

Wage-Setting, Retention, Outside Options, and Worker Voice

Organizations, Personnel, and Internal Labor Markets
Week 8

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Keeping workers, improving jobs, and exercising power are different claims

Central question

How do internal pay rules and workplace power interact with external labor-market opportunities?

- Quits can fall because a job improves, alternatives deteriorate, or beliefs change.
- A pay rule changes earnings, reference comparisons, recruitment, and the distribution of gains.
- Voice can change the option to seek a remedy even when few workers use a channel.
- Retention is an outcome; it is not a sufficient statistic for welfare or employer power.

Sequence: pay and options → information and comparisons → exit and voice → incidence. Week 4 owns effort incentives; Week 6 careers; Week 7 lateral production.

Learning goals: identify the treatment and follow who captures its gains

- Separate wage rates, earnings, job value, outside opportunities, and perceived options.
- State the restrictions linking a wage response to employer labor supply.
- Distinguish own pay, peer pay, manager pay, and cross-employer information.
- Estimate access effects while keeping use, response, remedy, and reporting separate.

Core points

Low wages, low quits, and compressed pay do not alone identify power. Randomized access does not randomize use. Stayers and leavers are selected after treatment.

Research deliverable: an incidence ledger for the firm, initial workers, entrants, and leavers, plus a design separating two explanations and an independent conditions endpoint.

Four records define the economic objects before estimation

Record	Minimum fields	Distinction to preserve
Pay	Band version, grade, offers, rate, hours, bonuses, benefits, dates	Rule, offered wage, accepted wage, and total earnings
Opportunity and information	Applications, offers, rejected offers, beliefs, delivered content, constraints	Actual offer, statistical benchmark, and perceived option
Employment	Baseline roster, entrants, quits, dismissals, transfers, returns	Voluntary exit, other separation, and missing linkage
Voice	Eligibility, awareness, attempts, recording, acknowledgment, remedy	Access, use, organizational response, and conditions

Anonymous voice records may intentionally prevent person-level linkage. Keep entrant cohorts separate; an unobserved offer or destination is not a zero.

A higher hourly wage can coexist with lower weekly earnings

Original example	Before	After	Change
Hourly wage	20	21	+5%
Weekly hours	40	35	-12.5%
Weekly earnings	800	735	-8.125%

- Earnings combine price, hours, employment duration, and additional compensation.
- A posted range does not establish an accepted offer; a wage band is a policy rule.
- Welfare also depends on the value of hours, scheduling, benefits, and feasible alternatives.

Invented arithmetic. Percentage wage changes and percentage-point changes in quit probabilities use different denominators.

Job value depends on attributes and on which alternatives are feasible

$$u_{ij} = w_{ij} + a_{ij} - c_{ij}, \quad j_i^* \in \arg \max_{j \in \mathcal{J}_i} u_{ij}.$$

- i : worker; j : job; w_{ij} : compensation in comparable utility-equivalent units.
- a_{ij} : worker-specific amenity value; c_{ij} : travel, schedule conflict, or switching cost.
- $\mathcal{J}_i$: feasible choice set, not every posted job in the economy.
- A lower-wage job can be preferred, or selected because a better job is inaccessible or unknown.

Original static organizer. Raw amenity indices and wages do not automatically share units. Dynamic job value also includes future paths and uncertainty; observed wage–amenity correlations do not identify a compensating-differential schedule.

Mas–Pallais identifies trade-offs within a specified recruiting choice

- **Setting:** applicants in call-center recruitment choosing between work arrangements.
- **Variation:** randomized wage differences across explicitly described job bundles.
- **Target:** the distribution of willingness to pay for those alternatives, accounting for inattentive responses.
- **Limitation:** applicant choices at the offered wage support do not recover every incumbent's valuation or the cost of supplying an amenity.

Read the treatment as a bundle

Employer scheduling discretion changes which work times can be required. It is not a pure intervention on predictability alone.

Mas and Pallais (2017), Valuing Alternative Work Arrangements, AER 107(12):3722–3759. Required reading.

Valuation evidence must retain its population and choice environment

	Mas–Pallais	Maestas and coauthors
Setting	Recruitment for call-center jobs	Broader working-conditions survey population
Variation	Wage differences across recruiting alternatives	Stated job choices with specified attributes
Target	Heterogeneous applicant valuations of arrangements	Heterogeneous values of working conditions
Boundary	Preserve attention model, bundle, and wage support	Descriptions and responses need not equal realized transitions

A valuation distribution informs a defined comparison. It does not by itself identify equilibrium provision, employer costs, or welfare under a large rollout.

