

Job-to-Job Flows and Earnings Growth

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Any opinions and conclusions expressed herein are those of the author(s) and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential data are disclosed.

Motivation

- Facts about job-to-job flows:
 - Job-to-job flows are procyclical and driven by quits, Davis, Faberman, and Haltiwanger (2012), Hyatt and McEntarfer (2012), etc.
 - Earnings increase when workers change employers, see Topel and Ward (1992)
- Does it follow that job-to-job flows contribute to procyclical earnings growth?
 - Suggested by, among others, Faberman and Justiniano (2015)
 - See also Bills (1985), Pissarides (2009), etc. on the procyclicality of earnings/wage growth

Job-to-Job Flows Data Product

- The U.S. Census Bureau has published Job-to-Job Flows (J2J) data since November of 2014
 - These statistics are derived from the administrative records maintained by the Longitudinal Employer-Household Dynamics (LEHD) program
 - For an overview of the released data, see Hyatt, McEntarfer, McKinney, Tibbets, and Walton (2014)
- Statistics on the frequency with which workers change employers, as well as enter/exit nonemployment
 - Worker demographics (age, gender, race/ethnicity, and education)
 - Employer characteristics (firm age, firm size, industry sector, and state)
- Earnings measures planned for first release during 2017

Outline of Presentation

1. Introduce earnings measures planned for release in regular production of public-use job-to-job flows data.
2. Characterize earnings and relative frequency of job stayers and transitioners.
3. Implement a variant of the earnings growth accounting method proposed by Hahn, Hyatt, and Janicki (2016) to the forthcoming data.
 - Apply the earnings growth accounting method of Topel and Ward (1992) adapted for inclusion of extensive margin effects, see Daly and Hobijn (2016)
 - Identify the relative contributions of job stayers, job-to-job transitions, and entry from/exit to nonemployment.

New Job-to-Job Flow Earnings Measures

- Follow employment concepts from current J2J data product
 - Consider worker movements between “dominant” (i.e., maximum earnings) employers
 - Job-to-job transitions, flows to/from nonemployment
 - Add the concept of a “job stayer” (i.e., same employer)
- Add measures of worker earnings
 - Use the “full-quarter” earnings concept from Abowd et al. (2009) and the LEHD Quarterly Workforce Indicators
 - Take earnings from the middle quarter from a three quarter series of positive earnings for an employer-employee combination
 - Measure earnings before ($t - 1$), after ($t + 1$) job transition as available, i.e. full-quarter to full-quarter job-to-job flows
 - “Four-quarter” job stayers: earnings in quarter t and $t - 1$.

Stylized (Fictitious) Examples

Employee	Employer	Earnings in Quarter:					
		t-2	t-1	t	t+1	t+2	t+3
1	A	5	10	15	20	25	0
2	A	30	35	40	0	0	0
2	B	0	0	45	50	55	60
3	A	65	70	75	0	0	
3	B	0	0	0	80	85	90
4	A	95	100	105	0	0	0
5	A	0	0	110	115	120	125

- In quarter t (with earnings in bold for release):
 - Worker 1 is a job stayer (JS)
 - Worker 2 has a “within-quarter” (WQ) job-to-job flow (JJ)
 - Worker 3 has an “adjacent-quarter” (AQ) job-to-job flow (also JJ)
 - Worker 4 has a employment-to-nonemployment (EN) flow
 - Worker 5 has a nonemployment-to-employment (NE) flow

