Individual Wealth, Reservation Wages and Transitions into Employment

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Abstract

In this paper, we investigate the relationship between financial wealth, reservation wages and labour market transitions. According to the theory, higher levels of wealth will result in higher reservation wages and lower employment probabilities. We test for the validity of this assumption by estimating a simultaneous equations model of reservation wages, labour market transitions and wealth. The data used for the analysis relate to a sample of unemployed job searchers drawn from the Dutch Socio-Economic Panel. Wealth is found to have a significantly positive impact on the reservation wage. The overall impact of wealth on the employment probability is negative though small.

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1 Introduction

The literature on labour market transitions is extensive[1]. However, there are very few studies that have looked at the relationship between asset holdings and labour market transitions.

The job search literature has tended to ignore the impact of financial wealth on job search by implicitly assuming risk neutrality. Typically, this has lead to the specification of the individual objective function in terms of income maximization rather than utility maximization. Danforth (1979) shows that financial asset holdings and acceptance wages are positively correlated, under the assumptions of consumption maximization and decreasing absolute risk aversion. Blundell et al. (1995) investigate the relationship between savings and labour market transitions, deriving a negative relationship between initial wealth and the probability of staying or becoming employed, under the assumption that leisure is a normal good.

Financial assets are absent from most empirical models of labour market transitions. Bloemen (1995) estimates the impact of assets on labour market transitions, using a Dutch dataset. He finds evidence of a negative relationship between savings and the probability of becoming employed. Stancanelli (1994 and 1996) estimates the impact of individual financial resources on the duration of unemployment spells, using UK data. She finds a significantly negative impact of financial resources on unemployment duration.

In this paper, we investigate the impact of the job seeker's asset holdings on the reservation wage and the employment probability. The dataset we use contains information on individual asset holdings, labour market transitions and subjective reservation wages. The availability of reservation wages allows us to measure directly the impact of wealth on the individuals' job acceptance strategies. This is an advantage as compared to previous empirical studies which measured the effect of wealth only via labour market transitions.

The structure of the paper is the following. In the next Section, the theoretical model is laid out. The empirical model is specified in Section 3. The data are described in Section 4. Results of estimation

[1] See, for example, Atkinson and Micklewright (1991) or Devine and Kiefer (1991) for an account.

are discussed in Section 5. In Section 6, conclusions are drawn.

2 The Theoretical Framework

Typically job search models have assumed that individuals are income maximizers. This implies that individuals are risk neutral. If this assumption is relaxed, individuals can be described as utility maximizers. In this case, financial assets must be taken into account. Here we show how financial wealth may enter a job search model along the lines of the structural model put forward by Danforth (1979). The reader is referred to Danforth (1979) for a formal derivation.

We set up a model of unemployed job search. Individuals are assumed to maximize the utility they derive from consumption. They are faced by an intertemporal budget constraint defining the relation between consumption, income and wealth accumulation. Utility is assumed to be intertemporally separable and the utility functions are of the Von Neumann-Morgenstern type. Individual's utility can be written as in Danforth (1979, p. 112):

$$U(c_1, c_2, \cdots) = \sum_{t=1}^{\infty} \xi^t u(c_t), \tag{1}$$

where ξ^t is the discount factor. Utility is assumed to be twice differentiable and strictly concave. The assumption of strict concavity implies that individuals are risk averse.

Jobs are characterized in terms of the wage they offer. The probability of receiving a job offer is λ_t[2]. Job offers are characterized in terms of a stochastic wage offer distribution $F(w)$ with density function $f(w)$. Jobs last forever and no recall of job offers is allowed.

The budget constraint restricts individual assets at time t to be equal to assets the previous period plus income minus consumption goods purchased the previous period[3]. Defining A_t as wealth at the beginning of period t, b as unemployment income, w as the individual

[2] Danforth assumes that the offer probability is constant in each time period and equal to one offer per period.

[3] Danforth sets a limit to the end of period borrowing capacity.

wage, c as consumption and r as the constant interest rate, the budget constraint reads:

$$A_t = [A_{t-1} - c_{t-1} + b](1 + r), \tag{2}$$

for the unemployed, and

$$A_t = [A_{t-1} - c_{t-1} + w](1 + r), \tag{3}$$

for employed persons.
The employed person's maximum utility is given by:

$$J(A, w) = \max_c \{u(c) + \xi J(A - c + w)(1 + r), w]\}, \tag{4}$$

and the unemployed person's maximum utility is:

$$\begin{aligned} S(A) = \max_c \{u(c) + \xi(1 - \lambda)S[(A - c + b)](1 + r)] + \\ \xi\lambda \int_0^\infty \max\{S[(A - c + b)](1 + r)]; \\ J[(A - c + b)(1 + r), w]\} dF(w)\} \end{aligned} \tag{5}$$

It follows that a job offer is accepted if $J(A, w) > S(A)$ and rejected otherwise. The reservation wage, w^*, can be defined as that wage offer at which individuals are indifferent between continuing to search or accepting the job offer, i. e. as that wage at which $J(A, w) = S(A)$. As a result, the reservation wage will also be a function of individual asset holdings: $w^* = w^*(A)$. In particular, reservation wages are increasing in financial assets, under given conditions which rule out risk neutrality. For example, Danforth (1979) shows that this is true under the assumption of absolute decreasing risk aversion, requiring $-u''/u'$ to be a decreasing function of c_t.

