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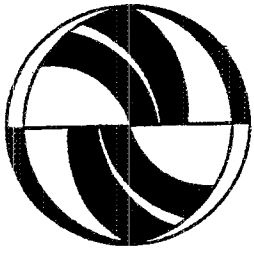
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Car Access and Welfare-to-Work

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The University of California Transportation Center
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CAR ACCESS AND WELFARE-TO-WORK¹

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INTRODUCTION

This paper examines the role of car access (including but not limited to car ownership) in facilitating employment among recipients under the current welfare-to-work law. In 1996, Congress enacted the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), which dramatically altered this nation's social policy. TANF (Temporary Assistance to Needy Families) replaced the old AFDC (Aid to Families with Dependent Children) program, but the transformation went well beyond renaming the welfare system. Instead of providing an entitlement, the legislation's goals are ending welfare dependency and

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promoting economic self-sufficiency through employment. New regulations limit cash support, place a time limit on benefits, mandate strong work requirements, and delegate the implementation to the states and local agencies. As a result of these reforms, hundreds of thousands of recipients are entering the labor market, but their ability to find a job remains unanswered. Successful restructuring of the welfare system requires implementing agencies to eliminate as many barriers as possible. Many recipients are severely disadvantaged by limited education and work experience, but the obstacles are not confined just to human-capital deficiencies. Moreover, time limits have shifted strategies from training and schooling to placing individuals in a job as quickly as possible.

With this shift to a jobs-first approach, tackling transportation barriers has emerged as a top priority. A 1996 survey of California recipients reveals that transportation problems are among the top six barriers to employment (Blumenberg and Ong, 1999). The priorities have changed because the new “jobs-first” strategy precludes extensive skill training and schooling. Among the immediate barriers, inadequate transportation is a close second only behind inadequate childcare. Providers are keenly aware of this. A 1999 RAND survey reports that about nine-tenths of county welfare administrators in California stated that transportation problems hinder the implementation of welfare reform (Ebener, 1999). Interestingly, more administrators pointed to transportation than to an inadequate supply of better jobs or a high local unemployment rate. In other words, the problem during this current economic expansion is physically getting recipients to available jobs.

At the heart of the transportation problem is the fact that many employment opportunities are located at considerable distance away from where recipients reside. Many on welfare are

trapped in the inner-city, spatially isolated from the expanding number of suburbanized jobs and poorly qualified for many of the jobs remaining in the central business districts (Kasarda, 1980; Kain, 1992; Coulton and Bania, 1997; Bania, Coulton and Leete, 1999, Rich, 1999). Job search requires traveling extensively because firms tend to avoid recruiting in low-income, minority neighborhoods (Kirschenman and Neckerman, 1991). The scarcity of opportunities forces most recipients to find work miles away from home (Ong and Blumenberg, 1998). Of course, not all welfare recipients reside in job-scarce, inner-city neighborhoods, but even in job-rich neighborhoods, most welfare recipients find employment outside their immediate community (Blumenberg and Ong, 1998; Ong and Blumenberg, 1998)

Working outside one's immediate neighborhood is not unique to welfare recipients but is a fact of life for the vast majority of workers. Nationally, the average one-way work commute reported in the 1995 National Transportation Survey is 12 miles 20 minutes by automobile and 13 miles and 42 minutes by public transit (Hu and Young, 1999, p. 42). This travel-to-work pattern is embedded in a sprawling, urban structure built on the availability of automobiles. Solo travel by car is the most widely used means to get to work, accounting for 80 percent of all work trips. Another 11 percent are in a carpool. Even among the working poor, 84 percent travel by private vehicle to work, and, furthermore, 83 percent of working single parents do the same (Murakami and Young, 1997). On the other hand, relying on public transportation is not only outside the norm but also seriously restricts employment opportunities, particularly for minorities (Taylor and Ong, 1995).

One logical solution to the transportation problems facing recipients is to improve public transit, but focusing solely on public transit is unwise in our automobile-oriented society.

Pursuing a car-oriented solution rests on the assumption that access to a car would greatly enhance the ability of a welfare recipient to make the transition from welfare to work. A private automobile would enable them to conduct a geographically broader job-search, accept employment offers farther away from home, improve work attendance, and minimize the commute burden. In other words, the empirically testable hypothesis is that the employment status of recipients is casually related to car ownership.

