

# **Wealth, Reservation Wages, and Labor Market Transitions in the U.S.: Evidence from the Survey of Income and Program Participation**

**Michelle Alexopoulos**

**and**

**Tricia Gladden**

**April 2002**

**Preliminary and Incomplete. Please do not cite without authors consent.**

## **Abstract**

In many theoretical papers an individual's reservation wage and employment probability are affected by his financial wealth. Despite the prevalence of this relationship, to date only a small number of papers have examined if this assumption is empirically valid. This paper uses subjective information on individuals' reservation wages to test the validity of this assumption. We use U.S. data on a sample of unemployed job searchers and a sample of individuals who are currently out of the labor force, but who indicate that they may enter the labor force in the near future. By estimating a simultaneous equation model of reservation wages, labor market transition and wealth, we will determine if wealth has a significant impact on individuals' reservation wages and employment probabilities. In addition, we will be able to examine if the effect of wealth differs between men and women, and people in and out of the labor force. To date, we know of no other study that uses American data and addresses these issues. This suggests that our results should be of considerable interest since many labor market models are calibrated to match variables in the American economy.

## I. Introduction

In recent years, there has been an explosion in the number of papers examining worker search in the labor market. These models predict that, in equilibrium, the wage of a worker accepts depends on the value of his/her outside option. Generally, the higher the outside option, the higher the worker's reservation wage and negotiated wage will be. For worker's without another job offer, the value of the worker's outside option should depend on variables such as the value of unemployment insurance, and the individual's own wealth (or the wealth of his/her family). According to standard theory, financial wealth should affect the worker's outcome in at least two ways. First, when a worker is wealthier, it is relatively less costly for the individual to search longer for a better match. Second, wealthier workers will receive relatively higher wages than poorer workers, because of the effect of their outside option on the wage determined through bargaining.

Although the theory produces stark predictions about the relationship between a worker's reservation wage, his prevailing wage and his transition into employment, surprisingly little research has focused on determining the empirical relevance of the relationships. One exception is Bloemen and Stancanelli (2001). In this paper, the authors examine a Dutch panel dataset that includes information on self-reported reservation wages and wealth information, along with demographic information. They use this information to examine the impact of wealth on workers' reservation wages and the impact of wealth on the probability of employment. Their findings suggest that, for Dutch workers, wealth does have a significant positive impact on reservation wages. However, the overall impact of wealth on the

employment probability is negative, although small. Given the usefulness of Bloemen and Stancanelli (2001) findings, it is important to determine if their results are unique to Dutch workers. For example, determining the importance of the link between individuals wealth, reservation wages and employment transitions using U.S. data is especially important given the large number of papers that apply search models to the U.S. economy. This paper seeks to answer how large a role, if any, wealth plays in a U.S. worker's labor market outcome.

Our study is closely related to Bloemen and Stancanelli (2001) with three main exceptions. First, we utilize a dataset that samples American workers instead of Dutch workers. Second, our data allows us to examine the differences in the relationship between workers who are currently actively searching for worker and individuals who are originally classified as out of the labor force, but who report that they are considering entering into the labor force in the near future. Third, we are able to examine how including measures of search intensity affect our results.

For our study, we utilize a portion of the 1984 Survey of Income and Program Participation. This data set is selected because it combines a unique mixture of information that is not available in the more widely used surveys such as the NLSY or the PSID. In particular, combining the individual data collected in Waves 2-9 with the information in the topical modules on Wealth, Reservation Wages and Work History, we obtain a unique panel that will allow use to examine the affects of wealth on reservation wages and job transitions.

In wave 5 of the 1984 SIPP, individuals who were unemployed or who indicated there is some likelihood that they will join the labor force in the next 12 months were asked additional

questions in a topical module. The survey includes questions about: (i) the kind of job the individual is currently searching for (full time vs. part time), (ii) what occupation the individual is searching for a job in, (iii) what past experience the individual has in the type of job he/she indicates he/she is searching for, (iv) unemployment duration (if applicable), and (v) the lowest wage the individual will accept for the job. In addition, individuals are asked questions regarding the methods used for searching, how many employers have been contacted, as well as the reason a job offer has been turned down during this unemployment spell and the job characteristics (if applicable). We use this data to estimate a simultaneous equation model of reservation wages, labor market transition and wealth. The results help us determine if there is evidence to suggest that wealth has a significant impact on individuals' reservation wages and employment probabilities.

Our investigation suggests that the reservation wages of wealthier workers are generally higher than the reservation wages of poorer workers. There is a negative relationship between wealth and search intensity and a positive relationship between search intensity and employment transitions. These effects, together with the positive relationship between reservation wages and wealth, suggests there is positive relationship between unemployment duration and wealth. However, these affects are not statistically significant for all groups of individuals. For example, wealth effects are stronger for the sample of married women than for men. In addition to these findings, we find that there are no significant differences between different racial groups.

Our study is not the first to use subjective reservation wage data for workers in the U.S.

Previously, Feldstein and Poterba (1984) and Holzer (1986) have used this type of data, from a special supplement of the current population survey in May 1976 and the 1979 and 1980 waves of the National Longitudinal Survey of the New Youth Cohort respectively. Feldstein and Poterba (1984) use their data to study the relationship between the replacement rate, unemployment and the reservation wages, while Holtzer focuses on examining the relationship between unemployment and reservation wages for white and black youths.<sup>1</sup>

Our findings on the relationship between unemployment income and reservation wages are similar to those in Feldstein and Poterba (1984). Specifically, reservation wages are higher for individuals with greater unemployment income. However, in contrast to the finding in Holtzer (1986) our study does not suggest that there are large differences in the reservation wages of white and non-white workers after controlling for other observables.

Comparing our results to those in Bloemen and Stancanelli (2002), it is clear that the reservation wages of Dutch and American workers in our respective samples are influenced by variables such as wealth and unemployment income. However, the effect of wealth on the reservation wages of American men is not always significant.

We organize the paper as follows. Section 2 presents the theoretical framework. Section 3 presents the empirical model used in the estimation procedure. Section 4 discusses our data. Section 5 presents the results of the estimation, and Section 6 concludes.

---

<sup>1</sup> For a survey of the existing studies using direct evidence of reservation wages through 1990, see Kiefer and Devine (1991).