The employment probability, θ, can be written as the product of the probabilities of receiving a given job offer and accepting it:

$$\theta = \lambda[1 - F(w^*(A)] \tag{6}$$

3 The empirical model

The complexity of the dynamic programming problem (5) prevents us from finding an analytic solution for the reservation wage $w^*(A)$, which characterizes the individual's optimal search strategy. For this reason, applied work so far concentrated on specifying the transition probability including wealth as a regressor. In doing so, much of the original model structure of (6) is lost. In particular, it is ignored that wealth enters the structural probability (6), because of its effect on the reservation wage, which, in turn, affects the acceptance probability by the wage offer distribution. If reservation wages are in the lower tail of the wage distribution the effect of wealth on the transition probability may be hard to measure. Furthermore, wealth may be correlated with the job offer probability. If this is the case, it is not clear what effect is being measured when estimating a single equation model of the transition probability.

In this paper, we use data on reservation wages to exhibit the relation between wealth, reservation wages and transitions. In order to so, we estimate jointly the acceptance probability and the job offer probability.

We specify our empirical model as a simultaneous equation system. Job offers are characterized in terms of the attached wage. The wage offer distribution is assumed to be lognormal and specified as follows:

$$\ln w_{it} = m'k_{it} + e_{it} \quad e_{it} \sim N(0, \tau^2), \tag{7}$$

where i relates to individual i in the population of unemployed job searchers and k are individual characteristics. The parameters of the wage offer distribution, m, are estimated from lognormal wage regressions for the population of the employed, corrected for selection into employment of labour force participants (see Table A).

Reservation wages are specified lognormally as a function of individual characteristics, R indicating the logarithm of the observed reservation wage:

$$R_{it} = g(A_{it}) + \beta' X_{it} + \epsilon_{it}, \quad \epsilon_{it} \sim N(0, \sigma_\epsilon^2) \tag{8}$$

where X_{it} is a vector containing individual characteristics and elapsed

unemployment duration[4]. The functional form g is specified as a quadratic to allow for non-linearities. The right hand side of (8) has the interpretation of an approximation to the solution of a structural search model. The error term ϵ_{it} may represent approximation error, measurement error and randomness in preferences.

To allow for possible correlation of wealth with the error of the reservation wage equation, an equation for wealth is specified: [5]

$$A_{it} = \mu' q_{i,t-1} + v_{i,t-1}, \quad v_{i,t-1} \sim N(0, \sigma_v^2), \tag{9}$$

where q includes individual characteristics and elapsed unemployment duration. Period $t-1$ values of characteristics are used as A_{it} is decided upon in that period.

The probability of receiving any job offer is parameterized as

$$P(\text{job offer}) = \lambda_{it} = 1 - \exp(-\eta_{it}), \tag{10}$$

where η_{it} is a positive parameter. The larger its value, the higher will be the job offer probability. It depends on individual characteristics z_{it}:

$$\eta_{it} = \exp(\gamma' z_{it}) \tag{11}$$

where γ is a parameter and z_{it} includes individual characteristics, among which may be elapsed unemployment duration at the time.

We assume joint normality of the error terms of the wage equation, the reservation wage equation and the equation for wealth. We define ρ_1 as the correlation coefficient between the wage errors e_{it} from (7) and the errors ϵ_{it} of the reservation wage equation (8), ρ_2 as the correlation coefficient between wage errors and the wealth errors $v_{i,t-1}$ from (9), and ρ_3 as the correlation between wealth and reservation wages.

A job offer is accepted if the attached wage exceeds the reservation wage. Under the assumption of joint normality, the acceptance

[4] The data available allow one to construct some broadly approximate measure of elapsed unemployment duration.

[5] Note that it follows from the theoretical model specified by Danforth (1979), that the value of wealth (in its role as state variable), prior to the period in which the transition may be observed, is used. So for the transition, wealth acts as a lagged endogenous variable. Correlations in errors may however occur due to random preferences, other types of unobserved heterogeneity, selectivity bias, or measurement error.

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

$$P(\ln w_{it} > R_{it}|R_{it}, A_{it}) = 1 - \Phi\left(\frac{R_{it} - m'k_{it} - \psi_{e|\epsilon,v}}{\sigma_{e|\epsilon,v}}\right) \quad (12)$$

with $\Phi(.)$ the standard normal distribution function, and use has been made of the normality of the distribution of wages, conditional on wealth and reservation wages. $\psi(e_{it}|\epsilon_{it}, v_{i,t-1})$ refers to the part of the conditional mean that arises due to possible nonzero correlation between the errors of the equations, and $\sigma_{e|\epsilon,v}$ is the conditional variance of the wage error term.

The probability of observing a transition during period t, then can be written as the product of the job offer probability (10) and the acceptance probability (12):

$$\{1 - \exp(-\eta_{it})\}\left\{1 - \Phi\left(\frac{R_{it} - m'k_{it} - \psi_{e|\epsilon,v}}{\sigma_{e|\epsilon,v}}\right)\right\} \quad (13)$$

For each individual, the likelihood contribution can be constructed by multiplying the transition probability (or one minus the transition probability if no transition occurs) by the joint density of wealth and reservation wages. For individuals whose reservation wage is not observed, we integrate over reservation wages[6].

