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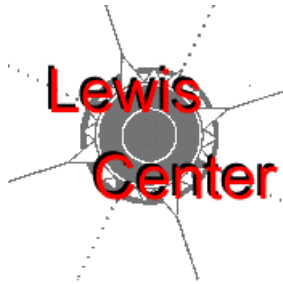
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***Job Access, Commute and Travel Burden
Among Welfare Recipients***

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INTRODUCTION

In recent years, the goal of U.S. welfare policy has shifted from one of income support to one of economic self-sufficiency; to accomplish this objective, current federal welfare programs have been restructured to move welfare recipients from welfare to work within a fixed period of time. In this context, numerous studies have examined the supply-side determinants of welfare usage -- the characteristics of recipients that influence welfare participation. Much less is known, however, about the barriers recipients face in finding and maintaining employment. A number of scholars assert that, among other obstacles to employment, welfare recipients face a spatial separation from jobs (Osterman, 1991; Rosenbaum and Popkin, 1991; Rosenbaum, 1995). The geographic distance between home and work makes job search difficult and imposes high commuting costs on low-wage workers who are least able to afford these expenses. It is unlikely, for example, that low-skilled workers will accept minimum-wage jobs that require round-trip commutes of 50 miles or more because the time and expense of commuting will significantly reduce or even exceed wages from employment. Hence, employment requiring long commutes is viable only if there are offsetting benefits, such as higher wages. Otherwise, nearby jobs would be the more desirable choice, and for some workers, the only viable economic option.

This paper examines the effects of geographic job access on commute distance among AFDC recipients and further whether labor markets generate a compensating variation in earnings to offset the burden of longer commutes. The empirical evidence to examine these two questions comes from a unique data source constructed by merging three administrative data sets. Based on a set of regression analyses, our study shows, first, that greater geographic access to jobs lowers commute distance and that, second, labor markets do not produce compensating wages for welfare recipients who have relatively long commutes. Both findings underscore the importance of job access in reducing welfare usage rates.

The remainder of this paper is organized into four parts. The subsequent two sections focus on the theoretical and methodological foundations of this study. Sections three and four examine the effects of geographic job access on commute distance and earnings. In the conclusion, we suggest policies in the areas of local economic development, transportation, and housing that would increase welfare recipients' access to low-wage jobs, lower commuting costs, and consequently improve the employment prospects of low-wage workers.

1. Job Access and the Work Commute

While many factors influence choices about where to live and work, we hypothesize that commute distance is shorter for working welfare recipients in neighborhoods with higher levels of access to skill-appropriate jobs. Several studies use indirect evidence to support the relationship between the

geographic access to jobs and improved employment opportunities among the poor. Research on the spatial-skills mismatch shows that as jobs requiring less education have disappeared from inner-city neighborhoods, minorities living in the central-city have experienced increased economic hardship; poor access to transportation, high suburban housing costs, and housing discrimination separate many inner-city, minority residents from jobs in the suburban periphery (Kasarda, 1990; Kain, 1992; Holzer, Ihlanfeldt, and Sjoquist, 1994, Wilson, 1996). While both insightful and indicative of broad mismatches between households and jobs, studies of the spatial-mismatch hypothesis often generalize unrealistically about the relative job richness of neighborhoods. Typically, central-city neighborhoods are characterized as job poor and suburban neighborhoods as necessarily job rich. However, neighborhoods -- both suburban and urban -- have varying access to employment.

With respect to welfare recipients, in particular, a number of studies show a relationship between job access and welfare usage rates. For example, using the census tract as the unit of analysis, Osterman (1991) finds that job-rich neighborhoods have lower welfare usage rates. However, his analysis is limited by the lack of a demand-side measure of jobs. Instead, Osterman uses the number of employed persons by place of residence as a proxy for the local economy; the obvious flaw to this approach is that most individuals do not work in the same neighborhood in which they live. Additionally, in the now famous Gautreaux Assisted Housing Program, researchers find that relocating participants from job-poor, inner-city neighborhoods to job-rich, suburban neighborhoods increases employment levels among welfare recipients (Rosenbaum and Popkin, 1991; Rosenbaum, 1995). Finally, using census-tract level data on welfare recipients, the total population, and the number of low-wage jobs, Ong and Blumenberg (1997) find lower welfare usage rates among the working-age population who live in job-rich neighborhoods. While this study uses a direct measure of jobs by employment site, it does not directly demonstrate that local residents find employment in nearby locations. Such an interpretation of their finding is reasonable but not conclusive; the positive relationship between job access and lower welfare usage rates could be the product of an ecological fallacy. In this study, we directly test and find evidence for the hypothesis that access to neighborhood jobs increases the likelihood that welfare recipients work closer to their homes.

