Poverty, parental work intensity and child emotional and conduct problems

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ABSTRACT

Poverty is known to be associated with poorer child mental wellbeing. Relatedly, the security and quality of employment are reported to affect adult wellbeing. Less is known about how both poverty and parental employment affect children's mental wellbeing. This paper uses nine waves (2005/06–2017/18) of the Growing Up in Scotland (GUS) study to examine how the longitudinal trajectories of poverty and work intensity are associated with the longitudinal trajectories of mental wellbeing in a nationally representative sample of 3994 children (ages 0 to 12). This analysis was conducted via a bivariate multilevel non-linear growth curve model for the widely used Strengths and Difficulties Questionnaire (SDQ) subscales of conduct problems and emotional symptoms. Results show that unstable work intensity and poverty trajectories arising from the 2008 financial crisis are associated with substantial changes in the trajectories of conduct and emotional problems, but with key differences between the individual outcomes: increasing work intensity is associated with around a fifth of a standard deviation increase in conduct problems; decreasing work intensity over time is associated with around a fifth of a standard deviation increase in emotional problems; material deprivation is associated with an increase in both conduct and emotional problems, at around a tenth of a standard deviation; and longitudinal income poverty trajectories are associated with up to around a fifth of a standard deviation increase in conduct problems, but not emotional symptoms. These findings are discussed with the purpose of informing policies to tackle the effects of unstable and/or changing socioeconomic circumstances on children's mental health wellbeing in the context of an economic crisis, as well as its implications for the contemporary socioeconomic landscape and the devastating effects expected of the COVID-19 crisis.

1. Introduction

There is a well-developed body of evidence on the direct and indirect effects of poverty on children's lives, development and outcomes (Bradshaw and Huby, 2014; Bradshaw et al., 2017; Ridge, 2017; Treanor, 2016a, 2020). There is also a strong body of evidence on the effects of employment – its security and quality – on adult wellbeing and outcomes, such as risk of poverty and poor mental and physical health (Kim and Von dem Knesebeck, 2015; Russo and Terraneo, 2020). Less is known about the effects of fluctuating parental employment, i.e. insecure hours or job loss/gain, here conceptualised as 'work intensity', and subsequent trajectories of poverty, on children's mental wellbeing.

Undertaking research to fill this gap is especially important because, after the 2008 financial crisis, there has been a decade long rise in nonstandard employment in the UK, such as insecure hours, temporary and atypical (e.g. zero hours) contracts (Clarke and Cominetti, 2019; Coulter, 2016). While levels of non-standard employment have now

stabilised, they have not reduced and may even begin to increase again post COVID-19. Non-standard employment is not always negative: it kept the unemployment rates in the UK low post-2008 and there are some for whom employment flexibility is more important than its security, e.g. students. Those for whom it is not beneficial include people who are at risk of, or who are living in, poverty and those whose lives are adversely affected by societal inequality. This includes women, lone parents (90% of whom are women) (Gingerbread, 2022), racial/ethnic minorities, and people with a disability.

While the financial crisis was more than a decade ago, its effects continue to resonate in ongoing welfare reform, and in the continuing paradox of high levels of employment and low income/productivity in the UK. These enduring effects directly influence parental work intensity and risk of poverty today and there is a generation of children who have grown up in the shadow of the financial crisis. Children who were preschool in 2008 are now aged 14–18 and on the cusp of adulthood. This paper uses nine waves of the nationally representative Growing Up

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in Scotland (GUS) birth cohort study. We use these data to track parental work intensity, poverty trajectories and their effects on children's mental wellbeing, as measured by conduct and emotional problems in the Strengths and Difficulties questionnaire (Goodman, 1997). This allows us to look across the lives of children from birth, to the period of the financial crisis, through to its continuing aftereffects today.

2. Background

After the financial crisis of 2008, austerity measures were instituted which intensified across the 2010s, reducing incomes and services to low-income families. These measures reversed the progress made by New Labour on child poverty and sharply reduced the real value of social transfers to families (Marsh et al., 2017). As well as austerity, changes to the conditionality rules of UK benefits disproportionately affected families with children, especially those families headed by a lone parent (usually the mother). For example, until 2008, UK lone parents were expected to look for paid work when their youngest child turned 16 years old. This threshold has been progressively reduced and now lone parents are expected to prepare for work when their youngest is two years old. Imposing stringent conditions for receiving benefits and requiring lone parents with school-age children to seek work as a condition of receiving benefits is shown to adversely affect maternal mental health (Katikireddi et al., 2018).

2.1. Employment before and after the 2008 financial crisis

From the 1992 recession until the financial crisis of 2008, the UK economy had been on an upward trajectory. When the financial crisis hit, GDP began to fall and took five years to recover (ONS, 2018). At the same time, unemployment reached its highest level since 1995 and took until 2015 to recover. Paradoxically, despite increasing levels of employment since 2015, earnings did not equally recover and continued to lag behind price increases. It took until 2019/2020 for real pay to return to its pre-2008 recession peak (ONS, 2021).

One of the main reasons that wages and productivity nosedived despite rising employment is because most job creation since the end of the 2008 recession has been non-standard, atypical work (Coulter, 2016). Two-thirds of the growth in employment since 2008 has been in atypical roles such as self-employment, zero-hours contracts or agency work (Clarke and Cominetti, 2019). Although full-time work as an employee remains the norm, the rapid expansion in atypical work was 'concentrated in some sectors (business services, hospitality, and health and social work), and among some groups (people with disabilities and single parents)' (Clarke and Cominetti, 2019:7). In fact, in 2018, 58% of mothers in employment were in atypical work, as were 56% of single parents, 49% of all women, 48% of people with disabilities, 42% of people with an ethnic minority background and 41% of people born outside the UK (Clarke and Cominetti, 2019).

While employment has remained relatively high the same cannot be said for income. Between 2007/08–2009/10 and 2017/18–2019/20, UK household incomes grew by 3.3% in real terms, compared to 24% in the preceding decade, 2006/07–2008/09 (DWP, 2021). One reason for this is that new labour market entrants who, over the past decade have been mainly female, are disproportionately likely to enter work on low earnings (Bell and Gardiner, 2019: 23). Further, while income growth has slowed dramatically for all, it has been especially weak at the bottom end of the distribution (Handscomb et al., 2021). For example, in the decade prior to the pandemic, household incomes in the bottom 10% grew by just 1% compared to 6.8% in households at the median, which has repercussions for levels of child poverty (Handscomb et al., 2021).

