Effects of Entry Economic Conditions on the Career of Economics Ph.D.

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Introduction

There is no unemployment among Ph.D.s in economics

– John Siegfried

- Strong demand for economics PhD over the decade (BLS 2021)
  - growing demand both in academia and in practice
  - industries appreciate causal inferences more and more (Athey and Luca 2019)
- Pandemic left scars on the current economics profession worldwide (INOMICS) and lowered demand for entry worker (JOE)
  - 2020's Jobs for economists (JOE) have 14% fewer job postings than 2019
- Bad labor market conditions at the entry have large and persistent negative effects on careers in general (Kahn 2010, Oreopoulos et al. 2012)
- Less work has been done on whether the careers of economists is affected by the business cycles

Features of the Market for Ph.D.s in Economics

- Centralized matching systems and require advanced degrees
- Different workplace environment
  - academics: work under up-or-out policies
  - private sectors: high skilled industries
  - little is known for switching patterns among the occupations
- More than 40 % graduates are internationals
- Low unemployment, but the placement outcomes varies by economic conditions
- Detailed employment histories and productivity measures are available

Motivation and Research Question

- Workers graduating into a recession would likely match to a lower level starting jobs than their luckier counterparts (Devereux 2002)
  - first job placement is important in explaining the long-term losses (Kwon et al 2010, Oreopoulos et al. 2012)
  - how long the effects remain depends on the availability of switching (Van den Berge 2018, Cockx and Ghirelli 2016)

- Set up the theoretical model to explain what drives the persistent outcomes for economics PhD

- Test the model's prediction using detailed information on career paths and productivity measures available on the web
  - short run: initial placements
  - long run: occupational choices and publications

Mechanism: to motivate the model

- Evaluate job mobility to assess the impact of entry economic conditions
  - recessionary cohorts would take longer periods of time to find a job match
  - spending time in bad matches would lead to wage losses and would result in wrong investment in human capital
  - the disparities in human capital are the important channel through which the effects of graduating in a bad economy will remain
- Not clear what types of human capital economists would develop
- Develop a theoretical model of human capital development to understand the job mobility of economists
  - provides the testable hypothesis on whether the entry condition effects remain in the long-run

Preview: Findings

- the demand for economists is pro-cyclical
  - the fluctuations are primarily driven by the academic tenure-track positions in the US
- Entry conditions would affect the initial placement outcomes
  - recessionary cohorts are less likely placed in tenure-track academic positions
- Recessionary cohorts are less likely working at the academia in the long-run
  - the cohorts publish fewer journal articles in top 50 journals
- Economists rarely switch the occupation over time even if the entry economic conditions were not favorable
  - economists develop task-specific human capital
  - occupations are quite specialized

Contribution: Persistent effects of Entry condition

- Analyze the effect of entry conditions onto the labor market outcomes overtime
  - earnings
  - employment
  - health and other outcomes
- Effects vary by education levels, race, institutional settings
- I use detailed almost complete employment histories and timing of entry
- Less freedom of entering the market
- write Oyer's findings, and my findings why different

