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A Longitudinal Study of Joblessness & Children's Happiness

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In loving memory of Daniswara Pramudika Daniantoro,
who passed away on 30/06/2021.

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1. Introduction

Economists have been long interested in the intergenerational transmission of the role of income or education, even its implication on health and other future outcomes of children. Such studies gave us a better look at the spill-over effect of socio-economic statuses. While the adulthood outcomes of children are important, there are different indicators of it. Currie et al. (2010) found that physical health indicators are not as important as mental health indicators when explaining children's future outcomes. Sadly, studies concluding causal inferences concerning economic conditions on children's mental health are scarce and generally overlooked (Golberstein et al., 2019).

The term mental health can be used widely, from depressive disorders to happiness. While studies of mental health are mostly focused on its negative factors (Csikzentmihalyi & Seligman, 2000), Bieda et al. (2019) argued that the discussions on mental health should also be used to promote and discuss positive constructs such as happiness. D'raven et al. (2015) found individual happiness, positive mental health, and life satisfaction to be strongly associated with human development or disorders. Thus, we will use "life satisfaction", "well-being", and "mental health" interchangeably to refer to individual happiness.

This study attempts to focus on the intergenerational transmission of unemployment on children's overall life satisfaction. Most studies by economists focused on the individual perspective of unemployment, which is the adults. Despite having more leisure time, the loss of individual self-esteem overcomes the cost of income losses (Winkelmann & Winkelmann, 1998; Goldsmith et al., 1997). This turns research to focus on an individual's life satisfaction, which is found to be significantly negative (Clark, 2006; Di Tella et al., 2007).

Unemployment is a rare event in which people's happiness does not adapt over time (Clark & Georgellis, 2013). Other than the financial costs, the unemployed will also bear the psychological and social costs. There are also behavioural consequences such as substance usage (Chadi & Hetschko et al. 2021). While people can adapt, unemployment is a permanent scar as evident in German individuals who gained re-employment, where their happiness level does not rebound to their pre-unemployment levels (Winkelmann, 2014).

As unemployment extends its effects beyond income losses, individual relationships are also affected. Physical and mental health problems of spouses are higher (Bubonya et al. 2017), including higher divorce rates (Eliason, 2012). Thus, a chaotic environment is a risk to children's mental well-being. It is then expected that lower life satisfaction for children exists when parents enter unemployment. Studies concerning the transmission of mental scars of unemployment help us comprehend the true psychic cost of unemployment. Therefore, such a spill-over effect can be used in policy discussions in the future.

Datasets which accommodate children's happiness and parental employment history are scarce. To the best of my knowledge, there are only two datasets possible for this study, which are the German Socio-Economic Panel (SOEP) and the British Household Panel Survey or the United Kingdom Household Longitudinal

Study (UKHLS). This study will exploit the longitudinal nature of UKHLS, as it is more recent and accessible. Therefore, making more relevant variables to be included, as an addition to similar literature concerning this topic which uses older data (Haisken-DeNew & Kind, 2012; Powdthavee & Vernoit, 2013).

This study's identification rests on children's age when they are exposed to parental unemployment, like Powdthavee & Vernoit (2013). Furthermore, Chaplin et al. (2020) found that children's age plays a role in comprehending experiences, thus they have different capabilities in responding to occurrences by age. In this study's context, it is expected that older children have different life satisfaction scores than younger ones when their parents become unemployed.

We find that children's life satisfaction differs by age when their parents enter unemployment, however most of our results tend to be statistically insignificant. Because of this, we cannot confirm that unemployment affects exclusively negatively to children, because some of them benefitted. Furthermore, which parents enter unemployment could yield different results, as well as children's genders. While younger children tend to benefit, we can confirm that heterogeneities exist in children's development.

2. Background & Theoretical Framework

2.1. Background

Gary Becker argued that parents' utility maximization is constrained by trade-offs between children's human capital production through parents' time input or time spent working for increased income and monetary investment in children (Becker, 1981). Both have positive effects on children; the former increases children's income as in their future standard of living, while the latter increases their living standard as a family, thus increasing the family's utility (see Section 2.2.1).

Parental employment studies are primarily studied concerning maternal employment's effects on children's education (Ermisch & Fransesconi, 2013; Bernal, 2008). While there is mixed empirical evidence[1], maternal employment negatively affects children's cognitive development due to lower time input by mothers to their children in household environments. This could be explained by the timing of parents' time input.

Furthermore, the gender of the parent is assumed to affect children's well-being when they enter unemployment. Akerlof & Kranton (2000) discusses the "identity utility" of people by adhering to the social norms of genders. Women are typically viewed as less focused on gaining material success, unlike men who are seen as more assertive (Hofstede, 2001). Hochschild & Machung (2003) found that regardless of women's job status, the majority of childcare is carried out by them. Thus, women are typically identified as the bearer of childcare responsibilities.

Powdthavee & Vernoit (2013) questions whether the negative income effect of unemployment, along with the likelihood of employment in the future outweigh the positive effects of more parental time input due to unemployment. In other

[1] For positive cognitive outcomes, see Moore & Driscoll (1997), for negative outcomes, see Baker et al. (2009) and Bernal (2008).

words, whether the effect of parental unemployment is the same as parents giving children more time input at home.