A second question is whether the labor market generates compensating wages to offset the costs of longer commutes. Typically, job commute distance is positively correlated with earnings (Taylor and Ong, 1995). At first, this outcome appears puzzling since the opportunity cost of time is higher for better-paid workers relative to low-wage workers; in other words, since time is more valuable for high-wage workers, these workers would have greater incentive to choose residential locations and job sites that minimize their commutes. However, as the positive relationship between commute distance and earnings suggests, there are countervailing factors that result in longer commutes for high-wage relative to low-wage workers. First, higher-wage jobs tend to be more dispersed throughout the metropolitan area. Since skill acquisition raises the productivity of workers in a subset of jobs to which previous skills were applicable, jobs requiring higher skill levels require more extensive spatial searches (Simpson, 1992). Second, higher income leads to the desire for

more housing and land, the relative costs of which are significantly lower in the suburban fringe of metropolitan areas than in the central-city (Muth, 1969; Simpson, 1992). Higher-income households also seek residential amenities, such as high quality schools, low crime rates, and recreational facilities, all of which are more typical of newer suburbs than older, inner-city neighborhoods. Choosing to live in the urban periphery places these households further away from many job sites located in the central-city. Finally, higher-wage workers have access to better and more reliable transportation than lower-wage workers. A larger percentage of high-wage workers own cars and are more likely to drive to work alone, effectively lowering the opportunity costs of traveling to work by reducing commute time for any given distance (Taylor and Ong, 1995).

Moreover, the positive correlation between earnings and commute distance is not surprising because a well-functioning competitive labor market generates compensating variation in wages to offset non-pecuniary costs to workers, such as those related to higher occupational risk (Viscusi, 1992). However, it is not obvious that the same market forces are effective at the bottom end of the labor market where most AFDC recipients are located. Given the low level of education and skills of most welfare recipients, many are likely to receive wage offers at or near the legal minimum wage. The effective wage range for AFDC recipients is further restricted because the reservation wage is tied to AFDC benefit levels. Moreover, the AFDC labor force may not be sufficiently large enough to have any noticeable impact on the low-end of the labor market since the vast majority of the working poor are not welfare recipients. These institutional constraints then can weaken the ability of labor markets to generate compensating wages associated with longer commutes for AFDC recipients and, therefore, adversely affect their employment. The findings from our analysis are consistent with this latter hypothesis. Since the real net wage of recipients is reduced by the out-of-pocket and opportunity expenses related to commuting, long-distance commutes discourage employment and result in higher turnover rates and lower total earnings.

2. Data and Methodology

To test the two above hypotheses, we rely on a unique data set for the Los Angeles metropolitan area constructed from administrative records. The use of administrative data in welfare research is not new. For example, administrative data have been used to evaluate the impact of welfare reform measures on employment and earnings (Riccio et al., 1993). Similar to such previous studies, our data set includes information on the characteristics of recipients and the firms in which they find employment; the data set also includes the geographic location of recipients' residences as well as their employment sites. The California Employment Development Department (EDD) created an inventory of establishments by work site for 1992. We combine these data with a random sample of AFDC recipients who worked in 1992 based on data from California's Department of Social Services. Geographic information on the residential locations of welfare recipients is drawn from a data set created by the County of Los Angeles, the agency that administers the local AFDC

program. Finally, contextual information about recipients= immediate neighborhoods comes from the 1990 decennial census.

We use the EDD inventory of all establishments to estimate job access. An establishment is defined as an individual plant or store; multi-establishment firms have separate listings for each establishment. The data set includes information on total employment and the location of each job site by census tract. We focus on low-wage firms, defined as establishments in which the average quarterly earnings per employee fall in the bottom quartile (less than or equal to \$2,650 per quarter) of the distribution among all Los Angeles establishments. Welfare recipients generally do not have the skills and experience to qualify for most available jobs, and consequently are disproportionately concentrated in low-wage, low-skilled occupations (Harris, 1993; Brandon, 1995; Ong and Blumenberg, 1997). Establishments are then geocoded to a census tract using work site addresses. Job-access is calculated in a two step process. In the first step, we identify for census tract *i* all other census tracts whose centroids are within a three-mile radius; this process is done for all 1,642 tracts in Los Angeles County. Given the premise that welfare recipients are less likely to find jobs the further these jobs are located from their homes, census tracts within one mile are weighted by one; for census tracts beyond one mile, the jobs are weighted by one divided by the square of the distance between the two centroids. Finally, since the relevant measure of job access is the number of available jobs relative to the potential labor supply, we divide the weighted number of jobs by the number of working-age adults in the census tract.

Figure 1 on page 21 depicts the relative job richness of census tracts throughout Los Angeles and shows, not surprisingly, that employment in Los Angeles is not characterized by a simple monocentric pattern. The dark areas represent the job richest census tracts; the highest concentration of jobs is in downtown (the approximate center of the map) and along what is known as the Wilshire Corridor, the major boulevard that extends from downtown through Beverly Hills, West Los Angeles, Santa Monica, and terminates at the coast. Other job-rich Los Angeles neighborhoods include areas to the far south of downtown, such as the Los Angeles Port (at the bottom of the map). The white-colored census tracts show those areas in which job access is relatively poor. These include neighborhoods in the urban periphery as well as census tracts in South Central Los Angeles, the predominantly Black and Hispanic areas south and east of downtown.

