

**IFS Report R267**

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## Executive summary

The COVID-19 pandemic disrupted many aspects of children's lives, with impacts on their social and emotional development as well as their educational attainment. School closures increased social and emotional difficulties (Blanden et al., 2021); lack of contact with friends and extended family left some children without a trusted adult to turn to (Newlove-Delgado et al., 2021); and severe illness and death of loved ones increased (Slomski, 2021; Liang, Becker and Rice, 2022).

In this report, we consider another channel through which the pandemic may have affected children's social and emotional development: the disruption to parents' experiences in the labour market created by lockdown restrictions.

As in many other countries, national lockdowns and wider social distancing measures severely disrupted the UK's labour market, with many businesses shutting down. The government introduced a range of policies, such as the furlough scheme, to insure workers against the impacts of these closures. Even so, a shifting public health and policy landscape meant that many families had some financial losses during the first year of the pandemic, and/or faced high levels of uncertainty.

Taken together, parents' labour market experiences during the pandemic could have affected both a household's resources and the quality and quantity of time parents and children spent together. Since systematic reviews of children's mental health during the pandemic consistently suggest that higher socio-economic status and better relationships with parents were protective factors (Ng and Ng, 2022; Theberath et al., 2022), analysing the role that parents' labour market experiences played in shaping children's outcomes is crucial for understanding how the pandemic affected children and their development.

### Key findings

1. Overall, parents reported that their children's social and behavioural difficulties increased during the first year of the pandemic. **Nearly half of parents reported that their child had more socio-emotional difficulties in February 2021 than a year earlier**, while around one in six reported fewer challenges. Parents of girls and younger children, and those who were furloughed, were more likely to report worsening

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in their children's socio-emotional skills. Among the sample whose survey responses can be linked with administrative education records, we find that less disadvantaged children were more likely to see their (parent-reported) socio-emotional skills worsen, though these differences are not statistically significant.

2. Around half of families in our sample saw no change in their labour market status during the first year of the pandemic, including a third of households where all parents remained employed and working throughout. But the **families who did have changes in the labour market had diverse experiences** – this group was roughly evenly split between households where at least one parent was unemployed for much of the pandemic, households where at least one parent was furloughed most of the time, and households where working was interrupted with shorter bursts of furlough.
3. Overall, the socio-emotional skills of children whose families had experienced at least one transition in the labour market were nearly 20% of a standard deviation lower than those of children whose families had stable labour market experiences. Much of this difference existed before the pandemic. But even after accounting for pre-pandemic skills, the **children whose families experienced at least one change saw, on average, their socio-emotional development worsen by about 9% of a standard deviation more** than those whose families remained consistently employed or unemployed throughout.
4. Overall, the socio-emotional skills of children whose parents had stable labour market experiences throughout the pandemic – whether employed or unemployed the whole time – held up better on average than the skills of children whose families faced more economic instability. This suggests that **it was the stability of parents' labour market experiences, rather than being in any particular economic state, that was an important determinant of children's socio-emotional development** during the pandemic.
5. Labour market instability increased parental stress and led to declines in both actual and expected future earnings. These could be important channels through which **increased economic uncertainty can have knock-on effects on children's socio-emotional development**.
6. Our findings demonstrate the importance of protecting families during periods of significant economic uncertainty in order to reduce the significant human capital and well-being costs such uncertainty can have not only for the directly affected adults but also for their children.

# 1. Introduction

The COVID-19 pandemic disrupted many aspects of children's lives, with impacts on their social and emotional development as well as their educational attainment. School closures increased social and emotional difficulties (Blanden et al., 2021); lack of contact with friends and extended family left some children without a trusted adult to turn to (Newlove-Delgado et al., 2021); and severe illness and death of loved ones increased (Slomski, 2021; Liang, Becker and Rice, 2022).

In this report, we consider another channel through which the pandemic may have affected children's social and emotional development: the disruption to parents' experiences in the labour market created by lockdown restrictions. As in many other countries, national lockdowns and wider social distancing measures severely disrupted the UK's labour market, with many workplaces forced to close and many workers furloughed or made redundant.

There is a large body of evidence linking parental unemployment to children's development (see review by Ruiz-Valenzuela (2021)). Negative labour market shocks (such as unemployment or earnings loss) can affect a family's financial resources, which support investments in children. Labour market shocks also cause stress and uncertainty for parents, potentially affecting parental well-being, parenting behaviours and the relationship between parents. The impact of these changes on children can be magnified since unemployed parents often increase the amount of time spent with their children.

Each of these channels was evident during the pandemic. Hupkau et al. (2023) find that children whose fathers experienced a negative labour market shock were significantly less likely to receive paid home learning resources (such as tutoring). At the beginning of the pandemic, these fathers spent around half an hour longer each day helping their children with schoolwork. But, by January 2021, the effect had reversed, and children whose fathers had experienced a negative labour market shock received significantly less support with schoolwork. Again by January 2021, fathers who had experienced labour market shocks were significantly more likely to quarrel with their children.

We build on these results by directly examining the impacts of labour market insecurity on children's social and emotional development. Parents' labour market experiences during the pandemic could have affected both a household's resources and the quality and quantity of time parents and children spent together. Since systematic reviews of children's mental health during the pandemic consistently suggest that higher socio-economic status and better relationships

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with parents were protective factors (Ng and Ng, 2022; Theberath et al., 2022), analysing the role that parents' labour market experiences played in shaping children's outcomes is crucial for understanding how the pandemic affected children and their development.

For our analysis, we use data collected from an online survey of parents, carried out in February 2021. The survey asked about the family's demographic characteristics, along with detailed questions about children's social and emotional development (both before and during the pandemic) and a month-by-month timeline of parents' labour market experiences. Finally, the survey asked about a range of potential mechanisms through which parents' labour market experiences might affect their children's development, including actual earnings loss, expected earnings loss, economic insecurity, parental well-being, parenting behaviours and (for coupled parents) the quality of the relationship between parents. (See Box 1 for an overview of the data.)

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### Box 1. Data

To collect the data used in this report, we surveyed 6,095 parents living in England with children aged 4–16. Our survey was conducted online in February 2021, at the tail end of England's third national lockdown and second period of national school closures.

**Weighting:** To improve the representativeness of our survey, we used quotas to ensure that our survey participants were mixed across gender, location, educational qualifications, employment and marital status. We then constructed weights using the Labour Force Survey (LFS) to rebalance our sample and improve its representativeness. (See Cattán et al. (2023) for full details.)

**Linking to education records:** As part of our survey, we asked parents for their permission to link their survey response to their children's education records, held in the National Pupil Database (NPD). 28% of parents agreed to this linkage, and ultimately 11% of records (N = 663) were able to be linked. Once missingness is taken into account, we have a maximum of 550 individuals with linked survey and administrative data; they are shown in the tables below.

As Table A1 in the appendix shows, compared with the population as a whole, the linked IFS sample is more likely to be eligible for free school meals, is more likely to be from a white ethnic background, comes from more disadvantaged neighbourhoods on average, and had a higher average number of absences pre-pandemic. Taken together, this suggests that the linked IFS–NPD sample is somewhat more economically disadvantaged than average. Table A2 suggests that the linked sample is also quite different from the IFS survey sample as a whole, with lower levels of parental qualifications, far fewer children from ethnic minorities, and far fewer respondents based in Greater London. The relative disadvantage of the linked sample is important context for interpreting some of our later results.

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## 2. Children's socio-emotional development during COVID

The pandemic and the response to it severely disrupted the lives of families with school-aged children, plausibly affecting children's socio-emotional development through a number of channels. While the virus itself had fairly mild effects on most children, nearly 20% of Year 11 pupils reported that a close family member or friend had been hospitalised during the pandemic; a similar share reported that someone close to them had died.<sup>1</sup>

In addition to the direct health impacts of COVID-19, the social distancing measures introduced in response to the pandemic affected children's and young people's environments in numerous ways. Two rounds of school closures in England (in Spring/Summer 2020 and in Winter 2021) meant a transition to home learning and a loss of in-person contact with classmates and teachers. Wider lockdown rules and restrictions on businesses led to increased financial strain for some households, along with heightened uncertainty.

