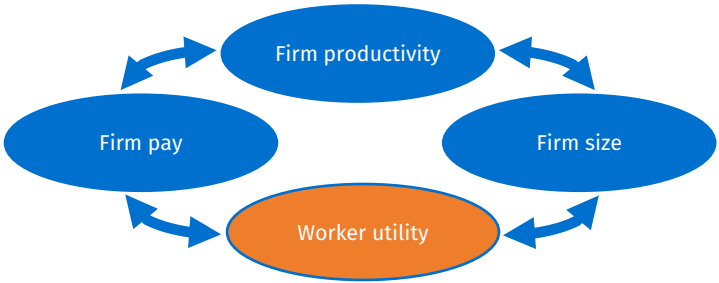
The Gender Pay Gap:
Micro Sources and Macro Consequences

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Christian Moser (Columbia University, NBER, CEPR, and IZA)

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Job Ladders in Firm Pay, Productivity, and Size

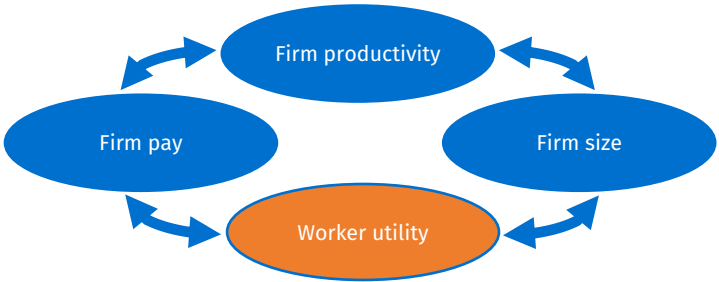
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- This results in equilibrium dispersion in worker values along a job ladder (Burdett & Mortensen '98; Bontemps et al. '99, '00; Haltiwanger et al. '18; Moscarini & Postel-Vinay '18; Bagger & Lentz '19; Engbom & Moser '22; Fukui & Mukoyama '25)
- Implication: Higher-paying / more productive / larger firms are more desirable

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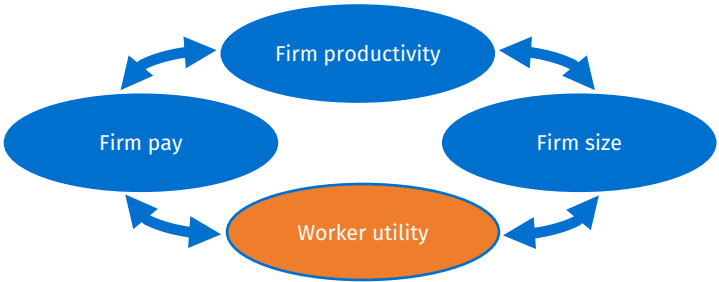
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This Paper: Can Firm Amenities Explain the Gender Pay Gap?

- Empirical literature documents that women work at lower-paying firms
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- Through lens of standard job ladder model, this reflects output and welfare losses
- However, nonpay job attributes are also important, especially for women
  (Goldin '14, '23; Juhn & McCue '17; Hall & Mueller '18; Wiswall & Zafar '17; Mas & Pallais '17, '19; Maestas et al. '23; Sockin '24; Caldwell et al. '25; Humlum et al. '25; Kline '25a,b; Mas '25)

Open question: Can firm amenities explain the gender pay gap?

Our approach: Combine linked employer-employee data + equilibrium search model

1. Study micro sources of gender firm pay gap, accounting for firm amenities
2. Quantify macro consequences for output, welfare, and labor market policies

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What We Do & Find

1. Link gender pay gap to firm heterogeneity in Brazil
   - 12% gender pay gap (i.e., 80% of raw wage gap) due to gendered sorting across firms
2. Develop equ'm search model of firm pay, amenities, hiring
   - Microfoundation for popular two-way FE regression by AKM ('99) and Card et al. ('16)
3. Point identification of all model parameters
   - Recover entire joint distribution of gender-specific pay and amenities
4. Equilibrium counterfactuals
   - Compensating differentials explain 48% of gender pay gap
   - Output +5%, welfare +1.5% by moving to gender-neutral world
   - Equal-pay and equal-hiring policies ineffective in equilibrium

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Data

Linked Employer-Employee Data from Brazil (RAIS)

- Universe of formal sector workers and employers
- Two advantages:
  1. Large economy with large gender gaps in pay, participation
  2. Rich data on worker demographics and firm nonpay characteristics
- Sample selection:
  - Years 2007–2014
  - Ages 18–54
  - Earning $\geq$ federal minimum wage
  - Establishments with $\geq$ 10 employees
  - Strongly leave-one-out connected set

This yields:

- Around 267 million worker-years, 60% men + 40% women
- Raw gender wage gap of 13.3 log points (14%)

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Empirical Gender Gaps in Firm Pay and Amenities

Measuring Gender-Specific Employer Pay

Following Card et al. ('16) based on AKM ('99), pay for worker i at firm j in year t is

$$\ln w_{ijt} = \alpha_i + \psi_{G(i)j} + X_{it}\beta_{G(i)} + \varepsilon_{ijt},$$

where:

- $\ln w_{ijt}$ is log wage
- α_i is a worker FE
- $\psi_{G(i)j}$ is a gender-specific employer FE for $G(i) \in \{M, F\}$
- X_{it} includes dummies for edu×age, edu×year, hours, occupation, tenure, actual experience with gender-specific returns $\beta_{G(i)}$
- ε_{ijt} is an error term satisfying the usual conditions

▶ edu×age FEs ▶ edu×year FEs ▶ hours FEs ▶ occupation FEs ▶ tenure FEs ▶ actual-experience FEs

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3 Facts about Gender Pay Gaps and Employer Heterogeneity

Fact 1: Women work at lower-paying employers

Fact 2: Women receive a lower employer size-pay premium

Fact 3: Women's employers have better nonpay attributes

$\Longrightarrow$ Next: Interpret these facts through an equilibrium model

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Equilibrium Model

Workers

- Measure μ_{gz} of workers of type:
  - Gender $g \in \{M, F\}$
  - Ability $z > 0$
- Workers search for jobs in markets segmented by worker type (g, z):
  - Job offer from nonemployment at rate λ^U_{gz}
  - Voluntary job offer from employment at rate $\lambda^E_{gz} = s_g{}^E \lambda^U_{gz}$
  - Involuntary job transition at rate $\lambda^G_{gz} = s_g{}^G \lambda^U_{gz}$
  - Exogenous job destruction at rate δ_g
- Job offer is a wage $w_{gz}(j)$ and amenity $a_{gz}(j)$ at firm j drawn from $F_{gz}(j)$
- Flow utility $x_{gz}(j)$ is $w_{gz}(j) + \beta_g(j) a_{gz}(j)$ while employed at j, $b_g z$ while nonemployed

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Firms

- Unit mass of firms of type:
  - Productivity p
  - Gender-specific amenity cost shifters $\{c_g{}^{a,0}\}_g$
  - Firm-specific amenity valuations $(\beta_g)_g$
  - Gender wedges $\{\tau_g\}_g$
- Post wage w_{gz}, amenities a_{gz}, vacancies v_{gz} in each market s.t.:

$$c^a_{gz}(a) = c_g{}^{a,0}\frac{(a/z)^{\eta^a}}{\eta^a}z, \quad c^v_{gz}(v) = c_g{}^{v,0}\frac{v^{\eta^v}}{\eta^v}z$$

- Firm with productivity p employing $\{l_{gz}\}_{gz}$ workers produces:

$$y(p, \{l_{gz}\}_{gz}) = p\sum_g \int_z z l_{gz}\, dz$$

- Gender wedge is implicit tax $\tau_g = \tau \mathbf{1}[g = F]$ on female workers

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Matching

- **Key:** Job creation and worker-job matching determined in general equilibrium
- Effective job searchers and total vacancies in each market:

$$U_{gz} = \mu_{gz}\left[u_{gz} + {s_g}^E(1-u_{gz}) + {s_g}^G\right]$$

$$V_{gz} = \int_j v_{gz}(j)\ d\Gamma(j)$$

- Cobb-Douglas matching function with CRS produces matches

$$m_{gz} = \chi_g V_{gz}^{\alpha} U_{gz}^{1-\alpha}$$

- Given market tightness $\theta_{gz} = V_{gz}/U_{gz}$, workers' job-finding rates are

$$\lambda_{gz}^U = \chi_g \theta_{gz}^{\alpha},$$
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- In equilibrium, firms are ranked by composite productivity

$$\tilde{p}_{gz} \equiv (1-\tau_g)pz + \beta_g a^*_{gz}(\cdot) - c^a_{gz}(a^*_{gz}(\cdot))$$

- Given $\tilde{p}_{gz}$, we can rewrite the firms' problem as

$$\rho\Pi_{gz}(\tilde{p}_{gz}) = \max_{x,v} \left\{ [\tilde{p}_{gz} - x]\, l_{gz}(x,v) - c^v_{gz}(v) \right\},$$

- Optimal utilities $x^*_{gz}(\tilde{p}_{gz})$ and vacancies $v^*_{gz}(\tilde{p}_{gz})$ are strictly increasing in $\tilde{p}_{gz}$

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Useful Result 2: Preference-Adjusted Amenity Cost Shifter

- Given a firm's preference-adjusted amenity cost shifter

$$\tilde{c}_g{}^{a,0} \equiv c_g{}^{a,0}/\beta_g,$$

its optimal amenity production is

$$a^*_{gz}(\tilde{c}_g{}^{a,0}) = (\tilde{c}_g{}^{a,0})^{\frac{1}{1-\eta^a}} z$$

- Intuition: Productive efficiency
- Thus, we can treat composite productivity as an exogenous firm characteristic:

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- **Note:** Identify only amenity valuation $\beta_g a$ and pref.-adj. amenity cost shifter $\tilde{c}_g{}^{a,0}$

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Useful Result 3: Equilibrium Equation for Gender-Specific Firm Pay

Proposition (Gender-Specific Firm Pay)

The equilibrium wage of a worker of gender g and ability z at a firm with composite productivity $\tilde{p}_g$, amenity cost shifter $c_g^{a,0}$, and worker preference β_g is

$$\ln w_{gz}\left(\tilde{p}_g, c_g^{a,0}\right) = \underbrace{\alpha_z}_{\text{"worker wage FE"}} + \underbrace{\psi_g^w\left(\tilde{p}_g, c_g^{a,0}\right)}_{\text{"gender-firm wage FE"}},$$

where

$$\alpha_z = \ln z,$$

$$\psi_g^w\left(\tilde{p}_g, c_g^{a,0}\right) = \ln\left(\tilde{p}_g - \beta_g a_g^*\left(c_g^{a,0}\right) - \int_{\tilde{p}' \geq \phi_g}^{\tilde{p}_g}\left[\frac{1+\kappa_g^E\left[1-F_g\left(x_g^*\left(\tilde{p}_g\right)\right)\right]}{1+\kappa_g^E\left[1-F_g\left(x_g^*\left(\tilde{p}'\right)\right)\right]}\right]^2 d\tilde{p}'\right).$$

- **Intuition:** Parallel labor supply curves.