From the parent's perspective, job losses distress their mental well-being. Spousal life satisfaction could be affected as well. Nikolova & Ayhan (2019) found that the spillover effects on spouses are estimated to be a quarter of their partner's unemployment effect, regardless of their gender. Male partners' life satisfaction would recover in a year, whereas female partners will take more than two years.

Therefore, parental mental distress could create a negative spillover to their child (Powdthavee & Vignoles, 2008). Furthermore, home environments could be disrupted due to parental unemployment, in which divorces are more likely to happen (Eliason, 2012; Gruber, 2004). This can negatively affect children's cognitive development. Christoffersen (1994) found that parental unemployment could raise mature children's anxiety and other mental well-being which could affect overall life satisfaction.

Further empirical evidence is scarce concerning children's happiness by parental unemployment. To the best of my knowledge, only Haisken-DeNew & Kind (2012), Powdthavee & Vernoit (2013), and Nikolova & Nikolaev (2018) contributed to this topic. Each has a different approach[2]. However, they all found that depending on the age and gender of the children, the results could be different.

2.2. Subjective Happiness and Utility

Economists have increasingly interested in happiness research. Which is a great contribution to understanding the well-being of people. In public policy discussions, Hirschauer et al. (2014) argued that subjective well-being is better at reflecting the consequences of choices than conventional utility approaches. Self-reported happiness intuitively reflects the effects of their experiences, and it could also be used as a good proxy for happiness and individual utility (Frey & Stutzer, 2002).

Happiness research helps policy makers discover which conditions affect people's well-being, as opposed to only considering the effects of the goods and services available from the market. Furthermore, utilities derived from subjective well-being help us "to develop a realistic conception of man". Thus, we can adequately model real-life actors (as opposed to pure introspection in Jeremy Bentham's cardinal index of goodness) in impact evaluations of public policy analysis.

2.3. Theory: Impacts on Later Life Outcomes

There are theories concerning the choices of families that affect how children grow. These theories can help explain parental job loss and its effects on children's happiness and later life outcomes. They are arguably complementing one another. These theories concern the common parental trade-off between having limited resources for children (e.g., education or health) due to lack of economic investment versus children's exposure to parental stress, risking their psychological

[2] Haisken-DeNew & Kind (2012) explores the difference of endogenous and exogenous reasons of parental unemployment. Powdthavee & Vernoit (2013) explores the effects of unemployment by children's age. Nikolai & Nikolaev (2018) explores the exposure to unemployment in different child stages (0-5, 6-10, and 11-15 years old) on later life satisfaction (from 18-31 years old).

development. An important point of view is children's experiences are most likely to be heterogeneous. Therefore, their happiness levels could differ based on certain characteristics.

2.3.1. Economic Investment

As previously mentioned, Becker (1981) developed a model in which an economically depressed household could decrease a family's ability to provide resources to help children's development. That in turn could have helped children's outcomes in later life. Economic investments in children include the quality of education, healthcare, residential area, and food. A cognitively rich and safe environment during childhood is critical to brain development and overall psychological development which requires psychosocial stimulation (Aboud & Yousafzai, 2015). Phillips and Lowenstein (2011) found that children who grew up with a generous amount of childcare such as attention, verbal, and cognitive stimulation tend to relatively be more advanced in many metrics of child development. Unemployment could be an enabler for these things not happening due to a lack of economic resources. Hilger (2016) found that children's long-term outcomes are affected by parental unemployment, which is consistent with the perspective of economic investment where experiences during childhood impact later life outcomes.

Children's social life can also be affected. Behavioural problems persist among children whose parents are displaced workers such as low self-esteem, and dropping out of college (Stevens & Schaller, 2011). From more economically fortunate peers, children can experience feelings of relative deprivation (Clark & Oswald, 1996), as they lack socially desirable qualities or resources (Easterlin, 1995). Rubin et al. (2009) found that children's social withdrawal can arise due to social stigma concerning their parent's socio-economic statuses (e.g., unemployment or reliance on public assistance excessively), which transcends into adulthood.

2.3.2. Family Stress

Happiness can serve as a mechanism for positive attitudes (Dunn & Schweitzer, 2005) and self-benefit. Happiness spreads to one's benefit because when people are surrounded by happy people, they become happier (Fowler and Christakis, 2008). Therefore, happiness creates positive spill-over effects. However, intuition also applies when people are unhappy (Fredrickson, 2001). As unemployment leaves a mental scar, the feeling of unhappiness spills to surrounding people.

Unemployment created "family stress". The spill-over to children undermines children's psychological development. Many pieces of literature in social sciences support this view (e.g., Wanberg, 2012; Marcus, 2013; Clark & Oswald, 2014) where involuntary unemployment is associated with lower levels of mental and physical health, stress, or happiness. Therefore, family relation is disrupted due to "family stress" such as marital conflict, divorce, and risky behaviours. Risky behaviour such as heavy drinking can affect a parent's parenting skills (Henkel, 2011), leading to ineffective parenting and poor child development outcomes.

2.4. Mechanism: Working or Childcare?

As previously mentioned, the effects of parental unemployment could differ based on different things. This study focuses on the time investment of parents.

When parents with children are in the labour market, they face the daily constraints of childcare. If parents' utility function is to maximize income, then more time spent working means less time investment in children. Insufficient time investment could negatively impact children's development. Childcare can be seen as a major input in human production function for development (Ermisch & Francesconi, 2013). The constraint is that higher family income can afford better livelihood for the children, which can create a cognitively rich environment.