## II. The Theoretical Framework

Although the typical model of job search assumes that individuals are risk neutral and maximize income, once the assumption of risk neutrality is relaxed financial assets can affect the individual's decision. To motivate our interest in the relationship between wealth, reservation wages and employment transitions, we present the following simple model of unemployed job search based on the discussions in Danforth (1979) and Bloeman and Stancanelli (2001).

Individuals are assumed to maximize their lifetime utility  $\sum_{t=0}^{\infty} \beta^t u(c_t)$  subject to their period by period budget constraints where  $\beta$  is the discount rate,  $u'(c) > 0$  and  $u''(c) < 0$ . When an individual is unemployed, his probability of receiving a job offer is  $\lambda_t$ . Job offers are drawn from a stochastic wage-offer distribution  $F(w)$  with density function  $f(w)$  and mean  $Ew$ . In this simple environment, there is no on the job search, and jobs are assumed to last forever. Unemployed individuals with a job offer in hand must decide whether to accept or reject the offer. There is no recall of past job offers and if the offer is rejected the individual must wait one period before he can receive another job offer.

The individual's budget constraint and asset holdings depends on his employment history and his current employment status. An individual's level of assets at the beginning of time  $t + 1$ ,  $A_{t+1}$ , evolve according to the following equation

$$A_{t+1} = (A_t - c_t + i_t)(1 + r)$$

where  $r$  is the constant real interest rate faced by individuals,  $c_t$  is the amount the individual consumed in period  $t$ , and  $i_t$  is the amount of income the individual received in period  $t$ .

When individuals are employed at a job during period  $t$  that pays wage  $w$ ,  $i_t = w$ . When individuals are unemployed during date  $t$ , they receive unemployment benefits,  $b$ , for the period and  $i_t = b$ .

An employed individual, who has a job paying wage  $w$  and who has a beginning of period wealth,  $A$ , has the following lifetime utility

$$V(w, A) = \max_c \{u(c) + \beta V(w, (A - c + w)(1 + r))\}$$

and the unemployed with beginning of period wealth,  $A$ , have the following expected lifetime utility

$$U(A) = \max_c \left\{ \begin{array}{l} u(c) + \beta(1 - \lambda)U((A - c + b)(1 + r)) \\ \beta\lambda \int_0^\infty \max [V(w, (A - c + b)(1 + r)), U((A - c + b)(1 + r))] dF(w) \end{array} \right\}$$

Under these assumptions it follows that a job is accepted if  $V(w, A) \geq U(A)$  and is rejected otherwise. The reservation wage,  $w^R$  is the wage that makes individuals indifferent between accepting the job and rejecting the job offer and continuing the search process, i.e.,  $V(w^R, A) \geq U(A)$ . From this equation it is clear to see that the individual's reservation wage will depend on the level of his asset holdings:  $w^R = w^R(A)$ . In cases where individuals are risk adverse and  $-\frac{u''}{u'}$  is a decreasing function of  $c$ , Danforth (1979) demonstrated that reservation wages are increasing in the amount of financial assets held by the individual.

Finally, it can be seen that the probability of employment,  $\theta$ , can be written as the probability of receiving a job offer and accepting it:

$$\theta = \lambda [1 - F(w^R(A))]$$

### III. The Empirical Model

It is well known that the problem described in the previous section does not provide us with an analytic solution for the reservation wage  $w^R(A)$ . As a result, the majority of work has concentrated on examining reduced form models that have estimated the transition probabilities with wealth as a regressor. In this article, we will follow the same procedure as Bloeman and Stanca, and the data on the self reported reservation wages reported in the survey of income and program participation to examine the relationships between wealth, reservation wages and transitions from unemployment to employment. To accomplish this, we will estimate a system of simultaneous equations.

Jobs are characterized in terms of the wages that they offer workers. We assume that the wage offer distribution is lognormal and is described as:

$$\ln w_{it} = \delta' k_{it} + e_{it} \text{ where } e_{it} \sim N(0, \tau^2)$$

where  $i$  indexes individual  $i$  in the population of unemployed job searchers and  $k$  are the individual's characteristics, and the parameters of the wage-offer distribution,  $\delta$ , are estimated from lognormal wage regressions for the population of the employed, correcting for selection.

The log of the reservation wage, denoted by  $R = \ln(w^R)$ , is a function of the individual's characteristics and the individual's wealth level. In particular

$$R_{it} = f(A_{it}) + \xi' X_{it} + \varepsilon_{it} \text{ where } \varepsilon_{it} \sim N(0, \sigma_\varepsilon^2)$$

where  $X_{it}$  contains the individual's characteristics, and  $f(A_{it})$  is a quadratic function of wealth to allow for non-linearities. This reservation wage equation may be interpreted as an



approximation to the solution of a structural search model and the error term can represent measurement error, approximation error or randomness in preferences.

To allow of the possibility that wealth is correlated with the errors in the reservation wage equation, we also specify an equation for wealth:

$$A_{it} = \Omega' H_{i,t-1} + v_{i,t-1} \text{ where } v_{i,t-1} \sim N(0, \sigma_v^2)$$

where  $H_{i,t-1}$  includes the individual's characteristics as of period  $t - 1$ . The period  $t - 1$  values are used because  $A_{it}$  is determined in time period  $t - 1$ .

The probability of receiving a job offer in any period is assumed to be

$$\Pr(\text{job offer}) = \lambda_{it} = 1 - \exp(-\eta_{it})$$

where  $\eta_{it}$  is a positive parameter that depends on the individual's characteristics,  $Z_{it}$  in the follow way:

$$\eta_{it} = \exp(\gamma' Z_{it})$$

where  $\gamma$  is a parameter and  $Z_{it}$  includes characteristics such as the elapsed unemployment duration and measures of the individual's search effort. The larger the value of  $\eta_{it}$ , the higher the probability the individual will receive an offer.

We assume joint normality of the error terms,  $e$ ,  $\varepsilon$ , and  $v$ . Moreover,  $\rho_{e\varepsilon}$  is the correlation between the errors  $e_{it}$  and  $\varepsilon_{it}$ ,  $\rho_{ev}$  is the correlation between the errors  $e_{it}$  and  $v_{i,t-1}$  and  $\rho_{\varepsilon v}$  is the correlation between the errors  $v_{i,t-1}$  and  $\varepsilon_{it}$ .