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Notable Equilibrium Properties

Property 1: Search frictions $\Longrightarrow$ utility dispersion within, b/w genders

Property 2: Wage differences $\neq$ utility differences

Property 3: Job-to-job transitions with wage declines for 2 reasons

Property 4: Three margins of gender "discrimination": w, a, v

Property 5: Separate firm ladders by gender

Property 6: Even "nondiscriminatory" firms treat women differently

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Identification

Identification Result

- Model features rich heterogeneity:
  - Fundamentals $(\rho, \{\chi_g\}_g, \alpha)$ $\longrightarrow$ 4 parameters
  - Labor market objects $(\delta_g, s_g^E, s_g^G, b_g)$ $\longrightarrow$ 8 parameters
  - Firm types $(p, \{c_g^{a,0}\}_g, \{\beta_g\}_g, \tau)$ $\longrightarrow$ $\approx 6 \times 115,000$ parameters
  - Cost function elasticities (η^v, η^q) $\longrightarrow$ 2 parameters
- All parameters interact in shaping equilibrium outcomes

Proposition (Point Identification)

All model parameters are point-identified based on linked employer-employee data.

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Identification Proof in 5 Steps

Exogenous parameters

Step 1: Gender-specific firm pay

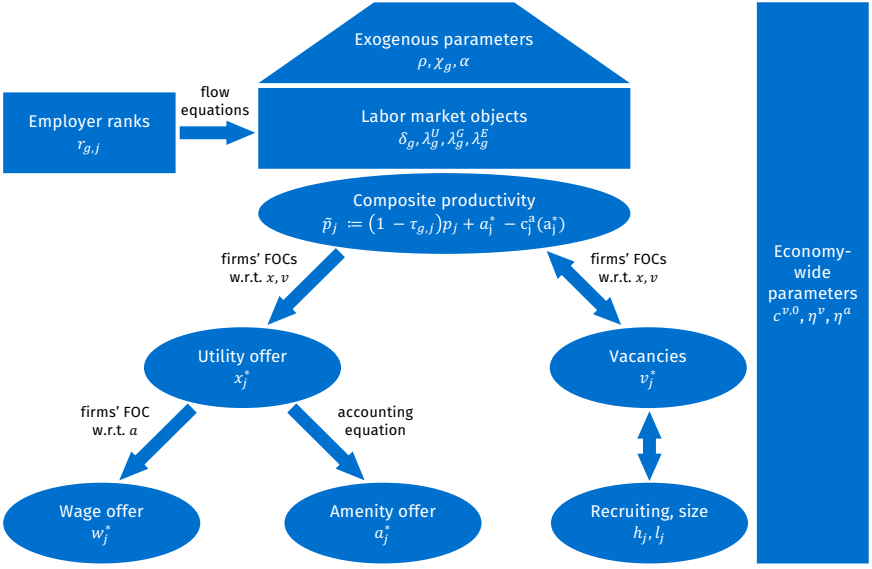
Step 2: Employer ranks

Step 3: Labor market objects

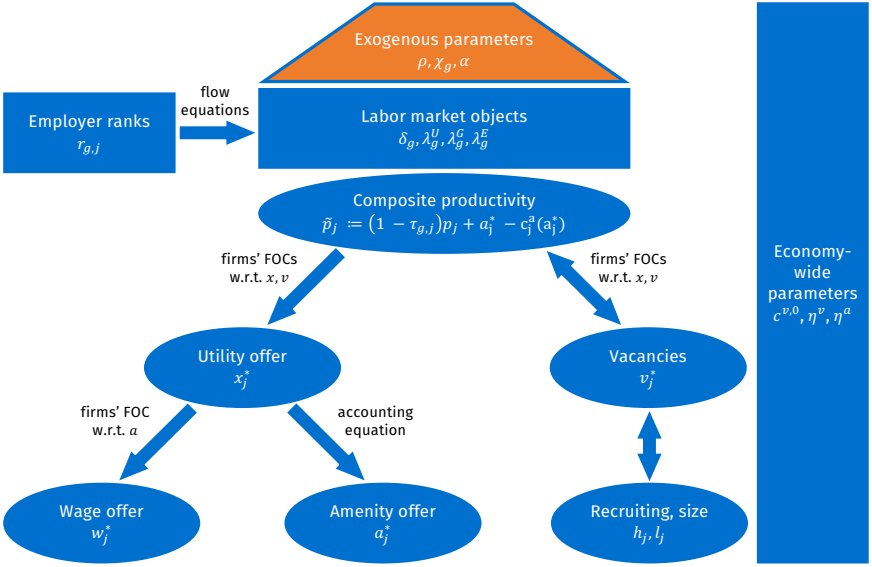
Step 4: Firm types

Step 5: Economy-wide parameters

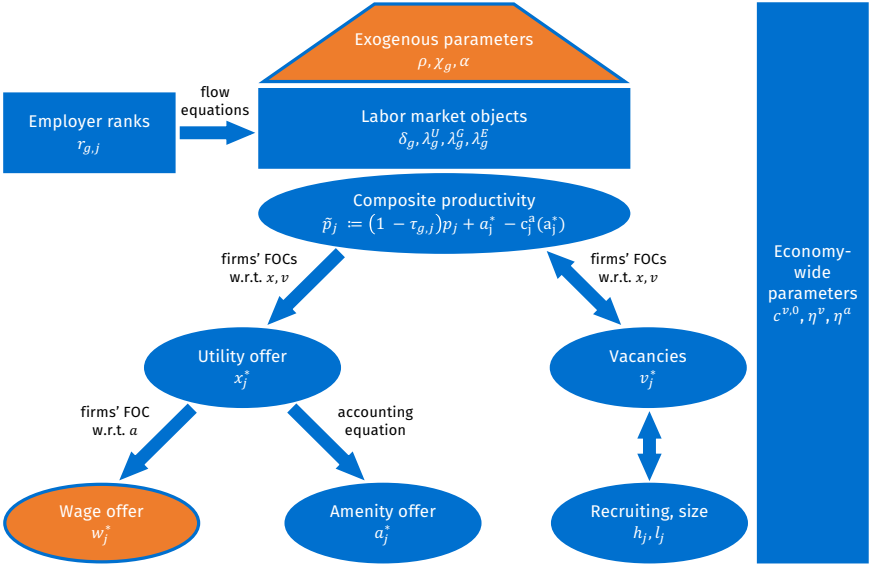
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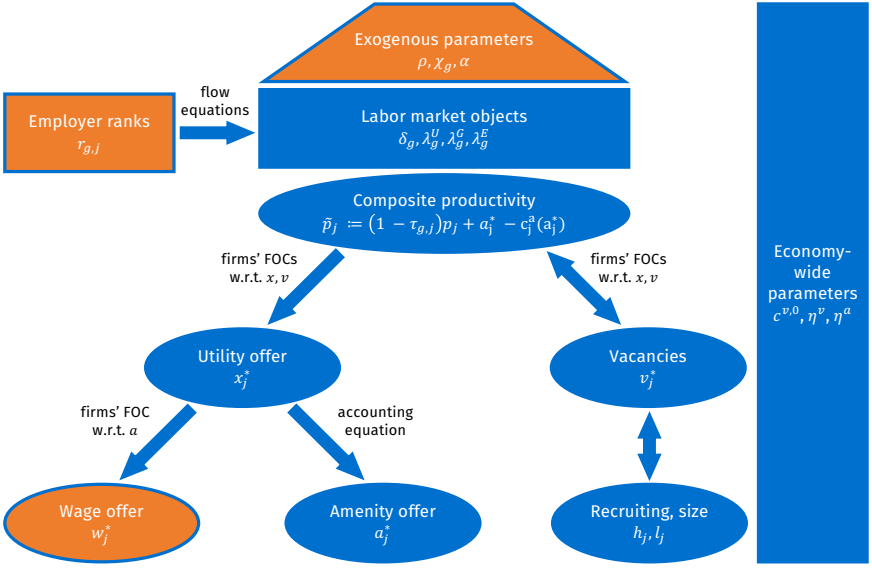
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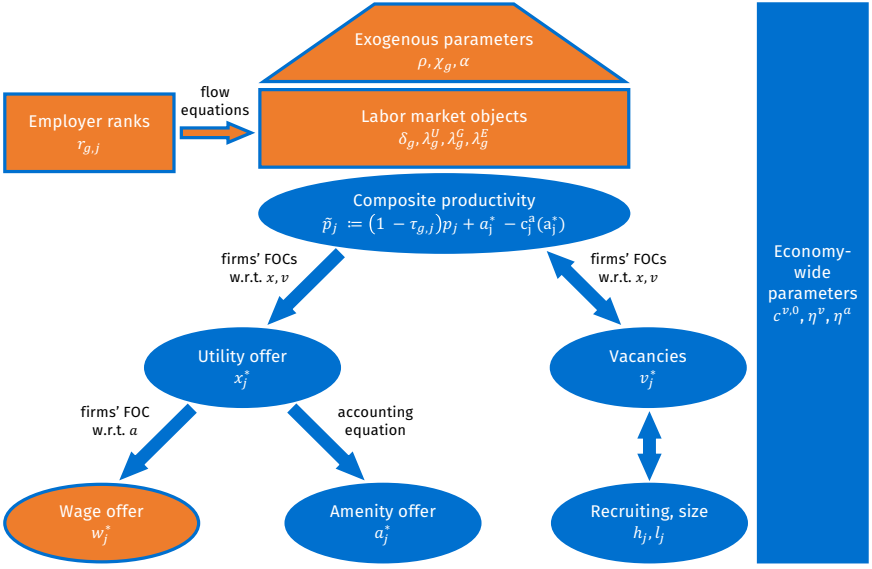
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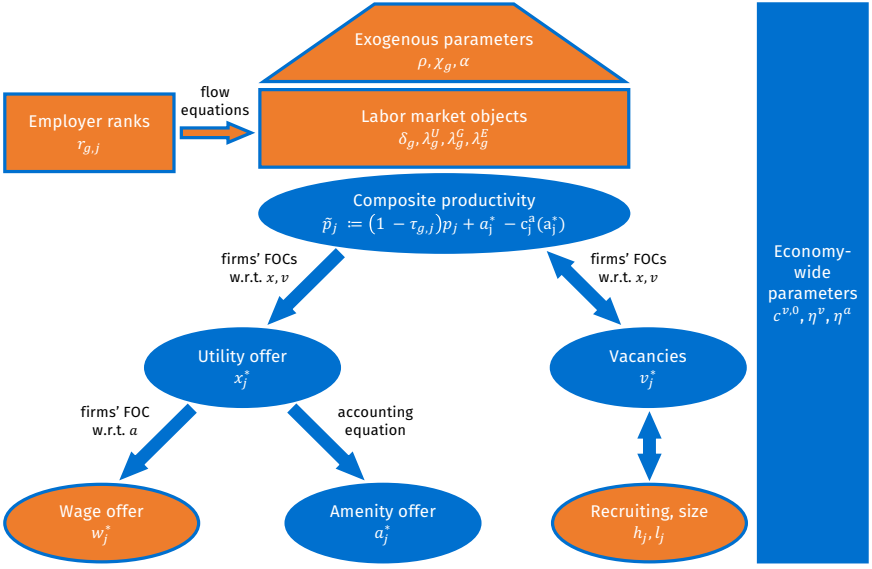
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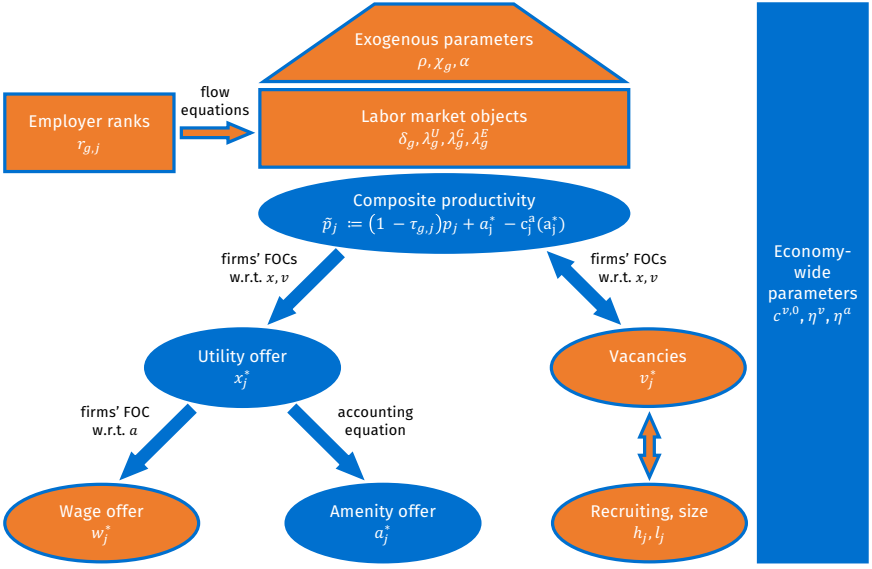
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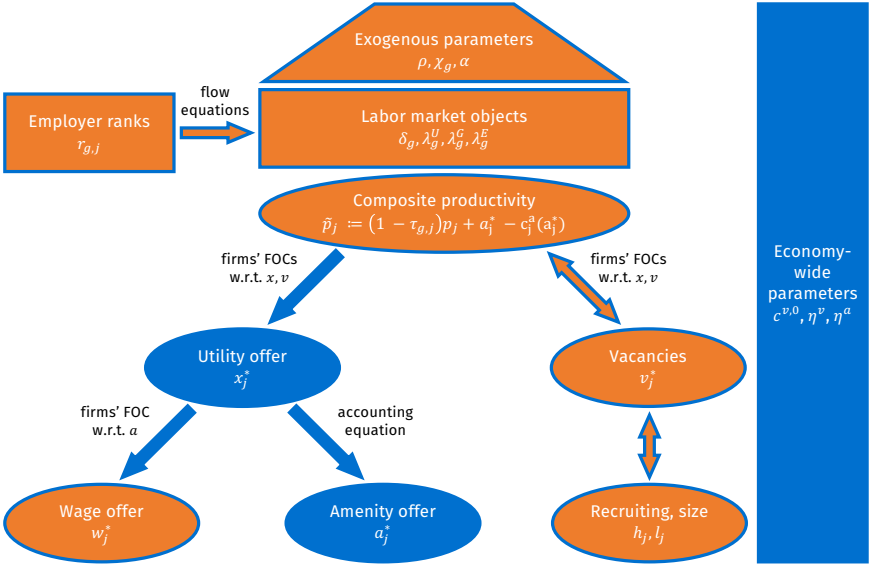
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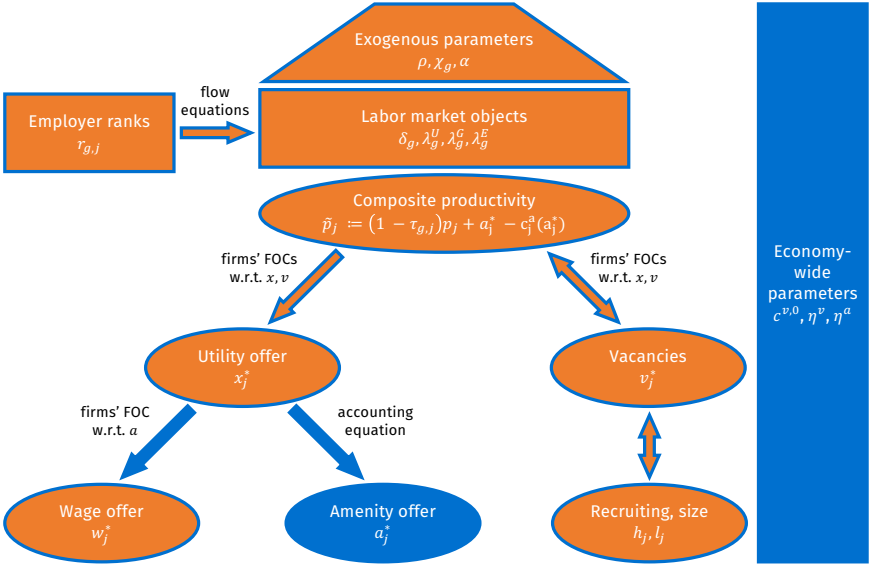
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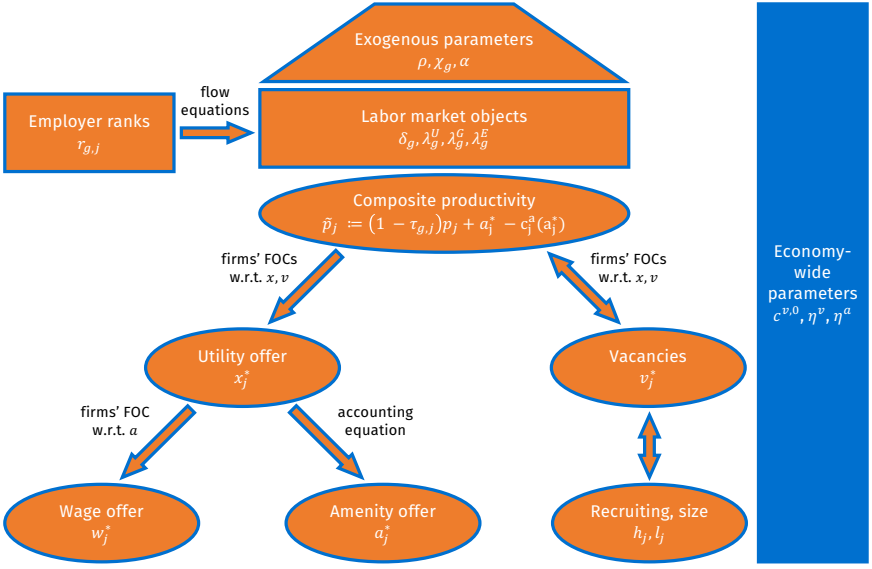
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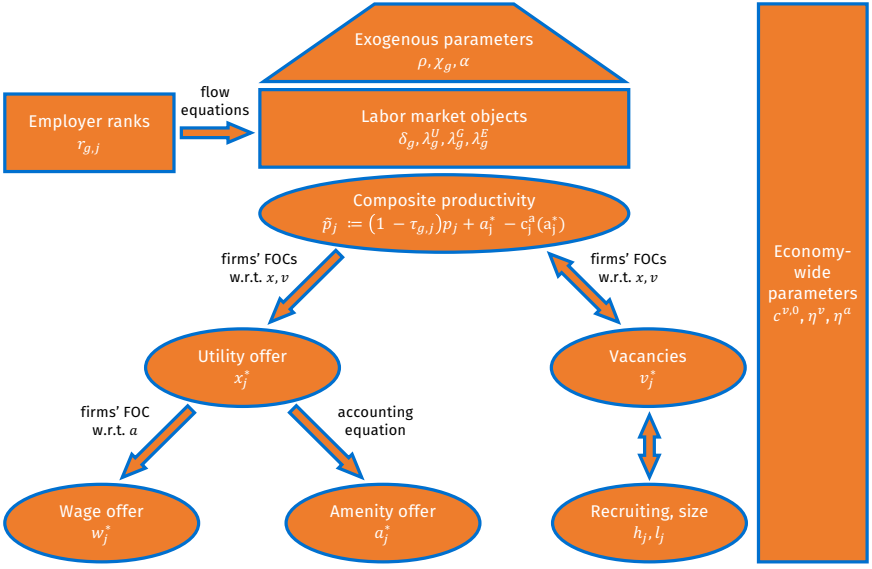
