Female Human Capital Mismatch: An extension for the British Public Sector

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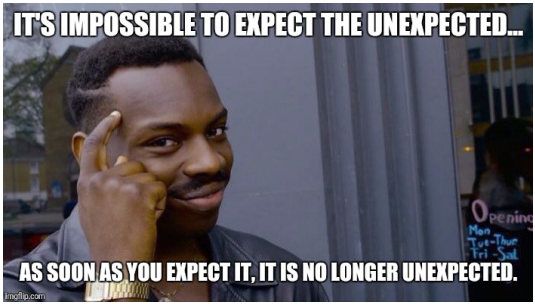
GLO VIRTUAL YOUNG SCHOLAR PROGRAM

Expect the unexpected

Expected: Genuine greater potential of female mismatch

Unexpected: In the public sector:

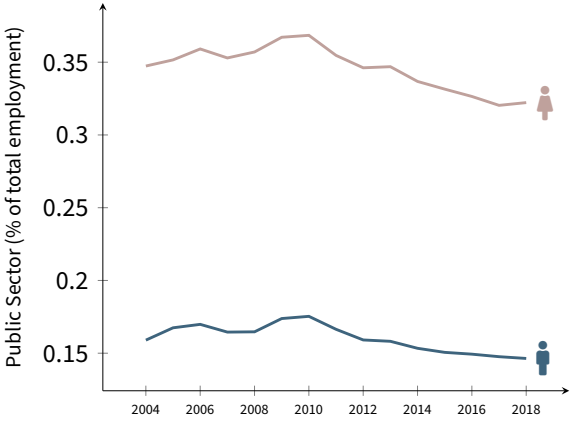
1. Negative selection: allocation and experience in jobs
2. Sizeable incidence of mismatch
3. Why to join the public sector?
   Waiting room to the 'perfect' job



Public Sector Employment (2004-2018)

Gender bias in participation:

- Persistent over time
- in 2/3 of 3-digit occupations, common in both sectors



Source: Annual Population Survey, ONS

Theoretical Underpinnings

- Public sector does *not* cause mismatch
  - specific training (e.g. nurses, teachers)
  - few low-skilled jobs ▸ Types of Occupation
  - fewer transitions ▸ Transitions
- Different goals: political constraints and inequalities alleviation
- Different demand between the sectors
  - Need for different skills $\Rightarrow$ different wage determinants ▸ Wage gap
- Alternative mechanism: Public sector is a *waiting room* for high-skilled
  - small number of high-skilled jobs (or excess labour supply) - e.g. PhD in Philosophy ▸ Mechanism

Elevator pitch

Question: What is the extent of the Human Capital Mismatch? Why do workers decide to join the public sector?

Methodology:

- **Identification:** Mismatch accounting for individual heterogeneity in more than one dimension
- **Empirical Strategy:** Selection model for public-sector affiliation

Findings:

1. Gender bias: verified
2. Negative selection
3. Sizeable magnitude of mismatch
4. Uni graduates & Public-sector:
   - Waiting area for high-skilled employees
   - Matched jobs: likely to be in the public sector
   - Greater job satisfaction

Identification Strategy

Who is in mismatch?

- How many women in middle-skilled occupations hold similar human capital to those in high-skilled ones?
- Wage Equation:

$$\ln[\text{wage}]_{i,t} = \alpha + \boldsymbol{\beta}_1 \boldsymbol{x}_i + \sum_{k=2}^{7} \beta_k S_{k,i,t} + \vartheta_t + u_{i,t}$$

- 2 sources of endogeneity: participation AND sector of employment
  - OLS estimates: biased and inconsistent

▸ Individual Decisions

Empirical Strategy

Solution for endogeneity

Adopted Strategy:

- Restrict sample to employees
- Selection eq for public-sector

$$\text{public}_i = \delta \boldsymbol{z}_i + v_i$$

- older worker (>35)
- public-sector lag
- hours of paid overtime,
- higher education
- single parenthood, number of children: no change in the incidence

▸ Illustration: Mismatch Measure

Data

Unbalanced Panel:

1. British Household Panel Survey (BHPS)
   - waves 1-18;
   - 1991-2009
2. UK Household Longitudinal Study (Understanding Society)
   - waves 2-7;
   - 2010-2016

Sample:

- Employees; $23 \leq$ age ≤ 59; 64,690 women
- Exclude: self-employed; farmers; army sector; income outliers on top and bottom 1% of distribution

Gender Bias (1991-2016)