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### Box 2. Measuring children's socio-emotional development

Our measure of socio-emotional development is based on questions designed to screen for emotional or behavioural problems. We focus on a subset of questions, similar to those collected in the Strengths and Difficulties Questionnaire.<sup>a</sup>

Each question makes a statement about a particular behaviour or emotion (e.g. 'is easily scared', 'is constantly fidgeting or squirming', 'is generally obedient') to which the parent can respond that the statement is either 'not true' (scoring 2), 'somewhat true' (1) or 'certainly true' (0). For each question, the respondent was asked to respond for two reference periods: 'Now, Feb 2021' and 'Before first lockdown, Feb 2020'.

We construct a single measure of socio-emotional skills by summing the responses to these 13 questions to arrive at a total score between 0 and 26, where a higher score indicates better socio-emotional development. We do this separately for answers relating to February 2020 and February 2021. To check the validity of our measure of socio-emotional development, we conduct several tests

<sup>1</sup> Based on analysis of the first wave of data from the COVID Social Mobility and Opportunities (COSMO) study. These figures refer to any hospitalisation or death between March 2020 and the time of survey (September 2021 and April 2022), not necessarily an event caused by COVID-19 itself.

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(described more fully in Cattan et al. (2023)). These results provide reassurance that our measures perform well for both periods, and that they are not only driven by changes in parents' own mental health or well-being.

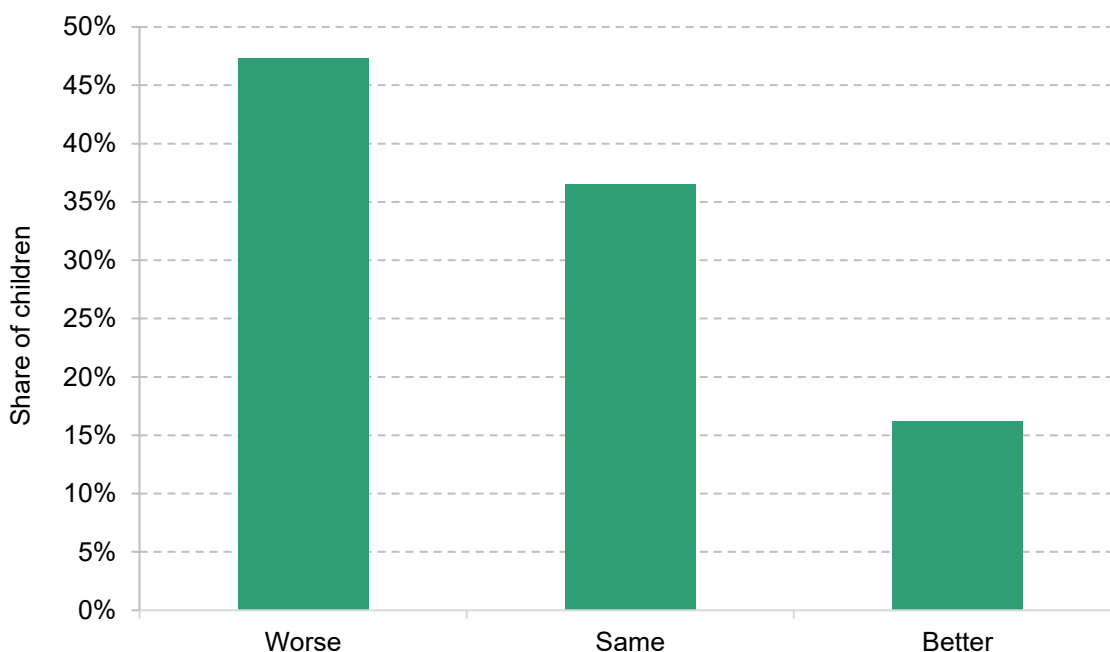
<sup>a</sup> We focus on 13 questions, which were selected from the original 25 based on analysis of the results of previous surveys. We selected the subset of questions that were most informative about overall socio-emotional development.

### How did children's socio-emotional development change during the pandemic?

Compared with research into learning loss and children's educational outcomes, there have so far been fewer studies exploring how children's well-being and socio-emotional development changed during the pandemic. Most of the research that has been done, though, suggests that children's mental health has on average worsened through the pandemic (Ezpeleta et al., 2020; Bunn and Lewis, 2021; Waite et al., 2021; Ford and Cross, 2021).

In our survey, we find a similar pattern of worsening socio-emotional development. Figure 1 shows the shares of children whose (parent-reported) socio-emotional development got worse, better or stayed the same during the first year of the pandemic. Nearly half of children saw their socio-emotional development worsen.

**Figure 1. Changes in children's socio-emotional development between February 2020 and February 2021**



Source: Authors' analysis using data from the IFS–IoE survey, third wave.



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Of course, not all of this will be the result of the pandemic itself: in any year, some children will experience setbacks to their socio-emotional development. What is unusual about the pandemic is the high share of children whose social and emotional skills deteriorated over the year.

### Changes in socio-emotional development across different groups

As with so many other aspects of the pandemic, the risks of worsening socio-emotional development were not evenly shared. Figure 2 shows how socio-emotional development changed during the first year of the pandemic for different groups of children.

Overall, parents of girls and younger children were more likely to report a worsening of socio-emotional skills in their child through the pandemic. In particular, 4- to 7-year-olds were 10 percentage points more likely to see their socio-emotional development worsen than 12- to 15-year-olds. Children in the poorest fifth of families (based on pre-pandemic equivalised earnings) were less likely to see their socio-emotional skills worsen, though this difference is not statistically significant. While there were no significant differences between children who did and did not have a parent lose their job, children whose parents had been furloughed were significantly more likely to experience a worsening in their socio-emotional skills than those whose parents had not been furloughed (51% versus 45%).

