Mothers' labour market responses to the 2018 Families Package

Summer Staninski

Master's student (AUT)

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Supervisors: Ass. Prof. Peer Skov and Ass. Director, NZWRI, Lisa Meehan

Disclaimer

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated-data/.

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Preview

The 2018 extension in Paid Parental Leave (PPL) (18 → 22 weeks) & the introduction of $60 weekly (Best Start) payments caused:

PPL MOTHER – significant increase in average number of weeks on leave

PPL FATHER – no change in length of leave

EMPLOYMENT MOTHER – no effect in employment 6 months+ post-birth

EMPLOYMENT FATHER – no effect in employment

The 2018 Families Package

PPL extension: 18 → 22 weeks
Best Start: universal $60 per week

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Eligible if due or give birth ≥ 1 July 2018

30 June
- 18 weeks PPL

1 July
- 22 weeks PPL
- Best Start

The 2018 Families Package

PPL extension: 18 → 22 weeks
Best Start: universal $60 per week

Eligible if due or give birth ≥ 1 July 2018

30 June
- 18 weeks PPL
- Eligible for other policies from 1 July

1 July
- 22 weeks PPL
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PPL extension: 18 → 22 weeks
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1 July
- 22 weeks PPL
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RESEARCH QUESTION: What was the effect of the PPL extension and introduction of Best Start on mothers' employment and W&S up to 18 months post-birth?

Policy expectations, motivation and literature

POLICY EXPECTATIONS

PPL increase ⇒ increase time mothers spend at home in first six months

Best Start ⇒ increase income ⇒ increase employment after PPL period

Policy expectations, motivation and literature

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Motivation

Mothers at home during first six months ⇒ better outcomes for children *(Heckman, 2006)*

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Best Start ⇒ increase income ⇒ increase employment after PPL period

Motivation

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International literature

Germany *(Dustmann & Schönberg, 2011)*:

PPL extension 2 → 6 months ⇒ ↑ mothers on leave between 2 and 6 months post-birth

Norway (*Dahl et al., 2013)*:

PPL extension 18 → 35 weeks ⇒ no effect on mothers' employment post-birth

Data

Data source: **Statistics NZ Integrated Data Infrastructure**: population-wide linked administrative data

POPULATION OF INTEREST: first time mothers giving birth in 2018 (n = 24,755):

- DIA birth record data: child birth month and year, mother & father IDs
- **Comparison group:** Mothers who give birth Jan – Jun 2018
- **Treatment group**: Mothers who give birth Jul – Dec 2018

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DATA STRUCTURE: perfectly balanced panel (55 monthly observations)

- Event timeline: from -36 to +18 months relative to birth (0)

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LABOUR MARKET OUTCOMES: employment and earnings

- IRD Employer Monthly Schedule: monthly gross income, income source (W&S, PPL, BEN etc.), employment: W&S > $0

Covariate balance

		Comparison
	Variable	Mean
Demographic	Mother's age at birth	29
	Mother born in NZ	58%
	Father of child identified	95%
	Multiple births	1%
	Gestation length	39 weeks
	Birth weight	3.35kg
Ethnicity	European	48%
	Asian	23%
	Māori	16%
	Pacific	10%
	MELAA	2%
Region	Auckland	38%
	Canterbury	12%
	Wellington	11%
Education	No formal qualifications	20%
	Highest qualification: NCEA Level 3	19%
	Highest qualification: Bachelor's degree	30%
	Qualification missing	31%
Labour	Employment rate at 12 months pre-birth	67%
	Gross annual W&S at $t = -2$	$32,019
	Gross annual BEN at $t = -2$	$614
	Total observations	12,282

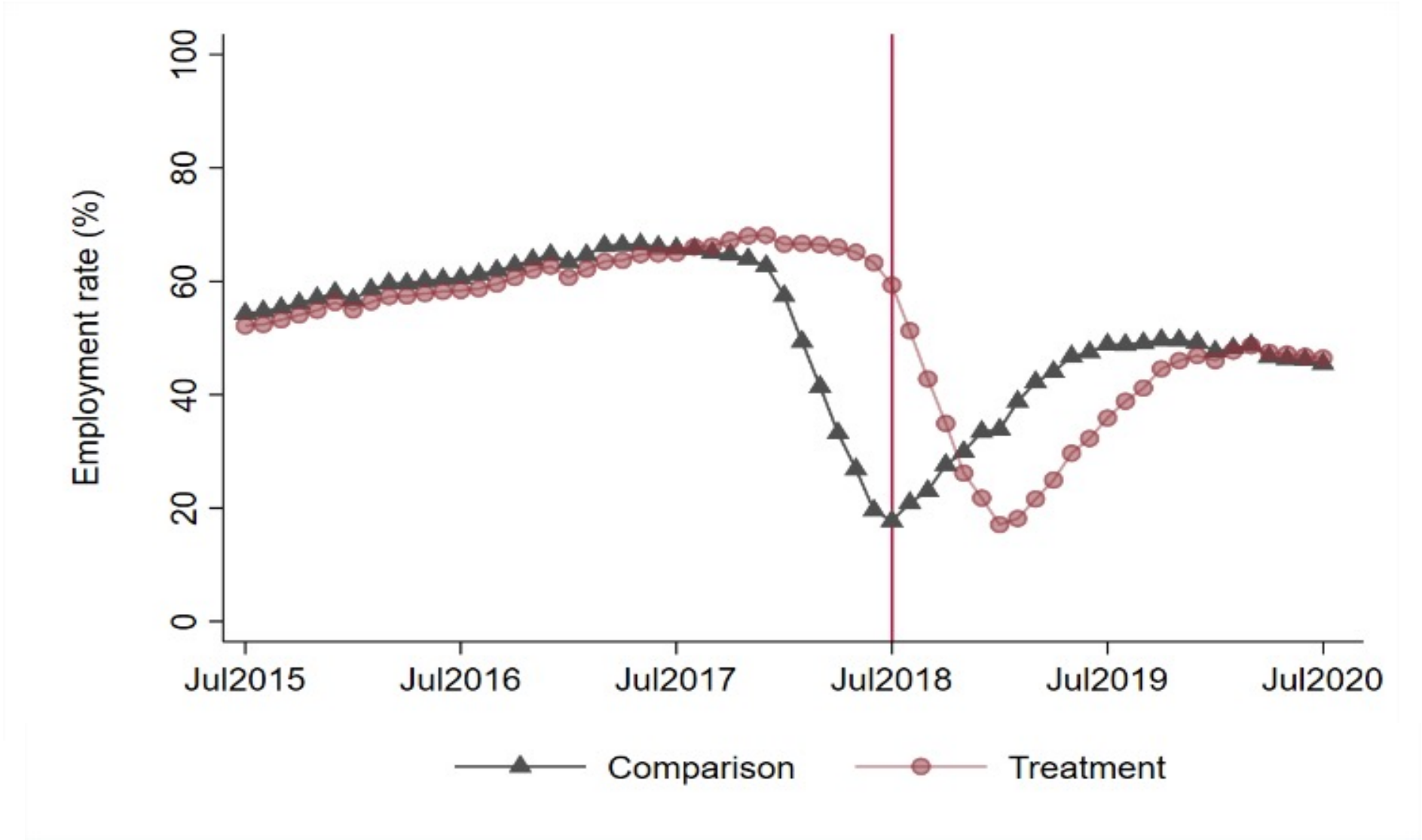
Source: Own calculations based on data in Statistics NZ's IDI

Covariate balance

		Comparison	Treatment
	Variable	Mean	Mean
Demographic	Mother's age at birth	29	29
	Mother born in NZ	58%	58%
	Father of child identified	95%	95%
	Multiple births	1%	1%
	Gestation length	39 weeks	39 weeks
	Birth weight	3.35kg	3.36kg
Ethnicity	European	48%	47%
	Asian	23%	24%
	Māori	16%	16%
	Pacific	10%	9%**
	MELAA	2%	2%
Region	Auckland	38%	38%
	Canterbury	12%	12%
	Wellington	11%	11%
Education	No formal qualifications	20%	21%
	Highest qualification: NCEA Level 3	19%	19%
	Highest qualification: Bachelor's degree	30%	30%
	Qualification missing	31%	30%
Labour	Employment rate at 12 months pre-birth	67%	68%
	Gross annual W&S at $t = -2$	$32,019	$32,063
	Gross annual BEN at $t = -2$	$614	$583
	Total observations	12,282	12,473

Source: Own calculations based on data in Statistics NZ's IDI

Employment across calendar time



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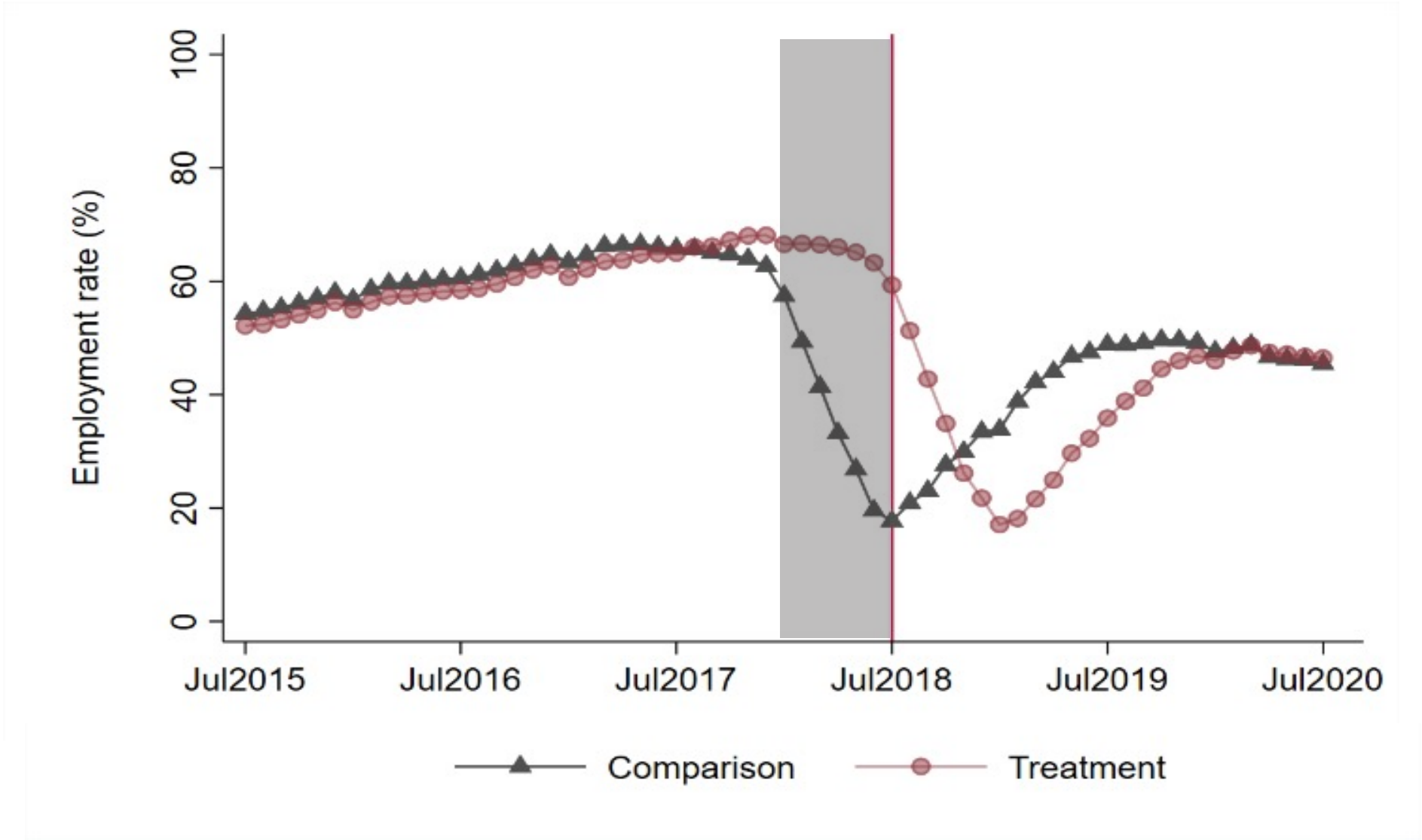

