Unpacking the Child Penalty Using Personnel Data: How Promotion Practices Widen the Gender Pay Gap

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Motivation & Research Question

- Key fact: Despite progress in women's education and access to high-paying occupations, gender pay gaps persist

- The child penalty (motherhood earnings penalty) is a primary driver of modern gender inequalities

- Prior research has focused on worker-side mechanisms (labor market sorting, gender norms)

- **Research Gap**: Role of organizational practices, particularly internal promotion systems, remains underexplored

- **Our approach**: Using detailed personnel records to decompose the child penalty and identify organizational mechanisms

Data

Rich personnel records (2013-2024)

- **Pay records:** Monthly earnings broken down by 27 distinct pay components

- **Work hours:** Contracted hours, overtime, irregular hours (night/weekend), reduced hours

- **Career tracking:** Job assignments, promotions, annual evaluations

- **Worker characteristics:** Demographics, leave-taking, employee surveys

Data advantage: Can decompose earnings into sources and track mechanisms

Research Setting

Key Features of the Firm

- Large Japanese Manufacturing Firm (~4,000 employees)

- Low annual turnover (4%)
- Generous family-friendly policies

Representative Gender Patterns

- 30% gender pay gap (matches national avg.)
- 8% women in management (close to sector avg.)

Why This Setting Matters

Persistence of gender gaps despite family-friendly policies suggests deeper organizational barriers.

Empirical Strategy

Matched-Control Event Study Design

- Coarsened exact matching (Iacus et al., 2012)

