



Women's Travel to Inner City Employment

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WOMEN'S TRAVEL TO INNER CITY EMPLOYMENT

ABSTRACT

While the concept of a spatial mismatch between low skill inner city residents and suburban employment is widely discussed, the travel implications of a skills mismatch between these residents and nearby jobs remain unclear. This study reveals the attraction of inner city employment in metropolitan Phoenix, Arizona and uses an aggregate and comparative approach to describe travel for women residents who commute within and women nonresidents who commute to the inner city of the City of Phoenix. Over 49,000 surveys from the Maricopa County Regional Trip Reduction Program provide 1995 data on full time workers of large companies. The occupations and commuting mode, distances, and times of over 20,000 nonresident women and over 3,000 resident women are compared.

The entire inner city is a destination for metropolitan commuting. Over 85 percent of women employed in the inner city are nonresidents. Nonresident women in high skill occupations travel longer distances and times than nonresident women with low skill occupations, although clerical/secretarial workers travel long distances to the large number of public sector and private jobs. Women inner city residents report lower drive alone use, higher carpool use, and more non-vehicle mode commutes than nonresidents, although commute mode varies by occupational category. Professional/manager resident women report a level of drive alone commutes higher than nonresidents in the same occupational category. Their proximity to employment does not result in reduced driving alone to work. Conversely, resident and nonresident women in manufacturing/production report the lowest levels of drive alone commutes and high levels of carpool use. Resident women in this occupational category have the shortest distance commutes and appear to be constrained to nearby employment. This stratification of women's travel by occupation and mode contributes to the development of separate work and travel environments within the inner city.

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Numerous and diverse jobs remain in central cities, despite the loss of employment in recent decades. The central city continues to provide employment opportunities for nearby residents and remains an attraction for metropolitan residents. At the same time the mismatch between the skills of low income inner city residents and the number and requirements of nearby jobs remains an issue. Increasing suburbanization of employment and inner city concentration of poverty highlight this issue in American metropolitan areas.

As more women have entered the urban labor force, their occupations and commuting have become more diverse. The spatial focus chosen for this study reveals the attraction of inner city employment for women. What jobs do women nonresidents consider worth long commute trips? What jobs are available for women residents unwilling or unable to travel outside the immediate area? This focus on the inner city highlights the traditionally important employment in the metropolitan core—the historic central business, industrial and warehousing districts—and the oldest residential neighborhoods.

This paper uses an aggregate and comparative approach to describe inner city travel for two groups: women residents who commute within and women nonresidents who commute to the inner city. Their travel is examined first in the context of a general spatial mismatch. Then the study describes the inner areas of the City of Phoenix, Arizona where this research is connected to a specific employment setting and data source. The attraction of women's occupations at inner city worksites is then examined. Commute modes, travel times and distances are compared for women inner city residents and nonresidents. The study concludes by discussing the implications from this Southwestern metropolitan area for a broader understanding of women's travel in inner cities.

CONTEXT FOR WOMEN'S INNER CITY COMMUTING

Commuting to and within American central cities is a large, but declining, percentage of all commuting flows within metropolitan areas. In 1990, three commute flows to the central city equaled 44 percent of the total commuting flow of 91.5 million trips. Central city-to-central city commutes were 24.33 million trips (27 percent of the total). Suburb-to-central city trips (15.26 million trips) plus non-metropolitan area-to-central city trips (0.3 million trips) were 17 percent of the metropolitan total. Central city residents increasingly conduct reverse commutes to suburban and non-metropolitan areas. Central city-to-suburb trips (5.9 million trips) and central city-to-non-metropolitan area trips (1.4 million trips) are 8 percent of the total metropolitan commuting flow (1, p. 72). The diminishing relative importance of central city commuting is clear from metropolitan commuting growth trends. Suburb-suburb commutes had the greatest growth (58 percent), while suburb-central city flows grew by 20 percent. The reverse commute, central city-suburb flow, grew by 12 percent, a rate greater than the central city-central city commute growth of 10 percent¹.

These commuting trends reflect metropolitan economic restructuring that has reshaped inner city employment. This restructuring has profound implications for the employment opportunities, and therefore the travel behavior, of inner city residents. Social scientists and policy analysts find that the decline of inner city work in past twenty-five years has a profoundly negative effect on men, women and their families^{2, 3}. There is renewed support in American urban policy for the creation of new businesses and job opportunities in disadvantaged urban neighborhoods. Indeed, the first principle of the Clinton/Gore Administration's Empowerment Zone and Enterprise Community Program is the creation of a sustainable economic base in the targeted community, one that offers a larger number and a greater range of jobs for nearby residents. Inner city advantages of accessible locations and available labor attract nonresidents to specialized jobs and employers to inner sites⁴.

These broad concerns highlight the question of a spatial mismatch between inner city residents and their employment prospects. Its earliest formulation as a mismatch of low skill, inner city black men and blue-collar suburban jobs remains an appealing hypothesis that deserves additional examination for different groups and spatial areas⁵. Recently, Jencks and Mayer⁶ extended this question to examine residential segregation, job proximity, and black job opportunity. Their recommendations for time series data for blacks living in different metropolitan locations can be extended to other demographic groups. This study modifies their specific recommendation for the study of blacks who live in suburbs and in central cities and compares women who live inside and outside the inner city.