Studies of pre-welfare-reform recipients find that employment is correlated with car ownership. In one study, employment rates were 14 percentage points higher for those with a car than those without one, and after controlling for other causal factors (e.g., age, education, years on welfare, etc.), the rate decreased only slightly to 12 percentage points (Ong, 1996). In another study, recipients with a car were nearly ten times more likely to find a job and leave welfare than those without a car (Cervero, Sandoval and Landis, 1999). The correlation can also be seen in the other direction. Among those receiving welfare, the average number of vehicle for a family with at least one working member is three times larger than the average number of vehicles for a family without a working member (Passero, 1996). Being able to state the car-employment relationship in these two alternative forms reveals the difficulty in distinguishing correlation from causality. An interesting study uses instrumental variables for car ownership to address a potential endogeneity problem and finds that car ownership has an independent and sizeable impact on employment (Rapheal and Rice, 2000); however, there are questions about the validity of the instrumental variables.

Using an AFDC (pre-welfare reform) population to determine the impact of car ownership presents a major problem. Given the radical changes imposed by PRWORA,

particularly the emphasis on jobs-first and time limits, it is uncertain that the earlier findings can be extrapolated to current welfare recipients. Conditions are now different because there is enormous pressure to find a job, regardless of car ownership. Work is no longer a non-mandatory alternative to benefits. Instead earnings must replace cash benefits, preferably before time limits take effect.² New data are being collected for the TANF populations, but the analyses are at an early stage or based on simple cross tabulations (Crew and Eyerman, 1999, Coalition for Workforce Preparation, 1999; Green, et al., 2000; Danziger, et al., 1999; Work, Welfare and Families and the Chicago Urban League, 2000). There is a pressing need to answer the empirical question whether car ownership or access makes a difference under welfare reform.

The remainder of this paper addresses this question and is organized into four parts. The first describes the conceptual model that addresses a number of shortcomings in previous studies by controlling for past employment and identifying variations in the level of access to an automobile. The next section presents the data from a recent survey of TANF recipients in the Los Angeles metropolitan area, and the multivariate methods used to estimate the independent contribution of car ownership on employment. Part three presents the major findings. Those having access to an automobile enjoyed a sizeable advantage in having a job, even after controlling for other factors. This section also presents other evidence from the survey on how

² This shift can be conceived as a transition from one steady state to another. The prior (pre-TANF) state had an “equilibrium” characterized by a weak attachment to the labor market and a low rate of employment for many recipients. This is due in part to a stream of benefits with a relatively long time horizon. Welfare reform is an “exogenous” shock dramatically altering the present value of paid work relative to benefits by shortening the time horizon on the latter. This, in turn, forces individuals to adjust their behavior with respect to employment. How well and quickly they respond hinge on their initial endowment of human capital and other resources, including access to a car.

car access is instrumental to employment outcomes. The last part discusses the policy and programmatic implications. Given the findings, welfare programs should facilitate the ownership of a reliable car through modifications of eligibility requirements and the creation of support services.

CONCEPTUAL MODEL

Along with revisiting the role of automobiles with TANF-specific data, there is a need to address some shortcomings in the literature. Many earlier studies utilized the following modified human-capital equation

$$1) \text{ Prob}(\text{employment}_i) = f(X_i, \text{car}_i)$$

X is a vector of the personal (for example, education, age, and race) and household factors (for example, the number of young children) Car_i is included to capture the effect of car ownership on employment. This approach suffers from a potential problem of simultaneity because car ownership may be causally a function of employment (Rapheal and Rice, 2000). In other words, there is a second equation:

$$2) \text{ Prob}(\text{car}_i) = g(Y_i, \text{employment}_i)$$

Y is the vector of causal factors, including purchase and operating costs, access to alternative transportation, access to resources from friends and relatives, and other factors³ If equation (1)

³ Within a large metropolitan area, transactional costs geographically fragment the market, producing localized demand for and supply of older automobiles; consequently, the clearing price varies spatially. The market for a car also varies inversely with the availability of alternative transportation, such as public transit. Operating costs vary with the ability of individuals to maintain and repair a vehicle. It is well documented that insurance rates vary considerably, with residents in predominantly minority neighborhoods facing higher rates than

is estimated without taking into account the simultaneity, then the estimated coefficient for car_t is upwardly biased if it is positively correlated with prior employment. Unfortunately, this study does not have the data for the necessary excluded variables to estimate the two equations as a set of simultaneous equations. An alternative is to modify equation (1) by including a measure of prior employment:

$$3) \text{ Prob}(\text{employment}_{i,t}) = f(X_i, car_{i,t}, \text{employment}_{i,t-1})$$

Prior employment is likely to be correlated with many of the other independent variables, consequently, estimated coefficients for X_i capture the probability of current employment after accounting for the impact of past employment. Past employment should be a strong predictor of current employment because many with prior employment are able to continue with their employer or are better situated to find a new job. They are more familiar and connected to the labor market, and they have work-related experiences that give them an advantage with potential employers. Moreover, past employment may capture unobserved individual characteristics related to the willingness and ability to work.