In this environment, an individual accepts the job offer if the wage offered exceeds the individual's reservation wage. Under our assumptions of joint normality, the acceptance

probability conditional on wealth and the observed reservation wage, can be written as:

$$\Pr(\ln w_{it} > R_{it} \mid R_{it}, A_{it}) = 1 - \Phi \left( \frac{R_{it} - \delta' k_{it} - \psi(e_{it} \mid \varepsilon_{it}, v_{i,t-1})}{\sigma_{e|\varepsilon, v}} \right)$$

where  $\Phi(\cdot)$  is the standard normal distribution function,  $\psi(e_{it} \mid \varepsilon_{it}, v_{i,t-1})$  is the part of the conditional mean that arises due to the possible nonzero correlation between the errors of the equations and  $\sigma_{e|\varepsilon, v}$  is the conditional variance of the wage error term.

It follows that the probability of observing a transition from unemployment to employment can be written as the probability a job is offered to the individual multiplied by the probability the job offer is accepted:

$$[1 - \exp(-\eta_{it})] \left[ 1 - \Phi \left( \frac{R_{it} - \delta' k_{it} - \psi(e_{it} \mid \varepsilon_{it}, v_{i,t-1})}{\sigma_{e|\varepsilon, v}} \right) \right]$$

For each individual who makes a transition, the likelihood contribution is obtained by multiplying the transition probability by the joint density of wealth and reservation wages. For individuals who do not make the transition, the likelihood contribution is obtained by multiplying  $1 - \text{PR}(\text{transition})$  by the joint density of wealth and reservation wages. Finally, for individual's whose reservation wage is not observed, we integrate over the reservation wages.

There are two places that wealth enters into our equations: as one of the simultaneously estimated equations and as a regressor in the reservation wage equation. For the first pass, wealth only indirectly affects the probability of a job offer through the reservation wage and through possible error correlations. Although this is consistent with the theoretical literature used to justify our analysis, there are a number of reasons to believe that wealth might also

affect the arrival rate. For example, wealth and the arrival rate could be correlated due to unobserved worker heterogeneity so wealth workers could have a higher arrival rate of offers. There may also be a relationship due to the effect of wealth on endogenous search effort. In models with endogenous search intensity, a worker's search effort depends on the state variables in the model. Although models presented in papers such as Burdett and Mortensen (1978) and Mortensen (1986) do not contain wealth, extensions of this type of model to include wealth would result in a relationship between wealth and search intensity. For example, these models could predict that a higher level of wealth would lead to a lower level of search intensity and thus a lower arrival rate. Given the possibility of the relationship between wealth, search intensity and arrival rates, we run also variations of the model including income and wealth variables in the arrival rate equation.

#### **IV. The Data**

For our analysis, we use a sample drawn from the 1984 Survey of Income and Program Participation (SIPP). The SIPP is survey of about 21,000 households representative of the United States population. About one quarter of households are interviewed each month; each household is interviewed every 4 months. We use data from waves 2 through 9 of the 1984 SIPP, as well as data from the wave 4 and wave 5 topical modules. This data set is chosen because of the unique combination of variables that it offers. Every 4 months, individuals are asked detailed questions about income and employment, as well as demographic and education information. In addition, extra sets of questions asked in waves 4 and 5 provide us with detailed information on wealth and on reservation wages.

### *The Wealth information*

The wealth information in the SIPP is collected in two different topical modules. It is first reported in Wave 4 and next in Wave 7 one year later. The quality of the wealth data in the 1984 SIPP is examined by McNeil and Lamas (1989), and Curtin, Juster and Morgan (1989). Their collective findings suggest that the wealth information in the subgroups is remarkably stable from Wave 4 to Wave 7, and the wealth information is most comparable to the wealth information in the Panel of Survey and Income Dynamics. Larger differences emerge when comparing the SIPP data with the wealth information obtained from the Survey of Consumer Finances. However, the difference in estimates of net worth seem to be related to the measures of equity in motor vehicles and own business, and the fact that the SCF oversamples the high income portion of the population. When the net worth is measured without these variables, the two data sets yield relatively close estimates of net worth. Since we are interested in the relationship between unemployed workers and their household wealth, we have eliminated a large part of the high income population since these workers are less likely to experience spells of unemployment.

For the results reported, our measure of wealth is the value of net household worth reported by the SIPP. In the SIPP total household wealth includes the household's home equity, net equity in vehicles, business equity, interest earning assets held in banking and other institutions, equity in stocks and mutual fund shares, equity in other real estate, total of mortgages held, money owed from sale of business, bonds, IRA and Keogh accounts. Net Worth is then defined as total wealth minus total unsecured debt. This measure of wealth is

used in part because of its comparability to the wealth measure in Bloeman and Stanca (2001).<sup>2</sup>

### *The Sample and Summary Statistics*

Since we are interested in job search behavior, we limit our sample to individuals who are likely to be available for work: people who are 18-64 and who are not currently enrolled in school. In addition, the questions about reservation wages were asked only about the individual interviewed - and not about their family members - so our sample is limited to individuals who were self-respondents in wave 5. This leaves us with about 15,000 individuals. In addition, questions about reservation wages were asked only of individuals who were either unemployed or out of the labor force but likely to look for work in the next year - about 5000 individuals. After the date of the reservation wage module, we are able to track individuals for an additional 16 months (through waves 6, 7, 8 and 9), and observe whether they accepted a job during this time frame, and the wage and type of job if it was accepted.

The descriptive statistics are given in Tables 1-4. Tables 1 and 2 compare the sample of people who are looking for jobs with individuals who are employed at the time of the wave 5 interview. In general, job seekers are less educated and have lower family income than employed individuals. In addition, for household heads, employed individuals have a higher level of wealth than job seekers. Over the time of the survey, individuals employed in wave 5 are more likely to hold a job than are job seekers. This is especially true for women,

---

<sup>2</sup> In their paper wealth was defined as net financial assets i.e., the balance on current accounts, savings and deposit accounts, the value of savings certificates, the value of stocks, bonds and options, the amount of money lent minus the all debts or loans, and the value of hire purchase. They include a dummy variable to capture the affect of home ownership due to missing observations on the value of housing.

indicating that some of the women who say they are likely to look for a job may in fact be unlikely to actually take a job.