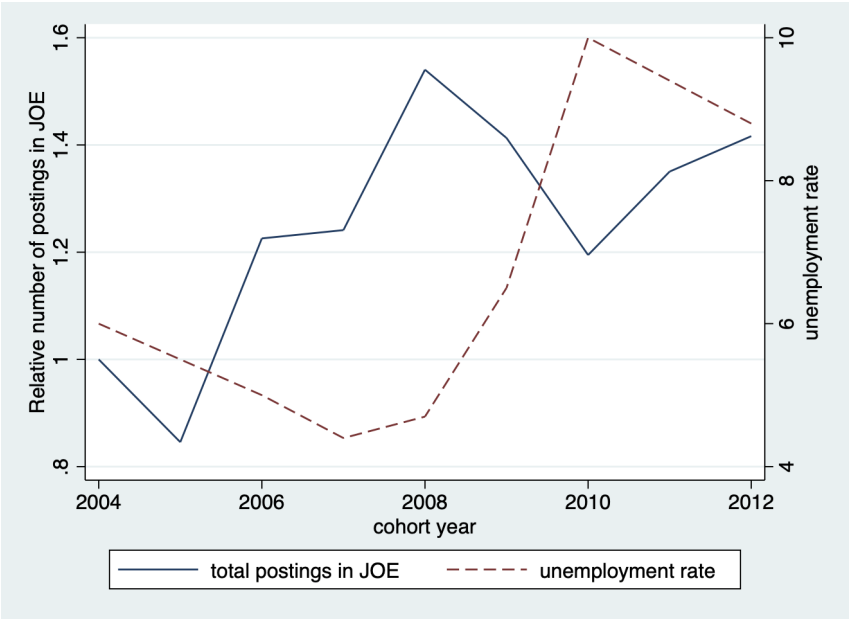
Contribution: Occupation Choice

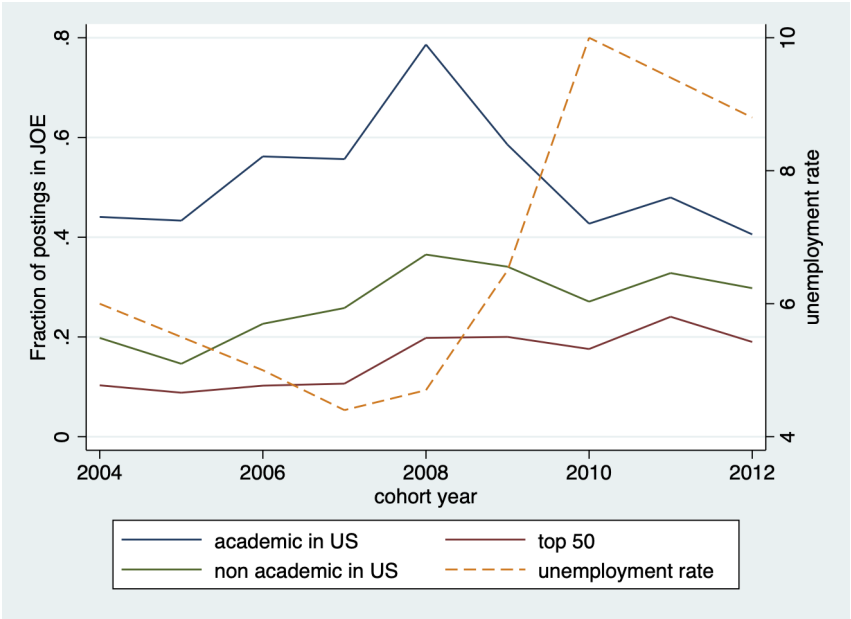
- Job mobility plays a crucial role in recovering from the damages for those who start in a recession (Van den Berge 2018, Cockx and Ghirelli 2016)
- Unlucky college graduates tend to work in less attractive occupations / firms
  - start and stay longer in lower-wage occupations (Altonji et al. 2016) and industries (Oreopoulos et al. 2012)
  - higher-earning majors typically fare substantially better in recessions relative to lower earning majors
- I find
- Human capital formation vs Signaling
  - initial investment in job skills specific to an occupation tends to keep a person on a certain career trajectory
  - adverse signaling from starting in a less prestigious job hinders unlucky graduates to from switching occupation when the labor market recovers

Data

- Collect the following data sets to trace economists' career
  - list of job postings from JOE
    - hiring institution, position, required JEL classifications, job descriptions
  - ProQuest Dissertations & Theses Global
    - collect the doctoral dissertations by institutions, year of publications, economics (related) classification, subject codes
    - about 4,000 graduates from 32 programs in U.S. between 2004–2012
  - Scrape CVs on the web or Linkedin experience profile
    - collect employment history until 2020
    - gender and post secondary education information
  - Publication information from EconLit
- Construct the matching algorithm to compile all data appendix

Cyclical Demand for Economics PhD





- Total postings decreased by 22 percent between 2008–2010
  - Largest drop occurred for the U.S. academic postings (about 45 %)