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Estimation Results

Estimation Results

Employer ranks ▶

Labor market parameters ▶

Firm types

- Productivity ▶
- Gender wedges ▶ distributions ▶ projections
- Amenities ▶ distributions ▶ projections
- Correlation structure ▶

Economy-wide parameters ▶

$\Longrightarrow$ Model fit ▶

Gender-Specific Compensation Structures

Gender-Specific Compensation Structures

Sectoral differences ▶ pay ▶ amenities

Importance of amenities ▶ distributions ▶ firm ladders

Utility dispersion ▶

Between- vs. within-employer gaps ▶

Margins of gender discrimination ▶

Implications for productivity ▶

Equilibrium Counterfactuals

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1. How does firm heterogeneity in amenities shape the gender pay gap? ▶ decomposition

2. Can equal-pay or equal-hiring policies close the gender pay gap? ▶ policy simulations

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- Documented women work at lower-pay firms with higher amenities
- Point-identified gender-specific firm types, incl. entire joint distribution of (w, a)
- Simulated equilibrium counterfactuals

Main insight: Amenities key for understanding (gender) inequality within / across firms

Future work:

- >2 job ladders? Flexible methodology
- Revisit inequality facts? Across countries and over time
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Appendix

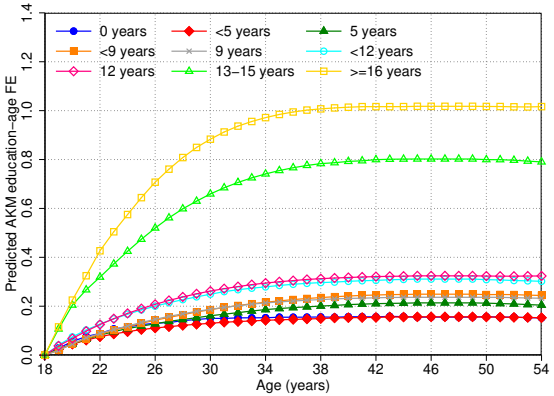
Summary Statistics

	Overall	Men	Women
Mean log real monthly earnings (std. dev.)	7.211 (0.693)	7.262 (0.697)	7.129 (0.679)
Mean years of education (std. dev.)	11.1 (3.3)	10.4 (3.3)	12.1 (2.9)
Mean years of age (std. dev.)	33.6 (9.4)	33.5 (9.4)	33.8 (9.4)
Mean employer size (std. dev.)	2,815 (16,418)	1,774 (11,509)	4,497 (22,059)
Mean contractual work hours (std. dev.)	41.7 (5.1)	42.6 (3.9)	40.3 (6.4)
Mean years of tenure (std. dev.)	3.9 (5.6)	3.6 (5.2)	4.5 (6.1)
Share Nonwhite	0.378	0.409	0.327
Share female	0.382		
Mean log gender earnings gap	0.133		
Number of worker-years	267,318,328	165,149,632	102,168,696
Number of unique workers	56,297,308	33,761,656	22,535,652
Number of unique employers	607,029	403,585	203,444

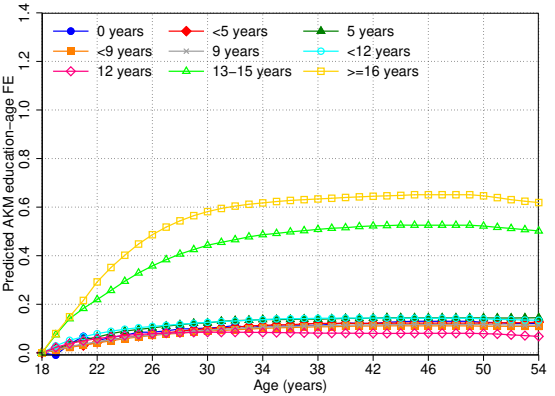
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Education-Age FEs