Commuting travel to and within the inner city illustrates the skills and spatial mismatches for women. Geographic studies of spatial mismatch have examined women's travel at several scales and, increasingly, for different racial and income groups. While rural-urban travel differences emerge⁷, central

city - suburban comparisons are more common^{8, 9, 10}. Hodge notes that, while separation of work and residence may not be ideal, the most difficult situation is one in which a person is close to employment but lacks skills to take advantage of these nearby opportunities¹¹.

Finally, access to an automobile appears essential for labor force participation in low density American cities and suburbs. Previous studies have shown the dependence of employed women in metropolitan Phoenix and Tucson on automobile use, primarily drive alone commuting^{12, 13, 14}. While these studies linked women's travel to household income or the women's occupation, they did not disaggregate travel spatially within the metropolitan areas.

STUDY AREA AND APPROACH

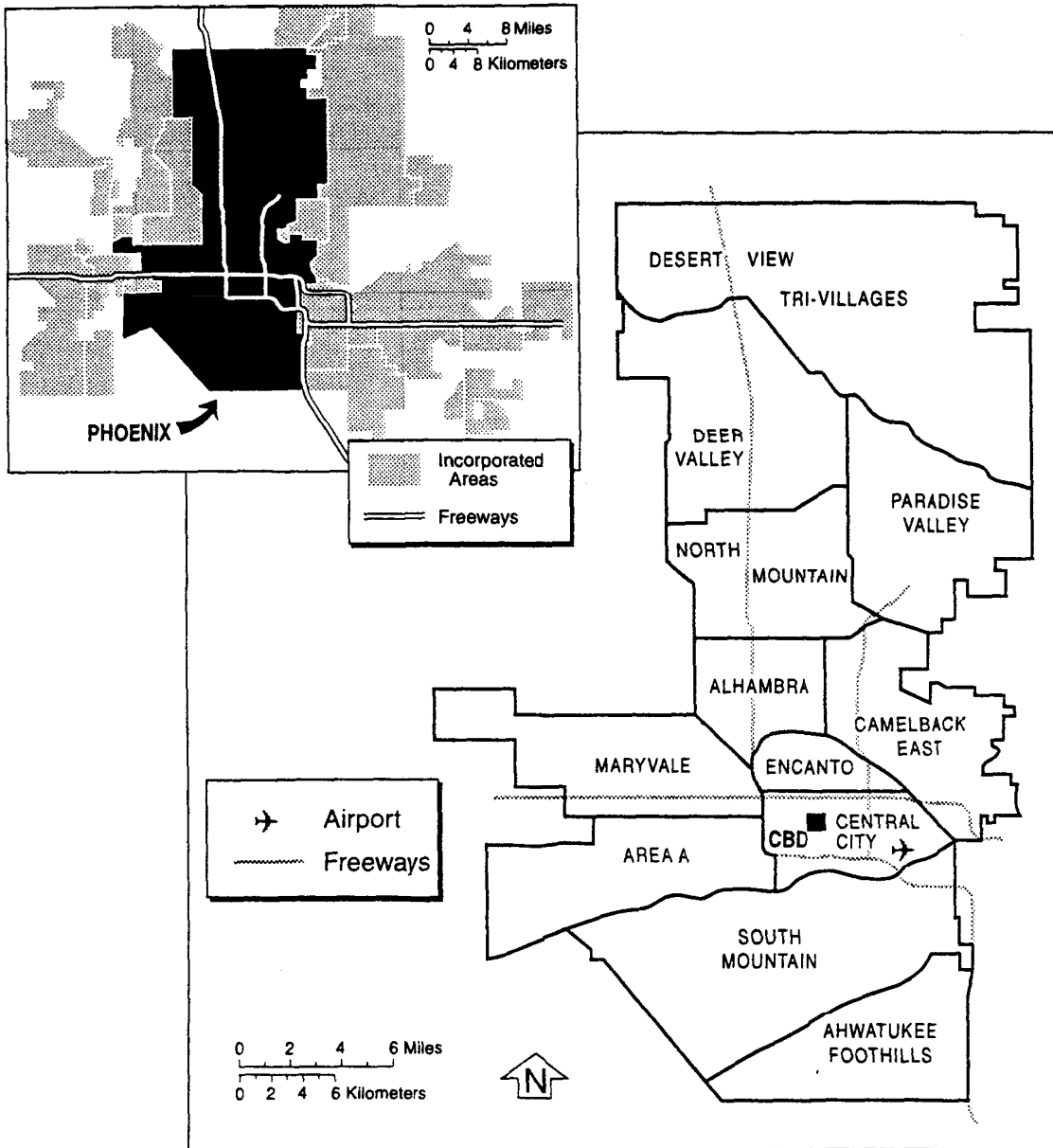
Before moving to describing women's inner city travel, the study area and approach merit discussion. The popular perception of metropolitan Phoenix is a rapidly growing Sunbelt city with 2.6 million population, booming high technology employment, and extensive new housing communities in pristine desert settings. Phoenix's revitalizing downtown is, however, within blocks of neighborhoods with high unemployment, low incomes, and high poverty rates. English is the second language after Spanish in many households, streets are unpaved, and crime is on the rise. In short, the inner city is an area of severe economic and social distress that includes Phoenix's Enterprise Community's neighborhoods.

STUDY AREA

For planning purposes, the City of Phoenix and its 1.1 million population are divided into thirteen districts called urban villages. In theory, the aim of urban villages is to break down this extremely large, sprawling city into more manageable districts; to focus land development, to give residents a sense of local identity, and to reduce travel by encouraging residents to work, shop, and socialize all within the same urban village. This study focuses on the two poorest of the city's urban villages, the Central City Village, which contains the downtown business district, and South Mountain Village, which adjoins it immediately to the south across the Salt River channel (Figure 1).