Descriptive Statistics

	Overall	rank 1–10	rank 11– 23	rank 24–45
Main independent variables				
Female	0.2875	0.2512	0.3236	0.3097
US bachelor	0.4259	0.4718	0.3978	0.3765
Main outcome variables				
number of publications by 3 years	0.3191	0.4350	0.2402	0.2044
	(0.7351)	(0.8665)	(0.6215)	(0.5482)
number of publications by 6 years	0.8475	1.1771	0.6221	0.5222
	(1.5029)	(1.7648)	(1.2855)	(1.0385)
number of publications by 9 years	1.3592	1.9008	0.9827	0.8333
	(2.2899)	(2.7014)	(1.9366)	(1.5374)
Initial placements				
Tenure-track in R1 university	0.2325	0.3019	0.1843	0.1649
	(0.4225)	(0.4592)	(0.3879)	(0.3713)
Private Sector	0.2413	0.2267	0.2627	0.2419
	(0.4279)	(0.4188)	(0.4402)	(0.4284)
Number of Schools	32	10	10	12
Number of individuals	3,982	1,795	1,199	988

Theoretical Framework

- Human capital accumulation is largely determined during the first decade of one's career
  - problem would be critical at research universities, in which tenure decisions are determined within 5-7 years
- Job mobility would raise the questions on the transferability of skills one develop
  - more costly for individuals whose skills are not transferable across jobs
- If the cohort effect starts in the beginning, task-specific model would supply why the effects remain in the long run

Task-specific Human capital

- Concept of measuring the transferability of labor market skills
  - appreciated in occupations where similar tasks are performed
    - different from general or occupation specific skills
- Ideal: change in occupation means the skills required for new occupations would be substantially different from those used in the old occupations
- Literature use occupational and industry codes from the census
- Need to build another index because of the small range of occupations economists would work at

Definition of Occupations

- Define the following ways: R1 university, other US universities, research org or governmental agencies in U.S., foreign institute and private sectors
  - faculties in R1 university spend less time teaching compared to all other universities in U.S. appendix
  - research organization in the U.S. does not require teaching, and the research goal would not be the same as the universities
  - foreign institutes would be different from the U.S. counterparts
    - most international universities have other promotion policies than the U.S. (Smeets et al. 2006)
  - Using natural language process on the job descriptions, find a few words in private sectors mostly appendix
    - possibly different skills requirement

Model

- Propose a model to explain the mobility of economists based on the concept of Gibbons and Waldman (2004 and 2006)
- Define occupation o as the collection of firms having the same task
  - switching firms or occupations for individuals is defined as having different firms or occupations in t compared to $t-1$.
  - all firms are contained within occupations, so individuals can only switch occupations if they also switch a firm
- A firm f assigns the combinations of tasks $\{1, ..., J\}$ to a worker.
- Suppose that task-specific output in a firm f within o is produced by combining multiple tasks, denoted by $j = 1, ..., J$
  - Occupations combine the tasks in different ways, and let $\beta_o^j \in [0, 1]$ be the relative weight on the task j
- a_{iot}^j: worker i's productivity for task j varying by occupation o and time in labor market t
- Worker i's task-specific output Y working at f in o and t

$$\log Y_{ifot}^j = \sum_j \beta_o^j a_{iot}^j + \mu_{if} \quad \text{where} \quad \sum_j \beta_o^j = 1 \quad \text{for all } o = 1, ..., O$$

Model - continue

- a_{iot}^j is determined by a person's initial endowment in each task at entry (α_i^j) and the human capital accumulated in the labor market

$$a_{iot}^j = \alpha_i^j + \gamma_o H_{it}^j \tag{1}$$

  γ_o is the return to human capital on occupation o

  - H_{it}^j is the human capital accumulated in task j until time period t

$$H_{it}^j = \lambda_{o'}^j \text{Exp}_{io't} \tag{2}$$

  $\text{Exp}_{io't}$ denotes the previous tenure in occupation o' (to simplify exposition)