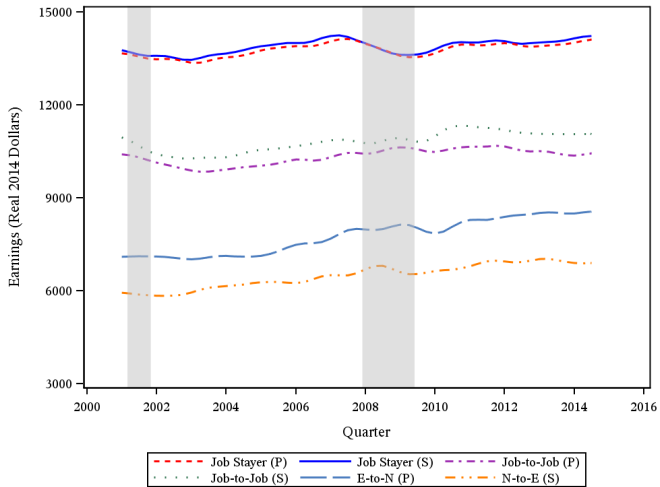
Tabulated Measures

- Average earnings \bar{w} and number of earnings observations N
- Evolve from previous P to subsequent S
- JS: no change in employer in t , full-quarter earnings in $t-1$
 - For quarter t JS, $\exists \bar{w}_{t-1}^{P,JS}$, $\bar{w}_t^{S,JS}$, and $N_{t-1}^{P,JS} = N_t^{S,JS}$
- JJ: hire at new employer in t , full-quarter earnings in $t+1$, AND separation from old employer in quarter t (or $t-1$ for AQ flows), full-quarter in $t-1$ (or $t-2$ for AQ flows)
 - For quarter t $\exists \bar{w}_{t-1}^{P,WQ}$ and $\bar{w}_{t+1}^{S,WQ}$, and $N_{t-1}^{P,WQ} = N_{t+1}^{S,WQ}$
 - For quarter t $\exists \bar{w}_{t-2}^{P,AQ}$ and $\bar{w}_{t+1}^{S,AQ}$, and $N_{t-2}^{P,AQ} = N_{t+1}^{S,AQ}$
- EN: separation to nonemployment in t , full-qtr. earnings in $t-1$
 - For quarter t EN flows, $\exists \bar{w}_{t-1}^{P,EN}$, $N_{t-1}^{P,JS}$
- NE: hire from nonemployment in t , full-qtr. earnings in $t+1$
 - For quarter t NE flows, $\exists \bar{w}_{t+1}^{S,NE}$, $N_{t+1}^{S,NE}$

Properties of Stayers and Transitioners

- All results for today's presentation are in 2014 constant dollars
- JS: highest earnings, largest share of employment
 - 90% of job-stayers in t have earnings available in $t-1$
- JJ: middle earnings, smallest share of employment
 - Combine $\bar{w}_t^{P, JJ}$ & $\bar{w}_t^{S, JJ}$, and sum for $N_t^{P, JJ}$ & $N_t^{S, JJ}$
 - 60% of job-to-job flows are full-quarter to full-quarter
- NE, EN: lowest earnings, slightly more frequent than job-to-job flows
 - 75% of NE, EN transitions are into/from full-quarter jobs

Earnings for Stayers and Transitioners



Shares of Earnings

- J2J earnings are not exhaustive of LEHD full-quarter earnings, but are mutually exclusive in either P or S for any earnings quarter t

- Can express average earnings for P as

$$\bar{w}_t^P = \bar{w}_t^{P,JS} D_t^{P,JS} + \bar{w}_t^{P,JJ} D_t^{P,JJ} + \bar{w}_t^{P,EN} D_t^{P,EN}$$

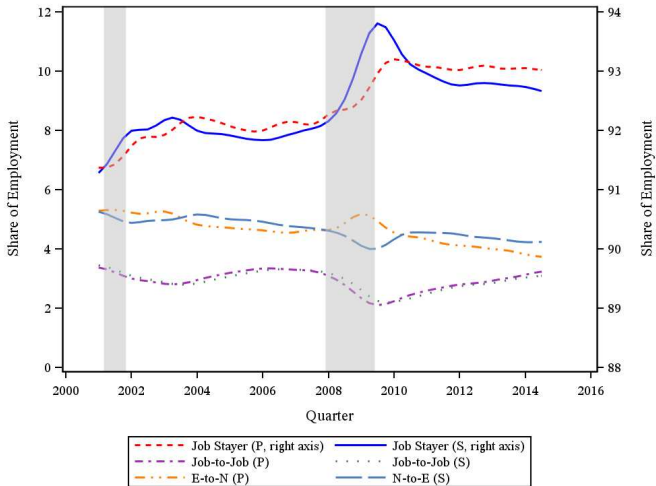
- Can express average earnings for S as

$$\bar{w}_t^S = \bar{w}_t^{S,JS} D_t^{S,JS} + \bar{w}_t^{S,JJ} D_t^{S,JJ} + \bar{w}_t^{S,NE} D_t^{S,NE}$$

- Shares $D_t^{P,JS} = \frac{N_t^{P,JS}}{N_t^{P,JS} + N_t^{P,JJ} + N_t^{P,NE}}$, $D_t^{S,JS} = \frac{N_t^{S,JS}}{N_t^{S,JS} + N_t^{S,JJ} + N_t^{S,NE}}$ etc.

- Because the net entry of nonemployment brings in low earnings workers during expansions, $D_{t-1}^{P,JS} > D_t^{S,JS}$ despite the fact that $N_{t-1}^{P,JS} = N_t^{S,JS}$ by construction
- We want to associate earnings changes of job stayers, job-to-job transitioners, and flows to and from nonemployment
 - The nonemployment category is moving to/from missing status

Frequency of Transitions



Accounting for Changes in Average Earnings

- Adaptation of Hahn, Hyatt, and Janicki (2016) to public-use J2J earnings data
- We track the growth of $\Delta \bar{w}_t^S$. We write the one-quarter increase in terms of the average wage for each transition type C with share D :

$$\Delta \bar{w}_t^S = \bar{w}_t^S - \bar{w}_{t-1}^S = \underbrace{(\bar{w}_t^S - \bar{w}_{t-1}^P)}_{\text{decomposition}} - \underbrace{(\bar{w}_{t-1}^S - \bar{w}_{t-1}^P)}_{\text{residual}}.$$