Mas–Pallais (2017); Maestas, Mullen, Powell, von Wachter, and Wenger (2023). Do not replace heterogeneous willingness to pay with a common preference.

Mean willingness to pay is not every worker's willingness to pay

$$\text{WTP} = (0, 0, 0, 8) : \quad \text{mean} = 2, \quad \text{median} = 0, \quad \Pr(\text{WTP} > 1) = \frac{1}{4}.$$

- Only one of four workers chooses the amenity at a wage sacrifice of 1.
- For the same worker with $u = \alpha \log w + \gamma a$, $\alpha > 0$ and $w > 0$, indifference for a one-unit amenity gain gives

$$\frac{w_{a=1}}{w_{a=0}} = e^{-\gamma/\alpha}, \quad \Delta \log w = -\gamma/\alpha, \quad \frac{\Delta w}{w_{a=0}} = e^{-\gamma/\alpha} - 1.$$

Original examples. The log change is exact; the proportional change is approximately $-\gamma/\alpha$ only for small γ/α . Hold all other attributes fixed. Selection into the amenity job changes composition.

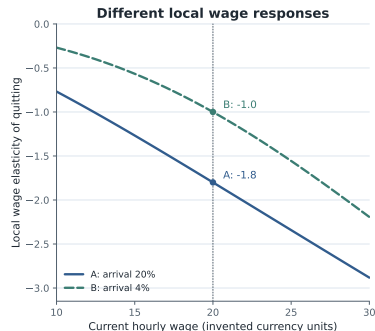
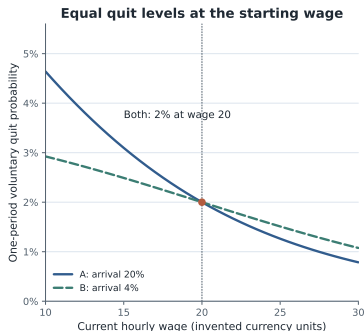
Low quits can reflect valuable jobs, rare offers, or perceived alternatives

$$q_i = \lambda_i [1 - F_i(u_i)].$$

- q_i : one-period voluntary-quit probability; λ_i : probability of an outside offer.
- F_i : distribution of relevant outside job values; u_i : current job value.
- Accept an offer only when its value exceeds u_i ; incorporate switching costs consistently.
- A raise can change acceptability at fixed offer arrival. Search assistance can change both.

Simplified offer-arrival $\times$ acceptance-tail organizer; Manning (2003, 2021). It excludes layoffs and other exits. Beliefs about the relevant offer distribution can differ from actual opportunities.

Equal quit rates need not imply equal wage responsiveness



Offer arrival and logistic distributions stay fixed; scale = 10. At wage 20: $F(A) = 0.90$, $F(B) = 0.50$.

Quit elasticities are not employer labor-supply elasticities.

Original synthetic teaching example • no published estimates

Original synthetic teaching example. At wage 20: $(\lambda, F) = (.20, .90)$ and $(.04, .50)$ both give $q = .02$. Logistic scale 10, fixed amenities and arrival imply local quit elasticities $-wF/10$: -1.8 versus -1.0 . These are not employer labor-supply elasticities.

A benchmark wage, a feasible offer, and a belief answer different questions

Object	Required record	Main measurement risk
Comparable-worker benchmark	Sample, conditioning variables, geography, construction date	Similar pay does not imply an available vacancy
Actual offer	Eligibility, wage, hours, destination, date, accepted or rejected	Observing accepted offers selects successful choices
Belief	Exact scenario, horizon, wording, date, uncertainty	Forced-move wage differs from expected best offer
Behavior	Applications, interviews, bids, moves, later earnings	An intention is an intermediate endpoint

Predate beliefs relative to the choices they explain. Independent validation improves measurement; predictive fit alone does not establish feasibility.

Jäger and coauthors randomize information about outside pay

- **Setting:** German workers reporting beliefs about pay outside their current employer.
- **Variation:** benchmark comparisons and randomized provision of wage information are distinct parts of the study.
- **Targets:** belief updating and job-search or negotiation intentions following information.
- **Limitation:** a benchmark is not a guaranteed offer; intention effects are not evidence of completed moves or realized wage gains.

Jäger, Roth, Roussille, and Schoefer (2024), Worker Beliefs About Outside Options, QJE 139(3):1505–1556. Required reading.

