



**CEP Discussion Paper No 1165**

**September 2012**

**The Transferable Scars: A Longitudinal Evidence of  
Psychological Impact of Past Parental Unemployment on  
Adolescents in the United Kingdom**

**Nattavudh Powdthavee and James Veroit**

## **Abstract**

Using a longitudinal data of British youths, this paper explores the consequences of past parental unemployment on the current happiness and self-esteem of the children. We find that a past unemployment spell of the father has important consequences for their children and leads to them having both lower subjective well-being and self-confidence. In addition, this paper also presents evidence that both subjective well-being and self-confidence responds differently to maternal unemployment compared to paternal unemployment. In our final table, we show changes in adolescents' well-being and self-esteem predicts educational attainments at 16. Together these findings offer new evidence of unemployment scarring on children's livelihood.

JEL Classifications: D1, I3, J6

Keywords: Unemployment, scarring, children, happiness, self-esteem; noncognitive skills

This paper was produced as part of the Centre's Wellbeing Programme. The Centre for Economic Performance is financed by the Economic and Social Research Council.

## **Acknowledgements**

We are grateful to Andrew Clark, Richard Layard, and Andrew Oswald for useful comments. We also thank the Department of Work and Pension for providing the funding of this project.

Nattavudh Powdthavee is a Principal Research Fellow with the Wellbeing Programme at the Centre for Economic Performance, London School of Economics. He is also a Professorial Research Fellow at the Melbourne Institute of Applied Economics and Social Research. James Veroit is a Research Fellow at the Centre for Economic Performance, London School of Economics.

Published by  
Centre for Economic Performance  
London School of Economics and Political Science  
Houghton Street  
London WC2A 2AE

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission in writing of the publisher nor be issued to the public or circulated in any form other than that in which it is published.

Requests for permission to reproduce any article or part of the Working Paper should be sent to the editor at the above address.

© N. Powdthavee and J. Veroit, submitted 2012

## 1. Introduction

The recent global recession, which has been followed by zero growth for many developed countries, has led to a sharp increase in the unemployment rates of parents with young children and adolescents. For example, it has been estimated that approximately 1 out of 9 (or 8.1 million) American children under the age of 18 have an unemployed parent (Lovell & Isaacs, 2010). Comparable figures can be found for other advanced industrialised countries. Unless the economic climate improves, many parents who are currently unemployed may end up spending a significant amount of time in an unemployed state.

There is a general consensus within the economics community that past unemployment significantly lowers wages and an individual's employability. These results continue to hold after reemployment (see, e.g., a special issue in *The Economic Journal* on unemployment scarring; Arulampalam, 2001; Gregg, 2001; Gregory & Jukes, 2001). In addition, the non-pecuniary cost of a long unemployment spell on the psychological well-being of the unemployed is also now widely studied in economics (see, e.g., Goldsmith et al., 1996; Clark et al., 2001; Lucas et al., 2004; Clark et al., 2008; Knabe & Ratzel, 2009). Yet much less is known about the extent of any potential damages to the psychological well-being of the children that have unemployed parents. The current article aims to fill this research void.

We contribute to the literature by investigating the previously unexplored relationship between past parental unemployment and children's psychological well-being in the United Kingdom. Using a unique longitudinal data set of British youths aged between 11 and 15 years old, we test whether a previous spell of parental unemployment has a persistent psychological association with reduced happiness and self-esteem for the teenagers even after the parents are reemployed. We find that it does, and that changes in these subjective

indicators of child's well-being may be important useful predictors of future educational attainments at aged 16.

This paper is structured as follows: section 2 briefly outlines some of the key literature, section 3 describes the data, and section 4 presents the empirical strategy. Results are presented in section 5, and section 6 concludes.

## **2. Literature**

Previous studies on the long-run impact of an unemployment spell on prospective labor market outcomes have produced one major conclusion: other than generating a direct loss of income for the individual, a spell of unemployment also significantly lowers one's wages and employability in the future. Evidence of such 'scarring' effect of past unemployment is well-established in the economics literature. For example, Jacobson et al. (1993) show that workers in Pennsylvania experience significant earning losses five years after their initial job displacement and that this relationship continues to hold if they restrict attention to those who find new jobs in similar firms. Using the British Household Panel Survey, Arulampalam (2001) shows that an unemployed individual when returning to work will on average earn 5.7% less during the first year of re-entry compared to what would have occurred in the absence of unemployment and that this wage penalty reduces to 14.7% after three years of work. Stevens (1997) finds that the negative effect of past unemployment on wages and earnings in the United States to be large – around 9% - and persistent up to six years after reemployment. More recently, Gregg (2001) and Gregg and Tominey (2005) use the National Child Development Survey to demonstrate that men who experience unemployment as youths tend to earn significantly lower wages and to also experience disproportionately more unemployment spells in adulthood than they would have otherwise.

There are several theoretical explanations of the scarring effect of a past unemployment spell on wages and employability. For example, employers might use individual's unemployment history as a signal of some losses of skills during the unemployment spell to sort good workers from bad workers, thereby resulting in a relative loss of payment amongst those who have been unemployed longer or more often in the past (Lockwood, 1991; Pissarides, 1992). The loss of earning may also reflect the fact that unemployed individuals are willing to incur a relatively lower wage when rehired for various reasons such as a loss of unemployment benefits that increases the incentives for individuals to take any job regardless of pay, a loss of health due to changes in lifestyles during the unemployment spell, or from increased disutility from leisure (Arulampalam, 2001).

There may also be a psychological explanation for the wage and employment scarring following a spell of unemployment. For example, studies in the field of happiness economics have found unemployment to be one of the largest depressors of individual's mental health, self-esteem, and overall subjective well-being (Clark & Oswald, 1994; Darity & Goldsmith, 1996; Goldsmith et al., 1997; Winkelmann & Winkelmann, 1998). The psychological impact of unemployment is shown in different data sets to be long-lasting, and often continues to linger even after individuals have been reemployed; that is, a long unemployment spell scars the psychological well-being of the unemployed (Clark et al., 2001; Lucas et al., 2004; Knabe & Ratzel, 2009; Powdthavee, 2012). Since happiness and self-confidence have been demonstrated to be strong predictors of productivity in the workplace (see, e.g., Oswald et al., 2008; for a theoretical contribution, see Benabou & Tirole, 2002), it is arguable that the wage penalty on the unemployed, continues to remain years after reemployment, is attributable to the low productivity rate amongst relatively unhappy workers caused by the experience of psychological scarring from their previous unemployment spells.

What has received much less attention is whether past unemployment has different psychological effects on children whose parents have been unemployed longer or more often in the past.<sup>1</sup> The answer to the question “If children grow up in households with unemployed parents, does this significantly influence the way they assess their happiness and self-esteem?” is not intuitively obvious. Holding family income constant, parental unemployment may have a positive impact on children’s overall sense of well-being through an increase in the time available for more parent-child interaction regardless of how it is spent (Levine, 2011). Alternatively, one could imagine that a long spell of parental unemployment might even lower children’s happiness and self-esteem through the accumulation of different factors, such as loss of self-esteem for the parents and heightened parental stress and family conflict, which together can negatively influence how children come to perceive their parents as role models (McLoyd, 1989; Flanagan, 1990; Christoffersen, 1994). Consequently, this makes the actual effects of both contemporaneous and previous parental unemployment on children’s happiness and self-esteem an empirical question; that is the focus of this paper.

