

Acemoglu and Pischke (1998) – Why Do Firms Train? Theory and Evidence

- Authors offer a theory of training where workers do not pay for the general training they receive. The current employer receives superior information regarding its employees' abilities relative to other firms, creating ex post monopsony power, which is the incentive to provide general training.
 - This responds to a literature (Becker 1964, Mincer 1974) which notes that since general training increases worker productivity in other jobs, workers (not firms) should pay for it. Apprenticeship programs in Germany and elsewhere suggest this is not always true.
- The model has multiple equilibria: (i) quits can be endogenously high, so employers have limited monopsony power and provide little training; or (ii) quits can be low, and training is thus high.
 - The modeling insight is that turnover is not exogenous, but depends in equilibrium on the wages that outside firms are willing to pay, which relies on the secondhand market for workers, which in turn depends on the actual quit rates. Hence, multiple equilibria.
- *Noam points on model:* general human capital definition depends on the production technology; evaluation of employees, poaching of employees, and firing of employees are linked institutions; assumption that quits are driven by (privately observed) disutility shock is strong; that firms waste \$ training unproductive workers to make the 2nd hand market hard to navigate is a funny implication.
- Empirical tests look for evidence of adverse selection in those receiving firm-sponsored training. In particular, look at wages of German apprentices who stay in firm, are laid off, or quit voluntarily, and compare them with wages of apprentices who quit for exogenous reasons (military draft).
- **Authors' hypothesis:** Model predicts military quitters should have higher wages than voluntary quitters (and laid-off workers). Because firm has monopsony power over workers who stay, they are paid below their marginal product, but this is not true for military quitters. While they are *less able* than stayers on average, military quitters can have *higher wages*.
 - **Empirical strategy:** run a wage regression controlling for worker characteristics known at the time the apprenticeship starts (e.g. schooling, type of apprenticeship firm) and use dummy variables for stayers and military quitters to find the wage differentials.
 - **Results:** regressions confirm that military quitters on average do have higher wages than either voluntary quitters or stayers, but the identified effect is not significant.
 - Authors also document that: (i) firms actually pay for apprenticeship training; (ii) the training is general; (iii) and that training and ability are complementary (used in model).
- **Improving empirics:** No stars– none of the coefficients are statistically different from zero, meaning the support for this model in the data is modest at best, and potentially absent entirely. U.S. vs. Germany – there are big differences in the summary stats in the amount of training – what accounts for this (imperfect info, institutional differences, etc)? Robustness – authors attempt robustness checks (pp. 110-112), and continue to find military quitters earn more than stayers in all regressions, though the effect's significance is consistently weak and they cannot reject the null. Alternative empirical strategies – more data in Germany, more data from other industries/countries, maybe find exogenous policy shocks that differentially affected industries' propensity to train workers?

Manning (2003) – The Real Thin Theory: Monopsony in Modern Labor Markets



- **Monopsony intuition** – in this context, think of it as few potential employers within a “reasonable” distance of workers (few buyers, many sellers). Two sorts of modern monopsony models: (i) assume workers have full information and no mobility costs, but that jobs are differentiated (e.g. Salop model of differentiation); (ii) search models that assume that all jobs are identical but it takes time and/or money for workers to change jobs, so search frictions given employers market power.
- Manning's model combines a search model where jobs arrive occasionally with job differentiation (jobs are distributed across geographical space) – these are the **sources of thinness/market power**.
 - Manning's key insight is that jobs, not employers, are scarce (and costly to create/recruit).

279D (Noam) – Paper Summaries

- “Monopsony facts” – existence of wage dispersion for identical workers, correlations between employer characteristics and wages, part of the gender pay gap, employers paying for general training of workers, and challenges in finding any disemployment effects of minimum wage. *Noam notes* – what makes these facts consistent with monopsony; are they consistent with other models?
- Manning’s model: workers get utility from log wages but dislike having to travel a long time to work; workers cannot change their residential location; job offers arrive at rate λ independent of worker’s employment, and with a wage offer distribution $F(w)$ that is independent of employer location; jobs uniformly distributed over distance, so arrival rate of job offers with reasonable commute is finite.
 - Equation 3 (p. 110) – more arrival of offers increases likelihood of good offer; this rate declines with one’s cost of travelling to a good job, and it declines with how good “good” is.
- **Author’s hypotheses:** Proposition 1 (p. 110-111): **(a)** wage distribution across workers is increasing in the commute (in the sense of first-order stochastic dominance) if wage offer distribution satisfies the condition that $\ln[1-F(w)]$ is concave in w ; **(b)** distribution of utility across workers is decreasing in the commute if the wage offer distribution satisfies the condition that $\ln f(w)$ is concave in w .
 - *Noam’s points on model:* unrealistic that jobs are uniformly distributed in space, that arrival rate is independent of wage offer, and that functional form assumptions in Prop 1 hold.
- **Empirical strategy & results:** Using UK survey data, Manning examines the correlation between wage and commute time: with controls, he finds an hour-long daily commute is associated with wages that are 7-9% higher. This is consistent with the above model as well as alternate hypotheses: (i) more able workers chose, on average, longer commutes as their higher wages make commuting longer distances worthwhile; (ii) the urban economics literature advances several other explanations including the endogeneity of household location and the existence of worker-specific travel costs.
 - To test (i), Manning includes individual FEs and finds the coefficient is much smaller but still positive. He then restricts sample to only job movers, and finds a larger sized coefficient.
 - To test (ii), Manning includes household FEs, and notes that the coefficient is unchanged – implying that within households, those with a longer commute tend on average to have higher wages. He also shows part-time workers have higher returns to commuting in table 3.
- **Additional test:** Theory of “wage gradients” (compensating differentials) predicts there should be full compensation for longer commutes, but the “thin” markets hypothesis predicts less than full. Section 4 looks at the separation rates for those with longer commutes – if fully compensated, then no reason for separation rates to be higher; if less than full compensation, expect higher separation rates with long commutes. Table 4 shows separation elasticities consistent with “thin” markets.
- **Improving empirics:** overall impressive empirics, good data, lots of robustness checks, aligns well with theory presented above (though theory has its weaknesses); randomized assignment of job opportunities to workers (maybe through some natural experiment?) would support identification.

