DOCUMENT RESUME

ED 237 763 CE 037 804

AUTHOR	Gurwitz, Aaron
TITLE	Sectors and Jobs in Metropolitan Economies. A Rand Note.
INSTITUTION	Rand Corp., Santa Monica, Calif.
SPONS AGENCY	Department of Housing and Urban Development, Washington, D.C. Office of Policy Development and Research.
REPORT NO	Rand-N-1847-HUD
PUB DATE	Jan 83
CONTRACT	HUD-H-2930
NOTE	38p.
AVAILABLE FROM	Publications Department, The Rand Corporation, 1700 Main Street, Santa Monica, CA 90406 ($4.00).
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Comparative Analysis; Economic Development; *Employment Level; Employment Opportunities; *Employment Patterns; Employment Problems; Feasibility Studies; Job Development; *Labor Market; *Minority Groups; Needs Assessment; Policy Formation; Public Policy; *Salary Wage Differentials; *Service Occupations; Unemployment; *Urban Areas; Urban Improvement; Urban Planning
IDENTIFIERS	Structural Unemployment; *United States

ABSTRACT

A study assessed the potential development of service sectors in different cities throughout the country and compared the results of growth in these and other sectors with respect to their effects on (1) total employment; (2) the geographic dispersion of metropolitan employment; (3) central city fiscal capacity; (4) metropolitan cyclical stability; and (5) minority business opportunities and local labor markets. During the study, researchers examined the distribution of jobs by sector and type of labor and used census data to assess the quality of jobs provided by different sectors. Based on this examination, researchers concluded that service sector growth is no panacea for the problems of cities. The survey data indicated that conventional rules of thumb such as the one stating that the medical and health services sectors hire larger numbers of minority group members than do the average sector in any given city simply do not hold true upon actual research. Therefore, city planners who frequently make use of such rules of thumb should be cautioned that no good substitute exists for city-specific analysis of how sectoral development strategies will reduce structural unemployment. Furthermore, the results of this study indicate that while some service sectors do seem to offer more opportunities for upward mobility than do areas such as durable goods manufacturing, others offer few or none. (This technical report includes 12 tables detailing the distribution of labor types and employee educational levels across cities and sectors.) (MN)

A RAND NOTE

SECTORS AND JOBS IN METROPOLITAN ECONOMIES

Aaron Gurwitz

January 1983

N-1847-HUD

Prepared for

The Department of Housing and Urban Development

Rand
SANTA MONICA, CA. 90406

The research reported here was performed under Contract No. H-2930, Task 4 from the Department of Housing and Urban Development.

Published by The Rand Corporation

PREFACE

This Note was prepared for the Office of Policy Development and Research, U.S. Department of Housing and Urban Development. It is part of a series of Rand publications on the causes and consequences of expanded service employment in metropolitan economies that includes: Anthony H. Pascal and Aaron S. Gurwitz, Systematic Planning for Local Economic Development, R-2932-HUD, forthcoming; Anthony H. Pascal and William McNaught, Urban Economic Development Through Service Sector Expansion: Executive Summary, R-2828-HUD, forthcoming; Aaron S. Gurwitz, The Service Sector in Urban Revitalization: Sectoral Composition, Employment Density Gradients, and Central City Fiscal Capacity, R-2817-HUD, June 1982; Anthony H. Pascal and William McNaught, The Service Sector in the Metropolitan Economy: The Process of Specialization and Its Effects on Aggregate Employment, R-2827-HUD, forthcoming; and Richard H. Victor, The Service Sector and Local Area Employment Cycles, forthcoming.

This Note was prepared under HUD Contract No. H-2930, Task 4.

SUMMARY

This Note is one of a series of technical papers on the role of the service sector in urban revitalization, sponsored by the Department of Housing and Urban Development. The overall objective of the project was to assess the potential development of service sectors in different cities, and to compare the results of growth in these and other sectors across several dimensions of metropolitan welfare. The effects of service sector growth that were analyzed under this project include: effects on total employment (multiplier effects); on the geographic dispersion of metropolitan employment; on central city fiscal capacity; on metropolitan cyclical stability; and on minority business opportunities and effects on local labor markets. Here we present our findings on this last topic.

In particular, we are concerned with labor market effects: which sectors are more likely to contribute to a lowering of long-term structural unemployment and the quality of jobs (as measured by wages and potential for earnings growth) in different sectors. Both of these effects are important in assessing the potential of different urban development policies.