We want to address three relatively unexplored questions. First, are children whose parents are currently unemployed less happy with life and low in self-esteem than those whose parents are currently in employment? Second, does a spell of parental unemployment ‘scar’ the well-being and self-confidence of children? Finally, is the impact of current parental unemployment reduced if the parent has been unemployed longer or more often in the past? We follow the empirical strategy of Clark et al. (2001) and estimate for the United Kingdom individual fixed effects models aimed specifically to gauge the impacts of past

---

<sup>1</sup> There is some research in this area that has focused on the impact of early parental employment (or unemployment) on objective indicators, such as cognitive development and behavior problems during early childhood. Results appear to be mixed. For example, whilst some investigators obtain positive effects of parental unemployment on early cognitive development (Ermisch & Francesconi, 2000; Ruhm, 2004; 2008), others have found negative impacts (Belsky & Eggebeen, 1991; Stevens & Schaller, 2010; Coelli, 2011; Levine, 2011), or results that differ with the timing of job-holding or specific group or outcome analysed (see, e.g., Blau & Grossberg, 1992).

parental unemployment on the current happiness and self-esteem of youths aged between 11 and 15.

There are similarities between our work and the recent research of Kind and Haisken-DeNew (2012). Using a panel data of German adults, Michael Kind and John Haisken-DeNew estimate the short-run effect of current parental unemployment on the life satisfaction of their children aged between 17 and 25. They find a statistically insignificant effect of current parental unemployment on children's life satisfaction.<sup>2</sup> However, Kind and Haisken-DeNew's seminal work does not examine the possibility of psychological scarring that may stem from previous history of parental unemployment, nor focus on the relatively younger children and a measure of non-cognitive skill, such as self-esteem (Heckman et al., 2001), as we do.

### **3. Data**

The current study uses data taken from the British Household Panel Survey (BHPS). The BHPS is a nationally-representative household panel covering a total sample of over 10,000 individuals in the United Kingdom, and the survey has been conducted between September and Christmas each year since 1991 (Taylor et al., 2002). There is both entry into and exit from the panel, leading to an unbalanced panel data set with an increasing number of individuals interviewed over time. This is due to the inclusion of children from the original households who turn 16 and enter the survey, and to the addition of the new members of the households formed by original panel members.

---

<sup>2</sup> That is, unless the reason why parent entered into unemployment is taken into account. For example, Kind and Haisken-DeNew (2012) show that current paternal unemployment affects children's life satisfaction in a negative manner if the reason for entry unemployment is caused by the closure of the company rather than own decision to resign.

Our paper focuses on the youth sample that first appears in Wave 4 of the BHPS and then in all subsequent waves. This consists of all 11-15 years old living in each household in the sample, thus representing an age group that had not previously been included in the survey. Most of the youth questionnaires such as attitudes towards schools and subjective well-being were answered by the youth themselves, with 773 children interviewed in the first wave (Wave 4). The number expands to 1,217 children interviewed in the last BHPS wave (Wave 18).

The first measure of a child's well-being is the degree of their happiness with life overall. Since Wave 4, each adolescent aged 11-15 is asked to describe on a 7-point scale from 1 (completely unhappy) to 7 (completely happy) how happy they feel about their life as a whole (*YPHLLF*). The response rate to the happiness with life question is very high at 99.5% across all waves. There is a long right hand tail in the distribution of children's happiness, with 70% reporting high happiness levels of 6 and 7.

Our second measure of interest is the child's level of self-esteem, which can to an extent be considered as a component of non-cognitive skills (see, e.g., Heckman et al., 2006; Blanden et al., 2007; Drago, 2011). This is elicited through six questions that aimed to tap into each child's overall sense of worthiness as a person (see Rosenberg, 1979). Since Wave 9, each child is asked to respond to the following statements:

1. *I feel I have a number of good qualities*
2. *I certainly feel useless at times\**
3. *I am a likeable person*
4. *I am inclined to feel I am a failure\**
5. *I don't have much to be proud of\**
6. *I am as able as most people*



Each youth's response is coded on a 7-point scale running from 'completely disagree' to 'completely agree'. Starred items are coded in reverse, so that, for example, a value of one then corresponds to 'completely agree'. These six are then combined into a total global self-esteem score in which high numbers correspond to feelings of high self-esteem. The highest value of Rosenberg's self-esteem score in our sample is 24, and the lowest is 6. Similar to the happiness with life scale, there is a long right hand tail in the distribution of children's self-esteem, with approximately 70% reporting a self-esteem score of 18 and over. Both measures of happiness with life and self-esteem are then normalized to have zero means and a standard deviation that equals one in all regression analysis.

Information regarding each child's parents, including data on parental unemployment, both past and present, is matched from the main adult sample to the youth sample. The current unemployment status of the parents is derived from the responses to the following 'current economic activity' question:

*"Please look [here] and tell me which best describes your current situation?"*

1. *Self-employed*
2. *In paid employment*
3. ***Unemployed***
4. *Retired*
5. *Family care*
6. *Full-time student*
7. *Long-term sick/disabled*
8. *On maternity leave*
9. *Government training scheme*
10. *Something else.*

For the purpose of our analysis, we focus our attention on children where both parents are still present and traceable in the panel. This produces 9,336 observations (3,049 unique children) for the ‘happiness with life’ regression analysis, i.e., all youths that appear from Wave 4 onwards; and 6,830 observations (2,407 unique children) in the ‘self-esteem’ regression analysis, i.e., all youths that appear from Wave 9 onwards. This paper also makes use of earlier BHPS waves (Waves 1-3) to generate lagged unemployment variables for parents who featured in the earlier waves, i.e., parents who have been unemployed for three consecutive years in Wave 4 will have been unemployed in every year since Wave 1 of the BHPS.

#### 4. Empirical strategy

The main idea is that if parental unemployment scars children then we should observe that children whose parents have been unemployed longer or more often in the past continue to report lower levels of happiness with life and also to report lower self-esteem scores even when their parents are now employed at  $t$ . We first follow the same empirical strategy as in Clark et al. (2001) and estimate the following subjective well-being regression equation:

$$W_{i,t} = \alpha_0 + \alpha_1 FU_{i,t} + \alpha_2 MU_{i,t} + \alpha_3 PASTFU_{i,t} + \alpha_4 PASTMU_{i,t} + \alpha_5 (FU \times PASTFU)_{i,t} + \alpha_6 (MU \times PASTMU)_{i,t} + X'_{i,t} \lambda + u_i + \varepsilon_{it}, \quad (1)$$

where  $W_{i,t}$  is either the normalized self-rated happiness with life or self-esteem score [with a mean of 0 and a standard deviation of 1] of adolescent  $i$  at time  $t$ ;  $FU_{i,t}$  is a dummy variable with a value of 1 if the child’s father is unemployed at  $t$  and 0 otherwise;  $MU_{i,t}$  is a dummy

with a value of 1 if the child's mother is unemployed at  $t$  and 0 otherwise;  $PASTFU_{i,t}$  and  $PASTMU_{i,t}$  are the percentage of the last 3 years in unemployment;  $X$  is a vector of personal, parental and household characteristics affecting the child's happiness and self-esteem;  $u_i$  is child fixed effects;  $\varepsilon_{it}$  is the error term. We experimented with more than 3 years. However, our main results are based on specification that focuses on the past three-year unemployment rates of the parents. Here, the past parental unemployment variables take a value between zero and unity. More formally,