Wealth enters the model as one of the simultaneous equation and as a regressor (in quadratic form) in the reservation wage equation. Therefore, wealth is allowed to affect the job finding probability indirectly via the reservation wage equation and via possible error autocorrelations.

We test whether there is a direct effect of wealth on the job offer probability by including wealth (a quadratic in wealth) in z_{it}. This amounts to assuming that the level of individual wealth may affect not only the reservation wage but also the offer probability. The validity of this assumption is tested by means of a likelihood ratio test.

[6] For a few observations, we do observe the reservation wage, but not whether or not a transition occurred. For those observations the likelihood contribution is given by the joint density of reservation wages and wealth.

4 The data

We use for the analysis a panel dataset of the Dutch population, the Socio-Economic Panel (SEP) collected by Statistics Netherlands (CBS). The SEP sample is drawn from the population of Dutch households and includes all household members aged sixteen or over. The advantage of the SEP over alternative data sources is that it contains detailed information on the level of individual assets and covers a broad range of assets types. Furthermore, information on reservation wages was collected, though only in a few waves.

The survey was started in the early eighties. Questions on assets were asked from 1987 onwards. In the eighties waves were conducted every six month and information was collected alternatively on asset holdings and income. Information on individual assets was then available in the April waves of the panel; information on income was collected in the October waves. From the nineties, information on assets is collected at the same time with information on income and the (May) waves are conducted on a yearly basis.

We selected for the analysis a sample of individuals with the following characteristics:

- household heads;
- actively searching for a job;
- not employed;
- present in at least two consecutive waves;
- that reported asset holdings.

We focus on household heads in order to select a fairly homogenous sample. In particular, when analyzing the reliability of the replies to the questions on subjective reservation wages by comparing subjective reservation wages with previous wages and accepted wages, we concluded that such information was not very sensible for non-household heads. Further, we selected individuals that reported to be actively searching for a job and not already in employment in a given wave. Individuals were required to be present in at least two consecutive waves. A transition into employment is recorded if exit into a job is observed within the following year —October waves for

the eighties and May waves in the nineties. We measure assets in the preceding April wave for the eighty waves and in May later on.

We pool waves and control for time effects with wave dummies. The resulting sample consists of 552 observations. We observe 167 transitions into employment. We observe reservation wages and expected hours for 284 individuals, which amounts to about 50% of our sample.

Descriptive statistics of the income and assets variables are provided in Table 1. These variables are measured in real terms in 1987 prices. We use monthly price indices to deflate the variables[7]. Wealth is defined as net financial assets. We exclude the value of the mortgage and the value of the house from our definition of wealth, given the likely measurement error problems with these variables. We construct dummies for house ownership and for the presence of mortgage. Our wealth measure is equal to the sum of debt (net of mortgage) and savings (net of the value of the house). The unit of measurement is guilders. We define unemployment income as including unemployment benefits, either unemployment insurance or social assistance. Other income includes any other social security benefits —such as for instance child benefit— the income of the partner (when not given separately) and any other income. All income variables are defined in guilders per month.

Reservation wages and hours constitute "subjective information" in the sense that they are self-reported by the survey participants — like any other information in the survey. First, the respondents were asked how many hours they expected to work each week in a new job. Then, they were asked to report the level of the minimum acceptable net monthly income for a job with a number of working hours equal to their expected hours of work.

The reservation wage amounts appear very reasonable. The minimum full-time wage in the Netherlands is currently about 1200 Dutch guilders per month and it was about the same at the time considered in the analysis —the level of inflation in the Netherlands is very low.

The mean and standard deviation of the reservation wage distribution are equal, respectively, to about 1500 guilders and 600 guilders. Also the reported expected hours seem plausible. The mean of the

[7] Source: CBS social economic monthly statistics

distribution is about 33 hours. This indicates that not everybody is willing to take up a full-time job, as reasonable. Hour preferences may play an important role in the reservation wage equation.

We show frequencies of the discrete variables in Table 2. The educational level dummies are defined in increasing order from the lowest, primary school level, level 1, to the highest, university and vocational colleges training, level 4. The education sectors dummies in Table 2 are defined as follows. Sector 1, the reference sector, relates to individuals without skill specific education. Sector 2 includes mathematics, chemics, biology and other technical skills. Sector 3 refers to medical and economic/administrative skills. Sector 4 includes agriculture, transportation and social skills.

5 Results of estimation

In this Section, we discuss the results of estimation of the model. First, we illustrate single equation estimates of the reservation wage equation. Next, maximum likelihood estimates of the joint model of reservation wages, wealth and transitions are discussed. Finally, elasticities for different groups of the unemployed are calculated.

5.1 The Reservation Wage Equation

Under standard assumptions, the reservation wage equation (8) can be estimated by OLS. The dependent variable is the logarithm of the reservation wage. Since the reservation wage is reported on the basis of expected hours of work, the logarithm of expected hours has also been included among the regressors. The parameter estimates are presented in Table 3. For the function $g(A_{it})$ we have specified a quadratic form. Our findings indicate that individual wealth has a significant positive impact on the reservation wage. This is in line with the theoretical expectations. A 100% increase in financial assets (at the mean level of assets) is found to increase the reservation wage by 1.1%.