2.2. Income pre- and post-financial crisis

Rising employment was a common feature after the financial crisis due to the ensuing income shocks (Bell and Gardiner, 2019). Since 2008,

despite, or perhaps because of, low incomes and wages, people are working more hours and are still seeking to work yet more. By 2019, the rate of mothers in employment (75.1%) had overtaken the employment rate of women without dependent children and the employment rate of men without dependent children (73.5%; ONS, 2020). Of the 1.8 million lone parent families with dependent children in the UK in 2019, the majority (69.9%) were in employment (ONS, 2020).

One way a family can boost its income is for the women in heterosexual coupled households to join the labour market or, for those already employed, to increase their hours worked. In the decade since 2008, the employment rate of coupled mothers has increased by over five percentage points and their average working week has increased by over 2 h (Bell and Gardiner, 2019). Employment has also increased particularly rapidly for those in the lowest income deciles: the lowest educationally qualified minority ethnic groups and people with disabilities have all experienced twice as fast as the average growth in employment between 2008 and 2018 and, for lone parents, the rate of growth has been four times faster than the average (Bell and Gardiner, 2019).

This evidence suggests that the increase in employment since 2008 is a function of the risk or reality of poverty for those on low incomes and that alone employment is not always lifting people out of poverty. This is because atypical employment does not provide the security and income of historically-typical full-time employment.

2.3. The effects of the 2008 financial crisis on children

An international review found that the impact of the financial crisis on national economies resulted in a decline in children's well-being after 2008 (Fanjul, 2014). The impacts, such as parental unemployment or income loss, were reported to make children feel anxious and stressed (Fanjul, 2014). A further recent review similarly found that the 2008 financial crisis negatively affected children's mental health and that children in low-income families were more likely to experience a decline in mental health compared to their wealthier counterparts (Hiilamo et al., 2021).

Reinhard et al. (2018) examined the effects of the financial crisis on the physical health of young children in Ireland using three waves from the Growing Up in Ireland Cohort Study. They found that a reduction in welfare benefits during the recession was associated with increased risks of physical health problems in children. Further, they found that poorer child health was associated with reduced parental working hours and material deprivation (Reinhard et al., 2018). They concluded that for young children, especially the 'socioeconomically vulnerable', the recession had a negative impact on their health (Reinhard et al., 2018:1438). This raises the question of whether there are specific time points during childhood that place children at greater risk of negative impacts. Our data have nine time points from early to late childhood which allows us to explore this issue with greater granularity.

2.4. Potential pathways and hypotheses

It is unequivocal that growing up in poverty has detrimental impacts on children's outcomes and that the length of time spent living in poverty matters, with children in persistent poverty displaying the worst outcomes.

The two main causal pathways proposed for this are the family investment model and the family stress model. The family investment model explains the impact of income through a family's ability to invest monetary resources in experiences, resources, and services that improve children's development (Bradley and Corwyn, 2002; Conger et al., 2010; Yeung et al., 2002). The family stress model states that the stress induced by low income has adverse impacts on parents' emotional wellbeing and parenting capacity, which affect the child both directly and indirectly (Bradley and Corwyn, 2002; Conger et al., 2010; Yeung et al., 2002). Indirectly, younger children's outcomes are negatively affected through parental emotional distress, with two-thirds of the effect size being

experienced in this way (Treanor, 2016a). In addition, older children experience direct effects because they are aware of the financial and emotional stress their parents are under (Holscher, 2008).

A review on the impacts of parental income on child outcomes found evidence to support both models. It concluded that the two are not mutually exclusive but that the pathways interact with each other. It also found that the effect of income on children matters more for children in lower income households (Cooper and Stewart, 2021).

Heinrich (2014) writes that parents' (and especially mothers') work is not unequivocally beneficial for children. Benefits accrue from working parents being positive role models and from more income improving children's lives. However, disbenefits derive from low-quality and insecure jobs, such as parental stress and poorer child wellbeing (Heinrich, 2014). Further, low-income parents are more likely to work in insecure, low-quality jobs and their children are more likely to experience suboptimal childcare or go unsupervised completely (Heinrich, 2014).

In a longitudinal qualitative study of lone mothers trying to gain and sustain employment, the children were glad their mothers were in work because family income improved and they were able to participate more in leisure activities with their peers (Millar and Ridge, 2013). However, there was also a concern amongst children that their mothers were getting tired and stressed at work and older children now had increased duties at home, including caring for siblings (Ridge, 2009).

Strazdins et al. (2010) conducted a cross-sectional analysis of the Growing Up in Australia data and found that when parents' jobs lacked security, control, or flexibility, children aged 4–5 years had greater emotional and behavioural difficulties. Further, the association showed an effect size comparable to parent income, education and age and tended to be stronger for children in low-income households and lone-mother families (Strazdins et al., 2010). This study is highly valuable in that it uses similar data to ours; however, the analysis uses a single wave of data, whereas our longitudinal analysis uses nine, which allows us to explore the effects of time and a wider range of ages.

The relationship between parental employment (work intensity) and child wellbeing is here hypothesised to be manifold and interactive. The first hypothesis is that decreasing work intensity is expected to affect child wellbeing either negatively because families with lower levels of employment will have lower incomes, or potentially positively because families will have lower stress in managing work and children and will have more time to spend together. The second hypothesis is that stable high work intensity is expected to be associated with higher levels of child wellbeing as this trajectory suggests job and income stability for the family. The third hypothesis is that increasing work intensity is expected to affect child wellbeing either negatively or positively, depending on the resulting increase in income and whether the employment is secure and of decent quality. This hypothesis stems from the qualitative work on parental employment and child outcomes and will be tested here statistically for the first time.

3. Methods

3.1. Data

Data were collected as part of GUS, a longitudinal birth cohort study with a nationally representative sample of 5217 children born in 2004/05 in Scotland. Wave 1 was collected in 2005/06, wave 2 in 2006/07, wave 3 in 2007/08, wave 4 in 2008/09, wave 5 in 2009/10, wave 6 in 2010/11, wave 7 in 2012/13, wave 8 in 2014/15, and wave 9 in 2017/18. The variables used are described below.