**TABLE 1: Asset Holdings, Jobs, and Income**

All Wave 5 Self Respondents, Ages 18-64<sup>1</sup>

Variable	<u>Employed or Not Searching</u>				<u>Looking For Job</u>			
	Heads		Wives		Heads		Wives	
	(N=6949)		(N=3699)		(N=1741)		(N=2771)	
Variable	Variable	Std	Variable	Std	Mean	Std	Mean	Std
Number of Jobs Held								
Wave2	0.862	0.513	0.824	0.513	0.386	0.569	0.206	0.431
Wave 3	0.869	0.525	0.842	0.499	0.376	0.566	0.189	0.411
Wave 4	0.886	0.525	0.865	0.500	0.349	0.560	0.170	0.401
Wave 5	0.916	0.502	0.917	0.449	0.251	0.490	0.114	0.338
Wave 6	0.862	0.532	0.863	0.498	0.264	0.509	0.128	0.363
Wave 7	0.837	0.543	0.827	0.528	0.303	0.534	0.175	0.411
Wave 8	0.820	0.536	0.797	0.507	0.302	0.502	0.206	0.446
Wave 9	0.833	0.528	0.823	0.518	0.312	0.519	0.208	0.455
Age	38.966	13.017	39.252	12.006	41.509	15.460	40.880	13.061
Highest Grade Completed	16.946	6.532	16.133	6.049	13.413	5.656	14.209	5.646
Married	0.430	0.495	1.000	0.000	0.311	0.463	1.000	0.000
Household Earnings	2330.72	1986.10	2841.87	2011.11	543.84	985.52	1936.12	2096.19
Family Earnings	2206.08	1949.79	2834.28	2007.84	471.18	927.72	1934.01	2096.19
Earnings	1639.85	1525.76	937.35	851.32	68.03	346.67	19.15	124.03
Household Income	2661.48	2135.82	3172.74	2057.22	1280.80	1295.53	2456.08	2222.31
Family Income	2521.89	2109.28	3161.89	2047.27	1185.75	1276.95	2453.46	2222.68
Income	1839.58	1604.50	1039.57	888.87	619.25	830.74	180.20	562.65
Male	0.664	0.472			0.503	0.500		
Any Children under 18	0.345	0.475	0.534	0.499	0.367	0.482	0.572	0.495
Wealth <sup>2</sup>	6.890	19.663	8.268	15.269	5.365	11.413	8.611	18.700
Net Worth <sup>3</sup>	6.525	19.521	7.888	15.212	5.197	11.263	8.292	18.643
Black	0.116	0.320	0.077	0.267	0.218	0.413	0.052	0.223
Hours	37.542	16.953	30.602	15.864	12.583	19.049	5.310	12.921

<sup>1</sup> Individuals currently enrolled in school are excluded.

<sup>2</sup> Measured in 10,000 dollars.

<sup>3</sup> Measured in 10,000 dollars.

**TABLE 2: Asset Holdings, Jobs, and Income**All Self Respondents 18-64<sup>1</sup>

Variable	<u>Employed or Not Searching</u>				<u>Looking For Job</u>			
	Male (N=4613)		Female (N=6035)		Male (N=879)		Female (N=3638)	
Number of Jobs Held								
Wave 2	0.8612	0.5050	0.8398	0.5189	0.4858	0.6184	0.2242	0.4471
Wave 3	0.8657	0.5199	0.8554	0.5138	0.4674	0.5994	0.2111	0.4395
Wave 4	0.8713	0.5201	0.8845	0.5140	0.4501	0.6042	0.1879	0.4247
Wave 5	0.8923	0.4984	0.9354	0.4724	0.3231	0.5360	0.1292	0.3623
Wave 6	0.8441	0.5207	0.8765	0.5201	0.3406	0.5606	0.1418	0.3826
Wave 7	0.8235	0.5295	0.8414	0.5435	0.3890	0.5836	0.1849	0.4245
Wave 8	0.8106	0.5257	0.8132	0.5262	0.3686	0.5249	0.2124	0.4514
Wave 9	0.8258	0.5230	0.8321	0.5260	0.3961	0.5711	0.2123	0.4527
Age	39.0369	12.6609	39.0872	12.6877	44.5472	15.2896	40.2955	13.5930
Highest Grade Completed	17.4189	6.5593	16.0864	6.1783	13.9862	6.0038	13.8817	5.5781
Married	0.6476	0.4778	0.6137	0.4869	0.6171	0.4864	0.7629	0.4253
Household Earnings	2721.71	2122.72	2345.15	1902.60	651.78	1054.47	1578.23	1986.94
Family Earnings	2629.74	2110.57	2267.29	1882.67	611.66	1042.04	1551.45	1988.88
Earnings	1936.06	1697.80	982.86	851.63	106.09	455.51	21.60	136.39
Household Income	3054.84	2291.25	2674.17	1968.66	1534.87	1411.73	2114.60	2104.02
Family Income	2952.32	2287.88	2585.16	1948.41	1475.45	1420.33	2081.34	2111.83
Income	2135.66	1783.89	1122.92	909.91	756.20	989.07	251.74	585.92
Any Children under 18	0.3755	0.4843	0.4370	0.4961	0.2469	0.4314	0.5522	0.4973
Wealth <sup>2</sup>	8.1987	23.4300	6.7363	12.9720	7.2010	14.2067	7.3991	16.8389
Net Worth <sup>3</sup>	7.7624	23.2681	6.4164	12.9112	6.9816	13.9895	7.1287	16.7780
Black	0.0802	0.2716	0.1193	0.3242	0.1411	0.3483	0.1105	0.3136
Hours	40.0559	16.5458	31.3669	16.2007	17.2082	20.9944	5.9255	13.6257

<sup>1</sup> Individuals currently enrolled in school are excluded.<sup>2</sup> Measured in 10,000 dollars.<sup>3</sup> Measured in 10,000 dollars.

Tables 3 and 4 look the sample of individuals looking for jobs in greater detail. The subset of these individuals who report reservation wages is the sample that we actually use for our estimations. We split the sample into the group that is unemployed, and the group that is out of the labor force but likely to look for work, in order to look at differences

between the two groups. The first thing to notice is that the largest portion of our sample (about 3600 individuals) is not in the labor force. These individuals are mostly married women, and they are much wealthier than unemployed individuals. Of the workers that classify themselves as unemployed, more than half are household heads - single individuals or married men. Workers who classify themselves as unemployed are much more likely to hold a job in subsequent months: 67% of unemployed men have a job 8 months later, compared with 47% of those out of the labor force.