Lazear (2000) – Performance Pay and Productivity

- “Simple” research question: what is the effect of incentive pay on worker performance?
- In a quasi-experiment, the Safelight Glass Corporation shifts to piece rates instead of flat wages, testing **hypotheses** that average productivity will rise, the firm will attract a more able workforce, and variance in output across individuals will rise. **Result** was a 44% increase in output per worker.
 - $\frac{1}{2}$ productivity increase due to average worker producing more from incentive effects; other key factors are hiring most productive workers and reducing quits from the highest output workers.
 - Given worker receives about 10% increase in pay as a result of the switch to piece rates.
 - Increased output variance: better workers had less incentive to differentiate under flat wages.
- *Noam’s points on setup:* not a perfect natural experiment, lots of endogeneity concerns; also, Lazear claims “minimum standard” level of output didn’t change, but then admits it did – if standards rise but with a greater tolerance for dips below the draw, then no longer testing just incentive effects.

279D (Noam) – Paper Summaries

- Lazear doesn't believe piece-rate schemes always optimal: "firms that continue to pay hourly wages in equilibrium are those for which the benefits of paying an hourly wage, such as low monitoring costs and perhaps higher quality output, outweigh the costs in the form of lower output."
 - The point on "low monitoring costs" refers to output monitoring; inputs like hours are separate.
- **Improving Empirics:** (i) Safelight adopts the payment scheme after a change in management, and rolls it out gradually, raising concerns about endogeneity biases; (ii) Lazear attempts to address OVB concerns and selection into treatment by including individual FEs (table 3, specifications 2 & 4); (iii) Lazear cannot control for correlation between the rollout schedule and regional shocks (e.g. winter coming in Columbus, Ohio), and the standard errors are not clustered to correct inference; (iv) could plot output by months to/from implementation of PPP (performance pay plan) to see if there is any pre-PPP effect, which could suggest anticipation biases or other forms of spurious inference.

Bandiera et al (2007) – Incentives for Managers and Inequality Among Workers

- Research question – ceteris paribus, how does introducing managerial performance pay affect firm productivity and performance of individual workers at lower tiers of the firm's hierarchy?
- In a randomized field experiment, the authors introduce a change in managerial compensation from fixed wages to performance pay based on the average productivity of lower-tier workers.
 - Firm is a leading UK producer of soft fruit, 1 general manager (COO), 10 field managers, and a bottom tier of hierarchy consisting of workers who pick fruit at assigned farms.
- **Hypotheses:** Theory suggests managers will respond to incentives by targeting their efforts to more able workers, implying both the mean and dispersion increase. Managers may also select out the least able workers, suggesting the mean increases but dispersion may decrease.
- **Results:** Authors find introduction of performance pay increases both mean and dispersion, and evidence suggests that managers target effort to high-ability workers and employ fewer low-ability workers. Average productivity increase is 21%, and variation coefficient increase is 38%.
- *Noam's points on setup:* The authors "targeting effect" conflates the managers' allocation of effort with the change in employee behavior (employee effort changes are ignored, e.g. p. 747); would results look the same if employees had been paid a fixed wage instead of a piece rate? Or what if managers' effort and employees' effort were substitutes instead of complements?
- **Improving Empirics:** Very clean field experiment – identification is the gold-standard, authors use previous year's data (when there was no intervention) to alleviate time trend concerns, Figures II(a) and (b) on p. 748 capture most of the results and communicate them clearly, high quality data allow authors to identify productivity mechanism (e.g. Table II shows that increase in worker productivity is driven by workers picking the same quantity of fruit but in less time).
 - Only suggestions for future research would be to explore Noam's point about employee incentives – are the results robust to changing low-level worker incentives, or changes in the institutional setting such that manager and employee efforts are now substitutes?