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Research Article

Resilience or social reproduction? Parental job loss and children's prosocial development and caregiving after the Great Recession

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Gabriele Mari[1]

Abstract

BACKGROUND
Family resilience foregrounds personal and relational transformations that might help families overcome adversity. Yet why and from whom resilience is required is often overlooked. Economic downturns are exemplary sites to examine these questions.

OBJECTIVE
I study children's prosocial development and caregiving as interrelated expressions of family resilience in households affected by job loss during the Great Recession in Ireland. From a social reproduction perspective, I posit that the demands and capacities for resilience are unequally shared within families and across generations and follow a gendered pattern.

METHOD
I rely on cohort data from children's early years to adolescence (Growing Up in Ireland, 2008–2022) to estimate growth-curve and OLS models for prosocial development and outcomes tied to caregiving.

FINDINGS
Children whose mothers experienced job loss are rated more prosocial over time. Girls with younger siblings drive this finding. At age 13, the same group is more likely to share and fulfil caregiving duties. Findings suggest that mothers might have leaned on their children to maintain some paid work after job loss, stimulating their daughters' prosocial development and involvement in caregiving.

CONTRIBUTION
The study highlights how economic downturns reinforce the gendered and generational underpinnings that bind the paid and unpaid work of family resilience.

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1. Introduction

Research on family resilience underscores how families can withstand and rebound from adversity (Walsh 1996; Patterson 2002; Henry, Sheffield Morris, and Harrist 2015). Emphasis is put on "personal and relational transformations" among and between family members (Walsh 2021). Examples range widely, from maintaining a positive outlook despite relationship setbacks to rekindling kinship ties in response to financial hardship or care needs (see also, e.g., Bawati et al. 2025). Pre-eminently descriptive, the field has been criticised for obfuscating why and from whom resilience is required in the first place (e.g., Joseph 2013; Dagdeviren and Donoghue 2019; King, Crossley, and Smith 2021; for reviews, Calado et al. 2020; Anholt et al. 2021; Osinski 2023). In particular, mutual influences between families, markets, and state intervention are under-theorised in resilience studies relative to long-standing perspectives in the social sciences. Besides, disparities within and across families are often superseded by approaching the family as a 'unit' or 'system' (cf., Masten 2018; Daly 2025).

Concerning the question of why family resilience is made necessary, a handful of early studies highlighted the role of job loss in the context of economic crises (Elder 1974; Conger and Conger 2002; see Dagdeviren and Donoghue 2019 for a recent appraisal). Despite the recurrence of such crises, however, we know little over and above their often detrimental impacts on families. Parental job loss, in particular, has been associated with challenges in children's developmental process, difficulties in school, and mental health struggles (e.g., Gassman-Pines, Gibson-Davis, and Ananat 2015; Peter 2016; Mörk, Sjögren, and Svaleryd 2020; Mari, Keizer, and van Gaalen 2024; Högberg and Baranowska-Rataj 2024).

To complement past research in line with studies that foreground child development as part and parcel of family resilience (for a review, Bawati et al. 2025), this paper examines whether and how parental job loss might alter children's development of prosociality. Labelled as 'prosocial behaviour' or 'prosociality' in psychology, offering help, support, and comfort to others might foster better individual health and economic opportunities in the short and long run (Silke et al. 2018; Coulombe and Yates 2018; Deming 2017; Kosse and Tincani 2020). In addition, reciprocal links have been found between prosociality and caregiving in parent–child and sibling relationships (e.g., Narvaez et al. 2013; Hughes, McHarg, and White 2018; Coulombe and Yates 2022). As such, (children's) prosociality encompasses both the personal and relational dimensions of family resilience. Findings are mixed, though, on whether household economic resources spur or limit children's altruistic behaviours or ability to regard others (Piff and Robinson 2017; Silke et al. 2018). Studies have largely relied on snapshot measures of family resources, however, and even longitudinal research has neglected how prosociality might be moulded by changes in economic resources after downturns and job loss (e.g., Lichter, Shanahan, and Gardner 2002; Davis et al. 2018).

As for who is tasked with resilience, I take a gendered perspective. Here I borrow from early studies on downturns (Elder 1974) and feminist theorisations of social reproduction (e.g., Laslett and Brenner 1989; Bhattacharya 2017; Rai 2024) to posit that the demands and capacities for family resilience are not equally shared within families. There is ample evidence that, like prosocial development, involvement in caregiving is generally more pronounced among girls (East 2010; Silke et al. 2018).[2] Previous research suggests that financial hardships might reinforce this pattern (Elder 1974; Ridge 2011; Rai, Hoskyns, and Thomas 2014), yet studies have been few and far between. As household and caregiving responsibilities continue to fall on women after job loss (Gough and Killewald 2011; Van der Lippe, Treas, and Norbutas 2018), I thus ask whether prosocial development and involvement in caregiving are the preserve of their daughters.

In brief, this paper examines whether, how, and for whom parental job loss affects two analytically separate but interrelated processes: children's prosocial development and involvement in caregiving. I connect and contribute to studies on the social determinants of prosociality (e.g., Lichter, Shanahan, and Gardner 2002; Silke et al. 2018; Kosse et al. 2020), the intergenerational consequences of economic downturns (for a review, Gassman-Pines, Gibson-Davis, and Ananat 2015), and the latter's role in shaping the household division of labour (cf., Van der Lippe, Treas, and Norbutas 2018).

In doing so, I rely on longitudinal cohort data from Ireland (2008–2022). Ireland was one of the countries worst hit by the recent Great Recession and subsequent policies (e.g., Daly 2019). Ireland also features entrenched gendered arrangements around paid and unpaid labour (e.g., Russell, McGinnity, and O'Connell 2017; Russell et al. 2019; O'Reilly and Quayle 2021). Cohort data allow me to examine how children's prosocial development is influenced by parental job loss from childhood to early adolescence (up to age 13), and investigate parents' employment trajectories and children's caregiving.

2. Background

2.1 Prosocial development: Family resilience through the lens of social reproduction

Prosocial development might provide a pathway for children to 'rebound' from a downturn and improve their life chances despite parental job loss.[3] While the latter has been

[2] Throughout, I conceive prosocial development and caregiving after parental job loss as part of children's (and adults') assumption of a gendered identity (e.g., Schulz 2021), rather than a by-product of sex assigned at birth. In Growing Up in Ireland data, primary caregivers reported the sex of the study child as assigned at birth. Future studies could complement mine with more expansive definitions of how gender can structure prosociality and caregiving (e.g., Thomeer, Paine, and Bryant 2018).

[3] Fostering prosociality in and around children is also recognised as a promotive factor for broader social resilience (Keck and Sakdapolrak 2013; Bawati et al. 2025), spurring interventions in schools and other com-

found to hamper children's cognitive development and social and emotional well-being (e.g., Peter 2016; Mari and Keizer 2021), prosociality correlates positively with both (for a review, Silke et al. 2018). What is more, parental job loss experienced in the early years might result in lower earnings during adulthood (e.g., Oreopoulos, Page, and Stevens 2008), whereas prosociality has been linked to better labour market prospects (Kosse and Tincani 2020). Hence, prosocial development might propel individual resilience, leading to better economic outcomes and broader well-being down the line.

As for what could bolster prosociality, many studies find that children are more prosocial on average when their family is more economically secure (e.g., Lichter, Shanahan, and Gardner 2002; Silke et al. 2018; Kosse et al. 2020). Yet these findings are contested and the mechanisms unclear (cf., Piff and Robinson 2017; Silke et al. 2018; Manstead 2018). Besides, there is little indication of how prosociality could develop in the (frequent) event of an economic crisis. For its part, psychological research proposes a link between early-life adversity, compassion, and prosocial behaviour (see, e.g., Ungar 2013; Malti and Speidel 2024). Parental job loss and recessions have seldom been included among 'adversities', though, and the role and drivers of more general economic hardship are rarely unpacked in this literature.

To link job loss and children's prosociality, then, it is useful to acknowledge that prosociality is relational and not just a facet of individual development. Although not confined to support within the family sphere (Padilla-Walker, Carlo, and Memmott-Elison 2018), prosociality chimes with the sociological construct of care – the "labour, resources and relations involved" in maintaining "connectedness in kinship" (Daly 2021). Prosocial helping and caregiving might develop in tandem while being moulded by socialisation (Davidov et al. 2016). In fact, research has shown that prosociality fosters involvement in caregiving and vice versa, both between parents and children and among siblings (e.g., Narvaez et al. 2013; Hughes, McHarg, and White 2018; Coulombe and Yates 2022).

This link between prosociality and caregiving is important here because the provision and division of care might be altered by downturns. Early studies on the Great Depression (Elder 1974) highlight how children took on more of a caregiving role in response to hardship, especially when they had (younger) siblings and their mothers had or regained employment. Likewise, contemporary studies continue to suggest that children's caregiving roles might become more prominent when families navigate various forms of economic hardship (for reviews, Ridge 2011; Rai 2024). Hence, job loss might lead to a reorganisation of caregiving within families, socialising children to prosocial helping (see also Davidov et al. 2016), which might have multiplying effects on caregiving down the line.

