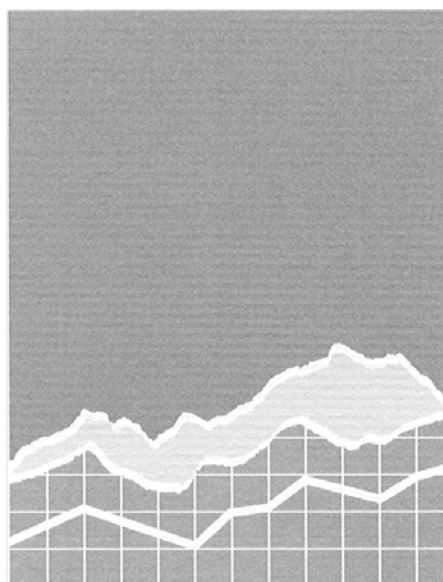


# On the Road to Self-Sufficiency after Welfare Reform: An Assessment of the Impact of Changes in Welfare Asset Limits on Auto- Ownership Rates and Employment

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An Assessment of the Impact of Changes in Welfare Asset Limits on Auto-  
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## Abstract

In this paper, we assess the impact of the easing of vehicle exemption limits and asset restrictions after the passage of welfare reform legislation on the rates of car-ownership observed among female headed households with children. Prior to the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, nearly all states exempted only \$1,500 of vehicle equity from the minimum assets test and assets were limited to \$1000 in most states. Post-welfare reform, however, nearly all states increased the vehicle exemption limit, with twenty-five states exempting the entire value of a single vehicle. In addition, the overall asset test rose in most states. In this paper, we use micro-level data from the 1993 and 1996 panels of the Survey of Income and Program Participation (SIPP) from the years 1994 to 1999 to examine 1) how changes in state-level welfare rules over this time period affected auto ownership rates among those most likely at risk of receiving welfare and 2) how the resulting change in auto ownership rates affected the probability of being employed for these individuals. To identify the effect of the redefined benefit eligibility rules on auto-ownership rates, we exploit inter-state differences and changes over time in welfare eligibility rules. Once we control for individual level demographics and state-level economic conditions, our results suggest that the probability of owning a car is greater for those who reside in states with higher overall asset limits and in states with exemptions for multiple vehicles. When we look at the sample of female heads with children relative to a control group of male and female household heads without children, we also find that assessing the value of the vehicle on an equity basis (rather than fair market basis) is associated with higher rates of car ownership. Using a two stage least squares approach (2SLS) that instruments car ownership with benefit eligibility rules, we find some evidence that asset-related rules have an effect on employment outcomes via car ownership. Thus, our results shed light on the role of the changes to eligibility rules on the transition from welfare to work.

## **I. Introduction**

Having access to a car is an important determinant of labor market outcomes and researchers have found strong positive effects of auto-ownership on the probability of employment, the number of hours worked, and earnings (Raphael and Rice 2002, Ong 2002, Holzer et al 1994). Not only does owning a car potentially reduce one's commute time, but access to private transportation also allows one to search in a wider geographic area, which increases the probability of receiving a desirable job offer.

Over the past three decades, household access to automobiles in the United States has increased considerably. Between 1969 and 1995, the average numbers of automobiles per households doubled from one to two. Moreover, this increase coincided with a 17 percent reduction in household size. Over the same time period, the number of households with zero vehicles declined from 13 million (21 percent of the 1969 household population) to 8 million (8 percent of the 1995 household population). Hence, near the end of the century, household access to automobiles in the United States was nearly universal (U.S. Department of Transportation, 1999).

These aggregate figures, however, mask sharp differences in auto ownership across households of different income levels and different racial and ethnic groups. For example, approximately 18 of households earning less than \$25,000 did not own a motor vehicle in 1995 compared to 4 percent of those with earnings between \$25,000 and \$55,000 and 1 percent for those households earning above \$55,000 (Hu and Young 1999). Concerning race and ethnicity, 24 percent of black households and 12 percent of Latino households did not own a single car in 1995 compared to only 5.4 percent of white households.

While these difference in auto-ownership rates likely reflect differences in household income and differences in access to credit markets, the relatively low car-ownership rates of poor and/or minority households may be determined in part by the minimum-assets tests that one needed to meet in order to qualify for cash assistance under the old Aid to Families with Dependent Children (AFDC) program. Prior to welfare reform in 1996 nearly all states exempted only \$1,500 of vehicle equity from the minimum assets tests and most states typically limited assets to \$1000 in order to receive welfare benefits or Aid to Families with Dependent Children (AFDC). These asset limits created disincentives to save and may have discouraged ownership of a reliable vehicle, which, in turn, may have slowed the transition from welfare to work for AFDC recipients. With the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, states were given the flexibility to specify the welfare eligibility rules to best meet their residents' needs. As a result, almost all states raised their asset limit and vehicle equity exemption levels above the prior national limits when establishing welfare eligibility for the new Temporary Assistance to Needy Families (TANF) program (Department of Health and Human Services 2002).

In this paper, we assess the impact of the easing of vehicle exemptions and asset limits on the rates of car-ownership observed among female-headed households with children who are likely to be at risk of receiving TANF/AFDC cash assistance. The varied response among states in the timing and size of the easing of asset restrictions allows us to identify how variation in welfare rules impacts the likelihood of car ownership and ultimately shapes labor market outcomes such as employment status, hours worked, and hourly wages.

Using micro-level data from the 1993 and 1996 panels of the Survey of Income and Program Participation (SIPP) from 1994 to 1999 that is matched to state-level welfare rules from the Urban Institute, our results suggest that the probability of owning a car is greater for those who reside in states with higher overall asset limits and in states with exemptions for multiple vehicles. When we look at the sample of female heads with children relative to a control group of male and female household heads without children, we also find that assessing the value of a vehicle on an equity basis (rather than fair market basis) is associated with higher rates of car ownership. Using a two stage least squares approach (2SLS) that instruments car ownership with benefit eligibility rules, we find some evidence of a causal link between car ownership and employment outcomes for female household heads with children. Thus, our results suggest that public policy that encourages car-ownership should be an integral component of programs intended to move welfare recipients into sustainable employment.

## **II. Background: Welfare Reform, Car Ownership, and Employment**

### *Why do Cars Matter? Theory and Empirical Evidence*

Both theory and empirical evidence suggest that owning a vehicle has a direct and positive effect on employment outcomes. In theory, car ownership may have an effect on employment by potentially reducing commute times. If commute times are lower, the reduction in the fixed cost of working will free up time for alternative uses. As a result, labor supply theory predicts access to private transportation can result in more hours worked (if an individual is already employed) or an increase labor market participation (if he/she is not already in the labor force).

Figure 1 (panel A) demonstrates the effect commute time has on work hours for

an individual who is already employed using a simple model of labor supply. A person's decision about how many hours to supply to the labor market (the labor vs. non-labor decision) is constrained by time, shown by point "A" as the total time endowed. Workers convert non-market time into income by supplying labor time at a given wage. However, time spent commuting is *not* compensated, which results in flat portion of the budget constraint along the x-axis.