We examined the distribution of jobs by sector and type of labor to develop some general rules of thumb about which sectors would be more likely to offer jobs to groups that tend to have high rates of unemployment (young, minorities, poorly educated). The main message that emerges from the analysis is that there are few reliable guidelines. In choosing sectoral strategies for urban revitalization,

there seems to be no substitute for city or project-specific data either from the 1980 census public-use sample or from specific local surveys of group employment by sector.

Census data were analyzed to assess the quality of jobs provided by different sectors. While one group of sectors (business services, communications, construction, fire and health services, durable goods manufacturing) paid significantly higher wages than another group (cultural services, hotels, sales, recreation nondurable goods manufacturing), we found no significant differences in wages within these two groups. An analysis of the upward mobility potential of different sectors suggests significant differences among sectors: some sectors do offer jobs with upward occupational mobility, while others do not.

Our overall finding is that although service sector growth is no panacea for the problems of urban labor markets, some service sectors can favorably affect employment opportunities.

ACKNOWLEDGMENTS

The author acknowledges the valuable contributions of Anthony Pascal, who led the project, Michael Murray, who reviewed an earlier version of this Note, and Susanne Farmer, who patiently typed many drafts of this document. We thank Susan Jacobs, formerly with the U.S. Department of Housing and Urban Development and now with the Office of Management and Budget, and Michael Schneider of HUD for their comments and encouragement.

CONTENTS

I. INTRODUCTION

Urban development policies have several objectives with respect to local labor markets. The total number of jobs created by an urban project is certainly important. This total job creation effect, as measured by the employment multiplier, is discussed elsewhere (Pascal and Gurwitz, forthcoming). This Note focuses on more detailed labor market effects. Different urban development policies can have various effects on the local rate of long-term structural unemployment because certain sectors are more likely to hire employees from that group. Because youths, minorities, and the poorly educated are more likely to be unemployed than other groups, we wanted to find out which, if any, of the service sectors were most likely to hire members of these groups.

Second, the quality of jobs is important. Two measures that certainly ought to be included in any accounting of job quality are wages and potential for earnings growth. This Note examines the degree to which the jobs in different sectors vary along these two dimensions.

Section II of this Note discusses our findings with respect to the distribution of jobs by sector and by type of labor. We conclude that little is known about the type of labor and the percentage of laborers that sectors hire. Section III compares two dimensions of job quality across sectors. We find that average wages differ significantly across sectors, even when differences in skill, training, and education are taken into account. The question of whether sectors differ in the degree to which they provide opportunities for earnings growth is not

answered as definitively. We find some evidence of systematic differences among sectors in this regard, but our analysis cannot be considered conclusive.

II. DISTRIBUTION OF JOBS BY SECTOR AND TYPE OF LABOR

OBJECTIVES AND METHODOLOGY

Our objective in this section was to search for and test some rules of thumb to compare the percentage of the structurally unemployed hired by different service sectors. An example of such a rule of thumb (one that is not supported by the data) is that the medical and health services sector hires larger numbers of minority group members (in low-skilled occupations) than does the average sector in any given city. Planners who use these rules might point to their efforts to enhance growth in this sector when challenged to show what they have done for minority communities.

Rules of thumb are generally not considered reliable guides for systematic urban planning, but they are often all a policymaker can rely on when developing a program that serves a wide variety of local interests. Unfortunately, the data indicate that there are very few reliable rules of thumb in this area and, indeed, that some of the older rules do not apply. In general, therefore, we conclude that there is no good substitute for city-specific analysis of how sectoral development strategies will reduce structural unemployment.

The data do, however, reveal several somewhat surprising generalities. For example, we find that the durable goods manufacturing sector employs more blacks than other sectors that have traditionally been associated with minority group employment.

To investigate this issue, we tested a series of hypotheses of the following form:

H_{0ijk} : The expected value of the proportion of total employment in sector i accounted for by labor force group j in city k is identical to the proportion of group j in the entire labor force of cities of type k.

Data for these tests came from the 1970 Census Public Use Sample. From that sample we selected persons who had been employed 40 weeks or more in 1969. Those data were cross-tabulated by standard metropolitan statistical area (SMSA), sector or industry (eight), and labor force group (12). The cell totals from this cross tabulation made up the observations for our hypothesis test. The hypothesis became:

$$H_{0ijk} : \varepsilon[(E_j/E) - (E_{ij}/E_i)] = 0. \qquad (1)$$

where E_j = the work force in a city of type j,

E = total employment in that city,

E_{ij} = the work force of type j in sector i,

E_i = employment in sector i,

ε = the expectation operator.

The hypothesis is tested separately for different groups of cities. A rule of thumb can be confidently accepted if we can reject H_{0ijk} in the same direction for all groups of cities.