This population of 135,000 (58,000 in the Central City Village; 77,000 in the South Mountain Village) has characteristics that mirror the problems of inner city populations in other cities. A startling 43 percent of Central City Village's households are below the poverty line, compared to 12 percent of all households in the City of Phoenix¹⁵. A lower 24 percent of South Mountain households are below the poverty line. Minorities dominate the population structure of both Villages. Hispanics and African-Americans constitute 67 percent of the South Mountain Village population and 73 percent of the Central City in contrast to 28 percent for the City of Phoenix as a whole. More than one-half of the Central City Village population and more than one-third of the South Mountain Village population speak some combination of Spanish and English compared to only 14 percent citywide. Also compared to the City as a whole, the study area has many more persons without a high school diploma, much higher levels of unemployment, lower household incomes, especially in the Central City Villages, a higher proportion of households on public assistance, and a higher proportion of households with incomes below the poverty level.

Figure 1
The Boundaries and Urban Villages of the City of Phoenix, Arizona.



In a more positive view, even though Phoenix has experienced a decentralization of new employment, the downtown and its immediate area remain the metropolitan area's largest concentration of employment. The 1990 Census confirms that some 28 percent of the City of Phoenix's and 15 percent of the metropolitan area's jobs are located in the Central City and South Mountain Villages¹⁵. Stated another way, inner city Phoenix has 81,499 jobs or an important 18 percent of all Maricopa County jobs provided by employers with over 50 employees at a single worksite¹⁶.

The largest numbers of inner city jobs are in Public Administration and Health, Legal and Other Professional Services. City, county, state, and several federal agencies are concentrated downtown as are related private legal firms and financial institutions. Two economic sectors provide major blue collar employment: durable manufacturing, and transportation and public utilities. Sky Harbor International Airport is two miles east of downtown with nearby ancillary services of ticket sales, car rentals, airport hotels and air express services as well as an industrial park created by urban renewal west of the airport. Outside the downtown and airport areas, industrial districts serve a host of small scale manufacturing firms attracted by the inner city's centrality and good transportation access. Three additional sectors provide lower numbers of jobs: wholesale and retail trade; finance, insurance and real estate, and personal and business services, including medical employment at the Good Samaritan Hospital complex north of downtown and County medical center and State hospital east of downtown. Few jobs are available in nondurable manufacturing or agriculture, mining, and construction.

While the total numbers of jobs are significant, their importance relative to opportunities elsewhere in urban Maricopa County is a strong indication of the attractiveness of inner city employment. When the inner city economic base was evaluated for one-digit Standard Industrial Classification (SIC) categories, only two employment categories had a comparative advantage—public administration and transportation and public utilities employment. These strengths include the offices of the City of Phoenix, Maricopa County, and Arizona state government and related public utilities in the central business district. Moreover, the inner city is central for passenger and freight transportation providers, including railroad, transit, and the Sky Harbor International Airport. Employment gaps include high technology manufacturing which locates in outer sections of Phoenix and elsewhere in the metropolitan area. The lack of retail stores and consumer health and professional services reflects the outward shift of population and purchasing power.

There are detailed (two-digit SIC) categories of inner city employment, however, that have advantages compared to the county. These categories and their economic sector (in parentheses) include: Food and Kindred Products and Printing and Publishing (nondurable manufacturing); Miscellaneous Manufacturing Industries (durable manufacturing); Wholesale Trade—Durable Goods (wholesale and retail trade); Depository Institutions (finance, insurance, and real estate); Personal Services and Auto Repair (personal services); Health Services as well as Legal and Social Services (professional services).

As a result, the large amount of inner city employment and the size of the inner city population make the close linkage between residence and work stated as the planning ideal for City of Phoenix theoretically possible. This link is quite weak, however, for the city's urban villages in general and for the inner city in particular¹⁵. The 1990 Census reports that about 15 percent of all inner city employees live and work in the inner city. The following section describes this study's data source which confirms that this broad mismatch between jobs and residents holds true for men and women employees. Inner city women residents are 14.8 percent of all women employees in the inner city, large employer labor force.

APPROACH

This study uses data from the 1995 Maricopa County Regional Trip Reduction Program survey¹⁷ which is distributed annually to the employees of Maricopa County employers with more than 50 workers. Employees are asked a range of questions about their commuting behavior (travel mode and

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work schedule), their demographic characteristics (age and gender), employment (occupation), and their place of residence (address and zip code). employed in inner city Phoenix.

There are 181 employers within the boundaries of the Central City and South Mountain Villages who returned survey forms from their employees in 1995. Each employer's location was address matched in a geographic information system. Employee residential addresses of the 49,219 employees were sorted by nine zip codes to identify men and women working and living in the inner city. The boundaries of these zip codes are slightly larger than the urban village boundaries used to identify central city employment and slightly overstate the number of inner city residents. There are 20,816 women nonresident employees and 3,364 women resident employees.

There are major advantages in using this existing database which is designed to assist current air quality improvement and to monitor reductions in drive-alone travel. The survey provides a current source of local travel and employment data for full time employees. Survey compliance is high among employees of participating firms. Inclusion of precise addresses facilitates the identification of employee and employer inner city locations. Small businesses and their employees are not surveyed, however, and information on employee racial and ethnicity as well as personal and household income is not requested. This paper presents aggregate findings from this database and does not examine individual employers.