- Hence,

$$\log Y_{ifot}^j = \gamma_o \left[\sum_j \beta_o^j \left(\lambda_{o'}^j \text{Exp}_{io't} \right) \right] + \sum_j \beta_o^j \alpha_i^j + \mu_{if} \tag{3}$$

$$\text{where} \sum_j \beta_o^j = 1 \text{ for all } o = 1, ..., O$$

Model - continue

$$\log Y_{ifot}^{j} = \gamma_o \overbrace{\left[\sum_j \beta_o^j \left(\lambda_{o'}^j \text{Exp}_{io't}\right)\right]}^{\text{Task}_{iot}} + \underbrace{\overbrace{\sum_j \beta_o^j \alpha_i^j}^{\text{m}_{io}} + \mu_{if}}_{\text{Match quality}} \tag{6}$$

- Task_{iot} is observable measure of task-specific human capital valued by occupation o
- mc_{io} is the unobserved implying how well an individual is matched to the occupation given her ability
- Value of Task-tenure depends on previous occupations
- When entering the market, there is no human capital accumulated
  - Initial placement effects are reflected through the match quality
  - Assume the match quality with a firm is conditionally random
  - Match quality with occupation would be affected by economic condition

Incorporating Initial Economic Condition

Assumption 1. most workers are research-oriented

$\alpha_i = \left(\alpha_i^1, ..., \alpha_i^J\right) \equiv m(X_i) + e_{it}$, where $\max \alpha_i^1 > \max \alpha_i^j$ for all $j \neq 1$

- $j = 1$ indicates economics-research task

Assumption 2. Finding an reserch-heavy occupation is procyclical

Demand from research university is procyclical

- The two assumptions yields the following theorem

Theorem 1. mismatch arises during the bad times at the entry

If $u_t < u_{t'}$, then $\mathbb{E}_i \left[m_{io} \mid u_t, \sum_j H_{it}^j = 0 \right] > \mathbb{E}_i \left[m_{io} \mid u_{t'}, \sum_j H_{it'}^j = 0 \right]$

  - consistent with Bowlus (1995)
- Now consider the economist' labor market characteristics and production dynamics

Up-or-front Work condition

Assumption 3. Job switching is prohibited over the few years

Economists work under up-or-front policy

Corollary 1. Short-run hysteresis

If $u_t < u_{t'}$, then $\mathbb{E}_i \left[Y^1_{ifot} \mid u_t, X_i \right] > \mathbb{E}_i \left[Y^1_{ifot} \mid u_{t'}, X_i \right]$

- The gap is driven by the two channels
  - unfavorable economic conditions result in mismatch
  - unfavorable human capitals are developed according to the tasks
- Now consider switching options are available
  - need to take account how accumulated capitals are valued when move

Task Tenure with Occupational switching

Proposition

For $\lambda^j_{o'} > \frac{1}{J}$, task-tenure is valued more if moves to $\beta^j_o > \lambda^j_{o'}$
For $\lambda^j_{o'} < \frac{1}{J}$, task-tenure is valued more if moves to $\beta^j_o < \lambda^j_{o'}$
For $\lambda^j_{o'} = \frac{1}{J}$ $\forall j$, task-tenure does not change regardless of moving

- How the task tenure is valued depends on the degree of specialization in the source occupation
  - one's tenure is valued more if the target occupation more specializes than the source occupation
  - If the source occupation is very general (close to $1/J$), the direction of moving is hard to predict
- Now consider the implication for job mobility

Mobility Decision

- Workers search over to maximize output
  - assume additively separable utility function,
  - consider decision problem in two period
- Suppose research oriented worker i started working at f' within teaching-heavy o' in first period
- In the next period, suppose a firm f within research intensive o offers to move
- Improvement on match-up qualities and returns to task tenure would make a shift more likely, but there is a loss from the task tenure according to the proposition when move

$$\begin{aligned}(m_{io} - m_{io'}) + (\mu_{if} - \mu_{if'}) + (\gamma_o - \gamma_{o'})\,\text{Task}_{io't} \\ > \gamma_o \underbrace{(\text{Task}_{io't} - \text{Task}_{iot})}_{\text{potential loss}} + \underbrace{\tau}_{\text{search cost}}\end{aligned} \tag{4}$$