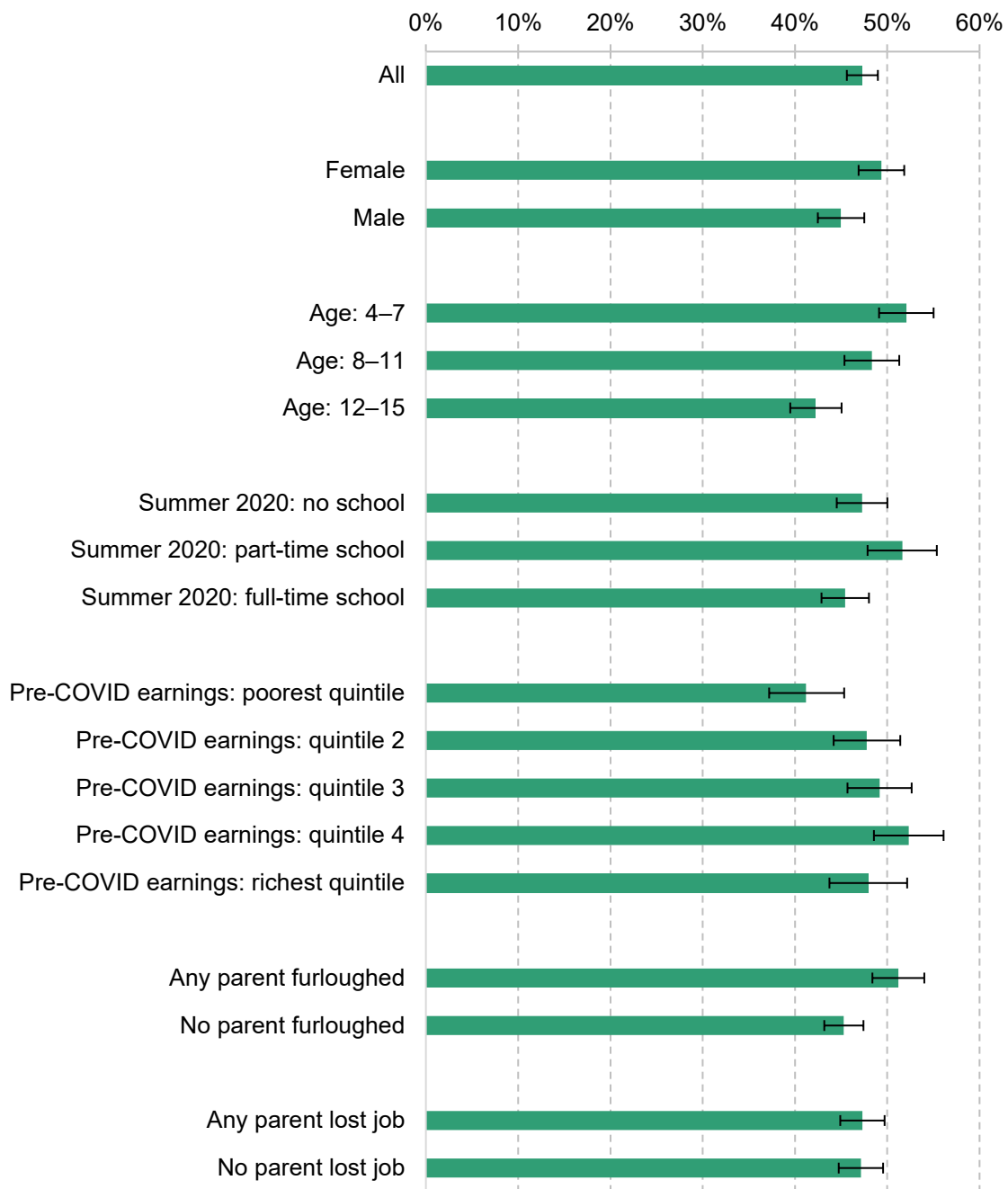
In Figure 3, we conduct a similar analysis for the subset of pupils whose survey responses could be linked to their educational records in the National Pupil Database (see Box 1). Since this is a smaller group of pupils, none of the differences we observe in this data is statistically significant.

In this sample, overall about 48% of pupils saw their socio-emotional skills (as reported by their parents) worsen during the pandemic. Interestingly, in this sample, pupils from less disadvantaged backgrounds (those not eligible for free school meals or those living in the least disadvantaged third of neighbourhoods) were somewhat more likely to see their parent-reported socio-emotional skills worsen, though these differences were not statistically significant. Similarly, parent-reported socio-emotional skills worsened somewhat more among children from white ethnic backgrounds, among those who were not receiving support for a special educational need or disability, and among those who speak English as a first language. Again, though, these differences are not statistically significant.

There are also substantial differences between pupils with different levels of prior attainment. Among pupils who achieved at least the expected level on all assessments at their previous stage of education, 49% saw their parent-reported socio-emotional skills worsen during the pandemic, compared with 43% of their peers who missed out on the expected level in at least one subject.

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Figure 2. Share of children whose socio-emotional skills got worse between February 2020 and February 2021, by subgroup

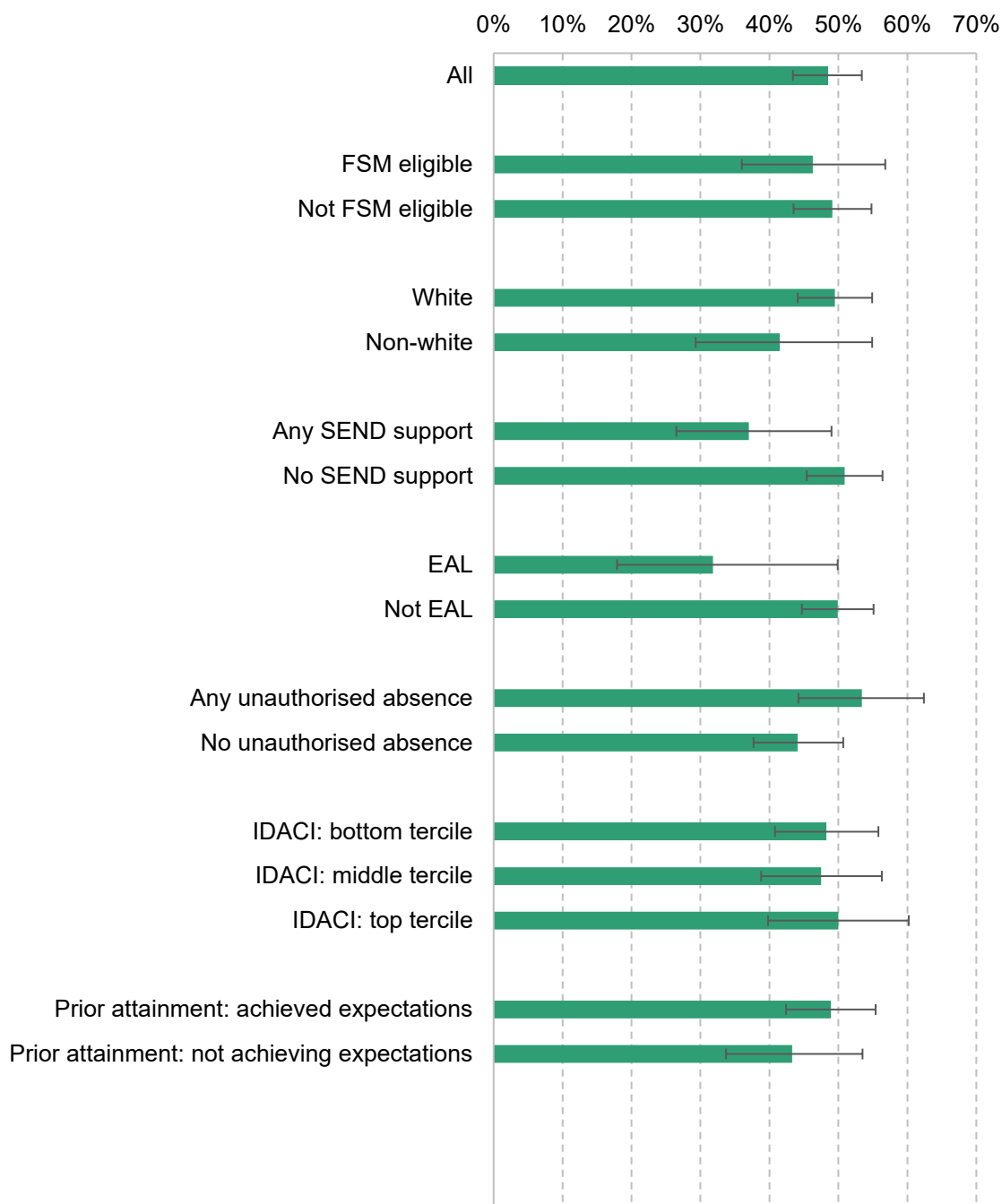


Note: Gender, age and school attendance of the reference child in the survey. School attendance during Summer 2020 records the maximum exposure to in-person schooling that the child had during June and July 2020. Earnings quintiles are based on pre-COVID equivalised household earnings. The error bars show 95% confidence intervals.

Source: Authors' calculations using IFS–IoE survey, third wave.

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Figure 3. Share of children whose socio-emotional skills got worse between February 2020 and February 2021, by characteristics in education records



Note: FSM is free school meals. SEND is special educational needs and disability. EAL is English as an additional language. IDACI tertiles are defined based on the national distribution of the Income Deprivation Affecting Children Index. 'Prior attainment' measures are based on attainment at the most recent assessment: Foundation Stage Profile (FSP) for those in Years 1–2; Key Stage (KS) 1 for those in Years 3–6; and KS2 for those in Year 7 and above. Subject-specific prior attainment measures are not available for FSP. 'Achieving expectations' refers to: having a good level of development at FSP; meeting the expected level in reading, writing, maths and science at KS1; or meeting the expected level in reading and maths at KS2.