Knabe et al. (2010) found that unemployed individuals with children spent around twice more time in childcare than those who are employed. This turns unemployment positively affects children's well-being, a demonstration of parent's time investment beneficially impacting children. It is important to note that previous works of literature found that depending on children's characteristics, they could yield different outcomes[3]. Typically, older children experience benefits less than younger ones.

3. Research Properties & Hypothesis

3.1. Problem Formulation

As previously mentioned, research concerning childhood mental health and economic conditions is scarce. Since unemployment is one of those rare events in which individuals' life satisfaction does not rebound to previous levels (pre-unemployment) over time (Clark & Georgellis, 2013), it is then expected their children who live with them experience a drop in life satisfaction as well.

As parental mental distress due to unemployment transmits to their children, the age of children could also play a role in how they respond to such experiences. Rege et al. (2011) and Coelli (2011) both found that more mature children are significantly affected negatively by their educational outcomes from exposure to parental unemployment. Using longitudinal data, this study will attempt to use a similar intuition but in the context of its psychological effect on children.

This study will take advantage of children's age when their parents enter unemployment, similar to Powdthavee & Vernoit (2013) by estimating their longitudinal relationship. Chaplin et al. (2020) found that children's age plays a role in comprehending experiences, thus they have different capabilities in responding to occurrences by age. In this study's context, it is expected that older children have different life satisfaction scores than younger ones when their parents become unemployed.

Overall, this study is one of the few attempts to study the extension of unemployment's psychological cost on children. In particular, children's happiness.

[3] Haisken-DeNew & Kind (2012), Powdthavee & Vernoit (2013), and Nikolai & Nikolaev (2018).

3.2. Research Questions

According to the problem formulation, this study explores the following research questions:

- Does children's happiness worsen from exposure to parental unemployment?
- If there is an effect, could it differ by age?

3.3. Hypothesis

The first hypothesis will be addressed to confirm the general topic of this study concerning the transmission of unemployment scars. Also, to answer the first research question. The hypothesis is the following:

HYPOTHESIS 1: Children's happiness worsens from exposure to parents' unemployment.

Using fixed effects to control for children's unobserved individual fixed effects. Thus, Powdthavee & Vernoit (2013) argued that the estimation is to remove the effects of "inborn predispositions" on children's self-reported happiness. Moreover, the unobserved heterogeneity in which it is person-specific will be captured as it is assumed to be constant over time. An example would be children born with certain happy-inducing personality traits. It is potentially correlated with the parent's unobserved time-invariant characteristics.

As mentioned, depending on age, the effects of parental unemployment on children could be different. However, since older data are used, this study attempts to confirm the findings of Powdthavee & Vernoit (2013) using newer datasets that cover more relevant variables. The research question was "If there is an effect (parental unemployment on children's happiness), could it differ by age?". In schooling, more mature children are known to receive more detrimental effects from parental unemployment than younger ones (Rege et al., 2011). Regarding coping mechanisms, Gauvain & Cole (2004) found that older children have more developed abstract and independent thinking. When their parents enter unemployment, they can develop stronger responses by being more motivated or pessimistic about their lives[4]. Thus, the second hypothesis is:

HYPOTHESIS 2: The effects on children's happiness from parental unemployment vary by age.

3.4. Research Objective

This study aims to shed light on children's happiness when they are exposed to parental unemployment compared to employed parents. Furthermore, this study can help explain more thoroughly the psychological cost of unemployment by specifically looking at co-resident children. Thus, this study contributed to the scarce literature on children's mental health from economic conditions.

[4] An example would be children having their motivation increased to avoid experiencing their parent's misfortune or pessimistic children thinking their chances of success in later life are being based on their parent's employment pattern.

4. Research Method

4.1. Data and Features of UKHLS

This study will use the longitudinal data from UKHLS (United Kingdom Household Longitudinal Survey) from the first wave in 2009 to the eleventh wave in 2022. UKHLS is a continuation of BHPS (British Household Panel Survey), which started from 1991 to 2009. Individual and household characteristics, which are essential to this study, are provided by the UKHLS questionnaire. It provides information on individual and household demographics, and particularly the youth survey (aged 10-15 years old) included children's subjective well-being measures, behaviour, and a detailed record of parental wage and income. Thus, allowing this study to analyze parental unemployment on children's happiness. This study modifies the variable selections of Powdthavee & Vernoit (2013) and Cusworth (2016).

4.1.1. Restrictions and Summary Statistics

Some restrictions are made to focus the attention on children whose parents are present within the panel data. I dropped samples who only have one traceable parent, enabling this study to form a regression where the effects of paternal and maternal employment are captured. This strategy gave us 10,101 observable children whose parental job ranges from self-employed, paid employment (both full-time or part-time), unemployed, retired, on maternity leave, family care, and full-time students. We exclude those whose parents are on a government training scheme, unpaid work, or on apprenticeship. The aforementioned job statuses represent less than 0.5% of the population.

There are 5.084 girls (50.33%) and 5.017 boys (49.67%) within the dataset. From there, we can observe 446 children whose parents (at least one of them) are unemployed. 221 of them are boys (52.87%), and 197 are girls (47.12%). There are 312 fathers and 176 mothers who are unemployed at least once in the panel. 42 of them experienced unemployment at the same time. See Table 1 below for a complete summary statistics.