The 1992 sample of AFDC recipients is based on administrative records from California=s Department of Social Services, which include information on age, sex, aid type, and racial/ethnic group.¹ The data set also includes employment and earnings data that were collected by the State=s Employment Development Department through the unemployment insurance and disability insurance programs. These data are collected quarterly and include information on employers and total quarterly earnings. For this study, we use recipients who had worked any time during the second quarter of 1992. For those with more than one job, we chose the job from which welfare recipients had the highest earnings. The residential locations of these recipients are based on geocoded information generated by the County of Los Angeles, which provides the residential location of each recipient by census tract.

Commute distance is calculated by first matching the recipient records to the data on firms. For each match, we use the centroids of the census tract of a person=s place of residence and employment to estimate the commute distance between home and work. However, for some multi-establishment firms, there is not a perfect, one-to-one match between all workers and establishments; the common index by which we merge the two data sets is the firm=s identification number, which is the same for both main and branch operations. In these instances, there are many-to-one (establishment-to-worker) matches. When this occurs, in approximately two percent of the sample, we use the match that yields the shortest distance; in a subsequent test of our model, we exclude those cases in which the match is not exact. Finally, data on population density and ethnic composition are from the STF3a files of the 1990 U.S. Census.

3. Commuting and Job Access

Table 1 provides an overview of commute patterns by our job access variable. For all observations, the median commute distance is 7.5 miles, which is considerably shorter than the average commute distance for all Los Angeles workers of 16 miles (Commuter Transportation Services, Inc., 1993). The substantially shorter commute distance of welfare recipients demonstrates the severe geographic constraints that they face. If welfare recipients have equal job access in all directions, then, on average, they would be confined to labor-market areas that are one-quarter the size of the labor-market areas available to the entire Los Angeles labor force.² The data summarized in Table 1 show that AFDC recipients who reside in job-rich neighborhoods are more likely to work within two or four miles of home and have shorter commutes than recipients who live in job-poor neighborhoods, although the differences are not large. The largest difference is approximately five percentage points and 1.6 miles. The relatively small differences

Table 1. Commute Patterns by Job Access

Job Richness	Job Index	Number of Observations	% Traveling No More than 2 Miles	% Traveling No More than 4 Miles	Median Distance
Job Rich	0.0-0.5	626	13.7%	28.0%	8.0
	0.5-1.0	1,082	14.0%	26.9%	7.7
	1.0-1.5	420	14.3%	32.9%	6.4
	1.5+	460	15.4%	30.2%	6.9
All Tracts	(0.0+)	2,588	14.3%	28.7%	7.5

may be due, in part, to the effect of greater job access on keeping the poor off welfare (Ong and Blumenberg, 1997). In other words, these neighborhoods are likely to house many working poor who do not receive welfare and have short commutes. This would, in turn, create a sample selection bias that would lead to an underestimation of the impact of job-rich neighborhoods on minimizing both commute distance and the probability of working nearby. A second curious pattern is the slight increase in the median miles for those living in the most job-rich areas. This finding may be the result of the correlation between job access and some other variable that may make it easier for workers to commute further; for example, there may be a relationship between the job richness of neighborhoods and better access to public transportation.

In order to determine if commute distance is statistically and independently related to job access, we use a linear regression model,

$$\text{Commute Distance}_i = \text{Constant} + AX_i + BY_i + e_i$$

where the dependent variable, commute distance, is the estimated centroid-to-centroid distance between the homes of welfare recipients and their work sites. Clearly, using centroid-to-centroid distance introduces an error, which is assumed to be an unbiased component of the stochastic term (e_i). This type of error would not bias the estimated parameters but would increase the size of the unexplained variance.³ The independent variables fall into two categories. Personal characteristics are represented by X_i , a vector of personal variables, with A a vector of estimated coefficients. Neighborhood characteristics are represented by Y_i , a vector of variables, with B as a vector of estimated coefficients.

The selection of personal characteristics is guided by previous research on the determinants of commute distance among the total labor force; however, these factors may operate differently among AFDC recipients. The analysis also is affected by the limitations of the data sets themselves. Race and ethnicity dummy variables are included to capture any systematic inter-racial group differences.

We use three dummy variables denoting membership in a minority group (Black, Latino, and Asian); the non-Hispanic white category serves as the excluded racial group. Among the total labor force, commute differences by race can be explained largely by racial variations in transportation modes. For example, African Americans are more transit dependent than non-Hispanic white commuters; they disproportionately rely on buses and trains which are generally more time consuming than automobile travel. Consequently, African Americans commute shorter distances than non-Hispanic whites do and, therefore, are more geographically constrained. Racial differences in travel mode nearly disappear, however, after controlling for differences in travel mode (Taylor and Ong, 1995). We do not have data on travel mode for our sample, but the literature indicates that most AFDC recipients depend on public transportation (Ong, 1996). Because of the higher levels of transit use among AFDC recipients, racial differences in commute distance due to unobserved differences in travel mode are likely negligible.