The sectors and labor types we treated were:

Sectors

Business services
Leisure services
Construction
Durable goods manufacturing
Finance, insurance, and real estate
Health services
Nondurable goods manufacturing
Retail and wholesale sales

Work Force Groups

A. Blacks/under 25/no high school diploma
B. Blacks/under 25/high school diploma
C. Blacks/under 25/college graduate

D. Blacks/over 25/no high school diploma
E. Blacks/over 25/high school diploma
F. Blacks/over 25/college graduate

G. Whites/under 25/no high school diploma
H. Whites/under 25/high school diploma
I. Whites/under 25/college graduate

J. Whites/over 25/no high school diploma
K. Whites/over 25/high school diploma
L. Whites/over 25/college graduate

City Types

Large (total SMSA population greater than about 650,000)
Small
High unemployment (1970 unemployment rate greater than 3.9%)
Low unemployment
Northeast-North Central
Southeast-West

The test results of these hypotheses are presented in Appendix tables. Data in these tables suggest two useful findings. First, we see that the data support few rules of thumb if these are defined as a

pattern of hiring a larger proportion of a specific type of labor than is found in the total employed work force in at least six out of seven subsamples. Such rules of thumb are especially scarce with respect to the labor groups most likely to be unemployed: youths, the poorly educated, and blacks (groups A, B, D, E, G and I). Our analysis, however, does not determine whether the lack of consistent hiring patterns among the service sector for these groups reflects labor market behavior or the relatively small sample sizes for these groups (e.g., blacks under 25 years of age with a college degree).

Second, some of the commonly accepted rules of thumb that have guided urban development planners are definitely not supported by these data. We did not find that the health and leisure services sectors, which are often considered especially helpful in minority communities with high unemployment rates, do not appear to hire consistently higher proportions of workers most likely to be structurally unemployed. It may be that certain subsectors of these broadly defined industry groups--for example, the hospital sector or the hotel sector--do employ large proportions of minority groups. However, when we take into account the likelihood that the hospital sector cannot grow without a corresponding growth throughout the health services sector, we see that development strategies focusing on these industry groups alone may not lead to greater employment among minorities.

Another general pattern that emerges has no clear implications for development planning, but is interesting in its own right. In all cities, the retail and wholesale sectors, taken together, employ larger proportions of white workers than are represented in the work force as a whole, except for those who are older and hold a college degree (where

the proportion is smaller). Finally, we see that with a few scattered exceptions, we cannot reject the null hypothesis that the proportion of all black workers employed in these sectors is identical to the proportion of such workers in cities. This finding is curious, but because sales sectors tend to follow rather than lead urban economic development, it is also not really pertinent to the task at hand.

Rules of thumb that are substantiated by the data on employment of groups most likely to be structurally unemployed are as follows:

Labor Type	Sectors Hiring Relatively Large Proportions	Sectors Hiring Relatively Small Proportions
Young/black/HS grad		Business Services Construction Finance, Insurance, and Real Estate
Old/black/not HS grad	Construction	Finance, Insurance, and Real Estate
Old/black/HS grad		Business Services Construction
Young/white/not HS grad	Nondurable manufacturing Sales	Finance, Insurance, and Real Estate Health Services
Old/white/not HS grad	Construction Durable manufacturing Nondurable manufacturing Sales	Leisure Services Finance, Insurance, and Real Estate Health Services

No clear, positive message for urban planners emerges from this breakdown of employment patterns among sectors. The data do not indicate which industries are likely to contribute most to reducing unemployment among black workers. The construction industry appears to

employ fairly large proportions of older black workers without high school diplomas (probably as laborers), but growth in this sector also appears to provide less-than-proportional help to other black workers.

The main message of this analysis is that different sector's employment patterns reflecting the proportion of the different types of workers hired are not especially pertinent to the task facing urban development planners. Our main finding therefore, is negative. In choosing sectoral strategies for urban revitalization, there is no substitute for city-, or better yet, project-specific data on the proportion of newly created jobs likely to go to groups most likely to be structurally unemployed. City-specific data on the proportion of work force groups employed by different sectors will be available for most of the larger U.S. cities once the 1980 Census Public Use Sample becomes available. Until then, planners will have to rely on 1970 census figures. Those planning the development of smaller cities or other geographical divisions may have to rely on specific local surveys of group employment by sector.