Descriptive analysis: Various measures

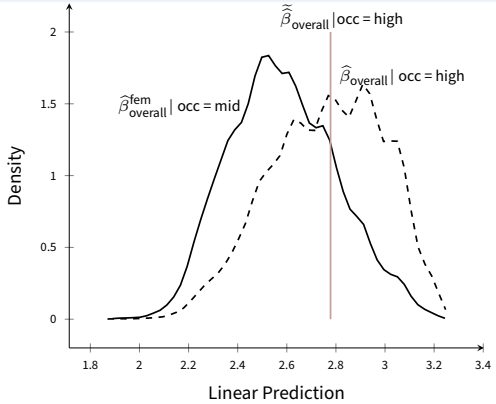
Panel A.i (as % of total employment)	Men	Women
Public-sector	23.95	46.21
Panel A.ii (as % of female workforce)	Public	Private
Women's empl share	41.69	39.84
Panel B: Accounting Definition Exercises		
Ratio of public empl shares	1.9897	
	(0.1436)	
Ratio of women's empl shares	1.0476	
	(0.0356)	

by age

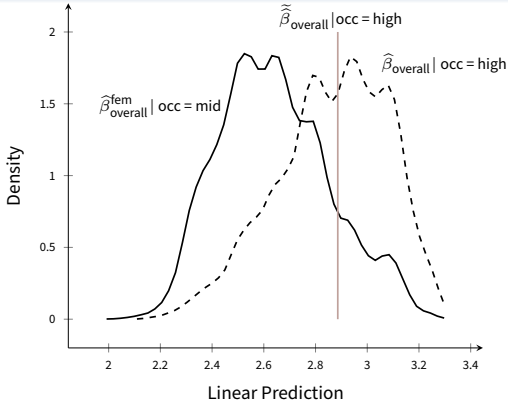
Timeline

Importance of Selection

Empirical Evidence; Relative to the median employee measure



(a) Selection Model



(b) Pooled Estimates

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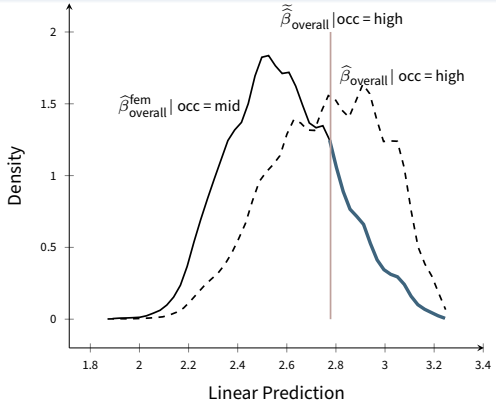

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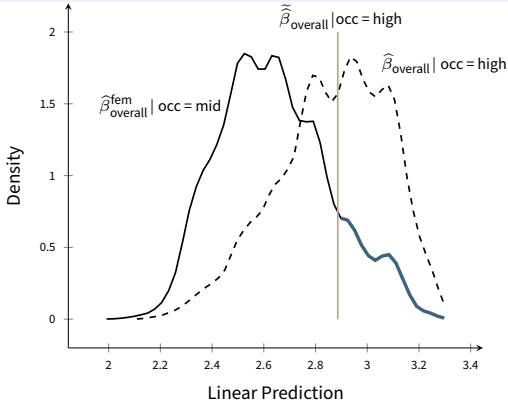


(b) Pooled Estimates

Incidence of Mismatch

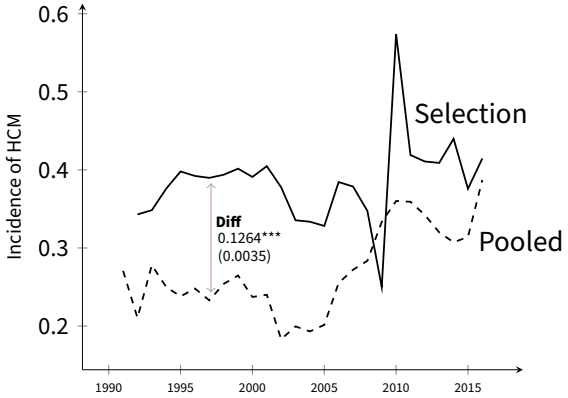
Relative to median employee

Selection:

1. lower return to skill
2. unobserved productivity

Intuition:

1. Under-rewarded individuals: could not find *immediately* a job, but want one in the public sector
2. Preferences in favour of the public sector