3.2. Dependent variables

The two dependent variables are 'conduct' and 'emotional' problems taken from the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) scores collected at each wave beginning with wave

four, when the children were on average 3.85 years old. Higher scores denote higher levels of conduct and emotional problems. In all waves, the SDQ questionnaires were self-completed by the child's main carer. Each subscale has five items (e.g., conduct: "Often has temper tantrums or hot tempers"; emotional: "Many worries, often seems worried", etc.) with 3-point response scales ("Not true" = 0, "Somewhat true" = 1, "Certainly true" = 2), which results in total scores ranging from 0 to 10. We conducted longitudinal measurement invariance testing for conduct and emotional problems. Most items in the conduct and emotional subscales display high standardised loadings (>0.7) and only one item in the first five waves with moderate standardised loading (0.4–0.69). There is also strong evidence of good fit to the data: Comparative Fit Index (CFI) of 0.967 and 0.978, respectively; Tucker-Lewis Index (TLI) of 0.963 and 0.975 and Root Mean Squared Error of Approximation (RMSEA) of 0.037 and 0.038. We also found strong evidence of measurement invariance. More details are found in the supplementary information. This is in line with previous investigations of the factorial structure of the SDQ (Goodman et al., 2010).

We focused on conduct and emotional problems because they are notably more common in children and young people than other psychiatric, neurodevelopmental or mental health issues (Collishaw, 2015). The other two difficulties subscales, i.e., hyperactivity and peer problems, have been found to be more strongly associated with attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) (Goodman et al., 2010), which are largely less prevalent.

3.3. Independent variables

Longitudinal poverty: The poverty variable, defined at each time point as 60% of the median household income equivalised for household size, has been used for waves 1–8 to run a latent class analysis (LCA) to classify individuals into different poverty classes. Our typology of poverty shows four groups: a) persistently poor; b) persistently non-poor; c) escaping poverty and d) falling into poverty. The last two groups can be seen as a further elaboration of the "recurrent" and "transient poverty" groups of the typology set out by Fouarge and Layte (2005), which also included "no poverty" and "persistent poverty". The difference with our approach is that we consider the probability of being in poverty and its change over time. Recurrent and transient poverty spells considered in isolation can be indicative of two distinct longitudinal processes: falling into poverty or escaping it. Even though they can manifest over time as one of two possible states (poor or non-poor), the overall trajectory can be steadily increasing or decreasing, which is captured in our typology.

Material deprivation: is defined as the proportion of people living in households who cannot afford at least 3 items of the 9-indicator index of material deprivation, as used comparably in data collected by the OECD, European Union and EU-SILC. We use a continuous, standardised index, with higher levels of material deprivation corresponding to positive values (Treanor, 2014).

Work intensity: is a household measure which uses the employment status of both partners for couple families and just one for lone parent families. It is a variable that ranges between 0 and 1. For a couple family, the range is: 1 = both partners in full-time work; 0.75 = one full-time and one part-time partner; 0.5 = one full-time or two part-time partners; and 0.25 = one part-time partner, one partner not in paid work. For a lone parent the range is: 1 = lone parent working full-time; 0.5 = lone parent working part-time; and 0 = lone parent not working. This means that a full-time working lone parent has the same weighting as a full-time working couple. To measure work intensity over time we used employment and family status over waves 1–9 of GUS to define latent classes, similar to our LCA for longitudinal poverty. Changes in work intensity across time are captured into five types of trajectories: persistently high intensity; persistently low intensity; persistent medium intensity; decreasing intensity and increasing intensity.

3.4. Control variables

The control variables are child's sex and ethnicity, maternal age at first birth and level of education, as these are all factors known to confound the effects of socioeconomic disadvantage on children's conduct and emotional problems (Schoon et al., 2012; Treanor, 2016a, 2016b).

3.5. Analytical strategy

The work intensity and longitudinal poverty variables over time were used to fit two separate growth mixture models to identify latent classifications across children. These models were fitted in Latent Gold version 6.0 (Vermunt and Magidson, 2016). The modal classes to which each child was predicted to belong were used as covariates for the main model of interest. More details can be found in the supplementary information.

The two outcomes were analysed using a bivariate non-linear growth curve model. Growth curve models are used to analyse data where repeated measures are nested within individuals. We adopted the multilevel modelling framework, where the total variance is split into variance between time points (level-1, within individuals) and variance between individuals (level-2). In this framework, time is modeled explicitly as a level-1 covariate and its slope is allowed to vary randomly across the individuals. The multilevel framework also allows for multivariate outcomes, which is implemented here by modelling conduct and emotional problems simultaneously. As Troncoso (2019) and Troncoso and Humphrey (2021) point out, multivariate growth curve modelling is advantageous because it allows us to analyse trajectories of conduct problems and emotional symptoms over time that are: systematic (they have a pattern over time); variable (varying growth rates across children); group-specific (varying according to individual characteristics) and outcome-specific (relating to an outcome while controlling for the association with the other).

The chosen metric of time is age in months, as its granularity allows a

more detailed analysis of developmental processes, especially for younger children. Our model treats time flexibly and allows the slope of the linear term to vary randomly across children. We fitted this via the Markov Chain Monte Carlo (MCMC) algorithm in MLwiN 3.05 (Rasbash et al., 2020), which we called from within R using the package "R2MLwiN" (Zhang et al., 2016).

The multivariate specification allows the variance-covariance matrix to be efficiently estimated in the presence of missing data as pointed out by Goldstein (2011). This renders our model results unbiased under the Missing at Random (MAR) assumption. The full model in this paper preserves 98.15% of children from birth cohort 1 who were still present in wave 4 of GUS.

4. Results

4.1. Descriptive analysis

Tables 1 and 2 provide the means and standard deviations over time for conduct problems and emotional symptoms, respectively, according to the groups defined by our covariates of interest: longitudinal poverty and work intensity; and our control variables: material deprivation, sex, ethnicity, educational level, and maternal age. Statistics are weighted by the cross-sectional weights for each wave.

