

# The Cyclicalty of Job Creation with Multiple Offers

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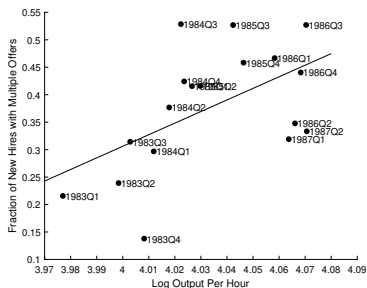
- In search of a job, a worker may receive multiple offers
  - Wolthoff (2017): about 10% of job offers are rejected by workers due to “the simultaneous arrival of a financially more attractive offer from a different firm”
  - Guo (2020): more than a third of new hires from non-employment report choosing their work over an alternative job opportunity
- Multiple offers are ignored in standard job search models, mainly through the no recall assumption
  - Some exceptions are Albrecht et al. (2006), Galenianos and Kircher (2009), Kircher (2009) and Wolthoff (2014)
  - None studies on the impact of multiple offers on job creation
- This paper studies the interaction between multiple offers and job creation over the business cycle
  - Endogenize multiple offers and in turn, the wage offer distribution, in a DMP model
  - Empirical evidence consistent with the model’s predictions on the cyclical of multiple offers and the wage offer distribution

# Model Overview

- Diamond-Mortensen-Pissarides (DMP) meets Burdett and Judd (1983)
- DMP: Discrete time; homogeneous workers and homogeneous firms; random meetings between unemployed workers and vacancies; no on-the-job search; exogenous job destruction
- Deviation: Each period, a worker can meet *multiple* vacancies, and vice versa
  - Vacancies are created at the beginning of a period with a *posted* wage
  - The total number of meetings across all workers and vacancies is deterministic  $m(u, v)$
  - The number of meetings at the individual level is random; Poisson with mean  $\lambda_j = \frac{m(u, v)}{j}, j \in \{u, v\}$
  - At the end of a period, a vacancy makes an offer to *one* of the workers it meets, if any
  - A worker with one or more offers accepts the one with the highest wage if it's better than unemployment
- BJ: Multiple offers imply wage dispersion: the wage offer distribution is endogenous and non-degenerate

# The Cyclicity of Multiple Offers Among New Hires

- Let  $P_M = \frac{\sum_{k \geq 2} P_o(k)}{\sum_{k \geq 1} P_o(k)}$  be the fraction of new hires with multiple offers:  $\frac{\partial P_M}{\partial y} > 0$ 
  - $\frac{\partial \theta}{\partial y} > 0$  due to free entry:  $\theta \equiv \frac{v}{u}$  is the market tightness
  - $\frac{\partial g(\theta)}{\partial \theta} > 0$  where  $g(\theta)$  is the offer arrival rate
  - $\frac{\partial P_M}{\partial g(\theta)} > 0$ : true for any Poisson distribution
- From 1984 to 1987, PSID asked respondents working at the time of the survey
  - “At the time you ... started in your present (position/work situation), was it the only job opportunity you had, or did you choose it over something else?”



the slope of the fitted line is 2.11 with a standard error of 0.822.

# The Cyclicity of the Wage Offer Distribution I

- Let  $w_F^q$  be its  $100q$ th percentile of the wage offer distribution  $F$  defined by  $F(w_F^q) = q$  for any  $q \in [0, 1]$ .
- For any  $0 \leq q_1 < q_2 \leq 1$

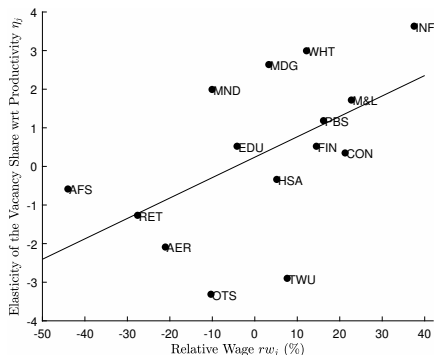
$$\frac{\partial w_F^{q_2}}{\partial y} > \frac{\partial w_F^{q_1}}{\partial y} > 0$$

- A rightward shift:  $\frac{\partial w_F^q}{\partial y} > 0$  for any  $q$
- A clockwise rotation:  $\frac{\partial w_F^{q_2}}{\partial y} > \frac{\partial w_F^{q_1}}{\partial y}$  for any  $q_2 > q_1$
- Intuition for the rotation
  - with  $\frac{\partial g(\theta)}{\partial y} > 0$ , workers receive more offers on average when  $y$  is high
  - low-wage offers are more likely to be rejected
  - pushes firms to post a larger share of high-wage vacancies

# The Cyclicity of the Wage Offer Distribution II

- An increase in productivity  $y$  is associated with an increase in the share of vacancies posted by high-wage industries

$$\Delta \log \left( \frac{v_{j,t}}{v_t} \right) = \eta_j \Delta \log y_t + \varphi_j + Q_t \beta_j + \zeta_{j,t}$$



- *The slope of the fitted line is 0.053 with a standard error of 0.023*

# The Cyclicity of the Wage Distribution of New Hires I

- Let  $G$  be the wage distribution of new hires

$$G(w) = \frac{\sum_{k \geq 1} p_o(k) F^k(w)}{\sum_{k \geq 1} p_o(k)}$$

- For any  $q \in [0, 1]$ , let  $w_G^q$  be its 100 $q$ th percentile defined by  $G(w_G^q) = q$ . For any  $0 \leq q_1 < q_2 \leq 1$

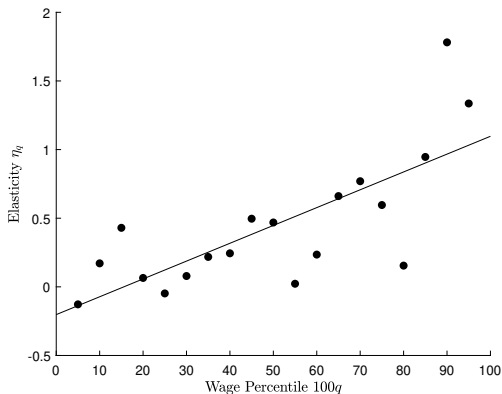
$$\frac{\partial w_G^{q_2}}{\partial y} > \frac{\partial w_G^{q_1}}{\partial y} > 0$$

- Two channels
  - Impact of  $y$  on  $F$  discussed above
  - Impact of  $y$  on  $p_o(k)$

# The Cyclicity of the Wage Distribution of New Hires II

Let  $w_{q,t}$  be the 100 $q$ th percentile of the residual wage distribution of new hires in quarter  $t$  in CPS

$$\Delta \log w_{q,t} = \eta_q \Delta \log y_t + \varphi_q + Q_t \beta_q + \varepsilon_{q,t}$$



*The slope of the fitted line is 0.013 with a standard error of 0.003.*



# Conclusion

- Provide a model of job creation with multiple offers
- The model predicts that an increase in productivity leads to an increase in
  - the fraction of new hires with multiple offers
  - the share of high-wage vacancies
  - the share of new hires in high-wage jobs
- Present empirical evidence consistent with the predictions
- Two new channels for the sullyng effect of recessions
  - the procyclicality of multiple offers
  - the procyclicality of the share of high-wage vacancies
  - complement existing theories focusing on OTJ search, e.g., Barlevy (2002)
- Future work
  - Augment the model with firm and worker heterogeneity and on-the-job search
  - More evidence on the significance of multiple offers