The literature also reveals considerable sex differences in commuting, with male commuters traveling longer distances than females commuters. As of 1990, women's average commute

distance in urbanized area households was 8.1 miles, 77 percent of men=s commute distance (U.S. Department of Transportation, 1994:3-14). Explanations for this difference center on the lower earnings of women relative to men (Hanson and Johnston, 1985), the spatial distribution of employment opportunities (Hanson and Johnston, 1985), and the gendered division of household labor (Madden, 1981; Turner and Niemeier, n.d.). Women, on average, are concentrated in low-wage, low-status occupations; this pattern is exaggerated among welfare recipients. Women=s low earnings make long-distance commutes too expensive and consequently decrease the potential number of jobs available to them. Moreover, despite rising female labor force participation rates, women still bear disproportionate responsibility for household duties (Hochschild, 1989; Shelton, 1992). The argument follows that women face greater time constraints than men do since they must balance household duties *and* paid employment; therefore, they ultimately choose work sites that minimize their commutes (Turner and Niemeier, n.d).

The age of a worker also affects commute distance. Among both low-skilled and high-skilled workers, commute distance increases with age although at a declining rate (Taylor and Ong, 1995). This positive relationship between age and commute distance reflects increasing marketable skills over the course of a lifetime; increasing skills, in turn, expand the geographic size of the area in which employees search for work. Moreover, younger workers may be more geographically constrained by other activities, such as attending school; they also may have more limited access to good transportation, such as a reliable automobile. In our regression, we include both AGE and the square value of AGE. The latter is included to capture non-linear effects and is scaled by a factor of 1/100.

We include three neighborhood characteristics in the models -- job access, population density, and employment density. Since studies show that access to nearby jobs increases recipients= probability of working, we would expect commute distance to be negatively associated with job access. In other words, improved access to neighborhood jobs would increase the likelihood that recipients will work in these local jobs and, therefore, have short commutes. To test for the non-linear effects of job access, we also include the squared value of the job access variable that is scaled by a factor of 1/100. The second neighborhood characteristic included in the model is population density, the number of all people per square mile in the immediate census tract. Commute distance tends to decline in neighborhoods in which population density is high because local employers have high levels of access to nearby labor. Conversely, low population density is typical of suburban areas where land use is characterized by more dispersed residential and employment patterns.

The third neighborhood variable included in the model is the employment density in the immediate census tract; this variable represents access to public transportation and other transportation-related infrastructure since investments in infrastructure are more prevalent in major employment centers than in areas with lower employment density. The employment density variable differs from the job access variable in that job access is based on a three-mile radius area, while employment density is based on jobs in the immediate census tract. Moreover, job access is based on jobs in low-wage establishments, while employment density is based on jobs in all establishments. And finally job

access is normalized by the number of working-age adults in the immediate census tract, while employment density is normalized by the geographic size of the census tract.

The results of the regression analysis and the means of the independent variables are included in Table 2. Model 1 contains the results of our primary regression. The adjusted r-square is low, .024, but is consistent with other travel distance models. Many, but not all, of the independent variables operate as predicted. The number of total jobs increases commute distance. This finding supports the hypothesis that neighborhoods with agglomerations of employment provide greater access to public transportation enabling residents to commute longer distances to work. Conversely, and as predicted, population density decreases commute distance.

While the sign for the coefficient for the variable Amale@ is positive, as predicted, the estimated parameter is not statistically significant; this finding contrasts those of other empirical studies that show a significant difference in the commuting behavior of women and men. This variable may not be statistically significant because recipients, regardless of their sex, have limited employment skills and earn low wages. Additionally, the relationship between the commute distance and age of welfare recipients differs from what might be predicted for the total labor force. The literature on commuting indicates that commute distance should increase with age as workers accrue more labor market experience and achieve greater occupational status. The models here show the reverse relationship; older welfare recipients commute shorter distances. Perhaps the increased maturity and labor market experience of older recipients make them more competitive for desirable, nearby jobs.

The models also show noticeable racial differences in commute distance. Asians have the shortest average commute distance of the three racial/ethnic groups included in the model. This finding may reflect the experience of immigrants living in ethnic enclaves that serve as both residential communities and places of employment (Ong et al., 1993). The average commute for Blacks is not statistically different from that for non-Hispanic whites, the excluded group in the regression. Conversely, Latinos have, on average, the longest commute. These racial/ethnic differences remain even after holding other variables constant. In other words, independent of other neighborhood and personal characteristics, being Latino increases commute distance while being Asian decreases commute distance.