Overall, our results are very plausible. We find that the reservation wage increases with expected hours. The coefficient estimate of hours is smaller than 1, indicating that the reservation wage increases less

than proportionally with hours. Higher unemployment benefits have a significant positive impact on the reservation wage. Other income has also a positive though not significant impact on the reservation wage. Higher educated people have significantly higher reservation wages, as reasonable. Age is found to have a significant and non-linear effect on reservation wages: its effect is positive until age 36 and negative after. Interactions of age and wealth did not improve on the specification of the model.

We model the effect of gender on the reservation wage with a dummy for "woman" and an interaction variable of women and expected hours of work. Our findings indicate that reservation wages of women increase faster with working hours than reservation wages of men. Nevertheless, women have significantly lower reservation wages than men on average. We tried interacting women or women and hours with children, but no interaction variable was found significant. We consider here only household heads and most single women do not appear to be "lone mothers", i. e. they do not have children. Therefore, children are not so important in explaining reservation wages and expected hours of women. Probably for the same reasons, a dummy for marital status was found not significant[8]. The dummies for house ownership and for the presence of a mortgage were found not significant, also when included separately. Variables like sectors of education dummies and dummies for the duration of unemployment turned out not to have significant effects.

In order to apply OLS to equation (8), the explanatory variables, X_{it} and A_{it}, must be uncorrelated with the disturbances ϵ_{it}. Individual effects may cause correlation between A_{it} and ϵ_{it}. Similarly, measurement error in wealth may introduce correlation with ϵ_{it}. In these cases, OLS is inconsistent and IV may be the more appropriate method of estimation. Therefore, we carried out an Hausman test. The test statistic is based on the difference between the OLS estimator and the IV estimator of the reservation wage equation. We use as instruments all variables included in the reservation wage equation (except for wealth), other income, the square of other income, cross-effects

[8] A dummy for "married people" captures basically the situation of married men. We found that, in spite of its insignificance, this dummy was correlated with wealth. Its inclusion made the wealth variables less significant. This is plausible since married men are typically wealthier than single people, also because they are often older and have more work experience.

of age and other income. The choice of instruments was made on the basis of estimation of first stage regressions of wealth and wealth squared on possible instruments. On the basis of the value of the test statistic (0.46), we cannot reject the null hypothesis of no correlation.

5.2 Joint Model of Transitions and Reservation Wages

Results of estimation of the joint model of transitions, reservation wages and wealth, described in equations (13), (8) and (9) are given in Table 4.

First of all, we have found insignificant correlations terms between the errors of the wealth equation and the errors of, respectively, the reservation wage equation and the job offer probability. Therefore, we have re-estimated the model assuming zero error correlations of wealth and the reservation wage; and of wealth and the offer probability. Also on the basis of a likelihood ratio test this restriction could not be rejected ($\chi^2 = 1.77$).

Generally all the variables in the reservation wage equation have the expected sign and are significant as earlier on. The impact of the explanatory variables does not vary significantly with respect to the results of estimation of the single equation presented earlier on (Table 3). The results of estimation confirm the finding that wealth has a significant positive effect on the reservation wage.

We have plotted predicted reservation wages for different hours, for men and women in Figure 1. The explanatory variables of the reservation wage have been set equal to their mean value (except for gender) while hours have been allowed to vary between 3 and 50, which correspond to the minimum and maximum observed values for hours in the sample. Reservation wages by hours have been computed for men and women separately. In Figure 1, it is shown that that reservation wages increase with hours and that men have higher reservation wages than women, for any hours less than 40 hours. For more than 40 hours, women have higher reservation wages than men. This arises from the combined effect of the woman dummy and the interaction of woman and hours.

In Figure 2, we plot reservation wages for different levels of wealth. The range of values considered for wealth goes from the second to the nineth decile (included). We excluded the first and the last decile

to avoid extreme values. The other explanatory variables of the reservation wage were set equal to their mean value. The plot shows that reservation wages increase with increasing levels of wealth, as discussed above. Non-linearities do not show up in the plot since they only apply to extreme values of the wealth distribution.

Results of estimation of the offer probability, indicate that elapsed duration plays a significant role in explaining the individual probability of receiving a job offer. The reference group for the elapsed unemployment duration dummies are individuals that have been unemployed for less than 6 months. Elapsed duration is statistically significant and negative. This is actually in line with the assumption made by Blanchard and Diamond (1994) in their matching model, where it is assumed that job seekers are ranked by employers only according to their unemployment duration. Those with longer unemployment durations are assumed to be the last to receive a job offer.

Women appear to have a significantly higher offer probability than men, which is perhaps surprising. On the other hand, this finding might be explained by some kind of job segregation effect and by the fact that Dutch women tend to represent a more flexible segment of the labour force, given their availability to work part-time and their hystorically low participation rates.

The separate coefficient estimates of age and age squared are found to affect insignificantly the offer probability. However, the two age variables are jointly significant. If the term in age squared is dropped from the model age becomes significant and the negative effect dominates. The education dummies are generally not very significant.

