Wealth and Labor Market Outcomes: Evidence from the SIPP 1996-2000

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Abstract

This paper studies the empirical relationship between wealth and two labour market outcomes - re-employment wages and unemployment durations. The analysis complements a closely related literature by exploiting new data from the Survey of Income and Program Participation. As in prior studies, negative relationship between net worth and hazard rates to employment is documented. In disagreement with prior studies, the relationship between re-employment wages and net worth is found to be non-monotonic - re-employment wages decrease with net worth while the latter is negative and then increases when positive. It is argued that prior findings likely result from misspecification and the results cast doubt on causal interpretations of the relationship typically made in the literature.

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1 Introduction

Under incomplete insurance, accumulated wealth can serve as a cushion for smoothing consumption when income is temporarily low, in particular, during spells of unemployment. In search models this implies a relationship between wealth and the behaviour of the unemployed. Intuitively, a wealthy worker can sustain consumption over a long non-employment spell and can afford to be more selective when presented with a job opportunity. On the other hand, a wealth-poor worker needs to escape unemployment quickly even at the cost of accepting less appealing job offers. This intuition was first formalized by Danforth (1979) in an environment along the lines of McCall (1970) where workers are risk-averse. He demonstrated that under DARA preferences reservation wages increase with wealth, with the implication that wealthy workers experience longer unemployment spells and end up working at better-paying jobs. More recent work, including Lentz and Tranaes (2005), Rendon (2006), Lise (2013), and Eeckhout and Sepahsalari (2013), has investigated the relationship between wealth and search behaviour under more general environments. A universal prediction from the above is that unemployment durations increase with wealth. This is due to either a positive effect of wealth on reservation wages or a negative effect on search effort, or a combination of both[1].

A number of studies have investigated empirically the reduced form predictions of this hypothesis. Bloemen and Stancanelli (2001) use data from the Dutch Socio-Economic Panel from 1988-1989 with information on self-reported reservation wages and assets. They document that unemployed high-net-worth workers report higher reservation wages and experience longer non-employment spells on average. Alexopoulos and Gladden (2006), using US

[1]In Lentz and Tranaes (2005) wealth has no effect on reservation wages by construction but has a negative effect on search effort in equilibrium. Lise (2013) develops a model along the lines of Burdett and Mortensen (1998) featuring risk-averse workers and endogenous search effort. While reservation wages are allowed to depend on wealth, he shows that in equilibrium they don't and behaviour is affected only through an effect on search effort. Eeckhout and Sepahsalari (2013) consider a directed search model and show that under DARA preferences, wealthy workers direct their search to more productive (and better paying) jobs where they also face longer queues. In Rendon (2006) transition rates are exogenous (there is no search effort) but reservation wages depend positively on wealth.

SIPP data from 1984-1987, and Lammers (2014), using the Dutch DNB Household Survey data from 1993-2008, document the same relationship. Algan *et al.* (2003) use French data from the European Panel (collected by Eurostat) over 1993-1996 and document negative relationship between net worth and unemployment durations. These results have been widely interpreted as direct evidence in favour of the theoretical models above (Browning *et al.*, 2007; Lentz, 2009).

This paper complements the above literature by investigating the empirical relationship between workers' household net worth, re-employment wages and hazard rates out of non-employment in the 1996 panel of the Survey of Income and Program Participation. The analysis here is very similar to the above, yet differs in one important aspects. Rather than using self-reported reservation wages (which are unavailable in the data) I use actual observed re-employment wages. It should be noted that there are no theoretical reasons why reservation wages are superior to re-employment wages as an object of study when interest lies in the relationship between wealth and the decision to accept a job offer. A worker's re-employment wage is by definition higher than her reservation wage but if re-employment wages are systematically higher for some group of the population it must be that so is the reservation wage. Further, observed re-employment wages are objective, unlike self-reported reservation wages, and are available for all workers who experience a transition from non-employment into employment, while in all of the above studies information on reservation wages is collected only from unemployed persons in few of the survey waves. As a result I have significantly larger sample, which ultimately allows for further flexibility in modelling the main relationships of interest.

In documenting the relationship between re-employment wages and net worth I start with a specification identical to the one in Bloemen and Stancanelli (2001) and obtain remarkably similar results - net worth enters the conditional mean of log-wage through a quadratic polynomial and the estimates imply an increasing concave relationship. However, non-parametric estimation of the underlying relationship identifies a non-monotonic conditional mean - re-

employment wages decrease with net worth while the latter is negative (as for about 12 percent of the households surveyed and 20 percent of the relevant estimation sample) and then increase when positive. Re-employment wages are lowest not for the most asset-poor workers but for those with close to zero net worth. I then demonstrate that the pattern survives even after controlling for a broad range of observables but disappears when accounting for past wages. I postpone my interpretation of these results until later but at this stage assert that they are inconsistent with the findings from the closely related literature above.

Next I estimate a proportional hazards model of the hazard rates out of non-employment with respect to net worth. I find a negative relationship with the caveat that workers with close to zero net worth experience on average longer durations, of the same magnitude as those for wealthiest workers, conditional on observables. Subject to this, the relationship between wealth and hazard rates is broadly consistent with the view that wealth affects search behaviour as predicted by theory.

The exposition is structured as follows. Section 2 describes the data used. Section 3 discusses the relationship between re-employment wages and net worth. Section 4 presents the analysis of hazard rates. Section 5 concludes.

2 Data

I use data from the 1996 panel of the Survey of Income and Program Participation. SIPP is a nationally representative, longitudinal, multi-stage stratified sample of the civilian, non-institutionalized US households. The survey has been conducted since 1984 but comes in panels of length three or four years where different panels sample different households. A household can be followed for four years at most.

A household is interviewed every four months (a *wave*) and data is collected for each of the preceding four months (the *reference period*) for each household member. During each interview a set of *core* questions on demographics, income (from various sources), employment,

program participation and others are asked. In particular, within the core questionnaire respondents provide a weekly calendar of employment status, as well as monthly earnings, hours worked, and further job characteristics from up to two jobs. In addition, a set of different *topical* questions are asked each wave.

The 1996 panel samples 36730 households (95300 individuals) over the period 1996-2000[2]. A household is interviewed twelve times and during the third, sixth, ninth, and twelfth wave detailed data on assets and liabilities are collected at both household and individual level. Wealth measures used in the analysis are based on these records. Appendix B gives detailed information of the available asset and liabilities data. During the first wave all respondents who were not employed at the beginning of the reference period are asked when was the last time they worked. I use this to identify the duration of non-employment for workers whose spell started before the beginning of the panel. As a result the spell data used in Section 4 does not suffer from problems of left censoring. At the first interview respondents are also asked to report the total number of years they have worked for more than six months. I use this as a basis measuring labour-market experience. In what follows a worker's labour market experience is therefore defined as the number of years she has worked for at least six months.

In the SIPP hourly wages are only reported by workers compensated by the hour, while monthly earnings (EPM), hours worked per week (HPW) and weeks in each month (WPM) are available for all observations. Hence, for comparability, I define a worker's wage at month t as her hourly earnings $EPM_{it}/(WPM_t HPW_{it})$. I define a worker's re-employment wage as the average wage received over the first two full months ($t+1$ and $t+2$) of an employment

[2]These are the numbers from the first wave.

spell. The hourly starting wage (W_t) is then

$$W_{it} = \frac{WPM_{t+1}}{WPM_{t+1}+WPM_{t+2}}\frac{EPM_{it+1}}{WPM_{t+1}HPW_{it+1}} + \frac{WPM_{t+2}}{WPM_{t+1}+WPM_{t+2}}\frac{EPM_{it+2}}{WPM_{t+2}HPW_{it+2}}$$

The reason to focus only on initial wages (rather than, for example, average wage over the observed duration of a spell) is to abstract from tenure-related wage growth when employment spell durations vary across observations. Under this convention transitions resulting in job spells shorter than two full months are excluded from the sample[3].

All nominal variables (wealth, earnings, wages, and income from other sources) are deflated by the CPI with base December, 1996[4]. At each point in time the assets of an individual are identified with the latest observed level of the assets from the particular category.

Finally, as all surveys, data quality could be a concern in the SIPP. Particularly relevant issues relate to the quality of wealth and employment status data. Appendix A discusses some of the surveys better known deficiencies and the implications for my analysis.

3 Wealth and re-employment wages

This section turns attention to the relationship between workers' re-employment wages and their households' net worth. To summarise the latter consider the regression specification for an individual i who experienced a non-employment-to-employment transition in month t

$$\log W_{it} = \alpha + g(NW_{it\_}) + \beta_2 D_{it} + \beta_3 P_{it} + \beta_4 O_{it} + \epsilon_{it} \quad (1)$$

[3]Some workers report flat earnings profiles during employment spells, while others report sequences of higher and lower earnings depending on the number of weeks there are in a month. I take two-month weighted average to correct for biases due to this discrepancy.

[4]Asset and liabilities are only available at yearly frequency. I deflate these by the CPI at the time when they were observed. As a result their deflated levels only change at annual frequency.