Separate descriptive beliefs, experimental responses, and equilibrium claims

Evidence layer	What is learned	What requires more
Belief versus benchmark	How perceptions compare with the defined empirical reference	Benchmark accuracy and worker-specific feasibility
Randomized information	Effects of assigned content on measured beliefs and intentions	Receipt, comprehension, and behavioral follow-up
Equilibrium model	Implications under stated search and wage-setting structure	Model restrictions and employer responses

A useful follow-up design

Track applications, actual offers, moves, wages, and job attributes separately. An information intervention can leave constraints on acting unchanged.

Jäger et al. (2024). Do not upgrade the model's equilibrium implications into separately randomized outcome effects.

Outside-option indices and employer-value rankings are constructed objects

	Caldwell–Danieli	Sorkin
Setting	Administrative labor-market data and a matching model	Linked worker flows among employers
Variation	Skills, preferences, geographic costs, and modeled opportunities	Movement patterns interpreted within a revealed-preference framework
Target	An index of outside options under the model	A ranking of employer values
Limitation	Sufficiency is model-dependent; the index is not an offer register	Value rank is not mean-pay rank; not every move improves every worker's welfare

Caldwell–Danieli (2024); Sorkin (2018). State the construction and the maintained restrictions before using either object as an explanatory variable.

Biased beliefs and quitting can be studied without a debiasing experiment

- **Setting:** Hoffman–Burks, truckers' repeated productivity beliefs, productivity, and turnover.
- **Variation:** observed beliefs and outcomes inform a structural learning and quitting model.
- **Targets:** belief–quit relationships and model-based counterfactuals for worker welfare and firm profit.
- **Limitation:** corrected-belief counterfactuals are structural simulations, not directly measured effects of randomized debiasing.

Hoffman and Burks (2020), Worker Overconfidence, Quantitative Economics. Distinct from their training-contract paper. Keep the empirical relationship, estimated model, and simulated policy separate.

A wage markdown formula requires a specific posted-wage model

$$\max_w (p - w)L(w), \quad \varepsilon_L = \frac{d \log L}{d \log w}, \quad \frac{w}{p} = \frac{\varepsilon_L}{1 + \varepsilon_L}.$$

- p : constant marginal revenue product; $L(w)$: differentiable firm labor supply.
- Necessary interior first-order condition with $p, w, L, \varepsilon_L > 0$; common posted wage, fixed amenities and outside environment.
- Exclude additional recruiting, training, adjustment, and wage-discrimination margins.
- Invented $p = 30$: $\varepsilon_L = 2$ gives $w = 20$; $\varepsilon_L = 5$ gives $w = 25$.

Manning (2003, 2021). Average wages, low quits, or persistent headcount do not identify these primitives. The same wage can reflect a different productivity level or wage rule.

Separation sensitivity alone does not give the labor-stock elasticity

$$N_{t+1} = [1 - s(w)]N_t + H(w), \quad N^*(w) = \frac{H(w)}{s(w)}, \quad \varepsilon_N = \varepsilon_H - \varepsilon_s.$$

- N : employment stock; $H > 0$: hires per period; $0 < s \leq 1$: total separation rate.
- Require a stationary fixed environment, differentiable flows, and stable composition.
- If $\varepsilon_s = -1$, hiring elasticities .5 and 2 imply stock elasticities 1.5 and 3.
- Recruitment, quits, involuntary separations, and time horizon must be measured or restricted.

Original stock-flow example. Negating or doubling a quit elasticity silently imposes extra restrictions; neither follows from observing a quit regression.

Wage-response evidence retains its assignment and time horizon

	Bassier–Dube–Naidu	Dube–Jacobs–Naidu–Suri
Setting	Administrative worker moves and firm wage policies	Online-task labor market
Variation	Mover histories and wage-policy comparisons	Experimental compensation variation
Target	Wage-sensitive separation and model-linked employer supply	Labor-supply responses in the task environment
Limitation	Moves are not all random; recruitment and separation restrictions matter	Task horizon and switching costs differ from long employment relationships

Bassier et al. (2022); Dube et al. (2020). Card, Cardoso, Heining, and Kline (2018) connect employer heterogeneity and rent sharing to workplace preferences; firm effects are not pure rents by definition.