Empirical prediction

$$(m_{io} - m_{io'}) + (\mu_{if} - \mu_{if'}) + (\gamma_o - \gamma_{o'})\,\text{Task}_{io't} \tag{5}$$
$$> \gamma_o \underbrace{\left[(\beta_{o'} - \beta_o)\left(H_{it}^R - H_{it}^T\right)\right]}_{\text{potential loss}} + \underbrace{\tau}_{\text{search cost}}$$

- Potential loss is governed by two factors
  - how similar the tasks between occupation o and o', $|\beta_o - \beta_{o'}|$
    - if the source occupation is very general, there would be no loss
  - how much human capital accumulated from the previous occupations
- If workers' human capital is task specific, possible to predict mobility
  - they are more likely to move to occupations in which they can perform tasks similar to previous occupations
  - occupation switch would get harder if one stay longer
- First term capture the counterfactual of the initial condition
  - if not task specific, more like move to the desired occupation
  - more immobility because of economist' labor market characteristics

Discussion: Hypothesis

Hypothesis

Economists' human capital is task specific, and the occupations are specialized in different ways

- the impact of the initial mismatch would be persistent because the workers tend to stay at the initial occupations or the similar occupations

Discussion: Overview of the model's contributions

- c

Prediction I: Initial Placements

- I first test whether the entry economic conditions predict the initial placement outcomes:
  - for individual i, cohort c, department d, fields of study f

$$y_{icdf} = \beta \text{ec}_c + \gamma X_i + \lambda_d + \theta_f + \epsilon_{icdf} \tag{6}$$

  where ec_c indicates the economic conditions at graduation for c
  - approximate ec_c using the unemployment rate as of October at the one year before graduation
  - X_i includes an indicator for receiving bachelor degrees in the U.S. and gender
  - β would be unbiased as long as the average quality of economists entering the market is not systematically related to ec_c

Effect of entry conditions on the initial placement in R1 universities

	(1)	(2)	(3)	(4)
unemployment (β_u)	-0.0214***	-0.0285**	-0.0177**	-0.0313***
	(0.00468)	(0.0104)	(0.00655)	(0.00582)
female	0.00654	0.00569	0.00624	0.00651
	(0.0155)	(0.0145)	(0.0146)	(0.0156)
usa	0.0594***	0.0661***	0.0594***	0.0593***
	(0.0108)	(0.0114)	(0.0108)	(0.00867)
rank 2		-0.113***		
		(0.0143)		
rank 3		-0.127***		
		(0.0191)		
unemployment× rank 2 (β_1)		0.0162		
		(0.0150)		
unemployment× rank 3 (β_2)		0.00955		
		(0.0179)		
unemployment× female (β_1)			-0.0129	
			(0.0148)	
unemployment× usa (β_1)				0.0227***
				(0.00627)
P-val from F-test				
$\beta_u + \beta_1 = 0$		0.3005	0.0272	0.1538
$\beta_u + \beta_2 = 0$		0.1105		
N	3946	3946	3946	3946
R^2	0.061	0.040	0.061	0.062

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

Effect of entry conditions on the initial placement in rankings

	(1)	(2)	(3)	(4)
unemployment (β_u)	-3.713	-1.578	-6.915	1.525
	(4.901)	(4.601)	(5.794)	(3.778)
female	1.802	-0.316	3.004	1.963
	(5.686)	(5.753)	(3.988)	(5.792)
usa	13.55**	7.669	13.48**	12.44**
	(4.977)	(7.184)	(5.012)	(4.255)
rank 2		114.6***		
		(9.667)		
rank 3		146.3***		
		(6.076)		
unemployment× rank 2 (β_1)		-11.35		
		(9.875)		
unemployment× rank 3 (β_2)		2.744		
		(6.769)		
unemployment × female (β_1)			10.67**	
			(3.746)	
unemployment× usa (β_1)				-9.582
				(5.835)
P-val from F-test				
$\beta_u + \beta_1 = 0$		0.1146	0.2433	0.2696
$\beta_u + \beta_2 = 0$		0.8830		
N	1304	1304	1304	1304
R^2	0.246	0.170	0.247	0.247