WORK DESTINATION AND OCCUPATION

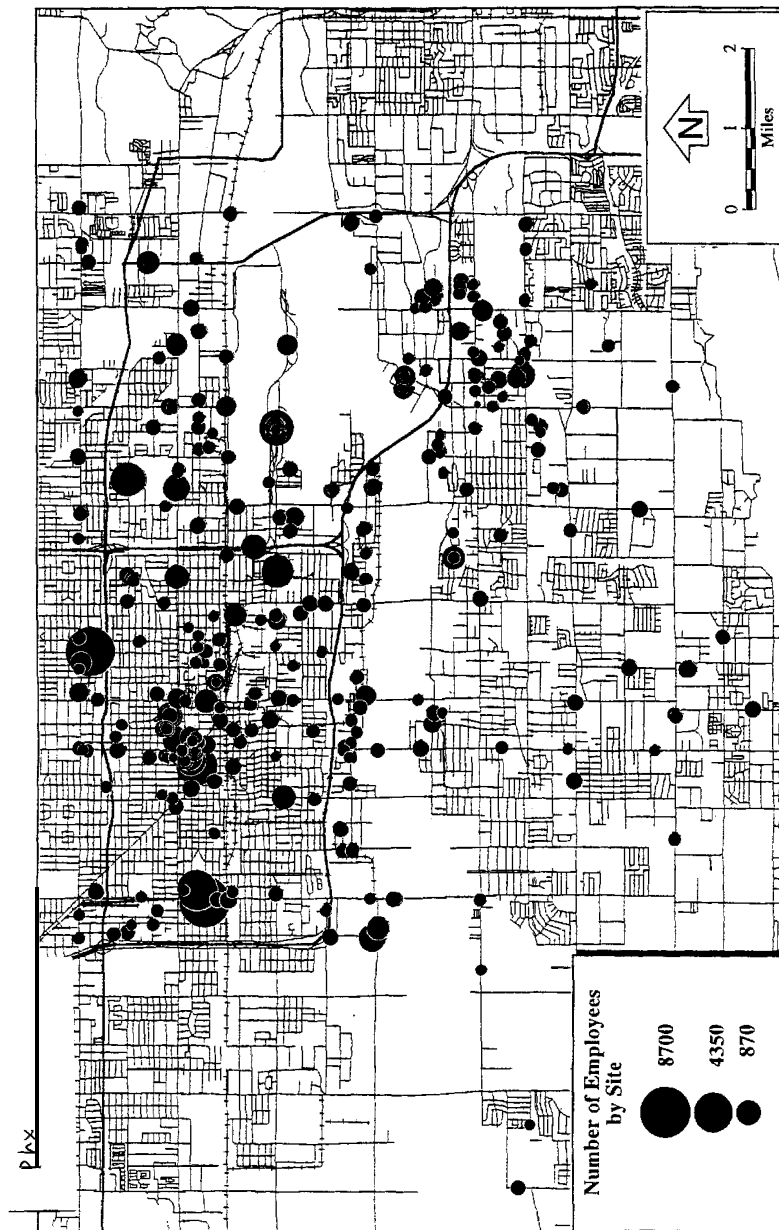
Clearly, the entire inner city is a destination for metropolitan commuting (Figure 2). The overwhelming majority (85.2 percent) of women inner city employees commute from outside the inner city (Table 1). Women and men are employed in almost equal proportions in Phoenix's inner city. For the 47,509 inner city employees who identified their gender, 50.9 percent are women and 49.1 percent are men. Hanson and Pratt note that "the proportions of men's and women's metropolitan wide employment per (census) tract are similar"^{18, p. 244} in their study of the occupational structure of Worcester, Massachusetts.

Table 1
Occupation (Percent)

Occupation			Nonresident	Resident
	Women (n=21,871)	Men (n=20,595)	Women Percent (n=19,168)	Women Percent (n=2,998)
Professional/Manager	34.0	39.2	35.8	18.8
Technical/Research	6.7	10.3	6.9	4.7
Sales/Service	10.4	10.1	10.4	10.0
Manufacturing/Production	4.6	10.2	3.0	13.9
Skilled Crafts/Trades	1.7	13.3	3.1	2.4
Clerical/Secretarial	33.3	4.5	32.8	33.0
Other	9.3	12.4	8.0	17.1

Women employees are concentrated at worksites in economic sectors of public administration, health and professional services, and finance, insurance, and real estate (Figure 3). Men are employed in these same sectors and at the same worksites but are also concentrated at durable manufacturing and transportation and public utilities worksites. While men are employed at a higher percentage in professional/manager occupations (39.2 percent) than any of the groups of women, resident women are employed at a higher percentage (13.9 percent) in manufacturing/production than men (10.2 percent). Three large government employers account for 21,276 employees: State of Arizona offices in the State Capitol complex located west of the central business district; City of Phoenix offices; and Maricopa County downtown offices and medical center.

Figure 2
Employment at Inner City Worksites.