*“Ratio of time father/mother spent in unemployment from  $t-3$  to  $t-1$ ”*

*= 0 if no previous years of unemployment*

*= 1/3 if one previous year of unemployment*

*= 2/3 if two previous years of unemployment*

*= 1 if all three previous years were spent in unemployment.*

The estimation of (1) allows us to test the following hypotheses:

- (i) Current parental unemployment depresses adolescent's happiness with life and self-esteem, i.e.,  $\alpha_1 < 0, \alpha_2 < 0$ ;
- (ii) Past parental unemployment reduces the current happiness and self-esteem of those adolescents whose parents have since been reemployed – that is, past parental unemployment scars the children, and there is no complete adaptation even for those whose parents that have found reemployment at  $t$ , i.e.,  $\alpha_3 < 0, \alpha_4 < 0$ ;
- (iii) Provided that current parental unemployment lowers happiness with life and self-esteem for the child, the negative effect should be smaller for those whose parents

have been unemployed longer or more often in the past, consistent with adaptation (or habituation) effect, i.e.,  $\alpha_5 > 0, \alpha_6 > 0$ .

Alternatively, the scarring effects can also be captured by estimating the following regression equation:

$$W_{i,t} = \alpha_0 + \alpha_1 FU_{i,t} + \alpha_2 FU_{i,t-1} + \alpha_3 FU_{i,t-2} + \alpha_4 FU_{i,t-3} + \beta_1 MU_{i,t} + \beta_2 MU_{i,t-1} + \beta_3 MU_{i,t-2} + \beta_4 MU_{i,t-3} + X'_{i,t} \lambda + u_i + \varepsilon_{it}, \quad (2)$$

where the ratio of time parents spent in unemployment is replaced by their lag values. Here, the total effects of previous paternal and maternal unemployment are given by the products of  $\alpha_2 + \alpha_3 + \alpha_4$  and  $\beta_2 + \beta_3 + \beta_4$ , respectively.

In later specifications, we also present regression equations that use changes in children's happiness and self-esteem in the adolescent years as predictors of educational attainment at age 16.

## 5. Results

### 5.1. Children's happiness and self-esteem

Are children whose parents have been unemployed longer or more often in the past less happy and less confident about themselves? To make a first pass at this question, Table 1 presents the raw means of children's standardized happiness with life and self-esteem scores by different parental employment status.

The first panel of Table 1 shows that youth's happiness is not statistically significantly higher for those children whose fathers are currently employed than those whose fathers are currently unemployed. The same applies with respect to maternal unemployment.

Fathers of children aged between 11 and 15 who are currently unemployed have a past three-year unemployment rate of around forty-five percent, compared to less than three percent for those who are currently employed. By contrast, unemployed mothers have a past three-year unemployment rate of approximately seven percent, compared to just over one percent for mothers in employment. Although standardized happiness is notably lower for children whose father has suffered more than average unemployment in the past, we cannot reject the null hypothesis of equal means across the two groups. Hence, there does not seem to be any raw data evidence to suggest that past parental unemployment scars the happiness of children.

On the other hand, the second panel of Table 1 presents evidence which suggests that parental unemployment may be more detrimental to children's self-esteem than their happiness. For example, children whose fathers are currently employed report significantly higher levels of self-esteem than those whose father is currently unemployed, and we can reject the null hypothesis of equal means at the 5% confidence level. There is also preliminary evidence of scarring in terms of self-esteem among children whose fathers' past three-year unemployment rates are higher than average, and we can reject the null hypothesis of equal means at the 5% level. This is our first tentative evidence of scarring. We do not, however, find the difference in children's self-esteem by mother's employment status to be statistically significant at conventional levels.

For the rest of the paper we turn our attention to the results of econometric estimation. This allows us to hold the standard socio-economic characteristics of parents constant, as well as eliminate any bias that may arise from unobserved heterogeneity of the children in the estimation of subjective well-being equations. Assuming cardinality in children's happiness and self-esteem scores, Table 2 estimates Eq.(1) using the within (or fixed effects) estimator on the BHPS Youth sample. The within estimator is preferred to random effects model here as it controls for the possibility that unobserved fixed characteristics of children are biasing

the results. The dependent variable in the first column is the child's standardized happiness with life score, and the child's standardized self-esteem score in the second column. Control variables include the age of both the parents and the child, each parent's employment types (e.g., whether father/mother is self-employed, retired, or inactive in the labor market), education level, subjective health status, marital status, and number of siblings, as well as log of real household income, regional, and survey wave dummies.

Focusing on the happiness regression equation first, the first column of Table 2, our baseline specification, shows that children whose parents are currently unemployed are not significantly less happy with life, compared to those whose parents are currently in employment; the coefficients on current paternal and maternal unemployment are 0.083 [*S.E.*=0.072] and -0.094 [*S.E.*=0.108], respectively. The observed pattern is consistent with Kind and Haisken-DeNew (2012) who find statistically insignificant association between current parental unemployment and their children's life satisfaction.<sup>3</sup> The nonnegative coefficient is also consistent with the hypothesis that, holding income constant, parental unemployment may have a positive impact on children's subjective well-being through an increase in the time available for more parent-child interaction regardless of how it is spent (see, e.g., Levine, 2011).

With respect to children's self-esteem, the same insignificant result as in Column (1) is obtained for the current paternal unemployment variable in Column (4). The main difference between the two columns, however, is that current maternal unemployment enters the self-esteem equation in a negative and statistically well-determined manner. The coefficient on Mother unemployed at  $t$  is -0.305, and is statistically significant at the 1% level.

---

<sup>3</sup> This applies to the aggregate unemployment variable – i.e., not classifying whether unemployment is due to exogenous or endogenous reasons – in their German data set.

What this implies is that children report lower self-esteem by an approximately 0.3 standard deviation score in the year that their mothers – but not their fathers – enter unemployment.

To test the “scarring” hypothesis, we introduce past parental unemployment in Columns (2) and (5) of Table 2. Looking across the columns, we can see that children whose fathers experienced higher unemployment rates over the past three years tend to report lower happiness and self-esteem scores, on average. On the contrary, there does not seem to be any significant scarring effects stemming from past maternal unemployment in either happiness or self-esteem equation. Thus, past paternal unemployment scars children, whilst past maternal unemployment does not.

We then include, in Columns (3) and (6), the interaction term between current and past parental unemployment. Whilst the interaction terms are positive, the coefficients are not statistically significant at any conventional statistical levels. However, this does not come as a complete surprise, considering that current parental unemployment does not lower children’s happiness and self-esteem in the first place – that is, except for Mother’s unemployment at  $t$  in the self-esteem equation.

By including an interaction term, we can also interpret the coefficients  $\alpha_3$  and  $\alpha_4$  as the effects of past three-year paternal and maternal unemployment rates on children whose parents are currently employed. In this specification, we continue to find negative coefficients on past paternal unemployment – now statistically significant at the 5% level – in both Columns (3) and (6), thus suggesting that previous history of father’s unemployment scars children even when the father is reemployed at  $t$ . The coefficients on past maternal unemployment, on the other hand, remain statistically insignificantly different from zero.