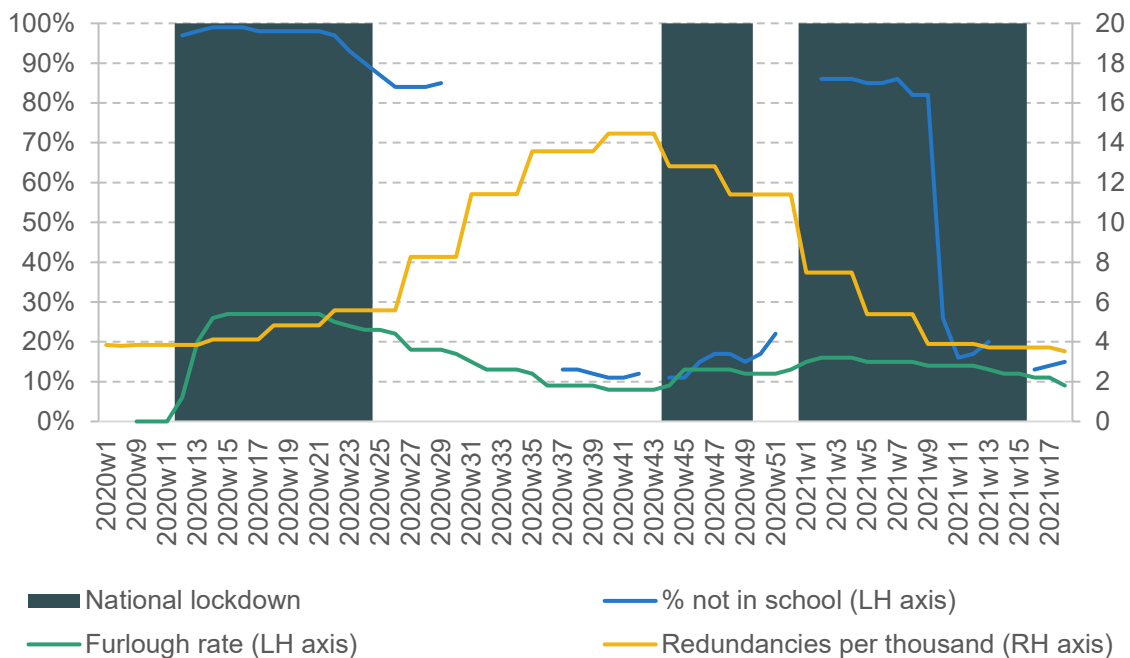
Source: Authors' calculations using IFS–IoE survey, third wave, and the National Pupil Database.

### 3. Changes in the labour market during the pandemic

#### Timeline of the pandemic in England

In response to the COVID-19 pandemic, and in common with many other countries, the UK government introduced a wide range of support programmes for workers and businesses alongside strict lockdown regulations and social distancing measures. There were three national lockdowns in England, shown in grey in Figure 4. While each lockdown came with different rules, all involved: the closure of many 'non-essential' businesses; stay-at-home orders making it an offence to leave home without a 'reasonable excuse'; and restrictions on social gatherings. The first and third lockdowns also involved school closures and a shift to home learning for the majority of pupils.

Figure 4. Timeline of the COVID-19 pandemic in England



Note: Series for 'not in school' is shown during term-time only.

Source: Information on school attendance comes from [Department for Education statistics](#). Furlough data come from [HMRC statistics](#) and are converted into a rate based on the (seasonally adjusted) number of employees that month, using data from the [Office for National Statistics](#). Data on redundancies come from the [Office for National Statistics](#).

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Even outside of national lockdowns, the UK government imposed a variety of restrictions at a local level. The scope and severity of these restrictions changed frequently over the course of the pandemic in response to judgements about the risks and benefits for public health and the wider economy, with one analysis concluding that a new regulation passed into law on average once every 4½ days over the first year of the pandemic.<sup>2</sup> This led to considerable uncertainty for families, schools and businesses.

To insure workers against the financial consequences of these restrictions, the UK government introduced a new 'furlough' programme that allowed workers to remain employed when they otherwise would have been laid off or made redundant. Furloughed workers had up to 80% of their wages covered by the government.

As Figure 4 shows, labour market disruption during the first national lockdown predominantly resulted in workers being furloughed, rather than made redundant. During the summer and autumn of 2020, when the government started to reopen most workplaces and to make the furlough programme less generous, the proportion of furloughed employees dropped. As the redundancies series in Figure 4 shows, while some of these workers returned to work, others were made redundant.

The second and third national lockdowns saw both the generosity and take-up of the furlough scheme increased (though take-up remained well below its peak during the first lockdown, in part because many employees had been made redundant). By contrast, during the third national lockdown the redundancy rate fell back towards its pre-pandemic level.

### Parental labour market trajectories

As Figure 4 shows, the first year of the pandemic brought a number of changes to the labour market. In order to capture all of the labour market changes that parents might have experienced, our survey asked respondents to indicate for each month between February 2020 and February 2021 whether they were working for pay, on furlough, on leave or 'unemployed' (which we define as out of paid work). Respondents could tick as many boxes as needed for each month. We asked respondents with partners to fill out a similar timeline for their partner.

These data provide a unique timeline of how parents' labour market experiences evolved through the pandemic. In Figure 5, we aggregate these experiences to provide a visual depiction of parents' labour market experiences during the first year of the pandemic. We first aggregate families into one of four groups: all parents employed; all parents not in paid work; one parent

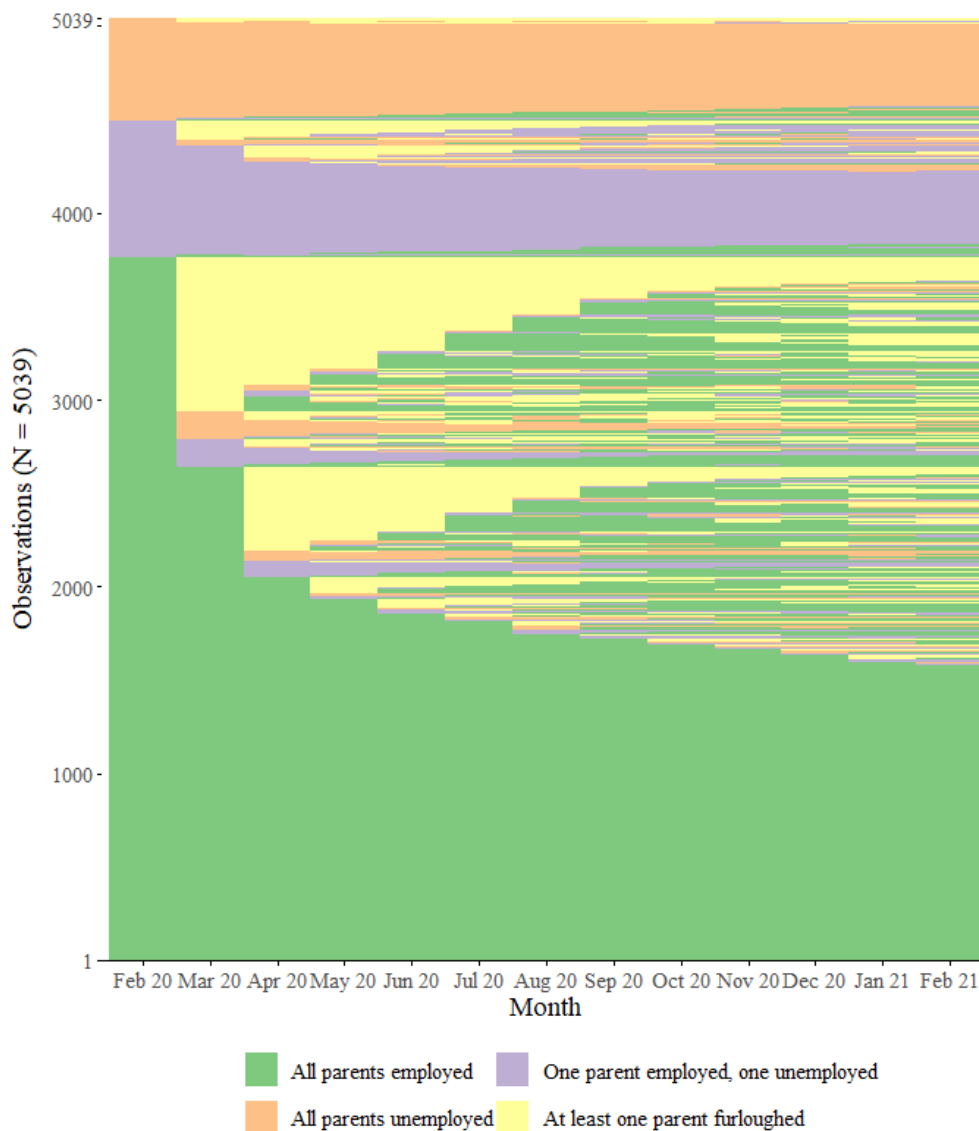
<sup>2</sup> <https://www.theguardian.com/world/2021/jan/12/england-covid-lockdown-rules-have-changed-64-times-says-barrister>.