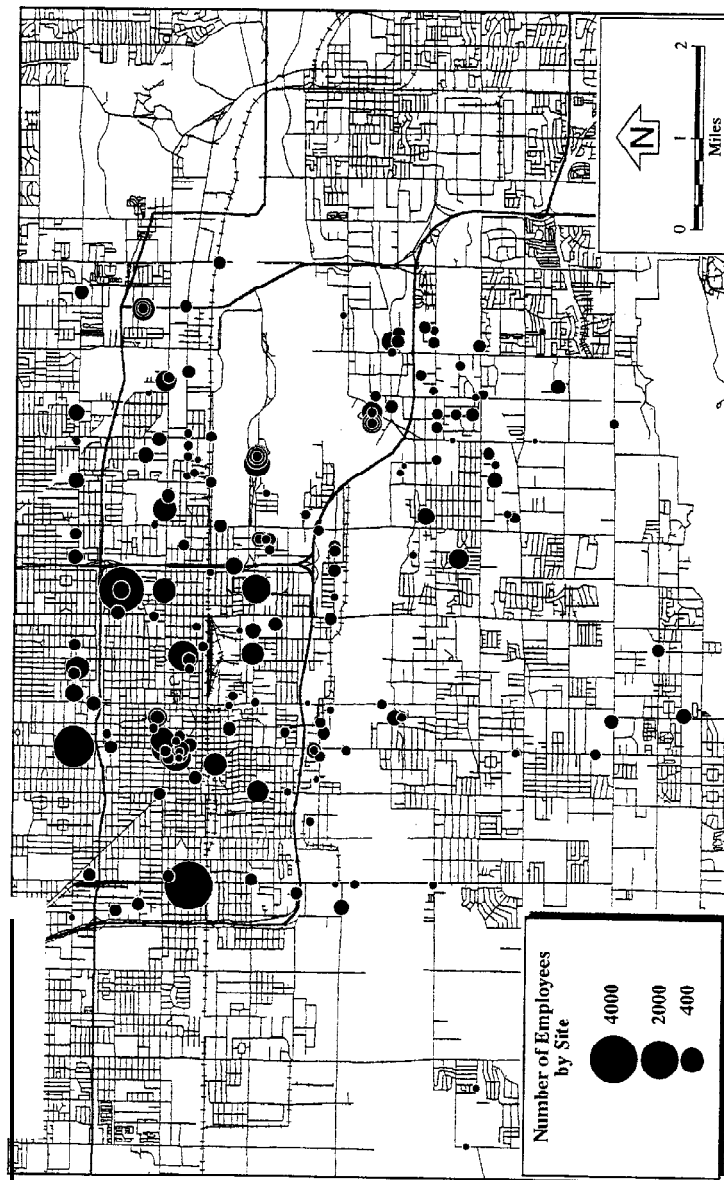


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Inner city residents are not distributed evenly across all inner city worksites. The majority of worksites are dominated by nonresidents. One hundred ten (74 percent) of the 181 worksites have no employees who are inner city residents. Sixty four percent (39,439) of all inner city employees work at a site where no inner city residents are employed. Only three worksites have more than 25 percent women inner city residents as employees and these are small sites with 107, 117, and 133 employees. The gender composition of worksites was identified using a modification of the approach developed by Hanson and Pratt¹⁸. Their study classified occupation types into three groups based on the percentage of female employees. Here, three worksite types are identified by the percentage of female employees in all occupations. Female dominated worksites have at least 70 percent women employees, while male dominated worksites have at least 70 percent men employees. All other worksites are gender integrated.

Figure 3
Women Employees at Inner City Worksites.



Women employees work in both male dominated and gender integrated settings. Male dominated (90 worksites) and gender integrated (86 worksites) situations describe the 181 large employer worksites of inner city Phoenix. Interestingly, there are only five worksites (1,042 total employees) with over 70 percent women employees. Health and professional service locations account for four separated worksites. The largest female dominated site is a major bank's administrative office in the heart of the central business district where women are 92 percent of the 685 employees.

Inner city women are employed at most of the same worksites as nonresident women (Figure 4). They are slightly more likely than nonresident women to work in gender integrated (89.1 percent compared to 87.0 percent) and male dominated (9.3 percent compared to 9.0 percent) worksites. Women inner city residents are less likely to work at female dominated worksites than nonresident women (1.6 percent compared to 4.1 percent).

When occupational categories are compared, women inner city residents appear to have employment requiring less education or training and providing lower incomes than women nonresidents. Women inner city residents have lower percentages in professional/managerial (18.8 percent compared to 35.8 percent) and technical/research (4.7 percent compared to 6.9 percent) employment. Women inner city residents have higher percentages, however, in manufacturing/production (13.9 percent compared to 3.0 percent) and the general category of other jobs (17.1 percent compared to 8.0 percent).

While clear occupational differences emerge, the groups of resident and nonresident women also share some similar occupations. Women inner city residents and nonresidents have similar percentages for three occupations: clerical/secretarial (33.0 percent compared to 32.8 percent), sales/service (10.0 percent compared to 10.4 percent), and skilled crafts/trades (2.4 percent compared to 3.1 percent). Interestingly, similar, but low, numbers of manufacturing jobs are held by both groups: 583 jobs are held by nonresident women and 418 jobs are held by resident women.

COMMUTE MODE, DISTANCE, AND TIME

Commute trips by women inner city employees use travel modes that match closely with travel modes chosen by all women large employer commuters in the metropolitan area (Table 2). Men drive alone more, carpool less, and commute by bicycle more than any of the groups of women. For commute modes used four or more days a week in 1995, 76.0 percent of nonresident women drove alone, 16.4 percent carpooled in a vehicle with two or more persons, and 6.6 percent took the bus. These mode choices closely match the women's metropolitan mode profile. Rosenbloom and Burns¹² found that 77.5 percent of women employees drove alone, 16.0 percent carpooled, and 5.0 percent took the bus.