There is much to note in the descriptive statistics in Table 1. The first is that the overall mean for conduct problems is 1.98 in wave 4 (mean age = 3.85 years old) and decreases steadily to 1.32 in wave 9 (mean age = 12.56 years old). This suggest that conduct problems naturally attenuate over time as the child grows older. The variability in conduct problems over the same period remains roughly stable with a standard deviation ranging from 1.44 (wave 4) to 1.56 (wave 7). This suggests that the range of conduct problems in children are fairly similar across the different age groups.

Other points of note for conduct problems before taking any other variables into consideration are: (1) for children living in persistent poverty or escaping poverty, conduct problems are higher than for those

Table 1
Descriptive statistics (weighted) for conduct problems over time.

Variable	Group	Wave 4		Wave 5		Wave 6		Wave 7		Wave 8		Wave 9	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Conduct (range 0–10)	Overall	1.98	1.44	1.76	1.45	1.60	1.46	1.55	1.56	1.32	1.48	1.32	1.55
Age	Overall	3.85	0.04	4.85	0.04	5.85	0.04	7.87	0.07	10.19	0.30	12.56	0.31
Longitudinal poverty	Persistent non-poor	1.70	1.27	1.50	1.31	1.33	1.29	1.21	1.26	1.04	1.24	1.04	1.31
	Escaping poverty	2.37	1.50	2.06	1.47	1.92	1.52	2.09	1.92	1.56	1.59	1.63	1.57
	Persistent poor	2.46	1.61	2.23	1.59	2.05	1.63	2.10	1.74	1.79	1.70	1.91	1.87
	Falling into poverty	1.97	1.42	1.75	1.41	1.62	1.48	1.55	1.67	1.31	1.50	1.39	1.55
Work intensity	Persistent medium	1.89	1.39	1.66	1.39	1.49	1.39	1.41	1.45	1.23	1.40	1.21	1.44
	Persistent high	1.72	1.23	1.47	1.37	1.33	1.22	1.25	1.36	0.99	1.29	1.06	1.37
	Increasing	2.66	1.68	2.37	1.56	2.23	1.67	2.14	1.62	1.55	1.62	1.96	1.83
	Decreasing	2.03	1.59	1.99	1.67	1.76	1.48	2.16	1.97	1.82	1.66	1.85	1.88
	Persistent low	2.60	1.55	2.51	1.60	2.44	1.73	2.59	2.01	2.32	1.82	2.52	2.12
Material deprivation	None	1.76	1.31	1.56	1.35	1.37	1.33	1.25	1.35	1.07	1.29	1.09	1.34
	One or more	2.26	1.55	2.02	1.52	1.88	1.56	1.91	1.71	1.62	1.63	1.64	1.74
Child's sex	Male	2.09	1.49	1.89	1.48	1.77	1.52	1.73	1.65	1.46	1.57	1.45	1.64
	Female	1.87	1.39	1.62	1.39	1.42	1.36	1.35	1.42	1.17	1.36	1.20	1.44
Child's ethnicity	White	1.98	1.43	1.76	1.44	1.60	1.46	1.54	1.56	1.31	1.48	1.32	1.54
	Non-White	2.00	1.64	1.87	1.62	1.48	1.39	1.63	1.49	1.45	1.44	1.53	1.72
Mother's education level	University	1.70	1.32	1.54	1.36	1.32	1.29	1.20	1.32	1.00	1.26	1.02	1.31
	Vocational	2.00	1.42	1.76	1.44	1.65	1.46	1.62	1.57	1.40	1.48	1.44	1.60
	Higher grade	1.83	1.42	1.46	1.18	1.44	1.55	1.30	1.40	1.19	1.52	1.28	1.55
	Standard grade	2.30	1.54	2.01	1.52	1.81	1.46	1.88	1.65	1.57	1.66	1.55	1.82
	Other qualifications	2.89	1.01	2.61	1.47	2.48	1.55	2.29	3.35	2.89	2.39	2.54	1.70
	No qualifications	2.50	1.64	2.41	1.58	2.20	1.73	2.19	1.85	1.85	1.67	1.84	1.56
Maternal age	Under 20	2.58	1.70	2.32	1.61	2.02	1.62	2.22	1.74	1.82	1.78	2.22	2.07
	20–29	2.05	1.46	1.87	1.49	1.69	1.50	1.69	1.65	1.46	1.55	1.47	1.65
	30–39	1.84	1.36	1.60	1.36	1.47	1.38	1.34	1.40	1.14	1.34	1.14	1.38
	40+	1.71	1.20	1.59	1.33	1.34	1.37	1.28	1.49	1.15	1.34	1.00	1.17
Maternal employment	Unemployed	2.22	1.56	2.06	1.56	1.89	1.61	1.89	1.72	1.68	1.62	1.90	1.91
	Part-time	1.85	1.38	1.61	1.34	1.46	1.37	1.41	1.45	1.26	1.42	1.23	1.46
	Full-time	1.86	1.30	1.55	1.38	1.40	1.31	1.33	1.43	1.02	1.28	1.08	1.29

Table 2

Descriptive statistics (weighted) for emotional symptoms over time.

