

Leave in the lurch: Technical appendix

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Summary

For this paper CPP first analysed country level data on paternity leave entitlements and gender inequality in the labour market, as measured by gender wage and participation gaps. We additionally analysed the results of two surveys: one Pregnant then Screwed survey of 3,540 parents carried out during January and February 2023 and one nationally and politically representative YouGov survey of 2,136 adults carried out between the 22nd and 23rd May 2023. This appendix covers the methodology and results of these analyses.

Economic analysis of OECD data

The purpose of this regression exercise was to identify the average effect of paternity leave policies on the incidence of gender wage gap as well as gender gaps in labour force participation rates.

Data

The model relied on data from 38 OECD countries for the time period 1975-2021, with the treatment group consisting of countries that have more than six weeks of paid father-specific leave according to an OECD data (see Figure 1).ⁱ

Figure 1: Treatment and control countries for OECD analysis

Treatment countries	Control group
Austria	Australia
Belgium	Canada
Finland	Czech Republic
France	Chile
Germany	Colombia
Iceland	Denmark
Japan	Costa Rica
Korea	Estonia
Luxembourg	Greece
Norway	Hungary
Portugal	Ireland
Sweden	Italy
	Israel
	Mexico
	Latvia
	Netherlands

	Lithuania
	New Zealand
	Poland
	Slovak Republic
	Spain
	Slovenia
	Switzerland
	Türkiye
	United Kingdom
	United States

Method

This analysis used a heterogeneous difference-in-differences regression model with binary treatment. We use this model because in the absence of an experimental design, a major concern is that the countries that offer longer periods of paid paternity leave could be significantly different from those that don't and that these differences may be correlated with gender gaps in the labour market. This may lead to inaccurate estimates of the true effect of paternity leave. In principle, many of such confounding variables are fixed over time and a difference-in-differences model helps to control for this time-invariant unobserved heterogeneity. This model compares the changes in outcomes in treated countries before and after the intervention to the changes in control group outcomes. The difference-in-differences method includes time-fixed effects that control for any common shocks across countries and country-fixed effects that control for time-invariant characteristics specific to each country.

We find that countries with longer paternity entitlements exhibit a decreased incidence of both wage gaps and labour force participation gaps between genders, by nearly 4 and 3.7 percentage points respectively, at a significance level of 1%. These results were robust to changes in the model specification.

Figure 2: Average Treatment Effect on the Treated (ATET) for Gender Pay Gap

Number of groups and treatment time

Time variable: time
Control: did = 0
Treatment: did = 1

	Control	Treatment
Group		
treated	1	1
Time		
Minimum	0	1
Maximum	0	1

Difference-in-differences regression Number of obs = 711
Data type: Longitudinal

(Std. err. adjusted for 2 clusters in treated)

genderpaygap	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
ATET						
did (1 vs 0)	-4.072688	3.57e-14	-1.1e+14	0.000	-4.072688	-4.072688

Note: ATET estimate adjusted for panel effects and time effects.

Figure 3: Average Treatment Effect on the Treated (ATET) for Labour Force Participation Gap

Number of groups and treatment time

Time variable: time
Control: did = 0
Treatment: did = 1

	Control	Treatment
Group		
treated	1	1
Time		
Minimum	0	1
Maximum	0	1

Difference-in-differences regression Number of obs = 1,379
Data type: Longitudinal

(Std. err. adjusted for 2 clusters in treated)

laborgap	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]
ATET did (1 vs 0)	-3.724205	9.25e-14	-4.0e+13	0.000	-3.724205 -3.724205

Note: ATET estimate adjusted for panel effects and time effects.

Analysis of survey data

Data

To explore more about how much parental leave is currently being taken in the UK, and by who, we conducted new analysis of data on parents collected by Pregnant Then Screwed for their 2023 State of the Nation (SoTN) survey. To reduce bias in the survey results Women in Data® randomly sampled from over 20,000 responses to PTS’s ‘State of the Nation’ survey and applied weighting on UK regions, gender and social grade to get a final sample of 3,540 parents: 1,735 women and 1,805 men that targets national representation. The majority of data used in this paper are based on a sub-sample of 1,100 men and 1,214 women who have birthed or adopted a child in the last three years.