Far from equally distributed, though, this possible pathway towards family resilience might be gendered in ways aptly illuminated by social reproduction theory. In the feminist

munity settings (Fergus and Zimmerman 2005; Zimmerman et al. 2013; Kosse et al. 2020). This is important in the context of downturns, as widespread hardship can ensnare entire families and communities (e.g., Elder 1974; Conger and Conger 2002; Gassman-Pines, Gibson-Davis, and Ananat 2015).

sense (Laslett and Brenner 1989; Bhattacharya 2017), social reproduction foregrounds who and what makes paid and unpaid labour possible. From this perspective, caregiving, a form of unpaid labour, can be understood as gendered, involving multiple generations, and being shaped by market pressures and state intervention or lack thereof (e.g., Rai, Hoskyns, and Thomas 2014; Hargreaves et al. 2019; Gonalons-Pons and Marinescu 2024).

In general, research has found girls to be more involved in caregiving (East 2010; O'Reilly and Quayle 2021). Early studies also showed that it was primarily girls who took on more caregiving after their mother's job loss during the Great Depression (Elder 1974). Whether and why the same pattern could be observed in the context of more recent economic crises is an open question. Women still carry the load of unpaid labour when unemployed (Gough and Killewald 2011; Van der Lippe, Treas, and Norbutas 2018). Relatively overlooked, their children (daughters) could follow after them because of socialisation (Elder 1974; Crouter et al. 2001; Guhin, Calarco, and Miller-Idriss 2021). Children's views about appropriate and available gender roles might be shaped by their mother's employment status and history (Crouter et al. 2001; Platt and Polavieja 2016). If not for job loss, their mother would be in paid work, whereas, after job loss, her involvement at home might increase. This shift in roles might be more apparent the longer the time women spend out of paid work, socialising their children to caregiving and prosocial helping more generally (Coulombe and Yates 2022). Alternatively, care demands might be most consequential. Job search or the reprisal of paid work might create caregiving quandaries for parents, and older children might be tasked to relieve some of the care load by looking after their younger siblings. In this case, care needs might be the underlying motor of children's involvement in caregiving and prosocial helping (Hughes, McHarg, and White 2018).

Such gendered interdependencies do not arise in a vacuum though. Rather, they are best described as a form of "contingent coping" at the intersection between families, markets, and the state (e.g., Dagdeviren and Donoghue 2019; Hargreaves et al. 2019; Fawcett, Gray, and Nunn 2023; Daly 2025). Depending on the economic cycle as well as, inter alia, gender and class cleavages in labour markets and at home, some parents might swiftly recoup employment and economic security while others go through draining periods of job search or face low pay and poor working conditions when accepting a job under duress (e.g., Dagdeviren and Donoghue 2019). On top of that, different public policies might make alternative care options available and/or affordable and influence whether and at what costs paid and unpaid labour might be combined. As a result, gender norms, market forces, and state intervention can intertwine to dictate how much and among whom caregiving is privatised within families, and who's tasked with resilience during hard times (Daly 2021, 2025).

In short, prosocial development might foster resilience not only among children over the life course but also among family members via its connection to caregiving. The latter is my focus in this paper. From a social reproduction perspective, gendered and gener-

ational interdependencies might underpin such family resilience, and the aftermath of job loss is a prime context in which to assess these processes. Maternal job loss in particular can alter socialisation and care needs, spurring children's prosocial development and involvement in caregiving. Girls in particular might experience steeper prosocial development while also being disproportionately tasked with looking after their (younger) siblings.

2.2 The Irish context: Gender, (un)paid labour, and the Great Recession

In Ireland, a sharp gender division of paid and unpaid labour persists. Despite rising labour market participation and declining occupational segregation in the preceding five decades, 60% of women were in paid work compared to 71% of men by 2016, while working more often part-time and earning 15% less on average if full-time (Russell, McGinnity, and O'Connell 2017). Women involved in childcare spend around 43 hours a week caregiving compared to men's 25 (Russell et al. 2019). Young children heighten women's workload at home, whereas having paid work is associated with reductions in the time devoted to unpaid labour (Russell et al. 2019).

As for children, around 58% provide some form of caregiving in Ireland already at age 9 (Russell and Smyth 2024). During adolescence, girls are more likely to be involved in (regular) caregiving than boys (i.e., two to three times per week or more; Russell and Smyth 2024). Tasks are also gendered, as boys report more time spent on household chores like gardening, putting out bins, and cleaning the car, while girls perform more feminised tasks, such as helping their younger siblings (O'Reilly and Quayle 2021).

The Great Recession affected both paid and unpaid labour in Ireland.[4] While job and income losses made centre-based care less affordable during children's early years (Mari and Keizer 2021), parents spent more time on housework and childcare, and the gender gap in unpaid labour narrowed, albeit only temporarily (Russell et al. 2019). Men were more exposed to job loss at the height of the recession (Russell, McGinnity, and O'Connell 2017; McCarthy and Wright 2018). Yet women reprising work after the crisis were less likely to find apt employment arrangements, with care obligations for preschool and school-aged children often leading to under-employment (Steiber and Haas 2018). And all of the above unravelled in a context where parental employment dynamics are intertwined with household economic vulnerability and poverty, whose rates among children remain higher than for any other age group (Russell et al. 2025). Cuts to income-

[4] To be sure, the Great Recession was first and foremost marked by the bursting of Ireland's housing bubble (Daly 2019). Studies have found associations between residential moves, arrears, and housing inadequacy – all of which were exacerbated by the crisis – and worse health and socio-emotional development among children (Reinhard et al. 2018; Laurence, Russell, and Smyth 2023). Although employment changes might precipitate housing insecurity and vice versa, parental job loss has been found to impact child development independently from residential moves at the height of the crisis in Ireland (Mari and Keizer 2021).

support policies and "a much stronger orientation to activation" followed the recession (Daly 2019), and may have intensified pressures to privatise care at home while pushing adults back into the workplace. Children's caregiving might have complemented parents' return to paid work, crucial for household economic security, although studies have yet to establish a link between parental (un)employment and children's care activities in contemporary Ireland (cf., Russell and Smyth 2024).

Overall, the fallout of the Great Recession in Ireland offers an exemplary setting for studying whether and how children's prosocial development might be enmeshed with the household division of paid and unpaid labour after parental job loss.

3. Data

3.1 Sample

I rely on data from the Infant Cohort of Growing Up in Ireland (GUI, Central Statistics Office (CSO) 2024), a well-established longitudinal study focused on children and their caregivers. Survey data currently cover two birth cohorts, with the Infant Cohort comprising a sample of children born in Ireland between 1 December 2007 and 30 June 2008. Around one-third of all births in the period were sampled from the Child Benefit register, covering all habitual residents in Ireland. A total of 11,134 households participated in the first wave of GUI. Children in the study were 9 months old at the time of the first interview (wave 1, 2008/2009), and later participated, together with their caregivers, at age 3 (wave 2, 2011), 5 (wave 3, 2013), 7 or 8 (wave 4, 2016), 9 (wave 5, 2017/2018), and 13 (wave 6, 2021/2022). Taken together, the six interviews span the period before school starts, the full extent of primary school from age 5 onwards, as well as the transition to secondary school (so-called Junior Cycle) around age 13.

Both prosocial behaviour and parental job loss are measured from wave 2 onwards. Hence, I rely on wave 1 of GUI for baseline information on children and their families (see below), while my analysis spans five waves (wave 2 to 6 or age 3 to 13). Loss to follow-up in each wave hovers between 12% and 40% of the original sample, and survey weights are deployed throughout to safeguard sample representativeness (e.g., McCrory et al. 2013). After 5% of the study interviews are lost to listwise deletion, the sample in this study consists of 9,585 children and a total of 36,482 observations. Around 70% of all included children are observed for at least four waves.

Table 1 presents descriptive statistics for the whole sample and by exposure to parental job loss (see next section). Compared to vital statistics for the same cohort, and focusing on the whole sample for now, it is noteworthy that children whose mothers have a migration background are under-represented in the analytical sample, even after survey weights are applied (cf., Central Statistics Office (CSO) 2009: 8).