Ownership of an automobile would reduce commute time which causes the budget constraint to shift outward (a shift of the budget constraint from ADE to ABC). This shift is equivalent to an income effect or an increase in income. If we assume that both free time and market goods (purchased with disposable income) are normal goods, then a decrease in commute time will result in an increase in both free time ( $H^1$  to  $H^0$ ) and disposable income (from  $I^1$  to  $I^0$ ). The latter implies an increase in work hours.

Figure 1 (Panel B) depicts individuals with a stronger preference toward non-market time and demonstrates that car access may affect the labor force participation decision. For a person with steep indifference curves, a rightward shift in the budget constraint due to the decrease in commute time may actually pull this person into the labor market. Under the old budget constraint (ADE), the individual was maximizing her utility by not working. However, under the new budget constraint (ABC), this individual will supply hours to the labor market. This is shown by the tangency of the indifference curve corresponding to utility level ( $U^0$ ) to the budget constraint ABC.

Empirically, a number of papers have documented a connection between vehicle access and labor market outcomes. Several papers with a specific focus on welfare recipients, have made a link between car ownership and employment. For example, in a

study of welfare recipients in Michigan, Danziger et al. (1999) discovered that the lack of a car or a driver's license was cited as the most common problem among 15 possible barriers to employment that were listed in the survey. In a related vein, using a sample of California welfare recipients, Ong (1996) found car ownership to be positively and significantly linked to the likelihood of employment, hours worked, and monthly earnings. Lucas and Nicholson (2002) evaluated the Good News Garage program in Vermont (which sells donated vehicles to individuals with income less than 150 percent of the poverty level), and the authors conclude that receipt of a vehicle through the program results in a statistically significant increase in both the probability of employment and in earned income.<sup>1</sup>

In more recent work on auto ownership and employment, papers have attempted to identify the causal portion of the relationship between car access and employment outcomes. These papers take into consideration the possibility of reverse causality between vehicle access and jobs or, in other words, that this relationship may run from labor market outcomes towards car ownership.<sup>2</sup> Both Raphael and Rice (2002) and Ong (2002) have used instrumental variables in an effort to isolate the actual effect of vehicle ownership on employment outcomes. Raphael and Rice (2002) used state-level variation in gasoline taxes and car insurance costs to instrument for car ownership, and the results indicate positive effects of car ownership on the probability of employment and hours worked, significant at the five percent level. Ong (2002) used insurance premiums and

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<sup>1</sup> In a paper that studied black and white male youths rather than welfare recipients, Holzer, Ilhanfeldt and Sjoquist (1994) demonstrated a positive association between vehicle access and wages, and a negative association with the duration of unemployment.

<sup>2</sup> In addition, both car ownership and employment outcomes could be driven by an unobservable characteristic such as motivation. If car ownership is correlated with unobserved ability, then omitted variables will create biased estimates of the effects of owning a vehicle.

population density to instrument for car ownership and find that auto ownership increases the odds of being employed by 9 percentage points.

Another approach to identifying the causal portion of the relationship between car access and employment outcomes is to use repeated observations on the same person or household over time (longitudinal data), in order to investigate the effect of having a car in an earlier period on employment status and welfare participation in a later period. Cervero, Sandoval, and Landis (2002) used this approach with a sample of welfare recipients from Alameda County in California. The authors conclude that car ownership significantly increased the odds of transitioning into employment and off of public assistance. Bruce and Richards (2003) arrive at similar results using a sample of Tennessee welfare recipients. They find that having access to a vehicle at the time of the first wave of the survey decreases the likelihood of being unemployed and on welfare in the later wave. In addition, having access to a car appears to have a positive, significant effect on the number of hours worked. Taken together, the literature points to a causal relationship from auto access or ownership towards higher likelihood of employment and more work hours.<sup>3</sup>

Turning to a preview of our empirical analysis, an examination of the means presented in Table 1 suggests a positive relationship between auto ownership and labor market outcomes. Using data from the Survey of Income and Program Participation (SIPP), Table 1 presents differences in employment outcomes between those who own cars and those who do not for a sample of female heads of households with children and without a college degree. (The SIPP data is described in detail in the data and methods section below.) We calculate hours and earnings for both the entire sample and for

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<sup>3</sup> Research has found little evidence of an effect on wages (Raphael and Rice 2002).

employed individuals only. The positive association between car ownership and labor market outcomes provides some support of the theoretical predictions shown in Figure 1 (panels A and B). It should be noted, however, that these differences are likely upward bounds on the effects of car ownership since the causality from car ownership to employment and hours may also run the other direction. For example, having a steady job may make one more likely to save, develop credit, and be able to purchase a car. Thus, the results presented in Table 1 do not show the causal effects of car ownership and are merely suggestive evidence of the effects of access to vehicles. (Later in the paper, we address this concern by treating the changes in welfare rules as exogenous and estimate a 2SLS model of car ownership on employment outcomes, as shown in Table 6. In addition, in Table 6 we control for other factors such as differences in individual characteristics (demographic and human capital) and differences in economic conditions.)

In Table 1, there are large, statistically significant differences in all labor market outcomes (employment, hours, wages, and monthly income) for those with cars compared to those without. Concerning employment rates, there is a forty percentage point difference between individuals with cars (81 percent employed) and those without (41 percent employed). For hours worked, those with a car work almost 17 hours more per week than those who do not, largely reflecting the differences in employment rates. However, limiting our focus to those with jobs, we still find that weekly hours for those with cars are still noticeably above (almost 6 hours) those without vehicles.

Turning to differences in hourly wages and monthly earnings, the differential remains sizable between those with and without vehicles. For those who are employed, real hourly wages (in constant 1999 dollars) are \$2.50 more for those with vehicles and

monthly income is about \$600 more. If we also take into account the increase in earnings due to the higher employment rates and hours worked for those with vehicles, we then find that those with vehicles earn over three dollars more per hour and earn almost \$900 more per month. Thus, car ownership appears to be highly correlated with favorable labor market outcomes, although the means cannot tell us about the causality behind this correlation. In the next section, we consider the role of asset tests and welfare reform on car ownership.

### *Welfare Reform and Asset Limits*

The Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 terminated cash welfare transfers as an entitlement (under AFDC). The new work-based program, Temporary Aid for Needy Families (TANF), gave funding to states as a block grant and allowed states to determine, to a large degree, their program rules. Due to the means-tested eligibility determination of both AFDC and TANF, cash assistance is granted only to those whose income and assets are below a specified level.