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employed, one not in paid work; and at least one parent furloughed. The figure then depicts the labour market experiences of each family in our survey, with one horizontal line per family.

The panel demonstrates that families in England had very different experiences in the labour market during the first year of the pandemic. A large section of the chart shows little change – around a third of the sample see both parents remaining employed for the entire period, and another sixth of families had all parents or one parent unemployed throughout the first year of the pandemic.

**Figure 5. Household labour market trajectories between February 2020 and February 2021**



Source: Authors' analysis of IFS–IoE survey, third wave.

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But Figure 5 also shows that around half of families experienced labour market transitions in the first year of the pandemic, often with more than one transition. Of the 46% of families who experienced at least one transition, just 17% had only one transition, 33% had two transitions, another 35% had three to five transitions, and 15% of this group had more than five transitions in the one-year period.

While the nature of these transitions varied, Figure 5 shows that there was a fairly high amount of switching between furlough and other states – particularly employment (green) and at least one parent being furloughed (yellow). There is also quite a lot of variation in the duration of furlough across households; most families who were furloughed at some point during the pandemic had at least one additional transition before February 2021.

## 4. Methodology

Sections 2 and 3 show that the first year of the pandemic brought substantial changes both to children's socio-emotional development and to parents' experiences in the labour market. Unsurprisingly, given the severity and range of the changes and uncertainties that families faced, just under half of children saw their socio-emotional development worsen, while 46% of families experienced at least one transition in the labour market.

In Cattán et al. (2023), we analyse whether these two sets of experiences could be related and, in particular, whether parents' experiences in the labour market affected their children's socio-emotional development during the pandemic.

### Empirical strategy

The main empirical challenge in estimating the causal impact of parents' labour market experiences on children's socio-emotional skills arises because labour market experiences during the pandemic were not randomly assigned: some industries had far higher furlough rates than others, and some workers were at much greater risk of unemployment than others. These risk factors for unemployment and furlough are related to parents' earnings and (pre-pandemic) labour market history, which in turn could have shaped children's socio-emotional development even before the pandemic. Simply comparing the socio-emotional skills of children whose parents had different labour market experiences during COVID is therefore likely to exaggerate the impact that these experiences had.

### Value-added model

To overcome this challenge, we use information on children's socio-emotional development in February 2020 to establish a pre-pandemic baseline. This allows us to explore how children's socio-emotional development changed just in the first year of the pandemic, and how that change relates to parents' labour market experiences during that year. In our preferred approach, we use a 'value-added model' to control for each child's pre-pandemic level of socio-emotional development.<sup>3</sup> In particular, we estimate

<sup>3</sup> In the working paper, we provide a longer discussion of how this value-added approach relates to directly taking the first difference of the 2020 and 2021 measures. See section 5 of Cattán et al. (2023) for details.



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$$Y_{i,t} = \alpha + \rho Y_{i,t-1} + \beta D_{i,t} + \pi f_{i,t-1} + \delta B_{i,t} + \varepsilon_{i,t}.$$

In this equation,  $Y_{i,t}$  represents the socio-emotional development of child  $i$  at time  $t$ , i.e. in February 2021.  $Y_{i,t-1}$  is our measure of baseline socio-emotional development in February 2020.  $D_{i,t}$  is a measure of parents' labour market experiences during the first year of the pandemic; we describe how we construct this measure in more detail in the next subsection.

We also include a range of control variables in  $B_{i,t}$ : characteristics of the child (age, gender, ethnicity); characteristics of the parents (the responding parent's age, mother's and father's education, whether the household is headed by a lone parent); and characteristics of the household (region of residence; family income; number of siblings).

Finally, in our preferred specification, we include a range of inputs that might shape children's socio-emotional skills, to better model the process of child development during the first year of the pandemic.  $f_{i,t-1}$  includes baseline measures of parental mental health, inter-parental conflict and parenting behaviours in February 2020. By including these measures, we allow the effect of these different baseline inputs to fade out at different rates.

### Measurement error

An additional challenge in our setting is that our measures of children's socio-emotional development are reported by parents, and so might be influenced by parents' own mental state. These effects might be correlated with our measures of parents' labour market experiences; for example, a parent who is anxious because they have been made redundant might be overly positive about their child's socio-emotional skills pre-pandemic, and overly negative about their skills in 2021.

We test whether these 'reporter effects' significantly affect our results by developing a more sophisticated model of children's socio-emotional skills, incorporating the information from each of the 13 individual questions that parents answered. In this model, we allow for differences in responses of parents with different labour market experiences – for example, parents who have been made redundant might on average be more pessimistic than those who stayed employed throughout.<sup>4</sup> We also allow these differences in reporting to vary by the child's level of socio-emotional skill; for example, parents' responses might be fairly accurate whatever their own circumstances if their child has high levels of socio-emotional skills, but parents of children with lower levels of skills might be more influenced by their own experiences in the labour market.

<sup>4</sup> This is only an example: the model that we use does not specify either the direction or the extent of these systematic differences in reporting.

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We can then use this model to estimate children's true level of socio-emotional skills, based on the individual questions (each of which, on its own, is a useful but incomplete reflection of overall skills). In Cattan et al. (2023), we show that the results we present in Section 5 (where the outcome is simply a child's total score across all questions) are very similar when we use this more sophisticated measure of children's skills as our outcome. This is reassuring evidence that our results are not being driven by measurement error.

### Disentangling the impact of labour market experiences

A final challenge in our setting is to disentangle the impact of parents' labour market experiences from the wider changes that children and their families experienced during this period. Given our empirical strategy, we are most concerned about factors that might influence children's socio-emotional development during the first year of the pandemic and are also related to parents' labour market experiences.

The two biggest concerns are the impact of school closures, and the impact of the virus itself (on children or their loved ones). To the extent that these are correlated with parents' labour market experiences, we might mistakenly attribute their impact to parents' labour market experiences.

To test whether these factors are biasing our results, we use additional data in our survey to build measures of children's exposure to school closures and their network's exposure to the COVID-19 virus. To measure exposure to school closures, we use data from our survey on whether children accessed in-person schooling during Summer 2020 (May–July, as schools partially reopened following the first national school closure) and in Winter 2021 (during the second national school closure, when particularly vulnerable children and those in key worker families were able to access in-person schooling). We also consider the intensive margin of access to in-person schooling, using the weekly hours attended in Winter 2021.

To measure health shocks, we use three questions from our survey, capturing how often children were absent from school in Autumn 2020 due to: (i) their own case of (known or suspected) COVID-19; (ii) a classmate's or schoolmate's case of COVID; and (iii) a case of COVID among their household or non-school contacts.

We incorporate these measures of school closures and health impacts as controls in our main specification. Our results in Section 5 are highly robust to these additional control variables, suggesting that differential exposure to the virus and school closures is not driving our conclusions.