Equation (3) imposes another issue in estimating the impact of car access. Prior employment may have an indirect effect because it might increase the possibility of purchasing a car or continuing ownership of an existing car. The probability of car access, then, is specified by the following function:

$$4) \text{ Prob}(car_{i,t}) = h(\text{employment}_{i,t-1}, Z_i)$$

other residents. Finally, the number of years on welfare can have an impact on car ownership. A new recipient may be able to enter the welfare system with a car, but the probability of retaining that vehicle declines with time. The high cost of ownership and other financial difficulties may eventually force the person to sell his or her vehicle

Equations (3) and (4) form a recursive system. Ideally, we can use the results from estimating equation (4) to adjust out the indirect effects of prior employment, leaving us with a residual measure of the impact of car access on employment. Unfortunately, there is no information on key variables (e.g., purchase and operating costs, access to alternative transportation, access to resources from friends and relatives). It is possible, however, to use the results from a limited form of equation (4) to calculate “ball park” estimates of the indirect effect.

Along with the above modifications, this paper goes beyond treating access to a car simply as owning or not owning a vehicle. Some are fortunate to have their own vehicle that is available to them at all times. For others with car in the household, the vehicle must be shared. In other words, the automobile may not be available at all times to a recipient. Among those without a household car, recipients are not entirely dependent on public transportation. Some can rely on borrowing a car from a friend or relative, leaving recipients without a car and no ability to borrow one as the most disadvantaged group. Access to a car is not only a continuum but is also affected by its reliability. When an automobile is unreliable, recipients would experience difficulties finding or holding a job. To account for these differences in car access, equation (3) is modified as follows:

$$5) \text{ Prob}(\text{employment}_{i,t}) = f(X_i, \text{CAR}_{i,t}, \text{employment}_{i,t-1}).$$

$\text{CAR}_{i,t}$ is now a vector denoting the relative degree of car access and reliability.

DATA AND METHODOLOGY

This paper uses data from a survey of TANF recipients in the Los Angeles metropolitan

area.⁴ The sample is restricted to cases headed by a single female (the most common type of welfare household), who was white, Latino or African American. A total of 1,127 observations meet these criteria. The outcome (dependent) variable is a dichotomous variable indicating whether the respondent was employed at the time of the interview. ("Are you currently working?") A small majority (52 percent) of the interviewees fell into this category. This rate is considerably higher than those reported in the earlier studies on AFDC recipients, suggesting that welfare reform is having its predicted effect of increasing employment. (However, this is not the same as saying that those with employment have achieved economic self-sufficiency.)

Information from several questions is used to construct measures for car access, the key causal variable of interest. Information on car ownership is based on the following question: "How many vehicles (including cars, vans, trucks) do you own? This includes your family or household." About half (49.6 percent) of the sample gave a positive response (i.e., owned one or more vehicle) to this question, a high but not unreasonable ownership rate.⁵ Three questions are

4 The metropolitan area is coterminous with Los Angeles County. The survey was sponsored by the Department of Public Social Services of Los Angeles County, designed by the Lewis Center for Regional Policy Studies at UCLA, and conducted by the Survey Research Center at the California State University, Fullerton. The sample was drawn from administrative files for those in the welfare-to-work program in September, October or November of 1999. The administrative files also provide limited information on work and welfare history. The survey is based on stratified samples for each of the five districts for the County Board of Supervisors. The questionnaire was automated in a CATI (Computer Assisted Telephone Interview) system and administered over the telephone in English, Spanish, Vietnamese, and Armenian. The survey, which was conducted between late November 1999 and February 2000, contains over fifteen hundred respondents.

5 This percentage is higher than estimates from audit information, which indicates that only about a fifth of all recipients in Los Angeles County own a registered car in their name (Miller and Ong, 1999). The high percentage is probably due to two factors. One, the sample includes only those required to participate in the welfare-to-work program, thus excluding many of "hard

used to capture the variations in access to a car discussed in the introduction. The first captures the relative access to the car in the household. (“How often would you say you can use the car?”) Those who stated that they can use the household car whenever they want are defined as recipients with unlimited access to a car, and they account for 35 percent of the sample. Recipients in households with a car but experience some restrictions are categorized having limited access to a car (14 percent of the sample). Those who did not own a car are divided into two groups according to their response to the question “If you had to borrow a car today for some reason, how easy or difficult would it be?” Those who responded “very easy” or “easy” are placed into one category (14 percent of the sample), and the remaining group (37 percent of the sample). For convenience, shortened labels are used for the four groups. unlimited access, limited access, able to borrow, and unable to borrow To capture the relative reliability of the car, a dummy variable is created based on whether the household car is 10 years or older (34 percent of the sample).