## V. Results of Estimation

In this section we discuss the results of our analysis. First we present the single equation estimates of the reservation wage equation, and single equation estimates of the relationship between wealth and search intensity. We follow this with the estimation of the joint model of reservation wages, wealth and transitions.

### *The Reservation Wage Equation*

Before presenting the results of the estimation of the reservation wage, we should discuss the definition of the hourly reservation wage. In the SIPP, survey respondents are asked to report the minimum wage they would accept per hour, per week, per month, and per year. Most respondents provide an hourly wage. However, for other respondents, the answer is converted to an hourly wage assuming that individuals work 40 hours per week, 176 hours per month, and 2000 hours per year. As expected, individuals who report weekly, monthly or yearly reservation wages have, on average, higher hourly reservation wages.



**TABLE 3: Asset Holdings, Unemployment Income and Reservation Wages**Individuals 18-64 who are Unemployed or Out of the Labor Force<sup>1</sup>

Variable	<u>Unemployed</u>				<u>Not in the Labor Force</u>			
	Heads		Wives		Heads		Wives	
	(N=585)		(N=245)		(N=1161)		(N=2526)	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std
Receiving Unemployment	0.2650	0.4417	0.2653	0.4424	0.0267	0.1613	0.0071	0.0841
Amount of Unemp. Income <sup>4</sup>	498.50	249.55	351.25	178.84	368.55	208.57	340.06	228.71
Look for a Job by:								
Contacting Employers	0.896	0.306	0.910	0.286				
Number Contacted	8.352	11.942	5.971	7.681				
Using Unemp. Office	0.041	0.199	0.037	0.188				
Using Private Service	0.003	0.058	0.012	0.110				
Talking to a Relative	0.063	0.244	0.029	0.167				
Other Method	0.063	0.244	0.041	0.198				
Number of Jobs Held								
Wave 6	0.469	0.602	0.463	0.602	0.162	0.420	0.097	0.314
Wave 7	0.575	0.634	0.550	0.586	0.169	0.418	0.140	0.372
Wave 8	0.523	0.542	0.700	0.642	0.194	0.443	0.162	0.395
Wave 9	0.579	0.607	0.586	0.594	0.182	0.412	0.173	0.423
Age	34.058	12.720	35.216	11.306	45.263	15.362	41.429	13.091
Highest Grade Completed	13.846	5.565	14.384	5.406	13.192	5.691	14.192	5.670
Married	0.329	0.470			0.302	0.459		
Household Earnings	736.275	1127.720	1373.150	1267.230	446.872	890.342	1990.720	2152.080
Family Earnings	641.115	1095.320	1373.150	1267.230	385.557	817.811	1988.410	2152.140
Earnings	101.670	372.755	62.910	219.777	51.081	331.628	14.901	109.564
Household Income	1226.590	1259.330	1746.090	1271.590	1308.110	1313.080	2524.940	2282.090
Family Income	1107.590	1247.380	1744.490	1270.100	1225.140	1290.330	2522.220	2282.610
Income	421.569	587.000	223.131	290.782	718.849	913.815	176.037	582.169
Reservation Wage <sup>4</sup>	5.304	3.125	4.505	2.061	4.655	2.590	4.220	1.795
Expected Wage <sup>4</sup>	7.860	4.527	5.362	2.149	6.322	4.078	5.311	2.548
Any Children under 18	0.431	0.496	0.665	0.473	0.335	0.472	0.563	0.496
Wealth <sup>2</sup>	2.937	4.741	4.844	8.613	6.574	13.401	8.976	19.364
Net Worth <sup>3</sup>	2.749	4.733	4.528	8.838	6.417	13.208	8.657	19.294
Black	0.219	0.414	0.114	0.319	0.218	0.413	0.046	0.210
Hours	21.169	20.300	17.984	18.542	8.257	16.807	4.080	11.526
Male	0.607	0.489	0.000	0.000	0.451	0.498	0.000	0.000

<sup>1</sup> Individuals currently enrolled in school are excluded.<sup>2</sup> Measured in 10,000 dollars.<sup>3</sup> Measured in 10,000 dollars.<sup>4</sup> Means based on non-zero observations

**TABLE 4: Asset Holdings, Unemployment Income and Reservation Wages**Individuals 18-64 who are Unemployed or Out of the Labor Force<sup>1</sup>

Variable	Unemployed				Not in the Labor Force			
	Women		Men		Women		Men	
	(N=475)		(N=355)		(N=3163)		(N=524)	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std
Receiving Unemployment	0.2295	0.4209	0.3127	0.4642	0.0085	0.0920	0.0420	0.2007
Amount of Unemp. Income <sup>4</sup>	363.79	178.38	544.55	259.32	331.96	203.01	390.14	227.93
Look for a Job by:								
Contacting Employers	0.9074	0.2902	0.8901	0.3132				
Number Contacted	6.5095	8.9733	9.1746	12.9149				
Using Unemp. Office	0.0484	0.2149	0.0282	0.1657				
Using Private Service	0.0084	0.0915	0.0028	0.0531				
Talking to a Relative	0.0463	0.2104	0.0620	0.2414				
Other Method	0.0505	0.2193	0.0648	0.2465				
Number of Jobs Held								
Wave 6	0.4209	0.5763	0.5266	0.6283	0.1014	0.3266	0.2129	0.4687
Wave 7	0.5087	0.6000	0.6450	0.6373	0.1383	0.3703	0.2159	0.4718
Wave 8	0.5759	0.6023	0.5733	0.5471	0.1615	0.4007	0.2339	0.4636
Wave 9	0.5300	0.5730	0.6503	0.6353	0.1672	0.4138	0.2274	0.4517
Age	33.8084	11.4564	35.1915	13.3733	41.2697	13.6228	50.8855	13.1048
Highest Grade Completed	14.1895	5.4635	13.7577	5.5944	13.8353	5.5946	14.1440	6.2715
Married	0.5202	0.5001	0.5398	0.4991	0.7991	0.4007	0.6692	0.4709
Household Earnings	998.17	1216.31	825.39	1185.21	1665.34	2064.24	534.16	938.89
Family Earnings	923.99	1200.75	767.83	1184.47	1645.68	2065.36	505.86	919.51
Earnings	65.05	248.09	123.92	422.91	15.07	108.84	94.02	476.34
Household Income	1415.25	1299.86	1332.70	1263.38	2219.63	2180.39	1671.84	1489.58
Family Income	1330.13	1296.82	1249.37	1273.22	2194.16	2186.36	1628.62	1493.72
Income	300.14	431.27	447.09	620.07	244.47	605.46	965.61	1128.38
Reservation Wage <sup>4</sup>	4.4576	2.1028	5.9117	3.5161	4.1552	1.6217	6.1771	4.0423
Expected Wage <sup>4</sup>	5.5344	2.6156	9.3911	4.7943	5.2136	2.3555	8.6073	5.6086
Any Children under 18	0.6126	0.4877	0.3493	0.4774	0.5432	0.4982	0.1775	0.3824
Wealth <sup>2</sup>	3.6938	7.1232	3.2540	4.7175	7.9519	17.7749	9.8400	17.4571
Net Worth <sup>3</sup>	3.4571	7.2509	3.0404	4.7093	7.6764	17.7021	9.6166	17.1647
Black	0.2126	0.4096	0.1549	0.3623	0.0952	0.2935	0.1317	0.3385
Hours	16.2905	18.5576	25.4986	20.2976	4.3690	11.9734	11.5916	19.5659