Pay architecture determines the unit at which a wage policy operates

	Baker–Gibbs–Holmström	Hazell and coauthors
Setting	Longitudinal personnel and wage records within a firm	Wage policies coordinated across organizational units
Variation	Grades, entry cohorts, individual pay paths	Cross-unit wage-setting patterns
Target	Internal wage-policy structure	Organizational scope of wage coordination
Limitation	Personnel patterns do not randomize outside options	Do not assume each establishment independently prices local labor

The Wage Policy of a Firm (1994), distinct from the companion internal-organization paper. National Wage Setting: Hazell, Patterson, Sarsons, and Taska, CEPR DP19224, July 8, 2024 working-paper version.

Own-wage and peer-wage discontinuities identify different comparisons

- **Setting:** Dube–Giuliano–Leonard, a retailer's pay rules and worker quit behavior.
- **Variation:** distinct discontinuities in own and peer wages created by the rules.
- **Target:** responses to absolute pay and to relative pay within the relevant reference group.
- **Limitation:** an isolated raise changes relative position; a common raise changes peers' wages too.

Define the exposure before estimating it

Record the pretreatment peer group, what workers know, co-changing benefits, threshold precision, and manipulation risks.

Dube, Giuliano, and Leonard (2019), Fairness and Frictions, AER. A leave-out peer mean removes self-inclusion, not endogenous reference-group formation.

An isolated raise need not predict the response to a uniform raise

$$q - q_0 = -b \log(w/w_0) - c \{ \log(w/w_0) - \log(w^{\text{peer}}/w_0^{\text{peer}}) \}.$$

Invented intervention, $b = .02, c = .08$	Δq	Percentage points
Own pay +10%, peer pay fixed	$-.10 \log(1.1) \approx -.00953$	-0.953
Own and peer pay both +10%	$-.02 \log(1.1) \approx -.00191$	-0.191

- $q_0, w_0, w_0^{\text{peer}}$ are baseline quit probability and wages.
- Outside wages and other conditions are held fixed; common raises cancel the relative-pay term.

Original local probability approximation, valid only within feasible probability bounds. These are changes in probabilities, not percent changes in quits or estimates from the retailer.

The visibility of productivity differences can change pay comparisons

- **Setting:** Breza–Kaur–Shamdasani, experimental workplace pay inequality.
- **Variation:** pay inequality and whether productivity differences are visible.
- **Target:** morale and behavior when workers can or cannot assess the justification for unequal pay.
- **Limitation:** unequal levels, perceived fairness, and information are distinct; one comparison does not establish a universal effect of compression.

Breza, Kaur, and Shamdasani (2018), The Morale Effects of Pay Inequality, QJE. For a new design, measure the reference group, beliefs about process, and actual compensation separately.

Transparency treatments differ in whose wages become visible

Information channel	Concrete treatment	Possible response to distinguish
Horizontal	Peers' current salaries	Rank, fairness, or bargaining comparisons
Vertical	Managers' pay or career rewards	Expected advancement returns and current dissatisfaction
Cross-employer	Pay elsewhere or a wage benchmark	Beliefs, search, asks, and feasible offers
Rules about disclosure	Salary-discussion protections or posting rules	Employer wage-setting and negotiation responses

Record recipient, content, delivery, comprehension, baseline knowledge, and the employer's ability to respond.

Cullen (2024), Is Pay Transparency Good? A payroll website, manager-pay disclosure, outside benchmark, and posting mandate are different interventions.

Salary-information experiments isolate information, not a pay raise

	Cullen–Perez-Truglia	Card–Mas–Moretti–Saez
Setting	Salary comparisons within an organization	Employees with access to a salary website
Variation	Randomized horizontal and vertical salary information	Randomized notification about the website
Targets	Responses to peer and manager salary comparisons	Satisfaction and search intentions
Limitation	Recipient and reference target define the treatment	Information is not a randomized raise or a completed job change

Cullen–Perez-Truglia (2022); Card et al. (2012). Distinguish delivery, belief updating, effort, applications, offers, and realized exits with separate dates and denominators.

Employers can change bargaining behavior when pay discussions spread

- **Setting:** Cullen–Pakzad-Hurson, historical U.S. state laws protecting salary discussions.
- **Variation:** a state-law event study, interpreted alongside a bargaining model.
- **Target:** wage-setting responses when an individual concession can trigger further negotiations.
- **Limitation:** law timing and comparison trends require justification; this is not a randomized salary-posting mandate.

Equilibrium incidence

Information can affect workers' demands and employers' willingness to concede. The model's mechanism is not a universal policy verdict.

Cullen and Pakzad-Hurson (2023), Equilibrium Effects of Pay Transparency, Econometrica. Keep historical institutional evidence and model implications separate.