In summary, our main findings seem to be that a change in father’s status from employment to unemployment is not immediately observed with a decrease in youth’s

happiness and self-esteem at time  $t$ ; the negative association, which is statistically well-determined at the 5% confidence level, is in fact gradual and continues to scar even when the father is reemployed. Maternal unemployment, on the other hand, has an immediate negative effect on children's self-esteem, but not their happiness.

Table 2's other results suggest that parents' socio-economic status explains surprisingly little of the variations in children's happiness and self-esteem. Children report higher levels of happiness if the father's highest qualification is a first degree or higher and lower levels of happiness as the father becomes older. Self-esteem, on the other hand, is lower among children whose mother is not active in the labor force and/or has very poor health. In addition, we find that changes in real household income do not seem to cause significant improvements in children's happiness or self-esteem.

One question suggests itself. Do children view parental unemployment to be any different from other types of non-labor market statuses, e.g., looking after home, in full-time education, or on maternity leave? In other words, is it joblessness rather than unemployment that scars? We formally test this hypothesis by including not only 'unemployment' but also 'being inactive in the labor market' in the happiness and self-esteem regression equations, and present the results in Table A2 in the appendix. What we are able to show is that, unlike past paternal unemployment which continues to enter both equations negatively and statistically significantly, previous spells of being inactive in the labor market for the father do not significantly depress either children's happiness or self-esteem. The same applies for mothers; the coefficient Ratio of time mother was inactive in the labor market ( $t-3$  to  $t-1$ ) is 0.107 [ $S.E. = 0.070$ ] in the happiness equation, and 0.091 [ $S.E. = 0.078$ ] in the self-esteem equation. The insignificant non-labor coefficients suggest that it is not merely time spent out of work for the parents that scars the children. Rather, there is something specific about



parents being unemployed longer or more often in the past that reduces children's well-being and self-esteem.

One objection of linear estimates is that both happiness and self-esteem are not cardinal but ordinally measured, which would arguably make the within estimator inappropriate to use in the estimation of our regressions. To test this hypothesis, we follow Ferrer-i-Carbonell and Frijters (2004) and estimate an ordinal response model with fixed effects on our Youth sample and report the results in Table A1 in the appendix. To do this, we generate two new dependent variables. The first dependent variable takes the value of 1 if the current happiness score is higher than the within-person average happiness score, and 0 otherwise. The second dependent variable takes the value of 1 if the current self-esteem score is higher than the within-person average self-esteem score, and 0 otherwise. A conditional logit is then used to estimate the model with these new binary variables as the dependent variables (Chamberlain, 1980).

Focusing only on the full specification of Eq.(1), we can see from the estimates in our ordinal latent response model with fixed effects model that the results are qualitatively similar to those obtained from the within estimator in Table 2, e.g., the main negative effect continues to be the past paternal unemployment on youth's self-esteem. What this implies is that, consistent with Ferrer-i-Carbonell and Frijters (2004), it makes virtually no difference whether one assumes ordinality or cardinality of subjective well-being scores.

Table 3 presents an alternative specification to Eq.(1). Here, the ratio of time parents spent in unemployment and its interaction term are replaced by lag parental unemployment variables; see Eq.(2). Consistent with the findings in Table 2, we find that there is a significant dip in the happiness of the child 2<sup>nd</sup> and 4<sup>th</sup> year of the father's unemployment and that the corresponding dips in the child's self-esteem occur in the 2<sup>nd</sup> and 3<sup>rd</sup> year. The

implied effects of a past-three year paternal unemployment rate on children's happiness and self-esteem are  $-0.266$  and  $-0.318$ , and are statistically significant at the 5% level. Again, there are no notable differences in how children report their happiness and self-esteem scores by current paternal unemployment status, whilst current maternal unemployment continues to be negatively correlated with children's self-esteem scores.

One question of interest is whether these movements in children's happiness and self-esteem can be adequately explained by current and previous history of parents' mental distress. The idea is that, *ceteris paribus*, current and previous parental unemployment only affects children's well-being through its historical impacts on parents' mental health.<sup>4</sup> One way of testing this hypothesis is to include, as control variables, standardized current and previous history of parents' mental distress (or GHQ-12) scores. The estimates are presented in Table 4. Controlling for current and previous mental distress of the parents, the coefficients on a past three-year paternal unemployment rate continue to be negative, sizeable, and statistically well-determined in both happiness and self-esteem equations. The size of the coefficients is roughly the same as those obtained previously in Table 2; children whose fathers experienced a past three-year unemployment rate of 100% report 0.3 and 0.4 standard deviation lower in happiness and self-esteem than those whose fathers had a past three-year unemployment rate of 0%. Thus, what our results imply is that past paternal unemployment may have affected their children in a number of ways that are independent of intergenerational spillover of mental distress.

In summary, our overall estimates suggest that:

- 1) the negative association between father's unemployment and children's happiness (and self-esteem) is not immediate and takes place gradually over the years, whilst the

---

<sup>4</sup> For evidence of intra-household as well as intergenerational transmission of well-being, see, e.g., Powdthavee and Vignoles (2008), Powdthavee (2009), and Schwarz and Winkelmann (2011).

negative impact of mother's unemployment is usually felt by the children at the year of entering unemployment.

- 2) children whose father has been unemployed longer or more often in the past continue to report significantly lower levels of happiness and self-esteem even when the father is reemployed. In other words, paternal unemployment scars.
- 3) the dynamics of children's happiness and self-esteem during a spell of parental unemployment cannot be adequately explained by what happens to parents' life satisfaction during the same unemployment spell.

## **5.2. Additional results: education attainment at age 16**

Up to this point, this paper has concentrated on the estimation of the effects of past and present parental unemployment on children's happiness and self-esteem. Such an approach seems to be of some worth in its own right. However, the question remains whether these changes in children's subjective well-being (happiness) and non-cognitive skills (self-esteem) at this stage of child development predict important child outcomes in the future. Should economists, for example, care about changes in children's happiness and self-esteem at this stage of their life if it turns out that they do not predict anything of interest to policy makers, such as educational attainments and labor market outcomes?

Table 5 tests this by investigating whether average happiness and self-esteem, as well as within-person changes in happiness and self-esteem, between the age of 11 and 15 strongly predicts academic qualification at aged 16. Here, the dependent variables of interest is the total number the General Certificate of Secondary Education (GCSE), which are obtained by the individual, with grades A\*-C i.e 'good' grades. Additional controls include gender of the

child, parental education, and average family income across aged 11-15. The model is estimated using OLS with robust standard error.

Looking at the first column of Panel A in Table 5, we can see that the average happiness between aged 11 and 15 strongly predicts how well the child will perform in their GCSE exams. Controlling for parental education and average family income when the child was growing up, an increase of one standard deviation in the child's average happiness between aged 11 and 15 is associated with an increase in the number of 'good' GCSEs obtained by approximately 0.4. This is a large effect; it is equal to almost one half of the gender difference.

