688	26,685
Denver-Boulder, Colo.	22,664	1,198	23,862
Houston, Tex.	24,607	-948	23.659
San Francisco-Oakland, Calif.	23,151	140	23,291
Newark, N.J.	23,251	-11	23,240
Seattle-Everett, Wash.	23,075	-124	22,951
Minneapolis-St. Paul, Minn-Wis.	23,032	-372	22,660
Detroit, Mich.	23,288	-968	22,320
Los Angeles-Long Beach, Calif.	21,639	668	22,307
Chicago, Ill.	23,017	-823	22,194
San Diego, Calif.	21,114	981	22,095
Phoenix, Ariz.	20,874	871	21,745
Cleveland, Ohio	21,461	-191	21,270
Baltimore, Md.	21,657	-423	21,234
Atlanta, Ga.	21,189	-26	21,163
Dallas-Ft. Worth, Tex.	21,318	-400	20,918
Philadelphia, Pa.-N.J.	20,239	9	20,248
St. Louis, Mo.-Ill.	21,225	-990	20,235
Pittsburgh, Pa.	20,275	-331	19,944
Riverside-San Bernardino-Ontario, Calif.	19,504	135	19,639
New York, N.Y.-N.J.	19,142	-369	18,773
Tampa-St. Petersburg, Fla.	16,812	192	17,004

NOTE: QOLI = quality-of-life index.

TABLE 13 Rank Correlations of Rankings by Alternative Measures of Economic Status

Measure	Quality of Life	Household Income	Poverty Rate	Unemployment Rate	Quality-of-Life Adjusted Income
Quality of life	—	-.080	.119	.262	.253
Household income		—	.654	.357	.921
Poverty rate			—	.162	.673
Unemployment rate				—	.469
Quality-of-life adjusted income					—

CONCLUSIONS

The focus of this paper has been on the economic well-being of urban residents. We have compared the economic status of people living in large central cities to that of people living in suburbs, small metropolitan areas, and rural areas. Data from the 1980 Census of Population and Housing facilitated an in-depth inquiry for various subnational categories and groups, but it precluded a longitudinal study that might identify trends. The use of several measures of well-being somewhat mitigates the shortcomings of each, but such measures as annual household income fail to reflect relevant noncash transfers, wealth, and quality of life. In this paper, we develop a methodology to adjust for differences in quality of life.

Using the 1980 Census, we compute for metropolitan areas with more than 1.5 million residents the average household income, poverty rate, unemployment rate, employment rate, and manufacturing employment share. These measures range from $16,812 to $27,295, from 5.1 percent to 15.8 percent, from 3.2 percent to 11.6 percent, from 49.2 percent to 69.6 percent, and from 5.1 percent to 30.1 percent, respectively. The findings were several: (1) population is not correlated with any of the other measures; (2) the poverty rate and the unemployment rate are not significantly correlated; and (3) the manufacturing employment share of an area and its unemployment rate are positively correlated.

Further computations were made for traditional measures by population size of area of residence and by demographic group. Nationally, suburbanites in large metropolitan areas are more affluent than residents of large central cities, small metropolitan areas (less than 1.5 million population), or rural areas, and this dominance

pervades all measures and groups. Which area's residents are the poorest, according to traditional measures, depends on the region being considered. Central-city residents are the poorest group in the Northeast and Midwest, but rural residents are the poorest in the South and West. Poverty is not peculiar to New York or Detroit inner-city neighborhoods. Among white, black, and Hispanic married-couple households, those living in rural areas are the least affluent. The same is true among black and Hispanic households headed by women. When grouped by age, central-city residents who are 25 to 39 years of age are the poorest of all age groups, but for those people over 40 years of age, rural residents are again the poorest.

Analysis based on a hedonic framework of wage determination demonstrates that differences in a major source of income—wages—can be explained by observable differences in the characteristics of workers, jobs, and job locations. For example, the higher central-city crime rate is a factor that has increased wages in the central city relative to wages outside it. On average, however, central-city residents earn less. Indeed, the crime rate and other amenity factors induce compensating differences in wages across urban areas and also compensating differences in housing prices. The compensating differences can be combined to obtain a full amenity value that, in turn, can be used to create a quality-of-life index. Comparisons across large metropolitan areas show that rankings based on quality of life are not correlated with rankings based on traditional measures of well-being. The quality-of-life premium is added to household income for each of the large metropolitan areas to obtain a quality-of-life adjusted income. The adjustment changes the ranking for areas with extremely high or extremely low quality-of-life values. The adjustment also illustrates how traditional measures can be modified to reflect well-being more comprehensively.

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