Table 1 – Summary Statistics

Children Statistics		
Variable	Observations	Mean (SD)
Subjective Well-Being		
Happiness	10,101	5.9 (1.1)
Feelings about school	10,101	5.5 (1.1)
Feelings about appearances	10,101	5.3 (1.3)
Feelings about family	10,101	6.4 (0.9)
Feelings about friends	10,101	6.2 (0.9)
Attempts at smoking	10,101	.
Attempts at alcohol	10,101	.
Characteristics		
Sex		
Boys	5,017	.
Girls	5,084	.
Age	10,101	12.4 (1,6)
Total Siblings	10,101	1.5 (0.9)
Unemployed Parents		
Father	312	.
Mother	176	.
Total*	446	

Parents Statistics				
Variable	Father		Mother	
	Observations	Mean (SD)	Observations	Mean (SD)
Employment				
Self-employed	1,658	.	857	.
Paid employment	7,955	.	7,395	.
Unemployed	312	.	176	.
Inactive	176	.	1,673	.
Total	10,101	.	10,101	.
Characteristics				
Age	10,101	45.4 (6.1)	10,101	42.7 (5.4)
Health	10,101	.	10,101	.
Marital Status	10,101	.	10,101	.
Education	10,101	.	10,101	.
Log of Income	10,101	7.5 (0.8)	10,101	6.9 (0.9)
GHQ Scores†				
Making decisions	10,101	2.9 (0.3)	10,101	2.9 (0.3)
Overcoming problems	10,101	3.2 (0.6)	10,101	3.2 (0.7)
Enjoying daily activities	10,101	2.9 (0.4)	10,101	2.8 (0.4)
Ability to face problems	10,101	2.9 (0.3)	10,101	2.9 (0.4)
Belief in self-worth	10,101	3.6 (0.6)	10,101	3.6 (0.6)
Happiness	10,101	2.9 (0.5)	10,101	2.9 (0.5)

Notes: SD means standard deviation.
*Some children experience parental unemployment from both parents.
†GHQ Scores range from 1 to 4, 4 being the highest and 1 being the lowest.

Using UKHLS, we cannot distinguish part-time and full-time unemployment (paid employment). We also only compare the unemployed parents to paid employment. Self-employed or inactive statuses are included as a control variable. There are no same-sex parents within our dataset, and not all parents are married or cohabit. As long as both of them are traceable, they will be included in our observation.

4.1.2. Dependent Variable

The self-rated happiness with life ranges from 1 to 7 (1 being "completely unhappy" and 7 being "completely happy) in the youth survey (10 to 15 years old only). This variable (YPHLF) asked how they feel about their life as a whole with an over 99% response rate. Around 60% of them rated their happiness level by 6 or 7 (long right-hand tail distribution). When the child turns 16, they are moved to the main survey.

4.1.3. Independent Variable

The parameters of interests are binary variables, an unemployed father, and an unemployed mother. These parameters will then represent the interaction effects with children's age (see Section 4.2.3).

4.1.4. Control Variables

This study will use common children characteristics such as age, sex, but also the number of siblings. Similar to Powdthavee & Vernoit (2013), this study will also use children's experiences at home and school. The UKHLS provided broad questionnaires concerning children's life satisfaction, such as feelings at school, feelings towards their family, participation in bullying or getting bullied, and quarrels with parents. Substance usage is also asked, such as alcohol and cigarette consumption.

Just like children's characteristics, common parental characteristics such as age, health, sex, education level, marital status, and income will be used. This study also includes variables from GHQ-12 (General Health Questionnaire by Goldberg, 1976) of parents'. GHQ is designed to detect someone's mental health problems.

Using a wider selection of variables than Powdthavee & Vernoit (2013), this study is expected to update their results. However, I would argue that the results would eventually be similar because parenting roles and children's characteristics intuitively served as stronger mechanisms to determine children's well-being than social media usage.

4.2. Empirical Strategy

4.2.1. Well-being Function

This study will use fixed-effect approaches to address the hypotheses by replicating the empirical strategies of Powdthavee & Vernoit (2013). Their approach is to utilise the longitudinal nature of the UKHLS using OLS fixed effects, therefore controlling the unobserved heterogeneity that is constant over time in the process. They measured the well-being function as follows:

$$r_{it} = h_{it}\big(u_{it}(p_{it}, z_{it}, t_i)\big) + e_{it} \quad (1)$$

where r is the self-reported well-being level, and u is the true well-being function. Then p, z, t, e are respectively the control variables about parental characteristics, child characteristics, time trend, and the error term.

4.2.2. Pool Cross-section Model

From equation (1), we can then determine the empirical counterpart through a pooled cross-section relationship between children's happiness and parental unemployment. The model is as follows:

$$H_{it} = \alpha + \beta FU_{it} + \gamma MU_{it} + X'_{it}\tau + T_t + \varepsilon_{it} \quad (2)$$

where the specifications are:

Table 2 – Specification of the Econometric Model of Pool Cross-section Model

No.	Specification
1	i = child
2	t = time
3	H = self-rated happiness (from 1 to 7)
4	FU = binary variable, one if the father is unemployed, zero otherwise
5	MU = binary variable, one if the mother is unemployed, zero otherwise
6	β = parameters of interest. Effects of father's unemployment
7	γ = parameters of interest. Effects of mother's unemployment
8	X = control variables (socio-economic status, child's personal experiences, and characteristics)
9	T = year dummies
10	ε_{it} = error term

4.2.3. Individual Fixed Effects & Random Effects

The fixed effect estimator allows this study to longitudinally capture the relationship between child happiness and parental unemployment. Furthermore, this study includes the interaction dummies between a child's age and parental unemployment to test the mechanism that drives children's happiness from parental unemployment. The estimation in this study uses within-child variations, in which observed or unobserved time-variant family characteristics can also be controlled. Furthermore, Ordinary Least Squares fixed effects will be used.