## Aggregating parents' labour market trajectories

To estimate the impact of parents' labour market experiences on children's socio-emotional development, we need a way of aggregating the individual trajectories shown in Figure 5. We take a data-driven approach, called sequence analysis, to group together families with 'similar' trajectories.

To do this, we calculate how many steps it would take to transform one trajectory into another. Each step is a substitution (e.g. replacing a month of being 'furloughed' with a month of being 'all parents employed').<sup>5</sup> The more steps required to transform one trajectory into another, the less similar the two trajectories are.

Once we have this measure of (dis)similarity, we can group together families whose trajectories are more similar. The total number of groups is set by the researcher, but we use a range of diagnostic tests to help us decide which model best fits our data. Before running this procedure, we pre-define two fixed clusters with households that experience no labour market change over the first year of the pandemic. Cluster 1 contains families where all parents remained employed throughout (green in Figure 5), while Cluster 2 contains families where at least one parent was unemployed throughout the pandemic and the other parent, if present, had no changes to their labour market status (orange and purple).

Figure 6 shows the result of this process. As noted above, we predetermine two clusters (households where all parents remained employed for the entire first year of the pandemic, and households with some unemployment but a stable trajectory). The clustering algorithm then identifies four more clusters to aggregate the trajectories of families with at least some labour market transitions.

Cluster 3 is characterised by many short transitions, particularly between unemployment and employment. These families are the most socio-economically disadvantaged in our survey: families in this cluster are much more likely to be headed by a lone parent,<sup>6</sup> to have low levels of qualifications and to have low earnings. Children in this cluster had the lowest level of baseline socio-emotional skill.

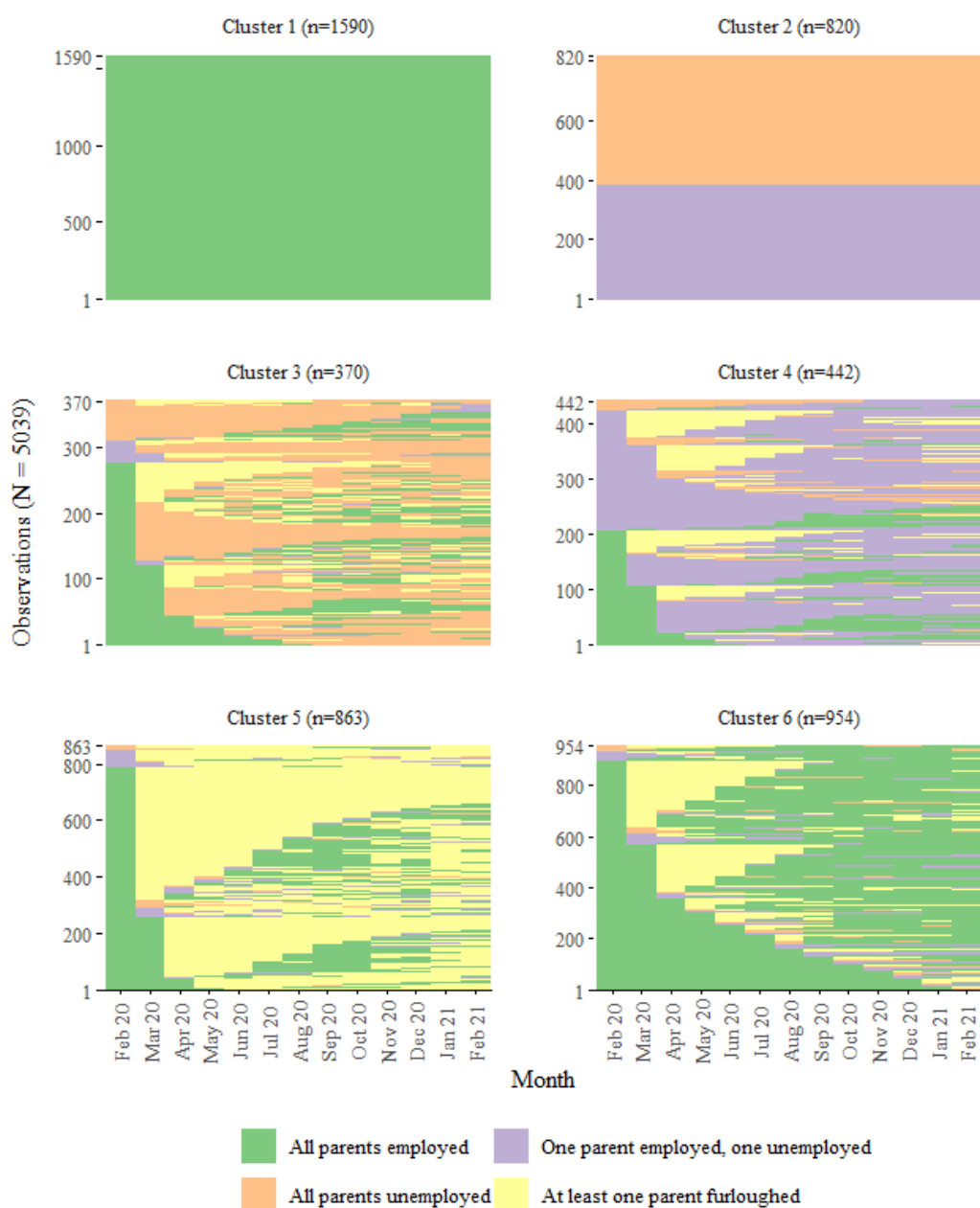
<sup>5</sup> Specifically, we use the 'optimal matching' methodology. This algorithm also assigns a cost to insertions and deletions that change the length of the sequence (these are known as 'indel' costs). In our setting, all sequences are the same length, so these costs are not relevant. See Cattani et al. (2023) for a fuller discussion.

<sup>6</sup> This is partly mechanical, since at the household level it is easier to fall into the 'all parents employed' or 'all parents unemployed' states when there is only one parent in the family.

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Cluster 4 is the most stable of the clusters defined by the algorithm, with on average 2.6 transitions over the 13-month period. This cluster is entirely comprised of two-parent families. Like Cluster 3, the primary states for families in this cluster are employment and unemployment (rather than furlough).

**Figure 6. Household labour market trajectories grouped into clusters**



Note: Household labour market trajectories are grouped into clusters based on Ward's Method. For further details, see Cattán et al. (2023).

Source: Authors' analysis of IFS–IoE survey, third wave.

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Cluster 5 is distinguished by long spells of furlough, including a substantial minority who were furloughed for the entire first year of the pandemic. The average family in this cluster spent 8.6 months with one parent on furlough. Despite this, families in Cluster 5 had the most transitions on average.

Finally, Cluster 6 (largely employed but with short periods of furlough or other disruption) looks similar to Cluster 1 in many demographic characteristics, and on average are employed for around 9 of the 13 months in our panel. Around 70% of these families experienced furlough over the first year of the pandemic, and around 50% had experienced at least one month of unemployment.

## 5. Impacts of economic uncertainty

### Overall impacts

The first step in our analysis is to estimate the association between parents' labour market experiences (as captured in the six clusters described in Section 4) and their children's socio-emotional skills. The first five green bars in Figure 7 show how the average level of socio-emotional skill differs between children whose parents are in each cluster. These results are shown relative to the average level of skill in Cluster 1 (always employed).

So, for example, the first green bar suggests that children whose parents remained unemployed throughout the pandemic scored, on average, 10% of a standard deviation worse than children whose parents were employed the whole time. The disadvantage associated with being in any of the four unstable clusters was even greater.

Because these results are only associations, they capture any pre-existing differences between children in each of these groups as well as any impact that parents' labour market experiences had during the pandemic. The yellow bars in Figure 7 therefore show the results of our preferred value-added specification, which includes controls for parents' baseline labour market characteristics, baseline well-being and baseline parenting behaviours, along with the child's baseline level of socio-emotional development.