Table 1: Descriptive statistics: wage equations

	Heads	**Spouses**		**Heads**	**Spouses**
Wage	10.65	10.15	**Education**		
Net worth	92075	95052	*Elementary*	0.04	0.04
Household size	3.46	3.59	*< High school*	0.15	0.13
Age	39.70	39.73	*High school*	0.32	0.33
Female	0.55	0.73	*Some college*	0.31	0.30
Race			*Undergraduate*	0.12	0.15
White	0.80	0.87	*Master's +*	0.04	0.04
Black	0.15	0.08	*Professional*	0.01	0.01
Other	0.05	0.06	**Other**		
Marital			Experience	18.09	16.96
Married	0.66	1.00	NE spell (wks)	6.34	7.16
Single	0.13	0.00	HH income	1758	2865
Divorced	0.21	0.00	Hours per week	35.76	33.39
Observations	4589	3355		4589	3355

"Wage" is re-employment wage; "HH income" is the income of all other household members; "NE spell" is the duration of the intervening spell of non-employment.

where W_{it} is the starting wage of individual i defined above; $NW_{it\_}$ is her household's latest observed (prior to the associated non-employment-to-employment transition) net worth; $g(.)$ is a pre-specified functional form for the relationship of interest; D_{it}, P_{it}, and O_{it} are vectors of demographic, productivity (such as education), and outside-option related (such as the income of other household members) characteristics. Recall that since assets are only observed annually, $NW_{it\_}$ may have been measured at any point between one week and twelve months prior to the transition. Aside from W_{it} being a re-employment rather than reservation wage, (1) is (up to differences in $g(.)$ and specification of the control set) the relationship estimated in the papers discussed in the introduction (Bloemen and Stancanelli, 2001; Alexopoulos and Gladden, 2006; Lammers, 2014). Notice that since $NW_{it\_}$ is pre-determined there could be no question of causal influence running directly from W_{it} to $NW_{it\_}$ but as long as factors that jointly determine W_{it} and $NW_{it\_}$ are absent from the control set, simultaneity is present.

The sample for estimation is restricted to individuals within family households (household net worth may be uninformative in non-family households) and versions of (1) are estimated

separately for household heads and spouses[5]. Further, individuals who report to be retired or to suffer from work-preventing disabilities at any point during the survey, are excluded. As wealth data is first recorded in the third wave of the survey all observations from the first twelve months are excluded. Subject to this the sample includes all workers that experienced a non-employment-to-employment transition[6] resulting in an employment spell of length more than two months. This leaves 4589 observations for household heads and 3355 for spouses. Table 1 presents some descriptive statistics. The average reemployment wage is higher for household heads while the average income of other household members is higher for the spouses. These suggest that typically the individual recorded as household head is the main earner in the observed household. The average ages for the two groups are very close but household heads have worked on average about a year more than the spouses. The observed differences in education are small. Net worth is on average higher in households where the spouse experienced a transition (likely because all these households consist of married couples).

In what follows I report the results from estimating different versions of (1). In all cases the equation is fitted by OLS and identifies the parameters of the conditional mean. It should be noted, however, that the main results obtain when the equation is estimated by median regression, weighted least squares[7], or by PPML when the wage, rather than its log, is modelled as an exponential function of the linear index (see Santos-Silva and Tenreyro (2006)). For brevity, the results from alternative estimation procedures are not reported in the text but are available upon request. All following tables report heteroskedasticity-

[5]Household head is defined as the individual who owns the household's home or in whose name rent is paid. This is different to the definition in Bloemen and Stancanelli (2001) where the household head is the husband. Every household has a household head but not necessarily a spouse.

[6]I define transitions with intervening non-employment of less than two weeks to be employment-to-employment; those involving a longer intervening spells are defined as non-employment-to-employment. This is in the tradition of previous work (e.g. Nagypál (2008)).

[7]The SIPP samples disproportionately from areas with high poverty and, in this sense, its sample is not representative of the US population. Since sampling weights are available, WLS estimation of (1) is feasible but it turns out that the results are very close to the ones obtained by OLS, in terms of both coefficients and standard errors. A possible reason is that the covariates (in particular, net worth) are highly correlated with the selection criteria.

Table 2: Comparison to Bloemen and Stancanelli (2001)

	Heads		**Spouses**	
	B&S	(2)	B&S	(4)
Any children	0.084^{*}	-0.0423	-0.10	-0.0057
Female	-1.14^{**}	-0.435		-0.632
ln(Age)	4.95^{**}	5.432^{***}	7.75^{*}	3.326^{***}
$\ln(\text{Age})^2$	-0.67^{**}	-0.757^{***}	-1.09^{*}	-0.469^{***}
Unemployment income	0.044^{*}	0.207^{***}	0.09	0.172^{***}
Other income	-0.0027	0.0141^{**}	-0.0025	0.0127^{**}
ln(Hours)	-0.15^{**}	-0.0515	0.094	-0.0805
Educ_2	0.018	0.111^{***}	0.093	0.139^{***}
Educ_3	0.14^{**}	0.219^{***}	0.12	0.213^{***}
Educ_4	0.20^{**}	0.566^{***}	0.36^{**}	0.541^{***}
Female $\times$ ln(Hours)	0.31^{**}	0.0277		0.0739
Net worth	0.029^{**}	0.0145^{**}	0.052^{**}	0.0234^{**}
Net worth ^{2}	-0.0012^{**}	-0.0015^{***}	-0.0019^{**}	-0.0003^{**}
House	0.10	0.0972^{***}	-0.060	0.124^{***}
Observations	284	4659	284	3396

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

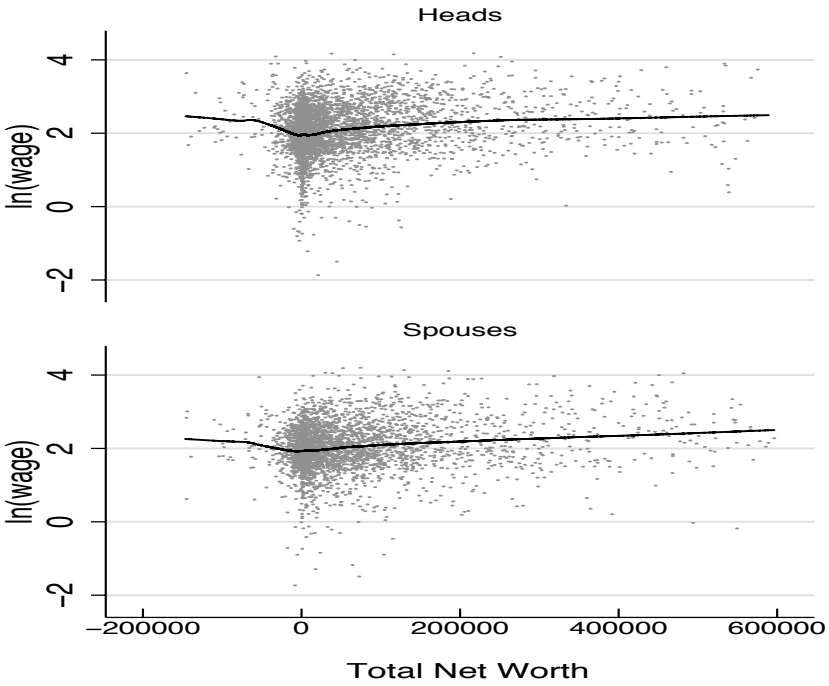
consistent standard errors or p-values. As discussed further, I also use two different measures of wealth, depending on how home equity is handled, with little change in results.

First, Table 2 reports the results from a specification identical (up to variable definitions) to the one in Bloemen and Stancanelli (2001). The columns labelled B&S (2001) present Bloemen and Stancanelli (2001)'s estimates while columns (2) and (4) present mine. The results are remarkably similar (notice that all nominal quantities, including the dependent variable, are measured in different currencies and in any case the equation is estimated in two different countries) and imply a positive and convex relationship between wages and net worth. Perhaps the most striking difference relates to the number of observations which differ by factor of twenty.

Next, to assess the adequacy of quadratic relationship with respect to net worth, Figure 1 presents scatterplots of the log-wage against net worth and fits a locally weighted scatterplot fitting (LOWESS) curves through the data [8]. The observed relationship between log-wages

[8]The graph shows the middle 98 % of the observations for net worth. The bandwidth is set to 1000

Figure 1: Wages and net worth



and net worth is non-monotonic. Starting from the left tail of the net worth distribution, mean wages decrease as net worth increases and attain a minimum near zero net worth. Then as net worth increases, log-wages increase again, at a decreasing rate. The pattern is observed both for household heads and for spouses, but is somewhat more pronounced for household heads. This suggests that quadratic polynomial in net worth is inadequate specification for $g(.)$ in (1). Not accounting appropriately for the shape of the relationship could lead to misleading results - notice that about 19 percent of household heads and 20 percent of spouses in the estimation sample have negative net worth (see Appendix B).

Since non-parametric estimation with a large set of controls is computationally infeasible I recode the continuous net worth variable into a categorical ordering of households by net worth and use category indicators as regressors. In addition to inducing a semi-parametric flavour to the estimation this approach has the advantage of reducing the influence of extreme net worth observations, and improving the robustness of results to measurement issues

dollars (deflated) - a reasonably small value given the support of the net worth distribution.