Table 1: Means and proportions for the analytical sample

	Whole sample	No parental job loss	Job loss: Mother	Job loss: Father
Sample proportions		0.65	0.14	0.21
Child-level covariates at baseline				
Sex assigned at birth is male	0.52	0.52	0.52	0.50
Has siblings	0.59	0.60	0.51	0.63
Low birth weight ($<$ 2,500 g)	0.06	0.06	0.05	0.06
Temperament (Bates, Freeland, and Lounsbury 1979)				
Fussy/difficult subscale	14.79	14.81	14.85	14.66
Unadaptable subscale	9.01	9.03	9.03	8.95
Dull subscale	5.84	5.84	5.71	5.81
Unpredictable subscale	6.17	6.14	6.27	6.20
Cognitive development (at 8 months, Squires, Bricker, and Potter 1997)				
Total communication score	55.32	55.19	55.39	55.65
Total problem-solving score	55.53	55.42	55.87	55.64
Total personal/social score	55.50	55.45	55.70	55.50
Household-level covariates at baseline				
Mother's employment status (ref. full-time)				
Part-time	0.22	0.21	0.23	0.24
Out of paid work	0.22	0.24	0.09	0.25
Mother's level of formal education (ref. lower-secondary or less)				
Upper-secondary/technical	0.34	0.32	0.38	0.35
Tertiary	0.49	0.51	0.48	0.43
Single-parent household	0.15	0.16	0.16	0.08
Mother is Irish	0.87	0.87	0.86	0.87
Household income group (ref. 1st quintile group)				
2nd	0.19	0.18	0.21	0.22
3rd	0.19	0.18	0.20	0.21
4th	0.20	0.21	0.20	0.18
5th	0.17	0.19	0.16	0.11
Indicator for missing income group	0.07	0.07	0.08	0.06
Some difficulties/hard to make ends meet when child's mother was 16	0.53	0.52	0.52	0.57
Anyone in the household has access to welfare benefits	0.21	0.18	0.27	0.27
Owner-occupied dwelling	0.75	0.75	0.77	0.72
Uses formal childcare centre	0.11	0.11	0.11	0.09
Lives with chronic health condition (mother)	0.12	0.12	0.12	0.12
Depression (CESD-8, Radloff 1977; mother)	2.49	2.45	2.58	2.57
Quality of attachment (mother; Condon and Corkindale 1998)	42.58	42.58	42.42	42.71
Grandparental involvement (McCrory et al. 2013)	2.47	2.46	2.53	2.44

Notes: Growing Up in Ireland (GUI), wave 2–6, N = 36,482. Survey weights are applied.

3.2 Main measures

Prosocial behaviour is measured through the Strengths and Difficulties Questionnaire (SDQ; e.g., Goodman 2001; Goodman, Lamping, and Ploubidis 2010; for Growing Up in Ireland, see McCrory et al. 2013). The SDQ is an extensively validated and widely adopted survey instrument that taps into socio-emotional development during childhood and adolescence. Previous studies on the recession in Ireland (e.g., Gibbons, Sprong, and Chzhen 2023) and on parental job loss in Ireland and beyond (e.g., Peter 2016; Mari and Keizer 2021) have examined so-called internalising and externalising difficulties via the SDQ. Prosociality, the sole 'strength' in the SDQ, has been relatively overlooked.

The prosociality score is the sum of five items where primary caregivers (99% of whom were the study child's mother at wave 1) indicate their level of agreement with each statement on a three-point scale. Respondents are asked whether their child is "considerate of other people's feelings," "helpful if someone is hurt," "kind to younger children," "shares readily with other children," and "often volunteers to help others." The items form a subscale with good test–retest reliability and the expected correlations with the other SDQ constructs within Growing Up in Ireland (McCrory et al. 2013).[5] Throughout, I standardise the prosociality measure to express estimates in terms of z-scores (sex-specific z-scores when running separate models for boys and girls).

To compare children based on their exposure to parental job loss, I rely on survey items tracking whether a series of changes "due to the recession" occurred since the previous interview (McCrory et al. 2013). Fielded in waves 2 and 3, and thus covering the peak of the recession (up to 2013; e.g., Reinhard et al. 2018), adult respondents are asked whether they or their partner "were made redundant or lost their job due to the recession." Self-reported measures of parental job loss are common in survey-based studies (e.g., Peter 2016), and have been used extensively in prior research on the Great Recession in Ireland (Reinhard et al. 2018; Mari and Keizer 2021; Briody 2021).

Following previous studies and theoretical considerations in earlier sections, I differentiate children based on whether job loss affected their mother or father. I distinguish three groups: (1) children who never experienced parental job loss (65%), (2) households in which the child's mother ever experienced job loss up to the current interview (14%), and (3) households in which only the child's father ever experienced job loss up to the current interview (21%). Households in which both parents lose their jobs across waves,

[5] Both the inter-rater reliability and the validity of the SDQ prosociality measure are often debated (see, e.g., Goodman 2001; Goodman, Lamping, and Ploubidis 2010; Ortuño-Sierra et al. 2015). In Appendix A, I show, respectively, that the associations between parental job loss and primary caregivers' prosociality assessments are comparable to those obtained by leveraging teacher reports, and that similar conclusions can be drawn by investigating a related psychological construct (i.e., empathy, Gresham and Elliott 2008; Murray et al. 2015; see te Brinke et al. 2023; Carrizales, Carlo, and Lannegrand 2025). Besides, I provide evidence that caregiver-reported prosociality scores are robust predictors of child- and teacher-reported outcomes, such as the frequency of social contact with friends and the quality of teacher-child relationships (Silke et al. 2018; Coulombe and Yates 2018).

a relatively small portion of the total, are included in group (2), thus giving primacy to maternal job loss in line with my overarching focus on gendered dynamics.[6] Hence, the measure is cumulative and maternal job loss is prioritised over other statuses. To tease out the possible mechanisms at play, I also provide additional analyses where I break down group (3) depending on the mother's employment history after job loss.

As for the processes of interest in a social reproduction framework, I focus on unpaid labour carried out by children when they are 13 years old (wave 6). I rely on children's own reports. Specifically, children are asked how often they do their homework together with their siblings in a given week. In addition, children are queried about the time spent on "tasks inside the house" in the week before the survey. The list of tasks includes taking care of younger siblings or sick family members, as well as household chores like cleaning or preparing meals. In line with previous studies (O'Reilly and Quayle 2021; Russell and Smyth 2024), I define a dummy for regular involvement in the household, coded 1 if children report helping with homework at least two to three times per week and with tasks inside the house for at least one hour in the past week. Results are not sensitive to the choice of cut-off points. Around 17% of children report that they are regularly engaged in the household, with girls (20%) more likely to do so than boys (14%).

Although examined separately, prosocial development and involvement in household tasks are assumed to influence each other. Lacking repeated measures for children's unpaid labour, data do not allow me to assess such reciprocal linkages. In the remainder, I will thus treat prosociality and involvement in the household as separate outcomes. Table A-1 in the Appendix nonetheless provides evidence that regular involvement in the household is associated with prosociality scores at age 13 (35% of an SD, $p < .001$) and, conversely, prosociality at age 9 is predictive of children's unpaid labour at age 13 (increasing by around 2 pp, $p = .001$), net of controls (see next section). In step with previous studies (e.g., Narvaez et al. 2013; Hughes, McHarg, and White 2018; Coulombe and Yates 2022), these associations support the idea that prosocial development and caregiving are interrelated, if analytically distinguishable, processes.

3.3 Empirical approach

My main analyses rely on a series of growth-curve models (Singer and Willett 2003). Growth-curve modelling is a well-established and commonplace statistical technique to gauge how prosociality evolves as (different groups of) children grow older (see, e.g., Padilla-Walker, Carlo, and Memmott-Elison 2018; Carrizales, Carlo, and Lannegrand 2025). I follow the regression specification:

[6] Findings are unaltered when assigning households in which both partners lost their job to a separate group, to group (3), or dropping them altogether from the analytical sample.

$$Y_{i,t} = \beta_0 + \beta_1 Age_{i,t} + \beta_2 JL^M_{i,t} + \beta_3 JL^F_{i,t} + \beta_4 (Age_{i,t} \times JL^M_{i,t}) + \beta_5 (Age_{i,t} \times JL^F_{i,t}) + \mathbf{X}_i \delta + (U_{0i} + U_{1i} + \epsilon_{i,t}), \quad (1)$$

where the prosociality measure Y for child *i* at wave/age *t* is a function of a linear term for the study child's age and their exposure to parental job loss.[7] $JL^M_{i,t}$ indicates job losses experienced by mothers and $JL^F_{i,t}$ those experienced by fathers in the sample. Product terms between children's age and each dummy for parental job loss allow for modelling separate developmental trajectories depending on whether parental job loss occurred or not, and, if yes, for which parent. Following the Background, Equation (1) is estimated on the whole sample and in separate specifications for boys and girls, as well as depending on the presence of younger siblings (newborns reported between wave 1 and wave 3), to grasp gendered dynamics in the aftermath of job loss.

In line with common practices (Rabe-Hesketh and Skrondal 2012), the random part of the growth-curve model includes individual intercepts (U_{0i}) and individual age slopes (U_{1i}). The choice of growth-curve modelling fits with the structure of longitudinal cohort data, where repeated observations at different ages are 'nested' within each child. Besides, partial pooling in such hierarchical models – that is, the fact that more extreme estimates will shrink towards the overall average – offers more conservative estimates in a setting like mine with multiple comparisons across different exposure groups, time points, and subsamples (Gelman, Hill, and Yajima 2012).[8] Differently, for outcomes measured in specific waves, like children's caregiving, I will rely on linear regression or probit models for continuous and dichotomous outcomes, respectively.

The association between parental job loss and prosocial development is identified net of a rich set of covariates ($\mathbf{X}_i$). Assessed at baseline (wave 1), these variables predate parental job loss and the measurement of prosociality. Some, like measures of child temperament or maternal attachment, are assumed to affect children's prosocial development (outcome) but not the chances of experiencing parental job loss (exposure). Others, like household income group or family structure, are assumed to affect both the outcome and the exposure (see, respectively, Silke et al. 2018; Russell, McGinnity, and O'Connell 2017). Control variables of the first kind are selected to increase precision, and those in the second group to minimise confounding bias (VanderWeele 2019). Similar considera-

[7] More flexible specifications of the developmental trajectory (e.g., quadratic) yield statistically and substantively indistinguishable results. Likewise, relaxing the constant-variance assumption in the random part of the model does not alter the results. I thus favoured the most parsimonious specification.