Variable	Group	Wave 4		Wave 5		Wave 6		Wave 7		Wave 8		Wave 9	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Emotional (range 0–10)	Overall	1.20	1.42	1.27	1.50	1.29	1.59	1.55	1.83	1.72	1.98	1.96	2.16
Age	Overall	3.85	0.04	4.85	0.04	5.85	0.04	7.87	0.07	10.19	0.30	12.56	0.31
Longitudinal poverty	Persistent non-poor	0.99	1.21	1.09	1.33	1.08	1.43	1.26	1.60	1.41	1.73	1.62	1.94
	Escaping poverty	1.57	1.75	1.40	1.61	1.47	1.63	2.07	2.02	1.93	2.19	1.84	2.13
	Persistent poor	1.55	1.65	1.59	1.77	1.69	1.86	2.02	2.11	2.18	2.23	2.76	2.49
	Falling into poverty	1.21	1.37	1.31	1.38	1.23	1.45	1.56	1.79	1.89	2.04	2.02	2.07
Work intensity	Persistent medium	1.16	1.38	1.20	1.44	1.19	1.50	1.43	1.73	1.60	1.89	1.82	2.08
	Persistent high	0.92	1.11	1.01	1.25	0.93	1.30	1.17	1.51	1.33	1.73	1.64	2.03
	Increasing	1.53	1.62	1.65	1.85	1.74	1.87	2.11	2.06	2.20	2.12	3.00	2.51
	Decreasing	1.54	1.62	1.51	1.48	1.81	1.83	1.94	1.82	2.10	1.83	2.75	2.38
	Persistent low	1.55	1.66	1.80	1.83	2.08	2.06	2.60	2.49	2.86	2.56	3.18	2.42
Material deprivation	None	1.01	1.26	1.08	1.38	1.09	1.44	1.27	1.63	1.45	1.84	1.52	1.89
	One or more	1.44	1.56	1.50	1.60	1.53	1.74	1.90	2.00	2.05	2.08	2.56	2.35
Child's sex	Male	1.23	1.43	1.28	1.55	1.28	1.63	1.62	1.91	1.74	2.04	1.98	2.24
	Female	1.18	1.41	1.25	1.44	1.29	1.55	1.47	1.74	1.69	1.91	1.94	2.08
Child's ethnicity	White	1.19	1.41	1.25	1.48	1.29	1.60	1.54	1.84	1.73	1.99	1.95	2.15
	Non-White	1.56	1.58	1.68	1.77	1.23	1.51	1.88	1.75	1.60	1.78	2.18	2.40
Mother's education level	University	1.00	1.23	1.12	1.35	1.12	1.47	1.25	1.57	1.45	1.77	1.61	1.96
	Vocational	1.19	1.46	1.29	1.52	1.30	1.59	1.63	1.90	1.82	2.04	2.07	2.14
	Higher grade	1.13	1.38	0.99	1.20	1.07	1.30	1.32	1.58	1.60	1.79	1.76	2.06
	Standard grade	1.45	1.41	1.40	1.61	1.44	1.62	1.84	2.02	1.82	2.03	2.30	2.40
	Other qualifications	1.59	2.06	1.45	1.40	2.05	2.22	2.24	2.24	3.19	3.97	1.67	1.24
	No qualifications	1.66	1.71	1.68	1.76	1.78	1.97	2.06	2.07	2.18	2.24	2.75	2.59
Maternal age	Under 20	1.63	1.77	1.63	1.74	1.55	1.73	1.92	2.11	2.03	2.18	2.21	2.05
	20–29	1.29	1.48	1.36	1.60	1.41	1.68	1.78	1.94	1.89	2.05	2.29	2.34
	30–39	1.07	1.29	1.13	1.35	1.15	1.50	1.32	1.67	1.53	1.86	1.71	2.00
	40+	1.03	1.31	1.26	1.37	1.11	1.31	1.30	1.69	1.76	2.08	1.63	1.95

who are either not poor ever or who are falling into poverty. This could suggest the full effects of poverty have not yet emerged in this latter group due to the lagged effect of poverty; (2) conduct problems are higher in children whose mothers have increasing, decreasing or persistently low work intensity. In other words, insecure and uncertain work patterns; (3) conduct problems are higher for children experiencing material deprivation; and (4) conduct problems are higher for children whose mothers have lower levels of education and who are younger. Table 2 gives the descriptive statistics for emotional problems in children.

The overall trends for emotional symptoms are distinctly different from those for conduct problems. The overall mean is 1.2 in wave 4 (mean age = 3.85 years old) and increases steadily to 1.96 in wave 9 (mean age = 12.56 years old). This suggests that emotional problems increase as children get older. Furthermore, unlike for conduct problems, variability in emotional symptoms seems to increase over time with standard deviations ranging from 1.42 (wave 4) to 2.16 (wave 9). This suggests that not only do children's emotional problems intensify throughout childhood, they also swing further towards the extremes over time.

A major point of note for emotional problems before taking any other variables into consideration is that the pattern for longitudinal poverty, work intensity, material deprivation, maternal age and education is the same as that for conduct problems. An exception is that children from a non-white ethnicity seem to have higher emotional problems in the univariate analysis.

All the trends over time observed in Tables 1 and 2 are unadjusted and univariate, meaning that differences between groups and time points may be due to natural change over time, random error and/or the effect of another covariate, control variable or even the correlation with the other outcome. It is therefore important to tackle this complexity with a sufficiently sophisticated model. In the next section, we present the results for the bivariate growth curve models for both conduct and emotional outcomes.

4.2. Modelling analysis

Variation across outcomes and levels. We fitted an unconditional means model to assess the weight of the contribution of each level to the total variation in conduct problems and emotional symptoms. This model is only used to decompose the total variance into variance within the same children at any point in time (level 1) and between different children across all time points (level 2), as well as ascertaining the correlation between the two outcomes at each level.

Table 3 shows that the correlations between outcomes vary considerably across levels. Conduct problems and emotional symptoms show a moderate positive association at the between-children level, suggesting that the relationship between emotional and conduct problems is moderately stable over time; however, they are only weakly associated at the within-child level, which suggests that at any point in time, increases in conduct problems in any given child may not necessarily follow increases in emotional symptoms in the same child, and vice versa. This is evidence that time-invariant child characteristics, such as personality, may play a more prominent role in the relationship between these developmental outcomes within the child compared to time-

Table 3

Unconditional means model for conduct problems and emotional symptoms.

Parameters	Empty model				
Fixed part	Mean	SD	CI low	CI high	
Intercept conduct	0.028	0.012	0.004	0.051	
Intercept emotional	0.005	0.012	−0.018	0.028	
Random part	Mean	SD	CI low	CI high	Corr.
Between children (level 2)					
Variance (intercept conduct)	0.531	0.014	0.503	0.560	
Covariance (conduct, emotional)	0.233	0.010	0.212	0.253	0.475
Variance (intercept emotional)	0.453	0.013	0.428	0.478	
Within children (level 1)					
Variance (intercept conduct)	0.485	0.005	0.475	0.496	
Covariance (conduct, emotional)	0.060	0.004	0.052	0.068	0.116
Variance (intercept emotional)	0.547	0.006	0.535	0.559	

Note: Deviance Information Criterion = 163,832.42.

changing factors such as mood or external disturbances. From the variances displayed in Table 3, we can derive the split of the variance for both conduct and emotional problems, which we present in Table 4.