Table 3: Wage regression, household heads

Net worth	(1)	(2)	(3)	(4)
NW1	0.420***	0.319***	0.166**	0.128*
	(0.000)	(0.000)	(0.006)	(0.041)
NW2	0.225***	0.166***	0.0683	0.0386
	(0.000)	(0.001)	(0.200)	(0.477)
NW4	0.144**	0.103**	0.0576	0.0316
	(0.002)	(0.006)	(0.157)	(0.449)
NW5	0.266***	0.212***	0.129**	0.0978*
	(0.000)	(0.000)	(0.004)	(0.038)
NW6	0.333***	0.274***	0.159**	0.125*
	(0.000)	(0.000)	(0.001)	(0.016)
NW7	0.376***	0.316***	0.172***	0.135**
	(0.000)	(0.000)	(0.000)	(0.002)
NW8	0.445***	0.374***	0.230***	0.201***
	(0.000)	(0.000)	(0.000)	(0.000)
NW9	0.498***	0.418***	0.218**	0.188*
	(0.000)	(0.000)	(0.009)	(0.025)
NW10	0.666***	0.564***	0.359***	0.321***
	(0.000)	(0.000)	(0.000)	(0.000)
NW11	0.579***	0.515***	0.281***	0.239**
	(0.000)	(0.000)	(0.000)	(0.001)
NW12	0.764***	0.712***	0.426***	0.385***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	4589	4589	4437	4437

p-values in parentheses

associated with the continuous wealth variables. I assign households into twelve net worth categories in ascending order, allocating those with net worth between -100 and 100 dollars into the third category. Appendix B describes how the net worth categories are created from the pooled asset data. Importantly, the net worth categories are not equally sized (Table 7).

Table 3 presents the coefficients on net worth category indicators (households close to zero net worth serving as reference category) from estimation of four regression specifications nested by (1) for household heads (Tables 10 and 11 in the Appendix show the full specifications, including controls, for household heads and spouses). The first specification (column (1)) only includes a constant and the net worth indicators; column (2) includes demographic controls; (3) includes productivity controls; (4) includes controls related to the worker's outside option. Household heads in the top (bottom) net worth category have on average 76 (42) percent higher re-employment wages than workers close to zero net worth. Similar results

obtain for spouses. Observables explain about two-thirds of the re-employment wage gap between top (bottom) and zero-net worth workers but the qualitative pattern from Figure 1 is preserved after each round of extra controls.

One concern with measuring wealth by total household net worth is that it includes illiquid assets (in particular, home equity) that are conceivably unsuitable for smoothing consumption[9]. To address this issue I consider an alternative definition of net worth which subtracts home equity from total net worth. It should be noted that even this measure could be subject to the same criticism - for example, it includes wealth in pension accounts which carry penalty upon early withdrawal. Tables 14 and 15 (in the Appendix) report the coefficients on the net worth categories for the same regression specifications as above but using this net worth definition[10]. The results are very similar to before. The pattern identified above is, therefore, not the result of treating home equity inappropriately.

A significant part of the relationship between wages and net worth is explained by observable characteristics. To explore this more closely Table 4 reports the mean values of a subset of the observables for households heads from different net worth categories (Table 13 in the Appendix presents the same information for spouses). Workers around zero net worth are on average the youngest; least experienced, educated or likely to be married; most likely part of low-income households. Towards the tails of the net worth distribution the incidence of characteristics associated with high earnings increases steadily. Further, workers in the bottom net worth categories have education profiles consistent with high earning potential. The most striking difference between them and workers towards the right end of the distribution is that the former are younger and less experienced. To state this simply, the most asset-poor workers don't have low re-employment wages plainly because they are fundamentally high earners.

[9]While this criticism has some merit, it is probably extreme to think that a household's property value is fully irrelevant as a source of financing in face of unexpected events.

[10]The coefficients of the control variables are not reported to keep the tables concise but are available upon request. Individuals are now grouped into only eleven categories but the third group again contains individuals with zero net worth - for details see Appendix B

Table 4: Characteristics by net worth, household heads

Net worth	1	2	3	4	5	6	7	8	9	10	11	12
Age	35.29	34.66	33.20	34.51	35.83	38.75	40.63	44.41	44.50	48.18	49.46	52.77
Experience	15.12	13.83	8.40	12.72	15.00	17.99	19.36	22.72	23.55	25.33	26.49	28.51
Female	0.50	0.61	0.65	0.63	0.59	0.50	0.53	0.48	0.46	0.41	0.46	0.42
Spell (wks)	4.91	5.25	11.81	6.83	5.90	5.60	6.19	6.26	6.29	6.43	6.10	6.41
HH (net) income	1639	1200	403	849	1141	1563	1866	2017	2488	2738	3511	4250
Married	0.71	0.55	0.35	0.47	0.58	0.72	0.74	0.77	0.83	0.86	0.85	0.89
Education												
Elementary	0.03	0.04	0.09	0.09	0.05	0.05	0.03	0.01	0.02	0.02	0.00	0.00
< High school	0.09	0.15	0.34	0.27	0.21	0.15	0.14	0.13	0.10	0.06	0.05	0.03
High school	0.27	0.35	0.31	0.35	0.39	0.33	0.31	0.34	0.31	0.28	0.27	0.17
< Degree	0.36	0.37	0.25	0.24	0.27	0.35	0.35	0.32	0.29	0.30	0.30	0.28
Undergraduate	0.18	0.06	0.00	0.05	0.08	0.08	0.14	0.16	0.20	0.21	0.25	0.29
Master's	0.03	0.02	0.00	0.01	0.01	0.03	0.04	0.03	0.06	0.10	0.12	0.17
PhD	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.02
Professional	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.04
Observations	390	452	318	350	691	566	391	350	343	299	250	189

Note: Columns correspond to net worth categories

This is at odds with the findings of Bloemen and Stancanelli (2001), Alexopoulos and Gladden (2006) and Lammers (2014). It is unlikely that the discrepancy is due to the conceptual difference between reservation and re-employment wages - if most asset-poor individuals report low reservation wages but somehow end up working at high-paying jobs, their subjective assessment of reservation wages is flawed. Another possibility is that the different results are due to differences in sample selection. In particular, while I include unmarried household heads in the estimation sample, some of the above studies do not. Table 12 (in the Appendix) estimates the equations only on the sample of married heads and shows that this is not the case. Further, the results are obtained for different countries (of the above only Alexopoulos and Gladden (2006) uses US data) and at country level the underlying relationship could differ. A more likely explanation, however, is that by imposing quadratic form for the underlying relationship, the long right tail of net worth becomes extremely influential and drives the results. It is also difficult to reconcile the results with the view that (1) identifies a causal effect of wealth on re-employment (or reservation) wages. To make this claim one has to assume that all factors that jointly determine wages and net worth (for example, a workers permanent earnings and ability) are appropriately accounted for in the control set. Direct inspection of the full list of controls in Table 10 reveals that virtually all variables related to ability are discrete while the dependant variable is continuous. One possibility for a continuous noisy measure of ability that could serve as a proxy in (1) is past wages. For this two requirements should be satisfied. First, past wages should be ignorable. From theoretical point of view, this requirement is likely met[11]. The second requirement, that the correlation between omitted ability and net worth is zero once past wage is partialed out, is more difficult to defend - for example, positive transitory component in past wages may imply higher wealth at the time of the transition. While recognising this issue, column (2) of Table 16 (in the Appendix) reports, proactively, the results from a simple regression

[11]In the class of models discussed in the introduction past wages matter for an unemployed worker's reservation wage only insofar as they contain information of the worker's earning potential. However, it is easy to think of alternative environments where past wages have causal effect on re-employment wages.

of the re-employment wage on net-worth-category indicators, education, age, marital status and the average wage earned at a worker's latest employment spell prior to transition[12]. Past wages explain most of the variation otherwise attributed to wealth, except for the three top net worth categories. If one believes that the proxy is suitable (in particular, that transitory variations in wages over the observed window can't explain systematic movements between net worth categories) the results suggest that wealth has essentially no effect on re-employment wages over most of the net worth distribution. While suggestive, this result's causal interpretation should be taken with care in view of the discussion above.

Irrespective of the exact nature of causal forces involved, the results demonstrate unambiguously that the most asset-poor workers are young and highly educated high-earners. To investigate whether their liabilities could be attributed to particular sorts of expenditure, Table 5 reports the average financial position of household heads from the twelve net worth categories separately by asset group. Households in the third net worth category hold less wealth and own less debt, in almost every asset class, than other households. From there, both assets and liabilities increase in value towards the tails of the net worth distribution. Households in the bottom category are the only ones with negative, on average, home equity position but their largest component of debt is loans (which is also disproportionately large in comparison to its relative share of total liabilities across net worth categories). "Loans" corresponds to survey questions about "student loans, home-improvement loans, lines of credit besides credit card". Given their age and educational profile, it is sensible to conjecture that student loans dominate their balance sheet. Unfortunately, no finer decomposition is available in the data and at this stage this can't be established unambiguously.

[12] As a preceding employment spell (of duration more than two months) is not observed for many workers, the number of observations drops to 2771. Column (1) of Table 16 reports the estimates over the same sub-sample from an identical regression excluding the past wage and identifies the same pattern as Table 3.