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

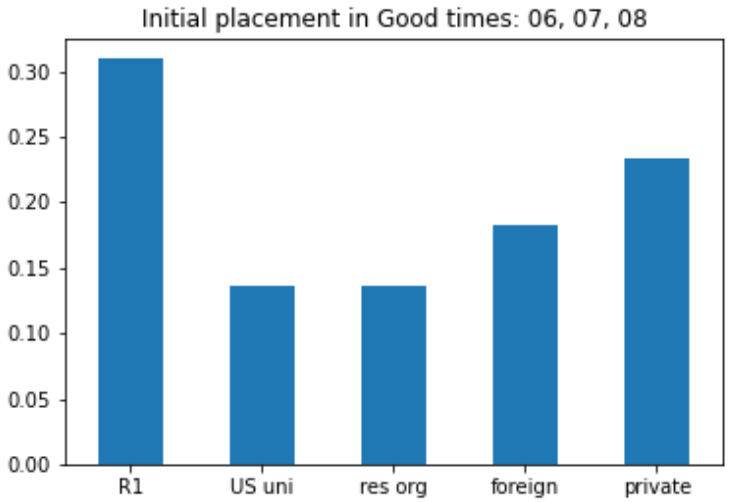
Effect of entry conditions on the initial placement: multinomial logit

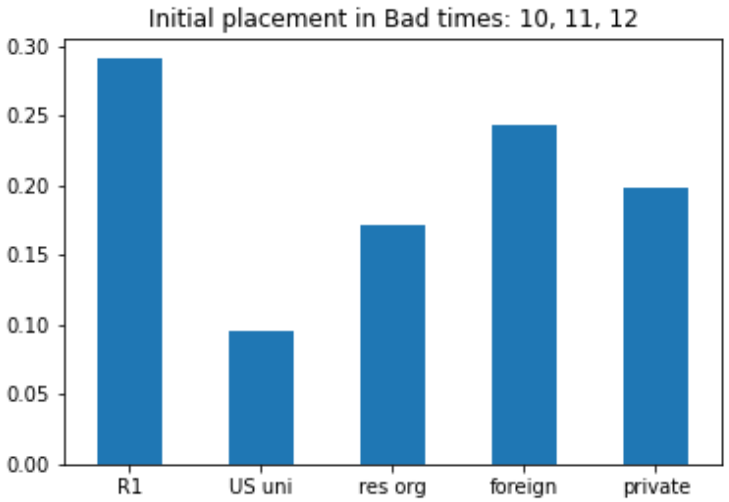
	(1)	(2)
2. all other universities		
unemployment	-0.106**	-0.0838 *
	(0.0454)	(0.0499)
female	0.0524	-0.0666
	(0.109)	(0.137)
usa	0.00310	0.158
	(0.106)	(0.0977)
3. research org		
unemployment	0.138**	0.134**
	(0.0663)	(0.0630)
female	0.216*	0.163
	(0.115)	(0.138)
usa	-0.148	-0.122
	(0.103)	(0.112)
4. foreign institute		
unemployment	0.188***	0.188***
	(0.0431)	(0.0447)
female	-0.127	-0.200
	(0.102)	(0.133)
usa	-1.694***	-1.536***
	(0.0765)	(0.0799)
5. private sectors		
unemployment	-0.0247	-0.0181
	(0.0403)	(0.0364)
female	-0.0561	-0.0856
	(0.0916)	(0.0865)
usa	-0.287***	-0.165
	(0.103)	(0.104)
FX		department, fields of study
N	3979	3916
R^2		

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

Cohort Effects at Entry





Prediction 2: Long-run Placements

- I now test whether the entry economic conditions predict the long-run outcomes.
  - Using the same specification (6), the dependent variable is whether one work at R1 university nine years after graduation
- Find that unemployment has a significant impact on the initial placements as expected
- The model further predicts that the effect will remain persistently if economists develop task-specific human capital.
  - given that the switching cost would be higher, female economists would be affected more