<sup>1</sup> Individuals currently enrolled in school are excluded.<sup>2</sup> Measured in 10,000 dollars.<sup>3</sup> Measured in 10,000 dollars.<sup>4</sup> Means based on non-zero observations

In these estimations, the dependent variable is defined to be the log of the individual's

hourly reservation wage. Independent variables include a constant, wealth, wealth squared, family earnings, unemployment income, age, age squared, and dummy variables indicating if the individual: (1) has any children, (2) is male (3) is married and (4) is not white. The first regression does not include a measure of hours, while the second does. Equations are presented separately for specifications with and without hours, to check for robustness. Excluding the number of expected hours from the regression amounts to assuming that there is no correlation between expected hours and the disturbance term. The regression including hours can simply be interpreted as a reduced form reservation wage equation. The results of the OLS regressions can be found in Tables 5 and 6. The findings are consistent: in all estimations, wealth has a small positive effect on reservation wages. An increase in wealth of 10,000 dollars increases the reservation wage by about 1%. The results are clear and intuitive. Wealth is a significant predictor of an individual's reservation wage. The higher the family wealth, the higher the reservation wage. Comparing the two tables it is evident that the inclusion of hours does not change the results significantly for either the sample of married women or the sample of household heads (i.e., single women and men). The income variables, family income and unemployment income, are also significant predictors of the reservation wage. The higher the other income available to the individual, the higher the reservation wage will be. However, there are noticeable differences between the results for household heads and married women. In particular, the reservation wages of married women respond more to changes in the level of family income and less to changes in the unemployment income than do the reservation wages of household heads. Given that

the married women sample is primarily comprised of individuals who are out of the labor market, it is not surprising that these individuals require higher wages to enter the workforce and that they are more sensitive to changes in wealth and other income than the heads of household sample. In fact, our results suggest that, besides the constant, only the wealth and income variables are significant predictors of the reservation wages for married women.

TABLE 5. Reservation Wage Equation: Estimation by OLS Without Hours

Variable	Household Heads		Married Women	
	Coefficient	SE	Coefficient	SE
Constant	0.7640	0.1338	1.2453	0.1940
Any Children	-0.0087	0.0496	-0.0500	0.0492
Male	0.1509	0.0434		
Married	0.0358	0.0482		
Female $\times$ Any Children	0.0099	0.0628		
Age	0.0334	0.0078	0.0047	0.0116
Age Squared	-0.0004	0.0001	-0.0001	0.0002
Unemployment Income	0.5136	0.0732	0.2221	0.1607
Wealth	0.0091	0.0032	0.0069	0.0039
Wealth2	-0.0001	0.0000	0.0000	0.0001
Family Earnings	0.0245	0.0136	0.0451	0.0109
Black	-0.0525	0.0349	-0.0305	0.0731

TABLE 6. Reservation Wage Equation: Estimation by OLS with Hours

Variable	Household Heads		Married Women	
	Coefficient	SE	Coefficient	SE
Constant	0.7080	0.1344	1.2317	0.1949
Any Children	0.0018	0.0495	-0.0473	0.0494
Male	0.1459	0.0432		
Married	0.0184	0.0483		
Female $\times$ Any Children	0.0119	0.0625		
Age	0.0347	0.0077	0.0050	0.0116
Age Squared	-0.0004	0.0001	-0.0001	0.0002
Unemployment Income	0.4586	0.0750	0.1924	0.1655
Wealth	0.0084	0.0032	0.0069	0.0039
Wealth2	-0.0001	0.0000	0.0000	0.0001
Family Earnings	0.0210	0.0135	0.0447	0.0109
Black	-0.0388	0.0350	-0.0336	0.0732
Hours	0.0026	0.0008	0.0008	0.0011

The regression results indicate that men have higher reservation wages than single women, married women have higher reservation wages than single women, and reservation wages rise with age for the heads of households sample. Finally, the dummy variable for non-whites is insignificant in all of the regression.

#### *Determinants of Search Intensity*

Another variable of interest in this data set is the two measures of search intensity: the

number of employers contacted during the last month and an index based on the number of types of contact methods used by the individual. In this section we examine if wealth and other demographic variables affect an individual's search intensity.

### *Search Methods*

The topical module containing the reservation wages also asked individuals questions regarding what they did (during the last month) to find work. They were specifically asked if, in addition to contacting people, they (i) checked with the unemployment office, (ii) checked with a private employment agency, (iii) asked friends or relatives, or (iv) did anything else. To create our index we assigned a value of 1 to each method used, including contacting employers directly, and then summed across the types of methods to create an index that took on the value of 0 thru 5. The results of our OLS estimation using our index of search methods as the dependent variable is reported in Tables 7. Our findings are summarized below.

For the full sample regression only three variables are statistically significant: wealth, the sex dummy variable and the marital dummy variable. The findings suggest that (i) higher wealth tends to decrease search intensity, (ii) men tend to search harder than women all else equal, and (iii) married individuals appear to use fewer types of search methods. There do not appear to be any significant differences between the white and non-white samples in regressions using the full sample or the subsamples.