A. Men

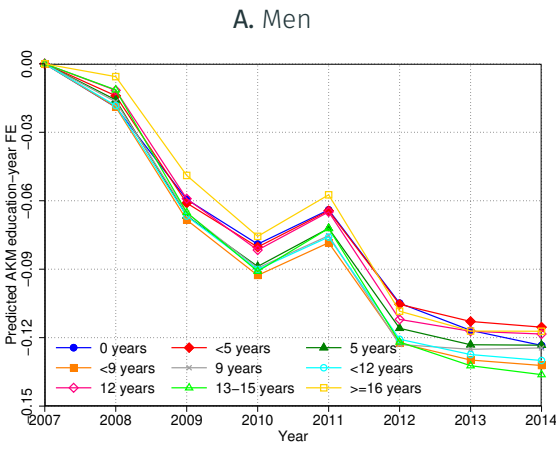


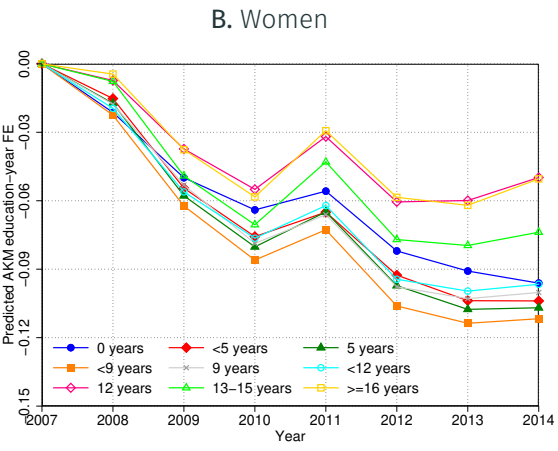
B. Women



▶ back

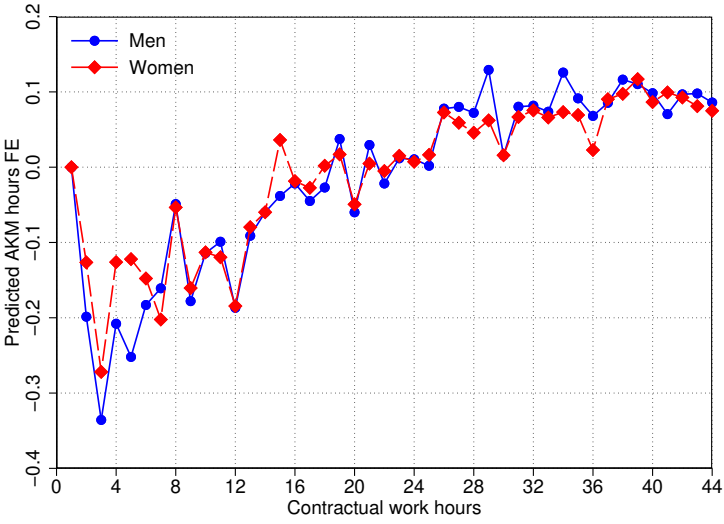
Education-Year FEs





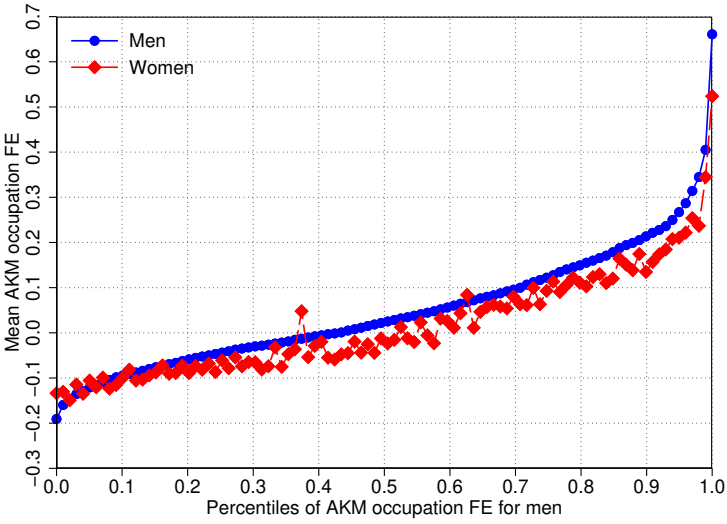
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Hours FEs



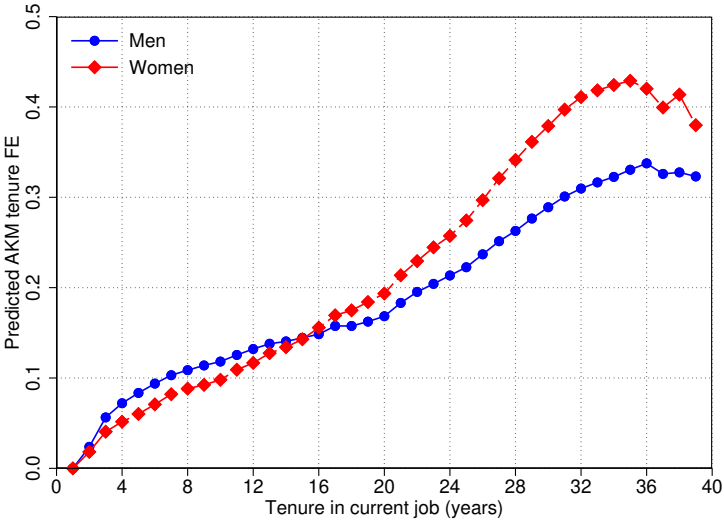
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Occupation FEs



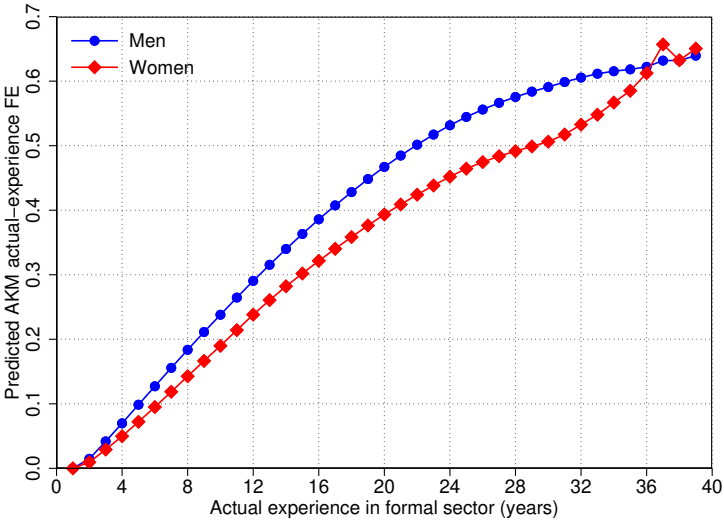
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Tenure FEs



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Actual-Experience FEs



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Normalization of Gender-Specific Employer FEs

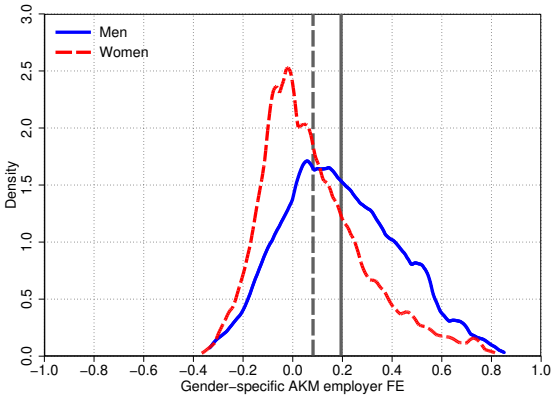
How to normalize gender-specific employer FEs ψ_{Mj} and ψ_{Fj}?

- Let $\mathcal{B}_g$ be a set of firms near bottom rank for gender g
- Let $\mathcal{D}$ be a set of firms indifferent b/w men and women in prod.
- Let $\mathcal{A}$ be a set of firms with same amenities to men and women

$\Longrightarrow$ Model implies that $\psi_{Mj} = \psi_{Fj}$ for $j \in \mathcal{B}_M \cap \mathcal{B}_F \cap \mathcal{D} \cap \mathcal{A}$

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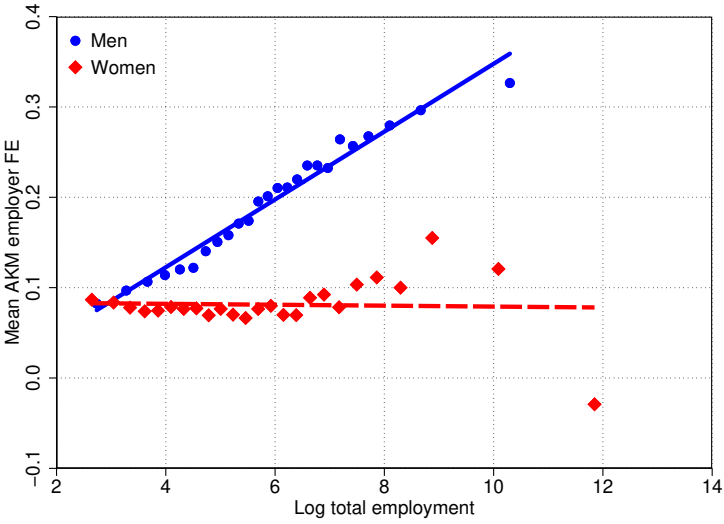
Fact 1: Women Work at Lower-Paying Employers



	Between-employer gap		Within-employer gap	
Gender gap in employer FEs	Level	Share (%)	Level	Share (%)
0.113	0.089	78.7	0.024	21.3

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Fact 2: Women Receive a Lower Employer Size-Pay Premium



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Fact 3: Women's Employers Have Better Nonpay Attributes

	(1) Part-time	(2) Flexibility	(3) Parental	(4) Hazards	(5) Firings	(6) Deaths
Female	−0.045*	0.002	1.054***	0.129***	−0.002	0.005***
(std. err.)	(0.023)	(0.006)	(0.075)	(0.028)	(0.010)	(0.001)
Log size	0.006	−0.001*	0.028***	0.011	−0.012**	0.001***
(std. err.)	(0.005)	(0.001)	(0.004)	(0.010)	(0.005)	(0.000)
Female × log size	0.015***	0.001	−0.040***	−0.013***	−0.005***	−0.002***
(std. err.)	(0.004)	(0.001)	(0.013)	(0.005)	(0.002)	(0.000)
R^2	0.557	0.377	0.712	0.176	0.516	0.267
Mean for men	0.094	0.030	0.085	0.170	0.559	0.008
Mean for women	0.230	0.053	0.893	0.211	0.429	0.005

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Exogenous parameters

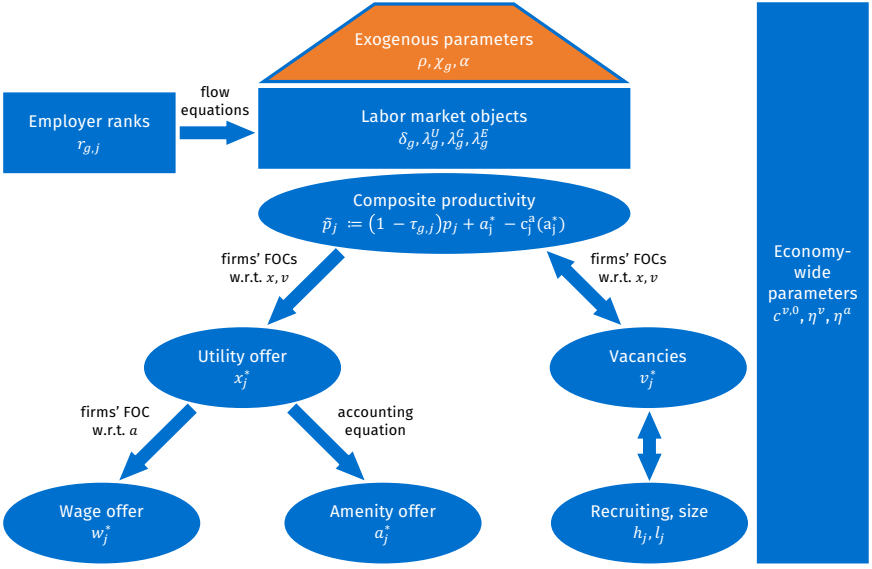
Three exogenous parameters:

1. Discount rate $\rho = 0.051$ (5.3% annual interest rate)
2. Matching efficiency normalized to $\chi_g = 1$
3. Elasticity of the matching function $\alpha = 0.5$ (Petrongolo & Pissarides '01; Hall & Milgrom '08; Engbom & Moser '22)

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Proposition (Gender-Specific Firm Pay)

The equilibrium wage of a worker of gender g and ability z at a firm with composite productivity $\tilde{p}_g$ and amenity cost shifter $c_g^{a,0}$ is

$$\ln w_{gz}\left(\tilde{p}_g, c_g^{a,0}\right) = \underbrace{\alpha_z}_{\text{“worker wage FE”}} + \underbrace{\psi_g^w\left(\tilde{p}_g, c_g^{a,0}\right)}_{\text{“gender-firm wage FE”}},$$

where

$$\alpha_z = \ln z,$$

$$\psi_g^w\left(\tilde{p}_g, c_g^{a,0}\right) = \ln\left(\tilde{p}_g - a_g^*\left(c_g^{a,0}\right) - \int_{\tilde{p}' \geq \phi_g}^{\tilde{p}_g}\left[\frac{1+\kappa_g^E\left[1-F_g\left(x_g^*\left(\tilde{p}_g\right)\right)\right]}{1+\kappa_g^E\left[1-F_g\left(x_g^*\left(\tilde{p}'\right)\right)\right]}\right]^2 d\tilde{p}'\right).$$

Intuition: Parallel labor supply curves.

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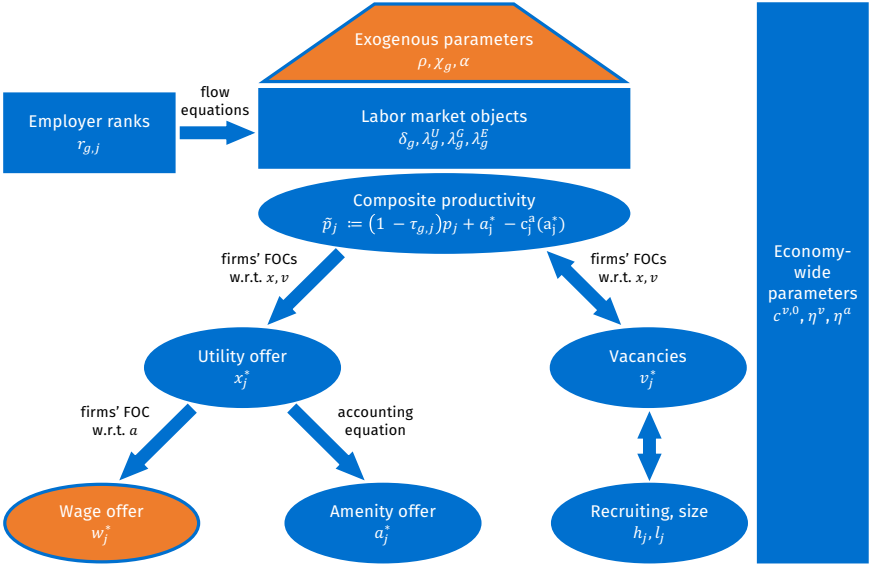
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Step 2: Employer Ranks

Proposition (Employer Ranks)

All workers of a given gender g share a common employer ranking $r_g \in [0, 1]$, which can be identified from employer sizes $l_g(r)$.

Intuition: Higher-ranked firms have higher utility and vacancies.

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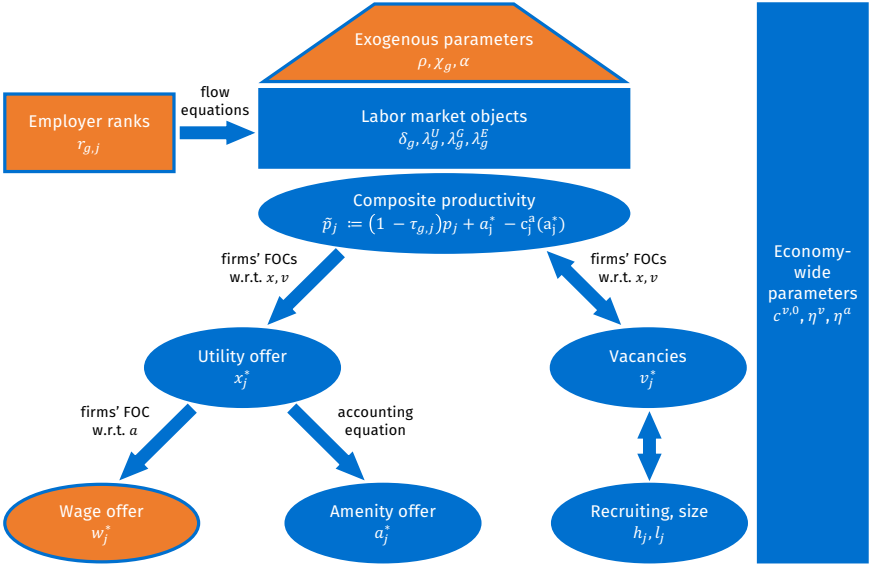
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Step 3: Labor Market Objects

Proposition (Labor Market Objects)

Given employer ranks r_g, worker flows between employment states identify gender-specific:

- *Firm-level recruiting intensities* $f_g(r)$
- *vacancies* $v_g(r)$
- *separation hazards* δ_g
- *job offer hazards* λ_g^U
- *involuntary job offer hazards* λ_g^G
- *voluntary on-the-job offer hazards* λ_g^E
- *aggregate vacancies* V_g

Intuition: Firm ladder depends only on ordinals, not cardinals.

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Step 3: Labor Market Objects (Details)

- Separation hazard δ_g is identified based on EN transitions
- Job-finding hazard λ_g^U is identified off ENE log-hazard
- To identify involuntary job offer hazard, note:

$$J2J_r = l_r[\lambda^E(1-F^r)+\lambda^G]$$

and thus

$$\hat{\lambda}^G = \mathbb{E}_r\left[\frac{J2J_{r\downarrow}}{l_r F_r}\right]$$

- Finally, the voluntary job offer hazard is:

$$\hat{\lambda}^E = \frac{J2J_r/n_r - \hat{\lambda}^G}{1-F_r}$$

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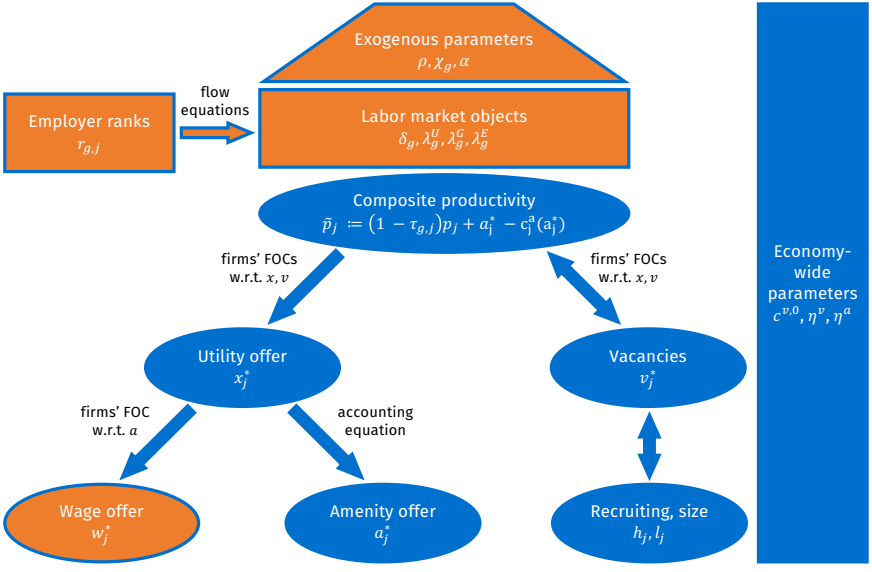
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Step 4: Firm Types

Proposition (Firm Types)

The following gender-firm-specific parameters as functions of r_g are point-identified: productivity $p(r_g)$, amenity cost $c^a(a_g(r_g))$ and gender wedge $\tau(r_g)$.

- **Intuition:** Observed hires + firm optimization $\longrightarrow$ unobserved surplus

Corollary (Firm utility and amenity offers)

The gender-firm-specific utility offers $x(r_g)$ and amenity values $\beta_g(r_g)a_g(r_g)$ are point-identified.

- **Intuition:** Optimal utility + observed wage $\longrightarrow$ unobserved amenity value

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Step 4: Firm Types (Details)

- Firm's FOCs w.r.t. wage w and amenity a can be combined to yield

$$x'(r) = \frac{1}{V}\frac{2\lambda^E P(r)}{\delta + \lambda^G + \lambda^E(1-F(r))}\left[\frac{TP(r)}{c^{v,0}\left[\delta + \lambda^G + \lambda^E(1-F(r))\right]^2}\right]^{\frac{1}{\eta^v - 1}},$$

  where

$$P(r) \equiv \tilde{p}(r) - x(\tilde{p}(r)) = [f(r)V]^{\eta^v - 1}\frac{c^{v,0}}{T}\left[\delta + \lambda^G + \lambda^E(1-F(r))\right]^2$$

$$T \equiv \frac{\mu[(u+s^G)\lambda^u(\delta + \lambda^G + \lambda^E)]}{V}$$

- Integrating the first equation, we get

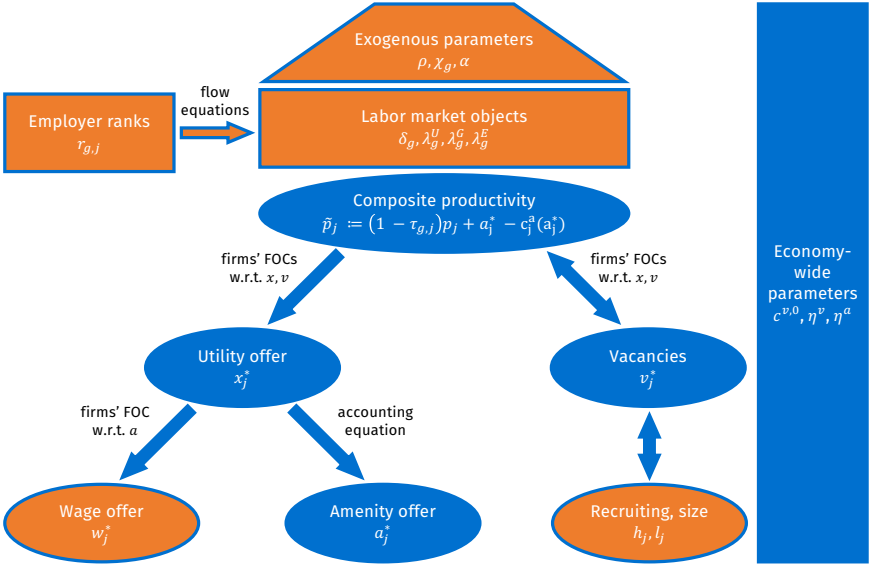
$$x(r) = K + \int_{r'=0}^{r} x'(r')\,dr',$$

  which identifies $x(r)$ up to a constant of integration $K \in \mathbb{R}$
- To pin down K, we naturally impose $a(r) \geq 0$, $\min_r a(r) \approx 0$