Effect of entry conditions on the placement in R1 universities 9 years after

	(1)	(2)	(3)	(4)	(5)
unemployment (β_u)	-0.00821*	0.00473	-0.00502	-0.00232	-0.00583
	(0.00434)	(0.00536)	(0.00434)	(0.00520)	(0.00773)
female	-0.0182*	-0.0218***	-0.0167*	-0.0182*	-0.0151
	(0.00930)	(0.00521)	(0.00849)	(0.00928)	(0.00846)
usa	0.106***	0.0722***	0.106***	0.109***	0.123***
	(0.0148)	(0.0159)	(0.0147)	(0.0133)	(0.0133)
R1 university		0.583***			
		(0.0126)			
unemployment× R 1 university (β_1)		-0.00490			
		(0.00711)			
unemployment × female (β_1)			-0.0109		
			(0.00807)		
unemployment× usa (β_1)				-0.0134*	
				(0.00605)	
rank 2					-0.118***
					(0.0204)
rank 3					-0.115***
					(0.0180)
unemployment× rank 2 (β_1)					0.00415
					(0.0206)
unemployment× rank 3 (β_2)					-0.0123
					(0.0163)
P-val from F-test					
$\beta_u + \beta_1 = 0$		0.9763	0.0814	0.0186	0.9127
$\beta_u + \beta_1 = 0$					0.1453
N	3916	3916	3916	3916	3916
R^2	0.065	0.349	0.065	0.066	0.045

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

Discussion

- As the model predicts, the entry economic conditions remain in the long-run
- Note that the magnitudes of the effects is way smaller than the initial impact
  - some individuals might switch the occupations but not enough to close the initial gaps
- Further test whether one ever switch occupation or firm appendix
  - as the model predicted:
    - less likely switch the occupation
    - if one switched, it would happen within the same occupations at early periods
- One might raise the question of whether the entry condition would serve as a signal of ability, and its importance as a signal declines over time as more information of true ability is revealed appendix

Prediction 3: Productivity

- Now I test whether the entry economic conditions would affect the economists' productivity
  - main measures of research output for academic economists are their publications
  - for individual i, cohort c, department d, field of study f, year t, labor market experience exp

$$y_{icdft} = \beta \text{ec}_c + \gamma X_i + \xi_d + \theta_f + \mu_{exp} + \epsilon_{icdft} \tag{7}$$

  where ec_c indicates the economic conditions at graduation for c
  - y_{icdft} is the number of publications in top 50 economics journals

Robustness Check

- filled

Current work

- filled

Fuzzy matching

- One challenge of the task is scrape text data from the source document and convert them into suitable format
  - Scraping - use various APIs
    - might involve legal issues $\rightarrow$ commercial APIs
- Bigger challenge is that there are same institution but were taken as different forms
  - CV, dissertations, rank data, Journal entry
  - matching economists' names are even more complicated
- Employ learning methods from data science literature
  - data matching or fuzzy matching (probabilistic data matching)

Steps

- N-grams: a set of co-occurring words within a given sentence (Wang et al. 2006)
  - collect the words in the sentence having more meaning
- TF-IDF: count the word occurs in each document
  - evaluate how important a word is and (learning)
    - very important since the names have only a few words
  - long computing time ...
- Cosine similarity: how close the two sentences is
- Matching rates vary
  - JOE in US institutions: 89%
  - All institutions: 70%

back

Hours per week teaching credit classes

	1-3 hours (%)	4-7 hours (%)	More than 7 hours (%)
Estimates			
Total	22.4	27.8	49.8
Institution: level			
2-year	18.3	23.7	58
4-year non-doctoral granting	18.6	23.5	57.9
4-year doctoral granting	27.4	33.1	39.6

Source: U.S. Department of Education, National Center for Education Statistics, 2004 National Study of Post secondary Faculty

slide

Job description: Natural Language Processing

- Analyze the text in the job descriptions from JOE and CSWEP letters (central bank, consulting firms
- Find the words mostly captured in the text
  - Tenured track positions: **research, economics, teaching**, curriculum
  - Research org: **research, economics**, teaching
  - Private: **research**, economics, communication,work, policy, experience, analysis, skills, quantitative,
- Word **research** and **teaching** dominates in Academic positions
- Diverse range of words are captured in private sector positions
  - communication related words are rarely captured in academic positions
- Possibly, different skills are required for the private sectors slide