▸ Restricted Subsample

▸ Counterfactual Female

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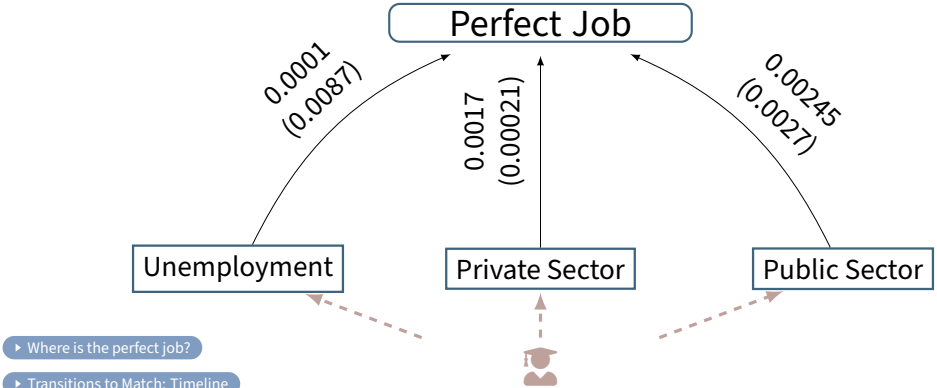
Waiting area for uni graduates

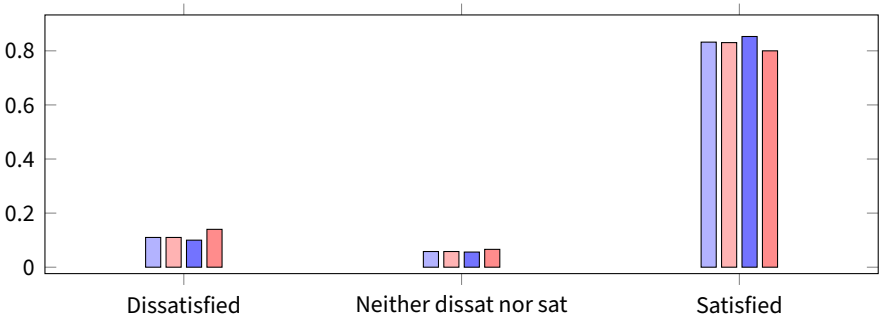
Estimates based on the restricted subsample; Averages of periods $t-1$ and t



- Where is the perfect job?
- Transitions to Match: Timeline

Job satisfaction vs. offers

Marginal outcomes; highly-educated women



Note: HS stands for High-Skilled jobs

▸ For any woman

Conclusions

1. More women participate in the public-sector workforce
   - Persistent over time trend
2. Transitions: (i) women are more mobile; (ii) their flows across sectors are similar; (iii) greater in-/outflows to/from private sector
   - Great Recession: private sector reacted earlier than the public one.
   - Consistency across the definitions
3. Sizeable incidence of HCM
   - Negative selection
4. Why? Public-sector might be a more pleasant waiting area for the matched job
   1. University graduates prefer waiting in the public sector
   2. Robust with self-reported job-satisfaction

Thank you!