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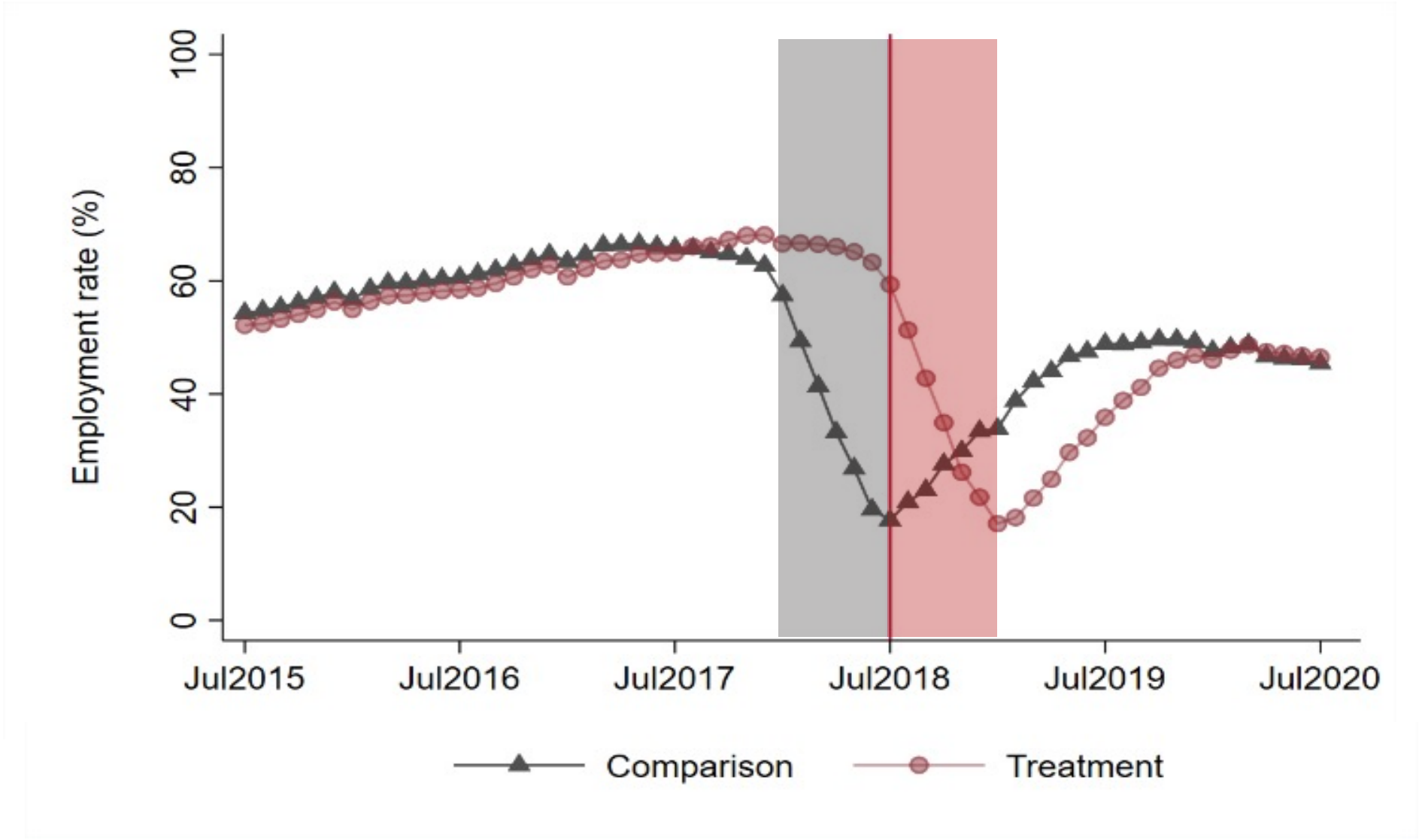

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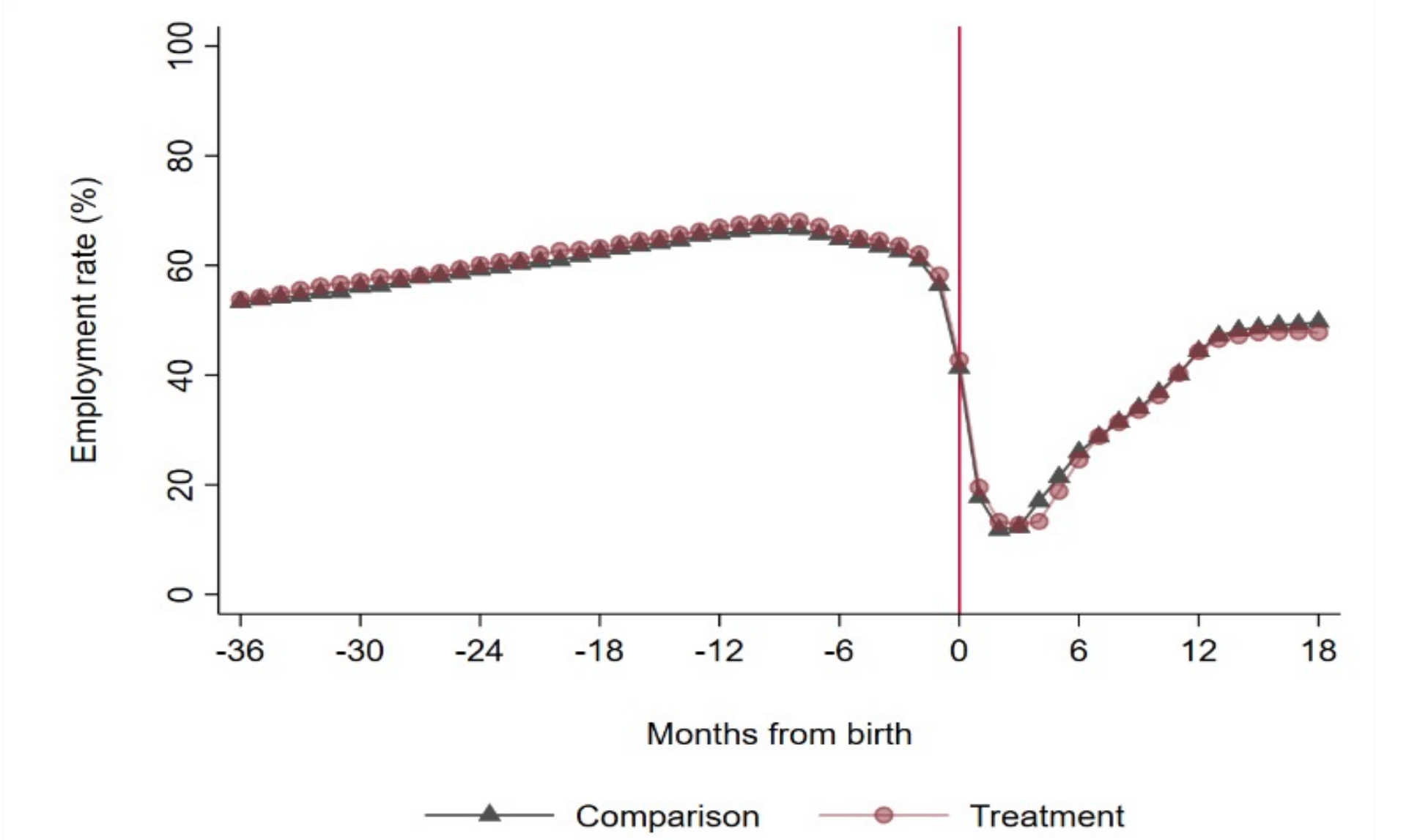
Employment across event timeline