III. TWO DIMENSIONS OF JOB QUALITY

As mentioned in the Introduction to this Note, increasing the number of jobs and ensuring their distribution among the labor force are not the only urban development objectives for local labor markets. Planners and their constituents try to create "good" jobs--jobs that pay well, provide stable employment, and are associated with rewarding careers. Concern with the quality of jobs created by development projects is most evident in the area of service-sector development strategies, especially in response to proposals for hotel development. Representatives of minority communities charge that jobs in some service sectors are notoriously unstable, demeaning, and dead-end. In this section, we examine some of these charges by analyzing two dimensions of job quality across sectors: wages and opportunities for occupational mobility.

WAGE DIFFERENCES ACROSS SECTORS

Wages vary for a number of reasons: differences in education and skills, differences between markets for various occupations, and differences between sectors. The origins of these differences, especially systematic occupational and sectoral differences, are not clear. It is not our purpose here to examine those origins but to demonstrate that there are, indeed, systematic differences in wages by sector, even when differences in mean work force characteristics and occupational mix across sectors are accounted for. In other words, the null hypothesis being tested here is that individuals sharing identical characteristics and employed in identical occupations will be paid the same wage regardless of sector.

Of course, the reliability with which we can test this hypothesis depends on how precisely we can define occupations and measure an individual's characteristics. This precision, in turn, depends on the richness of our data set. We have been able to measure human capital with a degree of completeness that is fairly typical of the literature on labor economics. That is, we have been able to account for such factors as age, sex, race, and years of education. The precision with which occupations are distinguished depends on how precise the occupational categories are of the U.S. census and how those categories aggregate in our data set. We have included 35 occupational categories in our analysis, a substantial number but still somewhat imprecise. This means that our findings assume that a "miscellaneous clerical worker" is performing essentially the same job whether he is employed in the hotel sector or the durable goods manufacturing sector.

We have tested our hypothesis by estimating an earnings equation based on data from the 1970 Census Public Use Sample. The human capital variables included are all based on a well-established literature. The results are reported in Table 1.

These regression results indicate that our findings are probably reliable. The coefficients on human capital conform to our expectations[1] and, for the most part, the occupational terms make sense. The few exceptions probably reflect some misaggregation of occupational categories (e.g., when "skilled" laborers do not appear to earn significantly more than "unskilled" laborers). It is not our main

[1] The negative coefficient on the education term, when combined with the positive coefficient on the education-squared term, results in a positive return to schooling over the range of values.

Table 1

WAGE DIFFERENCES BY SECTOR, WORKER CHARACTERISTICS, AND OCCUPATION HELD CONSTANT

Variable	Coefficient
Sector:	
Business services	9.86
Communications	6.45
Construction	2.46
Cultural services	-36.01[c]
Finance, insurance, and real estate	-6.15
Health	2.10
Hotels	-34.13[c]
Nondurable manufacturing	-7.21[b]
Recreation	-23.17[a]
Retail sales	-18.92[c]
Wholesale sales	-10.10[a]
Human capital:	
Age	2.85[c]
Age squared	-0.027[c]
Education	-5.83[b]
Education squared	0.38[c]
Female	-35.34[c]
Black	-4.00[b]
Intercept	35.78[a]
Occupations:	
Engineers	24.83[c]
Accountants	3.87
Scientists, professors	47.12[c]
Artists, writers	31.65[c]
Miscellaneous managers	44.01[c]
Junior managers	12.82[b]
Senior managers	16.89[b]
Salesmen	27.07[b]
Tellers, clerks	-8.58
Technicians	-9.01
Nurses	-14.61
Secretaries	-0.46
Office machinery operators	-7.51
Miscellaneous clerical	-3.68
Machinists	-6.71
Mechanics	-2.35
Construction trades	2.40

Table 1--continued

Variable	Coefficient
Occupations (contd.):	
Metal workers	2.30
Miscellaneous crafts	-3.56[b]
Needle trades	-15.71[b]
Miscellaneous trades	-14.50
Assemblers	-14.69
Installers	-7.28
Packers	-16.50
Machinery operators	-10.85
Garage workers	-6.04
Other operators	-15.32
Skilled operators	15.62
Transportation equipment operators	-10.61
Laborers	-11.36
Skilled laborers	-9.38
Unskilled laborers	1.65
Protective service work	-29.65

NOTE: Sample size N=3011; R squared = 0.2972.
[a]Significant at the 10 percent level.
[b]Significant at the 5 percent level.
[c]Significant at the 1 percent level.

purpose to examine occupational differences in earnings; therefore, since the overall pattern of occupational differentials makes sense, and because the few anomalies are unlikely to bias our estimates of sectoral effects, we do not consider those differences a major problem.