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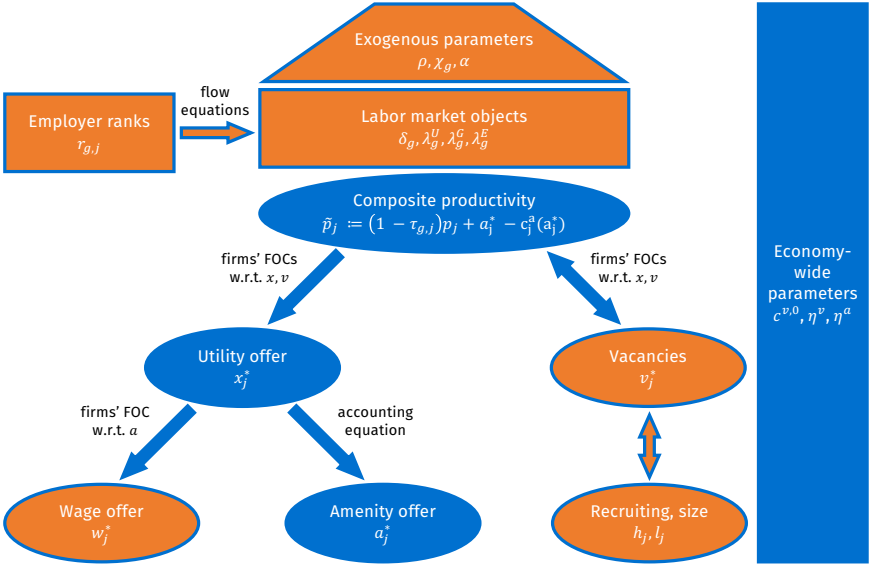
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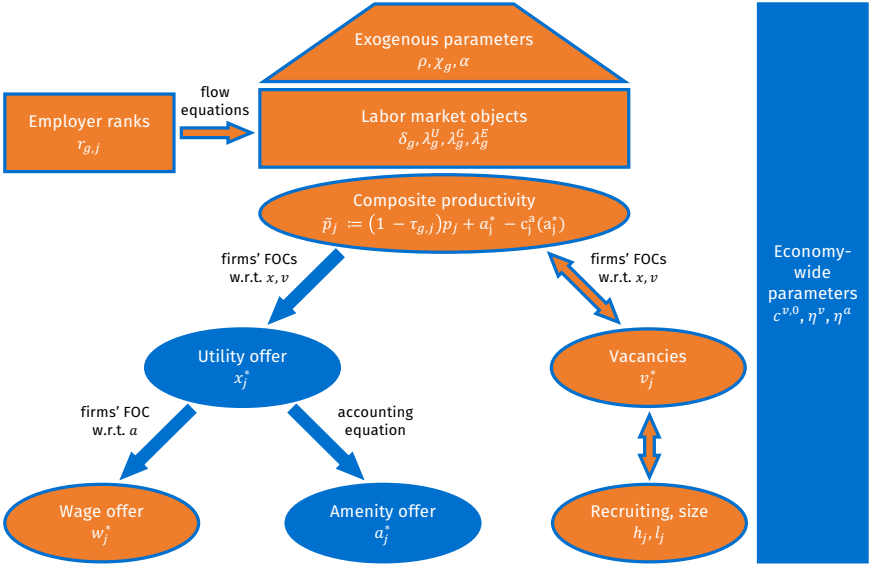
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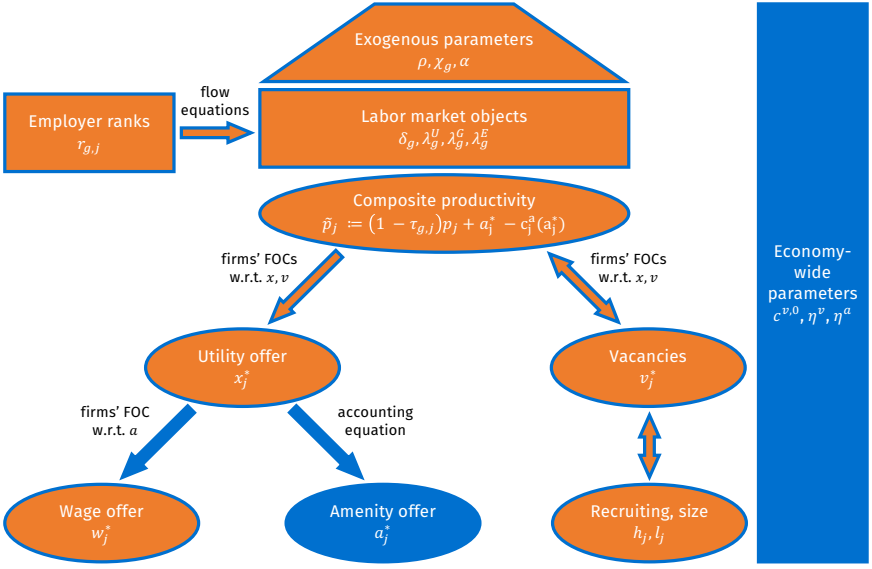
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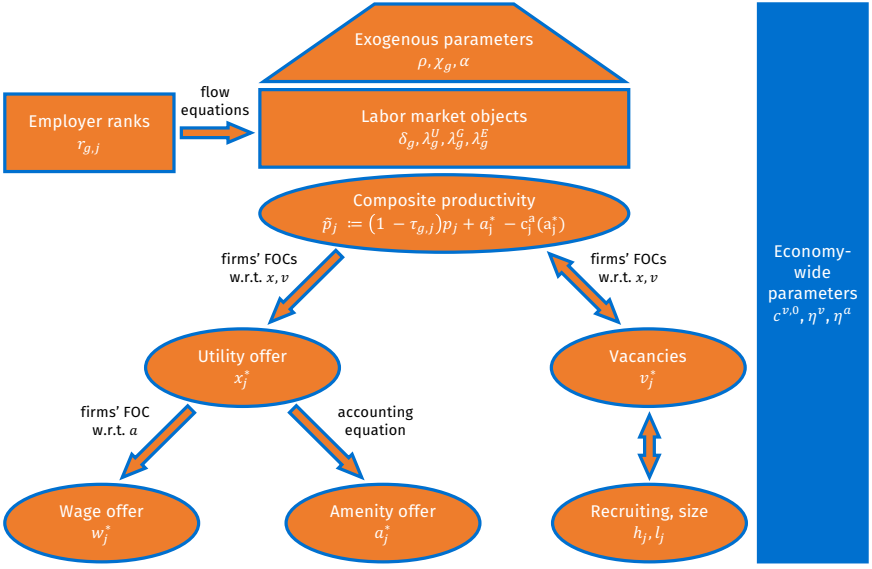
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Step 5: Economy-Wide Parameters

Proposition (Economy-Wide Parameters)

The following economy-wide parameters are identified:

(i) *Vacancy cost shifter* $c^{v,0}$ *identified based on agg. labor share*

(ii) *Vacancy elasticity* η^v *identified based on firm pay-profit gradient*

(iii) *Amenity elasticity* η^a *identified based on agg. amenity cost share*

Intuition:

(i) Profits are strictly increasing in $c^{v,0}$, decreasing in agg. labor share

(ii) Since $\beta = Cov[\ln w(r), \ln \Pi(r)]/Var[\ln \Pi(r)]$ and $Var[\ln \Pi(r)] \propto (\eta^v)^2$

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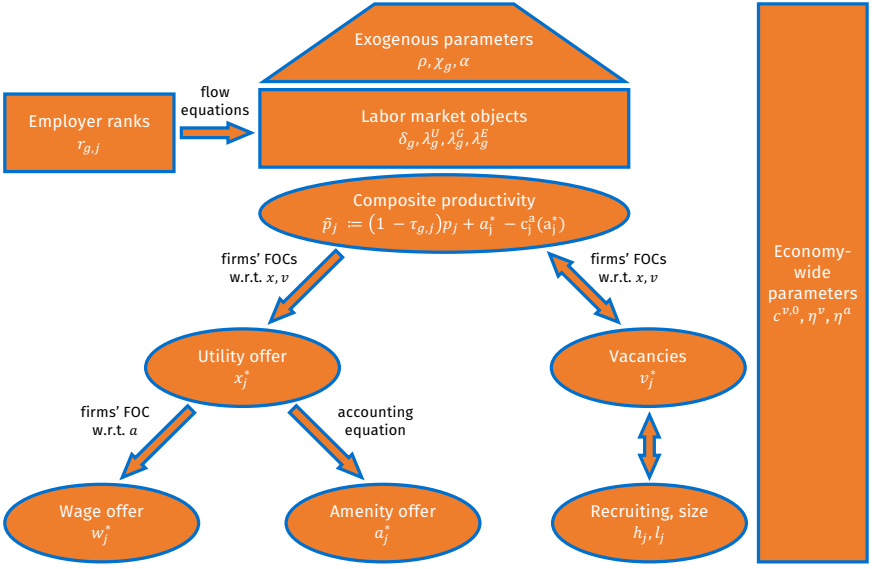
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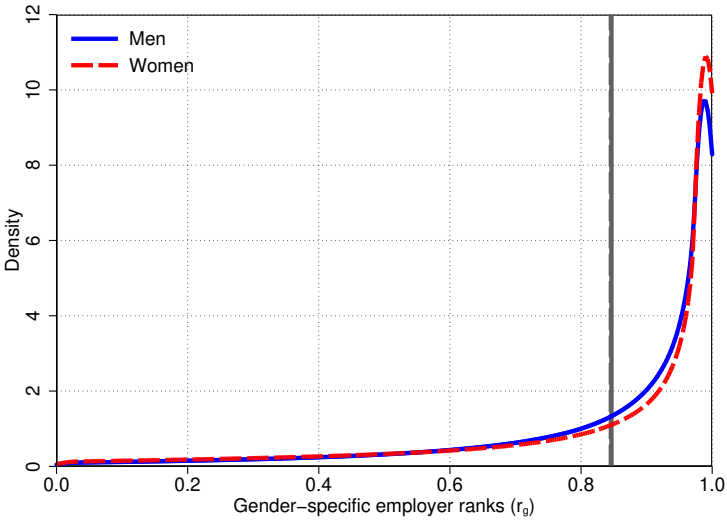
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Employer Ranks



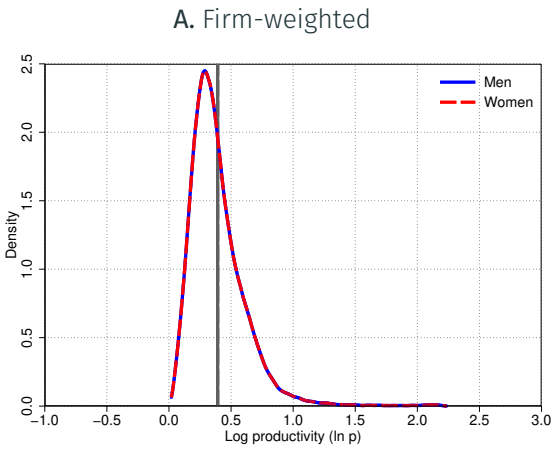
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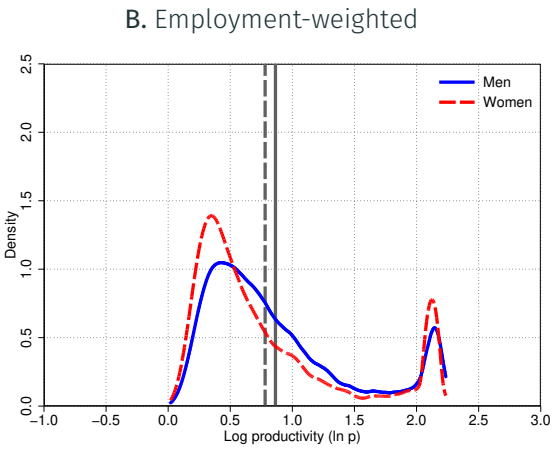
Labor Market Parameters