The justifications of individual fixed effects are:

1. Individual fixed effects can remove the effects on self-reported happiness from unobserved heterogeneity that is person-specific. For example, certain personality traits can be happy-inducing, in which children who are born with those can also have parents who have similar traits.
2. Fixed effects can control some endogenous effects. An example would be parents who choose to be unemployed by themselves. Haisken De-New & Kind (2012) found that endogenous and exogenous reasons for parental unemployment have different effects on children's happiness.
3. Intuitively, comparing oneself to the previous period is a better counterfactual than siblings or twins.

The following econometric model is also similar to within-child estimators by Todd & Wolpin (2003):

$$H_{it} = \alpha + \beta FU_{it} + \gamma MU_{it} + X'_{it}\tau + \mu_i + \vartheta_{it}$$

(2)

$$H_{it} - \overline{H_{it}} = \alpha + \beta(FU_{it} - \overline{FU_{it}}) + \gamma(MU_{it} - \overline{MU_{it}}) + (X'_{it}\tau - \overline{X'_{it}\tau}) + (\vartheta_{it} - \overline{\vartheta_{it}})$$

(3)

$$H_{it} = \alpha + \beta FU_{it} + \gamma MU_{it} + \sum_{a=10}^{15} A'_{ia} + \delta_a + \sum_{a=10}^{15} \varphi_a(A_{ia} \times FU_{ia}) + \sum_{a=10}^{15} \theta_a(A_{ia} \times MU_{ia}) + X'_{it}\tau + \mu_i + \vartheta_{it}$$

(4)

where the specifications are:

Table 3 – Specification of the Econometric Model of Individual Fixed Effects

No.	Specification
1	A= vector of age dummies (10 to 15 years old)
2	φ = parameters of interest, interaction effects of unemployed father on child's happiness on age a
3	θ = parameters of interest, interaction effects of unemployed mother on child's happiness on age a
4	μ = unobserved individual fixed effects
5	ϑ = random-error term
6	Rewriting the error term as $\varepsilon_{it} = \mu_i + \vartheta_{it}$

While we also estimate the random-effect model first (the model is similar to the fixed-effect models), we will mainly refer to the fixed-effect models for the final inferences. Random-effect will be used as a robustness check. Random effect assumes no correlation between unobserved heterogeneities that is time-invariant. However, it is unlikely to be held. Therefore, we will not consider it as the ground for our inferences.

5. Results

Without any regressions, a simple tabulation of parental unemployment on children's happiness (see Table 4) differs compared to their counterfactual (paid employment parents). The difference between paternal and maternal employment could be explained by the effects of time investment spent by respective parents, as mothers tend to spend their time on childcare more than fathers. If we do not consider control variables or heterogeneity, the first hypothesis can be rejected using this simple tabulation. However, as mentioned, this study will use further empirical strategies to conclude the hypothesis.

Table 4 – Tabulation of Parental Unemployment on Children's Happiness

Children's Happiness	Mean (SD)	Observations
Father		
Employed	5.92 (1.10)	7955
Unemployed	5.70 (1.25)	312
Mother		
Employed	5.91 (1.08)	7395
Unemployed	5.93 (1.05)	176
Note: SD = Standard Deviation		

We further explore the raw dataset by testing the second hypothesis of this study by looking at the mean of happiness of children who experience paternal or maternal unemployment and those who do not as categorized by age (see Appendix: Figure 1 & Figure 2). There are no noticeable differences in general that varies by age. However, children who experience paternal unemployment generally are unhappier, unlike those who experience maternal unemployment.

Table 5 tells us the first set of regression outcomes. We use random effects (column 1) and fixed effects (columns 2 to 5). Each column also differs by sets of control variables (see Table 6). Note that we use the age of 10 as the baseline of all the regressions. The first column, which considers only exogenous variables and uses random effects shows us significant coefficients on paternal unemployment and the age 10 to 15. We re-estimate the equation using fixed effects, and there are no significant results. However, we can infer from those two columns a similar result in higher negative effects on older children and paternal unemployment negatively affects children's happiness. Maternal unemployment is positive and both equations show statistically insignificantly different from zero. Thus, with simple control variables, we can't demonstrate the differing effects of children's age from exposure to parental unemployment or any other important links. This is consistent with Haisken-DeNew & Kind (2012), Powdthavee & Vernoit (2013), and Nikolai & Nikolaev (2021).