Coefficients on the sectoral terms allow us to divide the industries listed into two groups: those that do and those that do not pay wages insignificantly different from wages paid to workers with identical characteristics and occupations in the durable goods manufacturing sector. These relatively high-paying sectors are business services, communications, finance, insurance, and real estate, and health

services. A second group of sectors pays wages significantly less than those paid to workers who perform the same tasks in durable goods manufacturing. These are cultural services (e.g., education, museums, membership organizations, etc.), hotels, nondurable manufacturing, recreation, retail sales, and wholesale sales.

This finding is useful if only to make development planners consider carefully before they adopt a strategy that involves major expansion of sectors in that second group. This is not to suggest that these sectors be excluded from development plans. They may offer substantial benefits not discussed in this analysis (e.g., they may generate substantial local tax revenues or have a high multiplier). Further, this average result for highly aggregated sectors and controlling for highly aggregated occupational categories should not be seen as definitive for any proposed project in any given city. Some subsectors within, say, the cultural services industry may provide a large number of high-paying jobs. A large number of "salesmen" in a certain subsector may be among the lowest skilled members of that occupational category. However, those advocating a strategy that involves hotels and cultural services along with a retail plaza for a downtown area should be asked to provide evidence that their approach will not simply generate some number of relatively low-paying jobs. Those advocating a strategy built around durable goods manufacturing and business services, on the other hand, need not be so strongly challenged on this particular point, because these latter industries tend to pay higher wages.

SECTORAL DIFFERENCES IN OCCUPATIONAL MOBILITY

Individuals may be willing to accept jobs that pay lower wages than they might otherwise receive, expecting that they will lead to higher paying positions in the future. A second dimension of job quality that must be accounted for in development planning is the potential for growth in earnings associated with certain kinds of employment. It is difficult to analyze earnings growth without tracking individuals' wages over time. Further, assessing the effects different sectors have on earnings growth of populations that are of most concern to urban planners would require a large sample of observations. For these reasons we can only present evidence that is suggestive, but far from conclusive, on these issues.

We begin by observing that earnings growth can have three components:

- o Increases in productivity associated with experience on a specific job in a specific sector.
- o A switch to a better paying job.
- o A switch to a better paying sector.

The earnings history of any individual is usually characterized by parts of each of these components of earnings growth. Ann Bartel (1980) has analyzed part of the problem by pointing out that a large proportion of total earnings growth (corrected for increases in productivity experienced by the nation's work force as a whole) is associated with changing jobs. Bartel, however, did not distinguish between the effects of change in occupation and those of change in sector of employment. We

have evidence that indicates substantial differences in earnings across sectors even when we control for worker skill and occupational differences. This evidence suggests that at least part of the interjob earnings growth Bartel reports is accounted for by changes in sector of employment.

We analyze sectoral differences in two ways. First we compare the degree to which different sectors provide opportunities for job changes to other sectors. Furthermore, because we have already observed that there are two groups of sectors--those that pay identical individuals as much as the durable goods manufacturing sector and those that don't--we will compare the degree to which the lower paying sectors provide opportunities to shift to jobs in the higher paying sectors. Second, we will compare the degree to which different sectors provide opportunities for occupational shifts either within the sector or across sectors. We assume that a downward shift in occupational status is unlikely and, therefore, that differences in sectors on this dimension indicate sectoral differences in the amount of upward (or, at least, horizontal) occupational mobility they offer.

The data for these analyses are also drawn from the 1970 Census Public Use Sample. This data set contains information for individuals according to their sector of employment and occupation in 1964 and 1969. In the first instance, we cross-tabulated by sector of employment in 1964 and 1969 and used the information generated by the cross tabulation to test a series of hypotheses on the following order:

HO: The probability of shifting from sector i to a higher paying sector between 1964 and 1969, is equal to the probability of shifting to a higher paying sector from the nondurable manufacturing sector between 1964 and 1969.

The "higher paying sectors" are those that do not pay significantly different wages to workers performing identical tasks from those paid in the durable goods manufacturing sector. Then we constructed a dummy variable that took the value of one if the individual was employed in different occupations in 1964 and 1969. We cross-tabulated this dummy variable with 1964 sector of employment and tested a series of hypotheses on the following order:

HO: The probability of changing occupations between 1964 and 1969, given that the individual was employed in sector i in 1964, is equal to the probability of changing occupations between 1964 and 1969, given that the individual was employed in durable goods manufacturing in 1964.

The sample proportions and sample sizes on which the tests of these hypotheses were based, along with an indication of whether the null hypothesis was rejected, are presented in Table 2.