With respect to the wealth equation, the following comments are in order. Most explanatory variables in the wealth equation are lagged one period, since wealth is measured one period earlier than transitions. Other income and income of the spouse are measured a time period earlier than the corresponding variables in the reservation wage equation. Other income has a significant positive impact on wealth. Significant non-linearities are also detected. The income of the spouse is insignificant. Age has a significant non-linear impact on wealth. An interaction variable of age and other income shows a significantly negative impact. Education levels are insignificant.

Finally, to test whether there is a separate effect of wealth on the offer probability, the model has been re-estimated with wealth and

wealth squared as additional regressors in the job offer equation. On the basis of a likelihood ratio test (equal to 0.88), the null hypothesis that the coefficients on these additional wealth terms are different from zero cannot be rejected. We also tested whether wealth and wealth squared have a non zero impact on the offer probability when the duration dummies are excluded from the offer probability. On the basis of a likelihood ratio test (equal to 2.38) we cannot reject the null.

We conclude that on the basis of our empirical findings there appear to be no separate effect of wealth on the offer probability. Wealth is found to affect the transition probability only via the reservation wage.

In Figure 3, we plot the predicted acceptance probability and the predicted employment or transition probability—equal to the product of the acceptance and the offer probablities— for different levels of wealth. The other explanatory variables are set equal to their mean sample values. As previously discussed, the plot shows that both the acceptance probability and the transition probability decrease with increasing levels of wealth.

5.3 Elasticities

To gain more insights on the relation between wealth, reservation wages and labour market transitions, we have calculated some elasticities. The estimated elasticities and their standard errors are reported in Table 5. The ML estimates of the parameters in Table 4 are used to calculate, respectively, the elasticity of the reservation wage with respect to wealth, the elasticity of the transition probability with respect to the reservation wage and the elasticity of the transition probability with respect to wealth. We have calculated these elasticities for different values of background characteristics and different individuals.

We have computed the elasticities above for the low educated, the high educated and for women. First, elasticities have been computed at the sample means of the explanatory variables for these three groups of the unemployed. For example, for the low educated, all variables have been assumed to take their sample means except for the education dummies that have been set equal to zero —the reference group for the education dummies are precisely the low-educated. In the case of the high educated, all variables have been set equal to their sample means; the education dummies have been set equal to zero except

for education level 4, which has been fixed at value one. Similarly, for women, all variables have been equalized to their sample means except for the gender dummy which has been given value one. Next, elasticities have been computed at the mean values of the explanatory variables for each of the three subgroups of, respectively, the low educated, the high educated and women.

The elasticity of the reservation wage with respect to wealth is significantly positive for all the subgroups considered. Since the dependent variable of the reservation wage equation is in logarithms, the elasticity of the reservation wage with respect to wealth evaluated at the sample means is the same for the three subgroups. The same elasticity, evaluated at the means for each subgroup, is found to be the highest for the higher educated and the lowest for women. The size of the elasticity is rather small. A 100% increase in the level of wealth would result in a 1.2% increase in the reservation wage of the high educated.

The elasticity of the transition probability with respect to the reservation wage is significantly negative and it reaches the highest value in absolute terms for women. The same elasticity is higher for the lower educated than for the higher educated. The size of the impact is rather large. A 10% increase in the level of the reservation wage would lower by 32% the employment probability for women.

Finally, the elasticity of the transition probability with respect to wealth is significantly negative, though small for all the three groups. The impact of wealth is found to be the largest, in absolute value, for women. An increase of 100% in the level of wealth would lower a woman's employment probability by 4.1% on average.

6 Conclusions

In this paper, we have investigated the impact of financial asset holdings on the individual employment probability. Theoretical work in the area of structural models of job search (Danforth, 1979) indicates that financial wealth has a positive impact on the reservation wage. Previous applied work in this field restricted attention to the impact of savings on the employment probability (Bloemen, 1995) and the duration of the unemployment spells (Stancanelli, 1994 and 1996).

The limitation of these studies is that they do not allow explicitly for an impact of wealth on the reservation wage.

On the basis of the estimation of a reservation wage equation, we conclude that wealth has a significant positive effect on the reservation wage. Overall, our findings concerning the reservation wage equation are very reasonable and in line with theoretical expectations. Age is found to have a significant effect on the reservation wage. Reservation wages increase less than proportionally with hours and they are significantly lower for women. We reject the possibility of measurement error or endogeneity of wealth on the basis of a Hausman test.

Next, we have estimated a simultaneous equations model of transitions into employment, reservation wages and wealth. In this model, the employment probability is equal to the product of the acceptance probability (job offers are accepted when the reservation wage exceeds the mean of the wage offer distribution) and the offer probability.

We find no significant correlation of the errors of the wealth equation and the errors of, respectively, the reservation wage equation and the offer probability equation.

We are able to conclude that financial wealth has a positive impact on the reservation wage and a negative impact on the employment probability. Higher levels of wealth result in higher reservation wages and higher reservation wages are associated with a lower employment probability. The hypothesis that wealth has a separate influence on the offer probability was tested by means of a likelihood ratio test and rejected.

We have estimated the elasticities of the reservation wage with respect to the level of wealth and of the transition probability with respect to the reservation wage and to the level of wealth. We have computed these elasticities for the low educated, the high educated and women, at sample means and at subgroup means. The estimates of the elasticities show that the overall impact of wealth on the transition probability is small.