Table 5 – Regressions of Children's Happiness. UKHLS Wave 1-11

Dependent variable: Children's Life Satisfaction	(1) RE	(2) FE	(3) FE	(4) FE	(5) FE
Unemployed Father	-0.167**	0.0346	-0.119	-0.151	-0.0391
	(0.0777)	(0.110)	(0.239)	(0.257)	(0.217)
Unemployed Mother	0.0949	0.0942	-0.543*	-0.482	-0.481*
	(0.0893)	(0.145)	(0.317)	(0.330)	(0.279)
Child Age: 11	-0.0324	0.121	0.0983	0.0937	0.0649
	(0.0385)	(0.0836)	(0.0841)	(0.0848)	(0.0717)
Child Age: 12	-0.130***	0.181	0.151	0.134	0.132
	(0.0394)	(0.150)	(0.150)	(0.152)	(0.128)
Child Age: 13	-0.266***	0.200	0.171	0.148	0.217
	(0.0411)	(0.219)	(0.220)	(0.222)	(0.187)
Child Age: 14	-0.352***	0.234	0.207	0.175	0.225
	(0.0423)	(0.290)	(0.290)	(0.293)	(0.247)
Child Age: 15	-0.467***	0.261	0.227	0.192	0.276
	(0.0450)	(0.362)	(0.362)	(0.366)	(0.308)
Unemployed Father × Child Age: 11			0.222	0.217	0.185
			(0.325)	(0.329)	(0.278)
Unemployed Father × Child Age: 12			0.444	0.464	0.0723
			(0.310)	(0.315)	(0.266)
Unemployed Father × Child Age: 13			0.208	0.218	0.305
			(0.317)	(0.321)	(0.271)
Unemployed Father × Child Age: 14			0.0885	0.119	0.156
			(0.324)	(0.328)	(0.277)
Unemployed Father × Child Age: 15			-0.288	-0.246	-0.225
			(0.361)	(0.365)	(0.308)
Unemployed Mother × Child Age: 11			0.970**	0.959**	0.816**
			(0.410)	(0.415)	(0.351)
Unemployed Mother × Child Age: 12			0.711*	0.729*	0.815**
			(0.406)	(0.412)	(0.348)
Unemployed Mother × Child Age: 13			0.945**	0.909*	0.607
			(0.458)	(0.464)	(0.393)
Unemployed Mother × Child Age: 14			0.0762	0.0239	0.308
			(0.500)	(0.505)	(0.427)
Unemployed Mother × Child Age: 15			1.440**	1.448**	1.100**
			(0.607)	(0.612)	(0.517)
Exogenous Variables	Yes	Yes	Yes	Yes	Yes
Individual Fixed Effects	No	No	Yes	Yes	Yes
Parental Characteristics	No	No	No	Yes	Yes
Parental GHQ Scores	No	No	No	Yes	Yes
Children SDQ Scores	No	No	No	No	Yes
Observations	6343	6343	6343	6343	6343
Groups	2796	2796	2796	2796	2796
Wave	All	All	All	All	All

Note: RE = random effects. FE = fixed effects or within-child estimators. Standard errors = * 10%. ** 5%. *** 1%.

Table 6 – Sets of Variables

Sets	Variables	Waves
Exogenous Variables	Children's sex, year, father's age, mother's age, total siblings	1-11
Parental Characteristics	Marital status, education, health, log of income, self-employed job status, inactive job status (retired, family care, or full-time student)	1-11
Parental GHQ scores*	Capability in making decisions, difficulties in overcoming problems, enjoying daily activities, ability to face problems, belief in self-worth, general happiness	1-11
Children Subjective Well-Being	Feelings about school, appearance, family, and friends, attempt at smoking, and alcohol	1-11
Note: *two GHQ scores are excluded from the analysis due to their inexistent information in the year 2014, complicating the analysis.		

The third column of Table 5 includes interaction terms of paternal and maternal unemployment with children's age. Using this equation, we can get the estimated effect of unemployment (both paternal and maternal) on children's happiness when they reach a certain age. For example, if the child is 10 years old, maternal unemployment's effect on children's happiness is -0.543 (significant at the 10% level, with a standard error of 0.317). However, when the child is 15 years old, the effect is (-0.542+1.440) = 0.897. This means the initial negative effect can be moderated by children's age. The same intuition applies to the effects of paternal unemployment.

Column 4 of Table 5 introduces more parental variables, their characteristics (e.g., health and income), and GHQ scores. In general, there is no great change in significance or the size of the effects. Roughly, this infers that income or health changes do not affect the statistical association of children's happiness from exposure to parental unemployment. A loosely downward trend on parental unemployment's effect on children's happiness by age as they get older is consistent with James-Burdumy (2005) and Powdthavee & Vernoit (2013) in which parental unemployment is more beneficial to younger children. However, 15-year-olds respond positively significantly at the 1% level to maternal unemployment, which deviates from the trend. Regardless of the coefficients' numbers, we can infer that children react differently by age as evident by significant results at different levels.

We took further a deeper dive by differing the effects by the children's gender. The results (see Table 7 in the Appendix) suggest that boys could benefit from paternal unemployment, but not maternal unemployment, while girls responded negatively to both. As previously mentioned, the effects can be offset by their age. We can also infer that the effects by age can also differ by gender, as shown in the table. For

example, when boys are 15 years old, the effect of paternal unemployment is (0.012-0.864) = -0.852, while girls are (-0.210-0.004) = -0.214. This shows that boys are unhappier than girls when they experience paternal unemployment at age 15. However, daughters are arguably less affected by paternal or maternal unemployment.

Possible explanations for boys being unhappier for paternal unemployment could be because they see their same-gender role model experiences hardships. It is intuitively common for sons to see their future as the backbone of their family's well-being. Once their fathers enter unemployment, it could be a source of demotivation. As for girls, it could be because they see themselves potentially ending up as a housewife than focusing on entering the labour market. It could also be because girls tend to be more independent of their parents during childhood. Thus, making the experience of parental unemployment less significant than boys.