[8] The main findings in this study are replicated using OLS models (excluding the random part in Equation (1)). As expected, OLS estimates reported in Appendix C are somewhat anti-conservative compared to those in Figure 1 in the main text. By choosing a hierarchical model, I thus favoured a more conservative specification.

tions were applied to always include relevant covariates for other outcomes in this study. The full list of covariates is provided in Table 1.

Hence, estimates in this study lend themselves to a causal interpretation insofar as (1) exposure to parental job loss is orthogonal to other determinants of prosocial development and (2) $\mathbf{X}_i$ includes a sufficient set of variables to address the remaining confounding bias. Concerning point (1), descriptive statistics in Table 1 suggest that children exposed to different histories of parental job loss are largely comparable, on average, across a wide set of measures. This observation extends to the income class of parents before the recession, testifying to the widespread economic stress engendered by the economic crisis in Ireland (e.g., Watson et al. 2016). The few differences speak to the unequal distribution of job loss across two- and one-earner (parent) families. The mother's job loss is relatively more likely in households where she was in full-time employment and had fewer children (siblings of the study child) at baseline. Children whose father experienced job loss are less likely to live in a single-parent family or have a mother with a university degree. Overall, parental job loss is more prevalent in households with lower incomes and accessing welfare benefits at baseline. As per point (2), if these differences are relevant for children's prosocial development, including such covariates within $\mathbf{X}_i$ helps to address bias and buttress causal claims. Unmeasured confounding, on the other hand, might still bias estimates and cannot be easily tackled even with alternative specifications (if confounding is time-varying, for example, child fixed effects would be no panacea, cf., Reinhard et al. 2018; Mari and Keizer 2021; regardless, results are unaltered when including child fixed effects in Appendix C). With this caveat in mind, I will refer to conditional associations when presenting the main findings.[9]

4. Main findings

4.1 Resilience for whom? Parental job loss and children's prosocial development

Findings on parental job loss and children's prosocial development are synthesised in Figure 1. Estimates refer to growth-curve models as per Equation (1) estimated on the whole

[9] Associations in this study might still be biased in two ways. First, estimating models conditional on the presence of siblings younger than the study child might bias estimates if the chances of having more children are themselves affected by parental job loss (see, e.g., Di Nallo and Lipps 2023). To address this concern in Appendix C, I show that substantive conclusions are unaltered when using information on the presence of siblings at baseline, thus predating parental job losses during the recession (on this point see also Section 4.3).

A second potential source of bias is rooted in the choice of a reference group (here, no parental job loss). As recessions are often all-encompassing community-level shocks (e.g., Gassman-Pines, Gibson-Davis, and Ananat 2015), children unexposed to parental job loss might be experiencing other hardships which may impinge on their (prosocial) development (material deprivation, housing insecurity, etc.). In Appendix C I show that my main findings hold when restricting the comparison group to children whose parents did not experience job loss and reported that the recession had, at best, "a small impact on their family" in either wave 2 or 3.

sample, for girls, and girls with younger siblings. In line with theoretical expectations, I find that prosocial development is stronger among girls whose mothers experienced job loss, especially those with younger siblings. Figure 1 reports selected estimates to highlight this pattern (see Figures A-6, A-7, and A-8 in the Appendix for full results).

Specifically, I find some evidence of steeper prosociality trajectories for children exposed to their mother's job loss compared to no job loss in the whole sample (black estimates in Figure 1). The association between prosociality and maternal job loss rises to around 4% to 5% of an SD at age 7 or 8 ($p = .037$), 9 ($p = .036$), and 13 ($p = .067$). At the same time, the difference in the overall slope between this group and the reference (i.e., β_5 in Equation (1)) is small and not statistically different from zero ($p = .567$). Likewise, I cannot detect a difference between the prosocial development of children exposed to paternal rather than maternal job loss (comparing β_5 and β_4, $p = .423$).

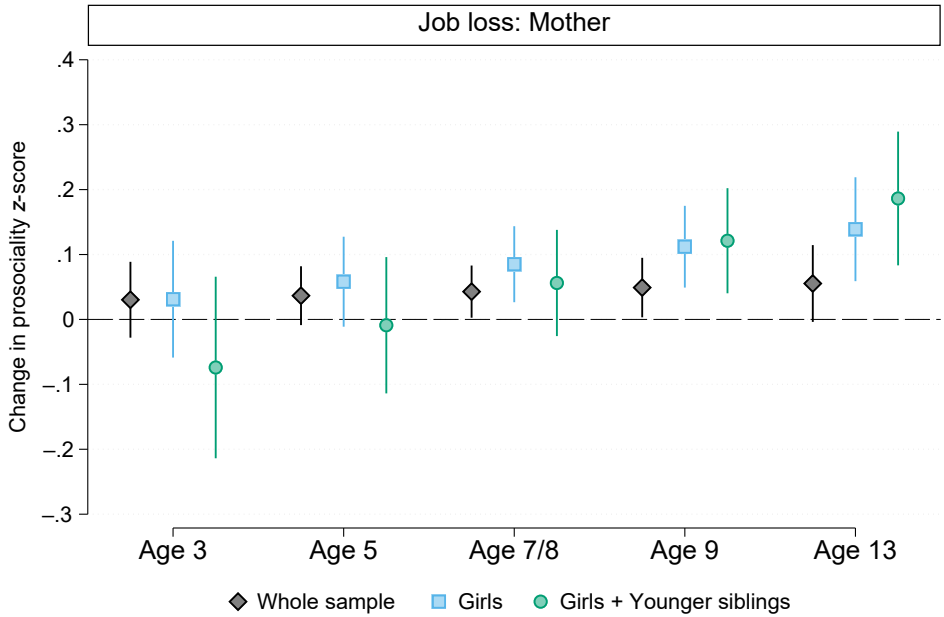
Examining boys and girls separately yields more conclusive findings. Prosociality scores are larger for girls exposed to their mother's job loss vis-à-vis no job loss. Predicted differences between the two groups (the blue estimates in Figure 1) amount to around 8.5% of an SD at age 7 to 8 ($p = .004$), 11% of an SD at age 9 ($p < .001$), and 14% of an SD at age 13 ($p = .001$). The overall slope for girls' prosociality is larger when their mothers experienced job loss rather than no job loss (albeit $p = .087$) or the father's job loss ($p = .026$). Comparing boys and girls, growth profiles after the mother's job loss are statistically different from each other at the 10% level ($p = .096$).[10] Hence, prosocial development is somewhat more evident among girls exposed to their mother's job loss, although gender differences are not clear-cut.

The starkest differences are observed when examining boys and girls separately and further being disaggregated based on the presence of siblings younger than the study child. Across all groups and exposure histories, prosocial development appears stronger among girls with younger siblings whose mother experienced job loss during the Great Recession (green estimates in Figure 1). Compared to no job loss, the mother's job loss is associated with higher children's prosociality scores at age 9 (12% of an SD, $p = .003$) and 13 (19% of an SD, $p < .001$). The overall growth trajectory is stronger in this group compared to girls with younger siblings unexposed to parental job loss ($p = .005$) or exposed to their father's job loss ($p = .010$). In addition, among children whose mother experienced job loss, the overall slope of prosocial development is larger among girls compared to boys when both have younger siblings ($p = .004$) and among girls with younger siblings compared to those without ($p = .021$).

[10] Tests for the equality of coefficients across groups are conducted by augmenting Equation (1) with the appropriate interactions. For example, for differences between boys and girls, all terms in Equation (1) are interacted with a dummy for sex assigned at birth. For differences across girls (boys) with and without younger siblings, a model for girls (boys) is estimated where all terms in Equation (1) are interacted with a dummy indicating whether the study child has younger siblings.

For some children, parental job loss is thus associated with steeper growth in prosociality, driven by developments in middle childhood and early adolescence. Yet children's disproportionate prosocial development in households hit by job loss is unequally distributed. In line with expectations in a social reproduction framework, girls with younger siblings exposed to their mother's job loss drive all findings on prosocial trajectories.