Table 2. Regression Results: Determinants of Commute Distances

		Model #1	Model #2	Model #3
Independent Variables	Mean for All Observations	All Observations with Point-to-Point Distance	All Observations with Rectangular Distance	Observations with One-to-One Match
Constant		10.154***	18.956***	15.134***
Job Access Index	1.049	-0.966***	-1.415***	-0.989***
Job Access Squared/100	0.020	7.891*	11.671*	8.027*
Population Density	5.352	-0.113**	-0.136**	-0.113**
Employment Density	1.673	0.094***	0.1376**	0.092***
Males	0.178	0.247	0.293	0.185
Age	31.4	-0.242**	-.288**	-.289**
Age Squared/100	10.6	0.287*	.336*	0.284*
Blacks	0.294	0.117	-0.010	0.142
Latinos	0.412	0.901**	1.149**	0.884**
Asians	0.090	-2.161***	-2.953***	-2.174***
R ²		0.0248	0.0283	0.0253
N=	2,588	2,588	2,588	2,548

***p<.001 **p<.01 *p<.05

Both our job access variable and its squared value are statistically significant; their combined value indicates that increasing job access shortens commute distance, with the influence diminishing in importance for high values of job access. The first derivative of the equation relative to job access ($d[\text{commute distance}]/d[\text{job access}]$) shows that this negative relationship holds for the range from 0.0 to 6.1 for the job access variable, which contains over 99 percent of the observations.⁴ Using the estimated coefficients from the main regression, we would expect that increasing job access from the 10th percentile (.35) to the 90th percentile (2.00) would decrease commute distance by 1.3 miles. The relationship between job access and commute distance is quite robust. In addition to the primary regression (Model 1), we explored a number of other models that incorporate alternate variables. First, we tested the effects of varying the way in which distance, the dependent variable, is measured; the results from this analysis are reported in Model 2. Los Angeles streets are based largely on a grid street system, which makes the centroid-to-centroid measure of commute distance

problematic. Generally, commuters do not drive in a straight line from home to work. As an alternative measure, we also calculate a rectangular distance using the sum of the north-south and east-west distances. Although the size of the coefficient for the job access variable and its squared value change because rectangular distance is, on average, longer than point-to-point distance, the qualitative results do not change; greater job access decreases job commute even with this alternative measure. We also tested our model using a sub-sample of the total number of observations. As mentioned previously, in the case of multi-establishment firms, we match employment sites to recipients using the match with the shortest commute distance; this process introduces a downward bias to our results. Therefore, we conducted an additional analysis using a sample with only one-to-one matches (Model 3). The results, reported in the final column of Table 2, show that the estimated coefficients are very close to those for the full sample.

To test the robustness of the job access variable, we re-ran the models excluding first total jobs and then population density, although we did not include the results in Table 2. In both cases, the job access variable remains negative and is statistically significant. When the employment density variable is included in the model without the population density variable, the coefficient for employment density is roughly the same as that in Model 1; the coefficients on the job access variables are slightly higher but in the same range as those in Model 1. Similarly, when the population density variable is included without the employment density variable, the coefficient for population density is slightly smaller than that in Model 1 but still statistically significant; the coefficients on the job access variables are slightly lower but not statistically different from those in Model 1. Moreover, dropping both of these neighborhood variables simultaneously has little effect on the estimated coefficients for commute distance. In this test, the coefficient for job access was -0.997 , with a t-value of 3.271 , and for the square of job access the coefficient was 8.394 , with a t-value of 1.795 . In other words, our measures of access to low-wage jobs operate independently of population and employment density.

As a final test of the role of job access, we estimated several logit regressions with the dichotomous dependent variable denoting whether an individual worked within two, three, four, five, six, or seven miles of his or her residence. The independent variables are the same ones used in the linear regressions but we used only job access and eliminated the square value of job access since the logit model is non-linear. The coefficients for job access in all six models are all statistically significant, with p values ranging from $.045$ to $.002$. For the three-mile distance model, the associated odds ratio for job access is 1.16 . This figure indicates that recipients who live in job-rich neighborhoods (defined here as the job access index at the 90th percentile) have a 16 percent higher probability of working nearby compared to those in job-poor neighborhoods (defined here as the job access index at the 10th percentile).

4. Earnings and Job Access

The theoretical literature on earnings and commute distance leads to a plausible hypothesis that labor markets compensate workers for greater commute burdens. We test this hypothesis by using quarterly earnings information included in our data set. These data cover earnings from all firms that

are enrolled in California's unemployment and disability insurance programs and include over 95 percent of all workers in the private sector. The data do not include, however, complete information on earnings in the public sector since some employment in that sector is exempt. Our initial analysis of the data does not show that AFDC recipients receive compensation for relatively long commutes. In fact, the opposite appears to be the case. The median earnings for welfare recipients who work within four miles of their homes is \$634; median earnings among welfare recipients who work between four and ten miles from home is \$620; and recipients who commute over ten miles earn only \$433. These figures are more consistent with the alternative hypothesis that longer commutes tend to increase turnover rates among employees and, therefore, lower earnings.⁵

Commute distance, however, is correlated with personal characteristics that also influence earnings. The following linear regression is used to determine if commute distance has a negative effect on the log of earnings:

$$\text{Log of Earnings}_i = \text{Constant} + a * \text{Distance} + A X_i + B Y_i + e_i$$

The dependent variable, the log of quarterly earnings, is consistent with general human-capital earnings models. Commute distance is the estimated centroid-to-centroid distance used in the previous analysis. The remaining independent variables fall into two categories. Individual characteristics are represented by X_i , a vector of personal variables, with A a vector of estimated coefficients. Firm characteristics are represented by Y_i , also a vector of variables, with B as a vector of estimated coefficients.