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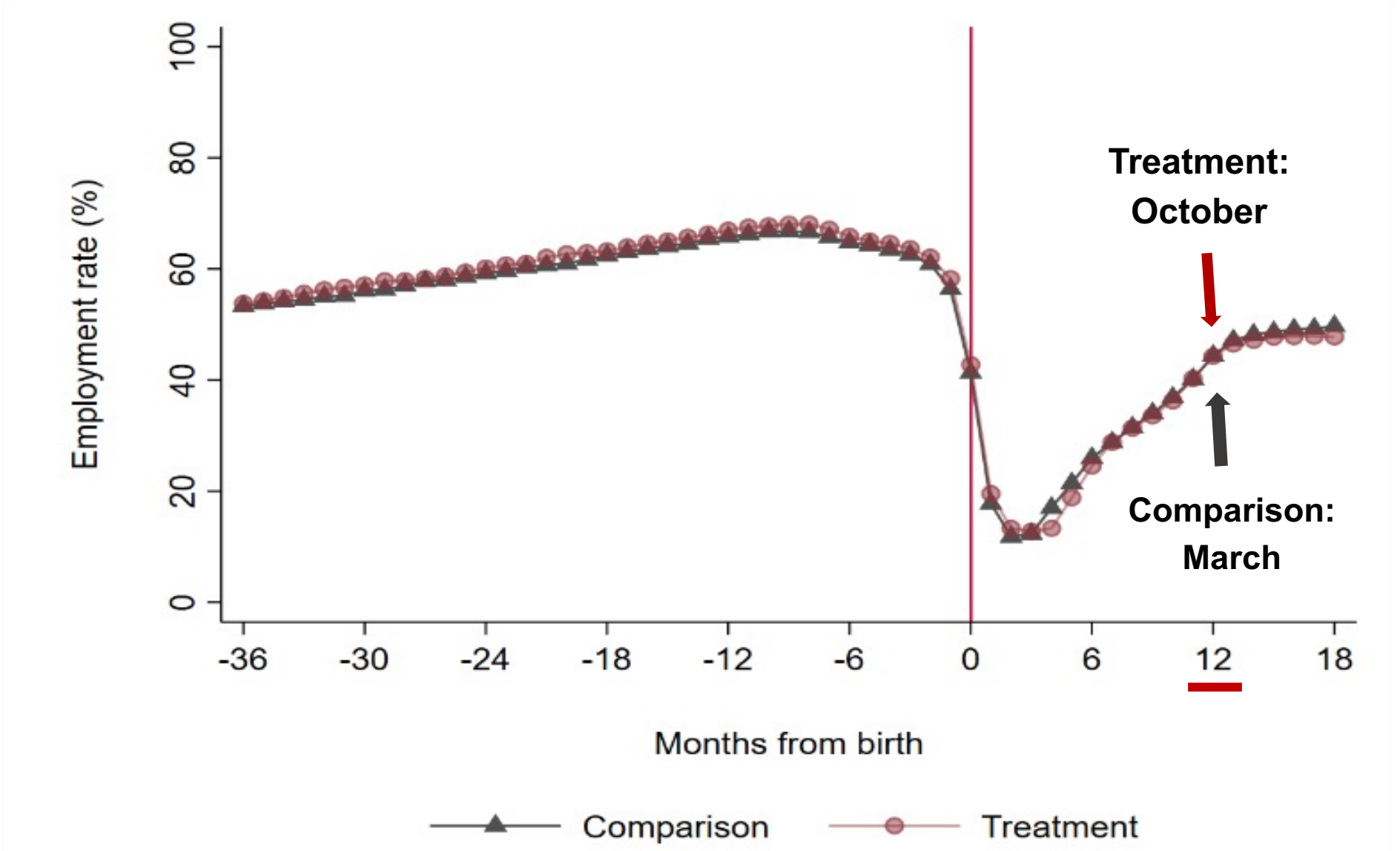

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Difference-in-differences model

$$Y_{iet} = \alpha + \beta\, TR_i + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \delta_j \cdot 1[j = e] + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \gamma_j \cdot (1[j = e] \cdot TR_i) + \sum_m \tau_m \cdot 1[m = t] + u_{iet}$$

Y_{iet} Employment status for individual i at event time e and calendar time t

Difference-in-differences model

$$Y_{iet} = \alpha + \beta\, TR_i + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \delta_j \cdot 1[j = e] + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \gamma_j \cdot (1[j = e] \cdot TR_i) + \sum_m \tau_m \cdot 1[m = t] + u_{iet}$$

α Comparison group employment rate at $e = -9$

Difference-in-differences model

$$Y_{iet} = \alpha + \boldsymbol{\beta}\, TR_i + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \delta_j \cdot 1[j = e] + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \gamma_j \cdot (1[j = e] \cdot TR_i) + \sum_m \tau_m \cdot 1[m = t] + u_{iet}$$

$\boldsymbol{\beta}$ Level difference between comparison group's employment rate α and treatment group's employment rate at $e = -9$

Difference-in-differences model

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EVENT TIME DUMMIES

δ_j Difference in comparison group's employment rate in each of 54 months, relative to $e = -9$

Difference-in-differences model

$$Y_{iet} = \alpha + \beta\, TR_i + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \delta_j \cdot 1[j = e] + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \gamma_j \cdot (1[j = e] \cdot TR_i) + \sum_m \tau_m \cdot 1[m = t] + u_{iet}$$

PARAMETER OF INTEREST

γ_j Level difference in comparison and treatment groups' employment rate in each of 54 months, relative to $e = -9$

Interpretation: Δ Employment (pp)

Difference-in-differences model

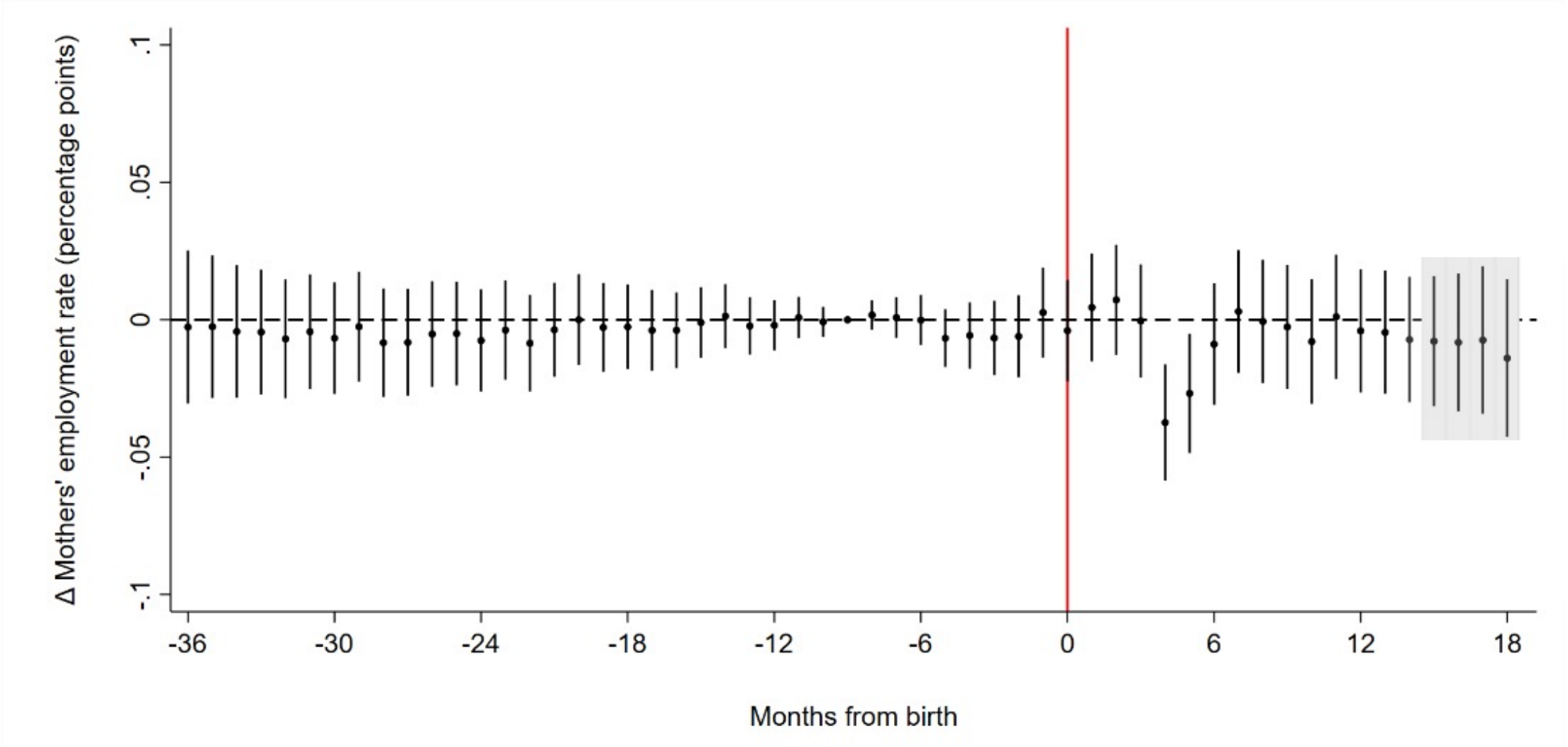
$$Y_{iet} = \alpha + \beta\, TR_i + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \delta_j \cdot 1[j = e] + \sum_{\substack{j=-36 \\ j\neq -9}}^{18} \gamma_j \cdot (1[j = e] \cdot TR_i) + \sum_m \tau_m \cdot 1[m = t] + u_{iet}$$

CALENDAR TIME FIXED EFFECTS

τ_m Controls for seasonality in the labour market

Difference-in-differences regression results

The average effect of the PPL extension and Best Start (γ_j) on monthly employment rates



Source: Own calculations based on data in Statistics NZ's IDI

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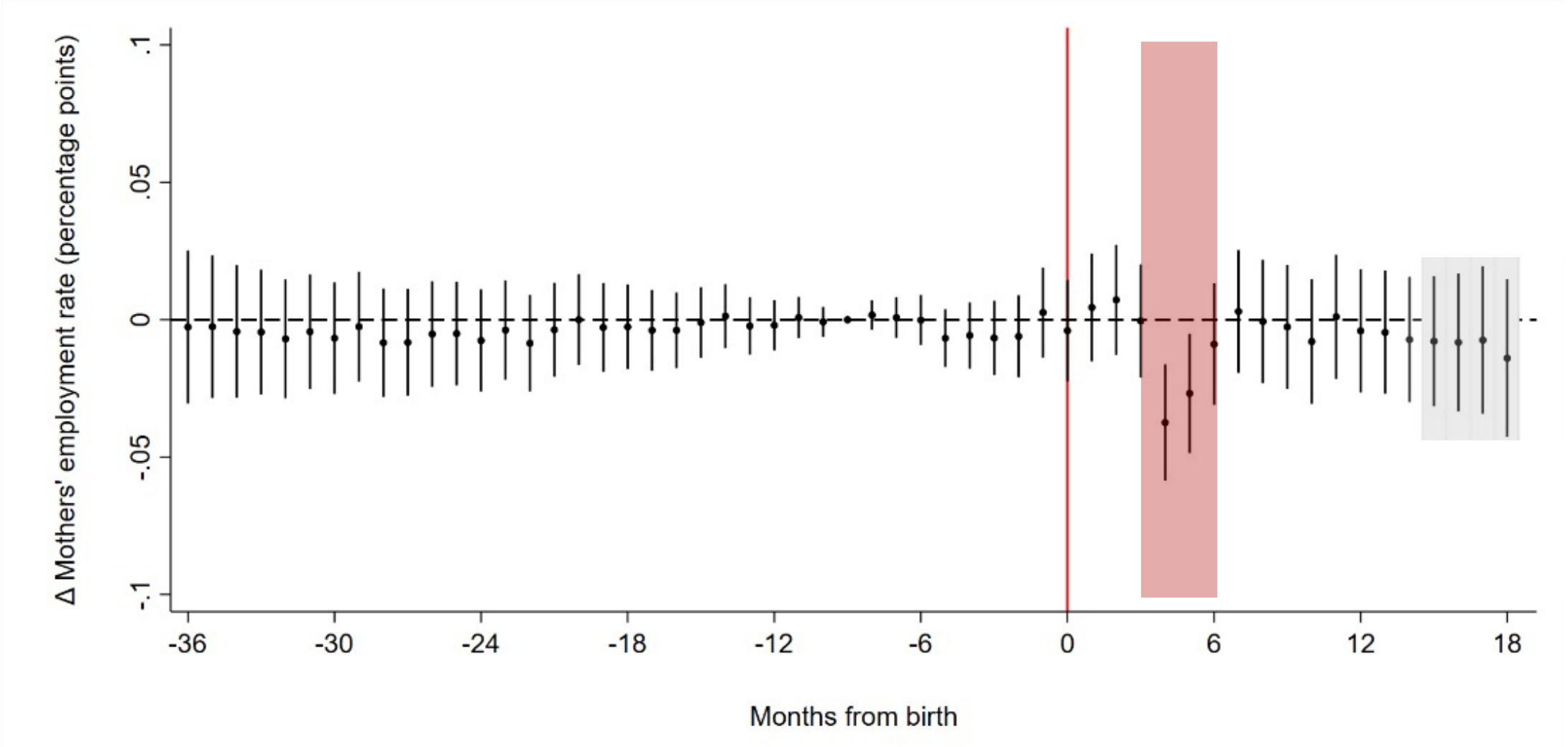