Under AFDC, families receiving assistance were not allowed to accumulate more than \$1000 in countable assets. This limit excluded the value of certain assets, such as housing equity and the value of a vehicle up to \$1500. Under waivers to AFDC granted between 1992 and 1996, some states, typically select counties within states, began to increase their asset limits and the value of a vehicle exemption as part of welfare “demonstrations”. After PRWORA, states had complete flexibility to set their own asset rules and continued to relax asset limits and vehicle exemptions statewide in an attempt to stimulate savings (Gallagher 1998, Hurst and Ziliak 2004).<sup>4</sup>

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<sup>4</sup> For example, in Oklahoma, applicants and recipients must have countable assets below \$1,000. For applicants and recipients who own a car, the equity value of a car above \$5,000 is treated as a countable

Table 2 presents trends in program parameters regarding asset limits from 1993 to 1999. These data were compiled 1) from the Urban Institute Welfare Rules Database (for the years 1996 to 1999), 2) from unpublished Urban Institute tables for auto exemptions from 1993 to 1995, and 3) from the Trim3 Microsimulation model database of historical program rules from the Urban Institute for asset limits in 1993 to 1995. Only the majority rules -- the rules in effect for the majority of a caseload for a majority of the year -- are presented. As can be seen in Table 2, there is considerable variation in these rules over time and across states and we exploit this variation in our empirical work later in this paper.

Overall, asset limits and vehicle exemptions increased over the period from 1994 to 1999. According to our calculations, the average state asset limit (in nominal dollars) more than doubled from approximately \$1100 in 1994 to \$2400 in 1999. For auto exemptions, the average exemption was \$1500 in 1994. By 1999, (for those states with auto exemption limits) the average exemption had risen to \$6500. The share of states exempting an entire vehicle also jumped dramatically over this period. By 1999, almost half of all states (including the District of Columbia) exempted the value of an entire vehicle.

States also eased their asset tests by exempting all or part of multiple vehicles when computing a household's countable assets. Therefore, we developed a measure, "multiple vehicles", to take into account the possibility that states exempted the entire value of multiple vehicles, exempted a certain dollar value from multiple vehicles, or did a combination of the two. An example of this latter case would be to exempt a vehicle if

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asset. The entire equity value of additional cars is counted as an asset.  
(<http://www.spdp.org/compstates/okfinan.pdf>)

it is used for income-producing purposes and then to apply the dollar exemption to a second vehicle. As can be seen in the third column, the number of states exempting all or a portion of multiple vehicles rose from zero to over a third by 1999. This is, therefore, another dimension along which states could relax their asset tests and vehicle limits.

Lastly, states could decide how to value the vehicle in the countable asset calculation. States could either assess the vehicle in terms of equity value or fair market value. The equity value is defined as the fair market value minus the amount still owed on the vehicle. For those who purchase a vehicle with an auto loan, the equity value will be less than the fair market value and these individuals would be more likely to qualify for TANF if their vehicle were assessed in terms of equity. For those who paid in full, the fair market value will be the same as the equity value and they will be indifferent between the two valuation options. As of 1994, all vehicles were assessed in terms of their equity value. By 1999, however, over one quarter of states had switched to the fair market value as a method to compute the value of a vehicle.

*Asset Limits, Savings and Auto Ownership: Theory and Empirical Evidence*

Asset limits, while aiming to target welfare benefits at the most disadvantaged group, provide disincentives to save and to own a vehicle. As shown in Table 2, most states have eased their limits on overall assets and increased the amount of the vehicle exemption. Exempting the entire value of an automobile, increasing the dollar amount of the vehicle equity exemption, and/or increasing the overall liquid asset limit, would allow individuals to increase their vehicle assets and still qualify for welfare benefits. If the individual was without an automobile prior to the relaxation of restrictions, the easing of asset limits may provide an adequate incentive for the individual to purchase a vehicle. If

the individual already had a vehicle, he/she may be able to buy a more expensive and more reliable vehicle and still qualify for benefits.

The following example demonstrates the effect of easing the vehicle exemption limit. To begin, assume a state has a total asset limit of \$1,000 and a vehicle exemption limit of \$1,500. If person A has \$200 in liquid assets and a \$2,000 car, her total assets sum to \$700 and she qualifies for assistance. However, if person B has \$600 saved in liquid assets and she purchases a \$2,000 car, her total assets will sum to \$1,100 and she will not receive assistance. Thus, person B may opt not to purchase a vehicle. If the state now exempts the value of a vehicle, person B would be able to purchase the vehicle and still remain eligible for benefits.

Two papers present theoretical predictions of the disincentives to save created by asset limits for households who participate in transfer programs. In Hubbard, Skinner, and Zeldes (1995), the authors conclude based on economic theory that "programs with asset-based means testing can discourage saving by households with low expected lifetime income." The implicit tax rate on savings and wealth in this context is extremely high. Powers (1998) develops a graphical depiction of the effects of asset tests on savings. In a two-period consumption model, Powers demonstrates how savings from period 1 can reduce the welfare benefit or preclude participation altogether. Thus, theory predicts that asset tests can discourage saving for lower-income families.

Empirical research in this area is not extensive and studies of the effect of asset tests on liquid assets (savings) and vehicle equity (car ownership) have found mixed results. While Powers (1998) found evidence that savings fell by \$0.25 for every \$1 decrease in the asset limit under OBRA 81, Hurst and Ziliak (2004) did not find any

impact of easing asset limits under PRWORA on savings of at-risk households.

Two studies have looked directly at the effect of asset limits on vehicle equity and ownership (Hurst and Ziliak 2004, Sullivan 2002). In Hurst and Ziliak (2004), the authors use the Panel Study of Income Dynamics (PSID) to conduct a pre-post analysis of changes in net worth, liquid assets, and asset ownership (including cars and checking accounts) between 1994 and 2001 resulting from changes in asset limits. They find that the change in vehicle ownership for individuals is positively correlated with the size of the increase in the overall asset limit. However, there was no effect of a vehicle exemption or a change in the dollar amount exempted on the change in vehicle equity.

Sullivan (2002) looks at the change in auto ownership under two policy changes. He examines the standardization of vehicle equity restrictions to \$1500 under OBRA 81 (1980-1984) and the loosening of asset tests during the PRWORA waiver period (1993 to 1996). Sullivan finds no effects of changes in asset tests and vehicle exemptions on vehicle ownership in the earlier period (period surrounding the passage of OBRA 81), but does find evidence that the trend towards increasing vehicle exemptions in the 1990s resulted in greater holdings of vehicle assets for single mothers with no more than a high school degree. Regarding asset limits and car ownership, Sullivan finds a negative relationship (or the opposite result of Hurst and Ziliak (2004)) which implies that car ownership is lower in states with larger overall asset limits.

### **III. Empirical Methodology and Data Description**

In this paper, we use data from the Survey of Income and Program Participation from 1994 to 1999 to examine the effects of the changes in asset tests on vehicle ownership and then look at the potential secondary effects on employment outcomes.

The SIPP provides us with a large, national, representative sample with detailed demographic, human capital, and program participation data, in addition to valuable information on car ownership. We match a rich set of state-level welfare rules from the Urban Institute to our individual-level data and exploit the variation in the asset test eligibility criteria across states and over time to examine the potential effects of asset limit rules on car ownership.