Table 5: Assets by net worth, heads

	1	2	3	4	5	6	7	8	9	10	11	12
Assets												
Held in bank	1297	384	16	278	621	1661	2966	4752	7706	12728	20308	59250
Stocks/funds	654	22	0	54	248	466	1213	2476	5991	11461	34969	869039
IRA/KEOGH	455	97	0	29	69	531	683	2182	4617	8162	19110	60689
Vehicles (net)	2018	837	98	1119	4175	5960	6843	7663	8160	10489	11265	14954
Business equity	-2894	68	0	17	50	261	276	1020	1401	3805	8312	53674
Other	398	189	10	109	351	1327	1845	3935	7070	13578	25060	109148
Home equity	-2456	777	84	374	2077	10525	25845	43684	63187	87550	127914	166508
Total wealth	-529	2374	209	1981	7590	20731	39671	65712	98131	147773	246939	1333262
Liabilities												
Credit card debt	9477	2605	44	621	1415	2504	2302	3102	3349	3063	2941	3152
Loans	11892	1424	148	465	521	871	1404	984	1185	1258	1121	458
Other debt	6230	1136	15	106	497	648	936	809	582	539	331	485
Total unsecured debt	27599	5165	207	1193	2432	4022	4642	4895	5116	4860	4392	4095
Net worth												
Total	-28128	-2790	2	788	5158	16709	35028	60817	93015	142914	242546	1329167
Net of home equity	-25672	-3567	-82	314	2081	6184	9183	17133	29828	55364	114632	1162659

Note: Columns correspond to categories based on total net worth

4 Wealth and the duration of non-employment

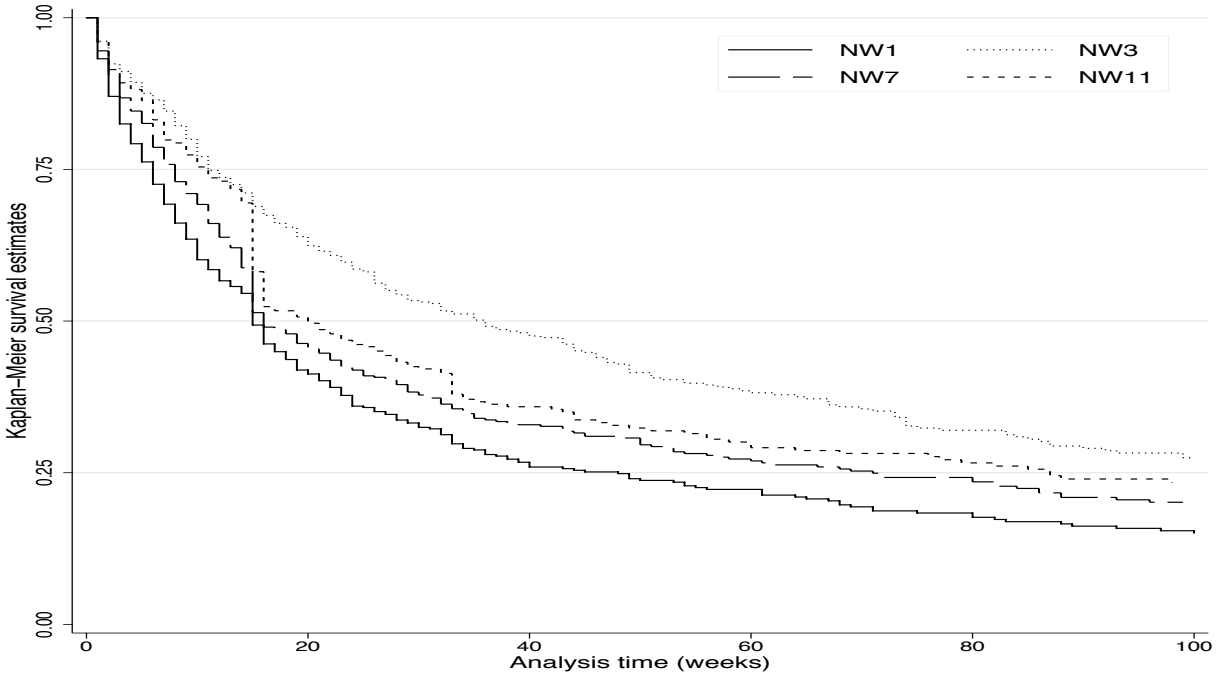
I now turn attention to the relationship between net worth and hazard rates to employment. Starting from the pooled data, I exclude all individuals of age less than 16 years, the retired and those reporting being unable to work because of chronic health condition or disability. I transform the original data into a weekly panel dataset where each individual's employment status is observed weekly, core-module variables are observed monthly, and assets are observed annually. The SIPP reports five distinct employment states. I recode these so that they are consistent with only two employment states (employment and non-employment). As before, the amount of assets held by an individual at any week is identified with the most recently observed amount (See Appendix B).

Identification of spell durations for individuals observed continuously who were employed in the first week of the first wave is straightforward. For those observed continuously but not employed at the beginning of the first reference period, I use data from the first-wave topical module where they report the last time they worked. In about five percent of the relevant cases these records are missing and I exclude the associated spells. Spells of individuals who left the sample for some time and returned as non-employed are also excluded. As before, I exclude non-employment spells shorter than two weeks (which I interpret as job-to-job transitions). This leaves a final sample of 7313 non-employment spells (210443 weeks at risk) for household heads, with 4779 ending in employment, and 5942 spells (227918 weeks at risk) for spouses, 3603 ending in employment[13]. Median exit times are 13 and 15 weeks respectively.

Figure 2 shows the Kaplan-Meier estimates of the survivor function for household heads from four different net worth categories (the others are omitted for readability). While survival rates typically decrease with wealth, as before a discontinuity occurs for households close to zero net worth who are least likely to transit into employment. Hence, in the

[13]Notice that the time-at-risk does not correspond to the number of weekly observations reported later due to the spells whose duration was constructed using the first-wave topical module.

Figure 2: Survivor function by net worth, Kaplan-Meier



regression specifications that follow I keep on using net-worth-category indicators.

To summarise the relationship between hazard rates out of non-employment and net worth I use a discrete time approximation to the continuous time proportional hazards model. Let $\theta(t, X_{it}, \epsilon_t)$ be the continuous time hazard rate for an individual i with observed characteristics X_{it} and unobserved ϵ_t who has been non-employed for amount of time t. Under the proportional hazards assumption this can be represented as

$$\theta(t, X_{it}, \epsilon_{it}) = \theta_0(t) exp(\beta' X_{it} + \epsilon_{it}) \equiv \theta_0(t)\lambda_{it} \tag{2}$$

implying that all individuals share the same underlying pattern of time dependence, summarized by $\theta_0(t)$, the baseline hazard rate, and observed characteristics affect hazard rates by scaling λ_{it}. Both t and X_{it} are only observed at discrete weekly intervals[14]. The probability

[14]In fact, observed covariates only change at monthly (or for assets annual) frequency. However, this is unlikely to result in significant time aggregation bias as long as one treats the time varying covariates as monthly averages.

that a worker is still not employed after j weeks (the survivor probability) is

$$S(j, X_{ij}^h) = exp\left(-\int_0^1 \theta_0(u)\lambda_{i1}du - ... - \int_{j-1}^j \theta_0(u)\lambda_{ij}du\right) \tag{3}$$

where

$$X_{ij}^h \equiv \{X_{ij}, X_{i,j-1}, ..., Xi1\}$$

is the history of X_{it} for $t \in \{1, 2, ..., j\}$. An individual is still not employed after j weeks if they did not experience a transition in the first, or second, ..., or $j-1$'st week.

The probability of a spell ending during week j (the discrete hazard rate) is

$$h(j, X_{ij}^h) = \frac{S(j-1, X_{i,j-1}^h) - S(j, X_{ij}^h)}{S(j-1, X_{i,j-1}^h)}$$

A spell ends at week j if an individual is not employed in week $j-1$ but employed in week j. Using (3) to substitute the survivor functions the discrete time hazard can be expressed independently of history:

$$h(j, X_{ij}) = 1 - exp(-exp(\beta' X_{ij} + \gamma_j + \epsilon_{ij})) \tag{4}$$

where

$$\gamma_j \equiv \int_{j-1}^j \theta_0(u)du$$

is the discrete time counterpart of the baseline hazard rate. Therefore, subject to appropriately accounting for γ_j the parameters in (2) are identified by a complementary log-log regression of the event that a transition occurs in week j on the covariates (Jenkins, 2005).

To account for duration dependence I follow a semi-parametric piecewise-constant approach - 26 indicator variables, corresponding to discrete intervals of cumulative spell du-

Table 6: C-log-log regression, household heads

Net worth	(1)	(2)	(3)	(4)
NW1	0.632***	0.479***	0.608***	0.510***
	(0.000)	(0.000)	(0.000)	(0.000)
NW2	0.407***	0.276**	0.428***	0.315***
	(0.000)	(0.002)	(0.000)	(0.001)
NW3	0.139	-0.0000103	0.223*	0.0861
	(0.114)	(1.000)	(0.028)	(0.411)
NW4	0.527***	0.369***	0.552***	0.431***
	(0.000)	(0.000)	(0.000)	(0.000)
NW5	0.391***	0.242**	0.389***	0.278**
	(0.000)	(0.004)	(0.000)	(0.002)
NW6	0.439***	0.287***	0.390***	0.306***
	(0.000)	(0.001)	(0.000)	(0.001)
NW7	0.432***	0.333***	0.452***	0.371***
	(0.000)	(0.000)	(0.000)	(0.000)
NW8	0.289***	0.192*	0.282**	0.204*
	(0.001)	(0.031)	(0.002)	(0.032)
NW9	0.255**	0.182*	0.258**	0.201*
	(0.005)	(0.046)	(0.006)	(0.036)
NW10	0.209*	0.160	0.223*	0.179
	(0.025)	(0.090)	(0.021)	(0.069)
NW11	0.200*	0.166	0.181	0.145
	(0.030)	(0.072)	(0.055)	(0.130)
Observations	152147	152147	148712	148712

Standard errors clustered by individual. NW12 is reference category.

ration, are included as regressors. These are chosen so that they are narrower towards the beginning of the spell, where the survivor function has higher curvature. Appendix C describes how the intervals are generated. To insure that this way of modelling duration dependence is not inadequate I also estimate the relationships through a Cox model, which imposes no specific form of the duration dependence, with no significant change of results[15]. All results that follow include these indicators but, for brevity, their coefficients are not reported.