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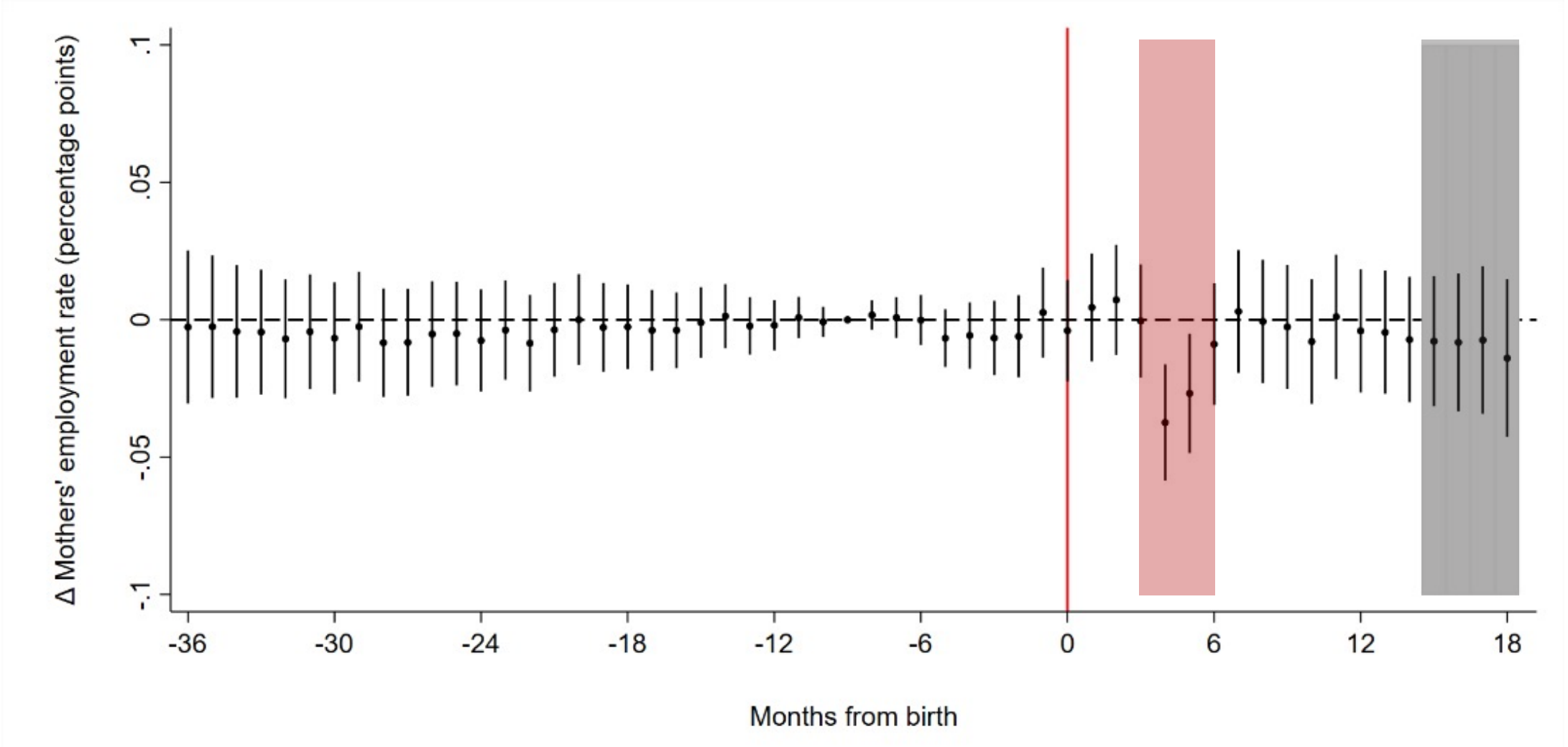

Source: Own calculations based on data in Statistics NZ's IDI

Conclusion

The 2018 extension in PPL (18 → 22 weeks) and the introduction of universal $60 weekly (Best Start) payments caused:

MOTHERS TO STAY AT HOME FOR LONGER:

Mothers' employment rate at five months post-birth ↓ **-0.025**
pp Mothers' W&S at five months post-birth ↓ **-$111**

NO CHANGE IN EMPLOYMENT AFTER SIX MONTHS:

Between six and 18 months post birth, there is no effect on mothers' employment or W&S

NO CHANGE FOR FATHERS' LENGTH OF LEAVE OR EMPLOYMENT AND W&S

Thank you!

Robustness

Method/sample:	Robust:
DD: one-month window	✓
DD: two-month window	✓
DD: three-month window	✓
DD: six-month window less June and July	✓

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DD: one-month window	✓
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IV: 12 months post-birth	✓
IV: 18 months post-birth	✓

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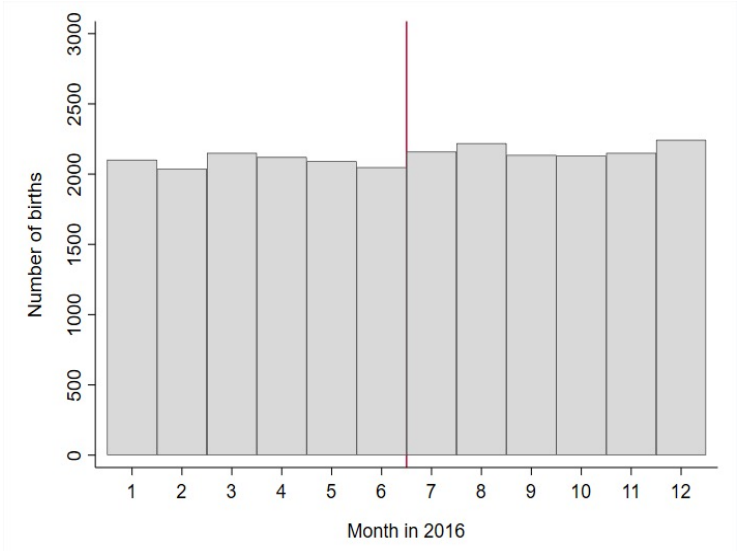
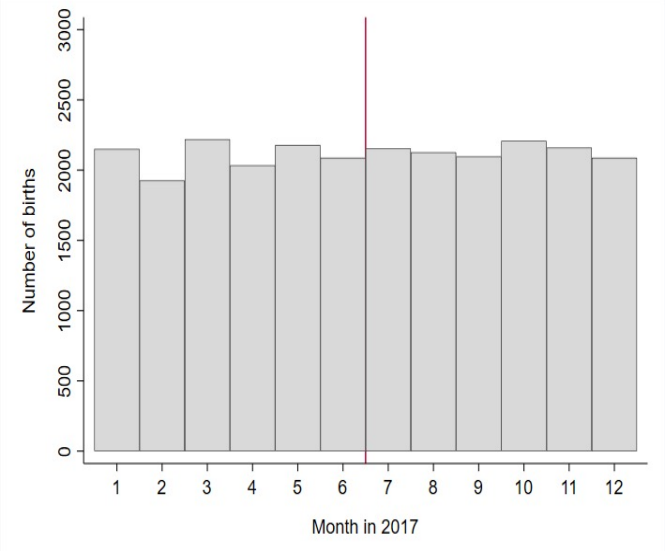
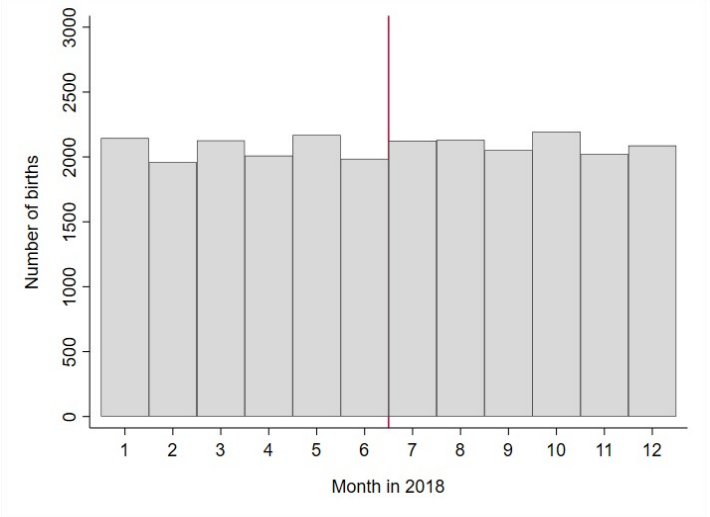
DD: six-month window less June and July	✓
IV: six months post-birth	✓
IV: 12 months post-birth	✓
IV: 18 months post-birth	✓
FRDD: six months post-birth	✓
FRDD: 12 months post-birth	✓
FRDD: 18 months post-birth	✓

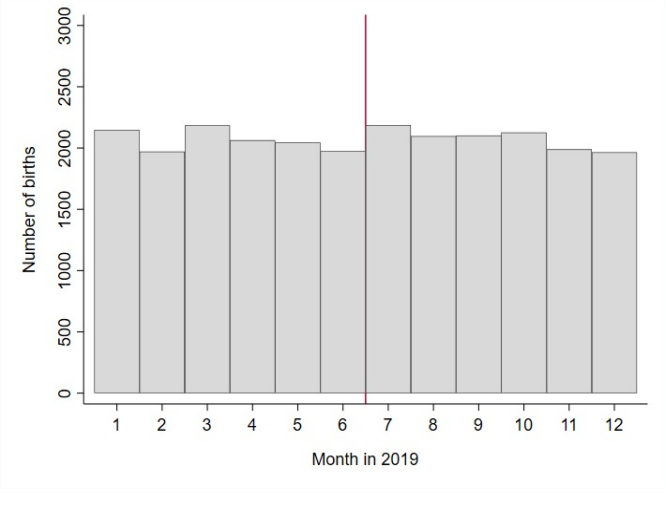
Visual inspection of monthly birth density