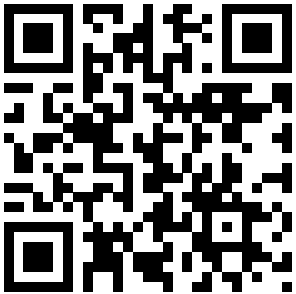


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Illustration

Example: High-/middle-skilled employees

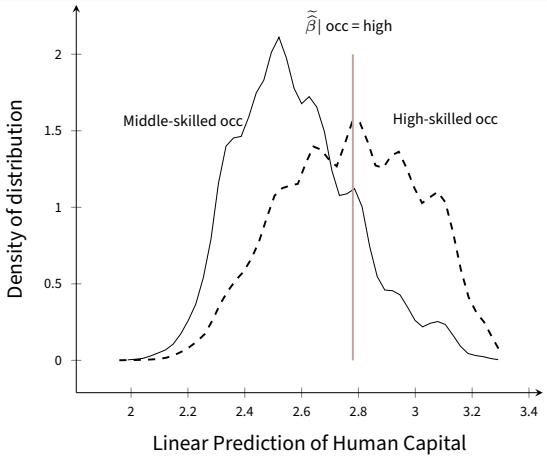

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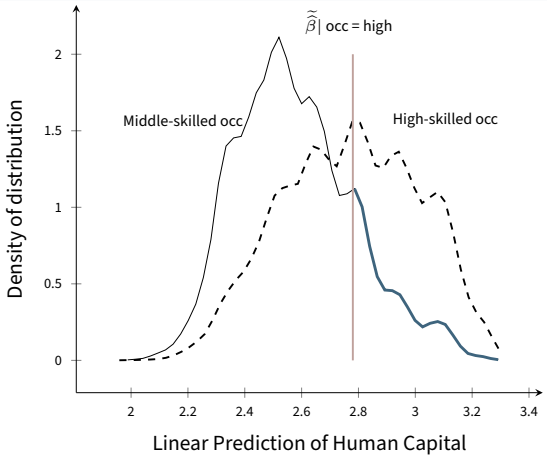
Illustration

Example: High-/middle-skilled employees



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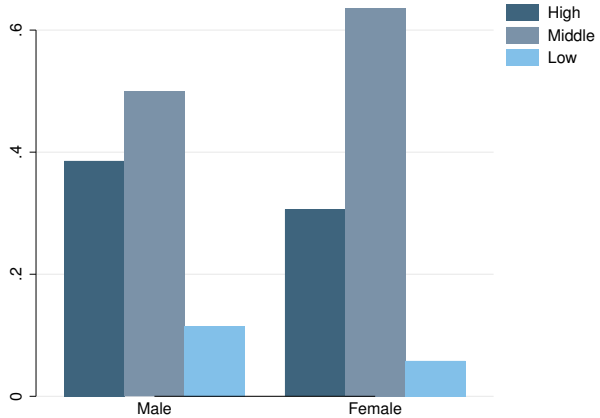
Size of Public Sector, by type of occupation; 1991-2016



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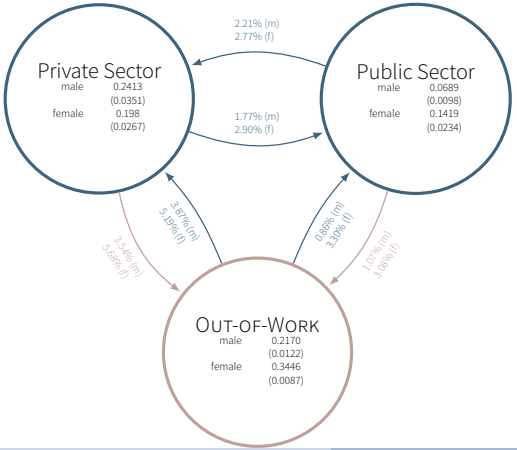
Source: Own elaboration, based on BHPS/UKHLS

Average unconditional worker transitions between $t-1$ and t, 1991-2016

Out-of-Work = unemployed + inactive; m: male; f: female



Women:

- are more mobile
- their flows are similar between sectors
- are prone to exit from any sector

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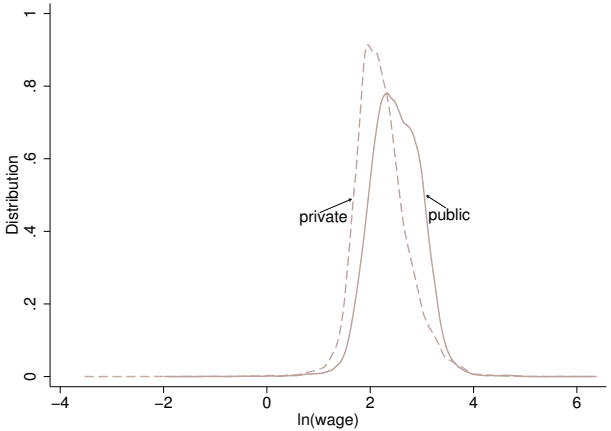
Unadjusted wage gap; 1991-2016

Women; aged 23-59



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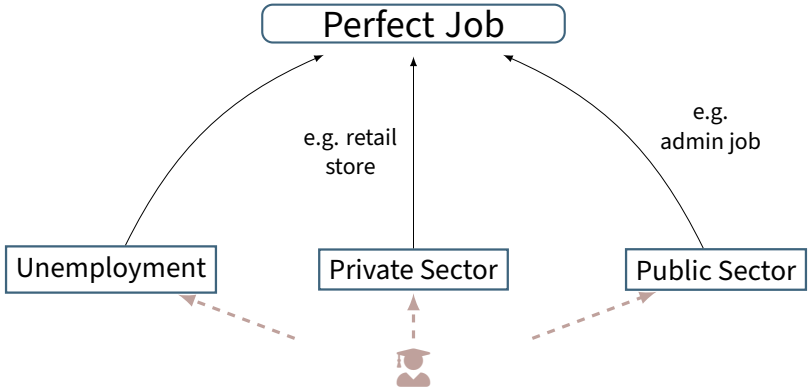
Mechanism