An asking salary, an employer bid, and agreed pay are separate endpoints

- **Setting:** Roussille, an online recruitment platform with asking salaries and employer bids.
- **Variation:** observed negotiation stages and evidence around a change in salary guidance.
- **Target:** the role of asks in gender pay differences and subsequent bargaining outcomes.
- **Limitation:** bids and accepted jobs are selected; effects among recipients do not equal all-applicant effects.

Keep the recruiting funnel

Applicants → asks → bids → accepted offers → realized compensation. Report both stage probabilities and conditional amounts.

Roussille (2024), The Role of the Ask Gap in Gender Pay Inequality, QJE. A changed ask does not establish an equal change in final pay.

A smaller wage gap does not by itself establish that workers gained

Original compression example	Before	After	Change
Lower wage	30	30	0
Higher wage	50	40	-10
Gap	20	10	-10
Mean	40	35	-5

- Compression is a distributional statistic; identify which wages moved.
- Keep a baseline population so entry and exit do not silently redefine dispersion.
- Hours, job attributes, employer costs, and alternatives are still needed for incidence.

Invented arithmetic. A smaller pay gap alone is neither a welfare sign nor evidence of a particular bargaining mechanism.

Voice access, actual use, organizational response, and remedy form a process

eligibility → awareness → attempt → recording → response → remedy.

- Availability is an option; use is an action selected by grievances and expected benefits.
- Acknowledgment differs from resolution, and resolution counts differ from independent conditions.
- Production suggestions, anonymous grievances, surveys, and board authority give different powers to different recipients.
- Genuine anonymity may prevent person-level linkage; design legitimate aggregate measurement instead.

Hirschman (1970) organizes exit and voice as responses to an unsatisfactory relationship. It does not impose a causal sign between complaint volume and quitting.

An available remedy can have value even when no grievance occurs

$$U_i = 1\{\pi_i B_i - k_i - r_i > 0\},$$

$$\Omega_i = \Pr(\text{grievance}) \mathbb{E}[\max\{\pi_i B_i - k_i - r_i, 0\} \mid \text{grievance}].$$

- Conditional on a grievance, U_i denotes use; π_i : perceived remedy probability; B_i : remedy value.
- k_i : communication cost; r_i : expected retaliation or privacy cost, in comparable utility units.
- Ω_i is an ex ante option value. Access may matter even if the option is never exercised.
- More use can reflect worse conditions, lower reporting costs, or greater trust.

Original schematic option model. Observed use and retention do not separately identify remedy benefits, reporting costs, or reassurance.

Eliciting feedback can itself be the randomized intervention

- **Setting:** Adhvaryu–Molina–Nyshadham, worker reactions following a disappointing wage increase.
- **Variation:** an anonymous feedback survey randomized after the raise.
- **Targets:** subsequent retention and absence responses to the opportunity to give feedback.
- **Limitation:** the wage increase is contextual; it was not the randomized treatment in this experiment.

Measurement can change behavior

A survey that invites feedback need not be a passive measure of conditions. A measurement-only control assumption needs justification.

Adhvaryu, Molina, and Nyshadham (2022), Expectations, Wage Hikes and Worker Voice, Economic Journal. Distinct from the four-author Sotto Voce paper.

Sotto Voce randomizes access to anonymous communication with HR

- **Setting:** a workplace channel for anonymous mobile communication with human resources.
- **Variation:** randomized access to the communication technology.
- **Measured outcomes:** reported use, retention, and attendance. Use is low while employment outcomes respond.
- **Limitation:** access is assigned; actual use and successful resolution are not independently assigned.

Achyuta Adhvaryu, Smit Gade, Teresa Molina, and Anant Nyshadham (2026), Sotto Voce: The Impacts of Technology to Enhance Worker Voice, *Economic Journal* 136(674):798–812. February 2026 issue; required reading.

An access effect with low use supports a question about option value

- The Sotto Voce authors interpret low reported use alongside access effects as suggestive of option value.
- Comparing users and nonusers conditions on grievances, expected remedies, and willingness to report.
- Observed nonusers under access need not identify the same latent group as people without access.
- If reassurance or future recourse changes outcomes directly, access fails exclusion as an instrument for use.

What the access experiment identifies

The assignment effect of offering the channel. A pure use effect or a separately identified effect on nonusers requires additional structure or variation.

Adhvaryu–Gade–Molina–Nyshadham (2026). One-sided use and a strong first stage do not establish exclusion; the lab makes this distinction numerical.