Figure 1: Predicted differences in prosocial development trajectories after the mother's job loss (vs. no parental job loss)



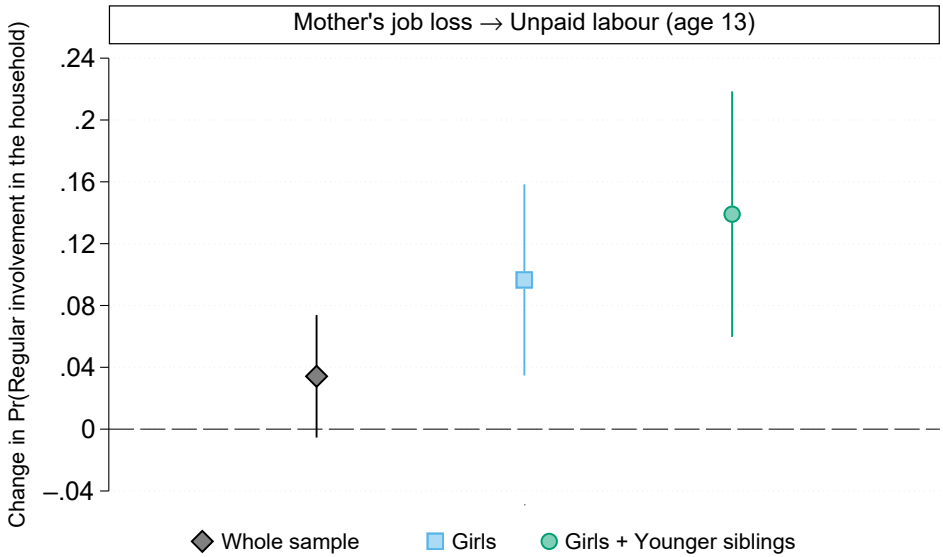
Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for the whole sample (N = 36,482), girls (n = 17,965), and girls with younger siblings (n = 8,953). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

4.2 Beyond prosocial development: Children's unpaid labour

It follows that children's prosocial development might be related to caregiving within the household. As mothers lose and regain employment, caregiving responsibilities within the household might be reshuffled. Figure 2 documents associations between child caregiving

and the mother's job loss, first for the whole sample, and then focusing on girls and girls with younger siblings.

Figure 2: Conditional associations between the mother's job loss (vs. no parental job loss) and children's regular involvement in household tasks at age 13 (wave 6)



Notes: The figure displays average marginal effects (AMEs) and 95% confidence intervals. Estimates are drawn from separate models for the whole sample (n = 5,399), girls (n = 2,694), and girls with younger siblings (n = 1,844). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

On average, maternal job loss is associated with a moderate increase in children's chances of regularly providing care within the household (around 3 pp, p = .091). Yet it is primarily daughters who are most affected by their mother's job loss. Compared to no job loss, maternal job loss is associated with higher chances of regular help among girls (around 10 pp, p = .002) and particularly girls with younger siblings (around 14 pp, p = .001). These are sizeable shifts compared to the overall baseline for girls, 20% of whom report being regularly involved in the household according to the chosen measure. Compared to this baseline, estimates in Figure 2 signal a 50% to 70% increase in children's involvement in households exposed to maternal job loss during the Great Recession. Besides, estimates among girls are statistically different from those among boys whose mother also experienced job loss, regardless of the presence of siblings (p = .001)

and when comparing girls and boys with younger siblings (p = .010). Estimates of the associations between children's caregiving and maternal job loss are also statistically different from those observed for paternal job loss among girls (p = .008) and girls with younger siblings (p = .015).

The same groups who drive findings concerning prosocial trajectories (Figure 1) appear to be disproportionately involved in the household at the end of the observation period (Figure 2). Personal development and relational transformations hence seem to go hand in hand in the aftermath of parental job loss. Crucially, they do so along gendered lines.

4.3 Prosociality and caregiving: A shift in gender roles or a matter of needs?

To adjudicate between the different mechanisms that could underpin prosocial development and caregiving, I provide additional analyses on girls with younger siblings. I contrast the outcomes at age 13 of five groups of children depending on their exposure to the following: (1) no job loss (the reference group, 58%), (2) paternal job loss (26%), (3) maternal job loss followed by an intermittent employment history, with mothers being observed in and out of paid work up to age 9 (10%), (4) maternal job loss followed by a stable return to paid work up to age 9 (2%), and (5) maternal job loss followed by no return to paid work up to age 9 (4%). As per the Background in Section 2, socialisation to caregiving and prosocial helping was arguably most sustained in this last group. Care needs might have been more pronounced, instead, when mothers had at least some paid work after job loss.

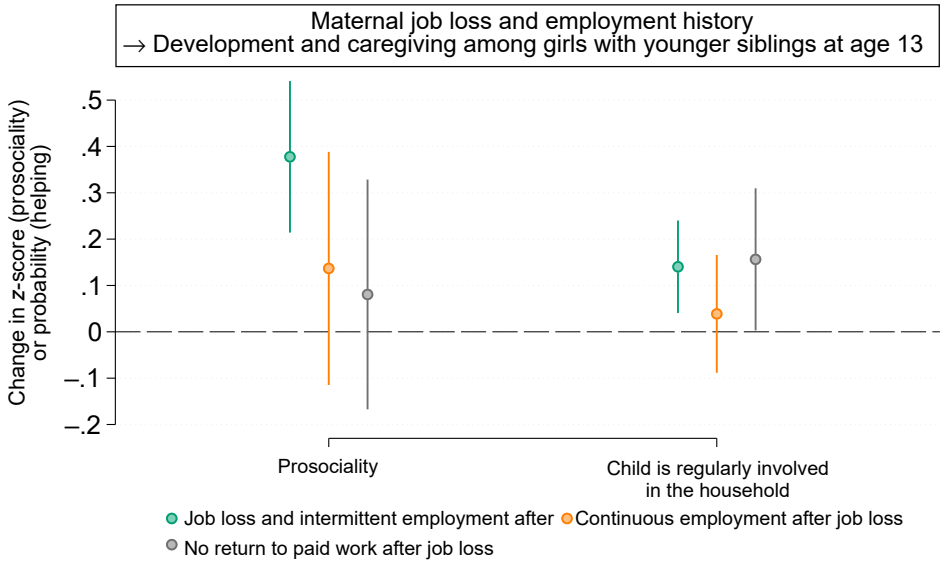
Figure 3 displays estimates associated with the mother's job loss, be it one associated with an intermittent employment history (green), a stable one (orange), or no return to paid work (grey). Starting with linear models for the prosociality z-score at age 13, I find that children are rated more prosocial than the baseline when their mother had some paid work after job loss. In this group, maternal job loss is associated with a 38% extra SD in the prosociality score compared to baseline ($p < .001$). The latter estimate is larger than the one for children whose mothers had stable employment after job loss (albeit p for their difference = .086) as well as compared to the one reported by mothers who did not return to paid work after redundancy (p = .035).

The three estimates concerning children's caregiving in Figure 3 are drawn from a probit model and expressed as average marginal effects (AMEs). They are not statistically different from each other. Yet these estimates are much larger and statistically different from zero in the case of intermittent work histories and no return to paid work following maternal job loss. When maternal job loss is followed by discontinuous employment, children's chances of regular involvement in the household increase by roughly 14 percentage points (p = .006). Children's regular involvement in the household is also more likely in households where mothers did not report any paid work in the survey interviews

following job loss (16 pp, $p = .046$). Differently for children whose mothers had continuous employment after job loss, the point estimate is smaller and not statistically different from zero (around 4 pp, $p = .550$).

Children's regular participation in caregiving is most likely when mothers had some paid work after job loss and when they did not. One possibility, though, is that women who did not return to paid work after job loss have larger families, and this 'mechanically' drives children's involvement in caregiving. Results in Table A-3 in the Appendix, where I regress the presence of younger siblings on parental job loss net of covariates, support this intuition. Maternal job loss followed by no (observed) reprisal of paid work is associated with a 12 pp increase in the chances that the study child has younger siblings by age 13 ($p = .006$). Incidentally, maternal job loss followed by an intermittent work history is not associated with sizeable shifts in sibship size (–2 pp, $p = .405$), whereas a continuous work history after the mother's job loss is paired with a lower probability that the study child has younger siblings (–11 pp, $p = .014$).

Figure 3: Conditional associations between the mother's job loss and employment history (vs. no parental job loss) and selected child outcomes at age 13



Notes: The graph displays point estimates and 95% confidence intervals. All models include covariates as per Table 1. Estimates are drawn from linear models for prosociality and probit models (AMEs) for involvement in the household. All models are estimated for the subsample of girls with younger siblings ($n = 1{,}844$).
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Hence, there seem to be three histories of exposure to maternal job loss. In most cases, mothers have some paid work after job loss and, while they navigate the challenges of finding and maintaining suitable employment during and after the recession (Steiber and Haas 2018), their daughters share some of the caregiving tasks. Children in this group score higher in prosociality than their counterparts, especially during early adolescence, when caregiving is also observed. For a small group of women, a continuous employment history including a speedy return to the labour market after job loss is associated with a lower chance of higher-order births and no detectable change in the study child's prosocial helping or involvement in the household. A third group of women does not return to paid work after job loss and has more children, and more children involved in caregiving as a result.

5. Discussion

This study has two points of departure. One is that economic crises might require family resilience due to interlocking market pressures, interdependencies within families, and policy choices affecting paid and unpaid labour. A prime site to examine such dynamics can be found in households coping with job loss and a recession. The second premise is that the capacity for resilience, even when measurable in terms of individual (child) development, is always relational and unequally distributed. It involves, for example, the division and provision of care along gendered and generational pathways within families.

With this in mind, the main findings in this paper speak to family resilience in the context of an economic crisis by highlighting the associations between parental job loss and children's development and caregiving. First, by examining children growing up following the Great Recession in Ireland, I find that experiencing parental job loss leads to steeper prosocial development among some children. This association is entirely driven by girls exposed to maternal job loss, especially if they have younger siblings. Girls with younger siblings are also more likely to participate in caregiving in adolescence if their mother lost her job during the crisis. Children's prosociality and caregiving involvement are most apparent when mothers have some (discontinuous) employment after job loss. Care demands in these households might have stimulated children's prosocial development.