With respect to the predictive power of the average self-esteem between aged 11 and 15 on the academic qualification at aged 16 for the child, the first column of Panel B in Table 6 produces somewhat stronger evidence regarding GCSE outcomes. The average self-esteem level of the child predicts the total number of GCSEs passed with 'good' grades incredibly well. This result, which is consistent with the findings in the non-cognitive skills literature (Heckman & Rubinstein, 2001; Jacob, 2002; Blanden et al., 2007), implies that children who have higher self-esteem tend to outperform their peers by obtaining more GCSEs with grades A\*-C; the coefficient on *Average self-esteem between aged 11-15* is 0.610, with a statistically well-determined standard error of 0.180.

Column 2 explores whether the estimated happiness and self-esteem effects vary significantly by gender of the child. The key additional independent variable here is the interaction term between either average standardized happiness or self-esteem score and the gender variable that takes a value of 1 if the child is a girl and 0 otherwise. Whilst we find girls tend to perform better than boys in both outcome variables on average, we did not find the effects to vary across genders; the interaction terms *Average happiness between aged 11-*

*15\*Girl* and *Average self-esteem between aged 11-15\*Girl* are imprecisely estimated with relatively large standard errors in all equations.

Column 3 moves on to present the estimates in which within-person changes in the early years of adolescent happiness and self-esteem are the independent variables of interest. This allows us to identify the stages at which changes in these subjective scales are most important at predicting future educational attainments.

Looking across panels, we can see that early changes in both happiness (Panel A) and self-esteem (Panel B) at aged 11 are strong predictors of obtaining good grades at the GCSE level. Holding the happiness of the child at aged 11 constant, a one standard deviation increase in happiness between aged 11 and 12 is associated with an increase in the total number of GCSEs passed with grade A\*-C by approximately 0.4 subjects; the coefficient *Linear  $\Delta$  in happiness (aged 11 to 12)* is 0.377, with a robust standard error of 0.172. The coefficients on linear changes in the child's happiness at latter stages are, however, not statistically significantly different from zero at any conventional confidence levels.

With respect to changes in the child's self-esteem, we find the coefficients *Linear  $\Delta$  in self-esteem (aged 11 to 12)* and *Linear  $\Delta$  in the self-esteem (aged 12 to 13)* to be positive and statistically significant at the 1% and 5% respectively. The estimated reduced-form effects are also sizeable as well as statistically important. An increase of one standard deviation in the child's self-esteem between aged 11 and 12 is associated with an increase in the total number of GCSEs passed with 'good' grades by approximately 0.80, whilst an equivalent increase in the child's self-esteem between aged 12 and 13 is roughly half of that at 0.41 subjects.

Table 5 thus provides some initial evidence that measures of children's happiness and self-esteem in the early teenage years are potentially useful indicators of future life successes.

More specifically, it is the early changes in these subjective scales between the aged of 11 and 13 that strongly predict how well the child eventually does at his or her key stage 4 exams at aged 16. Added to the previous findings on the scarring effects of past history of parental unemployment on children's happiness and self-esteem, Table 5's results offer an additional psychological explanation that is not based on human capital accumulation of early academic achievements. However, care must be taken when reading off these reduced form coefficients, and no causal inferences can currently be made of these estimates. Future studies will have to come back to identify the causal links between parental unemployment, measures of psychological well-being of the child, and child's education outcomes better than we are currently able to do.

## **6. Conclusions**

The paper examines the relatively unexplored relationship between past unemployment spells of parents and the psychological well-being of children in their early teenage years. Using the unique panel of youth in the BHPS, we find that paternal unemployment is not associated with an immediate drop in children's happiness or self-esteem. However, there is statistically and economically significant evidence of an accumulating negative psychological effects of past unemployment of the father that eventually 'scars' the psychological well-being of children even after the father is reemployed. In addition, we find current maternal unemployment to have an adverse impact on children's self-esteem, but not their happiness.

The significant scarring effect of past paternal unemployment on children's happiness and self-esteem highlights both the seriousness and complexity of long-term unemployment among families with children of early teens. Evidence on the delayed effects of paternal unemployment is interesting, given that a previous study by Kind and Haisken-DeNew (2012)

has found the relationship between current paternal unemployment and life satisfaction of older children to be statistically insignificant unless the reason for entry into unemployment is taken into account. What our results seem to suggest is that the negative effect of paternal unemployment on children's well-being may only surface a few years later. One explanation for this may be that, initially, parental unemployment has a neutral effect on children's happiness and self-esteem, perhaps through an increase in parent-child interaction (+ve) and a diminished role model function of the father (-ve). Yet, as the child gets older, it is likely that the latter effect will dominate.

In sum, this paper contributes to the literature on unemployment scarring by providing new evidence that previous spells of male unemployment may not only reduce one's wages and future labor market prospects, but it may also have a detrimental impact on one's children's happiness and self-esteem. On the contrary, we find some evidence that there might be a negative effect that runs from current maternal unemployment on children's self-esteem, but not happiness. The effects may in turn have a negative consequence on children's educational attainment if they happened to occur in a few years before the child is set to take his or her first Key Stage 4 exam at the aged of 16.

## References

Arumlampalam, Wiji. 2001. Is unemployment really scarring? Effects of unemployment experiences on wages. *Economic Journal*, 111(475), F585-F606.

Baumeister, Roy F., Jennifer D. Campbell, Joachim I. Krueger, and Kathleen D. Vohs. 2003. Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1-44.

Baydar, Nazli, and Jeanne Brooks-Gunn. 1991. Effects of maternal employment and child-care arrangements on preschoolers' cognitive and behavioural outcomes: evidence from the children of the National Longitudinal Survey of Youth. *Developmental Psychology*, 27(6), 932-945.

Belsky, Jay, and David Eggebeen. 1991. Early and extensive maternal employment and young children's socioemotional development. *Journal of Marriage and Family*, 53, 1083-1110.

Benabou, Roland, and Jean Tirole. 2002. Self-confidence and personal motivation. *Quarterly Journal of Economics*, 117(3), 871-915.

Blanden, Jo; Paul Gregg, and Lindsey Macmillan. 2007. Accounting for intergenerational income persistence: non-cognitive skills, ability and education. *Economic Journal*, 117(519), C43-C60.

Blau, Francine D., and Adam J. Grossberg. 1992. Maternal labor supply and children's cognitive development. *Review of Economics and Statistics*, 74(3), 474-481.

Bryant, W. Keith, and Cathleen D. Zick. 1996. An examination of parent-child shared time. *Journal of Marriage and the Family*, 58(1), 227-237.



- Chamberlain, Gary. 1980. Analysis of covariance with qualitative data. *Review of Economic Studies*, 47, 225-38.
- Christoffersen, M.N. 1994. A follow-up study of long-term effects of unemployment on children: loss of self-esteem and self-destructive behaviour among adolescents. *Child Development*, 4, 212-220.
- Clark, Andrew E., and Andrew J. Oswald. 1994. Unhappiness and unemployment. *Economic Journal*, 104(424), 648-659.
- Clark, Andrew E., Yannis Georgellis, and Peter Sanfey. 2001. Scarring: the psychological impact of past unemployment. *Economica*, 68(270), 221-241.
- Clark, Andrew E., Ed Diener, Yannis Georgellis, and Richard E. Lucas. 2008. Lags and leads in life satisfaction: A test of the baseline hypothesis. *Economic Journal*, 118(529), F222-F243.
- Coelli, Michael B. 2011. Parental job loss and the education enrollment of youth. *Labour Economics*, 18, 25-35.
- Darity, William A., and Arthur H. Goldsmith. 1996. Social psychology, unemployment, and macroeconomics. *Journal of Economic Perspectives*, 10(1), 121-140.
- Drago, Francesco. 2011. Self-esteem and earnings. *Journal of Economic Psychology*, 32(3), 480-488.
- Ermisch, John, and Marco Francesconi. 2000. The effect of parents' employment on children's educational attainment. IZA Discussion Paper No. 215.
- Ferrer-i-Carbonell, Ada, and Paul Frijters. 2004. How important is methodology for the estimates of the determinants of happiness? *Economic Journal*, 114(July), 641-659.