Density of births to first time mothers across each month of 2016, 2017, 2018 and 2019



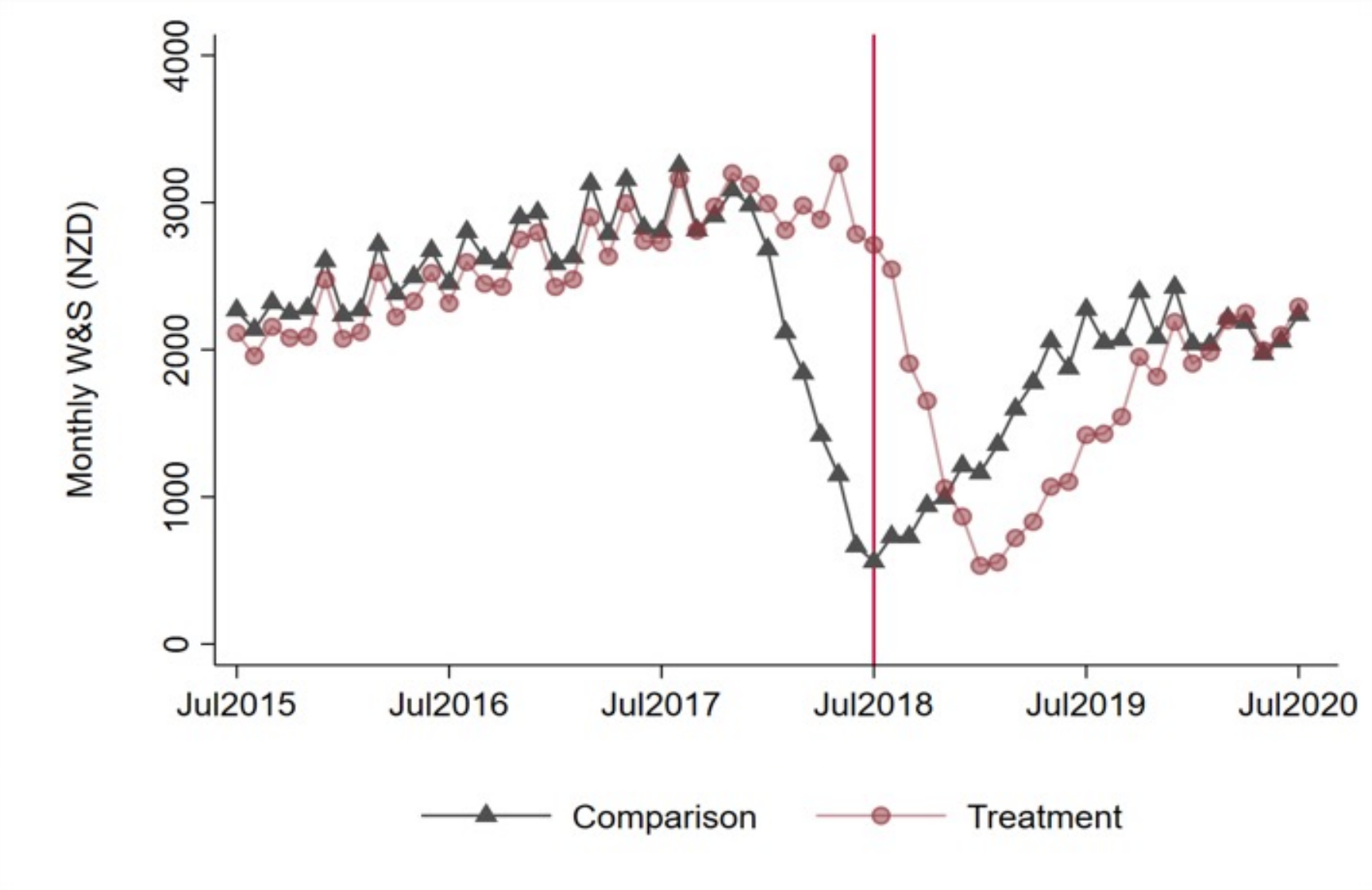






Source: Own calculations based on data in Statistics NZ's IDI

Mothers' W&S across calendar time



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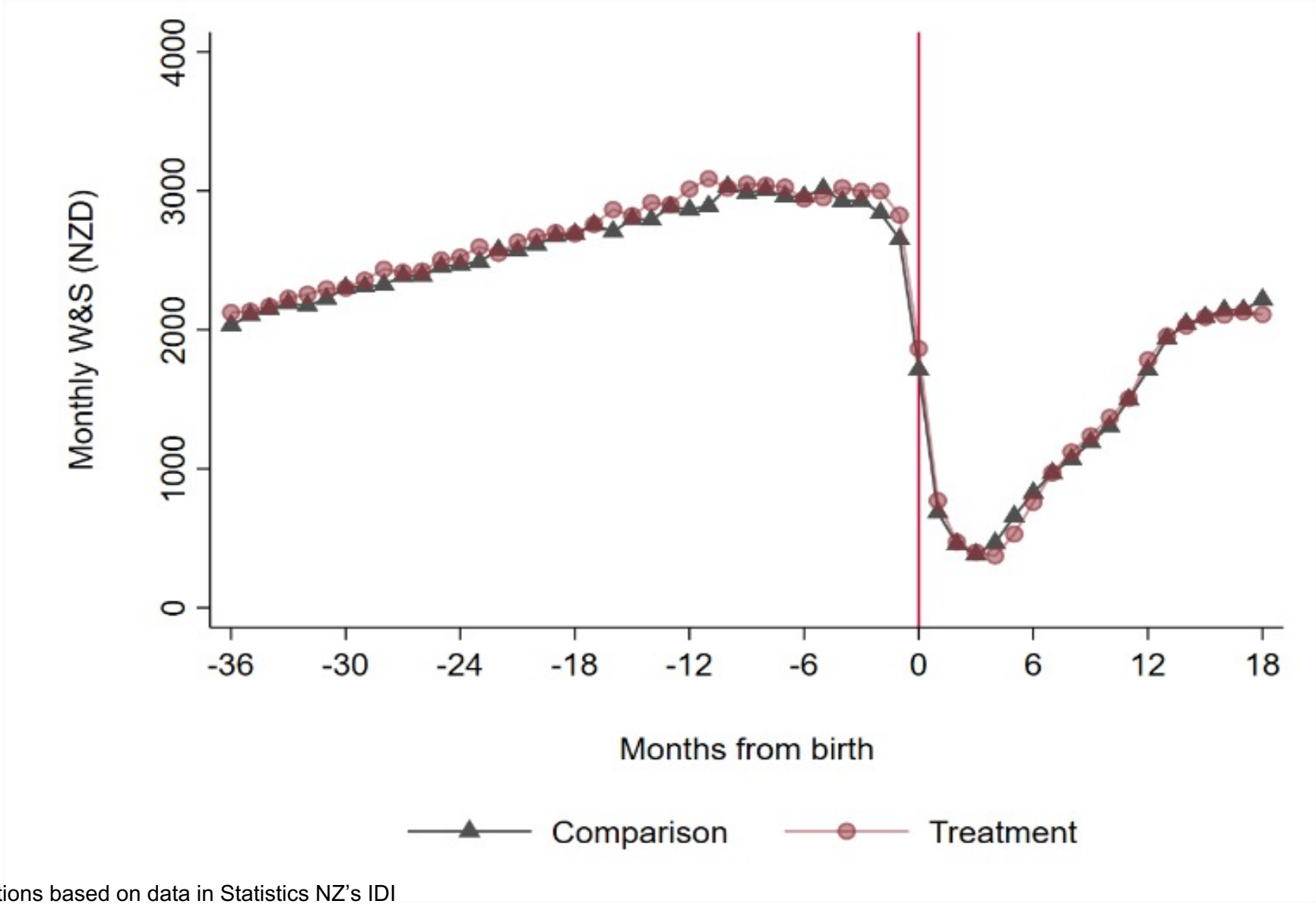
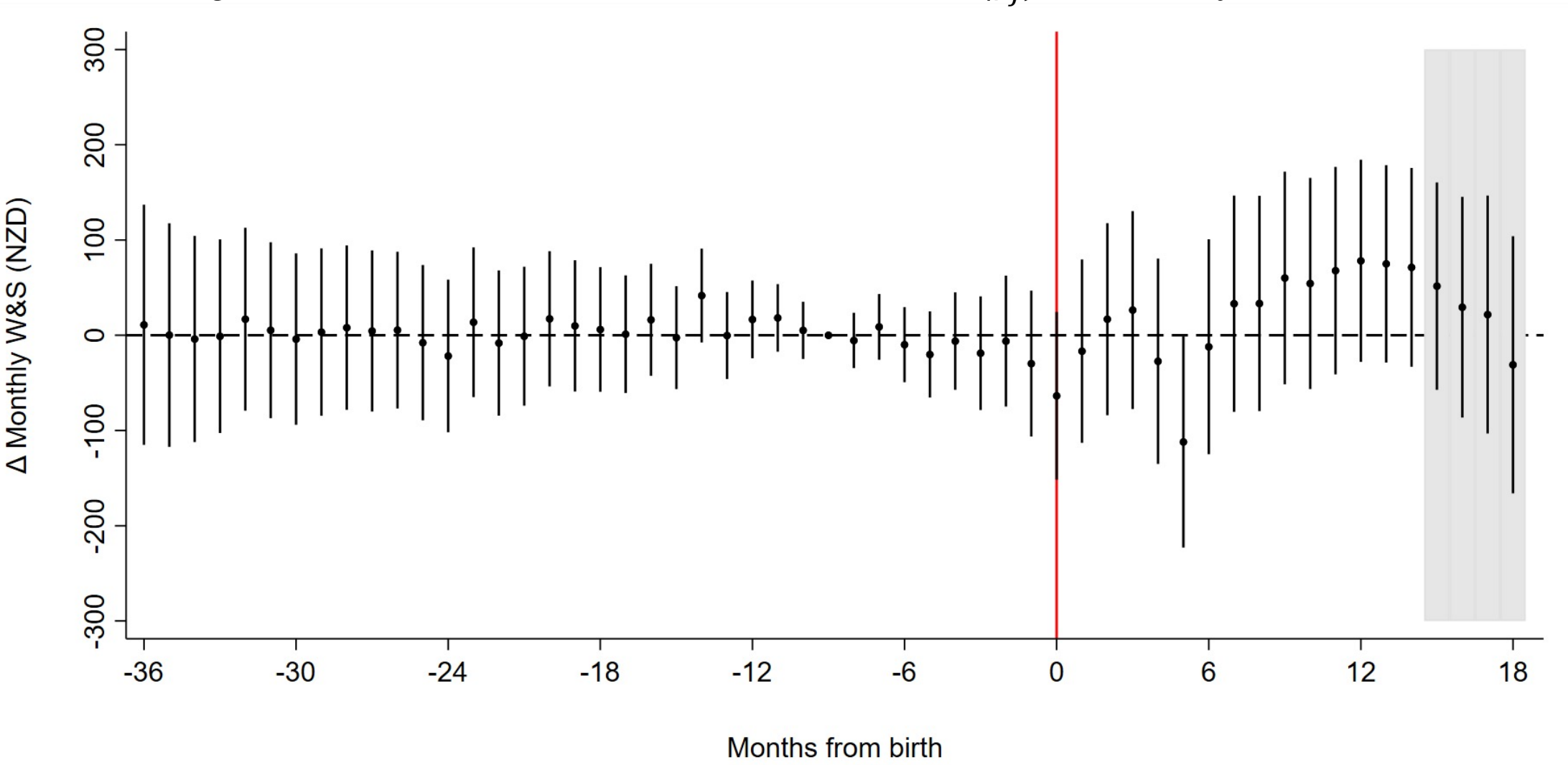
Mothers' W&S across event timeline