Table 1 Car Access and Employment

	Currently Employed	Employed in Prior Period	Average Earnings in Prior Period
All Respondents	52%	48%	\$1,731

to serve” recipients This selection is likely to include a higher proportion of those with a car. Two, a positive response can be given if another family or household member owns a car, and this could produce a high percentage. The rate is consistent with pre-TANF estimates by Federman, et al (1996), who reported that 65 percent of families receiving welfare own a car or truck. More recent estimates are also high: 58 percent of recipients in Santa Cruz County in California own a car (Coalition for Workforce Preparation, 1999), 50 percent recipients in Alameda County in California have an “available car,” (Green, et al., 2000), half of recipients in Michigan had access to a car (Danziger, et al., 1999). Moreover, Murakami and Young (1997, p 6) estimate that only 36 percent of single-parent, low-income households do not own a car.

By Car in Household			
With Car	60%	51%	\$1,900
Without Car	44%	45%	\$1,564
By Car Access Measures			
Unlimited Access to HH Car	65%	54%	\$2,115
Limited Access to HH Car	48%	43%	\$1,364
Can easily borrow a car	47%	49%	\$2,406
Difficult to borrow a car	43%	44%	\$1,252

Table 1 shows the basic relationship between car access and employment. Consistent with findings from previous studies, summary statistics for the TANF sample indicate that having a car in a household is correlated with employment. Among those with an automobile, 60 percent were employed compared to only 44 percent for those without automobile access, a difference of 16 percent, which is large and statistically different (chi-square value of 29.21, degree of freedom of 1, and a p-value of less than 0.001.) This dichotomous view of access to a car, however, obscures important nuances. The employment rate varies even more by the level of access, ranging from 63 percent for those with unlimited access to 43 percent with no ability to borrow a car (chi-square=42.82, df=3, p<=0.001). What is interesting is the nearly identical employment rate for those with limited access to a household car and those who are able to borrow a car from a relative or friend. This suggests that either form of car access is equally effective with respect to employment.

As noted earlier, it is impossible to infer from the simple bivariate relationship that greater car access increases employment. The problem is confounded by the fact that car access, prior employment, and current employment are all interrelated. Current employment (at the time of the interview) is strongly and positively related to prior employment (as measured by

employment or total earnings during the latter half 1998). The current employment rate for those who had worked is 67 percent, while the rate for those who had not worked is only 39 percent (chi-square =86.34, df=1, $p \leq 0.001$). Car access is also positively related to prior employment, but the relationship is not as overwhelming. For example, 40 percent of those who had worked are in the unlimited access category, compared with 33 percent of those who had not worked, a difference of only 7 percentage points. Moreover, the strength of the statistical association is lower (chi-square=9.45, df=3, $p=0.02$). This weaker association, relative to the stronger association between prior and current employment, suggests that car access is not just acting as a proxy for prior employment, or for an underlying willingness or ability to find employment.

Multivariate techniques are required to separate out the independent effect of car access from prior employment as well as other factors. Prior work experience is captured by earnings (in log form) and alternatively by the number of quarters worked in the last half of 1998. Because the two alternative measures should be related to a greater attachment to the labor market and more marketable skills, these independent variables should be positively correlated with the odds of current employment

Based on the existing literature (see Moffitt, 1992 for summary), this study uses the following set of additional independent variables: age, the number of young children (4 years old and younger), educational attainment, years on welfare, parental status, prior work experience, and car ownership. Employment is expected to increase with age, but at a declining rate. This captures both more life experiences as well as greater maturity.⁶ Not every adult is the mother of

6 Given the lack of continuous employment for welfare recipients, this study does not use the calculated potential years of labor market experience, which is commonly used in most empirical

the children in the benefit unit, and the most common non-parent is a grandmother.

Unfortunately, the survey does not have information on the relationship between the adult and child or children. A proxy is created to capture this, with dummy variable taking on a value of 1 for anyone over the age of 45. Employment is expected to decrease with the number of young children (ages 0 to 4 years) because of the difficulty in finding adequate childcare (Ball, 1999) Higher levels of education are expected to increase the odds of being employed. Because of recipients are a highly disadvantaged population, educational attainment is compressed toward the lower end. The major distinction is between those with and without a high school education, and that is captured by a dummy variable for those who had completed at least 12 years of schooling. The excluded category is those without a high school degree. It is expected that long-term welfare dependency lowers the employment rate. Because of the limitation of the available administrative data, time on welfare is captured by a set of two dummy variables, one for respondents on welfare for 60 to 89 months, and another for respondents on welfare for 90 or more months. The excluded category is less than 60 months. Race/ethnic variables are included to capture any systematic differences in employment opportunities for Blacks and Latinos relative to whites.