Recorded complaints can rise while underlying incidents fall

Original reporting example	Before	After
Underlying incidents	100	80
Reporting probability	.10	.50
Recorded complaints	10	40

- Recorded volume combines conditions, reporting, receipt, and classification.
- Audit attempted contact, acknowledgment, response time, remedy, and independent conditions.
- Fewer complaints can mean fewer problems or less safe reporting; more complaints can mean greater trust.

Invented arithmetic, not an empirical finding about either voice study. Do not infer absent worker identities or link anonymous complaints by assuming a hidden identifier exists.

Production voice and board representation are different institutions

	Nelson–Wilmer	Jäger–Schoefer–Heining
Setting	Establishment production-voice survey linked to earnings and business records	German worker representation on company boards
Variation	Observational differences in voice practices	A specific institutional change
Target	Pay premiums and productivity/bargaining decomposition	Effects of board-level worker representation
Limitation	Mechanisms are not separately randomized primitives	Results do not generalize to every grievance or suggestion channel

Nelson–Wilmer (2026), ILR Review 79(1):36–58; Jäger–Schoefer–Heining (2021), Labor in the Boardroom. A positive, null, or imprecise result for one form of voice is not a universal verdict.

The incidence ledger covers four perspectives without counting leavers twice

Perspective	Outcomes to follow	Accounting rule
Firm	Output, quality, wage bill, vacancies, replacement resources	Wages are transfers in joint accounting; distinguish savings from new output
Initial workers	Earnings, hours, benefits, conditions, uncertainty	Follow everyone present before assignment, including movers
Workers who leave	Destination earnings, hours, conditions, response coverage	A post-treatment subset of initial workers; do not add again to their total
Entrants	Applications, offers, accepted terms, job value	A separate cohort whose composition can respond

Choose horizon, price units, and population first. Mark cells as observed, elicited, model-valued, or unavailable. The ledger is a proposal template, not a complete welfare formula.

Firm-level gains need not reach every worker in the same way

- **Setting:** Kline–Petkova–Williams–Zidar, linked patent, business, and worker tax records.
- **Variation:** patent-allowance comparisons used to study gains at innovative firms.
- **Target:** rent sharing and heterogeneous incidence across worker margins.
- **Limitation:** the allowance design needs its identifying restrictions; gains to observed incumbents are not all workers' gains.

Transfer the accounting question

Track firm resources and worker distributions together. Do not assume that a productivity gain, pay gain, and total welfare gain are the same object.

Kline, Petkova, Williams, and Zidar (2019), Who Profits from Patents? QJE. This is an incidence template, not a numerical calibration for a voice intervention.

Stayer mean wages can rise even when nobody receives a raise

Original composition example	Before	After low-paid workers leave
Observed wages	(10, 10, 20, 20)	(20, 20)
Mean	15	20
Origin-firm wage bill	60	40

- The higher mean comes entirely from composition; no worker's wage increased.
- Stays and exits are outcomes, not randomized subgroups of the baseline cohort.
- Origin-employer earnings can be zero after exit. Total earnings remain missing until destination earnings are observed.

Invented arithmetic. Report destination and survey coverage by assignment; an administrative disappearance may be a missing linkage rather than a quit.

A pure pay transfer changes incidence without creating new resources

Original accounting example	Before	After	Change
Output value	100	100	0
Wage bill	60	70	+10
Profit	40	30	-10
Wages plus profit	100	100	0

- Worker and employer incidence differ while the resource total is unchanged.
- Reduced wasteful replacement costs can create resources; a counteroffer can redistribute rent.
- Welfare weights, taxes, effort, amenities, and uncertainty require explicit treatment.

Invented accounting with other inputs fixed. Condition scores, satisfaction, wages, and profit cannot simply be added across incompatible units.

Methods: align timing, reference groups, and uncertainty with the intervention

Design question	Required implementation	Remaining risk
When did behavior become exposed?	Record announcement, eligibility, delivery, awareness, and effective dates	Anticipatory negotiations or quits
What changed at the threshold?	Audit manipulation, precision, and bundled benefits or duties	A rule is not automatically an RD
Who shares the policy?	Define peer and central-policy exposure before outcomes	Branches may share one treatment unit
What is the causal comparison?	Use justified assignment or cohort-time contrasts; design-aligned inference	Endogenous raises, trends, sorting, and spillovers

Cameron–Miller (2015). More worker rows do not create more independent policy units; standard errors do not repair confounding or an unsupported counterfactual.