- **Treatment group:** Workers whose first child was born after September 2013

- **Control group:** Childless, married workers matched on gender, education, birth cohort, and marital status
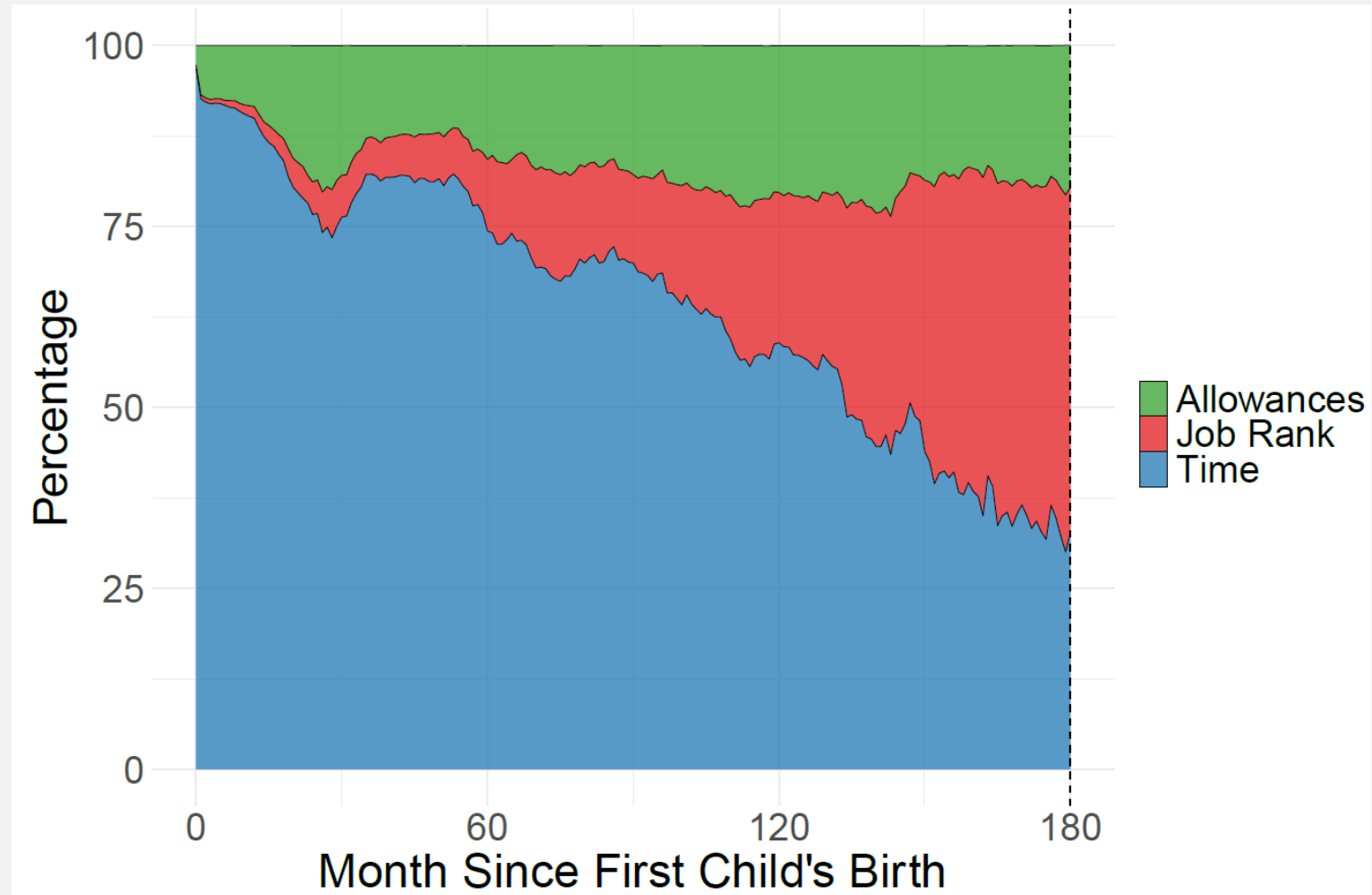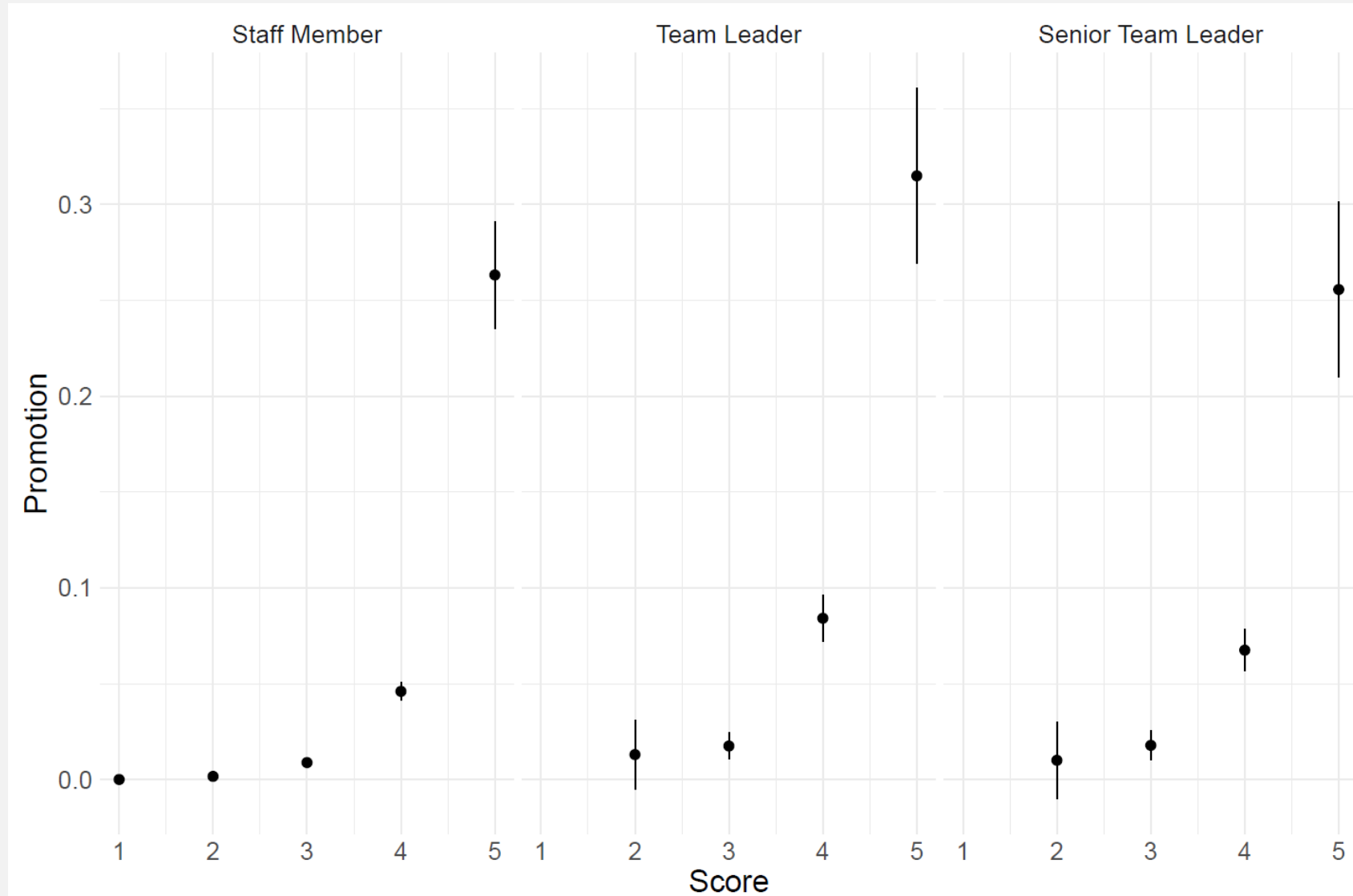
Monthly Salary Change around the 1ˢᵗ Childbirth