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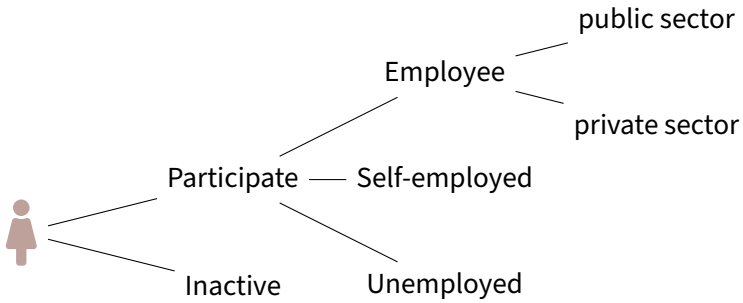
Individual Decisions



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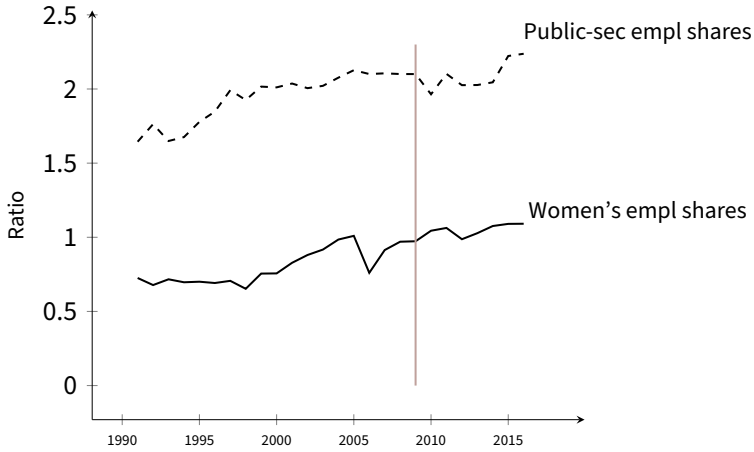
Ratio of (i) women's employment and (ii) public employment shares



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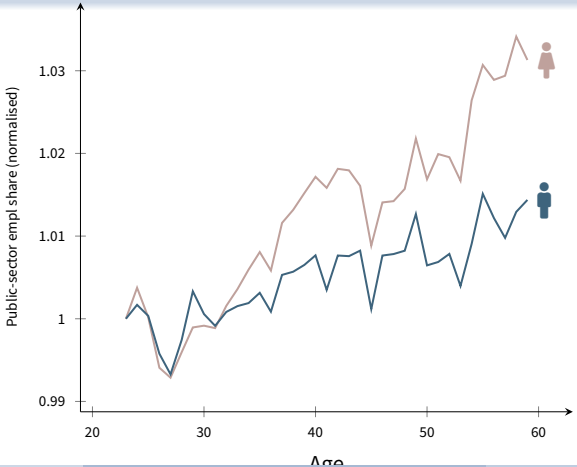
Public employment shares, by gender

variation over age groups



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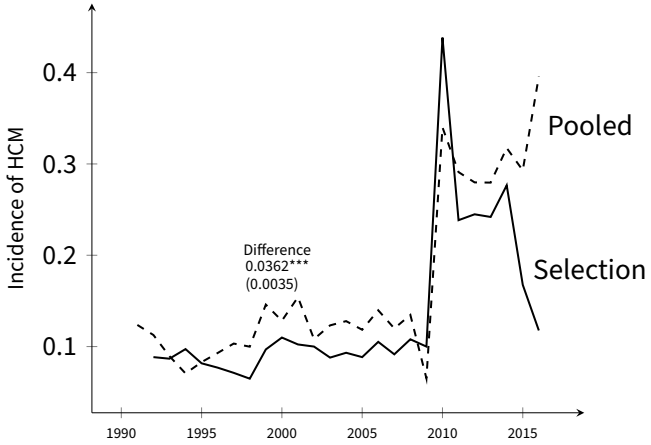
Incidence of Mismatch (II)