- For $C \in \{JS, JJ, EN, NE\}$, $\bar{w}_t^S - \bar{w}_{t-1}^P = \sum_C \bar{w}_t^{S,C} D_t^{S,C} - \bar{w}_{t-1}^{P,C} D_{t-1}^{P,C}$.
- For the components $C \in \{JS, J2J\}$ we further distinguish:

$$\bar{w}_t^{S,C} D_t^{S,C} - \bar{w}_{t-1}^{P,C} D_{t-1}^{P,C} = \underbrace{(D_t^{S,C} - D_{t-1}^{P,C}) \left(\frac{\bar{w}_t^{S,C} + \bar{w}_{t-1}^{P,C}}{2} \right)}_{\text{extensive margin}} + \underbrace{(\bar{w}_t^{S,C} - \bar{w}_{t-1}^{P,C}) \left(\frac{D_t^{S,C} + D_{t-1}^{P,C}}{2} \right)}_{\text{intensive margin}}.$$

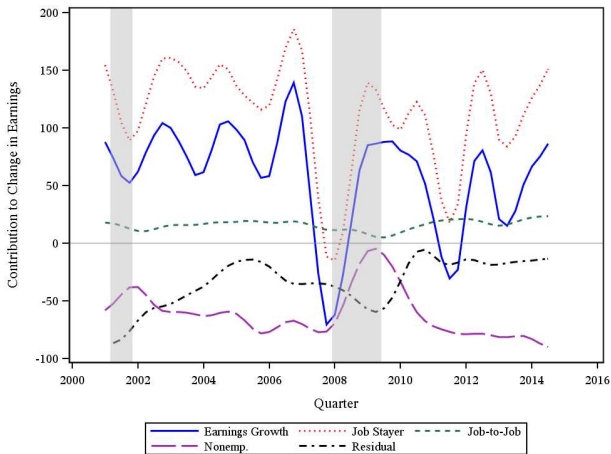
- Group the $(D_t^{S,C} - D_{t+1}^{P,C})$ “extensive margin” terms with nonemployment’s other component, $\bar{w}_t^{S,NE} D_t^{S,NE} - \bar{w}_{t+1}^{P,EN} D_{t+1}^{P,EN}$

Linear Regression, Overall and by Component

	Earnings Growth	Job Stayer	Job-to-Job	Nonemp.	Residual
Winter	-1120*** (214)	-1006*** (209)	-10 (7)	-79*** (14)	-13 (20)
Spring	-2182*** (116)	-2253*** (113)	26*** (4)	55*** (8)	24** (11)
Summer	-1666*** (136)	-1598*** (133)	9** (5)	-30*** (9)	20 (13)
Thursdays	415*** (137)	381*** (136)	8* (5)	22*** (8)	20 (13)
Fridays	510*** (117)	477*** (115)	14*** (4)	-7*** (9)	-1 (12)
Unemp. FD	-14 (25)	-25 (25)	-3*** (1)	17*** (2)	-9*** (2)

Notes: Regressions also include controls for a linear time trend, a fixed effect corresponding to the quarter of entry of each LEHD state that enters the data after the start of 2001, and the change in the number of Saturdays, Sundays, Mondays, Tuesdays, and Wednesdays between two calendar quarters. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively. The immediate repetition of 20 (13) in the residual column is not a typo.

Accounting for Earnings Growth



Notes: Data pre-treated for trading day effects and the quarter of entry of different U.S. states into the Job-to-Job Flows data via linear regression, and are then seasonally-adjusted and Henderson-filtered using x12 with a moving average of 9 quarters. Shaded areas indicate recessions.

Conclusion

- The J2J data product provides new statistics on worker movements across employers and into and from nonemployment
 - Earnings measures are forthcoming in subsequent J2J releases
- Analysis of earnings growth using beta J2J output data
 - Net entry from nonemployment contributes to lower average earnings because of the low earnings of entrants
 - There is less of this during recessions
 - Job-to-job flows contribute to higher average earnings
 - This also slows during recessions
 - Job stayer earnings growth tracks overall earnings growth closely

Other Potential Applications

The new J2J earnings data can be used to explore other aspects of the labor market that previously required access to administrative records microdata.

- Earnings changes when workers switch industries
 - Hyatt and McEntarfer (2012)
- Earnings changes for within vs. across state job-to-job flows
 - Hyatt, McEntarfer, Ueda, and Zhang (2016)
- Earnings changes for young workers staying at vs. switching employers
 - Topel and Ward (1992)

Feedback Welcome

If you have comments or questions, please contact me at:

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