Source: Own calculations based on data in Statistics NZ's IDI

Regression results: mothers' W&S

The average effect of the PPL extension and Best Start (γ_j) on monthly W&S



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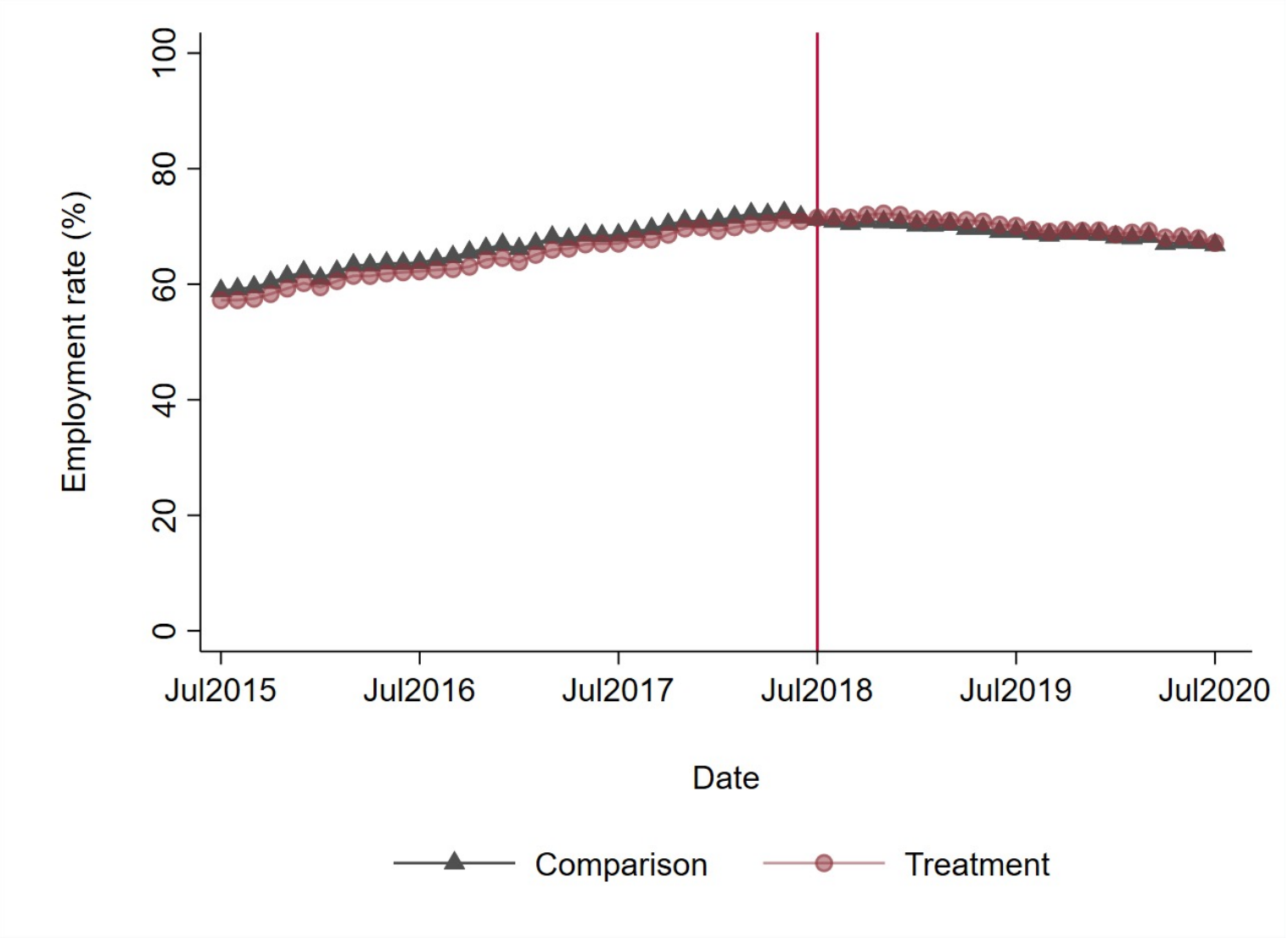
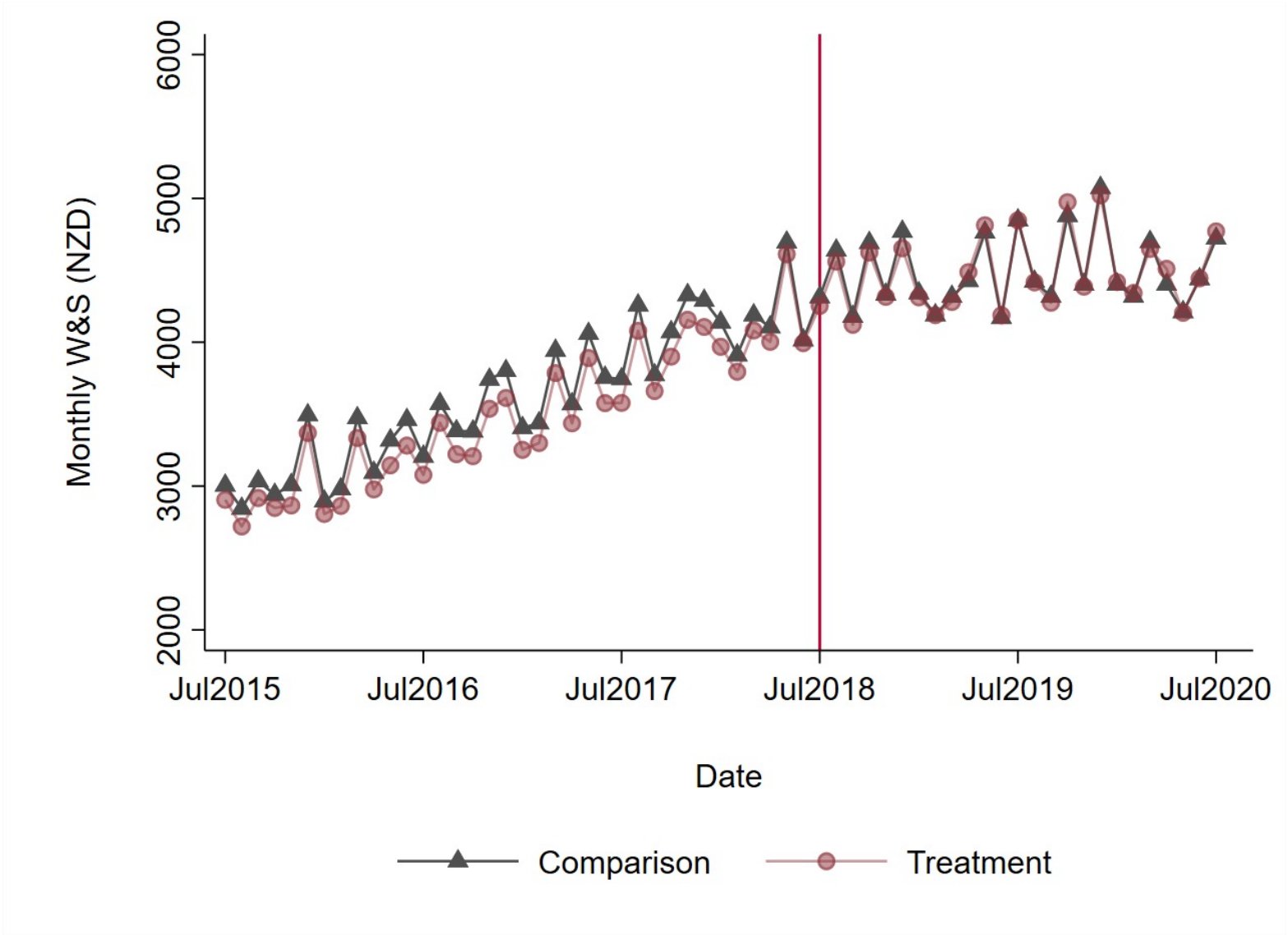
Fathers' employment across calendar time