Methods: retain the baseline cohort and audit the observation process

- Define the horizon and separate quits, dismissals, retirement, internal moves, returns, and missing records.
- Report fixed-horizon risks and relevant transitions; other exits are not automatically benign censoring.
- Show observation and response rates by assignment and baseline risk before comparing stayer outcomes.
- Weighting needs a missingness model. Lee bounds require monotone selection and their other restrictions.

A substantive selection question

Voice may keep some workers and encourage others to leave. A common-direction selection assumption can fail even when average retention rises.

Lee (2009). Follow leavers where feasible, keep follow-up response visible, and never replace missing destination earnings with zero.

Research proposals should distinguish two explanations of retention

Proposed intervention	Competing explanations	Discriminating records
Pay-band discretion reform	Own-pay gains versus peer comparisons	Offers, exceptions, peer information, destinations
Information plus search assistance	Incorrect beliefs versus constraints on acting	Separate assignments, beliefs, applications, feasible offers
Credible response procedures	Reassurance versus realized remedy	Acknowledgment, response time, independent conditions
HR triage change	Better detection versus easier case selection	Blind audits, false negatives, case mix, actual remedies

Proposed designs, not claims of available data or empty literatures. Preserve safety protections; measure origin-firm savings and baseline-worker outcomes rather than treating retention as the final welfare endpoint.

Research Lab: a paired access lottery with complete baseline follow-up

20 invented workers, 10 disjoint pairs, $2^{10} = 1,024$ equally likely assignments.

- Assign one access recipient within each pair; draw assignments after fixing potential outcomes.
- Two pairs contain possible users; the other eight pairs contain never-users.
- Observe the fixed-follow-up condition score for every initial worker, including leavers.
- Retention is a separate binary endpoint. No interference and complete follow-up hold by construction.

Original synthetic design reconstruction motivated by Sotto Voce. These are not the paper's sample, assignment protocol, parameters, or estimates. There are ten independent pairs, not 1,024 independent units.

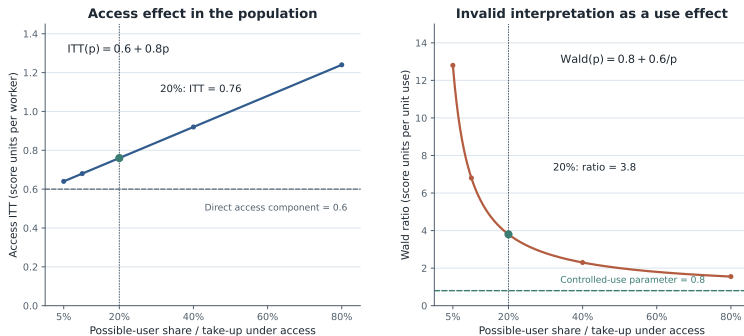
The toy access effect is identified; its use-IV interpretation fails exclusion

$$U_i(z) = zG_i, \quad Y_i(z, u) = B_i + .6z + .8u, \quad \bar{G} = .20.$$
$$\tau_{\text{access}} = .6 + .20(.8) = .76, \quad \Delta U = .20, \quad \frac{\tau_{\text{access}}}{\Delta U} = 3.8 \neq .8.$$

- z : assigned access; G_i : latent possible-user type; B_i : untreated score; u : use.
- The .6 direct access effect remains for never-users. One-sided use does not establish exclusion.
- Possible users have worse baseline conditions, so users versus nonusers is also selected.

Original synthetic teaching parameters. The controlled use effect .8 is instructor truth, not identified by the access lottery. Retention truth is separately .15; neither score units nor retention are monetized welfare.

Lower take-up magnifies the invalid-use Wald interpretation



Direct access violates exclusion. Separate vertical scales; the controlled-use parameter is not identified by assignment.

Original synthetic teaching example • population targets, not estimated mediation

Original synthetic teaching sensitivity curve. For possible-user share $g > 0$, access ITT is $.6 + .8g$ and the invalid Wald target is $.8 + .6/g$. At $g = .20$: .76 versus 3.8. Different panels use separate scales; this is not estimated mediation or a weak-instrument diagnosis.