Flanagan, Constance A. 1990. Change in family work status: effects on parent-adolescent decision making. *Child Development*, 61(1), 163-177.

Gershuny, Jonathan. 2000. *Changing times: work and leisure in postindustrial society*. New York: Oxford University Press.

Goldsmith, Arthur H., Jonathan R. Veum, and William Darity Jr.. 1996. The psychological impact of unemployment and joblessness. *Journal of Socio-Economics*, 25(3), 333-358.

Goldsmith, Arthur H., Jonathan R. Veum, and William Darity Jr.. 1997. Unemployment, joblessness, psychological well-being and self-esteem: Theory and evidence. *Journal of Socio-Economics*, 26(2), 133-158.

Gregg, Paul. 2001. The impact of youth unemployment on adult unemployment in the NCDS. *Economic Journal*, 111(475), F626-F653.

Gregg, Paul, and Emma Tominey. 2005. The male wage scar from youth unemployment. *Labour Economics*, 12(4), 487-509.

Gregory, Mary and Robert Jukes. 2001. Unemployment and subsequent earnings: estimating scarring among British men 1984-1994. *Economic Journal*, 111(475), F607-625.

Heckman, James J., and Yona Rubinstein. 2001. The importance of non-cognitive skills: lessons from the GED testing program. *American Economic Review*, 91(2), 145-149.

Heckman, James J., Jora Stixrud, and Sergio Urzua. 2006. The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior. NBER Working Paper No. 12006.

Jacob, Brian A. 2002. Where the boys aren't: non-cognitive skills, returns to school and the gender gap in higher education. *Economics of Education Review*, 21(6), 589-598.

Jacobson, Louis S., Robert John LaLonde, and Daniel Gerard Sullivan. 1993. Earning losses of displaced workers. *American Economic Review*, 83, 685-709.

Kind, Michael and John P. Haisken-DeNew. 2012. Unexpected victims: How parents' unemployment affects their children's life satisfaction. Melbourne Institute Working Paper Series #2/12, University of Melbourne.

Knabe, Andreas, and Steffen Ratzel. 2009. Scarring or scaring? The psychological impact of past unemployment and future unemployment risk. *Economica*, 78(310), 283-293.

Levine, Phillip B. 2011. How does parental unemployment affect children's educational performance? In Gregory Duncan and Richard Murnane (eds), "*Whither opportunity: rising inequality, schools, and children's life chances*". New York: Russell Sage.

Lockwood, Ben. 1991. Information externalities in the labor market and the duration of unemployment. *Review of Economic Studies*, 58(4), 733-753.

Lovell, Phillip, and Julia B. Isaacs. 2010. Families of the recession: unemployed parents and their children. First Focus Campaign for Children: Brookings Institute.

Lucas, Richard E., Andrew E. Clark, Yannis Georgellis, and Ed Diener. 2004. Unemployment alter the set point for life satisfaction. *Psychological Science*, 15(1), 8-13.

McLoyd, Vonnie C. 1989. Socialization and development in a changing economy: the effects of paternal job and income loss on children. *American Psychologist*, 44(2), 293-302.

Oswald, Andrew J., Eugenio Proto, and Daniel Sgroi. 2008. Happiness and productivity. Warwick Economic Research Papers No.882, University of Warwick.

Pissarides, Christopher A. 1992. Loss of skill during unemployment and the persistence of unemployment shocks. *Quarterly Journal of Economics*, 107, 1371-1391.

Powdthavee, Nattavudh. 2009. I can't smile without you: spousal correlation in life satisfaction. *Journal of Economic Psychology*, 30(4), 675-689.

Powdthavee, Nattavudh. 2012. Jobless, friendless, and broke: what happens to different areas of life before and after unemployment? *Economica*, forthcoming.

Powdthavee, Nattavudh and Anna Vignoles. 2008. Mental health of parents and life satisfaction of children: a within-family analysis of intergeneration transmission of well-being. *Social Indicators Research*, 88(3), 397-422.

Rosenberg, Morris. 1979. *Conceiving the self*. New York: Basic Books.

Ruhm, Christopher J. 2004. Parental employment and child cognitive development. *Journal of Human Resources*, 39(1), 155-192.

Ruhm, Christopher J. 2008. Maternal employment and adolescent development. *Labour Economics*, 15(5), 958-983.

Schwarz, Johannes and Rainer Winkelmann. 2011. What can happiness tell us about altruism? Evidence from the German Socio-Economic model. *Journal of Population Economics*, 24(3), 1033-1051.

Stevens, Ann Huff. 1997. Persistent effects of job displacement: the importance of multiple job losses. *Journal of Labor Economics*, 15(1), 165-188.

Stevens, Ann Huff, and Jessamyn Schaller. 2010. Short-run effects of parental job loss on children's academic achievement. *Economics of Education Review*, 30(2), 289-299.

Taylor, Marcia F., John Brice, Nick Buck, and Elaine Prentice-Lane. 2002. *British Household Panel Survey User Manual*. Colchester: University of Essex.

Winkelmann, Liliana, and Rainer Winkelmann. 1998. Why are the unemployed so unhappy? Evidence from panel data. *Economica*, 65(257), 1-15.

**Table 1: Children’s happiness with life, self-esteem, and parental unemployment**

<b>Panel A: Children with happiness with life score</b>	<b>Mean of standardized happiness with life</b>	<b>Mean of past three-year unemployment</b>
Father employed	0.034	2.50%
Father unemployed	-0.027 (0.752)	44.90% (-49.07)***
Mother employed	0.041	1.17%
Mother unemployed	-0.050 (-0.055)	7.36% (-8.483)***
Three-year past paternal unemployment below average	0.063	
Three-year past paternal unemployment above average	-0.023 (1.327)	
Three-year past maternal unemployment below average	0.057	
Three-year past maternal unemployment above average	-0.002 (0.629)	
<b>Panel B: Children with self-esteem score</b>	<b>Mean of standardized self-esteem</b>	<b>Mean of past three-year unemployment</b>
Father employed	0.046	2.56%
Father unemployed	-0.095 (2.138)**	44.94% (-31.80)***
Mother employed	0.105	1.12%
Mother unemployed	-0.131 (1.465)	7.36% (-5.575)***
Three-year past paternal unemployment below average	0.045	
Three-year past paternal unemployment above average	-0.065 (2.386)**	
Three-year past maternal unemployment below average	0.039	
Three-year past maternal unemployment above average	0.029 (0.117)	

**Note:** \*\*<5%; \*\*\*<1%. The samples are restricted to those with non-missing observations on the past unemployment variables. Happiness with life and Rosenberg’s self-esteem scores are normalized with a mean of 0 and a standard deviation of 1. Standard deviations are in parentheses. Values in parentheses are z-statistics based on the Kruskal-Wallis ranksum test for testing  $H_0$ : the two populations have equal means.

