"A Quantitative Theory of Information, Worker Flows, and Wage Dispersion" Amanda M Michaud

1 PSID Analysis

The time sample is 1968-1998, the years for which annual data are available in the PSID.

1.1 Sample: Summary Statistics

SUMMARY STATISTICS: PSID 1976-1996 Sample of Workers			
Characteristic *at time of change*	Statistic	Reason for Separation to Unemployment	
		Firm Close	Individual
Tenure	Mean	53.3 wks	35.6 wks
	stdev	103.0	67.1
Age	Mean	40.0	37.0
	stdev	9.9	9.8
Hourly Earnings	Mean	8.64	8.37
	stdev	5.0	4.2
Persons	number	416	1611

1.2 Regression Specification

Following Jacobson, LaLonde, and Sullivan (AER 1993), the effect of employer change at time $t - n$ on current wages w_t of individual i is captured by β_n in this regression:

$$ln(w_{it}) = \gamma X_{it} + \gamma_1 age_{it} + \gamma_2 age_{it}^2 + \sum_{r \in \{sd, ind\}} [\sum_{n=-1}^{15} \beta_n D_{nit}^r] + \delta_t + \alpha_i + \epsilon_{it}$$

The dependent variable is the natural logarithm of hourly earnings, deflated to 1983 dollars using CPI. Top-coded observations as well as those with earnings exceeding inflation-adjusted consistent top-codes are coded as missing. Individuals with median hourly earnings exceeding $100 or below $3 over the sample period are dropped. Up until 1993, survey participants answer a question directly soliciting their hourly earnings. Subsequently, participants answer a question in which they report their income and a unit of measure: daily, weekly, biweekly, monthly, or annual. In the latter case I calculate hourly earnings assuming 40 hours per week.

The independent variables included in the PSID regression that are also included in the model data regression are: a quadratic of age, time, and individual fixed effects; and D_{nit}^r: a dummy variable that captures an involuntary separation to unemployment in year $t - n$ for reason r, and individual fixed effects α_i. An involuntary separation is identified as follows. First, the individual must either be unemployed (report they are looking for work) for less than one

year or have less than one year tenure on their current job. This is double checked by verifying the individual has less than 52 weeks of employment in the reference year. Second, the individual must report that their prior job ended by one of the following categorized reasons: (1)"Company folded / changed hands / moved out of town; employer died / went out of business"; (2) "Laid off; fired".[1] The former group is labelled as "shut down" workers and the later group is labelled as "individually separated" workers. The plots in the main text depict the coefficients on the separation dummies from this regression. I list the values of the regression coefficients from this specification and from a specification where both groups: shut down and individually separated are pooled into all involuntary separators.

Additional control variables included in the PSID regression follow Pinkston (ReStud 2009). They include dummies for each: year δ_t, old age (greater than 55 years old), blue collar job occupation (craftsman and foremen, operatives, and unskilled laborers and service workers), union status, manufacturing industry (Metal industries, Machinery, Motor vehicles and transportation equipment, other durables, durables- NA what, Food and Kindred products, tobacco manufacturing, textile mill, apparel and fabrics, paper and allied products, chemical and allied products, other non-durables, nondurables- NA what, manufacturing- NA whether durable or non.), marital status dummmy, residence in city of population greater than 100,000, residence in city of population less than 25,000.

The regression includes continuously employed workers and workers changing jobs through unemployment. The sample size includes 2016 individuals and 21,082 annual observations. Since the necessary questions are only asked of heads, the sample is restricted to male heads of household and also excludes college educated workers. The results are as follows:

The regression with both types of displacements pools is as follows.

Regressions for each type separate are:

1.3   Separation Hazards.

The following are results from a logistic model calculating the hazard of **each type** of involuntary separation (individual is "Company folded / changed hands / moved out of town; employer died / went out of business"; shut down is "Laid off; fired") the year after an involuntary separation of **any type**: individual or a firm closure. The regression specification is:

$$D_t^r = \gamma X_{it} + \gamma_1 age_{it} + \gamma_2 age_{it}^2 + \beta_{-1}^{SD} D_{t-1,i}^{SD} + \beta_{-1}^F D_{t-1,i}^F + \delta_t + \alpha_i + \epsilon_{it}$$

The independent variables are identical to the wage regression with the exception that only a one period lag in the indicator variable for an individual separation ($D_{t-1,i}^F$) or one by firm closure ($D_{t-1,i}^{SD}$) are used. I present results for each dependent variable: shut down or individual.