To control for the coincident economic expansion, we add state unemployment rates in addition to dummy variables for the years in our sample. As a robustness check, we also examine results for our sample (female household heads with children) relative to a control group (of men and women without children) to rule out the possibility of spurious correlations between welfare rules and car ownership (similar to Hurst and Ziliak (2004) and Powers (1998)). After estimating the effects of welfare rules on car ownership, we then use these welfare rules as instruments of car ownership in our employment outcome regressions. To our knowledge, no paper has linked the effects of asset-related rules on employment outcomes via car ownership.

### *Determinants of Auto Ownership*

We first investigate the effect of welfare rules on auto-ownership using a linear probability model of the probability of owning a vehicle. We estimate the following regression:

$$Car_{ik} = \alpha_0 + \gamma' X_{ik} + \sum_{j=1}^J \theta_j * WelfareAssetRule_k^j + \varepsilon_{ik} \quad (1)$$

where  $i=(1, \dots, N)$  indexes individuals,  $k$  represents the state,  $Car_{ik}$  is a dummy variable equal to one if woman  $i$  in state  $k$  owns a car;  $X_{ik}$  is a vector of individual-specific control variables; and  $\alpha_0, \gamma$ , and  $\theta_j$  are parameters to be estimated. Specifically,

$WelfareAssetRule_k$  is a  $J \times 1$  vector of asset limit variables and  $WelfareAssetRule_k^j$  is an element in this vector. These welfare rules vary by state and over time and are merged with individual level data by year and the individual's state of residence.

For welfare rules, we consider the following variables. We include a *vehicle exemption limit* dummy variable to pick up the effect of policies which allow a certain amount of the vehicle value to be exempt relative to those states that exempt the entire value of the vehicle. We would expect the sign on the coefficient to be negative, since exempting the entire vehicle value is a more lenient policy. We also include the *dollar amount of vehicle exempted*, if there is limited exemption allowance, and we predict the coefficient on this variable to be positive, i.e., that an individual is more likely to have a car in a state with more generous vehicle exemptions. Similarly we include the overall *asset limit*, a dummy variable for *multiple vehicles*, and a dummy variable for *equity valuation* of the vehicle (rather than fair market value). The expected signs on these variables are also positive. Lastly, we include a *waiver* dummy variable that equals one if a state ever had a waiver in place. While waivers typically resulted in looser asset limits, many waivers also introduced time limits and work requirements. Therefore, it is unclear whether having a waiver, as the variable is currently defined, is a proxy for stricter or more lenient state-level welfare policies.<sup>5</sup>

As a further robustness check, we also look at the effects of welfare reform on female heads of households with children relative to a control group that should not directly be affected by the asset limits.

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<sup>5</sup> In the future, we plan to categorize the type of waiver, or how the waiver was used, to allow us to better control for other changes in welfare policies such as the introduction of time limits and work requirements ([http://aspe.os.dhhs.gov/hsp/Waiver-Policies99/Table\\_B.htm](http://aspe.os.dhhs.gov/hsp/Waiver-Policies99/Table_B.htm)).

Using a strategy similar to Hurst and Ziliak (2004) and Powers (1998), we use male household heads and female household heads without children as a control group and estimate the following pooled linear probability model:

$$Car_{ik} = \alpha_0 + \gamma' X_{ik} + \sum_{j=1}^J \theta_j * WelfareAssetRule_k^j + \sum_{j=1}^J \kappa_j FemalewithKids * WelfareAssetRule_k^j + \varepsilon_{ik}$$

Here the base welfare asset rule effects given by the coefficients,  $\theta_j$ , capture inter-state differences in car ownership for our control group (men and women without children) that are correlated with the adoption of specific policies. *FemalewithKids* is a dummy variable equal to one if the observation is for a female household head with children. The coefficients on the interaction terms,  $\kappa_j$ , gauge the extent to which car ownership for female household heads with children (those likely to be affected by welfare rules) in state  $k$  with policy effort  $j$  differs from that of our control group, holding constant all other policies implemented by the state. These coefficients on the interaction terms can be therefore be interpreted as the asset-rules effects on auto ownership.

#### Determinants of Employment Outcomes: 2SLS

After examining the effects of welfare reform on auto-ownership, we then investigate the effect of car ownership on three employment outcomes: the probability of being employed, weekly work hours, and hourly wages conditional on being employed. To identify the causal effects of car ownership, we employ state-level welfare rules as instruments for car ownership. Using variation in these state-rules across states and over time, we estimate the two-stage model

$$Employment Outcome_{ik} = \beta X_{ik} + \delta Car_{ik} + \eta_{ik},$$

$$Car_{ik} = \alpha_0 + \gamma' X_{ik} + \sum_{j=1}^J \theta_j * WelfareAssetRule_k^j + \varepsilon_{ik}$$

where  $i$  indexes individuals and  $k$  indexes states;  $Employment\ Outcome_{ik}$  is one of the three outcomes analyzed;  $X_{ik}$  is a vector of demographic and human capital variables;  $Car_{ik}$  is a dummy variable indicating a car owner;  $WelfareAssetRules_k$  is a state-level welfare rule in place in state  $k$ ;  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\alpha$ , and  $\theta$ , are parameters; and  $\varepsilon_{ik}$  and  $\eta_{ik}$  are error terms.

Thus, in this framework, we use welfare asset rules as instrumental variables that may jointly determine car ownership but which we assume are not correlated with employment outcomes except through their effect on car ownership. More specifically, to be valid instruments, these variables need to be correlated with  $Car_{ij}$ , but not with  $\eta_{ij}$ . One concern is that the economic condition of states may in part determine the leniency of the welfare rules. To address this potential problem, we include state unemployment rates in our specification.

Another concern is that the welfare rules that we include in the model of car ownership may be correlated with the second stage employment outcome residuals, counter to our assumption. In particular, having a waiver in a state may be an indicator that a state was pro-active in helping its recipients move from welfare to work and thus there may be a direct link between waivers and employment outcomes. For this reason, we do not include the waiver variable in our set of instruments.<sup>6</sup>

### **Data**

The data for this project are drawn from several sources. Microdata on car ownership, employment outcomes, and basic demographic and human capital characteristics come from the 4<sup>th</sup> wave of the 1993 panel and the 3<sup>rd</sup>, 6<sup>th</sup>, 9<sup>th</sup>, and 12<sup>th</sup>

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<sup>6</sup> In the future as an alternative empirical strategy, we plan to use the longitudinal aspect of our data to analyze whether those who acquire cars in states with looser asset limits are then more likely to obtain a job.

waves of the 1996 Survey of Income and Program Participation (SIPP) which correspond to the year-end of 1994, 1996, 1997, 1998, and 1999. These surveys provide large nationally representative samples of individuals. The topical modules of these waves of the SIPP collect information on up to three cars per household and also provide a person identifier associated with each vehicle within the household which we use to explicitly identify individuals that own a car.