Personal characteristics include age, sex, and race. Age is a proxy for labor market experience; in general, as individuals age, their earnings increase (Killingsworth, 1983). The sex and race variables measure systematic differences in the employment opportunities of women and particular racial groups; they also measure other unobserved group-specific characteristics. Based on previous studies that examine the determinants of gender and racial earnings inequality, we would expect that men would, on average, earn more than women (Goldin, 1990) and that non-Hispanic white workers would earn more than all other racial groups (Sandefur and Pahari, 1989; Verdugo, 1992).

The data set used in this analysis combines information on individual welfare recipients with characteristics of their places of employment, including industrial sector, firm size, and firm payroll. A large majority (78%) of all working welfare recipients are employed in either the trade or service sectors. A more detailed distribution of welfare recipients shows that close to 40 percent of all welfare recipients work either in the retail trades or in personnel supply services, another term for temporary agencies. Since employment in restaurants, department stores, temporary agencies and schools is largely characterized by high turnover, short-term assignments, and limited hours, employment in these sectors should negatively affect welfare recipients' earnings. Welfare recipients who find jobs in schools, for example, largely work as classroom and cafeteria aides, occupations which have high turnover rates (Henly, 1996). Firm size should be positively correlated with earnings since large establishments generally provide more stable employment, are more highly unionized, or have more systematic employment practices -- firm characteristics that are associated

with greater opportunities for upward mobility (Doeringer and Piore, 1971; Rebitzer, 1986; Villemez and Bridges, 1988). Finally, firm wage also should be positively correlated with earnings since welfare recipients should receive some of the earnings benefits of working in relatively higher-waged firms.

The results are reported in Table 3. Firm size and firm wage have contrary effects on recipients=earnings. Firm wages are positively correlated with earnings. In other words, welfare recipients earn more when they work in firms that have relatively high wages. In contrast, firm size has a negative effect on recipients=earnings. This finding suggests that perhaps low-wage labor markets function differently from labor markets in general. Evidence shows that avenues for occupational advancement and improved earnings in large firms have been declining over time (Harrison and Bluestone, 1988; DiPrete, 1993). Deteriorating economic opportunities among employees in large firms may be particularly apparent among low-skilled workers, a subset of whom are welfare recipients. Finally, with one exception, employment in the industrial sectors, in which welfare recipients typically find jobs, is negatively related to earnings. The coefficient on employment in department stores is negative but not statistically significant.

With respect to individual characteristics, there are some surprising findings. First, while the relationship between earnings and male recipients is positive, the relationship is not statistically significant. Second, the relationship between earnings and the three racial/ethnic groups is positive, although this relationship is not statistically significant for Latinos. This finding may indicate a sample selection bias. Since the non-white poor face greater obstacles to employment than the white poor, they may more easily find themselves on welfare. Therefore, non-white recipients may have more human capital -- education and training -- than white workers and, as a result, secure higher earnings once they are able to find employment. Both of these findings suggest, once again, that low-income labor markets function differently than the labor market as a whole.⁶ Finally, the variable age operates as predicted; older welfare recipients earn higher earnings based on their increased labor market experience. Moreover, older recipients are less likely to have young children present in the household thereby reducing the negative effect of domestic responsibilities -- especially for time-intensive infants and toddlers -- on their employment.

Table 3. Regression Results: Determinants of Log of Earnings

Independent Variables	Mean for all Observations	All Observations with Point-to-Point Distance	All Observations with Rectangular Distance	Observations with One-to-One Match
Constant		5.822***	5.830***	5.800***
Distance/10	0.949	-0.076**	-0.066**	-0.074*
Firm Wage	4.890	0.050***	0.050***	0.049***
Firm Wage Squared	0.568	-0.024***	-0.034***	-0.023***
Firm Size/10	2.975	-0.022***	-0.023***	-0.022***
Firm Size Squared	0.120	0.199***	0.199***	0.198***
Restaurant	0.078	-0.586***	-0.587***	-0.579***
Department Store	0.055	-0.188	-0.188	-0.185
Temporary Agency	0.185	-0.789***	-0.795***	-0.796***
School	0.063	-.808***	-0.811***	-0.798***
Male	0.178	0.068	0.068	0.083
Black	0.294	0.264***	0.263***	0.278***
Latino	0.412	0.121	0.121	0.132*
Other	0.090	0.262**	0.259**	0.264**
Age/10	31.4	0.084**	0.084***	0.087***
R ²		0.0992	0.0995	0.1053
N=	2,588	2,588	2,588	2,548

***p<.001 **p<.01 *p<.05

Geographic distance between home and work is negatively related to earnings. In other words, longer commute distances result in lower earnings. Similar to the commute distance models, we tested two alternative models. Model 2 uses a distance measure based on rectangular distance; and Model 3 incorporates observations that form a one-to-one match between recipients and work sites. As Table 3 shows, the results are quite similar across the three models.