An interesting policy question is whether higher levels of wealth reduce the employment probability but increase the quality of job matches.

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Table 1: Asset Holdings, Unemployment Income and Reservation Wages

Variable	Mean	Sd
Wealth	4228.15	21818.7
Reservation Wage	1521.6	603.1
U Income	1163.1	653.9
U Income*	1281.5	564.9
Other income	249.2	520.0
Other income*	366.0	500.1
Spouse's Income	203.6	547.0
Spouse's Income*	1158.7	772.6
Expected Hours	32.8	9.8
Age	35.9	10.3

The units of measurement of the income variables is guilders per month, in real terms at 1987 prices. The number of observations is 552. The * indicates the distribution recomputed excluding the zero's. The number of individuals that report non zero amounts is 97 for spouse's income, 501 for unemployment uncome (U Income), 403 for other income. The Reservation Wage is available for 287 observations. Expected hours are available for 290 observations. There are 284 observations for which both hours and reservation wages are observed.

Table 2: Discrete Background Variables

Variable	Sample Percentage
Education level 2	27.4
Education level 3	31.1
Education level 4	19.1
Education sector 2	23.4
Education sector 3	18.1
Education sector 4	15.7
Any Children	42.8
Woman	35.8
Single	40.0
Duration 0-6 months	22.8
Duration 7-16 months	13.9
Duration $>$ 16 months	58.5
Houseowner	17.4
Mortgage	15.0
Inheritance	1.6
The number of observations is 552.	

Table 3: The Reservation Wage Equation: Estimation by OLS

The dependent variable is log (reservation wage)		
Variable	Coefficient	S E
Constant	-4.89*	2.52
Any child	0.085**	0.036
Woman	-1.14**	0.27
Log(age)	4.95**	1.45
Log(age) squared	-0.67**	0.20
U Income, 1000 fl	0.044*	0.024
U Other Income	-0.0000013	0.000025
Log (hours)	0.85**	0.06
Educ. Level 2	0.019	0.043
Educ. Level 3	0.14**	0.04
Educ. Level 4	0.20**	0.06
Woman by Log(Hours)	0.31**	0.08
Wealth, 10000 fl	0.029**	0.01
Wealth squared	-0.0012**	0.0004
Wave 2	-0.013	0.032
σ_ϵ	0.311	
Adjusted R^2	0.7772	

The dependent variable is the logarithm of the (net) reservation wage per month, in Dutch guilders (fl). The number of observations for which both the reservation wage and the expected hours were available is 284. All the financial variables (income, wealth, unemployment income) are measured in real terms, in 1987 prices for all years. One wave dummy appears (wave2, 1988) since reservation wages are observed in 1988 and 1989. U stands for Unemployment. Education L's are the individual education levels measured from the lower level up. The base for the dummy is education level 1. Education L4 corresponds to higher education. ** indicates statistical significance at the 5% level; a * indicates statistical significance at the 10% level. Descriptive statistics of the variables are given in Tables 1 and 2.

Table 4: Results of Estimation of the Model

Variable	Reservation Wage Equation		Offer Probability Equation		Wealth Equation	
Name	Coeff	S E	Coeff	SE	Coeff	SE
Constant	-7.22**	2.64	-13.1	18.1	48.1**	19.2
Any child	0.087**	0.036				
Woman	-1.12**	0.24	0.73**	0.34	-0.11	0.34
Log(age)	6.27**	1.52	9.82	10.4	-27.6**	11.0
Log(age) squared	-0.85**	0.21	-1.67	1.48	3.93**	1.58
U Income, 1000 fl	0.037	0.026				
U Other Income, 1000 fl	-0.0036	0.026				
Log (hours)	0.84**	0.05				
Educ. Level 2	0.03	0.06	0.16	0.36		
Educ. Level 3	0.13**	0.06	0.54	0.39		
Educ. Level 4	0.18**	0.06	-0.07	0.41		
Woman by Log(Hours)	0.30**	0.07				
Wealth, 10000 fl	0.029*	0.012				
(Wealth, 10000 fl) squared	-0.0012	0.0016				
Elapsed Dur 6-16 m	0.085	0.055	-0.44	0.44		
Elapsed Dur $>$ 16 m	-0.045	0.050	-1.44**	0.34		
Wave 1987 or 1988	-0.024	0.034				
Wave 1 (1987)			-0.14	0.36	-0.23	0.53
Wave 2 (1988)			-0.51	0.40	0.10	0.56
Wave 3 (1989)			-1.36**	0.47	-0.19	0.57
Any Child (t-1)					-0.37	0.27
Educ. Lev 2 (t-1)					0.14	0.53
Educ. Lev 3 (t-1)					0.26	0.44
Educ. Lev 4 (t-1)					0.09	0.56
Other Income (t-1), 1000 fl					13.9**	1.9
Other Income (t-1) squared					0.32**	0.05
Ln(age) OtherY (t-1)					-3.43**	0.48
Spouse Income (t-1), 1000 fl					-3.76	3.70
Spouse Income (t-1), squared					-0.25	0.18
Ln(age) Spouse Income (t-1)					1.42	1.04
σ_ϵ	0.255**	0.0083				
σ_v	2.01**	0.045				
$\rho 1$	-0.050	0.044				
$\rho 2$						
$\rho 3$						

The model estimated is specified in Equations 8, and 9, 13. The value of the log-likelihood is -1470.22. ** indicates statistical significance at the 5% level; a * indicates statistical significance at the 10% level. The correlation coefficients $\rho 1$, $\rho 2$, $\rho 3$ relate respectively to correlations of the errors of Equations 7 and 8, 7 and 9, 8 and 9. In this version $\rho 2$ and $\rho 3$ are restricted to zero. The value of the likelihood ratio test for the validity of these restriction is 1.77.