The means for these variables are listed in Table 2. The statistics show that current employment is correlated with more education, age, fewer younger children, being a grandmother, greater access to a car, higher prior earnings, and, of course, unlimited car access. Interestingly, current employment does not appear to be negatively correlated with long-term welfare dependency, and with other measures of car access. However, covariation among the

studies of labor-market outcomes.

independent variables may obscure the true causal relations.

Table 2 Means of Variables

	All Recipients	Employed Recipients	Unemployed Recipients
Employed	0.524	1.000	0.000
HS Degree or Some College	0.506	0.537	0.471
Age	32.79	33.14	32.41
Age squared/100	11.51	11.67	11.33
Grandmother	0.081	0.083	0.078
Young Children	0.626	0.558	0.702
Black	0.357	0.351	0.363
Hispanic	0.512	0.522	0.501
60-89 months of aid	0.184	0.202	0.164
90 plus months of aid	0.288	0.290	0.287
Unlimited Access to HH Car	0.355	0.442	0.259
Limited Access to HH Car	0.143	0.132	0.155
Old HH Car	0.337	0.383	0.287
Can easily borrow a car	0.136	0.122	0.151
Log of Prior Earnings	3.656	4.795	2.405
Quarters of Prior Employment	0.793	1.054	0.507
N size	1,127	590	537

Ordinary-least-squares (OLS) linear regressions are initially used to construct the models and to test multiple combination of independent variables and alternative transformations of the independent variables. While this method is computationally efficient and the results are easy to interpret, OLS is less than ideal. It does limit the simulated dependent variable to values between 0 and 1 – that is, it unrealistically predicts both negative odds and odds greater than 100 percent. To overcome this problem, the final set of models uses logit regressions to analyze the dichotomous employment variable. Specifically, it uses the following functional form:

$$Pr_i (EMPLOYED) = e^{\beta X} / (1 + e^{\beta X})$$

for EMPLOYED $\subset (1,0)$

X is the vector of independent variables described earlier, and beta is the vector of estimated coefficients. Despite the differences in functional form, the results for both OLS and logit regressions are consistent.

EMPIRICAL OUTCOMES

The estimated logit models are listed in Table 2. Because the model uses a non-linear equation, the coefficients have to be transformed to derive the marginal changes in probability due to a one-unit change in an independent variable. This can be estimated using the following equation.

$$\Delta Pr/\Delta x = C(p(1-p))$$

where C is the estimated coefficient for variable x, and p is the observed employment probability for the total sample.

Most of the estimated coefficients are consistent with the predicted impacts discussed earlier. Those with a high school degree fare better than those with less schooling by a difference of about 8 percentage points. Employment increases with age, with the effect diminishing with each additional year as indicated by the negative coefficient for age squared. The presence of younger children (ages 0 to 4) decreases employment, with each additional child lowering the odds of employment by approximately 6 to 7 percentage points. Being a grandmother has a very large effect on employment, increasing the employment rate by 22 to 25 percentage points over mothers after accounting for other factors. This extremely large difference is difficult to explain,

and it may be due to differences in unobserved circumstances such as a greater ability to share child caring responsibilities with relatives. Very long-term welfare usage (90 or more months) decreases the employment rate, but the estimated impact is not statistically significant. Given the widely held notion that long-term dependency creates an extremely hard to employ population, this difference is surprising small. The result may be due to the selective nature of those required to participate in the welfare-to-work programs or to a fundamental change in behavior caused by time limits. Most of the coefficients for the race/ethnic variables are statistically insignificant. Prior employment, as measured by the log of earnings, is very significant, and this can be seen in the dramatic jump in the chi-square between Model 1 and Model 2. The alternative measure (quarters of employment) is a slightly stronger predictor, as shown in Model 3. Each additional quarter of prior employment increases the odds of currently working by 18 percentage points.

Differences in the level of car access have the predicted impact; however, not all estimated coefficients are statistically significant. After accounting for other factors, there is no difference in employment between those able and unable to borrow a car. Although the coefficient for "Can Easily Borrow a Car" has the expected positive sign, the p-value ranges from .35 to .69, indicating that the relationship is not statistically significant. Significant variations, however, is observed among those with a car in the household. Those with unlimited access were much more likely to be employed than recipients with only limited access.