Source: Own calculations based on data in Statistics NZ's IDI

Fathers' W&S across calendar time



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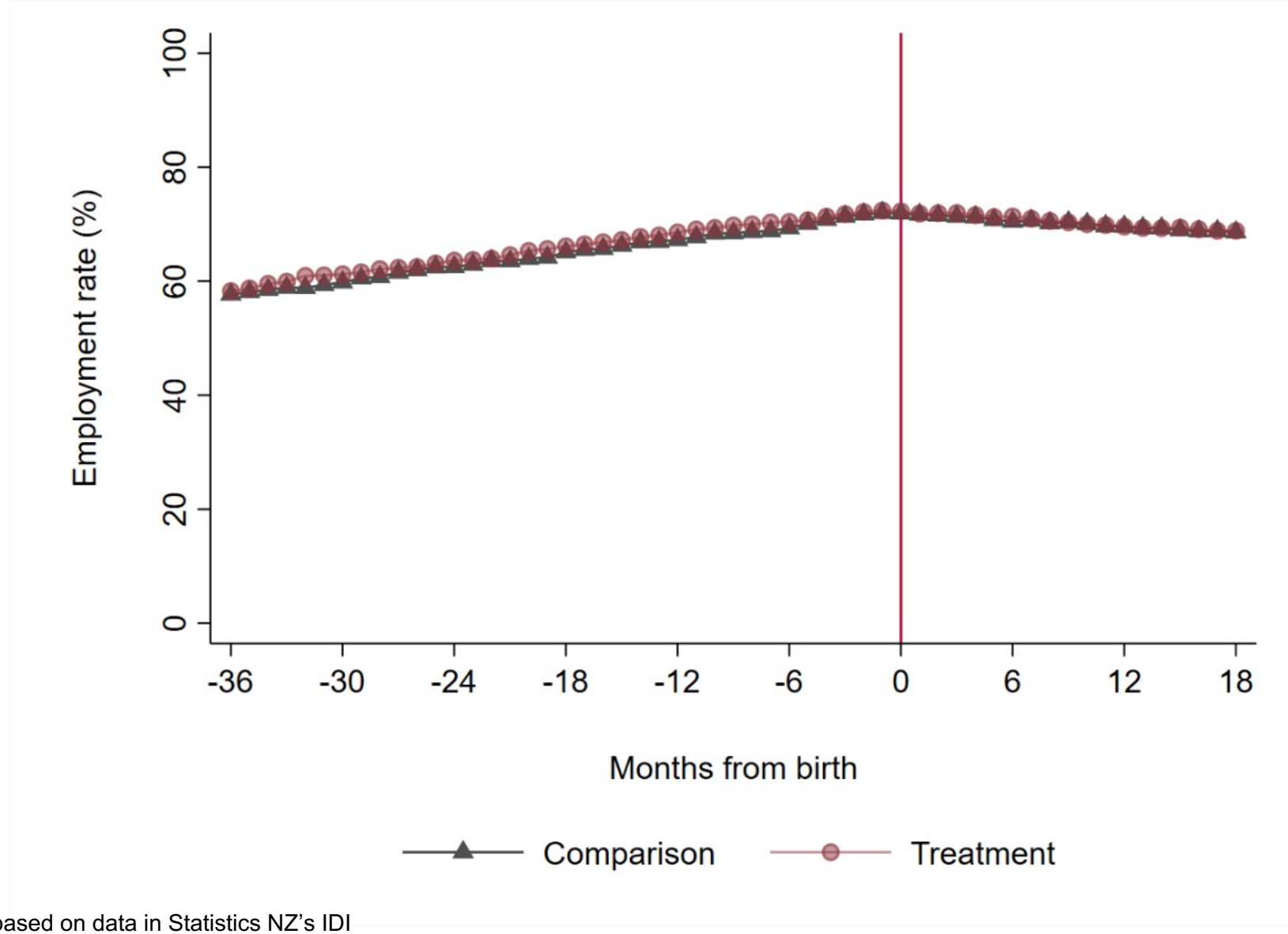
Fathers' employment across event timeline



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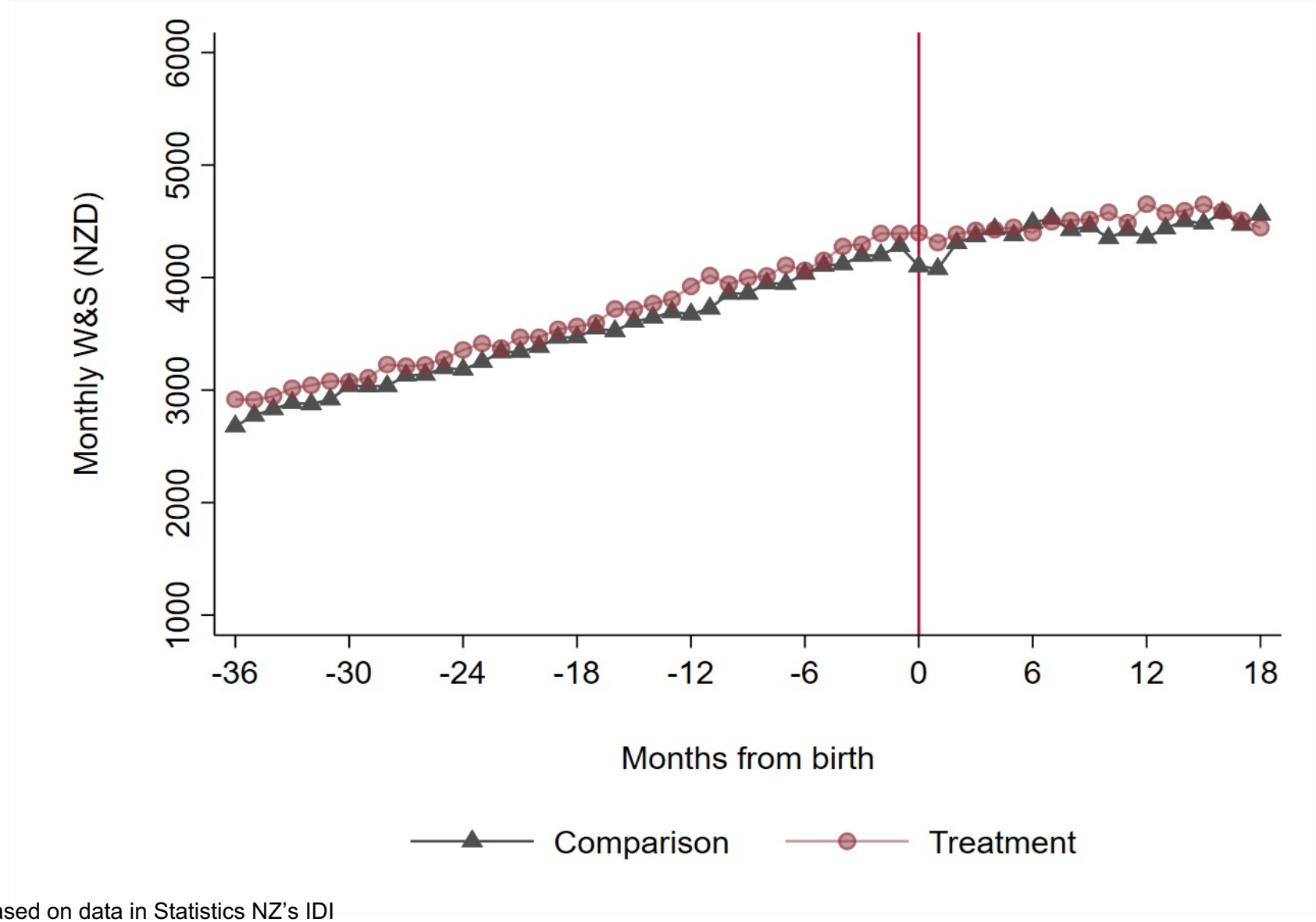
Fathers' W&S across event timeline



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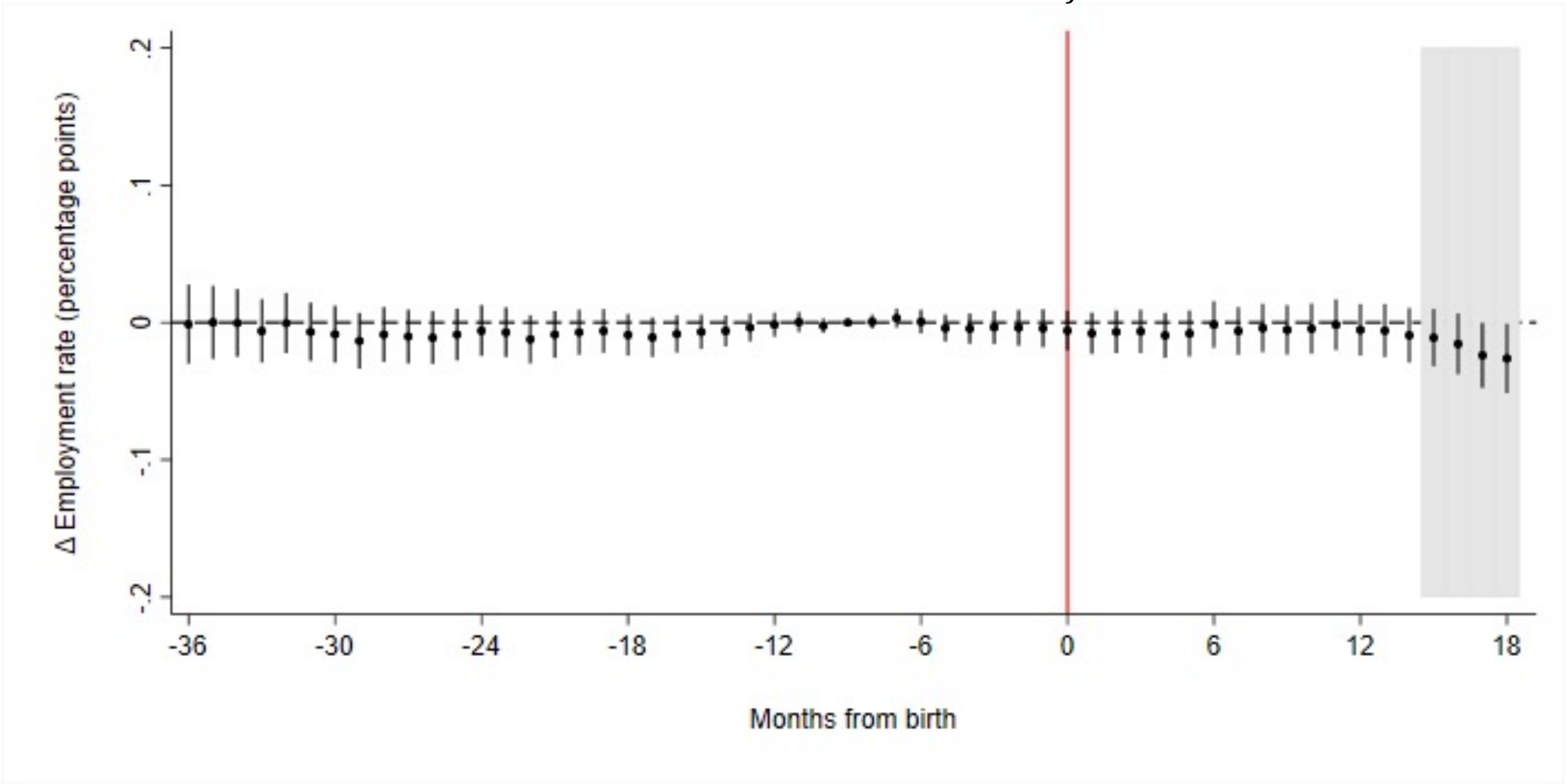
Regression results: fathers' employment

The average effect of the PPL extension and Best Start (γ_j) on monthly employment



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Regression results: fathers' W&S