Parameter	Description	Men	Women
μ_g	Population shares	0.599	0.401
λ_g^U	Offer arrival rate from nonemployment	0.104	0.091
δ_g	Job destruction rate	0.035	0.028
s_g^E	Relative arrival rate of voluntary on-the-job offers	0.090	0.075
s_g^G	Relative arrival rate of involuntary on-the-job offers	0.101	0.081
b_g	Flow value of nonemployment	2.282	2.223

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Firm Types: Productivity

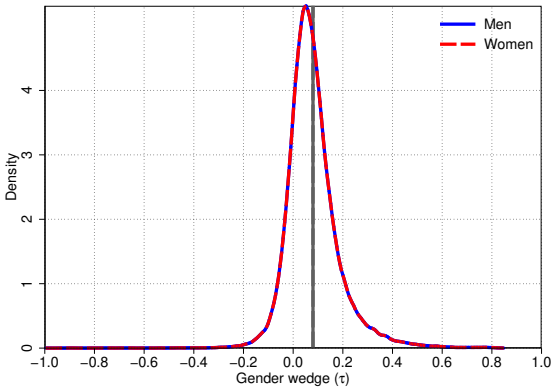




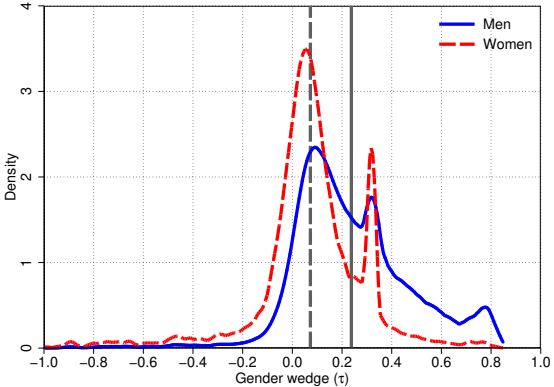
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Firm Types: Gender Wedges (Distributions)

A. Firm-weighted



B. Employment-weighted



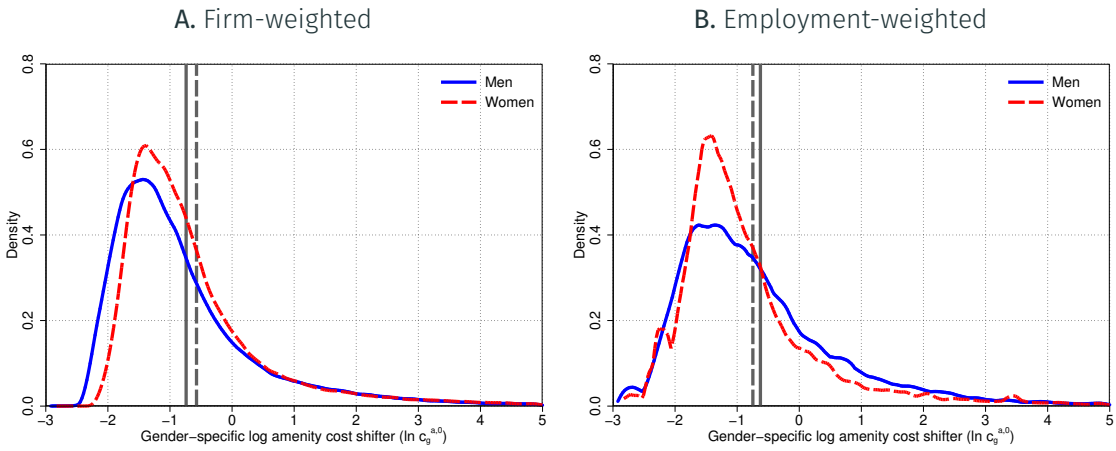
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Firm Types: Gender Wedges (Projections)

	Coefficient	(std. err.)
Female manager	0.006***	(0.002)
Nonroutine manual task intensity	−0.001	(0.007)
Nonroutine interpersonal task intensity	−0.002	(0.006)
Mean working hours	−0.010***	(0.004)
No major financial stakeholders	−0.010***	(0.002)
Log size	−0.155***	(0.007)
R^2	0.632	
Within-R^2	0.089	

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Firm Types: Amenity Cost Shifters (Distributions)



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Firm Types: Amenity Values (Projections)

	Men		Women	
	Coefficient	(std. err.)	Coefficient	(std. err.)
Part-time work incidence	−0.006	(0.012)	0.010	(0.007)
Working hours flexibility	0.008	(0.013)	0.020***	(0.006)
Parental leave generosity	0.093***	(0.024)	0.023***	(0.007)
Income fluctuations	−0.034	(0.032)	−0.002	(0.007)
Workplace hazards	0.016	(0.015)	−0.002	(0.005)
Incidence of unjust firings	−0.028**	(0.014)	−0.020**	(0.009)
Incidence of workplace deaths	−0.034***	(0.011)	−0.047***	(0.010)
Log size	0.201***	(0.018)	0.139***	(0.021)
R^2	0.704		0.440	
Within-R^2	0.238		0.090	

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Firm Types: Correlation Structure

A. Men

	w_M	a_M	x_M	p	l_M	r_M
w_M	1.000					
a_M	−0.914	1.000				
x_M	0.246	0.168	1.000			
p	0.342	0.064	0.985	1.000		
l_M	0.097	0.133	0.552	0.504	1.000	
r_M	0.225	−0.025	0.486	0.456	0.160	1.000

B. Women

	w_F	a_F	x_F	$(1-\tau)p$	l_F	r_F
w_F	1.000					
a_F	−0.937	1.000				
x_F	0.020	0.331	1.000			
$(1-\tau)p$	0.162	0.187	0.970	1.000		
l_F	−0.085	0.282	0.578	0.476	1.000	
r_F	0.009	0.134	0.408	0.424	0.161	1.000

C. Cross-gender correlations

	w_g	a_g	x_g	$(1-\tau_g)p_g$	l_g	r_g
Cross-gender correlation	0.909	0.884	0.806	0.776	0.891	0.576

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Economy-Wide Parameters

Elasticity	Cost function	Value	Moment	Data	Model
η^v	Vacancies	2.063	Slope of log pay on log value added	0.179	0.179
η^a	Amenities	5.728	Cost share of amenities	0.080	0.080

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Model Fit

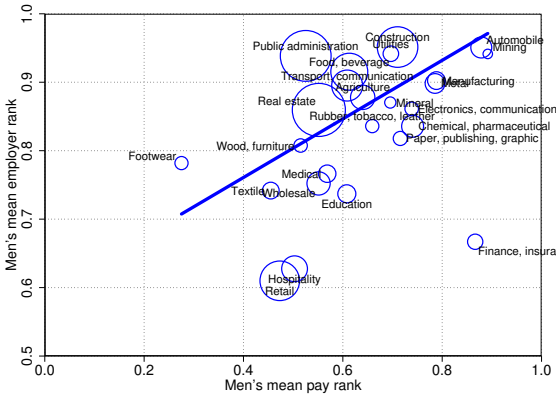
Moment	Description	Data	Model
$\mathbb{E}[\psi_M - \psi_F]$	Gender log pay gap	0.115	0.110
$\mathbb{E}[\psi_F \vert g = M] - \mathbb{E}[\psi_F \vert g = F)]$	Gender log pay gap between employers	0.089	0.082
$\mathbb{E}[\psi_F - \psi_M \vert g = F]$	Gender log pay gap within employers	0.026	0.028
$Var[\psi_M]$	Variance of men's pay	0.054	0.053
$Var[\psi_F]$	Variance of women's pay	0.044	0.044
$Var[\psi_M - \psi_F]$	Variance of gender pay gap	0.009	0.010
$\mathbb{E}[\lambda_M^E(1 - F_M(x)) + \lambda_M^G]$	Job to job transition rate for men	0.013	0.015
$\mathbb{E}[\lambda_F^E(1 - F_F(x)) + \lambda_F^G]$	Job to job transition rate for women	0.010	0.011
$\mathbb{P}[\psi'_M < \psi_M]$	Wage decline probability after job to job for men	0.416	0.479
$\mathbb{P}[\psi'_F < \psi_F]$	Wage decline probability after job to job for women	0.430	0.498
$Corr(\psi_M, \psi_F)$	Correlation between men's and women's pay	0.921	0.956

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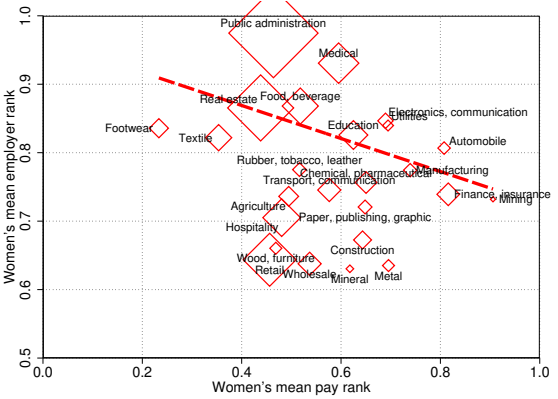
Mean Employer Rank Vs. Mean Pay Rank by Sector

- Men prefer higher-paying sectors, women do not

A. Men



B. Women

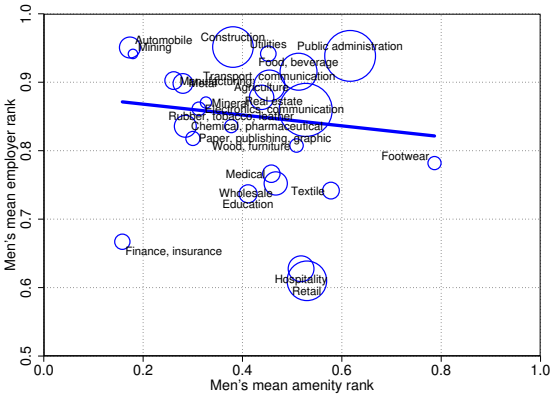


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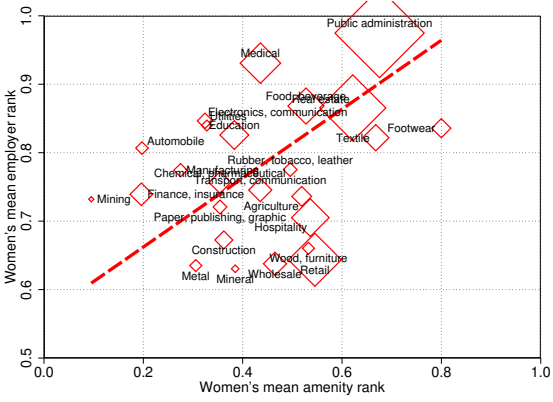
Mean Employer Rank Vs. Mean Amenity Rank by Sector