Data on state-level welfare program rules are assembled by the Urban Institute in various forms. We compiled welfare rules data from the Urban Institute Welfare Rules Database (for the years 1996 to 1999), from unpublished Urban Institute tables for auto exemptions from 1993 to 1995, and from the Trim3 microsimulation model database of the Urban Institute for asset limits in 1993 to 1995. Data on state unemployment rates are constructed by the Bureau of Labor Statistics. Specifically, we use seasonally adjusted unemployment rates from December to correspond with the year-end data collected in the SIPP.

To focus on the group most at risk of receiving welfare, we choose a similar selection strategy to that of Powers (1998) and Hurst and Ziliak (2004). We limit our sample to female household heads without a college degree and with children under the age of 18. Since the state of Ohio eliminated an asset test altogether, we delete female heads residing in Ohio from the analysis. After taking into account these sample restrictions, our analysis is based on close to 15,000 observations. In the analysis using a control group, we selected male and female household heads without children and without college degrees: this yields a sample size of about 43,000 for this section of the analysis. For the hours dependent variable in our two-stage least squares specification,

women who are not employed are assigned a value of 0. In our wage models, we further restrict the sample to wage and salary workers with complete information. Lastly, we use sample person weights provided in the SIPP for all of our analyses. The unweighted results do not differ qualitatively from those presented in our analysis and are available upon request from the authors.

### ***Summary Statistics***

Table 3 presents descriptive statistics (stratified by asset rules) for those female heads of household most likely at risk of receiving welfare – those with children and without a college degree. To begin, the first column shows mean characteristics of the overall sample. For this group of women, just under 50 percent own their own car. In terms of employment, 60 percent are employed, averaging 35 hours a week and earning approximately \$9.38, if employed. Over 35 percent are black, 17 percent are Hispanic, 20 percent are in school and almost 65 percent have at least a high school degree. The average age of our sample is almost 33 years old and the average number of children under the age of 18 is 1.94. Approximately 17 percent are current welfare recipients.

Turning to patterns by welfare rules, some clear trends appear. First, as one moves from the least generous vehicle exemption (\$1500) to more generous exemptions (such as more than \$1500 of vehicle equity exempted, total vehicle exempted, or multiple vehicles fully or partially exempted), car ownership increases from 45 percent to 55 percent. Vehicle ownership is also higher in states with the more lenient policy of valuing vehicles based on the equity value as compared to states that value vehicles at the fair market value (50 percent vs. 46 percent). We see a similar pattern regarding limits on the total amount of assets allowable. For those states with asset limits over \$1000,

average car ownership is 51 percent relative to only 47 percent for states with an asset limit equaling \$1000. In addition, car ownership on average is higher in states that ever had a waiver in place (50 percent vs. 47 percent). We observe analogous patterns for employment rates. That is, employment tends to be higher in states with looser asset limits, greater auto exemptions, and waivers in place.

These findings of higher auto ownership and higher employment in more lenient circumstances cannot be interpreted entirely as a causal effect of welfare reform due to the fact that there was a concurrent economic expansion over this time period. While there was a trend toward loosening of asset limits and increasing vehicle exemptions over this period, the national unemployment rate fell from 6.1 percent in 1994 to 4.2 percent in 1999 (Economic Report of the President, February 2004). More specifically, the average unemployment rate was 5.4 percent for states with a \$1500 vehicle limit and was only 4.3 percent for those with vehicle exemptions. Therefore, the trend towards increasing asset limits and vehicle exemptions coincides with a trend towards improving labor market condition. Furthermore, in an analysis across states within years (not shown), we also find evidence that states with lower unemployment rates were more likely to have lenient asset tests in place.

The descriptive analysis provides evidence of increased car ownership in states with looser asset limits and more generous vehicle exemptions. However, given these simultaneous events (welfare reform and the economic expansion), it is important to control for both welfare reform and changing economic conditions at the state-level in addition to demographic and human capital characteristics for individuals. Lastly, to control for potential spurious correlation between welfare reform and car ownership

among female household heads with children, we also look at the relationship between these variables for auto ownership among men without children and women without children.

#### **IV. Empirical Results**

##### *Determinants of Auto Ownership*

Table 4 presents the results of our models of the determinants of car ownership for female heads of household with children under 18 who do not have a college degree. In the first specification, we only include the state-level welfare rules. In the second we add individual characteristics and in the third we add state unemployment rates and year dummy variables.<sup>7</sup> In the first specification, the signs of the coefficients on the welfare rules variables are all as expected: Specifically, car ownership is lower in states that do not exempt the full value of the vehicle and owning a car is positively correlated with 1) the dollar amount of the vehicle exemption; 2) having a multiple vehicle exemption; 3) valuing the vehicle on an equity basis; 4) the size of the overall asset limit; and 5) whether there was a waiver in the state. Nonetheless, only exempting multiple vehicles (all or part) and the size of the asset limit exert a significant effect on the probability of owning a car. For individuals in states with multiple vehicles exempt from the asset test, auto ownership is 5 percentage points higher than for those in states that only consider exemptions on one vehicle. In addition, our results in specification (1) also suggest that a \$1000 increase in the overall countable asset limit leads to a 2.6 percentage point increase in car ownership for female heads of household without a college degree in that state.

In both specifications 2 and 3, the effects of multiple vehicle exemptions and the

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<sup>7</sup> We take into consideration the fact that the welfare rules vary across states but do not vary across individuals within states in our linear probability models. To do this, we estimate a random effects model with a grouped error structure for states.

size of asset limit remain positive and significant on the probability of owning a car. Concerning the effects of other variables in our specifications, we find that blacks and Hispanic women are significantly less likely to own a car. In addition, being in school and having children at home are also negatively correlated with car ownership. Within our sample of women without college degrees, those with at least a high school degree are more likely to have a car and car ownership increases with age at a decreasing rate. Lastly, the unemployment rate in a state is negatively correlated with the probability of car ownership. For every percentage point increase in the unemployment rate, the probability of car ownership falls by 2.4 percentage points.

In Table 5, we present the results that differentiate the effects of welfare reform on car ownership on our at-risk sample relative to a control group that is unlikely to be affected directly by the changes in welfare eligibility rules. This control group contains male and female household heads without children. In the specifications in Table 5, the coefficients on the interaction terms are the parameters of interest and tell us the effects of these welfare rules on female household heads with kids, above and beyond any correlation with the control group in the state.

In these specifications, the coefficients on the interaction term for four of the six welfare rules are significant and positive. In addition to multiple vehicle exemptions and the amount of the overall asset limit, evaluating a vehicle on an equity basis and having a waiver in the state are positively correlated with the probability of car ownership. The magnitude of the effects of multiple vehicle exemptions and asset limit are similar to (but slightly less than) those in the linear probability model where the sample is restricted to women with kids (shown in Table 4). For the equity valuation variable, in states that

value a vehicle based on equity rather than a fair market basis, the probability of car ownership is about 2 to 4 percentage points higher for single women with kids than for the control group. In states that ever had a waiver in place, car ownership is 2 to 3 percentage points higher. Thus, this estimation strategy provides further evidence that we are truly picking up the effects of the changes in these welfare rules on the population considered most at risk of welfare reciprocity.