**Table 2: Fixed effects happiness with life and self-esteem regression equations, BHPS Youth 1994-2008**

Independent variables	Happiness with life			Self-esteem		
	(1)	(2)	(3)	(4)	(5)	(6)
Father unemployed at $t$	0.0831 [0.0720]	0.0579 [0.0734]	-0.00690 [0.0911]	0.0865 [0.0845]	0.0525 [0.0864]	-0.0104 [0.104]
Ratio of time father spent in unemployment( $t-3$ to $t-1$ )		-0.232* [0.127]	-0.285** [0.134]		-0.301* [0.160]	-0.373** [0.167]
Father unemployed at $t$ x Past paternal unemployment			0.226 [0.189]			0.250 [0.239]
Mother unemployed at $t$	-0.0942 [0.108]	-0.0881 [0.112]	-0.109 [0.118]	-0.305*** [0.110]	-0.291** [0.113]	-0.345*** [0.119]
Ratio of time mother spent in unemployment( $t-3$ to $t-1$ )		0.00603 [0.221]	-0.00776 [0.225]		0.0509 [0.230]	-0.0110 [0.233]
Mother unemployed at $t$ x Past maternal unemployment			0.364 [0.649]			0.994 [0.644]
Log of household income	0.0250 [0.0332]	0.0197 [0.0333]	0.0190 [0.0333]	0.0482 [0.0368]	0.0435 [0.0368]	0.0425 [0.0368]
Father is self-employed	0.127** [0.0590]	0.129** [0.0590]	0.131** [0.0590]	0.0643 [0.0662]	0.0671 [0.0662]	0.0665 [0.0662]
Father is retired	0.0301 [0.162]	0.0355 [0.162]	0.0436 [0.163]	0.182 [0.176]	0.185 [0.176]	0.196 [0.176]
Father is disabled	-0.0294 [0.237]	-0.0331 [0.237]	-0.0352 [0.237]	-0.458 [0.285]	-0.470* [0.285]	-0.465 [0.285]
Father is not active in the labor market	-0.0547 [0.0848]	-0.0501 [0.0848]	-0.0328 [0.0859]	-0.194** [0.0943]	-0.191** [0.0943]	-0.171* [0.0957]
Mother is self-employed	0.0346 [0.0757]	0.0339 [0.0758]	0.0334 [0.0758]	0.0536 [0.0788]	0.0512 [0.0788]	0.0518 [0.0788]
Mother is retired	-0.0209 [0.262]	-0.0210 [0.262]	-0.0248 [0.262]	-0.327 [0.263]	-0.329 [0.263]	-0.331 [0.263]

Mother is disabled	0.0854 [0.135]	0.0826 [0.135]	0.0826 [0.135]	0.107 [0.166]	0.110 [0.166]	0.115 [0.166]
Mother is not active in the labor market	0.0387 [0.0458]	0.0399 [0.0460]	0.0393 [0.0461]	-0.0970* [0.0497]	-0.0998** [0.0500]	-0.0966* [0.0500]
Father completed first degree or higher	0.423* [0.253]	0.432* [0.253]	0.440* [0.253]	0.526 [0.326]	0.526 [0.326]	0.536 [0.326]
Father completed O-level but lower than first degree	0.0130 [0.0875]	0.00900 [0.0875]	0.00938 [0.0875]	0.0278 [0.0999]	0.0194 [0.0999]	0.0186 [0.0999]
Mother completed first degree or higher	0.0253 [0.178]	0.0208 [0.178]	0.0192 [0.178]	0.160 [0.185]	0.152 [0.186]	0.150 [0.186]
Mother completed O-level but lower than first degree	-0.137 [0.114]	-0.142 [0.114]	-0.143 [0.114]	0.0153 [0.120]	0.00365 [0.121]	-0.000552 [0.121]
Father's health: good	0.0244 [0.0299]	0.0244 [0.0299]	0.0244 [0.0299]	0.00674 [0.0329]	0.00650 [0.0329]	0.00529 [0.0329]
Father's health: fair	0.0178 [0.0404]	0.0187 [0.0404]	0.0181 [0.0404]	0.0607 [0.0444]	0.0624 [0.0444]	0.0612 [0.0444]
Father's health: poor	-0.0104 [0.0604]	-0.00884 [0.0604]	-0.00856 [0.0604]	0.0594 [0.0668]	0.0627 [0.0669]	0.0634 [0.0668]
Father's health: very poor	0.0653 [0.0999]	0.0632 [0.0999]	0.0647 [0.0999]	0.0512 [0.110]	0.0492 [0.110]	0.0528 [0.111]
Mother's health: good	-0.00555 [0.0312]	-0.00410 [0.0312]	-0.00297 [0.0312]	-0.00392 [0.0334]	-0.00278 [0.0334]	0.000435 [0.0335]
Mother's health: fair	0.0180 [0.0405]	0.0199 [0.0406]	0.0197 [0.0406]	-0.00774 [0.0440]	-0.00578 [0.0441]	-0.00435 [0.0441]
Mother's health: poor	-0.0465 [0.0582]	-0.0466 [0.0582]	-0.0450 [0.0582]	0.0250 [0.0642]	0.0243 [0.0642]	0.0279 [0.0642]
Mother's health: very poor	-0.0243 [0.0924]	-0.0227 [0.0924]	-0.0220 [0.0924]	-0.192* [0.0999]	-0.190* [0.0999]	-0.189* [0.0999]
Parents are living as a couple	-0.173 [0.129]	-0.162 [0.129]	-0.159 [0.129]	-0.0740 [0.130]	-0.0747 [0.131]	-0.0704 [0.131]



Parents are divorced	0.159 [0.308]	0.170 [0.309]	0.175 [0.309]	0.148 [0.308]	0.152 [0.309]	0.148 [0.309]
Parents are separated	0.415 [0.278]	0.419 [0.278]	0.427 [0.278]	0.381 [0.281]	0.387 [0.282]	0.394 [0.282]
Father's age	-0.0775** [0.0338]	-0.0743** [0.0338]	-0.0742** [0.0338]	-0.0366 [0.0407]	-0.0352 [0.0407]	-0.0365 [0.0407]
Mother's age	0.0227 [0.0176]	0.0238 [0.0177]	0.0234 [0.0177]	-0.0165 [0.0166]	-0.0159 [0.0167]	-0.0160 [0.0167]
Age = 12	0.0860 [0.0774]	0.0891 [0.0774]	0.0875 [0.0774]	0.0753 [0.0804]	0.0783 [0.0804]	0.0775 [0.0805]
Age = 13	0.0642 [0.148]	0.0697 [0.148]	0.0667 [0.148]	0.0261 [0.154]	0.0309 [0.154]	0.0284 [0.154]
Age = 14	0.0951 [0.220]	0.103 [0.220]	0.0988 [0.221]	0.0452 [0.229]	0.0525 [0.229]	0.0476 [0.229]
Age = 15	0.0993 [0.293]	0.110 [0.293]	0.104 [0.293]	-0.0216 [0.304]	-0.0127 [0.304]	-0.0192 [0.304]
Number of siblings	-0.0191 [0.0214]	-0.0191 [0.0214]	-0.0191 [0.0214]	0.00320 [0.0240]	0.00390 [0.0240]	0.00452 [0.0240]
Constant	2.091 [1.359]	2.035 [1.361]	2.044 [1.361]	1.731 [1.735]	1.745 [1.736]	1.803 [1.737]
Observations	9,336	9,336	9,336	6,830	6,830	6,830
R-squared	0.022	0.022	0.022	0.025	0.026	0.026
Number of individuals	3,049	3,049	3,049	2,407	2,407	2,407

