

Appendix

Women in the Labour Market: Boosting mother's employment and earnings through accessible childcare

Technical Appendix

October 2021

This brief technical appendix describes the assumptions and methodology behind the numbers reported in “Women in the Labour Market: Boosting mothers’ employment and earnings through accessible childcare”. It focuses on two areas:

- The estimate of the economic contribution of working mothers between 2010 and 2019
- The variables used in the regression model to determine the associated relationship between available childcare places and women’s employment.
- The methodology used to estimate the potential earnings for mothers with children who would otherwise like to work more if they had access to appropriate childcare.

The economic contribution of working mother’s

Aim and purpose

These rough estimates explore the potential economic value of mother’s in the labour market. Data was collected from the fourth quarter Labour Force Surveys (October to December) in both 2010 and 2019. Controlling for sex, age, number of dependent children in the household, we cross tabulated between industry (SIC 2-digit code) and full and part-time work status, using appropriate weights.

Using estimates on the number of mothers in each industry and estimates of the Gross Value Added (GVA) hourly output by sector in each of the relevant years, we produced estimated values of the total economic contribution of working mother’s in these different time periods.¹

The relationship between childcare and women’s employment

Aims and purpose

The model is a regression model used to determine whether there is an association between availability of childcare at the local authority level and women’s employment. While various macro-economic factors contribute to local employment rates, making it difficult to establish a causal relationship, we demonstrate a strong correlation that suggests access to childcare is heavily associated with better labour market outcomes for women.

¹Calculations performed using data from Labour Force Survey Q4 (2010 and 2019) and ONS UK productivity October – December 2019

Geography

The model covers 148 local authorities in England at the unitary local authority level.

Variables and method

The regression model used data collected from the year 2019. For the dependent variable, we used women's employment rates at the local level.²

Our independent variables included:

- The ratio between children under 5 and the number of early year's places available³
- Proportion of women with a degree or above⁴
- Average wages among women⁵
- Index of multiple deprivation rankings⁶

Calculating the cost of potential earnings

Aims and method

As part of our survey conducted by Yonder, we asked a representative sample of mothers whether they had struggled to access adequate childcare and for those who said no, how many hours they would like to work if they had access to adequate childcare. An additional question was asked on what industry they worked in.

Of the total sample, 19.2% of mothers confirmed they would like to work more hours, providing their answer as a selected range of additional hours (i.e., 1 to 5 hours). We estimated the potential number of mothers using data from the Labour Force Survey, controlling for sex, age, and number of dependent children in the household.

Using the responses to how many hours mothers would like to work we estimated lower and upper bounds of the total potential hours that could be worked should more accessible childcare be made available. We then multiplied this by the average earnings for women⁷ and GVA⁸ output per hour for the corresponding industry, to create aggregate total values of potential earnings and output. We then took the proportion of the total amount equivalent to the current employment rate of women with children for our final figures.

² Data collected from Nomis, the official labour market statistics, using the Annual Population Survey/Labour Force Survey

³ Calculated using data from ONS childcare providers and inspections as of 31 March and population estimates by single year of age from Nomis, the official labour market statistics

⁴ Data collected from Nomis, the official labour market statistics, using the Annual Population Survey/Labour Force Survey

⁵ Data collected from the Annual Survey of Hours Earnings (ASHE) 2019, table 8, place of residence by local authority

⁶ Data collected from the ONS Indices of Multiple Deprivation (IMD) 2019

⁷ Data collected from Annual Hours of Earnings (ASHE) 2020, Table 5, UK region by industry, 2-digit SIC code

⁸ Data collected from ONS UK productivity October – December 2019