Restricted Female Subsample



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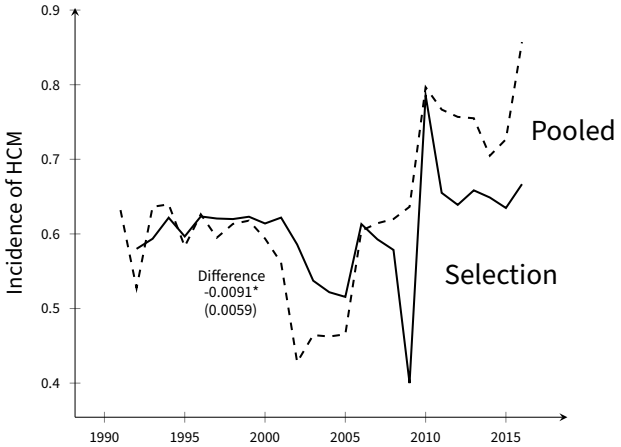
Incidence of Mismatch (III)

Counterfactual Female



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Where is the perfect job?

Perfect job = matched

	Period t			
	Private		Public	
Period $t-1$	N	%	N	%
Public	7	7.29	89	92.71
Private	61	93.85	4	6.15
Unemployment	2	40	3	60

Note: In period $t-1$, individual is in mismatch. In period t, she works in a job that fully utilises her skills (i.e., in match). Averages over 1991-2016.

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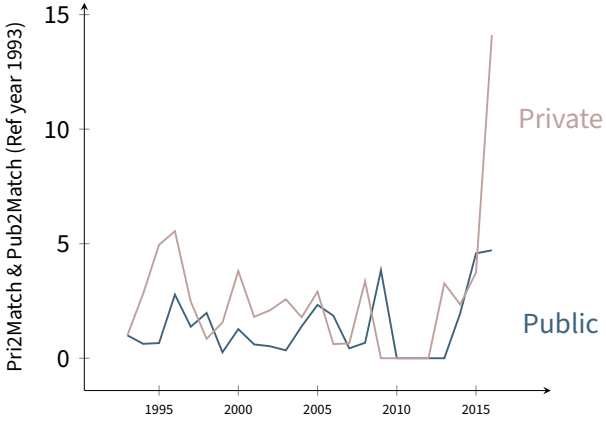
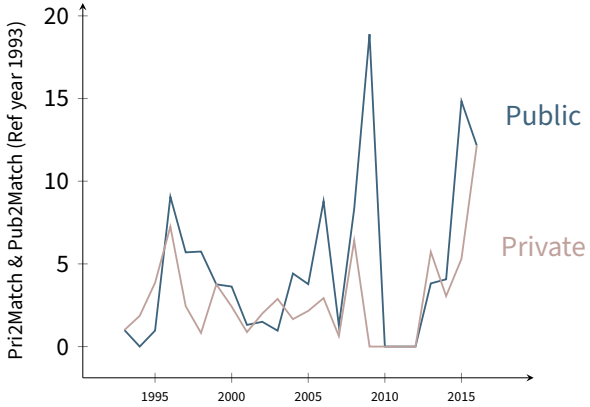
Transitions: Pri2Match and Pub2Match

Restricted Subsample; Reference year 1993



Transitions: Pri2Match and Pub2Match

Relative to median employee; Reference year 1993



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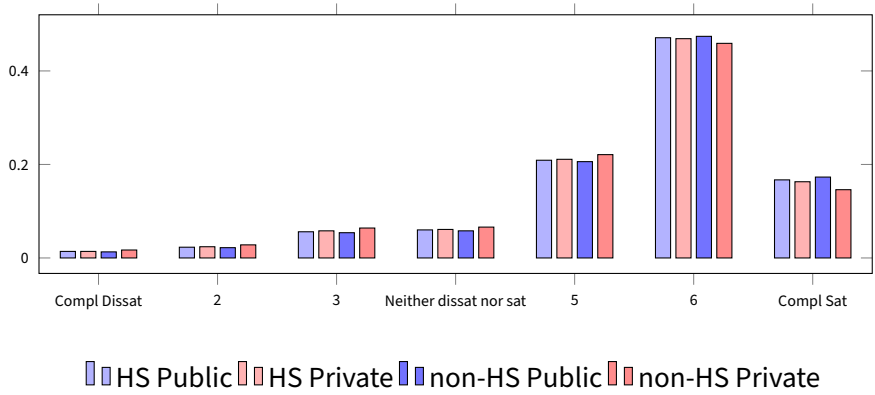
Job satisfaction vs. offers (II)

Marginal outcomes; any female employee



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