Pair contrasts estimate access effects with design-aligned uncertainty

$$d_p = Y_{p,\text{treated}} - Y_{p,\text{control}}, \quad \hat{\tau} = \frac{1}{10} \sum_{p=1}^{10} d_p,$$

$$\hat{V}(\hat{\tau}) = \frac{s_d^2}{10}, \quad s_d^2 = \frac{1}{9} \sum_{p=1}^{10} (d_p - \hat{\tau})^2.$$

- Apply the estimator separately to the condition score and binary retention endpoint.
- The usual independent-pair variance estimate is conservative in expectation when pair-average effects vary.
- This is not a guarantee that each realized standard error exceeds oracle uncertainty, nor an exact confidence interval.

Original paired design. A stayer-only score is exported separately and is blank for leavers; it is not the complete-follow-up primary score. Do not require statistical significance for the lab to pass.

Sharp-null inference and the instructor truth audit perform different operations

Calculation	What is held fixed or recomputed?	Warranted statement
Fisher sharp-null test	Hold observed endpoint fixed; enumerate the 1,024 legal paired assignments	Test no access effect on any worker's endpoint
Instructor oracle audit	Recompute outcomes from both potential-outcome schedules for every assignment	Average estimates equal toy score truth .76 and retention truth .15
Pair variance estimate	Use only observed pair contrasts	Design-based estimated uncertainty, distinct from known oracle variance

Two-sided exact p-values include ties: count $|\hat{\tau}^a| \geq |\hat{\tau}^{obs}|$ over legal assignments.

The sharp null is not merely zero average effect, zero use effect, or zero option value allowing arbitrary use effects. Oracle variance is available only because the full DGP is invented.

Reproduce offline; treat public resources as documented entry points

Route	What it provides	Access boundary
Guaranteed synthetic lab	Observed workers, paired ITTs, null enumeration, original diagnostics	Separate instructor truth; no network or private data
Mas–Pallais listing	Official openICPSR version 1 replication entry	Verify files, license, dependencies, and target
Caldwell–Danieli archive	Software and data-access instructions	Not unrestricted German microdata
IAB LPP and Census LEHD	Linked-data access documentation and public flow products	Different restrictions and aggregation; no complete offer or grievance ledger

Original archive listings were checked; original microdata and code were not downloaded or executed. Workflow checks: all 65 starter assertions, identical fresh reruns, seed 88771, Python compilation, and overwrite refusal.

Diagnose the economic object before interpreting a favorable outcome

Original diagnostic	Known arithmetic	Question for discussion
Wage versus earnings	+5% versus -8.125%	Which hours and amenities changed?
Equal initial quits	.02 in both environments	What identifies arrival and acceptance?
Own versus common raise	-.953 versus -.191 pp	Which reference wages changed?
Access versus use	.76/.20 = 3.8 $\neq$.8	Which exclusion restriction fails?
Complaints versus conditions	Incidents 100 $\rightarrow$ 80; records 10 $\rightarrow$ 40	Is reporting safer or more complete?
Stayer wage composition	Mean 15 $\rightarrow$ 20, no raises	Where did the leavers go?

Exercise: choose one diagnostic, state two compatible mechanisms, and request the smallest additional record that separates them. Use the lab's original arithmetic; do not label these as replicated empirical effects.

Three required papers organize valuation, information, and voice access

Required reading	Prepare for discussion
Mas–Pallais (2017), Valuing Alternative Work Arrangements	Draw the job bundles, wage support, applicant population, and attention problem
Jäger–Roth–Roussille–Schoefer (2024), Worker Beliefs About Outside Options	Separate benchmarks, beliefs, randomized content, intentions, and model implications
Adhvaryu–Gade–Molina–Nyshadham (2026), Sotto Voce	Draw access → awareness → use → response; identify the nonrandom margins

Rotate presentations on own/peer pay, transparency and bargaining, voice institutions, or the incidence of firm gains.

Week 8's reading list contains 28 scholarly entries plus four official resources. It is a research ladder, not 28 compulsory articles. National Wage Setting remains the dated 2024 CEPR working-paper version.

Transfer: explain retention and account for firm and worker outcomes

Two-page design plus the four-party incidence ledger

Specify the intervention, counterfactual, timing, baseline population, actual assignment unit, two mechanisms, and one independent conditions or welfare endpoint.

- Follow the firm, all initial workers, entrants, and destinations of leavers without double counting.
- Mark information content, feasible opportunities, spillover boundaries, anonymity, and missing cells.
- State one claim the design cannot establish: a supply elasticity, pure use effect, or complete welfare gain.
- For Week 9, apply the same outcome and incidence discipline to organizational change and work redesign.

Takeaway: job value, the ability to leave, and the ability to improve a job are distinct. A retention improvement alone does not establish which changed or justify a broader rollout.