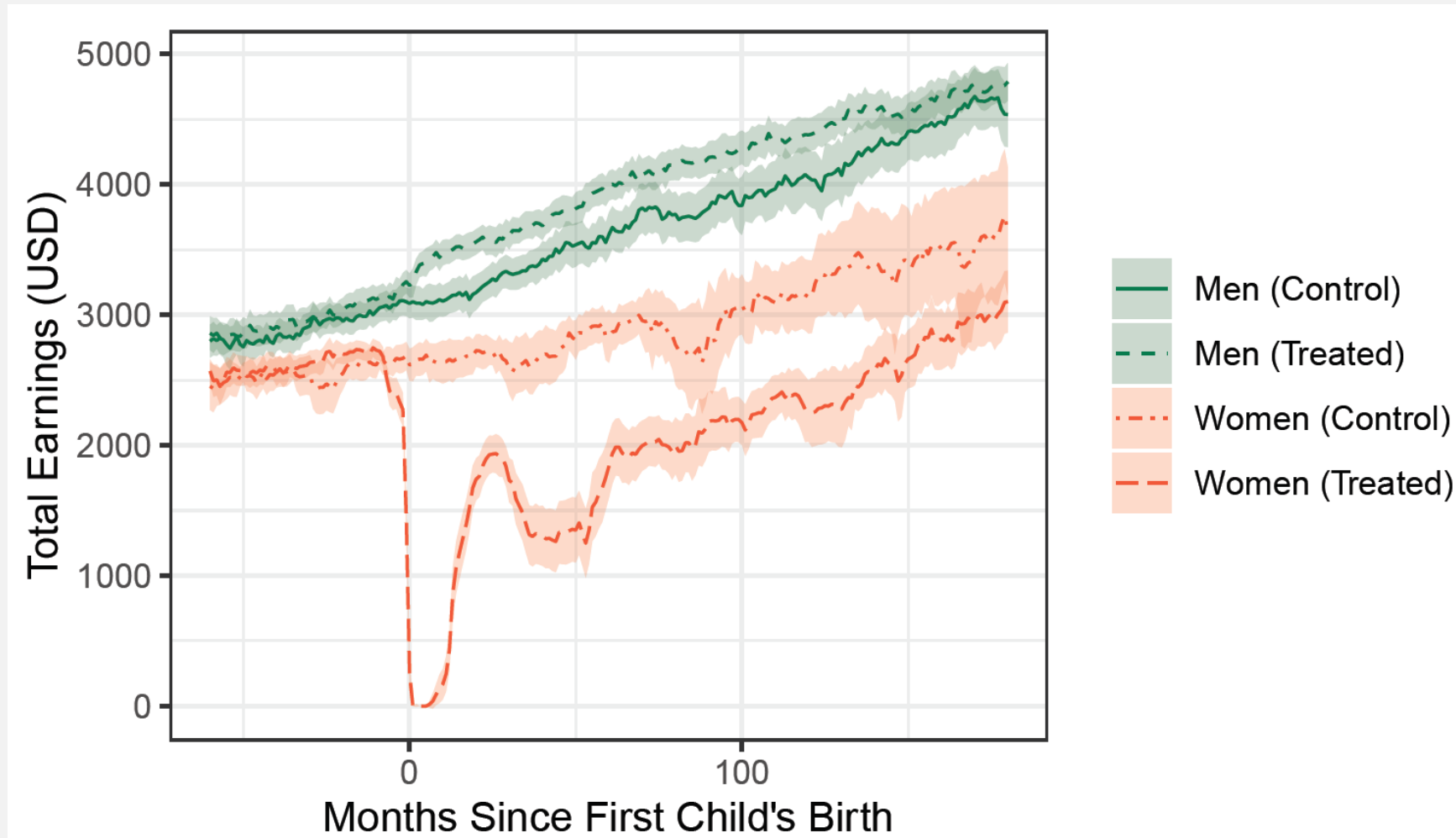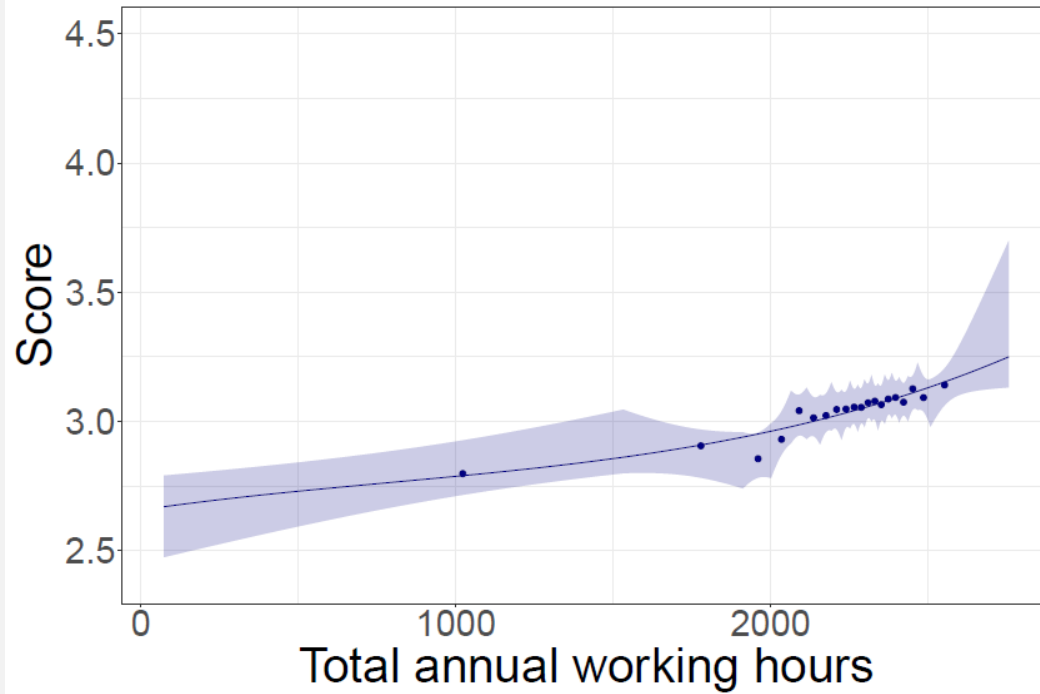
Sources of Child Penalty
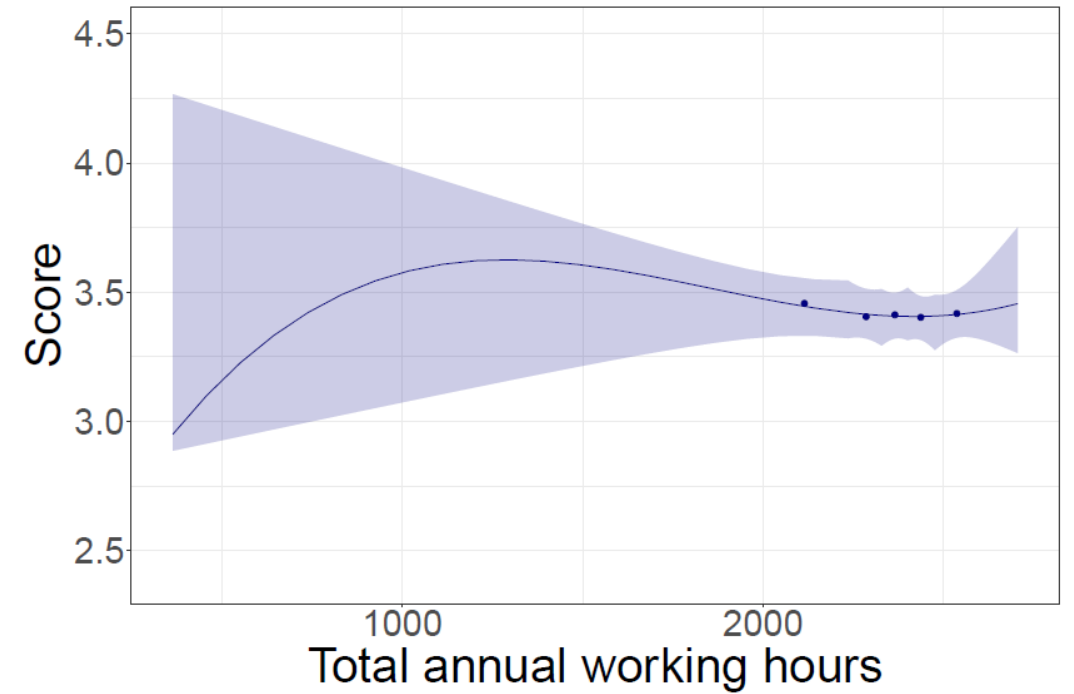
Evaluation Predicts Promotion