A well-known data-quality problem of the SIPP (and all other major surveys) is seam bias (see Appendix A) - unusually large proportion of labour market transitions appear to

[15]While valuable as a robustness check, the Cox model is best suited to continuous time duration data.

occur at the seam between subsequent waves. To address the issue I include as a regressor a variable which indicates whether a particular week is the first week of a reference period. As a result, any significant difference between the probability of a transition taking plays at the seams rather than at other point of the reference period is attributed to bias.

Table 6 presents the net-worth coefficients from ML estimation of (4) for household heads (Tables 17 and 18 in the Appendix report the full specification for heads and spouses; Tables 19 and 20 report the results when the alternative net-worth definition is used). All tables report regression coefficients and, unlike the wage-regressions above, the top net-worth category serves as reference. For household heads the hazard rate into employment declines with net worth[16], except for a sharp discontinuity around zero net worth where hazard rates are very low and close to those of the wealthiest individuals. To get a feeling of the magnitude of the differences, notice that in a c-log-log regression, coefficients' exponentiated values identify hazard ratios. For example, all else equal, household heads from the bottom net-worth category have $(e^{0.510}-1) \approx 67\%$ higher hazard rate than their wealthiest counterparts. For household heads the results are robust with respect to net-worth concept.

The pattern for spouses is different. First, they tend to have overall longer non-employment durations. Next, above the fifth net-worth category (and the second when home equity is netted out) hazard rates do not differ significantly across groups. Further, no discontinuity around zero net worth occurs - in fact, under the benchmark net-worth definition hazard rates there are the highest, although insignificantly different from those in the left tail. It should be noted that both for household heads and for spouses, accounting for observable characteristics does not affect the underlying relationship as significantly as in the case of re-employment wages.

Except for the discontinuity around zero net worth, the results indicate that hazard rates to employment decline with wealth. In view of the theoretical literature discussed in the introduction, this could be rationalized by a positive effect of wealth on reservation wages

[16]While coefficients do not monotonically decline in value, they do not differ in statistical significance sense between any two adjacent net-worth groups, except around the third category.

and/or a negative effect on search effort. As in the previous section, it is unlikely that the net worth coefficients identify causal effect as simultaneity is probably present. However, there is an important difference. It is reasonable to think that wealth accumulation is, if anything, lower during non-employment. If some unobserved factor causes individuals to stay out of employment for longer, it will likely imply that they have lower net worth. Omitting relevant variables will then induce a positive bias in the relationship between net worth and hazard rates, while the estimated relation is, in fact, negative. Therefore even if the coefficients do not identify the causal effect, the latter is most likely negative.

5 Conclusion

This paper explores the reduced-form relationship between wealth, re-employment wages and hazard rates into employment, in the 1996 panel of the Survey of Income and Program Participation. It complements the literature by studying a new dataset. As in related previous studies I find that the relationship between net worth and hazard rates is negative. This evidence is consistent with the theoretical prediction of search models featuring risk-averse workers. In disagreement with prior studies I show that net worth and wages are not monotonically related - in fact, re-employment wages decline with net worth while the latter is negative (as for about 20 percent of the sample) and then increase when positive, attaining a minimum for workers around zero net worth. I argue that prior estimates are based on inappropriate specification of the main relationship of interest. The pattern is robust even after controlling for a broad range of observables but disappears when accounting for past wages. This finding is inconsistent either with theoretical predictions or with the view that causal effects are identified by the approach used here and in previous studies.

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Appendices

A Data quality

This section discusses some well-understood issues regarding the quality of income, labour force status, and assets data in the SIPP. The discussion is largely based on Czajka and Denmead (2008) and Czajka *et al.* (2003).

It is well-documented that major surveys underestimate aggregate earned income of US households in comparison to data based on administrative records and estimates based on the SIPP are lower than other surveys. This discrepancy, however, can be largely attributed to sample selection (the SIPP surveys disproportionately in regions with high concentration of poverty) and top-coding of income (the SIPP estimates of average income at the top/bottom of the distribution are lowest/highest among major surveys). While this raises concerns about income-data reliability, the differences among surveys are, in fact, small (Czajka and Denmead, 2008).

With respect to labour-market status data a well-known problem in the SIPP is seam bias. The survey reports a disproportionately large amount of transitions occurring "at the seam" between waves. It should be noted, however, that seam bias is a problem in all surveys and given its relatively short reference period the SIPP has a comparative advantage in this respect. In estimating hazard rates, I include controls for the two weeks around the seam and attribute any significant differences in comparison to the rest of the reference period to such bias.

In comparison to surveys that collect asset data (in particular SCF and PSID), the SIPP estimates substantially lower average and somewhat lower median household net worth. As compared to SCF both assets liabilities are underestimated[17]. As with income, however, most of the differences seem to be attributable to sample selection and top-coding practices.

[17]Czajka *et al.* (2003) report that the SIPP estimate of median assets is 83 percent of the SCF estimate while the estimate of median liabilities is 97 percent of the SCF estimate.

The main empirical results in this paper are based not on continuous measures of net worth but on categorical ordering of households by net worth, and as long as the categories are sufficiently well identified results should not be sensitive to measurement error.

B Definition of wealth and debt variables

This section describes the wealth and debt variables used in the analysis and how they were created from the variables available in the 1996 SIPP panel, waves 3,6,9, and 12.

The SIPP collects asset and liabilities data for a number of categories at individual level. In addition, it provides recode variables at household level that sum the individual level assets and liabilities across all household members except for those related to the value of property and vehicles. The latter are identical for each household member and enter the household-level recodes only once through the values reported by the household reference person. All the variables I use in my analysis are based on these household-level recodes.

Household liquid wealth is defined as the sum of the interest rate earning assets held in banks and other institutions, and equity in stocks and mutual funds (*thhintbk*, *thhintot*, and *rhhstk* in the SIPP recodes). Pension wealth is defined as the sum of equity in IRA and KEOGH accounts for all household members (*thhira* in the SIPP recodes). Total business equity is based on the variable *thhbeq*; net equity in vehicles is based on *thhvehcl*; other household wealth is defined as the sum of net equity in real estate other than the household's home (*thhore*), and total other assets (*thhotast*).

Net home equity is based on the home equity recode (*thhtheq*) which is identically equal to the sum of the current value of home property (*tpropval*), reported value of mobile home (*tmhval*), net of the total debt owned on the former (*thhmortg*).

Total household wealth (*thhtwlth*) is the sum of all aforementioned asset categories. It should be noted that it already includes net rather than gross asset positions with respect to value of the household's home and vehicles.

Credit card debt is the sum of credit card debts owed in own name by all individual household members (*ealidab*) plus the sum of all credit card debts owed jointly by subsets of household members (*ealjdab*). Similarly household debt on loans sums across household members their individual loans (*ealidal*) and jointly owed loans (*ealjdal*). Finally, other household debt includes the sum of all individual "other" debts across household members (*ealidao* and *ealjdao*). The loan debt includes the amount of money "owed for loans obtained through a bank or credit union, other than car loans or home equity loans". "Other" debt includes money owed "for any other debt not yet mentioned (include medical bills not covered by insurance, money owed to private individuals, and any other debt not covered; exclude mortgages, home equity loans and car loans)". The sum of household credit card debt, loan debt and other debt is identically equal to the total household unsecured debt (*rhhuscbt*).

Throughout the paper I use two alternative definitions of net worth. The benchmark definition uses the SIPP recode for total household net worth (*thhtnw*). The latter is identically equal to the "total household wealth" (*thhtwlth*) net of total unsecured debt (*rhhuscbt*). Netting out only the unsecured debt is necessitated by the fact that *thhtwlth* already subtracts the value of secured debt. Net worth based on the first definition therefore includes all home related assets and liabilities. In addition, I use a definition of net worth excluding households' asset positions in the housing market. The net worth net of the housing position is identically equal to th total household net worth recode (*thhtnw*) minus the home equity (*thhtheq*). The latter is equal to the value of the household's property (*tpropval*) minus the value of the mortgage (*thhmortg*).

For comparability between the different estimation exercises I define the net worth categories based on the distribution of net worth for the households in the whole survey. Under both definitions households with net worth between -100 and 100 constitute the third category.