The most striking conclusion suggested but by no means confirmed by the statistics presented in Table 2 is the uniformity in the degrees to which different sectors provide opportunities for career mobility. First we see little mobility across sectors, at least over a five-year period. Only about 10 percent of a sector's employees, on average, shift to another sector, compared with the roughly 20 to 30 percent of employees who change occupations within the same period of time. This suggests, in turn, that shifts across sectors are a less important source of earnings

Table 2

CAREER MOBILITY: SECTORAL AND OCCUPATIONAL JOB CHANGES

Sector	Percentage In Higher Paying Sector	Percentage Not Having Changed Occupations	Sample Size N =
Business services	N	.75[a]	57
Communications	N	.75[a]	70
Construction	N	.74[a]	149
Cultural services	.06[a]	.64[a]	70
Durable manufacturing	N	.72	580
Finance, insurance, and real estate	N	.66[a]	134
Health services	N	.74[a]	86
Hotels	.13	.67[a]	24
Nondurable manufacturing	.12	.66[a]	369
Recreation	.13	.80[a]	15
Retail sales	.14[a]	.69[a]	295
Wholesale sales	.06[a]	.73	93

NOTE: N = Not applicable.
[a]Relevant null hypothesis rejected at the 5 percent level.

growth than occupational changes, unless, of course, sectoral shifts generate substantially larger earnings jumps than occupational changes.

Second, there are significant differences across sectors in the degree to which they offer opportunities for mobility. Jobs in the cultural services and wholesale sales sectors are associated with significantly less likelihood of a shift to one of the higher paying sectors than a job in nondurable goods manufacturing or retail sales, which are more likely to offer such opportunities. Furthermore, even though they do not confirm that some service sectors offer fewer opportunities for occupational mobility than at least part of the manufacturing sector, the data are consistent with that assertion. We

see that the number of employees in the hotels, retail sales, and cultural services sectors are significantly less likely to change occupations over a five-year period than employees of the durable goods manufacturing industry. However, we also see that the nondurable goods manufacturing sector is a poor position from which to change occupations. Finally, we see that, even though some sectors are associated with a significantly higher probability of occupational change than durable goods manufacturing, the magnitude of the differences is small.

It should be reemphasized, however, that none of these conclusions should be considered final. First, we do not know whether some of these "mobility" differences are actually the result of different worker characteristics and occupational mixes in the work forces of different sectors. It may be, for example, that the "lower mobility potential" of the hotel sector really reflects the mean educational attainment of employees in that sector rather than any characteristic of the jobs in that sector. Similarly, a substantial proportion of shifts to higher paying sectors among retail sales employees may take place among the higher paid occupational strata in that sector. Second, the data as presented do not distinguish between sectoral and occupational shifts among different groups of employees. Presumably, development planners are more interested in providing upward mobility and earnings growth for those at the bottom of the income distribution. Because we do not know how much of the "mobility" in each sector is accounted for by which group of employees, we do not know which sectors provide the most mobility for the groups of greatest concern. Our attempts to analyze mobility for specific subsamples of employees indicated that the sample

sizes for certain crucial sectors (particularly hotels and health services) were too small to generate usable results.

What, then, may be concluded from our preliminary analysis of sectoral differences in occupational mobility? First, we can be certain that differences in mobility across sectors do exist. These differences may reflect something about the kinds of jobs different sectors provide or about the kinds of people who fill those jobs. However, recall that with the exception of nondurable goods manufacturing, we were unable to reject the null hypothesis that any of the low-paying, low-mobility sectors consistently employed a higher proportion of the groups most likely to be structurally unemployed that were represented in a city's work force as a whole. This in turn suggests that differences in mobility may not be entirely explained by differences in the composition of the work force.

Obviously, this argument has many loose ends. We were not able, for example, to determine whether the hotel subsector of the leisure services sector systematically hires larger proportions of young, black, and poorly educated labor force participants. The argument does, however, point to systematic differences in the mobility dimension of job quality across sectors. Furthermore, these differences appear to support some contentions made by opponents of service sector strategies for urban development.

Second, we can tentatively conclude that there are substantial differences among industries in both the service and manufacturing sectors. The health services sector, for example, appears to perform relatively well on one of our mobility criteria, while nondurable goods manufacturing performs relatively poorly.

Finally, and most certainly, we can conclude that intersectoral differences in opportunities for mobility are potentially very important considerations for urban development planning; that they cannot be definitively analyzed without relying on a large, longitudinal data base; and that given the controversy these issues generate, analyzing those data should be a high priority task.

IV. CONCLUSIONS

Our overall objective in this Note was to analyze the contribution of service sectors to three general objectives of urban development policy. Because our objective was not to develop refined or highly rigorous models of each relationship under examination, our conclusions must be tentative. Our analysis of census data does, however, suggest a number of conclusions that could improve development planning at the local level and evaluation of that planning at the federal level.