Figure 4
Women Inner City Residents Employed at Inner City Worksites

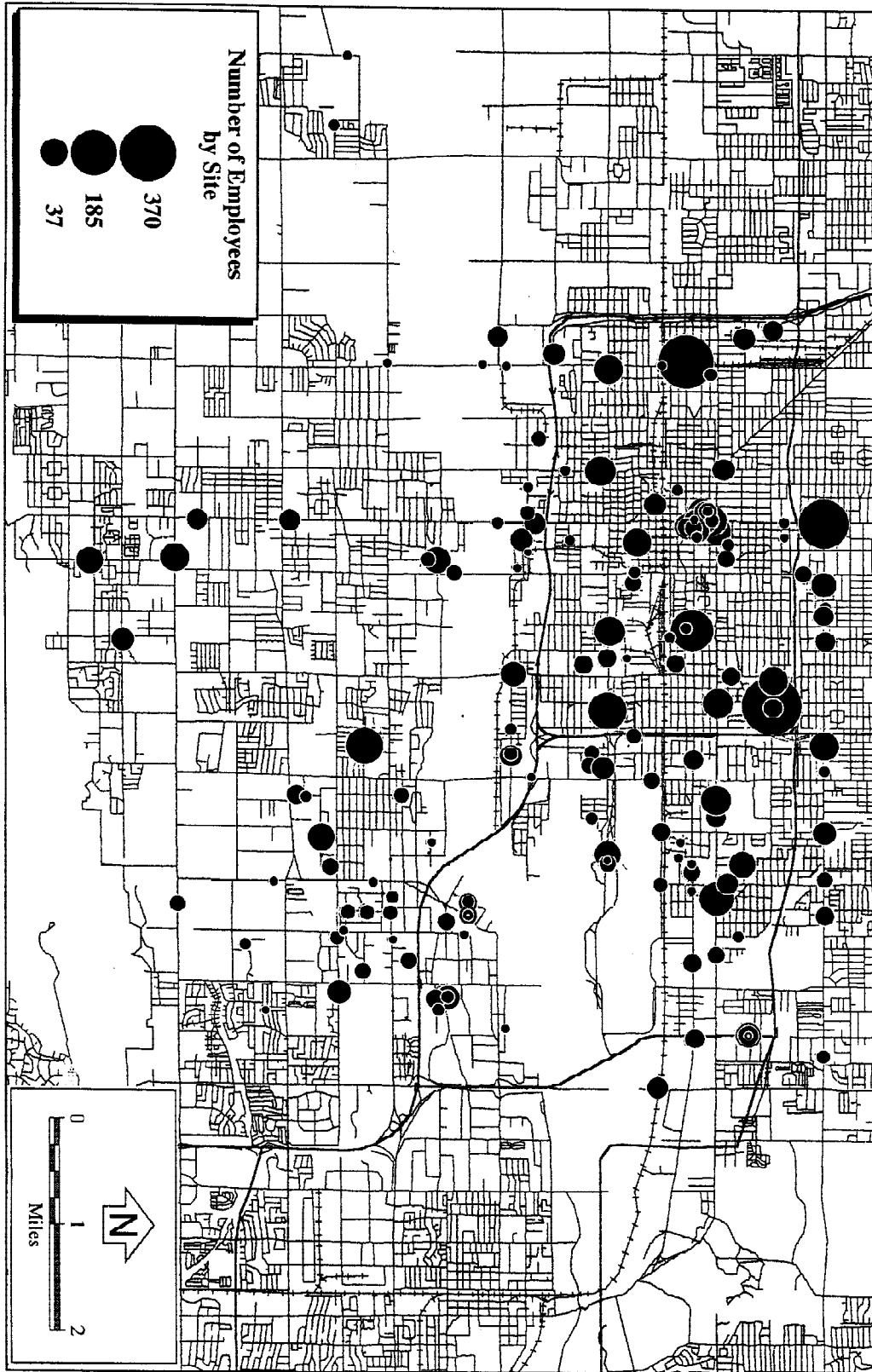


Table 2
Percentage Using Mode to Work.

Mode	Women	Men	Nonresident Women	Resident Women
	(n=20,922)	(n=20,917)	Percent (n=18,010)	Percent (n=2,912)
Drive Alone	75.1	77.3	76.0	69.1
Carpool	16.6	13.4	16.4	18.0
Bus	6.4	5.5	6.6	5.8
Walk	0.0	0.7	0.2	3.3
Vanpool	0.0	0.0	0.2	0.4
Bicycle	0.0	1.0	0.0	0.7
Other (a)	1.0	1.6	0.5	2.6

(a) Motorcycle and other responses

Commuting by inner city residents appears to require less drive alone use than commutes by nonresidents. Shorter distances are traveled. Parking is not free, particularly in the central business district. Bus service provides regular routes within and suburban express routes to the central business district. Nonresident women drive alone for 76.0 percent of their commutes while residents drive alone for 69.1 percent of their commutes. The use of carpools is higher by resident women (18.8 percent) than nonresident women (16.4 percent). Similar use of the bus is made by nonresident women (6.6 percent) and resident women (5.8 percent). The low rate of drive alone trips by resident women is a promising indication that regular drive alone commutes are substituted for other modes, at least occasionally, when jobs and residences are in spatial proximity. This substitution effect emerges when commute modes that are never used are compared for both groups. Resident women are more likely than nonresident women to never drive alone to work (30.3 percent compared to 20.6 percent). Nonresident and resident women have similar rates of never carpooling, however (77.7 percent compared to 77.6 percent).