These results are considerably smaller than the associations shown in green, highlighting the pre-existing differences between children in each cluster. However, this model suggests that parents' labour market experiences – and, in particular, instability in those experiences – also drove significant changes in children's socio-emotional development during the pandemic.

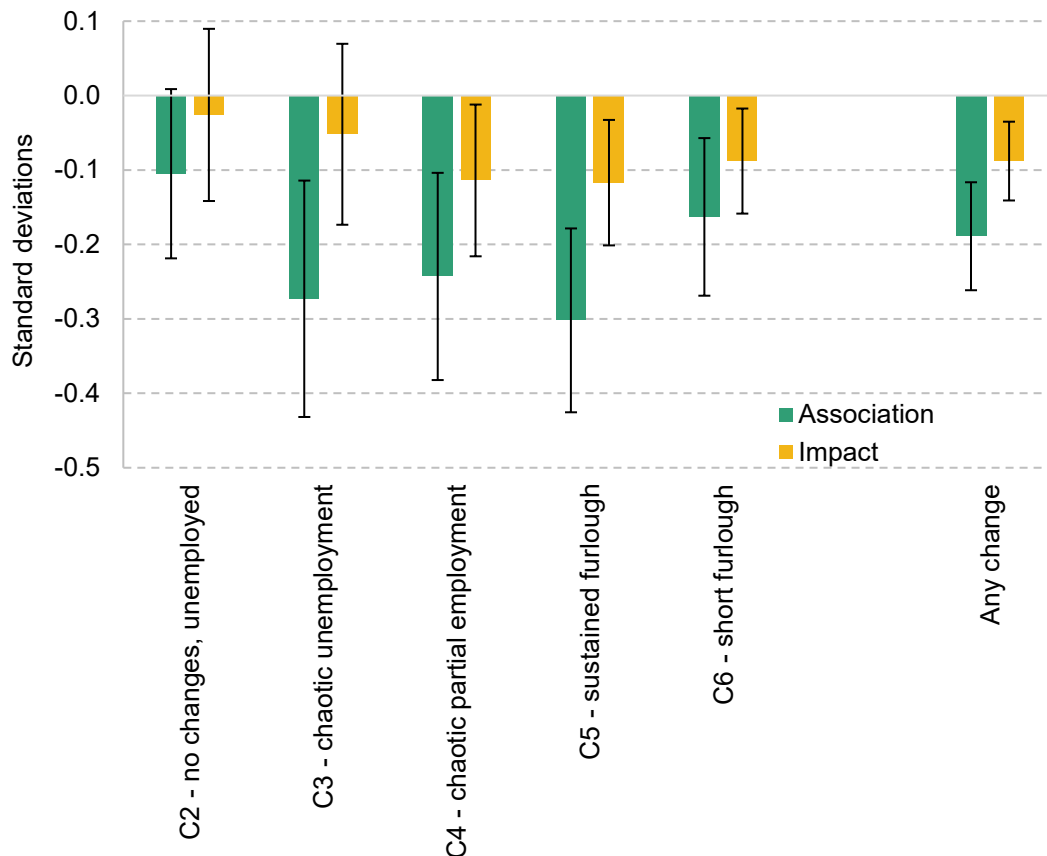
Perhaps surprisingly, the impact associated with being in Cluster 2 (always unemployed) is small and not statistically significant. This means that, although children of unemployed parents had a lower *level* of parent-reported socio-emotional development both before and during the pandemic, the *trajectory* of their skills was similar to that of children whose parents remained employed throughout.

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By contrast, children whose parents had experienced more labour market instability saw their socio-emotional development worsen by more than their peers in households that had experienced stable labour market trajectories. In particular, children in Clusters 4, 5 and 6 saw their socio-emotional development worsen, on average, by about 10% of a standard deviation more than children whose parents were employed throughout the pandemic.

One interpretation of these patterns is that it was the *stability* of parents' labour market experiences, rather than being in any particular state, that was an important determinant of children's socio-emotional development during the pandemic. This is consistent with the lack of difference between Clusters 1 and 2; these groups contain families with very different circumstances, but in both cases families had completely stable trajectories between February 2020 and February 2021.

**Figure 7. Summary of impact of parental labour market experiences on children's socio-emotional development**



Note: 'Association' controls for pre-COVID child and family characteristics (child gender, age and age squared; parent ethnicity, age and age squared; respondent gender; lone parent; number of children; parental education levels; equivalised pre-COVID household earnings; and region of residence). 'Impact' presents the results of our preferred specification, incorporating the baseline measure of socio-emotional skill as well as extended controls for baseline parental well-being, inter-parental conflict and parenting and for parental pre-COVID occupation and its teleworkability. The error bars show 95% confidence intervals.

Source: Adapted from columns 1 and 4 of table 6 and column 4 of table 4 in Cattani et al. (2023).

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In line with this intuition, the far-right bar in Figure 7 shows how our results change when we replace our clusters with a simpler measure of whether a household experienced any change in labour market circumstances (effectively grouping together Clusters 3, 4, 5 and 6). On average, our preferred value-added specification suggests that these children saw their socio-emotional skills deteriorate by 9% of a standard deviation more than children whose parents had stable labour market experiences. This is equivalent to just under 30% of the total average decrease in socio-emotional skills of children in our sample over the COVID period.

Based on the lifetime 'returns' to greater socio-emotional skills in early childhood estimated in Paull and Xu (2017), scoring 9% of a standard deviation more highly in socio-emotional skills during early childhood is associated with a 'return' of around £600 – including from better outcomes in later education, crime and health, and higher employment rates and higher wages later in life.

## Mechanisms

There are a number of channels through which parents' labour market experiences might have shaped their children's socio-emotional development. Unemployment reduces household income, and therefore the resources that families can invest in their children. Both unemployment and furlough increase the time that parents have available to spend with their children – but they may also bring uncertainty and stress, lowering parents' well-being and making effective parenting more difficult.

Our data contain proxies for these different channels, including changes in parental earnings over the COVID period, as well as expectations regarding future earnings. We also have measures of the quality of the time that parents spend with their children, including a direct measure of parenting quality (as reported by the responding parent), measures of parental well-being and quality of the relationship between parents (for two-parent families).

In Cattan et al. (2023), we show that these measures capture plausible channels through which parents' labour market experiences might have affected children's socio-emotional development. Parents who experienced a labour market transition were more likely to have seen their earnings fall and to expect to earn less in the future. They also had lower well-being (though parenting quality and the inter-parent relationship were not significantly affected).

These measures are predictive of children's socio-emotional skills: both actual earnings loss and the expectation of lower future earnings were associated with worsening socio-emotional skills, while better parental well-being predicted the opposite.



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Having established that these three measures are related to both our 'treatment' (parental labour market transitions) and our 'outcome' (child socio-emotional skills), we conduct a mediation analysis to test whether these channels could explain any of the overall impact we see in Figure 7. Table 1 suggests that these measures capture at least some of the ways in which parental labour market transitions affect children's socio-emotional skills: once they are included in the model, the impact of changes in parental labour market circumstances decreases by 40% from 9% SD to 5% SD (and the reduction in effect size is statistically significant).

It is important to note, however, that this analysis only gives an illustration of the potential channels through which parental labour market circumstances affect children. Without more sophisticated empirical strategies to tease out the impact of each channel, these results cannot be interpreted causally.

**Table 1. Mediation effect of the home environment**

	Child socio-emotional development	
	(1)	(2)
Any change	-0.088*** (0.027)	-0.053* (0.028)
Earnings fell		-0.032 (0.032)
Expect to earn less		-0.096** (0.040)
Parental well-being		0.189*** (0.015)
Baseline outcome	0.812*** (0.015)	0.799*** (0.015)
Test (1) versus (2) – <i>p</i> -value	0.003	
Observations	5,039	5,039
R-squared	0.590	0.617

Note: Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Source: Table 9 in Cattan et al. (2023).