In addition to a voluntary survey of Pregnant Then Screwed’s network, PTS and CPP commissioned YouGov to conduct a paid, nationally and politically representative survey of 2,136 adults to examine public opinion on paternity leave and the relationship between parental leave and mental health.

Where comparable questions were asked, both surveys provided broadly similar results. For example, the YouGov survey reports that the proportion of second parents who took no leave at all is 22% while PTS’s SoTN reports that 20% of fathers said they had no parental leave options available to them.

The impact of paternity leave on mothers’ readiness to return to work

According to the PTS State of the Nation survey, 27% of recent mothers surveyed did not feel physically ready to return to work when they returned, while 53% did not feel mentally ready and 59% did not feel emotionally ready. To interrogate these findings, CPP ran a logistic regression model of the impact of parental leave being taken by a woman’s partner on whether women said that they were physically, mentally and emotionally ready to return to work when they did. This regression controlled for income, age, region and number of children.

The explanatory variable was positive and significant at the 10% level across all forms of readiness to return to work however the paper focuses on the result for physical health as this was the only coefficient where the 95% confidence interval was above zero (see Figure 4). As a logit regression shows the expected change in log odds of the dependant variable, to interpret the results we raise the exponential constant to the power of the coefficient. This means that male partners taking leave is associated with a 34% increase in the odds of a women being physically ready to return to work. This result is robust to changes in the model specification.

Figure 4: Regression results for physical readiness to return:

Logistic regression Number of obs = 1,042
Wald chi2(15) = 35.70
Prob > chi2 = 0.0020
Log pseudolikelihood = -688.64597 Pseudo R2 = 0.0289

physdumw	Coefficient	Robust std. err.	z	P> z	[95% conf. interval]	
pleavedw	.292162	.1376622	2.12	0.034	.0223491	.561975
age	-.0206835	.0132737	-1.56	0.119	-.0466995	.0053325
kids	.093705	.1048059	0.89	0.371	-.1117108	.2991207
hhinc	.0084328	.0019803	4.26	0.000	.0045514	.0123142
region1	.0184524	.3035468	0.06	0.952	-.5764883	.6133931
region2	.6847688	.2882688	2.38	0.018	.1197723	1.249765
region4	-.1410791	.3967885	-0.36	0.722	-.9187703	.6366121
region5	.143007	.277354	0.52	0.606	-.4005968	.6866109
region6	.4735723	.4777396	0.99	0.322	-.46278	1.409925
region7	.3378141	.3225272	1.05	0.295	-.2943277	.9699559
region8	.4457448	.2598836	1.72	0.086	-.0636177	.9551073
region9	.216765	.3111273	0.70	0.486	-.3930332	.8265632
region10	.1661296	.375785	0.44	0.658	-.5703955	.9026546
region11	.168552	.2821621	0.60	0.550	-.3844755	.7215795
region12	.168475	.2920606	0.58	0.564	-.4039533	.7409034
_cons	-.0995415	.5285247	-0.19	0.851	-1.135431	.9363479

Policy implications

While the UK has a relatively high proportion of female participation in the labour market it also has relatively high gender pay gap, at 14.3% compared to an average of 11.9% across the OECD.ⁱⁱ The country level analysis carried out by CPP for this paper suggests that increasing the paid paternity leave entitlement available to dads and partners could reduce the gender pay gap in the UK.

Our survey findings suggest that fathers' and partners' statutory paid leave entitlement, and paying this at a higher rate, would encourage UK fathers and partners to take more paternity leave.

Analysis of the PTS survey data suggests that increasing the uptake of paternity leave would increase mothers' physical readiness to return to work, which may conceivably have an impact on the productivity of working mums.

iData on the length of maternity leave, parental leave and paid father-specific leave OECD Gender Equality database is available at: <https://www.oecd.org/gender/data/length-of-maternity-leave-parental-leave-and-paid-father-specific-leave.htm>

ii Data on gender wage gaps across OECD countries is available at: <https://data.oecd.org/earnwage/gender-wage-gap.htm>