Table 4 shows a relatively even split of the total variance in both outcomes. Nevertheless, it is worth noting that the variation in emotional symptoms is greater within children than between children, compared to the variation in conduct problems. This indicates that emotional problems are more likely than conduct problems to be influenced by changes over time (such as poverty or other external factors), and conduct problems are more likely to be influenced by stable traits over time, such as personality or other time-invariant characteristics. In the next section, we interrogate the factors associated with change over time in conduct and emotional problems by including our explanatory and control variables.

In Table 5, the results show that conduct problems decrease in a non-linear fashion over time, as denoted by the age, age-squared and age-cubed terms whose confidence intervals do not cross zero. This is not the case for emotional symptoms which show no such age-related trend over time. This is a change on what was observed in the descriptive statistics between the two dependent variables.

Children in families who are persistently poor, escaping poverty or falling into poverty have increased rates of conduct problems, when compared to those persistently non-poor. This is most pronounced in those who are persistently poor or who are poor to begin with but are on a trajectory to escape it, as seen in Fig. 1A. In contrast, we have not found enough evidence that longitudinal poverty trajectories are associated with emotional problems. These trends for poverty over time are in Fig. 1B which demonstrates the minimal variation between trajectories.

The experience of poverty, as measured by material deprivation, which intensifies with length of time spent living in poverty (Treanor, 2014), is associated with greater levels of conduct and emotional problems.

Work intensity affects both conduct problems and emotional symptoms but in different ways. Children whose parents experienced *increasing* work intensity over the period have on average nearly a fifth of a standard deviation more conduct problems than their peers whose parents had persistently high work intensity. This provides evidence for one alternative of our third hypothesis, derived from the qualitative literature, that increasing parental work intensity is detrimental to children's wellbeing, possibly due to its link to: low-income and poor job quality, a reduction in time spent as a family, and/or a change in role and responsibility of children themselves. For emotional symptoms, *increasing* work intensity was not noticeably different to the three stable work intensity patterns.

Children whose parents experienced *decreasing* work intensity display the lowest predicted scores of conduct problems but the highest predicted scores for emotional symptoms, as seen in Fig. 2A. This provides support for our first hypothesis, that a reduction in work intensity is beneficial to child wellbeing, as measured by conduct problems, possibly due to the increased time spent together as a family and a reduction in the stress of managing childcare and employment. However, it also predicts poorer child wellbeing, as measured by emotional problems, possibly due to the reduction in income and resulting increase in financial stress and less money to engage in activities with peers.

It is also worth noting that children in the persistently high and medium work intensity classes display a strikingly similar trajectory to each other in relation to conduct problems: they are among the lowest scorers (along with those in the decreasing work intensity group) for

Table 4
Variance partitioning for the unconditional means model.

Outcome	Within children	Between children	Total
Conduct problems	47.74%	52.26%	100%
Emotional symptoms	54.73%	45.27%	100%

nearly the whole period. This lends credence to the second hypothesis that children benefit from parents having stable employment with a certainty of hours as opposed to unstable/changing work or none at all, a stability which also intimates little or no poverty experience.

5. Discussion

The main points from our analysis, after all explanatory and control variables are taken into account, are that: (1) conduct problems tend to decrease over time as children age, but at varying rates depending on children's characteristics; (2) emotional problems tend to increase over time and become more extreme as children age; (3) children in families who are persistently poor, escaping poverty or falling into poverty have increased rates of conduct problems; (4) children whose parents have increasing work intensity have higher levels of conduct problems than their peers whose parents have persistently high work intensity; (5) children whose parents experience decreasing work intensity have noticeably higher rates of emotional symptoms compared to those in the persistently high intensity class; and (6) children whose parents have persistently high and medium work intensity have among the lowest scores for both conduct and emotional problems, indicating that stability in income and employment is good for children's mental wellbeing.

These negative effects are stronger in older children, as evidenced in the interaction effects. The qualitative evidence suggests this is because older children are more aware than younger children of the difficulties and trade-offs parents make in managing increasing or decreasing work intensity, and/or because older children undertake more domestic duties and sibling care, and so are more directly affected by parental work intensity (Ridge, 2009, 2017; Millar and Ridge, 2013).

The findings provide evidence for the hypotheses that increasing and decreasing work intensity can have either positive and/or negative effects on children's mental wellbeing, depending on the measure of wellbeing used, and the hypothesised causal pathway. This aligns with Heinrich's (2014) claim that parental work is not unambiguously beneficial for children. It also supports Cooper and Stewart's (2021) conclusion that the family stress model and the family investment model operate in tandem.

The results indicate that inadequate resources and inadequate employment are associated with higher levels of children's conduct and emotional problems. Overall, it seems that both instability and disadvantage in combination, rather than persistently low work intensity or persistent poverty and material deprivation on their own, are at play when it comes to poor mental health outcomes in children. The key aspect of employment as a route out of poverty seems to be in its quality and stability and its ability to provide sufficient income to families. This is especially pertinent in a Scottish and UK context where two-thirds of children living in poverty have a parent who is working.

The period after the financial crisis of 2008 was one of great negative change in employment stability and security (Clarke and Cominetti, 2019), especially for those with traditionally lower incomes (Bell and Gardiner, 2019). Our analysis shows how important economic instability, and the financial measures instated to counter it, are to children's mental wellbeing. While the financial crisis of 2008 may seem a long time ago, it is still having negative consequences for the generation that has grown up in its shadow and are about to make the transition to adulthood in the throes of a putative new global financial crisis.

We are on the cusp of a new recession, or at least at the start of great financial uncertainty, occasioned by the 2020 COVID-19 pandemic. Jobs and employment have again changed since 2020 and we are yet to bear witness to the predicted after-effects of the pandemic on the economy, employment and risks of poverty. Our findings give us an insight into what we can expect the effects of a new recession to be on children's mental health in the coming decade. While we do not yet know the full depth and length of the imminent recession following the COVID-19 pandemic (Hiilamo et al., 2021), it is anticipated that COVID-19 will

Table 5

Bivariate multilevel growth curve model for conduct problems and emotional symptoms, controlling for work intensity and longitudinal poverty.