## 6. Conclusions and policy implications

There is no one-size-fits-all response to the impacts of the COVID-19 pandemic: children faced very different experiences during the pandemic, and had very different resources – financial, social, parental and personal – to help them navigate a period of great uncertainty.

Much of the focus post-pandemic has been on children's academic skills and how best to support children to catch up on 'lost learning', while the impacts on children's socio-emotional skills and wider well-being have received much less attention. Although some children saw their socio-emotional skills improve over the first year of the pandemic, many more had the opposite experience; we estimate that nearly half of children had a lower level of socio-emotional development in February 2021 than they had had a year earlier. School closures, health shocks, the loss of time socialising with friends and extended family, and high levels of uncertainty are all likely to have played a role in this.

In this report, we show that parents' labour market experiences played a significant role in shaping children's socio-emotional development during the pandemic. Our results suggest that, at least during the pandemic, transitions and instability in parents' labour market experiences mattered for children's development, regardless of what states the transitions were from and to. We also show that such disruptions reduced parental well-being. This reduction in parental well-being, and also actual and expected future earnings loss, were in turn associated with larger falls in children's socio-emotional skills during the pandemic. Together, this suggests that the intergenerational impacts of economic uncertainty on child socio-emotional development are likely to operate through an increase in parental stress and possibly through a decrease in actual and expected expenditures on children.

The intergenerational effects of economic instability we document in this report are particularly notable as they happened in a context where huge efforts were made to absorb a large component of the economic uncertainty created by the pandemic through the furlough scheme. Indeed, the policy offered workers much higher levels of financial insurance and support than would typically be available through the UK's system of out-of-work benefits. While furloughed workers received up to 80% of their typical earnings, a single parent with two children would on average lose half of their net household income if they lost their job, and a couple each earning the average wage would lose 40% of household income if one parent lost their job.

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In spite of these policies, we show that the economic instability and uncertainty that remained were sufficient to have significant knock-on effects on both parents and children. This suggests that periods of significant economic turbulence, as well as policies that inadvertently raise uncertainty and/or stress for parents can have high human capital and well-being costs not only for the directly affected adults but also for their children.

# Appendix

**Table A1. Characteristics of the linked IFS–NPD sample compared with wider NPD**

	IFS sample	NPD sample	Difference	N (IFS)	N (NPD)
Eligible for free school meals	0.215	0.165	0.050***	550	6,151,399
Receiving support for SEND	0.176	0.157	0.019	550	6,151,399
English as an additional language	0.093	0.199	-0.106***	550	6,151,399
Ethnicity: white	0.838	0.737	0.101***	550	6,151,399
Ethnicity: black	0.018	0.056	-0.038***	550	6,151,399
Ethnicity: Asian	0.042	0.109	-0.067***	550	6,151,399
Ethnicity: Chinese	0.004	0.004	0.000	550	6,151,399
Ethnicity: mixed	0.069	0.062	0.007	550	6,151,399
Ethnicity: any other ethnicity	0.020	0.019	0.001	550	6,151,399
Ethnicity: unclear	0.009	0.012	-0.003	550	6,151,399
IDACI rank	14159.91	14817.91	-658.007*	550	6,151,399
Total absences (2018–19 school year)	14.000	12.374	1.626*	483	5,516,141
Share of sessions absent	0.047	0.042	0.005*	483	5,516,141
Authorised absences as a share of total sessions	0.035	0.031	0.004*	483	5,516,141
Unauthorised absences as a share of total sessions	0.012	0.011	0.001	483	5,516,141
Share ever excluded from school	0.022	0.018	0.004	550	6,151,399
Total number of exclusions (conditional on having been excluded)	3.083	2.426	0.657	12	111,527
FSP: good level of development	0.673	0.658	0.015	444	4,946,185
FSP: total score	88.801	87.039	1.762	156	1,463,694
KS1: achieving below expectations in any subject	0.247	0.280	-0.033	429	4,661,293
KS1: achieving expectations in reading	0.855	0.815	0.040**	429	4,659,861
KS1: achieving expectations in writing	0.767	0.762	0.005	429	4,660,325
KS1: achieving expectations in maths	0.862	0.826	0.036**	429	4,660,171
KS1: achieving expectations in science	0.907	0.862	0.045***	429	4,658,218
KS2: achieving below expectations in any subject	0.355	0.409	-0.054	186	1,896,102
KS2: achieving expectations in reading	0.643	0.624	0.019	154	1,648,173
KS2: exceeding expectations in reading	0.000	0.000	0.000***	219	2,190,013
KS2: achieving expectations in maths	0.763	0.677	0.086***	173	1,697,999
KS2: exceeding expectations in maths	0.000	0.000	0.000***	219	2,190,013
Max N	550	6,151,399			

Note: 'IFS sample' refers to the sample of children with an IFS survey record linked to an NPD record, and who are not missing key variables used in our analysis. 'NPD sample' refers to all other children in the NPD for the 2018–19 academic year.

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**Table A2. Characteristics of the linked IFS–NPD sample compared with other IFS survey respondents**

	IFS unused	IFS effective sample	Difference	N, IFS unused	N, IFS effective
Socio-emotional skill: Feb 2021	-0.273	-0.240	0.033	4,879	550
Socio-emotional skill: Feb 2020	-0.006	0.052	0.058	4,879	550
Child is female	0.498	0.493	-0.005	4,869	527
Child age	9.541	10.358	0.817***	5,545	550
Child is non-white	0.778	0.111	-0.667***	5,545	550
Respondent parent's age	36.785	39.625	2.840***	5,545	550
Respondent parent is female	0.988	0.955	-0.033	5,545	550
Lone-parent family	0.274	0.304	0.030	5,545	550
Mother has GCSEs	0.308	0.403	0.095***	4,946	519
Mother has A levels	0.266	0.293	0.027	4,946	519
Mother has a degree	0.426	0.304	-0.122***	4,946	519
Father has GCSEs	0.315	0.416	0.101***	4,084	387
Father has A levels	0.254	0.279	0.025	4,084	387
Father has a degree	0.431	0.305	-0.126***	4,084	387
Number of children in household	2.541	2.418	-0.123***	5,545	550
Earnings (equivalised) pre-COVID	1174.956	1143.679	-31.277	5,545	550
Region: East Midlands	0.076	0.096	0.020	5,545	550
Region: East of England	0.083	0.115	0.032**	5,545	550
Region: Greater London	0.165	0.100	-0.065***	5,545	550
Region: North East	0.069	0.069	0.000	5,545	550
Region: North West	0.148	0.129	-0.019	5,545	550
Region: South East	0.156	0.180	0.024	5,545	550
Region: South West	0.105	0.102	-0.003	5,545	550
Region: West Midlands	0.119	0.109	-0.010	5,545	550
Region: Yorkshire	0.079	0.100	0.021	5,545	550
Father worked pre-COVID	0.917	0.884	-0.033**	3,909	387
Share of father's industry impacted by lockdown 2020	0.238	0.279	0.041**	3,779	356
Mother worked pre-COVID	0.802	0.779	-0.023	4,712	520
Share of mother's industry impacted by lockdown 2020	0.252	0.301	0.049***	3,937	409
Share of father's occupation who can telework	0.469	0.389	-0.080***	3,779	356
Share of mother's occupation who can telework	0.517	0.490	-0.027	3,937	409
Parent well-being (standardised)	-0.037	0.067	0.104**	5,545	550
Parenting quality (standardised)	-0.016	0.158	0.174***	5,319	548
Parent relationship quality (standardised)	-0.002	0.022	0.024	3,844	383
Max N	5,545	550			

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Note: 'IFS sample' refers to the sample of children with an IFS survey record linked to an NPD record, and who are not missing key variables used in our analysis. 'IFS unused' refers to all other children who were part of the IFS survey, but cannot be linked to the NPD or are missing key variables. The Ns do not sum to 6,095 as some of the effective sample were omitted due to missingness in their NPD values to keep samples consistent with the other tables presented in this report.

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