Table 7: Net worth categories, group sizes

Net worth		SIPP		Wages		Hazards	
		Heads	Spouses	Heads	Spouses	Heads	Spouses
NW1	≤ -7769	0.06	0.06	0.08	0.09	0.09	0.09
NW2	$(-7769, -100]$	0.06	0.05	0.10	0.08	0.10	0.08
NW3	$(-100, 100]$	0.04	0.01	0.07	0.02	0.08	0.01
NW4	$(100, 1651]$	0.04	0.03	0.08	0.05	0.08	0.05
NW5	$(1651, 9887]$	0.10	0.08	0.15	0.13	0.14	0.12
NW6	$(9887, 25737]$	0.10	0.10	0.12	0.12	0.10	0.12
NW7	$(25737, 47415]$	0.10	0.10	0.09	0.11	0.09	0.09
NW8	$(47415, 74961]$	0.10	0.11	0.08	0.09	0.08	0.09
NW9	$(74961, 114442]$	0.10	0.11	0.07	0.09	0.07	0.09
NW10	$(114442, 180752]$	0.10	0.11	0.07	0.09	0.06	0.09
NW11	$(180752, 336453]$	0.10	0.12	0.05	0.07	0.07	0.08
NW12	≥ 336453	0.10	0.13	0.04	0.06	0.06	0.10
Observations		84519	63529	4589	3355	7313	5942

Note: The final columns refer to the net worth at the time of transition/right-censoring.

B.1 Net worth including home equity

In the pooled asset data, households with net worth between -100 and 100 dollars (deflated) are located between the 12th and 15.8th percentiles of the net worth distribution. I assign these households to the third net worth category. The first two categories are the two equally large groups of households with lower net worth. The fourth category complements the third up to the 20th percentile. All the next categories correspond to a decile of the net worth distribution. Even in the overall data from the survey the twelve categories are not of equal size. Further when constructing the samples for each of the empirical exercises, the sizes of the groups change. Table 7 reports the sizes of these groups for all of the constructed samples.

B.2 Net worth without home equity

In the pooled asset data, households with net worth between -100 and 100 dollars (deflated) are located between the 19.5th and 24.6th percentiles of the net worth distribution. With home equity subtracted from the total net worth the individuals with zero wealth are shifted towards the right in the distribution. I choose to assign these to the third net worth category and as a result there are eleven rather than twelve categories. Table 8 reports the sizes of these groups for all constructed samples.

Table 8: Net worth categories, no home equity, group sizes

		SIPP		**Wages**		**Hazards**	
Net worth		Heads	Spouses	Heads	Spouses	Heads	Spouses
NW1	≤ -6040	0.10	0.10	0.12	0.14	0.12	0.13
NW2	$(-6040, -100]$	0.10	0.08	0.14	0.12	0.13	0.12
NW3	$(-100, 100]$	0.05	0.02	0.08	0.02	0.09	0.02
NW4	$(100, 1222]$	0.05	0.04	0.09	0.05	0.09	0.05
NW5	$(1222, 4827]$	0.10	0.08	0.13	0.12	0.13	0.10
NW6	$(4827, 9706]$	0.10	0.09	0.11	0.11	0.09	0.10
NW7	$(9706, 17891]$	0.10	0.11	0.10	0.10	0.09	0.10
NW8	$(17891, 36771]$	0.10	0.11	0.07	0.10	0.07	0.09
NW9	$(36771, 82401]$	0.10	0.12	0.07	0.09	0.06	0.09
NW10	$(82401, 209829]$	0.10	0.12	0.06	0.08	0.07	0.09
NW11	≥ 209829	0.10	0.13	0.04	0.07	0.06	0.10
Observations		84519	63529	4589	3355	7313	5942

Note: The final columns refer to the net worth at the time of transition/right-censoring.

C Modelling duration dependence

To account for duration dependence in (4) I generate 26 indicator variables taking a value of 1 if the current length of a spell for a particular observation falls within some interval and 0 otherwise. Since the aggregate hazard rates declines at a decreasing rate I give higher weight to the first weeks of a spell. Table 9 presents the indicators created and the corresponding

intervals of elapsed time in weeks.

Table 9: Duration dependence

Indicator	Duration (weeks)
1-15	1-15
16	$(15, 17]$
17	$(17, 19]$
18	$(19, 21]$
19	$(21, 23]$
20	$(23, 25]$
21	$(25, 29]$
22	$(29, 33]$
23	$(33, 37]$
24	$(37, 45]$
25	$(45, 55]$
26	$(55, \infty]$

D Tables and figures

Table 10: Wage regression, household heads

	(1)	(2)	(3)	(4)
NW1	0.420***	0.319***	0.166**	0.128*
	(0.000)	(0.000)	(0.006)	(0.041)
NW2	0.225***	0.166***	0.0683	0.0386
	(0.000)	(0.001)	(0.200)	(0.477)
NW3	0	0	0	0
	(.)	(.)	(.)	(.)
NW4	0.144**	0.103**	0.0576	0.0316
	(0.002)	(0.006)	(0.157)	(0.449)
NW5	0.266***	0.212***	0.129**	0.0978*
	(0.000)	(0.000)	(0.004)	(0.038)
NW6	0.333***	0.274***	0.159**	0.125*
	(0.000)	(0.000)	(0.001)	(0.016)
NW7	0.376***	0.316***	0.172***	0.135**
	(0.000)	(0.000)	(0.000)	(0.002)
NW8	0.445***	0.374***	0.230***	0.201***
	(0.000)	(0.000)	(0.000)	(0.000)
NW9	0.498***	0.418***	0.218**	0.188*
	(0.000)	(0.000)	(0.009)	(0.025)
NW10	0.666***	0.564***	0.359***	0.321***
	(0.000)	(0.000)	(0.000)	(0.000)
NW11	0.579***	0.515***	0.281***	0.239**
	(0.000)	(0.000)	(0.000)	(0.001)
NW12	0.764***	0.712***	0.426***	0.385***
	(0.000)	(0.000)	(0.000)	(0.000)
State	X	✓	✓	✓
Metro area		0.144***	0.101**	0.105**
		(0.000)	(0.002)	(0.002)
Num. persons		-0.0119	0.00306	0.00381
		(0.277)	(0.732)	(0.708)
Any children		-0.0369	-0.0202	-0.0186
		(0.131)	(0.424)	(0.468)
Age		0.0458***	0.0338***	0.0329***
		(0.000)	(0.000)	(0.000)
Age^2		-0.0006***	-0.0005***	-0.0005***
		(0.000)	(0.000)	(0.000)
Female		-0.335***	-0.310***	-0.281***
		(0.000)	(0.000)	(0.000)
Married		0.1269***	0.0850***	0.0821***
		(0.000)	(0.007)	(0.009)
Observations	4589	4589	4437	4437

p-values in parentheses

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	(1)	(2)	(3)	(4)
Race				
Black		0.0497	0.0405	0.0501
		(0.102)	(0.211)	(0.143)
Native American		0.0374	0.0716	0.0754
		(0.669)	(0.413)	(0.389)
Asian		0.0208	0.00460	0.0140
		(0.550)	(0.915)	(0.740)
Education				
< High school			0.126**	0.133**
			(0.001)	(0.001)
High school			0.178***	0.187***
			(0.000)	(0.000)
< Degree			0.257***	0.266***
			(0.000)	(0.000)
Undergraduate			0.536***	0.542***
			(0.000)	(0.000)
Master's			0.746***	0.749***
			(0.000)	(0.000)
PhD			0.113	0.125
			(0.795)	(0.773)
Professional			0.863***	0.862***
			(0.000)	(0.000)
Enrolled			-0.0291	-0.0283
			(0.531)	(0.524)
Experience, years			0.0101*	0.00624
			(0.016)	(0.149)
Experience^2			-0.0000546	-0.0000121
			(0.553)	(0.898)
Spell, wks				-0.00867*
				(0.015)
Spell^2				0.0000738
				(0.344)
UI income				0.000143***
				(0.000)
Business income				0.0000933
				(0.345)
Other income				0.0000120
				(0.476)
HH income (net)				0.00000384
				(0.461)
Work hrs				0.00101
				(0.291)
Constant	1.707***	0.957***	0.973***	1.034***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	4589	4589	4437	4437

p-values in parentheses

Table 11: Wage regression, spouses

	(1)	(2)	(3)	(4)
NW1	0.278**	0.326***	0.187*	0.175*
	(0.002)	(0.000)	(0.025)	(0.032)
NW2	0.220*	0.243**	0.179*	0.169*
	(0.011)	(0.003)	(0.026)	(0.032)
NW4	0.0730	0.103	0.0252	0.0214
	(0.454)	(0.264)	(0.793)	(0.822)
NW5	0.219**	0.276***	0.177*	0.172*
	(0.008)	(0.000)	(0.025)	(0.026)
NW6	0.282***	0.363***	0.222**	0.204*
	(0.001)	(0.000)	(0.006)	(0.011)
NW7	0.359***	0.458***	0.296***	0.284***
	(0.000)	(0.000)	(0.000)	(0.000)
NW8	0.368***	0.498***	0.326***	0.305***
	(0.000)	(0.000)	(0.000)	(0.000)
NW9	0.381***	0.524***	0.317***	0.292***
	(0.000)	(0.000)	(0.000)	(0.001)
NW10	0.523***	0.650***	0.458***	0.434***
	(0.000)	(0.000)	(0.000)	(0.000)
NW11	0.476***	0.624***	0.397***	0.363***
	(0.000)	(0.000)	(0.000)	(0.000)
NW12	0.667***	0.765***	0.482***	0.454***
	(0.000)	(0.000)	(0.000)	(0.000)
State	✗	✓	✓	✓
Metro area		0.120***	0.0769*	0.0765*
		(0.005)	(0.047)	(0.048)
Num. persons		-0.0546***	-0.0299*	-0.0311*
		(0.000)	(0.007)	(0.008)
Any children		0.0607	0.0435	0.0573
		(0.085)	(0.171)	(0.084)
Age		0.0256***	0.000490	-0.000441
		(0.000)	(0.953)	(0.958)
Age^2		-0.0004***	-0.0001	-0.0001
		(0.000)	(0.306)	(0.405)
Female		-0.369***	-0.347***	-0.336***
		(0.000)	(0.000)	(0.000)
Race				
Black		0.0416	0.0578	0.0582
		(0.377)	(0.208)	(0.190)
Native American		0.135	0.134	0.134
		(0.175)	(0.095)	(0.077)
Asian		-0.0149	-0.00919	-0.00468
		(0.842)	(0.892)	(0.947)
Education				
Observations	3355	3355	3045	3045