Main effects	Conduct				Emotional			
	Mean	SD	CI low	CI high	Mean	SD	CI low	CI high
Intercept	0.385	0.082	0.223	0.544	−0.179	0.073	−0.321	−0.035
Age	−0.226	0.020	−0.265	−0.186	0.003	0.021	−0.038	0.044
Age squared	0.052	0.007	0.039	0.066	0.011	0.007	−0.003	0.025
Age cubed	−0.005	0.001	−0.006	−0.003	−0.001	0.001	−0.002	0.001
Persistent medium intensity	0.005	0.052	−0.096	0.108	0.065	0.044	−0.023	0.152
Persistent low intensity	0.169	0.091	−0.007	0.347	0.026	0.078	−0.127	0.179
Increasing intensity	0.194	0.091	0.018	0.375	0.075	0.078	−0.077	0.228
Decreasing intensity	−0.064	0.126	−0.311	0.189	0.212	0.107	0.003	0.422
Falling into poverty	0.101	0.043	0.017	0.184	0.026	0.037	−0.046	0.100
Escaping poverty	0.234	0.070	0.095	0.370	0.096	0.060	−0.020	0.213
Persistently poor	0.214	0.047	0.122	0.306	0.078	0.041	−0.002	0.157
Material deprivation	0.105	0.014	0.077	0.133	0.120	0.013	0.095	0.146
Vocational qualification	0.072	0.029	0.015	0.129	0.025	0.026	−0.026	0.076
Higher grade	−0.045	0.053	−0.148	0.058	−0.067	0.048	−0.161	0.026
Standard grade	0.154	0.042	0.070	0.237	0.067	0.039	−0.009	0.143
Other qualifications	0.536	0.272	0.004	1.067	0.325	0.239	−0.134	0.798
No qualifications	0.253	0.060	0.135	0.371	0.132	0.056	0.022	0.242
Mother's age 20-29	−0.137	0.064	−0.260	−0.013	−0.026	0.057	−0.138	0.086
Mother's age 30-39	−0.158	0.064	−0.284	−0.032	−0.099	0.058	−0.213	0.015
Mother's age 40+	−0.254	0.090	−0.429	−0.079	−0.085	0.080	−0.242	0.072
Non-White ethnicity	−0.019	0.068	−0.154	0.114	0.113	0.061	−0.007	0.233
Female child	−0.191	0.024	−0.238	−0.143	−0.006	0.022	−0.049	0.037
Interactions	Mean	SD	CI low	CI high	Mean	SD	CI low	CI high
Age*Persistent medium intensity	0.003	0.010	−0.016	0.023	−0.001	0.011	−0.023	0.021
Age*Persistent low intensity	0.030	0.019	−0.008	0.068	0.068	0.021	0.026	0.110
Age*Increasing intensity	−0.012	0.018	−0.048	0.024	0.036	0.021	−0.004	0.076
Age*Decreasing intensity	0.079	0.025	0.029	0.128	0.019	0.028	−0.035	0.073
Age*Falling into poverty	0.006	0.008	−0.010	0.023	0.021	0.009	0.003	0.039
Age*Escaping poverty	−0.006	0.014	−0.033	0.021	−0.002	0.015	−0.032	0.028
Age*Persistently poor	−0.003	0.009	−0.021	0.014	0.000	0.010	−0.020	0.019

Notes: Reference categories = Persistent high intensity, persistently non-poor, University degree, Mother's age under 20, White ethnicity, male. Parameters were obtained via MCMC using 2 chains of length 15,000. All fixed-effects parameters have an effective sample size (ESS) of at least 2000. Deviance information criterion = 67,692.848. The model uses diffuse prior distributions as described in Browne (2019).
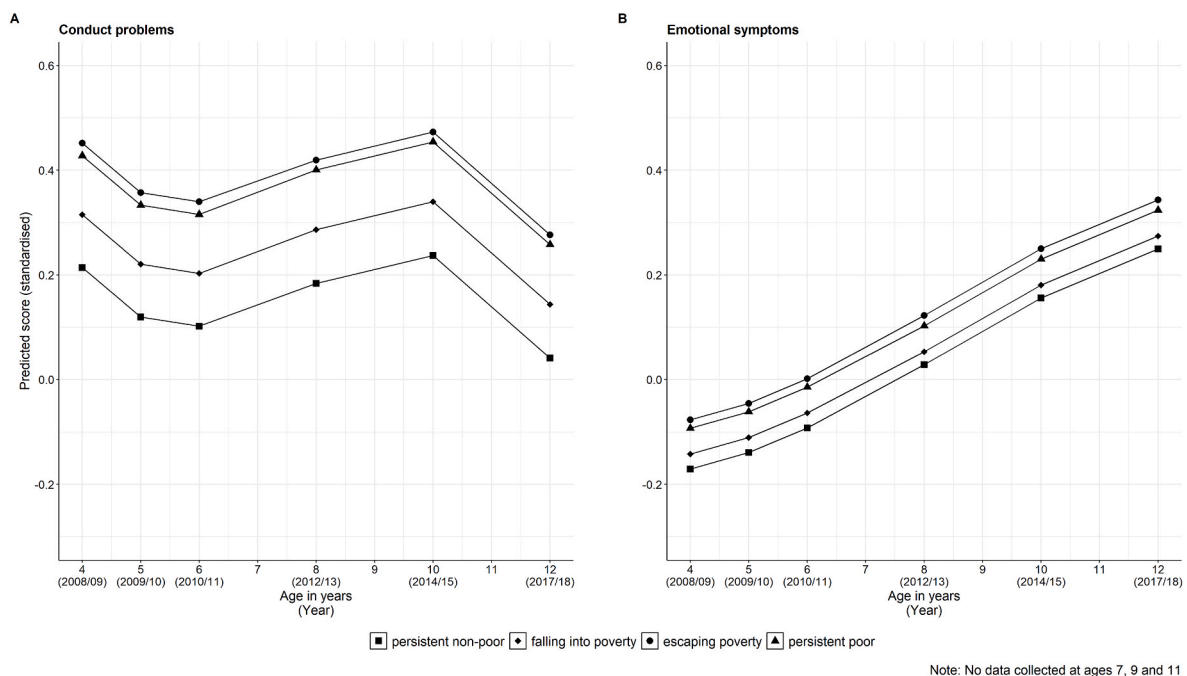

Fig. 1. Trajectories of predicted standardised scores for conduct problems and emotional symptoms by longitudinal poverty class.