### *Determinants of Employment*

Turning to the effects of car ownership on employment outcomes, Table 6 presents the results of our instrumental variables regression (the second stage results) along side of the results of the OLS linear probability model. Beginning with the OLS results, controlling for individual characteristics and state-level economic conditions explains a sizable portion of the unadjusted differences in employment rates, hours and hourly wages between those with and without cars presented in Table 1. Nonetheless, large differences remain. For example, there is a 27 percentage point difference in the employment rate between those with cars and those without in the OLS regression compared to a 40 percentage point unadjusted difference. For hours worked, the adjusted difference is 11 hours compared to unadjusted difference of 17 hours and wages are only \$1.20 higher in the OLS model compared to a \$2.60 difference in the raw means. While the OLS models are able to control for individual, state-level, and time effects, they do not indicate causality, only a positive association between car ownership and labor market outcomes.

In order to address the potential endogeneity of car ownership and to assess whether the results found the OLS regressions are causal, we instrument car ownership

with state-level welfare rules and present the second stage results in Table 6. The F-statistic for the test of the joint significance of the five instruments is quite large (18.69) and is significant at the 0.002 level for specification (3) in Table 4. Therefore, even after controlling for individual characteristics, state-level economic conditions, and an overall time trend in the data (through year dummy variables), the instruments are strongly correlated with the probability of owning a car.

The 2SLS results indicate a positive and significant effect of car ownership on the probability of being employed. Although the 2SLS estimate (of .51) is higher than the OLS estimate (of .27), the standard error for the 2SLS coefficient is large and suggests that this coefficient is estimated with less precision than the OLS estimate.<sup>8</sup> Nonetheless, we are able to measure a significant positive employment effect suggesting evidence of a causal role of car ownership on being employed for a population with a high risk of receiving welfare. The 2SLS results for hours also suggest a significant positive effect of car ownership, while the 2SLS results for wages are negative and not significant.

## **V. Conclusion**

We find evidence that state-level welfare rules regarding asset limits and exemptions for vehicle values are jointly statistically significant for predicting vehicle ownership for less educated female household heads with children. Of the six individual welfare rules that we investigated, the asset limit itself was highly significant in all specifications and our results suggest that raising the asset limit by \$1,000 is associated with a 2 percentage point gain in the vehicle ownership rate for states adopting these looser asset limits. In addition, allowing for multiple vehicles to be exempt raises the

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<sup>8</sup> In the future, we plan to test whether these coefficients are statistically significantly different from each other. In addition, we have not yet implemented random effects into the two stage least squares portion of the analysis and the standard errors may be even larger after this correction is made.

probability of vehicle ownership by somewhere between 2 to 3 percentage points.<sup>9</sup> In a regression which compares female householders with children against a control group that is unlikely to be affected by welfare rules, two additional variables come in statistically significant: the dummy indicating whether a vehicle's value is assessed on an equity basis and a dummy indicating whether the state ever had a waiver from the federal welfare rules during the 5-year time period.

In a two-stage least squares (2SLS) regression using the asset value limit and vehicle exemption rules as instruments, we find evidence that car ownership has a positive and statistically significant effect on the probability of being employed and on hours worked, but has no statistically significant effect on wages. As compared to OLS regressions, the coefficients on employment status and hours worked are higher in the 2SLS specification.

The findings strongly suggest that welfare rules, particularly the asset limit, have a discernible impact on vehicle ownership. In addition, our preliminary 2SLS results further suggest that this impact on vehicle ownership then translates into higher levels of employment and more hours of work.

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<sup>9</sup> When we limit the sample to female household heads with children, this result was significant at the 10% level, but when we allow for a comparison against a control group that is unlikely to be affected directly by welfare rules, the difference from the control group is significant at the 5% level.

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**Table 1**  
**Means of Employment, Work Hours, and Hourly Wages by Car Ownership Status:**  
**Female Heads of Household with Children and without a College Degree**  
**(1994-1999)**

	All	With Cars	Without Cars	Difference
Employed	0.605 (0.004)	0.808 (0.005)	0.412 (0.006)	0.396 (0.007)
Hours	21.88 (0.155)	30.28 (0.195)	13.83 (0.201)	16.46 (0.280)
Hours, if working	35.26 (0.108)	37.33 (0.115)	31.58 (0.205)	5.74 (0.218)
Real Hourly Wages	4.26 (0.041)	5.88 (0.065)	2.70 (0.044)	3.17 (0.079)
Real Hourly Wages, if working	9.38 (0.060)	10.311 (0.080)	7.714 (0.083)	2.60 (0.123)
Real Monthly Income	877.74 (9.268)	1326.16 (14.341)	447.84 (9.524)	878.31 (17.089)
Real Monthly Income, if working	1486.76 (11.972)	1680.36 (15.113)	1120.32 (17.752)	560.04 (24.457)
Welfare Participation	0.169 (0.003)	0.081 (0.003)	0.253 (0.005)	-0.172 (0.006)
N	14903	7310	7593	

Note: Standard errors are in parentheses.

Source: authors' calculations from the Survey of Income and Program Participation (SIPP) 1993 panel (one wave) and 1996 panel (four waves).

**Table 2**  
**State-level welfare rules affecting auto-ownership**  
(1994-1999)

Year	Average Dollar Amount Exempt <sup>a</sup> (nominal \$)	Full Vehicle Exemption (share of states)	Multiple Vehicles Exempt <sup>c</sup> (share of states)	Equity vs. Fair market value <sup>d</sup> (share of states)	AFDC or TANF Waiver <sup>e</sup> (share of states)	Average Asset Limit (overall) (nominal \$) <sup>f</sup>
1994	\$1551.02	0%	0%	100%	27%	\$1102.04
1995	\$1739.58	2%	2%	98%	45%	\$1224.49
1996	\$2414.20	8%	8%	96%	55%	\$1367.35
1997	\$4891.00	41%	27%	82%	25%	\$1895.83
1998	\$6147.82	45%	33%	76%	12%	\$2322.92
1999	\$6512.64	49%	37%	73%	10%	\$2416.67

a. Applies when states indicated a dollar value of a vehicle that does not count towards asset limits.

b. Note: the number of states only adds up to 49 because Maine & Vermont and North & South Dakota are combined to merge with the SIPP data. Washington, DC is also included

c. Dummy variable equal to one if all or part of multiple vehicles are exempted.

d. Dummy variable equal to one if the vehicle is valued on an equity basis and zero if based on fair market value. Equity value of a car equals the fair market value minus the amount still owed on the car.

e. Dummy variable equal to one if a state has any welfare rules in place authorized under a waiver.

f. Indicates the unrestricted asset/resource limit. Maximum amount of assets that may be held by an AFDC/TANF applicant unit, by state as of July 1.