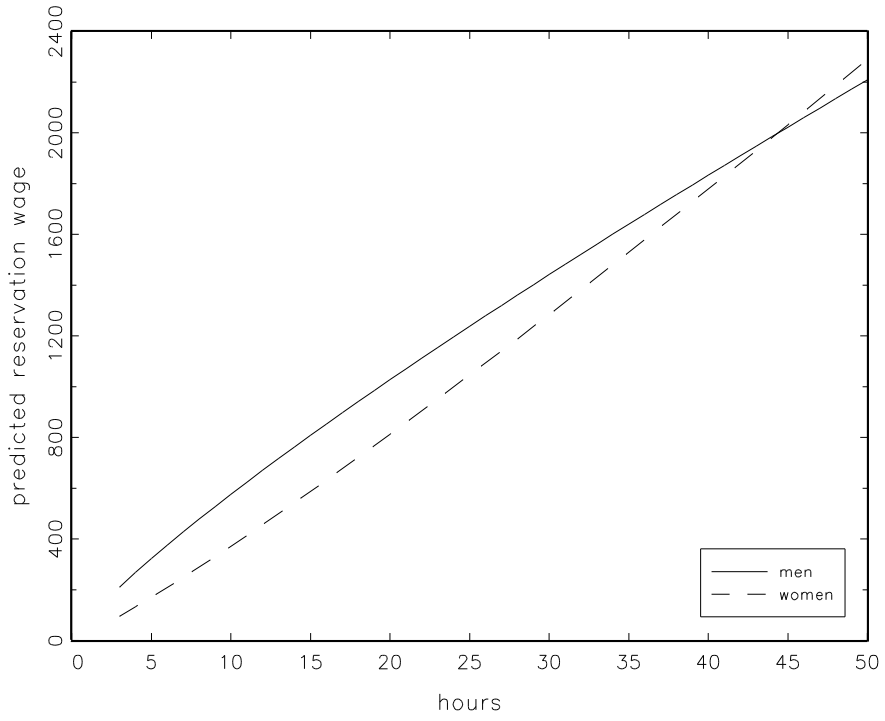

Figure 1: Predicted Reservation Wages by Hours by Gender

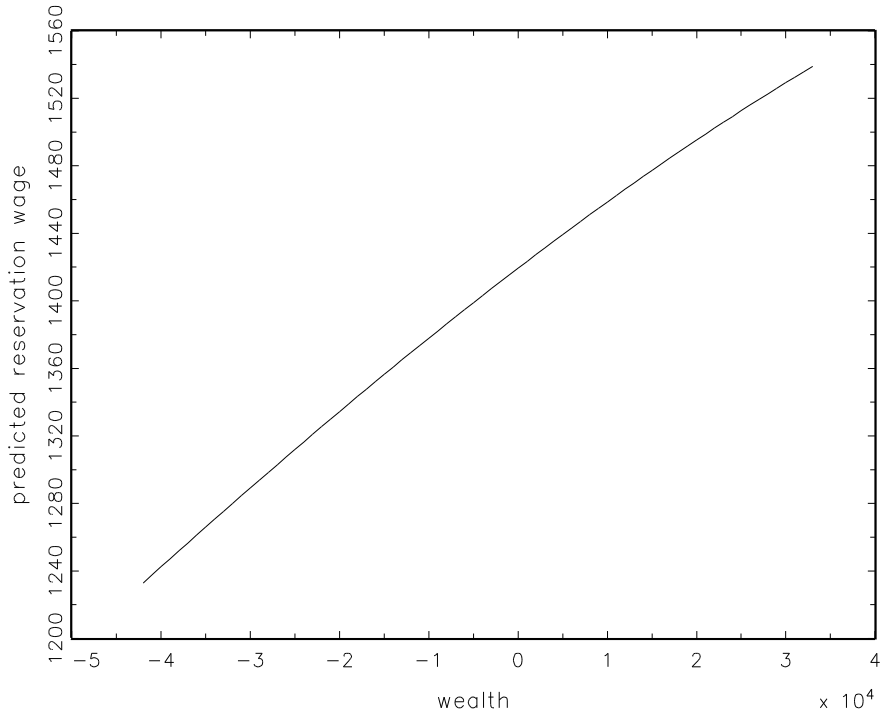

Figure 2: Predicted Reservation Wages by Wealth Levels

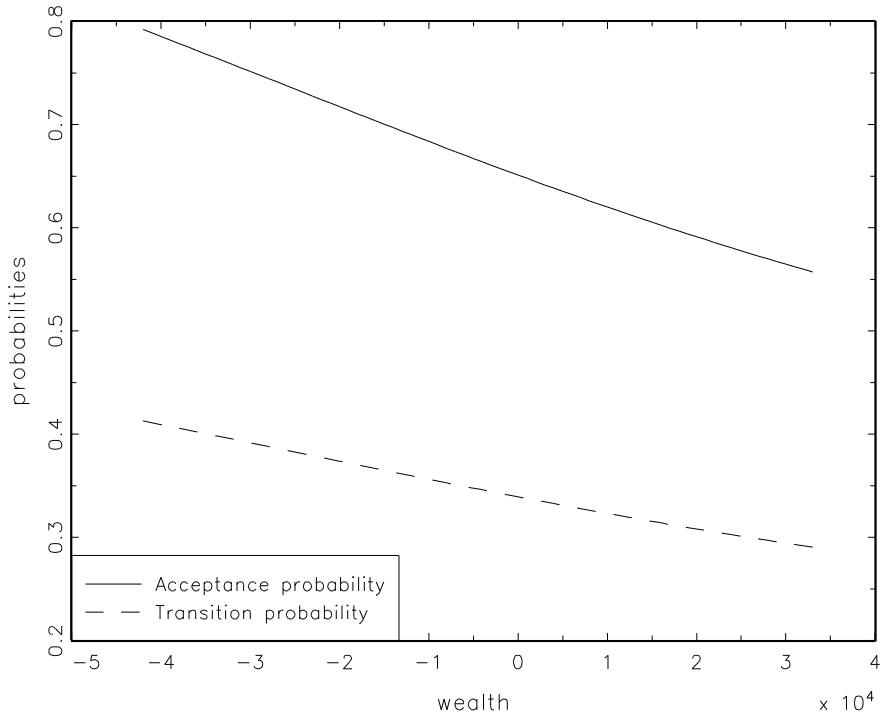

Figure 3: Predicted Probabilities for Different Wealth Levels

Table 5: Estimated Elasticities

Elasticity	Value	SE
Reservation wage to wealth (1a)	0.013	0.00578
Reservation wage to wealth (2a)	0.013	0.00578
Reservation wage to wealth (3a)	0.013	0.00578
Reservation wage to wealth (1b)	0.012	0.00510
Reservation wage to wealth (2b)	0.0062	0.00264
Reservation wage to wealth (3b)	0.0013	0.00568
Transition probability to reservation wage (1a)	-1.84	0.0704
Transition probability to reservation wage (2a)	-1.91	0.129
Transition probability to reservation wage (3a)	-1.91	0.125
Transition probability to reservation wage (1b)	-1.87	0.123
Transition probability to reservation wage (2b)	-2.12	0.120
Transition probability to reservation wage (3b)	-3.18	0.174
Transition probability to wealth (1a)	-0.024	0.0106
Transition probability to wealth (2a)	-0.025	0.0109
Transition probability to wealth (3a)	-0.025	0.0109
Transition probability to wealth (1b)	-0.022	0.0095
Transition probability to wealth (2b)	-0.013	0.0056
Transition probability to wealth (3b)	-0.041	0.0178

The elasticities defined as 1, 2, 3 relate, respectively, to the high skilled, the low skilled and women. The elasticities (a) and (b) relate, respectively, for each group 1, 2, 3, to the elasticities computed using the sample means (a) or the subgroups means (b).

Appendix: The wage offer distribution