Workhours and Evaluation

(a) Staff Member

(b) Team Leader

Theoretical Model

Key Features

- Extension of Gibbons & Waldman (1999) model of internal promotion
- Workers differ in abilities θ and time constraints β
- Step-by-step promotion with fixed thresholds
- Long hours matter only at entry level (empirically supported)

Key Results

- Women face higher β post-childbirth due to childcare responsibilities
- Lower promotion rates from entry level for mothers
- Current system can cause:
  - Production inefficiency (talent misallocation)
  - Pareto inefficiency (capable workers with time constraints disadvantaged)

Policy Implications

Business Case for Reform

– Current promotion practices are not just inequitable but inefficient

– Firms leave talent underutilized with current policies

– Addressing gender gap can improve organizational productivity

Evidence-Based Recommendations

– Overtime work should be rewarded by wage, not by promotion

– Design promotion criteria focused on skills, not presence

– Ensure flexible work arrangements don't hinder career progression

Conclusion

Key Findings

– Long-run child penalty: 55%

– Evolution of sources: time-based pay → job-rank-based pay

– Promotion systems create barriers even without explicit bias

– Explains gender gaps despite family-friendly policies

Main Contributions

– First decomposition of child penalty using personnel records

– Identifies specific organizational mechanisms driving penalty

– Provides efficiency-based arguments for workplace reform