Sources: For 1996-1999, Urban Institute Welfare Rules Database. For 1994 and 1995, unpublished auto asset rules from the Urban Institute and asset limits from the Urban Institute's TRIM3 microsimulation model.

**Table 3**  
**Means of Demographic and Background Characteristics:**  
**Female Heads of Household with Children and without a College Degree**  
 Stratified by Auto Asset Exemptions (1994-1999)

Eligibility Status	All	\$1500 of Vehicle Exempt	> \$1500 Vehicle Exempt	Entire Vehicle Exempt	Multiple Vehicles Exempt	Equity Valuation	Fair Market Value	Asset Limit = \$1000	Asset Limit > \$1000	No Waiver	Ever Waiver
Car Owners	0.489 (0.004)	0.446 (0.007)	0.496 (0.006)	0.532 (0.008)	0.549 (0.009)	0.496 (0.005)	0.462 (0.010)	0.465 (0.006)	0.511 (0.006)	0.469 (0.008)	0.497 (0.005)
Employed	0.605 (0.004)	0.539 (0.007)	0.624 (0.006)	0.664 (0.008)	0.670 (0.009)	0.600 (0.004)	0.629 (0.009)	0.572 (0.006)	0.635 (0.005)	0.585 (0.009)	0.613 (0.005)
Hours	21.88 (0.155)	19.66 (0.281)	22.28 (0.235)	24.24 (0.311)	24.10 (0.350)	21.74 (0.172)	22.53 (0.362)	20.87 (0.232)	22.75 (0.209)	21.36 (0.301)	22.07 (0.127)
Hours*	35.26 (0.120)	35.29 (0.202)	35.29 (0.160)	35.15 (0.221)	35.15 (0.243)	35.31 (0.121)	35.04 (0.242)	35.33 (0.163)	35.21 (0.145)	35.11 (0.208)	35.31 (0.127)
Real Wages	4.26 (0.041)	3.55 (0.069)	4.37 (0.064)	5.05 (0.088)	4.95 (0.097)	4.22 (0.046)	4.42 (0.100)	3.91 (0.059)	4.56 (0.058)	4.10 (0.078)	4.31 (0.049)
Real Wages*	9.38 (0.060)	8.81 (0.108)	9.65 (0.090)	9.55 (0.127)	9.19 (0.118)	9.36 (0.066)	9.46 (0.134)	9.00 (0.085)	9.68 (0.085)	9.02 (0.119)	9.51 (0.070)
Monthly Income	877.74 (9.268)	727.88 (14.737)	937.43 (14.78)	976.00 (19.723)	960.43 (21.371)	865.05 (10.21)	935.23 (22.08)	787.04 (12.505)	955.78 (13.393)	797.82 (16.06)	907.14 (11.20)
Monthly Income*	1486.76 (11.972)	1379.37 (20.203)	1540.40 (19.803)	1514.96 (24.296)	1467.26 (25.799)	1478.61 (13.325)	1521.87 (27.239)	1409.98 (16.348)	1546.43 (17.010)	1399.58 (20.363)	1517.34 (14.486)
State UR	4.86 (0.009)	5.40 (0.013)	4.78 (0.016)	4.30 (0.012)	4.30 (0.014)	4.99 (0.010)	4.24 (0.016)	5.04 (0.013)	4.70 (0.013)	4.95 (0.016)	4.82 (0.01)
N	14903	4659	6404	3582	2801	12277	2626	6791	8112	3946	10957

Note: Standard errors are in parentheses. \* indicates "for those employed".

**Table 3 – Continued**  
**Means of Demographic and Background Characteristics:**  
**Female Heads of Household with Children and without a College Degree**  
 Stratified by Auto Asset Exemptions (1994-1999)

Eligibility Status	All	\$1500 of Vehicle Exempt	> \$1500 Vehicle Exempt	Entire Vehicle Exempt	Multiple Vehicles Exempt	Equity Valuation	Fair Market Value	Asset Limit = \$1000	Asset Limit > \$1000	No Waiver	Waiver
Welfare	0.169 (0.003)	0.245 (0.006)	0.146 (0.004)	0.101 (.005)	0.097 (0.006)	0.185 (0.004)	0.098 (0.006)	0.210 (0.005)	0.134 (0.004)	0.153 (0.006)	0.175 (0.004)
Black	0.376 (0.004)	0.430 (0.007)	0.335 (0.006)	0.377 (0.008)	0.347 (0.009)	0.367 (0.004)	0.416 (0.010)	0.421 (0.006)	0.338 (0.005)	0.467 (0.008)	0.343 (0.005)
Hispanic	0.168 (0.003)	0.152 (0.005)	0.230 (0.005)	0.087 (0.005)	0.159 (0.007)	0.157 (0.003)	0.219 (0.008)	0.130 (0.004)	0.202 (0.004)	0.082 (0.004)	0.200 (0.004)
In School	0.210 (0.003)	0.203 (.006)	0.211 (0.005)	0.221 (0.007)	0.223 (0.008)	0.209 (0.004)	0.219 (0.008)	0.198 (0.005)	0.222 (0.005)	0.198 (0.006)	0.215 (0.004)
HS degree	0.646 (0.004)	0.574 (0.007)	0.662 (0.006)	0.721 (0.007)	0.699 (0.009)	0.636 (0.004)	0.690 (0.009)	0.611 (0.006)	0.676 (0.005)	0.662 (0.007)	0.640 (0.005)
Age	32.64 (0.102)	32.45 (0.167)	32.93 (0.144)	32.42 (0.202)	32.48 (0.217)	32.59 (0.103)	32.90 (0.227)	32.53 (0.138)	32.75 (0.128)	32.23 (0.179)	32.79 (0.110)
Number of Kids	1.935 (0.009)	1.982 (0.017)	1.897 (0.014)	1.930 (0.019)	1.901 (0.020)	1.945 (0.011)	1.892 (0.021)	1.992 (0.015)	1.886 (0.012)	1.947 (0.018)	1.931 (0.011)
N	14903	4659	6404	3582	2801	12277	2626	6791	8112	3946	10957

Note: Standard errors are in parentheses. \* indicates “for those employed”.