As a result, resident women regularly use bicycle, walk, vanpool and other (motorcycle and not otherwise classified) modes at greater rates than nonresident women. Travel by these less common modes, although low in numbers and percentages, reflects the proximity of at least some women to their inner city jobs. For commutes taken four or more days per week (Table 2), 960 resident women walk to work compared to 360 nonresident women. Moreover, bicycle use is over twice as high for resident women (20 women) as nonresident women (9 women). Some 41 nonresident women commuted by vanpool (0.2 percent), a mode choice that reflects their longer travel distances and involves four times the small number of women resident vanpool commuters.

When commute mode is identified by occupation, occupations with higher skills and education and presumably higher incomes show higher drive alone rates for both nonresident (Table 3) and resident women (Table 4). Women nonresidents in sales/service jobs, which often require irregular daily and weekly schedules, have the highest drive alone rate (75.6 percent). Nonresident women in manufacturing employment have the lowest drive alone rate (55.6 percent). Resident women have an even higher drive alone rate for professional/manager jobs (70.6 percent) and a lower rate for manufactur-

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ing jobs (47.6 percent). High carpooling rates complement low drive alone rates for manufacturing workers with a rate of 24.0 percent for nonresidents and 28.0 percent for residents.

Table 3
Women Inner City Nonresidents' Commute Mode by Occupation (a)

Occupation	N	Drive Alone	Carpool	Bus	Vanpool	Walk	Bicycle	Other (b)
Professional/Manager	6868	68.9%	11.5%	3.6%	0.2%	0.0%	0.0%	0.2%
Technical/Research	1325	65.8%	14.8%	4.8%	0.2%	0.2%	0.1%	0.4%
Sales/Service	1979	75.6%	9.0%	1.7%	0.2%	0.2%	0.0%	0.5%
Manufacturing/Production	583	55.6%	24.0%	4.5%	0.3%	2.1%	0.2%	2.1%
Skilled Crafts/Trades	287	61.3%	13.6%	2.8%	0.0%	0.0%	1.0%	0.3%
Clerical/Secretarial	6288	60.2%	18.2%	10.2%	0.2%	0.1%	0.0%	0.5%
Other	1530	64.4%	13.0%	4.1%	0.3%	0.3%	0.0%	0.8%
Column Totals	18860	12374	2688	1086	39	30	7	82

(a) Calculated as a percentage of trips taken four or more days a week

(b) Motorcycle and other responses

Resident women have higher rates of bus use than nonresidents, but this use varies by occupational category. Clerical/secretarial workers use the bus for 10.2 percent of trips while professional/manager and technical/research workers use the bus for 3.6 percent and 4.8 percent of their trips, respectively. The group that may be most dependent on use of a car during their jobs, sales/service, has the lowest bus use (1.7 percent). Professional/manager residents use the bus less than nonresident women in the same occupation. Inner city women in sales/service jobs take the bus more than nonresidents, perhaps because their jobs do not require the same mobility. Even women residents in clerical/secretarial occupations use the bus less than nonresident women in the same occupations, perhaps reflecting the frequency, location, and convenience of suburb-to-central city routes.

Table 4
Women Inner City Residents' Commute Mode by Occupation (a)

Occupation	N	Drive Alone	Carpool	Bus	Vanpool	Walk	Bicycle	Other (b)
Professional/Manager	564	70.6%	11.0%	1.4%	0.4%	1.2%	0.7%	1.8%
Technical/Research	140	64.3%	12.1%	3.6%	0.0%	2.9%	0.0%	0.7%
Sales/Service	301	61.5%	12.0%	3.7%	0.0%	5.0%	0.7%	4.0%
Manufacturing/Production	418	47.6%	28.0%	3.8%	0.7%	5.0%	0.7%	2.4%
Skilled Crafts/Trades	73	58.9%	15.1%	5.5%	0.0%	8.2%	1.4%	1.4%
Clerical/Secretarial	990	62.9%	16.8%	7.7%	0.2%	1.0%	0.4%	1.8%
Other	512	51.4%	13.5%	6.4%	0.4%	5.1%	0.8%	3.1%
Column Totals	2998	1801	478	153	9	89	18	68

(a) Calculated as a percentage of trips taken four or more days a week

(b) Motorcycle and other responses

Turning to commute distance and time, commuting distance is higher for high-skill and high-pay occupations for both women residents and nonresidents with some notable exceptions, especially for clerical/secretarial employees. Commuting times are similarly higher for high-skill and high-pay occupations for nonresident women, again with the exception of clerical/secretarial employees, but the travel times of resident women are harder to interpret.

Commuting distance and commuting time show similar patterns for women nonresidents (Table 5). High skill and presumably high pay occupations attract women from longer distances than low-skill, low-pay occupations. Mean one-way travel distance increases slightly from low skill to high skill occupations. Two exceptions are the manufacturing/production employees, who travel the longest distance (14.5 miles), and clerical/secretarial employees (13.0 miles). The category of other occupations (12.5 miles) has the lowest distance.

Travel times for nonresident women also increase from high skill to low skill occupations. Manufacturing/production (20.9 minutes) employees have the lowest one-way travel time, while professional/manager (28.1 minutes) and clerical/secretarial (28.2 minutes) travel times are the highest. The category of other occupations has a time (24.5 minutes) in the mid-range of all occupations. Clerical/secretarial travel time is high compared to the travel distance. Nonresident women in clerical/secretarial occupations appear to travel shorter distances but take longer to complete their commute trips.

