Graduate Labor Economics
ECN 250A, Winter 2018

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This is a closed-book exam. Answer all questions briefly but clearly. The exam is graded out of 75 points; each subquestion is worth 5 points.

I Short-answer questions (30 points)

(a) Producer theory predicts that—if the labor market is perfectly competitive—there will be a "law of one price" for labor. In practice, of course, different workers receive vastly different hourly wages. Why doesn't the mere existence of wage dispersion prove that the labor market is not competitive?

(b) Retail pharmacies like CVS rely on a mixture of human cashiers and automated self-checkout kiosks. Suppose that the price of an automated kiosk falls by 50% in the next 5 years. In a two-factor model, how will this price change affect employment in the retail pharmacy sector?

(c) In class, we discussed numerous explanations for the rise in wage inequality observed in the United States since 1980 (as measured, for example, in the March CPS). List three such explanations.

(d) Explain why, in a static monopsony model, increasing the minimum wage can lead to either increases or decreases in employment. (A graph may be helpful here.)

(e) DiNardo and Lee (2004) use a regression-discontinuity design to estimate the economic effects of plant unionization, using union elections conducted during 1984–1999. As they explain, "outcomes for employers where unions *barely* won the election (e.g., by one vote) are compared with those where the unions *barely* lost." Even if DiNardo and Lee's results are internally valid, however, we might worry about their external validity. Why we might hesitate to generalize from DiNardo and Lee's results?

(f) In their study of the earnings losses experienced by displaced workers, Jacobson, Lalonde, and Sullivan (1993) compare changes in these workers' earnings to changes in earnings among two comparison groups: (i) non-displaced workers employed by healthy firms and (ii) non-displaced workers employed by the displaced workers' former employers—that is, the treatment group's former coworkers. List one pro and one con of using (ii) as the control group, rather than (i).

II Between-firm wage dispersion (20 points)

The table below, taken from Krueger and Summers (1988), reports the estimated coefficients on 1-digit industry dummies in cross-sectional Mincer regressions of individual log wages on demographics (sex, education, experience, etc.), occupation dummies, and industry dummies, estimated separately in 1974, 1979, and 1984. The coefficients indicate that some industries (e.g., construction) systematically pay above-average wages to observationally similar workers.

	(1)	(2)	(3)
Industry	1974	1979	1984
Construction	.195	.126	.108
	(.021)	(.031)	(.034)
Manufacturing	.055	.044	.091
	(.020)	(.029)	(.032)
Transportation & Public Utilities	.111	.081	.145
	(.021)	(.031)	(.034)
Wholesale & Retail Trade	−.128	−.082	−.111
	(.020)	(.030)	(.033)
Finance, Insurance and	.047	−.010	.055
Real Estate	(.022)	(.035)	(.034)
Services	−.070	−.055	−.078
	(.021)	(.030)	(.032)
Mining	.179	.229	.222
	(.035)	(.058)	(.075)
Weighted Adjusted Standard Deviation of Differentials[b]	.097**	.069**	.094**
Sample Size	29,945	8,978	11,512

(a) Explain why these coefficients do not necessarily reveal the causal effect of industry membership on a worker's wages.

(b) Provide two explanations for why some industries may systematically pay a given worker more than other industries do.

Since Abowd, Kramarz, and Margolis (1999), many papers have used linked worker-firm data to estimate models of the form

$$\log w_{it} = \alpha_i + \gamma_{J(i,t)} + \varepsilon_{it},$$

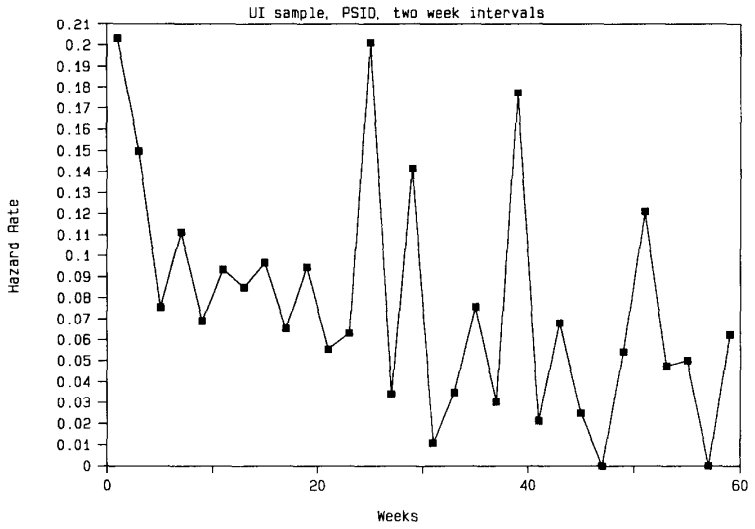
where α_i is a worker fixed effect and $\gamma_{J(i,t)}$ is a fixed effect for the firm that employs worker i in year t.

(c) Card, Heining, and Kline (2013) find that a large share of the rise in West German wage inequality can be attributed to increases in $\text{Var}(\gamma_{J(i,t)})$ and to increases in $\text{Cov}(\alpha_i, \gamma_{J(i,t)})$. Explain in words what these two statistical statements represent.

(d) While AKM models were originally developed to decompose wages into worker and firm components, they can be adapted to other settings where two sets of agents or institutions match with each other and where this matching changes over time. Give an example of a non-wage application of the AKM model (either one I mentioned in class or one you come up with yourself).

III Duration dependence (10 points)

The figure below, taken from Katz and Meyer (1990), plots empirical job-finding hazards among US unemployment insurance claimants, as a function of time since entry into unemployment.



(a) Why does the hazard rate spike around 26 weeks and again around 39 weeks?

(b) Aside from these spikes, the hazard rate mostly exhibits negative duration dependence (i.e., the longer a worker has been unemployed, the less likely that worker is to become reemployed next period). Provide two explanations for negative duration dependence.

IV Incentivizing job search (15 points)

Consider a stylized continuous-time search model in which a worker can generate job offers at flow rate s by incurring a search cost $\psi(s)$. Workers receive flow utility b during unemployment, and all jobs pay a constant wage $w > b$. So far, this is a stationary setup: b, w, and $\psi(\cdot)$ are all constant over time.

Some policymakers have proposed using "reemployment bonuses" to incentivize job search. Imagine that California offers a lump sum payment of \$1000 to any unemployed jobseeker who becomes reemployed within 3 months of entering unemployment. After 3 months, jobseekers are no longer eligible for the bonus.

(a) Draw a graph plotting a given worker's search effort as a function of time since entry into unemployment (i) in the absence of the bonus policy and (ii) in the presence of the bonus policy. You don't have to do any math to answer this question, but you might find it helpful to think about the underlying Bellman equation. Make sure to label your graph clearly.

(b) Suppose that, to assess the efficacy of this policy, California conducts a randomized controlled trial (RCT) in which 1% of jobless workers are sampled, half are treated, and half are used as a control group. Suppose further that the RCT finds a 5% reduction in the median unemployment duration. Explain why this treatment effect may not be a good estimate of what would happen if California adopted this policy for <u>all</u> unemployed workers.

(c) Explain how we could modify this RCT to provide estimates of both the individual and market-level effects of the bonus policy.