One of the limitations of the above analysis, however, is that the effect of job access on hourly wages cannot be separated from the effect of job access on employment. We cannot, therefore, use the empirical results to reject directly the hypothesis that there is a compensating wage for longer

commutes. However, if the hypothesis is true, then the empirical results would indicate a stronger adverse effect of long commutes on hours worked. Consider the following simplified linear specification,

$$E (= w \cdot h) = \text{Constant} + a_w D + a_h D$$

where E, earnings which are equal to hourly wages (w) multiplied by the number of hours worked (h), is a function of a constant and a wage-specific effect of commute distance ($a_w D$) and the employment-specific effect of commute distance ($a_h D$). What we observe in the regression analyses reported in Table 3 is:

$$E = \text{constant} + \hat{a} D$$

where $\hat{a} = a_w + a_h$ and $\hat{a} < 0$.

If employers do not compensate long-distance travelers by offering higher wages, then $a_w = 0$ and $\hat{a} = a_h$. In this case, the adverse impact of longer commute distances is due to fewer hours worked.

If, as the hypothesis asserts, there is a compensating wage for longer commute distances, then $a_w > 0$. This implies that $a_w < \hat{a}$ and that the decrease in the number of hours worked is greater than the seven to eight percent (for ten additional miles) indicated by the estimated coefficient. Moreover, the results demonstrate that any wage compensation is more than offset by fewer hours. In other words, the hypothesized but unobserved compensation is not sufficient to induce recipients to remain employed at distant work sites.

5. Conclusion: Jobs, Mobility, and the Poor

This study underscores the roles of job access and spatial mobility in improving the employment opportunities of welfare recipients. The first set of models shows that welfare recipients who live in job-rich neighborhoods are more likely to find work in close proximity to their homes than recipients who live in job-poor neighborhoods. The job distance models reported here emphasize the importance of creating employment opportunities in neighborhoods where jobs are scarce. The second set of models shows that labor markets do not generate compensating wages for welfare recipients who travel far distances to work; wages are *negatively* associated with distance. The two sets of findings, taken together, reveal that better geographic job access has both direct and indirect effects on recipients. Improved geographic access to jobs directly affects recipients by lowering their commute distances thus reducing the out-of-pocket expenses and the opportunity costs associated with traveling to work. Additionally, since the labor market does not produce compensating wages for long-distance commuting, improved access to jobs indirectly affects recipients through increased earnings. The empirical findings speak to the importance of increasing job access through local economic development and by improving mobility -- both housing mobility and transportation mobility -- among the poor.

Local economic development programs are intended to increase the economic opportunities in areas of concentrated poverty. These programs have included financial incentives, regulatory relief, and social services targeted toward preserving, attracting, and/or creating jobs to revitalize poor

neighborhoods (Eisinger, 1988). The evidence on the effects of local economic development programs varies depending on the type of program as well as the measures used to evaluate these programs. However, even if some programs are found to be effective, the scale at which they would have to be implemented in order to significantly improve job access for the central-city poor would be beyond the level of current support for local economic development at the federal, state, or local levels. Moreover, even if urban planners or policy makers *could* redistribute firms throughout the metropolitan area, a completely equal distribution of firms across all urban neighborhoods would be virtually impossible and economically undesirable. Even in the most job-rich neighborhoods in Los Angeles, a substantial number of AFDC recipients work in establishments which are far from home. It is unrealistic therefore to expect that we can eliminate the need for many recipients to travel some distance to work, although improved economic development can lighten the burden for many.

Job access can be improved by enabling the poor to easily travel to work sites distant from their homes. Studies show that car ownership is a significant factor in improving the employment status of welfare recipients. Current welfare regulations prohibit individuals from receiving welfare benefits if they own cars with values over \$1,500; these regulations could be altered to allow recipients to own reliable automobiles and therefore more easily find and commute to jobs (Ong, 1996). Since employers do not compensate welfare recipients for long-distance commutes, special programs to ease these commutes could help welfare recipients keep jobs that are located far from their homes. Programs have been established to connect inner-city residents to particular suburban employers -- the use of extended transit service, vanpools, or rideshare programs to enhance travel to job-rich, suburban destinations, and support services, such as a guaranteed ride home to attend to household emergencies or flexible child care hours to support extended work days (Hughes, 1995). There have been a number of special programs to address what has become known as Areverse commuting, @ commutes from the central-city to the suburbs; these have had limited effects on the economic opportunities of inner-city residents (Hughes, 1995).⁷