These patterns are partially confirmed for the shorter distances traveled by women residents. High-skill and high-pay occupations held by women residents have generally longer travel distances than low-skill and low-pay occupations. Professional/manager (5.5 miles), technical/research (5.6 miles) are high as is clerical/secretarial (5.6 miles). Manufacturing/production (4.9 miles) and skilled crafts/trades (4.9 miles) are low. The category of other occupations has the lowest distance traveled (4.5 miles).

Table 5
Women's Mean Commuting Distance (One-Way) and Time (a)

Occupation	Miles Nonresident (n=16,461)	Miles Resident (n=2,546)	Minutes Nonresident (n=16,959)	Minutes Resident (n=2,641)
Professional/Manager	13.8	5.5	28.1	12.1
Technical/Research	13.4	5.6	27.2	13.4
Sales/Service	13.8	5.2	22.5	12.1
Manufacturing/Production	14.5	4.9	20.9	11.8
Skilled Crafts/Trades	12.8	4.9	22.4	13.9
Clerical/Secretarial	13.0	5.6	28.2	13.8
Other	12.5	4.5	24.5	11.9

(a) Means calculated to the 90th percentile

The travel times for women residents are somewhat more structured by occupation than by distance. Clerical/secretarial (13.8 minutes) and skilled crafts/trades (13.9 minutes) have the highest travel times. The high-skill, high-pay occupations of professional/manager (12.1 minutes) and technical/research (13.4) employees are in the middle of the time range. The lowest times are traveled by employees in the manufacturing/production (11.8 minutes) and other occupations categories (11.9 minutes).

In sum, travel times for women residents may be better explained by disaggregate analysis than this study's aggregate approach. Accessibility and bus service vary for different inner city employment districts and for individual worksites. The mix of women's occupations also varies at individual worksites. Women employees are also drawn from different parts of the inner city that range from the gentrified neighborhoods north of the central business district and the larger, but more distant poorer neighborhoods south of the Salt River. It appears that women with high-pay, high-skill occupations do not minimize their distance and time to work. This finding may reflect their ability to live in some of the more desirable neighborhoods within the inner city and travel to dispersed worksites. Conversely, manufacturing/production employees and those women in other nonclassified occupations have the shortest distances and times. This finding may show constraints on their ability and willingness to travel more widely rather than independent choices to work near home.

CONCLUSION

This aggregate analysis confirms that importance of the inner city as an employment destination for women in metropolitan Phoenix, Arizona. Over 85 percent of all inner city women employees commute from residential locations outside the inner city. Professional/manager employment is almost twice as common for nonresident women as for resident women. Clerical/secretarial employment attracts similar shares of both groups. These occupations are spread across public administration, health and professional services, and finance, insurance, and real estate sectors. Women's worksites are primarily gender-integrated (less than 70 percent of employees are either men or women) rather than dominated by male or female employees. Inner city residents are not widely distributed throughout individual worksites, however. Over 84 percent of all worksites and 64 percent of all inner city employees have no inner city residents in their labor force. For inner city Phoenix, these findings suggest a skills mismatch and possibly an English language mismatch that are at least partial explanations for the low percentage of women inner city employees who are inner city residents.

Certain travel issues emerge as indications of possible commuting patterns in other inner city communities. While the commute modes of nonresident women parallel the modes of women throughout the metropolitan area, resident women drive alone less, carpool slightly more, and use the bus about as much as nonresident women. Resident women use commute modes that do not require a personal vehicle (drive alone, carpool) more than nonresident women. In other cities, the level of parking fees required in the central business district, the concentration of metropolitan bus routes, and levels of carpool use will influence this trend as well as the low skill occupations and presumably lower pay of many women residents.

Similarly, high skill, high pay occupations in the inner city are associated with longer commute distance and travel times for nonresident women who are willing to travel for these employment opportunities. The reliance of these nonresident women commuters on driving alone is not surprising given the value of the available employment opportunities. Women in these same occupations who are inner city residents, however, do not always have shorter commutes in distance and time than women residents with less skilled occupations. In general, these high-skill, high-pay residents also have high drive alone rates and appear to be choosing the convenience of a personal automobile even when they live relatively near their employment. There are other possible explanations. Their residential neighborhoods may not be close to the location of dispersed professional/manager jobs or they may have before and after work responsibilities that make use of their own vehicle desirable. Their behavior confirms, however, that residential proximity to employment at the scale of the inner city does not always result in decreased dependence on the automobile.

Finally, low skill, low pay women employees appear to make their travel choices under constrained conditions. They live close to their workplaces. The link of low occupational status to low drive alone rates is clear for both women residents and nonresidents. Interestingly, women in both groups with manufacturing/production employment have low drive alone rates and high rates of carpool use. Moreover, both resident and nonresident clerical/secretarial employees have high rates of bus use. While bus service may benefit these women employees, the manufacturing/production employees appear to have few transit options available at the same time that they have limited access to personal vehicles.

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In conclusion, this study suggests that women's travel to inner city employment is strongly stratified by occupation and commute mode for both nonresident and resident women. While mobility may be less of a problem for high skill, high skill employees, travel to work is yet another challenge for low skill, low pay women who already face considerable challenges in identifying, obtaining, and retaining inner city employment. These findings suggest the value of expanded research to compare and contrast individual worksites for nonresident and resident women's commute mode, occupations, travel time, and distance. While these laborsheds can be examined, the commuting fields formed by women's travel from specific neighborhoods can show the residential origins of women workers by occupation, economic sector and commute mode. This aggregate study and future disaggregate studies will together present a more complete picture of the actual patterns and forces that underlie women's travel to inner city employment.

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