Those with an older car fared worse in the labor market. While the coefficients for the age of the car are not statistically significant, they are close to being so (p-values ranging from .11 to .12). It is likely that a more precise measure of reliability would produce better statistical results. While not every coefficient for the car-access variables is statistically significant, it

should be noted that they are collectively significant. In other words, the results suggest a well established hierarchy, with those with unlimited access at the top, those with limited access in second, those able to borrow in third, and those unable to borrow at the bottom. Using a continuous measure based on the ordinal ranking of car access (4 for unlimited access, 3 for limited access, 2 for able to borrow, and 1 for unable to borrow) generates a highly statistically significant coefficient (p-value of at least .001). Increasing the value assigned to unlimited access to capture its relative greater influence produces an even better fit. Nonetheless, the best statistical fit is based on using the full set of car-access dummy variables as reported in Table 3.

According to Model 1 in Table 3, the employment rate of those with unlimited access to a car is about 26 percentage points higher than those with the least access to a car (those with difficulties borrowing a car). Model 1, however, does not control for prior employment, thus the estimated coefficient may be biased upward if car access is serving as a proxy for prior work history. The last two equations include either the log of total earnings or quarters worked for the last half of 1998. While either of these additional independent variables is highly significant and greatly increases the explanatory power of the model, the inclusion has only a minor impact on the estimated coefficients for the car-access variables. Similar to Model 1, the results for the last two models also reveal a 25 percentage point spread between those with greatest and those with the least access to a car. These results are consistent with the assertion that variation in car access has an independent and substantial effect on facilitating the transition from welfare to work.

Table 3 Logit Results
 Dependent Variable: Currently Employed

	Model 1	Model 2	Model 3
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Constant	-3.882 ***	-4.409 ***	-4.534 ***
HS Degree or Some College	0.319 **	0.307 **	0.322 **
Age	0.222 ***	0.226 ***	0.233 ***
Age squared/100	-0.347 ***	-0.346 ***	-0.356 ***
Grandmother	0.890 **	0.958 **	0.989 **
Young Children	-0.267 ***	-0.232 **	-0.227 **
Black	0.190	0.074	0.103
Hispanic	0.388 **	0.252	0.272
60-89 months of aid	0.118	0.007	0.025
90 plus months of aid	-0.074	-0.199	-0.225
Unlimited Access to HH Car	1.040 ***	1.009 ***	1.014 ***
Limited Access to HH Car	0.372 *	0.413 *	0.410 *
Old HH Car	-0.244	-0.320	-0.327
Can easily borrow a car	0.180	0.102	0.083
Log of Prior Earnings		0.157 ***	
Quarters of Prior Employment			0.715 ***
Chi-Square for Covariates	73.532	165.822	170.545
Degrees of Freedom	13	14	14
P-value	0.0001	0.0001	0.0001

Coefficients: * p < 0.10 ** p < 0.05 *** p < 0.01

The results in Table 3 do not take into account the potential indirect effect on current employment of prior employment working through car access. As noted earlier, there is insufficient information (e.g., purchase and operating costs, access to alternative modes of transportation, access to resources from friends and relatives) to properly estimate equation (4) -- $\text{Prob}(\text{car}_{i,t}) = h(\text{employment}_{i,t-1}, Z_i)$. Nonetheless, it is possible to estimate a limited form using available data. The results from a logit specification of equation (4) then can be used to estimate the indirect effect using the following:

Indirect Effect = $\gamma C(P_{\text{employment}}(1 - P_{\text{employment}}))$, where

$\gamma = \Delta \text{Pr}(\text{car}) / \Delta(\text{prior employment}) = \beta (P_{\text{car}}(1 - P_{\text{car}}))$

β is the estimated coefficient for prior employment on car access, and P_{car} is the observed probability for car access. The calculated γ is then used to estimate the indirect impact on current employment. The results from this exercise suggest that, after subtracting the indirect effect of prior employment, the employment rate for those with the greatest access to a car is at least 20 percentage points higher than the rate for those with the least access to a car.⁷ In other words, the impact of car access on current employment remains substantial.

A final set of models is examined to test alternative measures of the quality of the car and to differentiate impacts across sub-samples. The basic core of Model (3) is used in this exercise, and includes the independent variables for education, age, grandmother status, younger children, race and ethnicity, months of welfare benefits, and quarters of prior employment. A simple dichotomous variable for the presence of a car in the household serves as a baseline, and this is consistent with how previous studies measured car access. Alternative specifications are used to differentiate household cars by age (at least 10 years old and less than 10 years), and by whether the car had been repaired in the previous three months. Table 4 summarizes the key results for the alternative measures of car quality, along with the change in chi-square due to the inclusion