6. Conclusion

This longitudinal study of parental unemployment on children's happiness using a newer dataset such as UKHLS demonstrates a similar conclusion to the findings of Powdthavee & Vernoit (2013). Holding age and other relevant inputs constant, the relationship between parental unemployment and children's happiness is statistically insignificant.

Using fixed effect estimations, we gained the coefficients in Tables 5 and 7 in the appendix. What we find is, that despite the differing sets of control variables, the results are arguably hardly changed. This is thanks to the heterogeneous relationship that exists between parental unemployment and children's happiness which varies by children's age and gender. Depending on the context, children's life satisfaction could benefit from parental unemployment.

Due to the malleable relationship between children's well-being and parental unemployment, we cannot confirm the first hypothesis due to differing effects. But with that, we can confirm the second hypothesis that children's happiness varies by age. However, this study demonstrates that children's well-being is affected by parental unemployment. While also giving evidence that children do respond differently to parents' economic hardships. This is relevant for policy discussions where the benefits of a welfare state for unemployment should also consider the beneficiaries' children. Therefore, the psychological well-being of children can be intervened when economic phenomena such as unemployment happen.

6.1. Limitation

Note that the results of this study are subject to large standard errors and there could be better research designs or datasets to complement this kind of study. Furthermore, the fixed model effects themselves are limited to observing only time-invariant characteristics. Thus, the fixed effects estimations can be less reliable to variables that change over time. Other than that, De Chaisemartin & d'Haultfoeuille (2020) argued that linear regression coefficients could be a reverse of what the true values are (e.g., shown as a negative, but it's supposed to be positive).

Interpreting unemployment effects on children should be treated with caution since the direction of causality among variables may have different substantive

arguments. For example, a parent's entrance into unemployment could be because of reasons related to a chaotic environment within the family which led parents to perform worse in their jobs. Time investment in children could also be because they do not get along in the first place, not solely due to unemployment. There can be many examples that concerns the reverse causality problem in this topic.

There are also concerns regarding the validity of the population. Entrance to unemployment entails no randomisation. Unemployment could be more pronounced on certain socio-economic statuses than the others. A generalisation of that could be dangerous to generalise because it's not the best representation of the condition. However, it's a natural phenomenon over the years that can be impossible to be duplicated in an experimental setting. The closest thing would be to use data on unemployment during a recession with massive unemployment. It is arguably closer to randomisation since unemployment could happen to high-income families.

Since we use a high-income country with higher levels of social security benefits and economic or political stability, the external validity is a problem. This study's results cannot be interpreted in all countries. The United Kingdom may have a diverse culture, but a study's result from a western population may entail substantially different cultures on family behaviours.

6.2. Future Studies

Further studies should also test lagged effects of long-term parental unemployment. The intuition is if unemployment is a mental scar for individuals that can have a long influence on their life, could children's life be affected long-term as well? The heterogeneous variation could also be explored through other mechanisms, such as differing children from socioeconomic statuses in pre-parental unemployment (e.g., the effect of income loss by different economic classes), or the inclusion of gender theory discussions on why paternal and maternal unemployment could affect differently. It could also be interesting for an in-depth discussion about the traditional gender roles and their effects on the intergenerational transmission of unemployment scars.