These findings contribute to three strands of literature. First, findings lend credence to and expand previous literature linking early-life events to prosocial development (Ungar 2013; Malti and Speidel 2024). The largest associations between parental job loss and prosocial development in this study (Figure 1) are comparable to the effect sizes of interventions aimed at increasing adolescent prosociality (like the one-year mentorship program examined by Kosse et al. 2020). Changes affecting household economic resources,

including but not limited to job and income losses caused by a recession, might contribute to prosocial development (cf., Lichter, Shanahan, and Gardner 2002; Silke et al. 2018).

Second, this paper complements research on the consequences of parental job loss on children. Concerning social and emotional well-being, in particular, parental job loss has as large an association with prosociality for some children in this study as with internalising and externalising difficulties in previous research (Peter 2016; Mari and Keizer 2021). These findings suggest that parental job loss might have a multifaceted impact on child development (cf., Kalil 2013). Later in life, prosociality might be rewarded with better health and life chances, whereas other facets of social and emotional development might be penalised (e.g., Goodman, Lamping, and Ploubidis 2010; Silke et al. 2018; Kosse and Tincani 2020). Future research could expand on this notion to shed further light on the short- and long-run effects of parental job loss (Mörk, Sjögren, and Svaleryd 2020).

Third, findings situate children's prosocial development in the context of the provision and division of care after parental job loss. By examining prosociality in isolation, one risks approaching it solely as a skill or a facet of child development untethered from its social context, a context scaffolded by gender and caregiving relationships. Years after their mother's job loss during the Great Recession, teenage girls report being more involved in providing regular care to their (younger) siblings in modern-day Ireland. This pattern echoes the one observed among families after the Great Depression in the United States (Elder 1974). More than eighty years later, in the context of the Great Recession in Ireland, women's return to the labour market after job loss has been marred by underemployment and challenges in reconciling paid and unpaid work (Steiber and Haas 2018). Via their children's caregiving, and especially their daughters', women might have coped with the long-run consequences of the crisis (and, possibly, those of the pandemic after that). Findings like these could stimulate more research on families tasked with absorbing and adapting to economic crises, moving past adult and parental responses to fully acknowledge the gendered interdependencies between adults and children, and paid and unpaid labour (cf., Elder 1974; Conger and Conger 2002; Pugh 2014; Van der Lippe, Treas, and Norbutas 2018; Dagdeviren and Donoghue 2019; Russell and Smyth 2024). As caregiving might strain health and is often rendered incompatible with economic security, the long-term consequences of shifts in unpaid labour after job loss among adults and during childhood are important foci for this research agenda (e.g., Rai 2024).

One caveat is that identifying the mechanism linking prosociality, caregiving, and parental employment histories is beyond the remit of this study due to data limitations. Prosociality and caregiving might influence each other (e.g., Narvaez et al. 2013; Hughes, McHarg, and White 2018; Coulombe and Yates 2022), but assessing such a dynamic relationship would require repeated measures of children's care provision (though see Table A-1). Besides, a full-fledged mediation analysis would inevitably rest on stringent assumptions (e.g., Mari and Keizer 2021). Finally, data limitations did not allow me to single out the role of interactions among siblings, nor the influence of partners' involvement

in caregiving and prosocial helping (Hughes, McHarg, and White 2018; Padilla-Walker, Carlo, and Memmott-Elison 2018; van der Storm et al. 2022). Alternative designs, including longitudinal qualitative research (e.g., Bernardi and Sánchez-Mira 2021), could shed further light on household responses to job loss.

In addition, more refined measurements could better capture the scope and breadth of the main concepts in this study. For one, measures of prosocial helping could differentiate across social settings (family, friends, school, etc.), and caregivers' reports could be complemented with children's, especially during a key developmental stage like adolescence (Padilla-Walker, Carlo, and Memmott-Elison 2018; te Brinke et al. 2023). Caregiving, on the other hand, might be best assessed via time-use diaries and separate measures for different tasks and relationships (O'Reilly and Quayle 2021; Rai 2024). While Appendix A provides reassurances in some of these regards, future research along these lines could provide a more fine-grained picture of how households cope with job loss.

6. Conclusion

Especially if sustained and rewarded, prosocial development might provide one resilient route for children growing up during and after a recession. On top of its transformative potential at the individual level, the combination of children's prosociality and caregiving might put families in a better position to regain employment after job loss.

Yet this study joins others in suggesting that resilience is a process rather than an outcome (Osinski 2023; Daly 2025). In a social reproduction perspective, resilience is underpinned by gendered and generational interdependencies in paid and unpaid labour. These interdependencies are best understood as contingent on market forces and state intervention (or lack thereof), all combining in and resting upon an overall 'care infrastructure' (see, e.g., Gonalons-Pons and Marinescu 2024). Along these lines, then, future studies could critically engage with resilience-as-process to illuminate how, why, and for whom care infrastructures shape coping with economic crises (cf., Dagdeviren and Donoghue 2019). Within this research line, the often adverse and inequitable consequences of privatising care within families should be front and centre.

In short, attention to those who at times 'beat the odds' cannot overshadow why and whom the odds might be 'stacked against' (e.g., King, Crossley, and Smith 2021; Daly 2025). This study provides an example of how research and related policymaking could benefit from questioning the unevenly "distributed capacities and solidarities" that "make resilience a reality" (Rose and Lentzos 2017) – or, for many, a necessity.

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8. Data availability statement

Data in this study come from Growing Up in Ireland (Central Statistics Office (CSO) 2024), accessed via the Irish Social Science Data Archive www.ucd.ie/issda. The code to replicate this paper is available at https://osf.io//8t7rd/.

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Appendix A: Further assessments of the prosociality measure

Inter-rater reliability for prosocial SDQ scores is generally lower than for other SDQ subscales, with teachers' and parents' assessments being the least concordant (e.g., Goodman 2001). The SDQ questionnaire in GUI is administered to teachers in waves 3 and 5. I examine teacher-reported prosocial SDQ scores via a pooled OLS model adjusting for all covariates in Equation (1) and a dummy for the wave. Similar to the main text, the outcome is standardised to express results in terms of z-scores (sex-specific z-scores when running separate models for boys and girls). I then estimate the same pooled models for parent-reported SDQ scores. Finally, I test for the difference across coefficients for parental job loss to assess how my main findings compare depending on the informant.

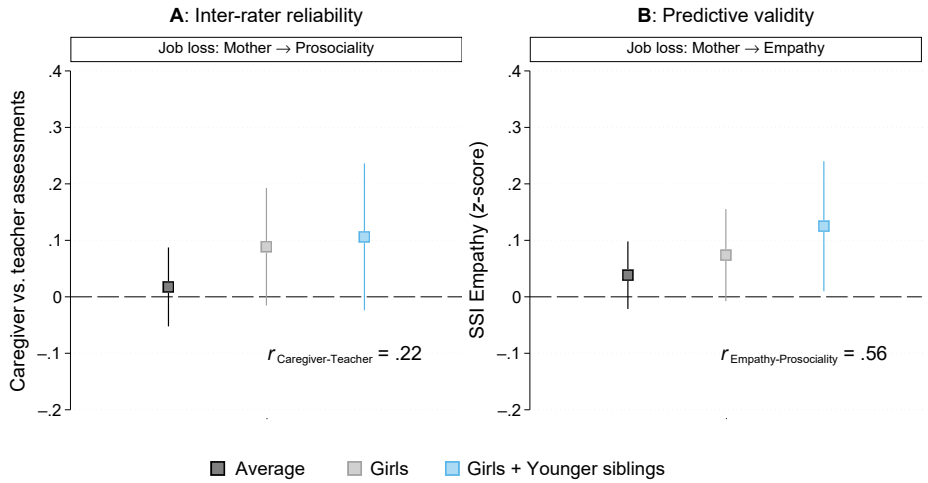
Panel A of Figure A-1 reports a small but positive correlation between teacher- and parent-reported prosociality assessments of the study child ($p < .001$). The magnitude ($r = .22$) is in line with previous studies (e.g., Goodman 2001). As for the reported estimates, I focus on differences in the associations between prosocial behaviour and the mother's job loss. Deviations are nil in the whole sample but turn positive and relatively sizeable for girls and girls with younger siblings, indicating stronger associations between prosociality ratings and maternal job loss when mothers are the informant. The difference between associations with caregiver- and teacher-reported prosociality scores is not detected at conventional levels of significance for the whole sample ($p = .623$), while being detected at the 10% level for girls ($p = .094$) and girls with younger siblings ($p = .109$). Parents exposed to job loss may thus overstate their children's prosocial development, but results are not conclusive in this regard. Possibly, parents may form their assessments based on interactions occurring in the household (e.g., caregiving), interactions to which teachers are not privy (see Discussion).