p-values in parentheses

continued on next page

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	(1)	(2)	(3)	(4)
< High school			-0.0487	-0.0582
			(0.300)	(0.191)
High school			0.0679	0.0584
			(0.155)	(0.183)
< Degree			0.107**	0.0937**
			(0.004)	(0.006)
Undergraduate			0.374***	0.351***
			(0.000)	(0.000)
Master's			0.447***	0.434***
			(0.000)	(0.000)
PhD			0.649***	0.649***
			(0.000)	(0.000)
Professional			0.880***	0.841***
			(0.000)	(0.000)
Enrolled			-0.00802	-0.0113
			(0.924)	(0.889)
Experience, years			0.0160***	0.0128**
			(0.001)	(0.006)
Experience^2			-0.000239*	-0.000188
			(0.014)	(0.053)
Spell, wks				-0.00556*
				(0.041)
Spell^2				0.0000297
				(0.655)
UI income				0.000129*
				(0.027)
Business income				0.0000136***
				(0.000)
Other income				-0.000000
				(0.988)
HH income (net)				0.0000103*
				(0.044)
Work hrs				0.000238
				(0.878)
Constant	1.695***	1.590***	1.894***	1.960***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	3355	3355	3045	3045

p-values in parentheses

Table 12: Wage regression, married heads

Net worth	(1)	(2)	(3)	(4)
NW1	0.426***	0.379***	0.208**	0.168*
	(0.000)	(0.000)	(0.003)	(0.021)
NW2	0.258***	0.248***	0.112	0.0927
	(0.000)	(0.001)	(0.123)	(0.206)
NW3	0	0	0	0
	(.)	(.)	(.)	(.)
NW4	0.160*	0.149	0.0695	0.0481
	(0.032)	(0.058)	(0.363)	(0.535)
NW5	0.286***	0.280***	0.173*	0.146*
	(0.000)	(0.000)	(0.010)	(0.033)
NW6	0.327***	0.336***	0.203**	0.173*
	(0.000)	(0.000)	(0.004)	(0.016)
NW7	0.349***	0.374***	0.206**	0.176*
	(0.000)	(0.000)	(0.004)	(0.017)
NW8	0.468***	0.461***	0.279***	0.256***
	(0.000)	(0.000)	(0.000)	(0.001)
NW9	0.526***	0.540***	0.316***	0.290***
	(0.000)	(0.000)	(0.000)	(0.000)
NW10	0.663***	0.669***	0.435***	0.404***
	(0.000)	(0.000)	(0.000)	(0.000)
NW11	0.542***	0.602***	0.334***	0.302**
	(0.000)	(0.000)	(0.000)	(0.001)
NW12	0.763***	0.835***	0.516***	0.477***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	3045	3045	2952	2952

p-values in parentheses

Table 13: Characteristics by net worth, spouses

	1	2	3	4	5	6	7	8	9	10	11	12
Age	33.86	34.55	33.75	34.08	35.04	37.19	39.55	42.22	44.14	45.67	48.10	47.71
Experience	12.37	13.28	9.85	12.26	14.03	15.33	17.04	18.28	20.43	21.32	21.43	22.83
Female	0.72	0.64	0.57	0.62	0.71	0.73	0.74	0.77	0.80	0.74	0.80	0.75
Spell (wks)	7.75	6.09	9.25	7.47	7.32	6.36	7.65	7.46	7.35	7.22	6.53	7.05
HH (net) income	2577	1912	1345	1695	1957	2342	2566	3137	3666	3652	4310	4851
Married	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education												
Elementary	0.02	0.06	0.08	0.11	0.06	0.05	0.04	0.02	0.03	0.03	0.01	0.00
< High school	0.11	0.19	0.33	0.25	0.20	0.14	0.13	0.08	0.09	0.07	0.05	0.02
High school	0.26	0.36	0.43	0.37	0.39	0.33	0.35	0.39	0.34	0.28	0.27	0.21
< Degree	0.35	0.27	0.14	0.21	0.26	0.30	0.29	0.31	0.30	0.33	0.36	0.28
Undergraduate	0.18	0.10	0.02	0.06	0.09	0.14	0.12	0.16	0.18	0.19	0.22	0.27
Master's	0.04	0.02	0.00	0.01	0.01	0.03	0.04	0.03	0.05	0.08	0.06	0.14
PhD	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.05
Professional	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.02	0.02
Observations	314	258	51	167	434	402	364	318	310	290	236	211

Note: Columns correspond to net worth categories

Table 14: Wage regression, no home equity, heads

	(1)	(2)	(3)	(4)
NW1	0.429***	0.316***	0.173***	0.136**
	(0.000)	(0.000)	(0.000)	(0.002)
NW2	0.274***	0.195***	0.103*	0.0716
	(0.000)	(0.000)	(0.016)	(0.091)
NW3	0	0	0	0
	(.)	(.)	(.)	(.)
NW4	0.139**	0.0948*	0.0558	0.0348
	(0.002)	(0.029)	(0.199)	(0.424)
NW5	0.230***	0.170***	0.0870*	0.0594
	(0.000)	(0.000)	(0.034)	(0.149)
NW6	0.358***	0.267***	0.160***	0.130**
	(0.000)	(0.000)	(0.000)	(0.002)
NW7	0.379***	0.280***	0.156***	0.126**
	(0.000)	(0.000)	(0.001)	(0.006)
NW8	0.498***	0.396***	0.211***	0.178**
	(0.000)	(0.000)	(0.000)	(0.001)
NW9	0.615***	0.490***	0.268***	0.244***
	(0.000)	(0.000)	(0.000)	(0.000)
NW10	0.642***	0.538***	0.305***	0.256***
	(0.000)	(0.000)	(0.000)	(0.000)
NW11	0.710***	0.622***	0.357***	0.319***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	4589	4589	4437	4437

p-values in parentheses

Table 15: Wage regression, no home equity, spouses

	(1)	(2)	(3)	(4)
NW1	0.269***	0.295***	0.139	0.119
	(0.001)	(0.000)	(0.077)	(0.125)
NW2	0.106	0.147	0.0757	0.0616
	(0.173)	(0.052)	(0.323)	(0.420)
NW3	0	0	0	0
	(.)	(.)	(.)	(.)
NW4	-0.0200	0.00581	-0.0657	-0.0668
	(0.825)	(0.947)	(0.473)	(0.465)
NW5	0.189*	0.228**	0.124	0.112
	(0.018)	(0.002)	(0.112)	(0.151)
NW6	0.205**	0.263***	0.130	0.113
	(0.008)	(0.000)	(0.089)	(0.135)
NW7	0.231**	0.274***	0.140	0.121
	(0.004)	(0.000)	(0.088)	(0.140)
NW8	0.358***	0.441***	0.241**	0.211**
	(0.000)	(0.000)	(0.003)	(0.009)
NW9	0.368***	0.432***	0.216*	0.190*
	(0.000)	(0.000)	(0.013)	(0.029)
NW10	0.406***	0.492***	0.262**	0.231**
	(0.000)	(0.000)	(0.002)	(0.007)
NW11	0.521***	0.583***	0.312***	0.273**
	(0.000)	(0.000)	(0.001)	(0.003)
Observations	3355	3355	3045	3045

p-values in parentheses

Table 16: Wage regression, previous wage, household heads

	(1)	(2)
NW1	0.150**	0.0654
	(0.009)	(0.242)
NW2	0.0615	-0.00523
	(0.267)	(0.924)
NW4	0.00814	-0.0269
	(0.885)	(0.621)
NW5	0.113*	0.0456
	(0.021)	(0.342)
NW6	0.107*	0.0239
	(0.037)	(0.633)
NW7	0.144*	0.0556
	(0.012)	(0.324)
NW8	0.250***	0.048
	(0.000)	(0.110)
NW9	0.196**	0.0677
	(0.004)	(0.309)
NW10	0.388***	0.257***
	(0.000)	(0.000)
NW11	0.304***	0.171*
	(0.000)	(0.015)
NW12	0.420***	0.215*
	(0.000)	(0.014)
$log(W_{t\_})$		0.299***
		(0.000)
Observations	2771	2771

Regressions include constant and controls for age, sex, education and marital status