- Women prefer higher-amenities sectors, men do not

A. Men



B. Women

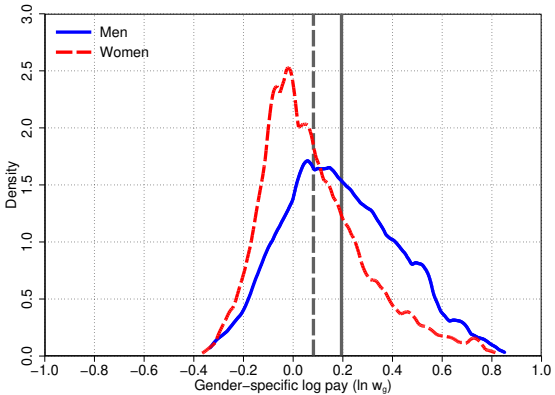


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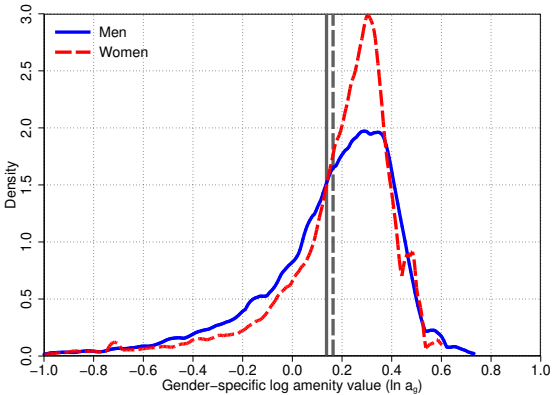
Gender-Specific Distributions of Pay and Amenities

- Women receive lower pay but higher amenities

A. Pay



B. Amenities

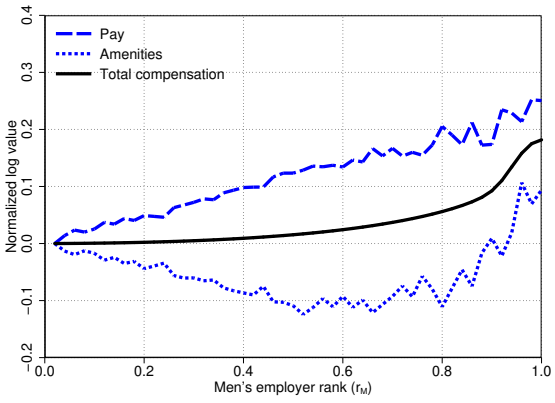


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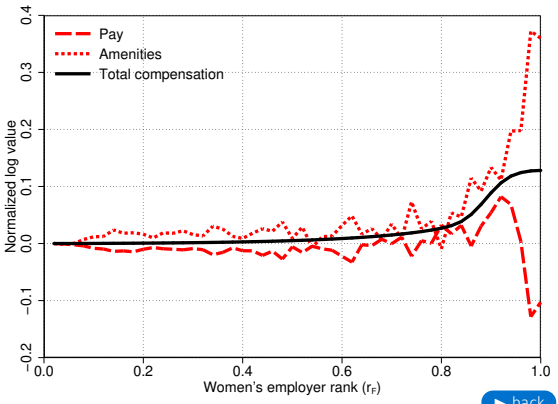
Pay, Amenities, and Utility Throughout the Firm Ladders

- For men, pay monotonically increases across ranks
- For women, utility is flatter and driven by amenities

A. Men



B. Women

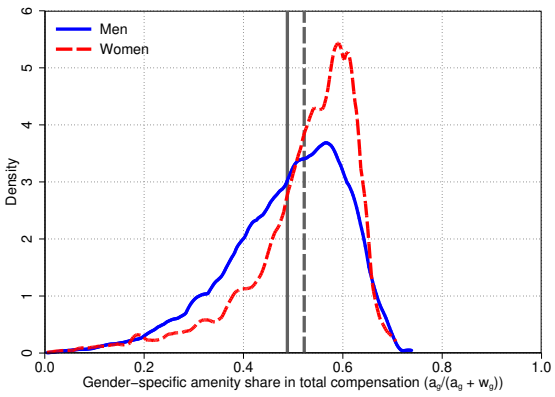


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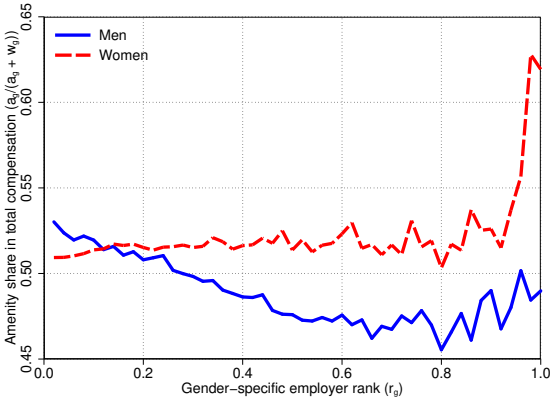
Amenity Shares

- Women concentrate in employers with higher amenity shares

A. Distribution of amenity shares, by gender



B. Amenity shares across ranks, by gender



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Variance Components of Log Firm Pay: Utility vs. Amenities

- Lion's share of pay dispersion is due to amenities (not utility)

	Men		Women	
Variances	Level	Share (%)	Level	Share (%)
Variance of log pay	0.054		0.044	
Variance components of log pay:				
Log utility	0.002	4.4	0.002	3.6
Log amenities	0.051	94.3	0.045	102.8
Covariance between log utility and log amenities	0.001	1.3	−0.003	−6.4
Covariance components of log pay:				
Covariance between log utility and log pay	0.003	5.1	0.000	0.4
Covariance between log amenities and log pay	0.052	94.9	0.044	99.6

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Between- vs. Within-Employer Gaps

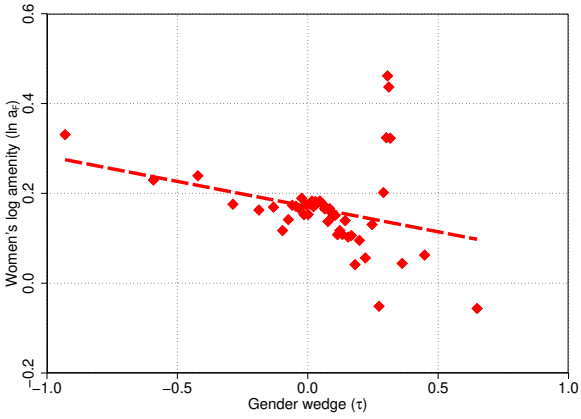
- Gender gap in total compensation is 4.6 log points (5%)
  - Corresponds to 41% of gender pay gap of 11.3 log points (12%)
  - Reflects gender amenities gap of −6.7 log points (−6%)

		Between-employer gap		Within-employer gap	
	Gender gap	Level	Share (%)	Level	Share (%)
Pay	0.113	0.089	78.7	0.024	21.3
Amenity-valuation	−0.067	−0.087	130.0	0.020	−30.0
Total compensation	0.046	0.002	4.6	0.044	95.4

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Margins of Discrimination: Amenities and Gender Wedges

- Employers with greater preference against women are also more unpleasant for women to work at

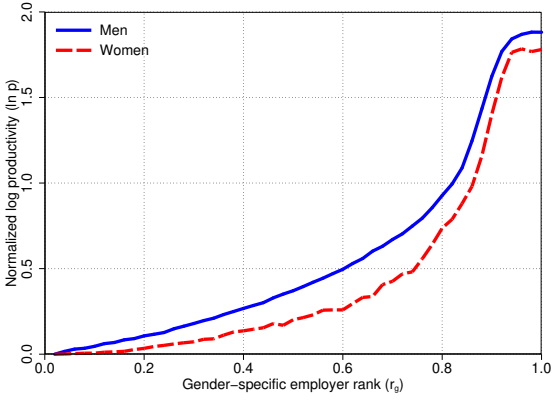


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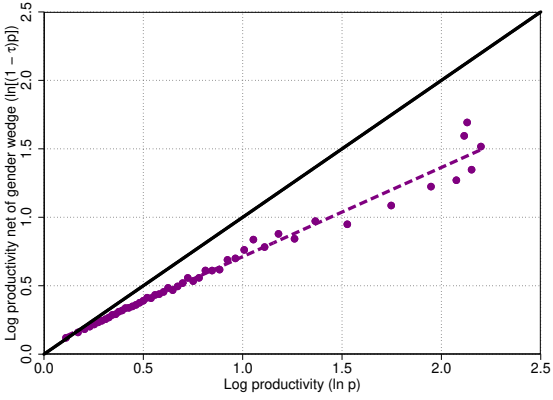
Implications for Productivity

- Women's preferred employers are less productive than men's

A. Productivity across ranks, by gender



B. Incidence of gender wedges

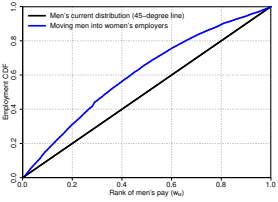


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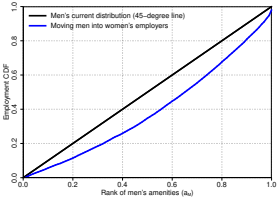
Switching Employment Across Genders

- Neither women nor men want work in other gender's employers

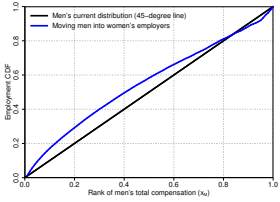
A. Men: Pay



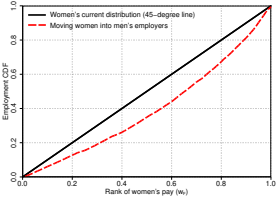
B. Men: Amenities



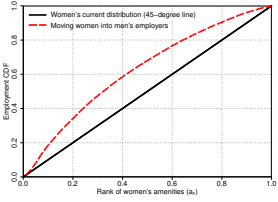
C. Men: Total



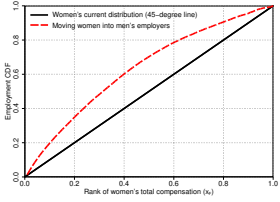
D. Women: Pay



E. Women: Amenities



F. Women: Total



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Structural Decomposition of the Gender Pay Gap

	Baseline	Same amenities
Gender log pay gap	0.109	0.057
between employers	0.082	0.020
within employers	0.027	0.037
Gender log amenities gap	−0.066	−0.011
between employers	−0.075	−0.010
within employers	0.009	−0.002
Gender log utility gap	0.042	0.046
between employers	0.007	0.010
within employers	0.035	0.035
Output	1.000	1.016
Worker welfare	1.000	1.014
for men	1.000	1.014
for women	1.000	1.013
Total employment	0.771	0.783
for men	0.764	0.772
for women	0.781	0.799

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Equal-Treatment Policies

	Baseline	Equal-pay policy	Equal-hiring policy
	(0)	(1)	(2)
Gender log pay gap	0.109	0.028	0.034
between employers	0.082	0.028	0.006
within employers	0.027	0.000	0.028
Gender log amenities gap	−0.066	0.003	0.011
between employers	−0.075	−0.027	−0.006
within employers	0.009	0.030	0.017
Gender log utility gap	0.042	0.031	0.045
between employers	0.007	0.000	0.000
within employers	0.035	0.030	0.045
Output	1.000	0.986	0.997
Worker welfare	1.000	0.996	0.992
for men	1.000	0.996	0.991
for women	1.000	0.996	0.993
Total employment	0.771	0.763	0.764
for men	0.764	0.760	0.722
for women	0.781	0.767	0.825

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