⁷ To derive estimates of β , two specifications are tested with observations restricted to respondents with unlimited access and unable to borrow. The first model uses only the number of quarters of prior employment. The other uses a partial list of the expected independent variables (age, race, presence of other adults, rough proxy for level of bus service, long-term welfare dependency). Unfortunately, some key factors are missing (purchase and maintenance costs, insurance premiums, access to loans). The size of the estimated coefficients ranges from .276 to .350. Using the maximum number of quarters of employment (2), the estimated impact on the probability of having unlimited access to a car ranges from .137 to .175, that is prior employment increases the probability of unlimited access by one-seventh to one-sixth. These increases translate into an approximate 4 percentage-point increase in current employment.

of these variables. The results consistently support the assertion that the quality of the household car has an impact on employment, *ceteris paribus*. Table 4 also reports the results when the sample is divided into two subgroups -- one with no reported prior employment and the other with reported prior employment. The results for the group with prior work experience indicate that unlimited car access significantly increases continued employment. Of course, the causality may be in the both directions; however, the model includes prior earnings to minimize this problem. More interesting is the larger impact of unlimited car access for the group without reported prior work experience. In other words, this factor plays a significant role in transitioning people off welfare and into work. Of course, another interpretation is that current employment enabled a recipient to purchase a car, but this can only realistically happen if she had access to a loan. Earnings are typically too low for recipients to quickly save enough money to purchase a car. Moreover, even if the recipient were able to buy a car because of current employment, it is likely that the purchase is compelled by the requirements of the job and commuting to work

Table 4: Alternative Specifications

	Estimated Coefficient	Impact on Employment	Change in Degree of Freedom	Change in Chi-square
I. Presence of HH Car	.591***	15%	1	20.59
II. Age of Car	-----	-----	2	22 12
Newer	.757***	19%	--	-----
Older	.511***	13%	--	-----
III. Needed Repair	-----	-----	2	21 18
No	.627***	16%	--	-----

Yes	.453**	11%	--	-----
IV. Sub-sample with prior				
Work experience	-----	-----	2	9.90
Unlimited Access	.680***	15%	--	-----
Limited Access	.371	8%	--	-----
V. Sub-sample without prior				
Work experience	-----	-----	2	9.47
Unlimited Access	.853***	20%	--	-----
Limited Access	.098	2%	--	-----

Coefficients: * p<.10 ** p<.05 *** p< .01

The survey provides additional information on how car access is related to employment. As suggested earlier, greater car access can facilitate job search and improve employment stability. The tabulations in Table 5 show that those with better access to a car were more likely to judge their travel as being easier. The difference in evaluations among those by varying access to a car is highly statistically significant. One can infer that the lower perceived commute burden translates into fewer problems getting to work and lowers absenteeism. Among the employed, over half of those with unlimited access to a car (57 percent) stated that their commute was "very easy" compared to only 24 percent with difficulties borrowing a car. At the other extreme, 50 percent of those with the least access to a car rated the commute as "difficult" or "very difficult," nearly four times as frequently as that for those with the greatest access to a car. Interestingly, those with an ability to borrow a car from a relative or friend fare better than those with a limited access to a household car.

The analysis on job search has to be modified because of the smaller sample size. Car access is reduced to car ownership, and the rating of the commute is reduced to easy and

difficult. Using this collapsed approach, the results indicate that those with a car had an easier time searching for work than those without a car; however the difference in the distribution is only marginally statistically significant (chi-square=3.53, p=0.06). The smaller difference among job searchers may be due in part to a selection bias – that is, among those with a car, people with the most difficulties were more likely to be looking for a job rather than being employed.

Table 5: Other dimension of Car Access

	Unlimited Access	Limited Access	Able to Borrow	Unable to Borrow
Commute to Work				
Very Easy	57%	31%	45%	24%
Easy	28%	47%	27%	27%
Difficult	11%	21%	18%	39%
Very Difficult	3%	1%	10%	11%
Sample size	260	78	71	178
Car program options				
Car Loan	40%	57%	66%	62%
Car Maintenance	18%	12%	14%	16%
Low-cost Insurance	25%	20%	8%	9%
Clear Parking Tickets	15%	7%	6%	6%
Sample size	400	161	153	413

For Commute to Work: Chi-square=93.42, df=9, p<=0.001

For Car program options: Chi-square=89.22, df=12, p<=.001

The bottom panel of Table 5 provides some insight into what type of program could help increase access to a car. Not surprisingly, a large majority of those without a car stated that their first choice is a car loan program, nearly three-quarters stated that they cannot afford a car. A surprising plurality (45 percent) of those with a car in the household also favored a car loan

program, and the percentage is higher for those with only a limited access to the household car. Clearly, there is a desire to purchase a better car, and this may be tied to the fact that over two-thirds of the cars in the sample are over ten years old. While car maintenance is lower priority than a car loan program, six in ten car owners feel that maintenance problems or costs is one of the two biggest problems in owning their vehicle. The cost of insurance is also a problem for nearly half (48 percent) of car owners, and nearly a quarter rated having a low-cost insurance program as their first choice for transportation assistance. For a quarter of the car owners, the cost of gasoline is one of the two biggest problems in owning a car.