Table 17: C-log-log regression, household heads

	(1)	(2)	(3)	(4)
NW1	0.632***	0.479***	0.608***	0.510***
	(0.000)	(0.000)	(0.000)	(0.000)
NW2	0.407***	0.276**	0.428***	0.315***
	(0.000)	(0.002)	(0.000)	(0.001)
NW3	0.139	-0.0000	0.223*	0.0861
	(0.114)	(1.000)	(0.028)	(0.411)
NW4	0.527***	0.369***	0.552***	0.431***
	(0.000)	(0.000)	(0.000)	(0.000)
NW5	0.391***	0.242**	0.389***	0.278**
	(0.000)	(0.004)	(0.000)	(0.002)
NW6	0.439***	0.287***	0.390***	0.306***
	(0.000)	(0.001)	(0.000)	(0.001)
NW7	0.432***	0.333***	0.452***	0.371***
	(0.000)	(0.000)	(0.000)	(0.000)
NW8	0.289***	0.192*	0.282**	0.204*
	(0.001)	(0.031)	(0.002)	(0.032)
NW9	0.255**	0.182*	0.258**	0.201*
	(0.005)	(0.046)	(0.006)	(0.036)
NW10	0.209*	0.160	0.223*	0.179
	(0.025)	(0.090)	(0.021)	(0.069)
NW11	0.200*	0.166	0.181	0.145
	(0.030)	(0.072)	(0.055)	(0.130)
NW12	0	0	0	0
	(.)	(.)	(.)	(.)
Metro		-0.0108	-0.0312	-0.0104
		(0.765)	(0.396)	(0.778)
Number of persons		-0.0601***	-0.0396**	-0.0324**
		(0.000)	(0.001)	(0.009)
Age		0.0130	-0.0410***	-0.0360**
		(0.071)	(0.000)	(0.001)
Age^2		-0.0003***	0.0003	0.0002
		(0.000)	(0.065)	(0.137)
Female		-0.666***	-0.631***	-0.620***
		(0.000)	(0.000)	(0.000)
Married		-0.142**	-0.193***	-0.165***
		(0.003)	(0.000)	(0.001)
Enrolled		0.185*	0.133	0.145
		(0.015)	(0.085)	(0.061)
Race				
Black		-0.0116	-0.0246	-0.0493
		(0.790)	(0.581)	(0.270)
Native American		-0.132	-0.0550	-0.0634
		(0.220)	(0.613)	(0.560)
Asian		-0.0333	-0.0345	-0.0514
Observations	152147	152147	148712	148712

p-values in parentheses

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	(1)	(2)	(3)	(4)
		(0.705)	(0.698)	(0.565)
Education				
< High school			-0.119	-0.108
			(0.163)	(0.210)
High school			-0.0156	0.0070
			(0.849)	(0.932)
< Degree			0.122	0.154
			(0.140)	(0.062)
Undergraduate			0.200*	0.260**
			(0.029)	(0.005)
Masters			0.247*	0.330**
			(0.031)	(0.004)
PhD			0.0122	0.0923
			(0.958)	(0.692)
Professional			0.279	0.320
			(0.111)	(0.069)
Experience, years			0.0358***	0.0382***
			(0.000)	(0.000)
Experience^2			-0.0005***	-0.0006***
			(0.000)	(0.000)
UI income				-0.0004***
				(0.000)
Business income				0.0002***
				(0.000)
Other income				-0.0001*
				(0.039)
HH income (net)				-0.0001***
				(0.000)
Constant	-3.276***	-2.681***	-2.160***	-2.144***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	152147	152147	148712	148712

p-values in parentheses

Table 18: C-log-log regression, spouses

	(1)	(2)	(3)	(4)
NW1	0.411***	0.276***	0.344***	0.265**
	(0.000)	(0.001)	(0.000)	(0.002)
NW2	0.480***	0.304***	0.427***	0.336***
	(0.000)	(0.000)	(0.000)	(0.000)
NW3	0.503***	0.231	0.509**	0.411**
	(0.000)	(0.118)	(0.001)	(0.010)
NW4	0.334***	0.141	0.231*	0.135
	(0.000)	(0.146)	(0.030)	(0.209)
NW5	0.290***	0.166*	0.263**	0.176*
	(0.000)	(0.036)	(0.002)	(0.045)
NW6	0.191*	0.0829	0.150	0.0699
	(0.013)	(0.296)	(0.078)	(0.417)
NW7	0.163*	0.0755	0.147	0.0741
	(0.042)	(0.355)	(0.093)	(0.401)
NW8	0.172*	0.0827	0.126	0.0660
	(0.033)	(0.313)	(0.144)	(0.447)
NW9	0.155	0.109	0.139	0.0901
	(0.056)	(0.184)	(0.103)	(0.297)
NW10	0.0294	-0.0038	0.0499	-0.0011
	(0.727)	(0.964)	(0.564)	(0.990)
NW11	0.0680	0.0392	0.0359	0.0067
	(0.427)	(0.647)	(0.685)	(0.940)
NW12	0	0	0	0
	(.)	(.)	(.)	(.)
Metro		-0.0517	-0.0807	-0.0650
		(0.200)	(0.057)	(0.126)
Num. persons		-0.0570***	-0.0342*	-0.0311*
		(0.000)	(0.017)	(0.030)
Age		0.0112	-0.0321**	-0.0268*
		(0.201)	(0.007)	(0.024)
Age^2		-0.0002*	0.0002	0.0002
		(0.017)	(0.083)	(0.180)
Female		-0.751***	-0.711***	-0.690***
		(0.000)	(0.000)	(0.000)
Enrolled		0.205*	0.346***	0.372***
		(0.036)	(0.001)	(0.000)
Race				
Black		-0.0756	-0.0579	-0.0629
		(0.286)	(0.438)	(0.398)
Native American		0.166	0.185	0.170
		(0.193)	(0.155)	(0.190)
Asian		-0.0287	-0.0244	-0.0442
		(0.756)	(0.803)	(0.653)
Observations	172477	172477	162502	162502

p-values in parentheses

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	(1)	(2)	(3)	(4)
Education				
< High school			-0.143	-0.123
			(0.169)	(0.237)
High school			-0.108	-0.0866
			(0.267)	(0.371)
< Degree			-0.0750	-0.0397
			(0.443)	(0.685)
Undergraduate			-0.0861	-0.0277
			(0.410)	(0.792)
Masters			0.121	0.173
			(0.345)	(0.178)
PhD			0.0678	0.169
			(0.776)	(0.483)
Professional			-0.0612	-0.0346
			(0.794)	(0.886)
Experience, years			0.0389***	0.0396***
			(0.000)	(0.000)
Experience^2			-0.0007***	-0.0007***
			(0.000)	(0.000)
UI income				-0.0002*
				(0.016)
Business income				0.0002***
				(0.000)
Other income				-0.0000
				(0.112)
HH income (net)				-0.0001***
				(0.000)
Constant	-3.482***	-2.657***	-2.258***	-2.282***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	172477	172477	162502	162502

p-values in parentheses

Table 19: C-log-log, no home equity, heads

	(1)	(2)	(3)	(4)
NW1	0.620***	0.465***	0.590***	0.496***
	(0.000)	(0.000)	(0.000)	(0.000)
NW2	0.391***	0.268**	0.412***	0.298**
	(0.000)	(0.001)	(0.000)	(0.001)
NW3	0.165	0.00317	0.229*	0.0925
	(0.055)	(0.973)	(0.020)	(0.365)
NW4	0.477***	0.311***	0.508***	0.389***
	(0.000)	(0.000)	(0.000)	(0.000)
NW5	0.444***	0.300***	0.441***	0.328***
	(0.000)	(0.000)	(0.000)	(0.000)
NW6	0.416***	0.296***	0.417***	0.324***
	(0.000)	(0.001)	(0.000)	(0.001)
NW7	0.367***	0.246**	0.354***	0.268**
	(0.000)	(0.005)	(0.000)	(0.004)
NW8	0.391***	0.311***	0.397***	0.333***
	(0.000)	(0.001)	(0.000)	(0.001)
NW9	0.228*	0.153	0.199*	0.154
	(0.012)	(0.095)	(0.034)	(0.106)
NW10	0.303***	0.277**	0.304**	0.276**
	(0.001)	(0.002)	(0.001)	(0.004)
NW11	0	0	0	0
	(.)	(.)	(.)	(.)
Observations	152147	152147	148712	148712

p-values in parentheses

Table 20: C-log-log, no home equity, spouses

	(1)	(2)	(3)	(4)
NW1	0.314***	0.148*	0.167*	0.0828
	(0.000)	(0.048)	(0.037)	(0.305)
NW2	0.285***	0.123	0.184*	0.0931
	(0.000)	(0.112)	(0.028)	(0.272)
NW3	0.226	-0.0275	0.126	0.0141
	(0.077)	(0.834)	(0.372)	(0.921)
NW4	0.155	-0.0359	-0.00314	-0.112
	(0.090)	(0.702)	(0.976)	(0.283)
NW5	0.158*	0.0126	0.0632	-0.0368
	(0.038)	(0.873)	(0.460)	(0.672)
NW6	0.125	-0.00795	0.0492	-0.0362
	(0.109)	(0.922)	(0.566)	(0.676)
NW7	0.0754	-0.0311	0.0296	-0.0465
	(0.342)	(0.700)	(0.728)	(0.589)
NW8	0.0732	-0.00162	0.0147	-0.0520
	(0.359)	(0.984)	(0.862)	(0.542)
NW9	0.0782	-0.00961	0.0186	-0.0281
	(0.327)	(0.905)	(0.824)	(0.738)
NW10	-0.0413	-0.0718	-0.0637	-0.0960
	(0.619)	(0.387)	(0.458)	(0.266)
NW11	0	0	0	0
	(.)	(.)	(.)	(.)
Observations	172477	172477	162502	162502

p-values in parentheses