Table A: The Offer Distribution and the Selection Equation

Variable	The selection equation		The offer distribution	
Variable	Coefficient	S E	Coefficient	S E
Constant	11.39*	3.31	-7.17*	0.60
Any child	0.16*	0.06		
Woman	-0.51*	0.06	-0.53*	0.04
Log(age)	-5.73*	1.86	6.31*	0.33
Log(age) squared	0.80*	0.26	-0.82*	0.05
Educ. Level 2	0.18*	0.08	0.083*	0.02
Educ. Level 3	0.49 *	0.08	0.16	0.02
Educ. Level 4	0.52*	0.08	0.44*	0.02
Educ. Sector 2	0.11*	0.07	-0.035*	0.01
Educ Sector 3	0.26*	0.7	0.06 *	0.01
Educ. Sector 4	0.22*	0.08	-0.06 *	0.01
Single	-0.29*	0.07		
Spouse Income	0.17*	0.04		
Other Income	0.085*	0.06		
Wave 87	-0.09	0.05	-0.002	0.009
Wave 88	-0.02	0.05	-0.01	0.009
Log Hours			0.82*	0.06
Log Hours Sq			-0.02 *	0.01
Woman by Log Hours			0.009 *	0.001
Heckman's correction			-0.007	0.093
Log-lik	-1865.9			
R^2			0.57	

The selection equation is specified as a probit of the probability of being employed. The probability is defined over the sample of unemployed job searchers (552 persons) and employed individuals (9230 persons) in any of the waves considered for the analysis. The probability of being employed takes value one for the employed persons, zero for the unemployed searchers. The offer probability is estimated by OLS controlling for sample selectivity along the lines of Heckman's two steps procedure. Heckman's correction is computed as the inverse Mill's ratio. The dependent variable is the logarithm of the employment wage. U stands for Unemployment. Education L's are the individual education levels measured from the lower level up. The base for the dummy is education level 1. Education L4 corresponds to higher education.