As for predictive validity, prosocial behaviour is closely related to another construct in the psychological literature, empathy (Silke et al. 2018). In GUI, empathy is measured as part of the 26-item Social Skills Improvement System (SSIS) Rating Scales (Gresham and Elliott 2008). For the empathy subscale, primary caregivers are asked how often their child, for example, "tries to comfort others" on a four-point scale ranging from "never" to "almost always." The subscale has high reliability in the GUI sample ($\alpha = 0.86$ in wave 3, Murray et al. 2015). SSIS measures were collected in waves 3 and 4. Hence, I analyse empathy assessments by means of a pooled OLS model adjusting for all covariates in Table 1 and a dummy for waves. Similar to the main text, the outcome is standardised to express results in terms of z-scores (sex-specific z-scores when running separate models for boys and girls).

Panel B of Figure A-1 reports a moderate positive correlation between prosocial SDQ scores and the empathy measure in the study sample ($r = .56$, $p < .001$). When examining the association between empathy assessments and parental job loss, I find that the mother's job loss is positively associated with the outcome among girls, especially

among girls with younger siblings. For the latter group, in particular, I find that those exposed to their mother's job loss score around 12% of an SD above that of girls with younger siblings unexposed to job loss (p = .033). The estimate is larger yet not statistically different from its counterpart among girls without younger siblings (p = .264), and differences with boys are detected only at the 10% level (p = .097). With these caveats in mind, the pattern resembles the one found for prosociality in the main text, providing at least some evidence of congruence across findings for prosocial SDQ scores and a related construct.

Figure A-1: Conditional associations between the mother's job loss (vs. no parental job loss) and selected child outcomes



Notes: The figure displays point estimates and 95% confidence intervals. Panel A reports differences between coefficients for the mother's job loss and prosociality measures reported by parents vs. teachers at age 5 and 9 in the whole sample (n = 14,820), among girls (n = 7,327), and girls with younger siblings (n = 4,011). Panel B reports associations between the mother's job loss and SSIS empathy at age 5 and 9 in the whole sample (n = 13,391), among girls (n = 6,580), and girls with younger siblings (n = 3,159). Pooled OLS models are described in the main text. Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

In a last set of analyses, I further probe the predictive validity of caregiver-reported prosociality measures. This time I consider child- and teacher-reported outcomes which a valid prosociality measure should be predictive of, in line with previous studies (e.g., Silke et al. 2018; Coulombe and Yates 2018; Deming 2017). Namely, Table A-2 reports associations between caregiver-reported prosociality scores: (1) children's reports about the frequency with which they hang out with friends (available at age 13 and coded 1 if more than once a week and 0 otherwise); (2) the type of job children would like to do

when they grow up, focusing on jobs that require sustained social interactions and care (available at age 9 and coded 1 if children picked nursing or school teacher and 0 if they picked any other job); (3) teacher's reports on children's Total Difficulties Score (drawn from the SDQ at age 9, Goodman 2001); and (4) teacher's reports about their closeness with the study child (Pianta scores at age 9, see Murray et al. 2015). I ran a set of linear regressions relying on a lagged measure of prosociality to mitigate concerns over reverse causality. All models include the same covariates added in the main analyses for the sake of precision and minimising confounding bias.

Findings suggest that, indeed, caregiver-reported prosociality scores are associated with a higher likelihood of social contact with peers (2.5 pp, $p = .004$) and of care-oriented job aspirations (1.5 pp, $p = .009$), as reported by the study child. As for teachers' assessments, caregiver-reported prosociality scores are associated with lower social and emotional difficulties (–16% of an SD, $p < .001$) and higher teacher–child closeness (11% of an SD, $p < .001$). Overall, these findings buttress the validity of caregiver reports on their children's prosociality.

Table A-1: Associations between caregiver-reported prosociality and child- and teacher-reported outcomes

	Hangs out with friends regularly (child reports, age 13)	**Nurse or teacher when grown up** (child reports, age 9)	**Total Difficulties *z*-score** (teacher's reports, age 9)	**Pianta closeness *z*-score** (teacher's reports, age 9)
Prosociality *z*-score in previous wave	0.025	0.015	–0.164	0.108
	(0.009)	(0.006)	(0.021)	(0.022)
Sample average	0.64	0.17	0.07	–0.01
n	5,762	3,985	4,230	4,121

Notes: All models include covariates (Table 1). Survey weights and robust standard errors (in parentheses) are applied.

Appendix B: Children's prosociality and involvement in the household

Table A-2: Associations between caregiver-reported prosociality (linear model) and child-reported involvement in the household (probit model, AME)

	Prosociality *z*-score (child reports, age 13)	**Regular involvement in the household** (child reports, age 13)
Regular involvement in the household at age 13	0.347	
	(0.065)	
Prosociality *z*-score at age 9		0.017
		(0.009)
n	5,339	5,224

Notes: All models include covariates (Table 1). Survey weights and robust standard errors (in parentheses) are applied.

Appendix C: Main findings

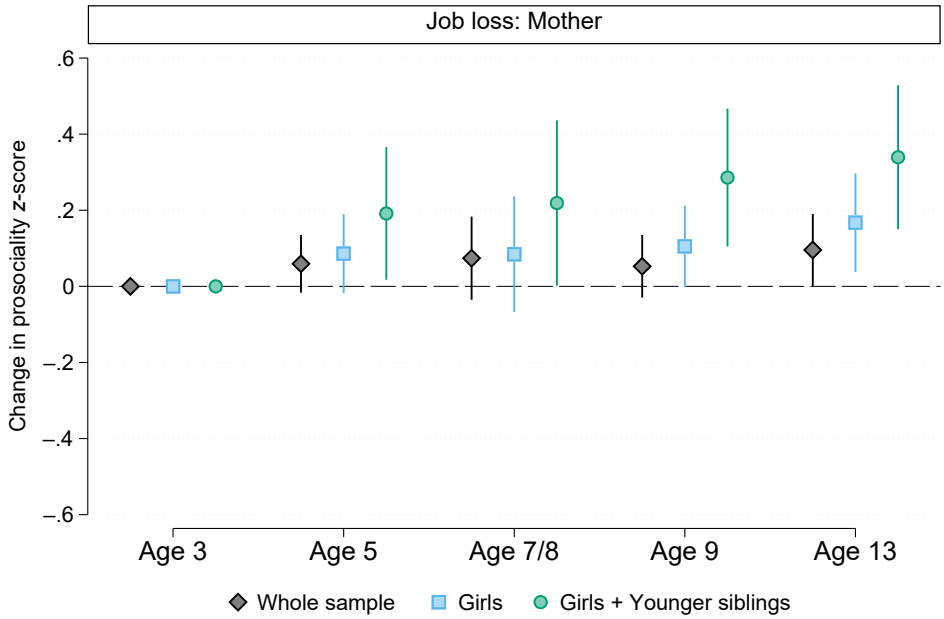
OLS specifications

Figure A-2: Predicted differences in prosocial development after the mother's job loss (vs. no parental job loss)

Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to OLS models for the whole sample (N = 36,482), girls (n = 17,965), and girls with younger siblings (n = 8,953). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Child fixed effects

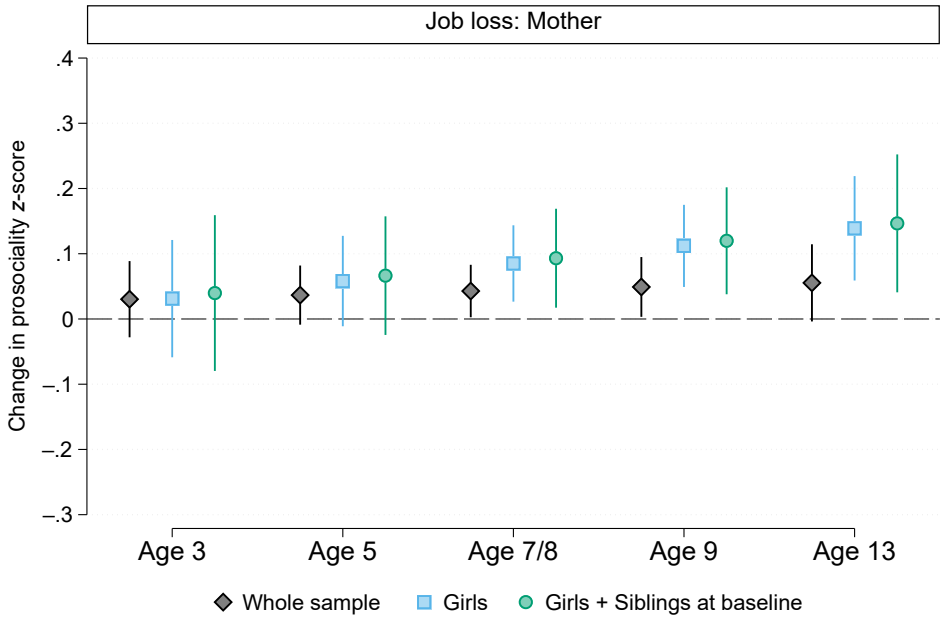
Figure A-3: Predicted differences in prosocial development trajectories after the mother's job loss (vs. no parental job loss)



Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to linear regression models with child fixed effects for the whole sample (N = 36,482), girls (n = 17,965), and girls with younger siblings (n = 8,953). Due to the paucity of within-child variation in parental job loss histories, models rely on a categorical variable denoting three groups: (1) any maternal job loss in the period, (2) no maternal job loss but paternal job loss in the period, and (3) no job loss. Although this variable is time-constant, and thus netted out due to the presence of individual fixed effects, I can identify its interaction with dummies for children's age (study wave). The interaction yields the within-individual changes in prosociality compared to baseline (Age 3) displayed here. Standard errors are clustered at the individual level. Survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Siblings at baseline