CONCLUSION

Unquestionably, the above analyses can be refined. The model can be improved by incorporating information on the location of jobs, the availability and quality of public transportation, and geographic variations in the insurance premiums and other relevant costs. Even when survey data are enhanced by administrative information covering past employment and welfare usage, the cross-sectional nature of the core data cannot capture the dynamic changes in car ownership. One study using data for AFDC recipients finds that over a period of approximately two years, a quarter of owners lost their cars and a fifth of non-owners became owners (Miller and Ong, 1999). It would be useful to document the link between unexpected change in car ownership or reliability and fluctuations in employment. More information is also needed on the process of savings that leads to the purchase of an automobile, and on the problems of car ownership.

This analysis overwhelmingly supports the premise that an automobile is instrumental to

employment, either as an important prerequisite or a complement. This conclusion is not surprising given that the labor market mirrors the automobile-dominated structure of metropolitan areas. The findings are sufficiently strong to argue for policies and programs that facilitate car access. The importance of the automobile is not a new phenomenon, and prior studies have argued for the elimination of a bias against car ownership under AFDC (Ong, 1996; Ong and Blumenberg, 1998). However, with time limits under TANF, this recommendation takes on increased urgency. Promoting car ownership can be an integral part of other transportation-based strategies. Past demonstration projects for reverse commutes (from the inner-city to suburban jobs) indicate that many recipients can benefit from better bus service and vanpools. However, mode choice changes over time if workers are able to continue their employment. Many shift from group-based transportation to less time-consuming modes based on individually owned cars. (Rosenbloom, 1992) This should be interpreted as progress to economic self-sufficiency, and policy should support this process.

Unfortunately, this is not the case. Policy is still shaped by an earlier and largely unfounded fear of welfare recipients waste resources on luxury cars. In most states, the existing eligibility rules prevent an individual from having a car worth more than \$4,650, and this limit also applies to food stamp and Medicare eligibility after a recipient leaves welfare. This policy has two flaws. The first is that it is difficult to purchase a very reliable car for under \$4,650.⁸

⁸ This is apparent in examining the cars listed in the April 1999 issue of *Consumer Report* as "reliable used cars." The lowest price category is less than \$6,000, which includes vehicles that are 5 to 8 years old. Using that list and updating it to include models that are a year newer, a tabulation from the February 13, 2000 *Los Angeles Times* Sunday newspaper shows that less than half of the advertised used cars had an asking price below \$4,500. Most of those cars had extremely high mileage.

Most available cars in this price range are old and less reliable. This adds to the cost of ownership and creates great uncertainty for the recipients with respect to their travel to work. The second flaw with the \$4,650 limit is that the cap is based on market value rather than the equity held by the recipient. This unproductive policy forces recipients to forgo securing loans to purchase a more reliable car. Borrowing does not increase the net asset of the individual, but a loan is a prudent investment that pays dividends in terms of better employment outcomes.

Policy-makers should also establish programs that help recipients to acquire a reliable automobile, to operate and maintain it, and to purchase insurance at a reasonable price. The first objective can be achieved through a loan program that provides mandatory testing of potential used cars. There are potential net gains to providing training on do-it-yourself maintenance, referrals to reliable and honest automobile repair services, and access to reasonable insurance. Some of this can be accomplished at a low cost through cooperation with vocational training programs related to automobile repair. There should be some assistance given to those encountering temporary needs caused by unforeseen disruptions to employment or major repair problems. This can include providing temporary transportation assistance. Improving the continuity of employment or car ownership can prevent short-term crises from degenerating into prolonged joblessness. Finally, there should be programs to address the high cost of automobile insurance. Unfortunately, many recipients reside in neighborhoods that suffer from "redlining," a practice that restricts the availability of insurance and pushes up premium.

Some progress is being made. President Clinton is calling for new legislation that will enable families with low amounts of equity in their cars to qualify for food stamps, increase the vehicle asset limits, and apply these standard to welfare programs (U.S. President's Office,

2000). Moreover, the proposal calls for expanding the use of Individual Development Accounts to include savings for a car. There is also an experimental program funded by the State of California and being tried in Los Angeles to provide reasonably priced automobile insurance. These efforts not only need to be monitored but also fully implemented along with other programs that promote greater economic self-sufficiency among recipients.

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