The transportation needs of the urban poor would be aided even more by restructuring inherently regressive public transit subsidies and fare structures. In many metropolitan areas, such as Los Angeles, regional transportation planners have developed services to lure higher income, largely white commuters out of their cars and onto public transit at the expense of their predominantly low-income, non-white public transit ridership. In Los Angeles, for example, the Metropolitan Transit Authority has shifted resources from buses to build a regional rail system. This funding strategy disproportionately benefits higher-income patrons who comprise a larger percentage of riders on rail compared to bus (Hodge, 1995). Moreover, a flat fare -- a fee structure that charges patrons the same amount whether they travel five blocks or five miles -- also hurts low-income riders who, on average, take shorter trips than higher-income patrons commuting from distant suburbs to the central business district (Cervero and Wachs, 1982; Cervero, 1990).

Finally, efforts to increase housing mobility enable the poor to find homes outside of traditionally low-income, central-city neighborhoods and potentially offer improved access to housing in job-rich neighborhoods (Hughes, 1995; Williams, 1995). The most prominent example of this strategy is the Gautreaux Assisted Housing Program in Chicago in which African-American families receive assistance to move from public, central-city housing to housing in suburban, white neighborhoods

(Rosenbaum and Popkin, 1991; Rosenbaum, 1995). Housing mobility programs have been adopted by a number of other cities including Cincinnati, Memphis, Dallas, Hartford, Yonkers, and Omaha (Williams, 1995). However, moves out of the inner-city to the suburban periphery do not necessarily signify an increase in nearby job opportunities; some suburban neighborhoods are also job poor. Moreover, not all urban residents can live in job-rich neighborhoods; currently, there are simply not enough jobs to make all neighborhoods job rich.⁸ The distribution of the total Los Angeles labor force across census tracts of varying job richness is not significantly different from the distribution of welfare recipients. However, in that housing programs allow low-income households greater housing choices, they will enable some welfare recipients to find housing in areas with ample employment opportunities. Evidence from this study shows, therefore, that those households who move to job-rich areas will likely work in jobs close to their homes.

While none of the three policy areas -- housing mobility, community economic development, and transportation -- is a panacea to the mismatch between low-income individuals and jobs, each has the potential to improve job access among the poor. Improving geographic job access among those in poverty must be used as one policy strategy, among others, to lower reliance on public welfare programs and ultimately to promote economic mobility among the poor.

r. This figure is an estimate and may be biased upward as commutes are more likely toward the central business district than in other directions.

2.

.. Additionally, the sample only contains those welfare recipients who were employed in 1992. The exclusion of welfare recipients who are unable to find jobs may create a sample selection bias in estimating the impact of job access on welfare recipients. The standard adjustment for this selection bias would include determining the inverse Mills-ratio from a probit model predicting the effect of job access on the probability that welfare recipients find employment. Theoretically, the inclusion of the inverse Mills-ratio in the commute distance and earnings models would adjust for any selection bias. Unfortunately, the data are not available to conduct this analysis. First, we do not have the exogenous variables needed to fully model the employment probability of welfare recipients; an incomplete model here could bias our second stage estimates. Secondly, given the way our sample was drawn, it is impossible to create a parallel sample of welfare recipients who have no employment history.

3.

y setting $(d[\text{commute distance}]/d[\text{job access}]) = 0$ and then calculating the value for job access. This value is the point at which the slope of the curve changes from negative to positive. A model using only the linear term for job access produces a negative and highly statistically significant coefficient.

4.

recipients live in neighborhoods in which the demand for low-wage jobs outweighs the supply of working-age adults, competition for low-wage workers may increase local wages and, consequently, result in shorter commutes and higher wages. This interpretation is consistent with our basic argument that shorter commutes and greater job access improve earnings. However, intra-urban variation in wages depends on the extent to which very localized labor markets are segmented or isolated from competition from workers in other nearby neighborhoods. We are not able to determine the degree to which the competition for low-wage jobs is limited to neighborhood-sized labor markets. If welfare recipients live in neighborhoods in which the demand for low-wage jobs outweighs the supply of working-age adults, competition for low-wage workers may increase local wages and, consequently, result in shorter commutes and higher wages. This interpretation is consistent with our basic argument that shorter commutes and greater job access improve earnings. However, intra-urban variation in wages depends on the extent to which very localized labor markets are segmented or isolated from competition from workers in other nearby neighborhoods. We are not able to determine the degree to which the competition for low-wage jobs is limited to neighborhood-sized labor markets.

⁵-change the relationships between the independent variables and earnings.

⁶ demonstrations of programs to address the more complex mobility needs of the urban poor.

If low-wage employers cannot fill job openings, they may substitute other factors of production or other sources of labor for low-wage workers.

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