We first examined the degree to which different sectors hired larger numbers of groups most likely to be structurally unemployed. To date, most planners appear to have relied on rules of thumb to make those determinations. We found that 1970 census data tend not to support these rules of thumb. For example, neither the health services nor the hotel industry appear to hire larger proportions of black, young, or poorly educated workers than are present in the labor force as a whole.

Statistics presented in this Note reflect average conditions in groups of cities. Our findings can be interpreted to indicate that most cities are not like the average and that therefore there are no useful, universally applicable rules of thumb with respect to which sectors absorb most of the structurally unemployed. We suggest, therefore, that planners analyze sample-count census data for their own cities to determine which sectors hire the largest proportions of those most likely to be structurally unemployed.

In Section III we analyzed census data to assess the quality of jobs provided by different sectors. The data pointed to differences in wages paid by different sectors to individuals in jobs as similar as the available data could indicate. One group of sectors paid significantly higher wages than a second group of sectors.[1] No significant difference was found in wages paid workers who performed identical tasks within these two groups of sectors.

We also made a preliminary attempt to identify differences in opportunities for upward mobility offered by different sectors. The data presented are only exploratory because the test we propose does not control for nonsectoral determinants of mobility and does not distinguish between mobility for those at the top and bottom ranks of occupational status. The data do, however, suggest significant differences in occupational mobility associated with employment in different sectors. Some service sectors do seem to offer more opportunities for mobility than, say, durable goods manufacturing. Others offer few or none.

In summary, however, we conclude that service sector growth is no panacea for the problems of cities.

---

[1] Business services, communication, construction, durable goods manufacturing, finance, insurance, and real estate, and health services paid higher wages than cultural services, hotels, nondurable goods manufacturing, recreation, retail sales, and wholesale sales.

APPENDIX

Each cell in these tables represents a specific type of labor in a specific type of city in each sector we examined. A "+" in a cell indicates that the hypothesis was rejected and that labor type i accounts for a larger proportion of the work force of sector j in cities of type 1 than of the work force as a whole in cities of that type. A "-" in a cell indicates that the hypothesis was rejected and that labor type i accounts for a smaller proportion of the work force of sector j in cities of type 1 than of the work force as a whole in cities of that type. The many blank cells indicate that the hypothesis that the proportions of i in sector j and in the city's work force as a whole were equal in cities of type 1 could not be rejected.

Table A.1

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, BLACK, NO HIGH SCHOOL DIPLOMA
N = 69

	City Type						
Sector	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services		-	-				
Leisure services							
Construction					-		
Durable manufacturing							
Finance, insurance, and real estate	-			-	-		
Health services							
Nondurable manufacturing		-	-				
Sales							

NOTE: N = 69 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.2

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, BLACK, HIGH SCHOOL DIPLOMA

N = 168

	City Type						
Sector	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	-	-	-	-	-	-	-
Leisure services						-	
Construction	-	-	-	-	-	-	-
Durable manufacturing						-	
Finance, insurance, and real estate		-	-	-	-	-	-
Health services		-	-				
Nondurable manufacturing						+	
Sales			+				

NOTE: N = 168 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.3

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, BLACK, COLLEGE GRADUATE

N = 65

	City Type						
Sector	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services		-					
Leisure services							
Construction	-		-		-		
Durable manufacturing					-		
Finance, insurance, and real estate		-		-			
Health services		-					
Nondurable manufacturing				-			
Sales							

NOTE: N = 65 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.4

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, BLACK, NO HIGH SCHOOL DIPLOMA

N = 712

	City Type						
Sector	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	-				-		
Leisure services	+						
Construction	+	+	+	+		+	+
Durable manufacturing	+				+		
Finance, insurance, and real estate	-		-	-	-	-	-
Health services							
Nondurable manufacturing							
Sales						+	

NOTE: N = 712 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.5

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, BLACK, HIGH SCHOOL DIPLOMA

N = 398

	City Type						
Sector	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	-	-	-	-	-	-	-
Leisure services	-			-	-	-	-
Construction	-	-	-	-	-		-
Durable manufacturing	+		+		+		+
Finance, insurance, and real estate							
Health services						-	
Nondurable manufacturing							
Sales	+		+		+		+

NOTE: N = 398 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.6

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, BLACK, COLLEGE GRADUATE

N = 158

Sector	City Type: Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services		-					
Leisure services	+		+	+	+	+	+
Construction				-			
Durable manufacturing				-		-	-
Finance, insurance, and real estate				-			
Health services							
Nondurable manufacturing		-				-	-
Sales					-		