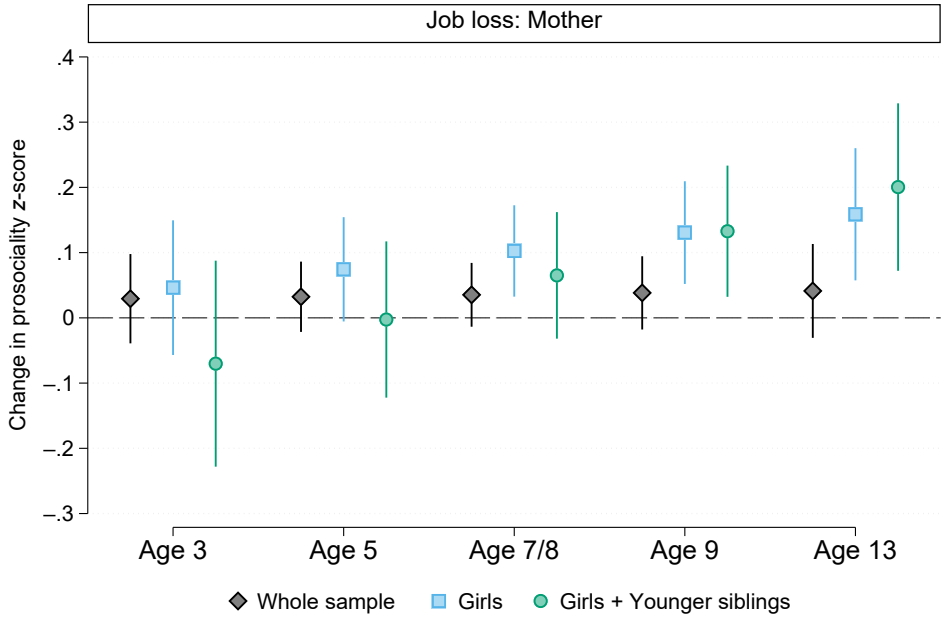
Figure A-4: Predicted differences in prosocial development trajectories after the mother's job loss (vs. no parental job loss)



Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for the whole sample (N = 36,482), girls (n = 17,965), and girls with younger siblings (n = 8,953). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Narrow reference group

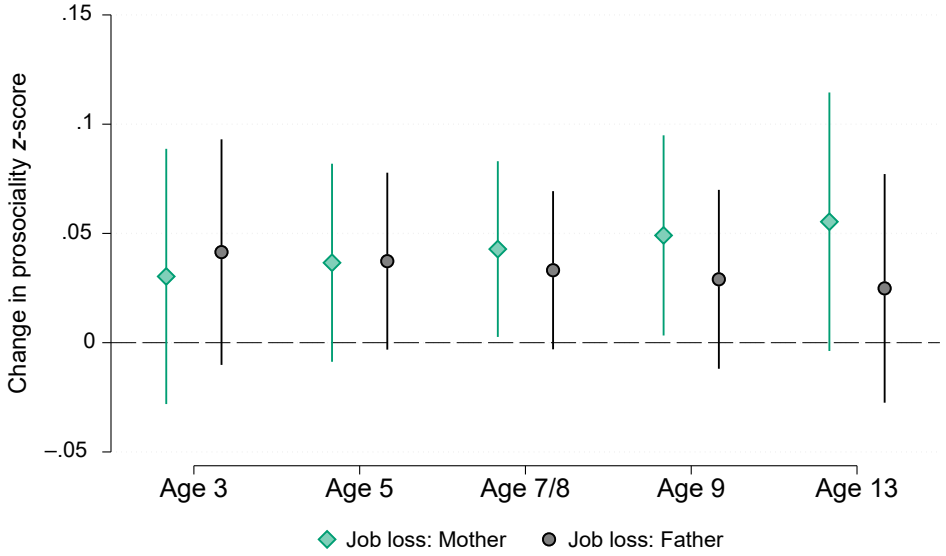
Figure A-5: Predicted differences in prosocial development trajectories after the mother's job loss (vs. no job loss and small or no other self-reported effects of the recession)



Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for the whole sample (N = 20,070), girls (n = 9,845), and girls with younger siblings (n = 5,140). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

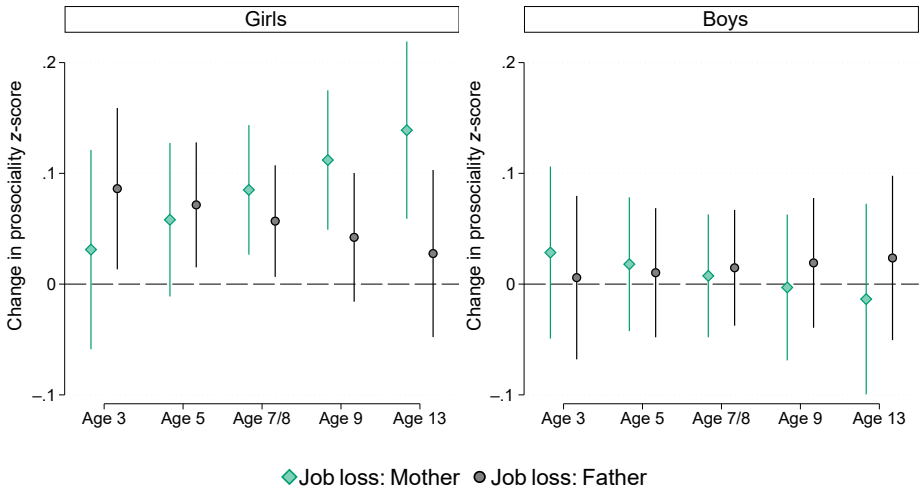
Appendix D: Prosocial development: Full results

Figure A-6: Predicted differences in prosocial development trajectories after parental job loss (vs. no parental job loss)



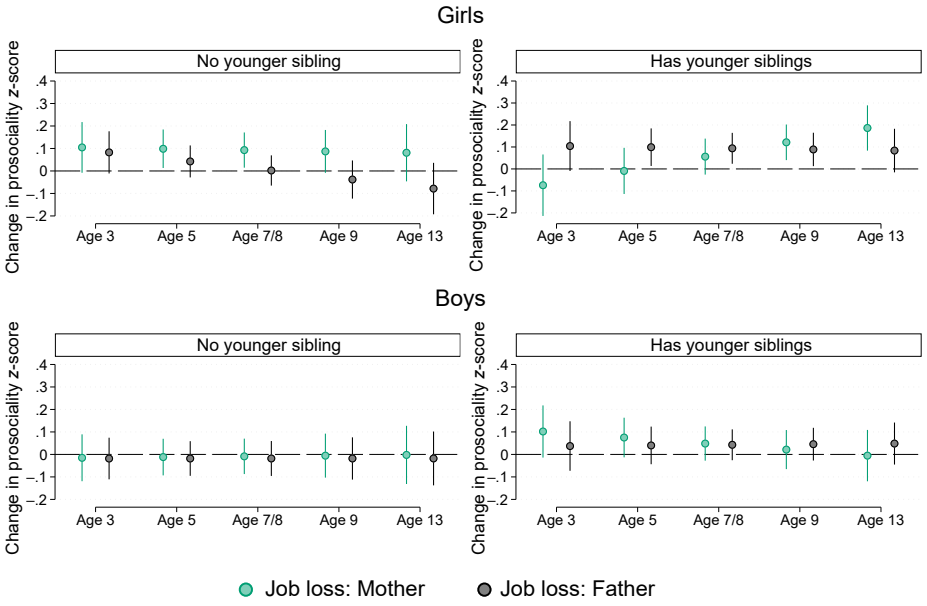
Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for the whole sample (N = 36,482). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Figure A-7: Predicted differences in prosocial development trajectories after parental job loss (vs. no parental job loss)



Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for girls (n = 17,965) and boys (n = 18,617). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Figure A-8: Predicted differences in prosocial development trajectories after parental job loss (vs. no parental job loss)



Notes: The figure displays point estimates and 95% confidence intervals. Estimates refer to growth-curve models (Equation (1)) for girls with younger siblings (n = 8,953) and without (n = 9,012), and boys with younger siblings (n = 9,401) and without (n = 9,116). Robust standard errors and survey weights are applied.
Source: Author's calculations based on Growing Up in Ireland data (Infant Cohort, 2011–2022).

Appendix E: Parental job loss and sibship size

Table A-3: Average marginal effects (AME) out of a probit model for the probability that the study child has younger sibling(s) by age 13 (wave 6)

	Child has younger sibling(s) (AME)
(ref. no job loss)	
Paternal job loss	0.03 (0.02)
Maternal job loss followed by an intermittent employment history	–0.02 (0.03)
Maternal job loss followed by a continuous employment history	–0.11 (0.04)
Maternal job loss followed by no return to paid work	0.12 (0.04)
Covariates (Table 1)	Yes
n	6,220

Note: Survey weights and robust standard errors (in parentheses) are applied.