**Table 4**  
**Regressions of Car Ownership on State-Level Welfare Rules and Demographic Characteristics: Female Heads of Household with Children under 18 and without a College Degree (1994-1999)**

Eligibility Status	(1) State-level welfare Rules	(2) With Individual Characteristics	(3) With State Unemployment Rates
Vehicle Limit Dummy <sup>a</sup>	-0.013 (0.021)	0.025 (0.017)	0.014 (0.020)
Amt of Vehicle Limit (\$000s)	0.001 (0.003)	-0.002 (0.002)	-0.002 (0.003)
Multiple vehicles	0.050** (0.020)	0.030* (0.017)	0.034* (0.017)
Equity Valuation	0.021 (0.019)	0.013 (0.016)	0.017 (0.016)
Asset Limit (\$000s)	0.026*** (0.008)	0.021*** (0.007)	0.022*** (0.007)
Waiver (ever)	0.039 (0.033)	0.028 (0.025)	0.010 (0.024)
Black		-0.204*** (0.008)	-0.205*** (.008)
Hispanic		-0.167*** (0.011)	-0.166*** (0.011)
In School		-0.029*** (0.011)	-0.028*** (0.011)
HS degree		0.155*** (0.008)	0.156*** (0.008)
Age		0.060*** (0.002)	0.060*** (0.002)
Age <sup>2</sup>		-0.001*** (2.6e-5)	-0.001*** (2.6e-5)
Number of Own Kids < 18		-0.027*** (0.003)	-0.027*** (0.003)
Unemployment Rate (state)			-0.024*** (0.008)
Year dummies	No	No	Yes
F- statistic <sup>a</sup> (p-value)	30.28 (0.0000)	16.06 (0.0067)	18.69 (0.0022)
R <sup>2</sup>	.007	.258	.266
N	14903	14903	14903

a: indicates that states had a limit to the amount of the vehicle exemption in place. Note: All regressions include a constant and all models include random state effects. \* indicates significance at the 10% level. \*\* indicates significance at the 5% level. \*\*\* indicates significance at the 1% level. Standard errors are in parentheses.a. The F-statistics are from tests of the collective significance of the instruments (the first five welfare rules) for the employment, hours, and wage regressions (see table 6).

**Table 5**  
**Regressions of Car Ownership on State-Level Welfare Rules and Demographic Characteristics: Female Heads of Household with Children and Female and Male Heads of Household without Children (1994-1999)**

Eligibility Status	(1) State-level welfare Rules	(2) With Individual Characteristics	(3) With State Unemployment Rates
Vehicle Limit Dummy	-0.218 (0.013)	0.013 (0.012)	-0.014 (0.014)
<b>Vehicle Limit Dummy*Kids</b>	<b>-0.002 (0.018)</b>	<b>-0.0002 (0.017)</b>	<b>-0.0003 (0.017)</b>
Amt of Vehicle Limit (\$000s)	0.002 (0.002)	-0.001 (0.002)	0.001 (0.002)
<b>Amt of Vehicle Limit*Kids</b>	<b>0.001 (0.002)</b>	<b>-0.0004 (0.002)</b>	<b>-0.0003 (0.002)</b>
Multiple vehicles	-0.004 (0.013)	-0.013 (0.012)	-0.007 (0.012)
<b>Multiple vehicles*Kids</b>	<b>0.037* (0.015)</b>	<b>0.028** (0.014)</b>	<b>0.029** (0.014)</b>
Equity (vs. FMV)	-0.022* (0.012)	-0.015 (0.011)	-0.018 (0.011)
<b>Equity (vs. FMV)*Kids</b>	<b>0.040*** (0.015)</b>	<b>0.022* (0.013)</b>	<b>0.023* (0.014)</b>
Amt of Asset Limit*1000	-0.001 (0.005)	-0.004 (0.005)	-0.001 (0.006)
<b>Amt of Asset Limit*Kids</b>	<b>0.021*** (0.007)</b>	<b>0.018*** (0.006)</b>	<b>0.018*** (0.006)</b>
Waiver Ever	0.010 (0.027)	0.001 (0.024)	-0.009 (0.024)
<b>Waiver Ever*Kids</b>	<b>0.026** (0.012)</b>	<b>0.021* (0.011)</b>	<b>0.021*** (0.011)</b>
F- statistic <sup>a</sup> (p-value)	31.92 (0.0000)	25.40 (0.0001)	25.77 (0.0001)
R <sup>2</sup>	0.038	0.175	0.179
N	43068	43068	43068

Note: All regressions include a constant and all models include random state effects. \* indicates significance at the 10% level. \*\* indicates significance at the 5% level. \*\*\* indicates significance at the 1% level. Standard errors are in parentheses.

a. The F-statistics are from tests of the collective significance of the instruments (the first five welfare rules) for the employment, hours, and wage regressions (see table 6).

**Table 6**  
**OLS and 2SLS Estimates of the Effect of Car Ownership on Employment, Work Hours and Wages:** Female Heads of Household with Children and without a College Degree (1994-1999)

	Employed		Hours		Wages	
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Car Owners	0.271*** (.008)	0.505*** (0.114)	11.135*** (0.307)	15.912*** (5.503)	1.165*** (0.131)	-2.056 (1.971)
Black	-0.025*** (0.008)	0.027 (0.026)	0.570* (0.293)	1.646 (1.205)	-0.611*** (0.124)	-1.159** (0.380)
Hispanic	-0.014*** (0.011)	0.025 (0.023)	0.505 (0.385)	1.283 (1.055)	-0.669*** (0.173)	-1.254*** (0.355)
In School	-0.079*** (0.011)	-0.072*** (0.012)	-6.344*** (0.401)	-6.205*** (0.447)	0.753*** (0.183)	0.548** (0.219)
HS degree	0.154*** (0.009)	0.118*** (0.019)	5.700*** (0.320)	4.967*** (0.896)	1.519*** (0.146)	1.901*** (0.276)
Age	0.026*** (0.002)	0.012*** (0.007)	1.172*** (0.075)	0.889*** (0.333)	0.421*** (0.036)	0.635*** (0.137)
Age^2	-3.6e-4*** (2.6e-5)	-2.1e-4*** (8.1e-5)	-0.016*** (0.001)	-0.013*** (0.004)	-0.004*** (4.8e-4)	-0.007*** (0.002)
Number of Own Kids	-0.045*** (0.003)	-0.038*** (0.005)	-1.741*** (0.119)	-1.607*** (0.192)	-0.273*** (0.058)	-0.358*** (0.078)
Unem. Rate	-0.026*** (0.004)	-0.014*** (0.006)	-0.930*** (0.139)	-0.678** (0.274)	0.213*** (0.059)	0.142 (0.088)
Union					3.028*** (0.202)	3.107*** (0.218)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
R^2	.242	.190	.287	.238	.144	.132
N	14902	14902	14902	14902	9143	9143

Note: Standard errors are in parentheses.

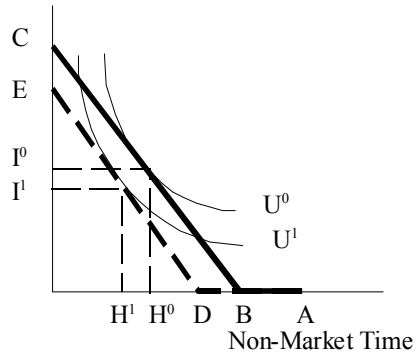
Instruments: Vehicle limit, \$ amount of limit, multiple vehicles considered, equity valuation used.

Not instruments: Waiver ever.

**Figure 1**

A. Effect on Work Hours

Disposable Income



B. Effect on Labor Force Participation

Disposable Income