TABLE 7. Effects of Wealth on Search Intensity:

Dependent Variable: Index of Number of Search Methods						
	Full Sample		Men		Women	
	Coef.	SE	Coef.	SE	Coef.	SE
<b>Wealth</b>	-0.0046	0.0014	-0.0007	0.0023	-0.0064	0.0017
Male	0.3232	0.0313				
Married	-0.0854	0.0294	-0.1633	0.0360	0.0448	0.0510
Kids	-0.0310	0.0293	-0.0614	0.0354	0.0529	0.0527
Highest Grade Completed	-0.0011	0.0024	0.0030	0.0030	-0.0106	0.0039
Black	-0.0146	0.0379	-0.0190	0.0457	-0.0156	0.0659
Constant	0.5253	0.0465	0.5175	0.0559	0.9066	0.0706

The results suggest that there is a negative relationship between wealth and search methods. In particular, wealthier individuals may not search as hard for jobs given that they have other sources of income available to them. We also find that there is a negative relationship between marital status and the number of search methods employed for the full sample and for men. The sign on this coefficient is reversed for women, but it is insignificant. This result suggests that married men use less types of search methods and may be related to the possibility of a working spouse in the household.

Although the coefficient on wealth negative in all of the regression we run, it is only statistically significant in the regressions using the full sample and the female sample. A comparison of the results suggests that wealth has a larger affect on groups that traditionally

have a lower attachment to the labor force, i.e., the female group.

### *The Number of Employers Contacted*

In addition to the index of search methods, we also have information on the number of employers individuals contacted directly during the last month by mail, phone or in person. Table 8 reports the results of OLS regressions using this number as a measure of search intensity. The results for the full sample regression suggest that wealth, the highest grade completed and the male dummy variable are significant predictors of the number of employers contacted. There are no significant differences between the white and non-white samples.

Similar to the previous results, for the full sample we find that wealthier individuals tend to have lower search intensity, and that males search harder than females, all else held constant. However, unlike the previous measure of search intensity, education is a significant predictor. More education leads to more contacts. This relationship is consistent with the conventional belief that higher skilled workers search harder in order to find a better match for their skills.

In addition to the full sample regression, we also examine the results for the male and female subgroups. First, we find that, although higher levels of wealth reduce the number of employers contacted for both groups, this effect is only significant for males. Second, the highest grade completed remains a significant predictor for both groups. Third, the groups differ with respect to the effect of marriage and children. For the female sample, having children decreases the number of employers contacted, as does being married. The effects of marriage and children on for the male subgroup is reversed. These results may be explained



intuitively by that fact that men are more likely to be the main provider in the family, an married men are more attached to the labor market. Married women, on the other hand, generally have working spouses, and therefore may search less intensely because of the availability of funds from their working partner. Finally, the negative, although insignificant, effect of children on the number of employers contacted by women may be linked to the affect children have on labor market attachment.

TABLE 8. Effects of Wealth on Search Intensity

Dependent Variable: Number of Employers Contacted						
	Full Sample		Men		Women	
	Coef.	SE	Coef.	SE	Coef.	SE
<b>Wealth</b>	-0.0631	0.0215	-0.0902	0.0393	-0.0221	0.0263
Male	4.2769	0.4749				
Married	-0.6027	0.4458	0.9728	1.2015	-1.5047	0.4039
Kids	0.7479	0.4450	3.0893	1.2419	-0.1936	0.3971
Highest Grade Completed	0.1422	0.0367	0.2293	0.0928	0.0996	0.0337
Black	-0.9294	0.5756	-1.3348	1.5541	-0.8231	0.5131
Constant	0.7047	0.7055	2.3654	1.6654	2.2694	0.6276

*Simultaneous Equations Estimation*

In Tables 9 and 10 we present results from the estimation of the joint model of offer acceptances, reservation wages, and wealth. Table 9 presents the results separately for household heads and wives; Table 10 presents separate results for men and women.

**TABLE 9: Simultaneous Equation Estimation**  
Wealth, Reservation Wage, and Employment Transition  
Household Heads and Married Women

Household Heads	wealth		reservation wage		Offer	
Wealth			0.009	0.007	0.000	0.001
Age	-0.234	0.173	0.031	0.008	-0.001	0.003
Age2	0.004	0.002	0.000	0.000	0.000	0.000
Black	-1.875	0.760	-0.032	0.035	-0.013	0.012
Highest grade			0.017	0.003	0.000	0.001
Earnings: Wave 2, Month 1	-0.001	0.001				
Family Earned Income: Wave 2, Month 1	-0.002	0.001				
Family Total Income: Wave 2, Month 1	0.004	0.000				
Children Under 18: Wave 2, Month 1	-0.294	0.701				
Unemployment Income			0.486	0.072		
Hours			0.003	0.001		
Wave 6					0.949	0.013
Wave 7					0.951	0.017
Wave 8					0.951	0.024
Index of Search Methods					0.009	0.009
Constant	4.267	2.982	0.533	0.134	0.062	0.049
Married Women						
	wealth		reservation wage		Offer	
Wealth			0.046	0.016	0.007	0.001
Age	0.081	0.191	-0.004	0.012	-0.017	0.005
age2	0.001	0.002	0.000	0.000	0.000	0.000
Black	-2.797	1.240	0.085	0.090	0.095	0.037
highest grade			0.013	0.005	-0.002	0.002
Earnings: Wave 2, Month 1	0.000	0.001				
Family Earned Income: Wave 2, Month 1	0.000	0.001				
Family Total Income: Wave 2, Month 1	0.002	0.001				
Children Under 18: Wave 2, Month 1	-0.149	0.631				
Unemployment Income			0.254	0.169		
Hours			0.001	0.001		
Wave 6					0.011	0.018
Wave 7					0.902	0.023
Wave 8					0.896	0.031
Index of Search Methods					0.890	0.042
Constant	-2.457	3.325	1.187	0.223	0.418	0.098