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[1]These categories represent less than a third of the responses to "what happened to your prior job". Other answers span "strike, lockout", "quit", "first full time job", "was self employed before".

Table 1: Wage Regression results: "SD" are non-selectively (shut down/ firm closure) and "F" are selectively (individually) separated. "L" is the first lag from the separation date. "F'x" is the x'th year following the separation.

Variable	Coefficient	(Std. Err.)
SDlossL1_	-0.008	(0.028)
SDloss_	-0.115**	(0.028)
SDlossF1_	-0.121**	(0.027)
SDlossF2_	-0.109**	(0.027)
SDlossF3_	-0.063*	(0.026)
SDlossF4_	-0.065*	(0.027)
SDlossF5_	-0.073**	(0.028)
SDlossF6_	-0.065*	(0.028)
SDlossF7_	-0.046†	(0.028)
SDlossF8_	-0.070*	(0.029)
SDlossF9_	-0.019	(0.030)
SDlossF10_	-0.024	(0.032)
SDlossF11_	-0.012	(0.035)
SDlossF12_	0.023	(0.035)
SDlossF13_	0.009	(0.042)
SDlossF14_	0.022	(0.046)
SDlossF15_	-0.011	(0.048)
FlossL1_	-0.070**	(0.016)
Floss_	-0.207**	(0.018)
FlossF1_	-0.137**	(0.017)
FlossF2_	-0.163**	(0.016)
FlossF3_	-0.155**	(0.015)
FlossF4_	-0.128**	(0.015)
FlossF5_	-0.113**	(0.016)
FlossF6_	-0.104**	(0.017)
FlossF7_	-0.102**	(0.018)
FlossF8_	-0.095**	(0.018)
FlossF9_	-0.146**	(0.018)
FlossF10_	-0.139**	(0.020)
FlossF11_	-0.142**	(0.021)
FlossF12_	-0.164**	(0.023)
FlossF13_	-0.190**	(0.024)
FlossF14_	-0.095**	(0.028)
FlossF15_	-0.117**	(0.033)
Exp	0.016**	(0.001)
Exp2	0.000**	(0.000)
old	0.036**	(0.010)
Blue	-0.020**	(0.006)
Manuf	0.010†	(0.005)
City1	0.019*	(0.008)

Table 2: Wage Regression results: selectively and non-selectively separations pooled. "L" is the first lag from the separation date. "F'x" is the x'th year following the separation.

Variable	Coefficient	(Std. Err.)
LossL1	-0.052**	(0.014)
Loss	-0.183**	(0.015)
LossF1	-0.135**	(0.014)
LossF2	-0.149**	(0.014)
LossF3	-0.131**	(0.013)
LossF4	-0.114**	(0.014)
LossF5	-0.106**	(0.014)
LossF6	-0.097**	(0.014)
LossF7	-0.090**	(0.015)
LossF8	-0.092**	(0.015)
LossF9	-0.115**	(0.016)
LossF10	-0.110**	(0.017)
LossF11	-0.108**	(0.018)
LossF12	-0.108**	(0.019)
LossF13	-0.141**	(0.021)
LossF14	-0.070**	(0.024)
LossF15	-0.094**	(0.027)
A	0.033**	(0.003)
SA	0.000**	(0.000)
old	0.036**	(0.010)
Blue	-0.020**	(0.006)
Manuf	0.010*	(0.005)
City1_	0.018*	(0.008)
City2_	-0.014	(0.009)
Wed	0.049**	(0.008)
Union	0.089**	(0.006)
Intercept	1.601**	(0.054)
Year and individual fixed effects included		
N observations	21084	
Individuals	2016	
Total r2	0.1302	

Significance levels : † : 10%   ∗ : 5%   ∗∗ : 1%

Table 3: Wage Regression results: Selectively (individually) separated. "L" is the first lag from the separation date. "F'x" is the x'th year following the separation.

Variable	Coefficient	(Std. Err.)
FlossL1_	-0.080**	(0.018)
Floss_	-0.220**	(0.021)
FlossF1_	-0.157**	(0.019)
FlossF2_	-0.175**	(0.019)
FlossF3_	-0.183**	(0.017)
FlossF4_	-0.145**	(0.017)
FlossF5_	-0.118**	(0.018)
FlossF6_	-0.099**	(0.019)
FlossF7_	-0.110**	(0.020)
FlossF8_	-0.109**	(0.020)
FlossF9_	-0.150**	(0.020)
FlossF10_	-0.150**	(0.022)
FlossF11_	-0.152**	(0.022)
FlossF12_	-0.169**	(0.025)
FlossF13_	-0.204**	(0.026)
FlossF14_	-0.101**	(0.030)
FlossF15_	-0.127**	(0.035)
A	0.033**	(0.003)
SA	0.000**	(0.000)
old	0.039**	(0.011)
Blue	-0.018**	(0.006)
Manuf	0.013*	(0.005)
City1_	0.023**	(0.009)
City2_	-0.017†	(0.010)
Wed	0.049**	(0.008)
Union	0.080**	(0.007)
Intercept	1.594**	(0.057)
Year and individual fixed effects included		
N observations	18686	
Individuals	1802	
Total r2	0.1251	