NOTE: N = 158 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.7

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, WHITE, NO HIGH SCHOOL DIPLOMA

N = 605

Sector	City Type: Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	-		-	-	-	-	-
Leisure services	-			-	-	-	+
Construction							
Durable manufacturing							
Finance, insurance, and real estate	-	-	?	-	-	-	-
Health services	-	-	-	-	-		-
Nondurable manufacturing	+	+	+	+	+	+	+
Sales	+	+	+	+	+	+	+

NOTE: N = 605 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.8

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, WHITE, HIGH SCHOOL DIPLOMA

N = 1565

Sector	City Type: Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services							
Leisure services	-	-	-	-	-	-	-
Construction					+		
Durable manufacturing					-		
Finance, insurance, and real estate	+			+	+		+
Health services		-					
Nondurable manufacturing				-			
Sales	+	+	+	+	+	+	+

NOTE: N = 1565 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.9

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
YOUNG, BLACK, COLLEGE GRADUATE

N = 1209

Sector	City Type: Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	+	+	+	+	+	+	+
Leisure services	+	+	+	+	+		+
Construction	-	-		-	-	-	-
Durable manufacturing	-	-	-	-	-	-	-
Finance, insurance, and real estate	+	+	+	+		+	+
Health services	+		+	+	+	+	+
Nondurable manufacturing		-		-	-		-
Sales	+	+	+	+	+	+	+

NOTE: N = 1209 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.10

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, WHITE, NO HIGH SCHOOL DIPLOMA

N = 5293

Sector	City Type						
	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	-	-		-	-		-
Leisure services	-	-	- -	-	-		-
Construction	+	+	+	+	+	+	+
Durable manufacturing	+	+	+	+	+	+	+
Finance, insurance, and real estate	-	-	-	-	-	-	-
Health services	-	-	-	-	-	-	-
Nondurable manufacturing	+	+	+	+	+	+	+
Sales	+	+	+	+	+	+	+

NOTE: N = 5293 (sample size).
[a]Regions of U.S.: NE = Northeast, NC = North Central; SE = Southeast; W = West.

Table A.11

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, WHITE, HIGH SCHOOL DIPLOMA

N = 5470

Sector	City Type						
	Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services							
Leisure services	-	-	-	-		-	-
Construction					+		
Durable manufacturing	+			+	+	+	+
Finance, insurance, and real estate	+		+	+	+	+	+
Health services	-						
Nondurable manufacturing						+	
Sales	+	+	+	+	+	+	+

NOTE: N = 5470 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

Table A.12

DESCRIPTION OF LABOR TYPE ACROSS CITIES AND SECTORS:
OLD, WHITE, COLLEGE GRADUATE

N = 5470

Sector	City Type: Large	Small	High Unemployment	Low Unemployment	NE/[a] NC	SE/[a] SE	Whole Sample
Business services	+	+		+	+	+	+
Leisure services	+	+	+	+	+	+	+
Construction	-	-	-	-	-	-	-
Durable manufacturing					-		
Finance, insurance, and real estate	+	+	+	+	+	+	+
Health services	+	+	+	+	+		+
Nondurable manufacturing			-				
Sales	+	-	-	-	-	-	-

NOTE: N = 5470 (sample size).
[a]Regions of U.S.: NE = Northeast; NC = North Central; SE = Southeast; W = West.

BIBLIOGRAPHY

Bartel, Ann P., "Earnings Growth on the Job and Between Jobs," Economic Inquiry, Vol. XVIII, No. 1, January 1980, pp. 123-137.

Gurwitz, Aaron, The Service Sector in Urban Revitalization: Sectoral Composition, Employment Density Gradients, and Central City Fiscal Capacity, The Rand Corporation, R-2817-HUD, July 1982.

Kain, John F., "Housing Segregation, Negro Employment, and Metropolitan Decentralization," Quarterly Journal of Economics, Vol. LXXXII, No. 2, May 1968, p. 83.

Pascal, A., and A. S. Gurwitz, Picking Winners: Industrial Strategies for Local Economic Development, The Rand Corporation, R-2832-HUD, forthcoming.

Pascal, Anthony, and John McCall, "Agglomeration Economics, Search Costs, and Industrial Location," Journal of Urban Economics, Vol. 8, No. 3, November 1980, pp. 383-388.

Pascal, Anthony, and William McNaught, The Service Sector in the Metropolitan Economy: The Process of Specialization and Its Effects on Aggregate Employment, The Rand Corporation, R-2827-HUD, forthcoming.

U.S. Bureau of the Census, 1970 Census Public Use Sample.