be 'an economic shock of rare and extreme impact' (Bambra et al., 2021:55). Not only is it expected to be far worse than the global financial crisis of 2007/8, it is also mooted to be worse than the Great Depression of the 1930s (Bambra et al., 2021). By the second year of the pandemic it became clear that its effects on employment were already unevenly felt: 47% of respondents in the lowest income quintile of families who were
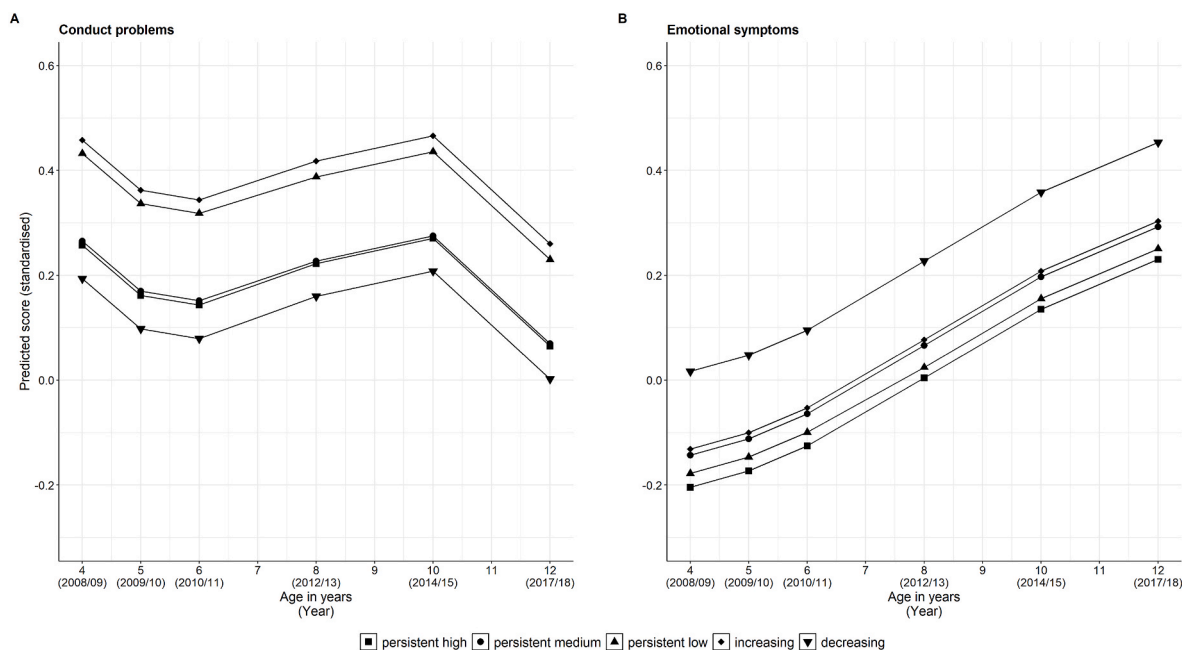
Fig. 2. Trajectories of predicted standardised scores for conduct problems and emotional symptoms by work intensity class.

working pre-pandemic were negatively affected compared to 20% of families in the highest income quintile (Handscomb et al., 2021).

There are few analytical outputs drawing conclusions from the impact of the 2008 financial recession on children and young people. As such, there is a lack of knowledge about potential lessons which could be exploited to support recovery from the Covid-19 pandemic, particularly in relation to the expected worsening of socioeconomic inequalities. We argue that there are obvious implications relating to what impacts can be expected on children's wellbeing - and how they come about - following an economic crisis.

The negative effects of unstable work intensity and poverty post-2008 on children's mental wellbeing are likely to strengthen and worsen for today's young children, who will grow up, not only inheriting the austerity of the post-2008 recession, but with new impacts from the pandemic. The implications for policy are that a dedicated focus on stabilising parental employment, income and living standards would be beneficial to children's mental wellbeing. For example, a moratorium on the post-2008 conditionality policies that compel lone parents to access employment when their youngest child is two years old would reduce stress and improve child wellbeing.

This study used a latent variable approach to derive the main covariates of interest. This approach confers an element of uncertainty, which can be seen as a limitation; however, it yielded satisfactory, robust results. Further, it allows a parsimonious way to address the complexity of change over time. Another limitation is that all measures of children's wellbeing are parent-reported, which can carry measurement error due to over- or under-reporting. Future waves of GUS incorporate children's self-reported wellbeing measures, which can help alleviate this issue.

The main strength of this research is that it uses a large, nationally representative, longitudinal sample of children. The data allowed us to examine long-term trajectories of children's wellbeing along with family circumstances, which enabled a nuanced and dynamic view of how changing parental socioeconomic status impacts children's health. Further research can build upon this and explore how parents' and children's mental health are interrelated over time and how socioeconomic circumstances can inhibit or induce poorer outcomes.

Our findings show that many children have been, and continue to be, adversely affected many years after an economic crisis. A further lesson

for policymakers is that dedicated resources and opportunities to young people, who have grown up with insecure and changing parental employment in the post-2008 period and are about to enter adulthood in the post-pandemic period, would reduce this imminent risk to their wellbeing.

6. Conclusion

This paper reflects the complexity of children's experiences of parental work intensity and family experiences of poverty on their mental wellbeing in the period 2005–2018. The results show that even when economic indicators, e.g. rates of employment, start to look better after a financial crisis, this can mask what happens at the family and child level.

This paper highlights that children do not exist in isolation but are, on the whole, members of families and they are directly and indirectly affected by their prevailing economic conditions. Our findings demonstrate that the negative effects of economic turmoil on children are wide-ranging and long-reaching. There is a need, therefore, to keep young people at their centre of action to protect against the harms of economic crises, including the social and health harms effected by the economic ones. There is much that can be learned from these findings going forward into the post COVID-19 recovery period.

Credit author statement

Morag Treanor: Conceptualization, Methodology, Supervision, Writing- Original draft preparation, Writing- Reviewing and Editing, Project administration. **Patricio Troncoso:** Methodology, Formal analysis, Data Curation, Visualization, Writing- Original draft preparation, Writing- Reviewing and Editing.

Declaration of competing interest

We have no conflicts of interest to disclose.

Data availability

The authors do not have permission to share data.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2022.115373.

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