Effect of entry conditions on the Job mobility

	Occupational switching				Firm switching			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$\leq$ 3 years		$\leq$ 8 years		$\leq$ 3 years		$\leq$ 8 years	
unemployment	-0.00123	0.0133	-0.00127	0.00931	0.0164**	0.0347***	0.00952	0.0293***
	(0.00670)	(0.0121)	(0.00880)	(0.0116)	(0.00697)	(0.00732)	(0.00814)	(0.00608)
female	0.00112	0.000795	0.00707	0.00695	0.00997	0.00967	-0.00500	-0.00541
	(0.00733)	(0.00744)	(0.0172)	(0.0182)	(0.0134)	(0.0133)	(0.0134)	(0.0133)
usa	-0.0314**	-0.0326**	-0.0305*	-0.0317*	0.0135	0.0129	-0.00159	-0.00201
	(0.0109)	(0.0107)	(0.0150)	(0.0147)	(0.0165)	(0.0166)	(0.0142)	(0.0142)
US uni		0.0187		0.00302		0.0439**		-0.0374
		(0.0229)		(0.0324)		(0.0172)		(0.0230)
res org		0.0661**		0.0551**		0.0809***		-0.0311*
		(0.0206)		(0.0182)		(0.0161)		(0.0143)
foreign		-0.00708		-0.0545**		0.0102		-0.0410*
		(0.0229)		(0.0219)		(0.0218)		(0.0204)
private		0.105***		-0.00756		0.225***		0.121***
		(0.0182)		(0.0185)		(0.0230)		(0.0139)
US uni $\times$ unemployment		-0.00504		-0.0181		-0.0146		-0.0125
		(0.0174)		(0.0232)		(0.0154)		(0.0147)
res org $\times$ unemployment		-0.0256		-0.00211		-0.0170		-0.0156
		(0.0208)		(0.0273)		(0.0265)		(0.0186)
foreign $\times$ unemployment		-0.0466**		-0.0460**		-0.0472***		-0.0473**
		(0.0171)		(0.0183)		(0.0107)		(0.0159)
private $\times$ unemployment		0.00120		0.00796		-0.0179		-0.0270**
		(0.0167)		(0.00976)		(0.0122)		(0.00864)
P-val from F-test								
N		0.5303		0.1655		0.7205		0.3127
N		0.3762		0.4984		0.7463		0.5450
N		0.0083		0.2400		0.0794		0.3344
N		0.2311		0.1882		0.0687		0.7640
N	3916	3916	3916	3916	3916	3916	3916	3916
R^2	0.032	0.035	0.020	0.021	0.052	0.053	0.031	0.032

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

Effect of entry conditions on the placement in R1 universities over time

	(1)	(2)	(3)
unemployment × exp 0	-0.0141**	-0.0145**	0.00118
	(0.00610)	(0.00609)	(0.00407)
unemployment × exp 2	-0.00951	-0.0121*	0.00359
	(0.00801)	(0.00565)	(0.00480)
unemployment × exp 4	-0.0104	-0.0114*	0.00428
	(0.00573)	(0.00579)	(0.00532)
unemployment × exp 6	-0.00852	-0.00762	0.00803
	(0.00584)	(0.00511)	(0.00553)
unemployment × exp 8	-0.00990	-0.00694	0.00871
	(0.00860)	(0.00455)	(0.00526)
female	-0.00685	-0.00685	-0.0116
	(0.0139)	(0.0139)	(0.00664)
usa	0.100***	0.100***	0.0549***
	(0.00899)	(0.00899)	(0.00808)
R1 university			0.773***
			(0.00898)
FX	dep, fields	dep, fields, exp	dep, fields , exp
N	19590	19590	19590
R^2	0.062	0.063	0.541

Standard errors in parentheses and are clustered by cohort level.

* $p < 0.10$, ** $p < .05$, *** $p < .01$

slide