7. Appendix

Figure 1 – Tabulation: Paternal Unemployment on Children's Happiness

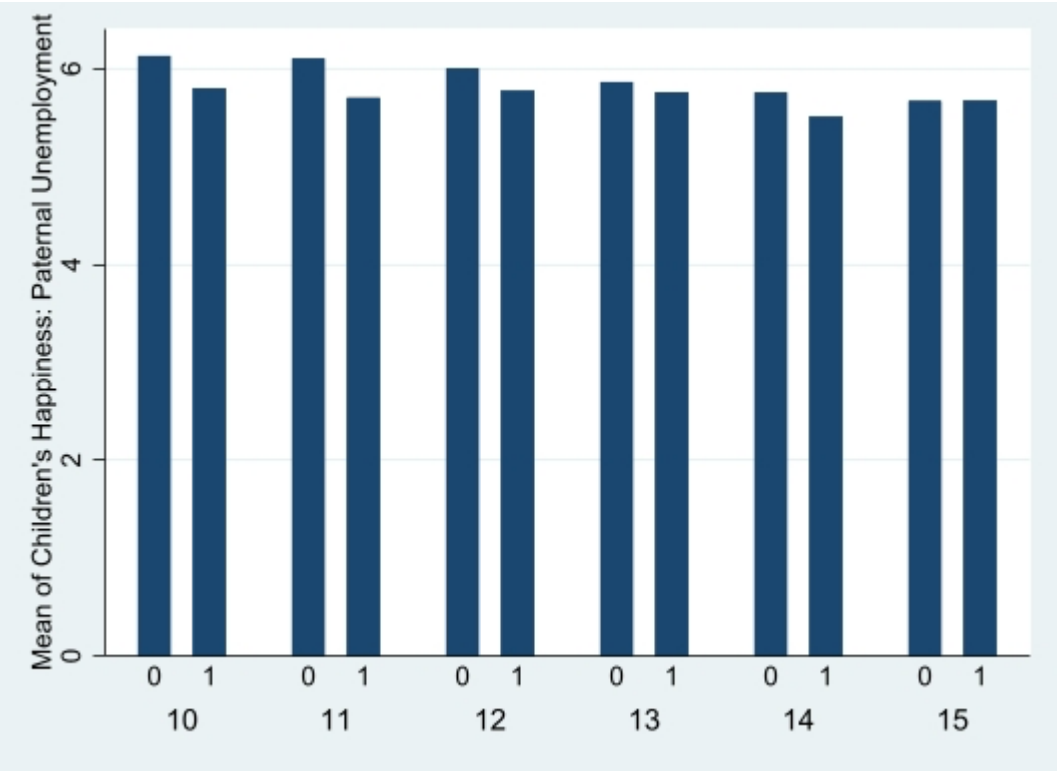

Figure 2 – Tabulation: Maternal Unemployment on Children's Happiness

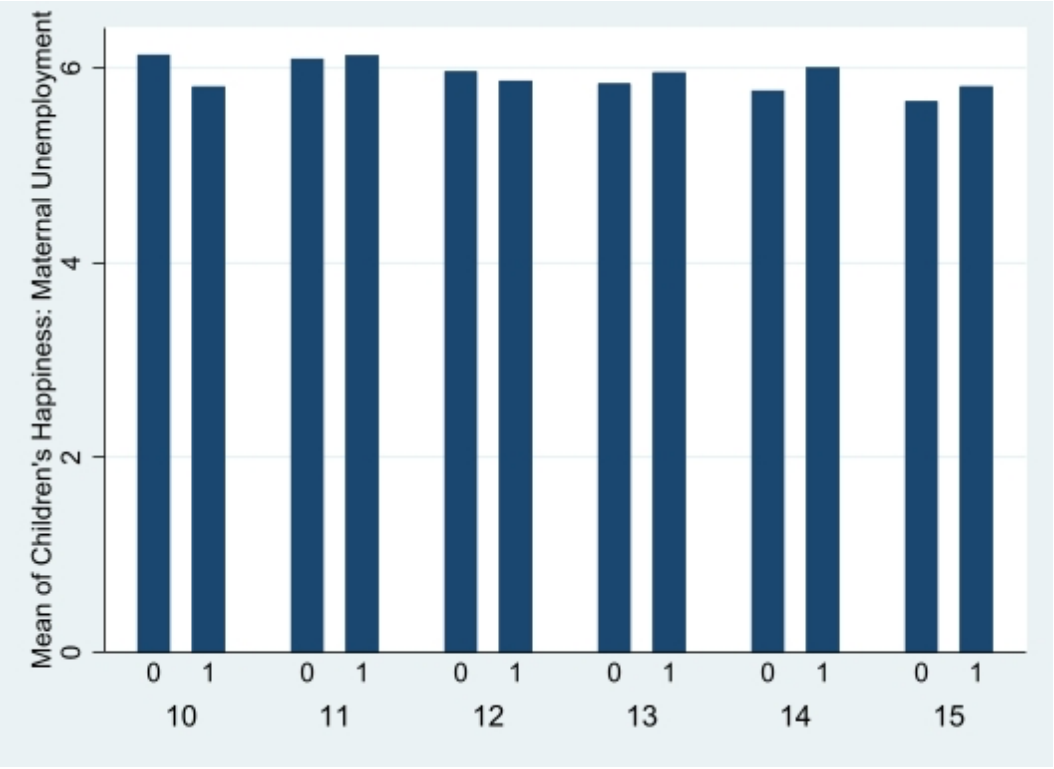

Table 7 – Regressions of Boys' and Girls' Happiness. UKHLS Wave 1-11

Dependent variable: Children's Life Satisfaction	Boys	Girls
Unemployed Father	0.0125	-0.210
	(0.291)	(0.348)
Unemployed Mother	-0.497	-0.374
	(0.341)	(0.521)
Child Age: 11	-0.032	0.195*
	(0.101)	(0.104)
Child Age: 12	0.067	0.288
	(0.180)	(0.187)
Child Age: 13	0.117	0.447
	(0.261)	(0.274)
Child Age: 14	0.151	0.458
	(0.346)	(0.361)
Child Age: 15	0.142	0.588
	(0.432)	(0.451)
Unemployed Father × Child Age: 11	0.384	0.136
	(0.376)	(0.438)
Unemployed Father × Child Age: 12	-0.021	0.312
	(0.354)	(0.433)
Unemployed Father × Child Age: 13	0.518	0.273
	(0.370)	(0.425)
Unemployed Father × Child Age: 14	-0.0722	0.415
	(0.371)	(0.445)
Unemployed Father × Child Age: 15	-0.864	-0.004
	(0.633)	(0.417)
Unemployed Mother × Child Age: 11	0.880**	0.867
	(0.414)	(0.712)
Unemployed Mother × Child Age: 12	1.098**	0.389
	(0.428)	(0.664)
Unemployed Mother × Child Age: 13	0.657	0.715
	(0.485)	(0.704)
Unemployed Mother × Child Age: 14	0.396	0.029
	(0.511)	(0.827)
Unemployed Mother × Child Age: 15	0.214	1.346*
	(0.868)	(0.747)
Exogenous Variables	Yes	Yes
Individual Fixed Effects	Yes	Yes
Parental Characteristics	Yes	Yes
Parental GHQ Scores	Yes	Yes
Children SDQ Scores	Yes	Yes
Observations	6343	6343
Groups	2796	2796
Wave	All	All

Note: RE = random effects. FE = fixed effects or within-child estimators.
Standard errors = * 10%. ** 5%. *** 1%.

8. References

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