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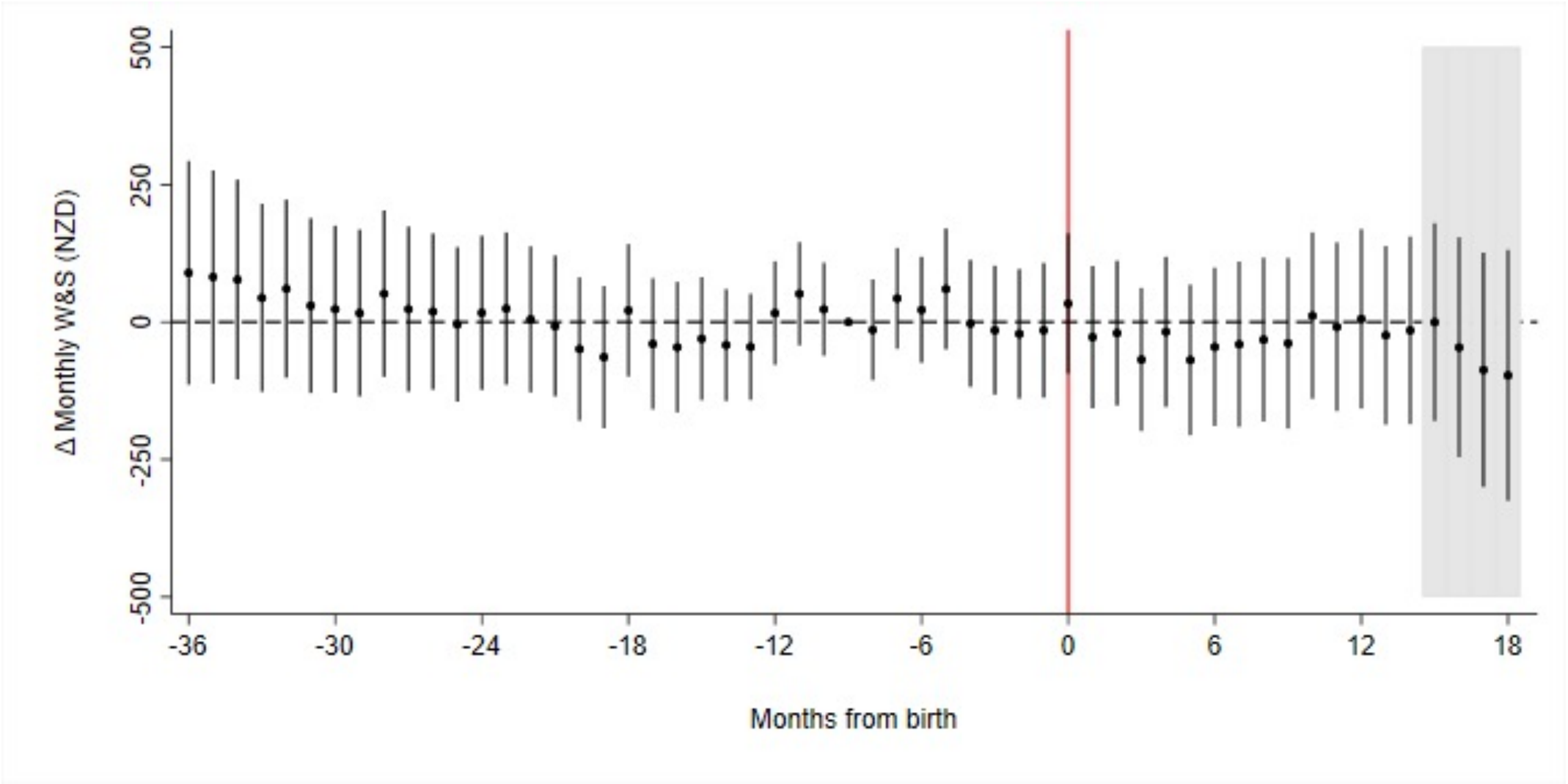
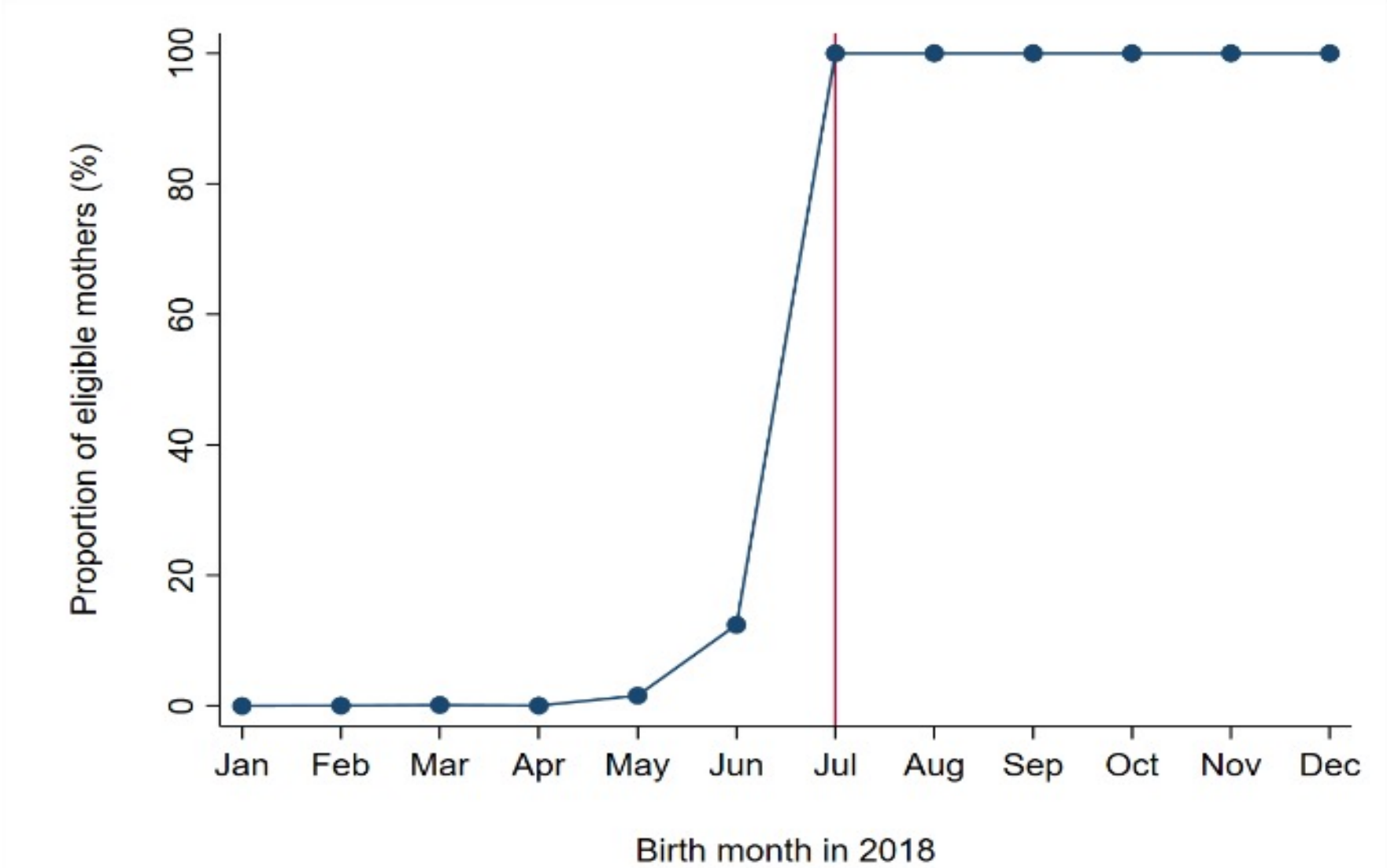


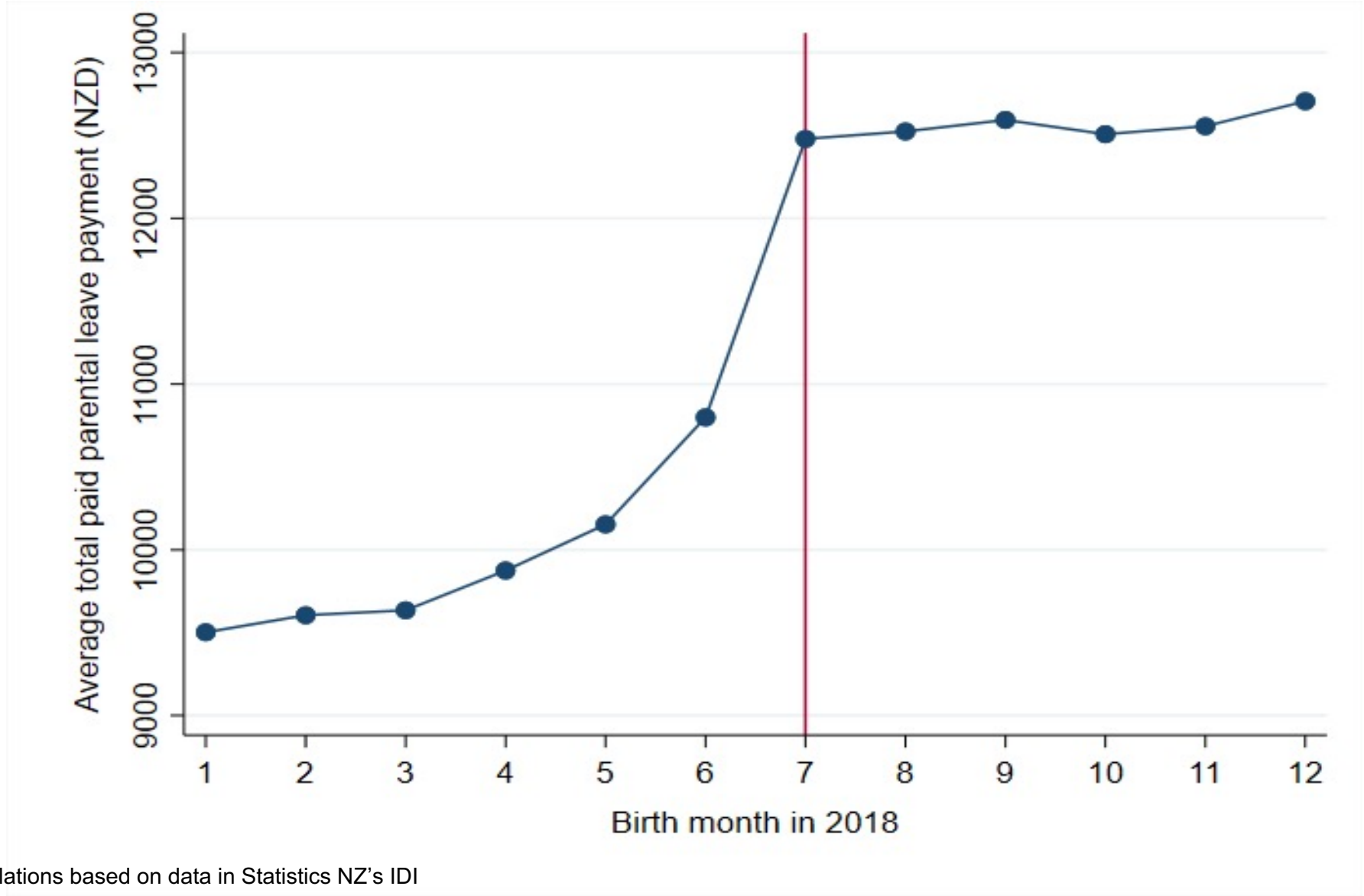
Source: Own calculations based on data in Statistics NZ's IDI

Best Start eligibility across birth month



Source: Own calculations based on data in Statistics NZ's IDI

Total PPL payments across birth month



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