**TABLE 10: Simultaneous Equation Estimation**  
Wealth, Reservation Wage, and Employment Transition  
Men and Women

<b>Men</b>						
	<b>wealth</b>		<b>reservation wage</b>		<b>Offer</b>	
Wealth			0.0050	0.0095	-0.0004	0.0006
Married	-2.9356	1.4420	-0.0378	0.0569	-0.0052	0.0189
Age	-0.1672	0.3203	0.0386	0.0132	-0.0005	0.0042
Age2	0.0030	0.0041	-0.0004	0.0002	0.0000	0.0001
Black	-2.8542	1.7108	-0.1061	0.0713	-0.0081	0.0234
Highest grade			0.0238	0.0047	0.0010	0.0014
Earnings: Wave 2, Month 1	-0.0019	0.0009				
Family Earned Income: Wave 2, Month 1	-0.0039	0.0010				
Family Total Income: Wave 2, Month 1	0.0066	0.0009				
Children Under 18: Wave 2, Month 1	1.8910	1.5124				
Unemployment Income			0.4394	0.0985		
Hours			0.0039	0.0013		
Wave 6					-0.0048	0.0171
Wave 7					0.9305	0.0198
Wave 8					0.9343	0.0253
Index of Search Methods					0.9311	0.0410
Constant	2.8897	5.5679	0.3456	0.2317	0.0815	0.0766
<b>Women</b>						
	<b>wealth</b>		<b>reservation wage</b>		<b>Offer</b>	
wealth			0.0292	0.0092	0.0058	0.0011
married	0.1780	0.4665	-0.0396	0.0288	0.0446	0.0134
age	-0.0407	0.1133	0.0179	0.0069	-0.0082	0.0033
age2	0.0022	0.0015	-0.0003	0.0001	0.0001	0.0000
black	-1.7253	0.5530	0.0604	0.0373	0.0227	0.0165
highest grade			0.0127	0.0030	-0.0015	0.0011
Earnings: Wave 2, Month 1	-0.0003	0.0005				
Family Earned Income: Wave 2, Month 1	-0.0002	0.0003				
Family Total Income: Wave 2, Month 1	0.0017	0.0003				
Children Under 18: Wave 2, Month 1	-0.5026	0.4085				
Unemployment Income			0.2676	0.1063		
Hours			0.0006	0.0007		
Wave 6					0.0143	0.0108
Wave 7					0.9262	0.0152
Wave 8					0.9293	0.0204
Index of Search Methods					0.9289	0.0266
Constant	0.5353	1.9075	0.8300	0.1214	0.2010	0.0586

In general, all the variables in the reservation wage equation have the expected sign. Unemployment benefits increase the reservation wage, as does age and education. Blacks have lower reservation wages than whites. Wealth also increases the reservation wage. However, in these estimations, the effect of wealth is significant (and relatively large) for married women, but small and insignificant for other workers. Similarly, when splitting the sample into men and women, the effect of wealth is positive for both groups, but small and insignificant for men. One interpretation of this is that men are more attached to the labor force, and so are more likely to work regardless of their wealth. However women, particularly married women, are secondary earners and thus are less attached to the labor force. Wealth thus has a larger effect on their willingness to work and on their reservation wage.

The only significant difference between white and non-white individuals is seen in the wealth accumulation equation. Here it is seen that non-white individuals tend to accumulate less wealth than their white counterparts. The effect of age on wealth is non-linear and generally insignificant. The effect of children on asset accumulation is negative but insignificant, and total family income has a significant positive effect on wealth.

The most significant predictor of an individual's probability of transition, besides the constant, tends to be the measure of search intensity. Here we observe that increased levels of search intensity increase the probability of a job offer and transition from unemployment. Age is a significant predictor for women, but insignificant for men and household heads. As females get older, the results suggest that they are less likely to make the transition from unemployment. This effect may reflect a decrease in individuals' attachments to the labor

market as they age.

## V.I. Conclusions

In this article we have examined the effect of wealth on employment probability, search effort and reservation wages for American workers. Many search models predict that wealth should have a positive impact on an individual's reservation wage, a negative affect on his search intensity and thus a positive impact on his duration of unemployment. Our study uses data on subjective reservation wages, wealth and measures of search intensity, found in the survey of income and program participation to examine the empirical relationships between these variables.

Our findings generally support the relationships predicted by the theory. We find that the reservation wages of wealthier workers are generally higher than the reservation wages of poorer workers. There is a negative relationship between wealth and search intensity and a positive relationship between search intensity and employment transitions. Moreover these effects, together with the positive relationship between reservation wages and wealth, suggests there is positive relationship between unemployment duration and wealth. However, these affects are not significant for all groups of individuals. For example, the effect of wealth on reservation wages tend to be stronger for married women than for men in the simultaneous estimation. Our results suggest that these effects are more important for the group that is less attached to the labor market.

## References

- Bloemen, H. and E. Stancanelli. "Individual Wealth, Reservation Wages and Transitions into Employment". *Journal of Labor Economics* 19 (April 2001) pp. 400-439.
- Burdett, K. and D. Mortensen. "Labor Supply under Uncertainty". In *Research in Labor Economics*, Vol. 2. edited by R.G. Ehrenberg, pp. 109-57. Greenwich: JAI Press, 1978.
- Curtin, R., F. T. Juster and J. N. Morgan (1989) "Survey Estimates of Wealth: An Assessment of Quality". in *The Measurement of Savings, Investment and Wealth* edited by R. Lipsey and H.S. Tice, pp. 473-548. Chicago: University of Chicago Press: 1989.
- Danforth, J. P. "On the role of Consumption and Decreasing Absolute Risk Aversion in the Theory of Job Search." In *Studies in the Economics of Search*, edited by S. A. Lippman and J. J. McCall, pp. 109-31. Amsterdam: North-Holland, 1979
- Devine, T. and N. Kiefer. "Empirical Labor Economics: The Search Approach." Oxford: Oxford University Press, 1991.
- Feldstein, M. and J. Poterba. "Unemployment Insurance and Reservation Wages". *Journal of Public Economics* 23 (1984), pp. 141-167.
- Holzer, H.J., "Reservation Wages and Their Labor Market Effects for Black and White Male Youth." *Journal of Human Resources* 21 (1986) , 157-177.
- McNeil, J. M. and E.J. Lamas (1989). "Year-Apart Estimates of Household Net Worth from the Survey of Income and Program Participation". in *The Measurement of Savings, Investment and Wealth* edited by R. Lipsey and H.S. Tice, pp. 431-471. Chicago: University of Chicago Press: 1989.
- Mortensen, D. "Job Search and Labor Market Analysis." In *Handbook of Labor Economics*, vol. 2. edited by Orley C. Ashenfelter and Richard Layard, pp. 849-919. Amsterdam: North-Holland, 1986