Significance levels :   † : 10%   * : 5%   ** : 1%

Table 4: Wage Regression results: Non-Selectively (Shut down / Firm closure) separated. "L" is the first lag from the separation date. "F'x" is the x'th year following the separation.

Variable	Coefficient	(Std. Err.)
SDlossL1_	-0.029	(0.036)
SDloss_	-0.206**	(0.036)
SDlossF1_	-0.145**	(0.035)
SDlossF2_	-0.162**	(0.035)
SDlossF3_	-0.149**	(0.035)
SDlossF4_	-0.082*	(0.035)
SDlossF5_	-0.058	(0.037)
SDlossF6_	-0.058	(0.037)
SDlossF7_	-0.061†	(0.037)
SDlossF8_	-0.053	(0.038)
SDlossF9_	-0.044	(0.038)
SDlossF10_	-0.011	(0.043)
SDlossF11_	-0.048	(0.044)
SDlossF12_	0.012	(0.046)
SDlossF13_	-0.013	(0.058)
SDlossF14_	-0.052	(0.063)
SDlossF15_	-0.024	(0.066)
A	0.033**	(0.003)
SA	0.000**	(0.000)
old	0.034**	(0.011)
Blue	-0.024**	(0.006)
Manuf	0.010†	(0.006)
City1_	0.015†	(0.009)
City2_	0.000	(0.010)
Wed	0.033**	(0.009)
Union	0.077**	(0.007)
Intercept	1.652**	(0.059)
Year and individual fixed effects included		
N observations	16027	
Individuals	1568	
Total r2	0.0942	

Significance levels :   † : 10%   ∗ : 5%   ∗∗ : 1%

Table 5: Logit Regression results : Hazard of an Individual separation in t

Variable	Coefficient	(Std. Err.)
Individual Sep in t-1	1.923**	(0.116)
Shut Down in t-1	-0.008	(0.396)
A	-0.138**	(0.045)
SA	0.001*	(0.001)
old	-0.232	(0.261)
Col	-0.678**	(0.127)
HS	-0.201*	(0.093)
Blue	0.745**	(0.088)
Manuf	-0.410**	(0.102)
City1_	-0.231*	(0.099)
City2_	-0.201†	(0.106)
Wed	-0.415**	(0.093)
Union	-0.687**	(0.112)
Intercept	0.259	(0.859)
N observations	24880	
Psuedo r2	0.1054	

Significance levels :   † : 10%   ∗ : 5%   ∗∗ : 1%

Table 6: Marginal Effects on Individual Separation Hazard

Variable	Marginal Effect	(Std. Err.)
Individual Sep in t-1	0.0362**	(0.000)
Shut down in t-1	-0.0001	(0.985)

Significance levels :   † : 10%   ∗ : 5%   ∗∗ : 1%

Table 7: Logit Regression results : Hazard of Shut Down separation in t

Variable	Coefficient	(Std. Err.)
Individual Sep in t-1	1.183**	(0.215)
Shut down in t-1	2.002**	(0.252)
A	0.024	(0.072)
SA	0.000	(0.001)
old	-0.236	(0.357)
Col	-0.877**	(0.225)
HS	-0.165	(0.143)
Blue	0.849**	(0.143)
Manuf	-0.026	(0.144)
City1_	0.321†	(0.171)
City2_	0.122	(0.185)
Wed	-0.103	(0.167)
Union	-0.827**	(0.174)
Intercept	-5.305**	(1.420)
Year fixed effects included		
N observations	24880	
Psuedo r2	0.0767	

Significance levels : † : 10%   * : 5%   ** : 1%

Table 8: Marginal Effects on Shut Down Hazard

Variable	Marginal Effect	(Std. Err.)
Individual Sep in t-1	0.0086**	(0.00)
Shut down in t-1	0.0146**	(0.00)

Significance levels : † : 10%   * : 5%   ** : 1%