**Note:** \* $<10\%$ ; \*\* $<5\%$ ; \*\*\* $<1\%$ . Additional control variables include regional and survey wave dummies. Based on happiness with life estimates: the effect of father in unemployment for 4 years – i.e. T-3 to T = -0.066 [0.184]; the effect of mother in unemployment for 4 years = 0.246 [0.631]. Standard errors are in parentheses. Based on self-esteem estimates: the effect of father in unemployment for 4 years – i.e. T-3 to T = -0.133 [0.240]; the effect of mother in unemployment for 4 years = 0.637 [0.631]. Self-esteem only appears from 1999 onwards.

**Table 3: Fixed effects happiness with life and self-esteem regression equations with lags of parental unemployment**

<b>Independent variables</b>	<b>Happiness with life</b>	<b>Self-esteem</b>
Father unemployed at $t$	0.0545 [0.0735]	0.0386 [0.0872]
Father unemployed at $t-1$	-0.171** [0.0682]	-0.155* [0.0841]
Father unemployed at $t-1$	0.0146 [0.0631]	-0.146* [0.0760]
Father unemployed at $t-1$	-0.111* [0.0620]	-0.0178 [0.0732]
Mother unemployed at $t$	-0.0754 [0.113]	-0.298*** [0.114]
Mother unemployed at $t$	0.193* [0.107]	-0.0474 [0.110]
Mother unemployed at $t$	-0.0913 [0.105]	-0.0139 [0.106]
Mother unemployed at $t$	-0.0943 [0.1000]	0.0979 [0.105]
<b>The implied effects of a past three-year unemployment rate of 100% (<math>t-3</math> to <math>t-1</math>)</b>		
<i>3 years of past paternal unemployment</i>	-0.266** [0.128]	-0.319** [0.161]
<i>3 years of past maternal unemployment</i>	0.007 [0.221]	0.036 [0.229]
Observations	9,336	6,830
R-squared	0.024	0.026
Number of individuals	3,049	2,407

**Note:** \* $<10\%$ ; \*\* $<5\%$ ; \*\*\* $<1\%$ . Same control variables as in Table 2. Standard errors are in parentheses.

**Table 4: Fixed effects happiness with life and self-esteem regression equations with parental distress as independent variables**

<b>Independent variables</b>	<b>Happiness with life</b>	<b>Self-esteem</b>
Father unemployed at $t$	0.0193 [0.0932]	0.0476 [0.107]
Ratio of time father spent in unemployment( $t-3$ to $t-1$ )	-0.329** [0.138]	-0.400** [0.173]
Father unemployed at $t$ x Past paternal unemployment	0.234 [0.196]	0.130 [0.248]
Mother unemployed at $t$	-0.170 [0.121]	-0.344*** [0.121]
Ratio of time mother spent in unemployment( $t-3$ to $t-1$ )	-0.0756 [0.235]	0.0475 [0.244]
Mother unemployed at $t$ x Past maternal unemployment	0.427 [0.664]	0.997 [0.644]
<b>Standardized current and previous history of parental mental distress (GHQ-12)</b>		
Father's mental distress at $t$	0.00431 [0.0145]	-0.0162 [0.0158]
Father's mental distress at $t-1$	-0.0297* [0.0156]	-0.00395 [0.0173]
Father's mental distress at $t-2$	-0.00166 [0.0154]	0.0132 [0.0171]
Father's mental distress at $t-3$	-0.0153 [0.0147]	-0.000454 [0.0161]
Mother's mental distress at $t$	-0.0240 [0.0147]	-0.0282* [0.0158]
Mother's mental distress at $t-1$	0.00104 [0.0148]	-0.0148 [0.0162]
Mother's mental distress at $t-2$	-0.0298** [0.0149]	-0.0210 [0.0160]
Mother's mental distress at $t-3$	0.00698 [0.0144]	-0.00259 [0.0155]
Observations	8,737	6,445
R-squared	0.025	0.029
Number of individuals	2,896	2,298

**Note:** \*<10%; \*\*<5%; \*\*\*<1%. Same control variables as in Table 2.

**Table 5: Do measures of children’s happiness and self-esteem predict educational attainment at age 16?**

<b>Panel A: happiness regressions</b>	<b>Total number of GCSEs with ‘good’ grades (A*-C)</b>		
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
Average happiness (age 11-15)	0.372*** [0.118]	0.262 [0.176]	
Linear $\Delta$ in happiness (14 to 15)			-0.128 [0.126]
Linear $\Delta$ in happiness (13 to 14)			0.0955 [0.158]
Linear $\Delta$ in happiness (12 to 13)			0.192 [0.174]
Linear $\Delta$ in happiness (11 to 12)			0.377** [0.172]
Happy with life score at age 11			0.544*** [0.181]
Girls	1.009*** [0.240]	1.015*** [0.240]	0.978*** [0.242]
Average happiness x Girls		0.197 [0.232]	
Average log of household income (aged 11-15)	1.041*** [0.290]	1.034*** [0.289]	1.038*** [0.290]
Father completed O-level but lower than first degree at 15	1.489*** [0.320]	1.495*** [0.320]	1.471*** [0.320]
Father completed first degree or higher at 15	2.354*** [0.509]	2.370*** [0.510]	2.325*** [0.508]
Mother completed O-level but lower than first degree at 15	0.924*** [0.278]	0.923*** [0.278]	0.938*** [0.279]
Mother completed first degree or higher at 15	0.796* [0.278]	0.798* [0.278]	0.803* [0.279]

	[0.484]	[0.484]	[0.485]
Observations	1,052	1,052	1,052
R-squared	0.238	0.239	0.241
<b>Panel B: self-esteem regressions</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
Average self-esteem (aged 11-15)	0.610***	0.829***	
	[0.180]	[0.232]	
Linear $\Delta$ in self-esteem (14 to 15)			0.0665
			[0.214]
Linear $\Delta$ in self-esteem (13 to 14)			0.0152
			[0.260]
Linear $\Delta$ in self-esteem (12 to 13)			0.412*
			[0.244]
Linear $\Delta$ in self-esteem (11 to 12)			0.798***
			[0.238]
Self-esteem score at aged 11			0.823***
			[0.250]
Girls	1.239***	1.224***	1.205***
	[0.339]	[0.340]	[0.343]
Average happiness x Girls		-0.436	
		[0.344]	
Average log of household income (aged 11-15)	1.014**	1.035**	1.006**
	[0.485]	[0.487]	[0.484]
Father completed O-level but lower than first degree	1.707***	1.678***	1.713***
	[0.480]	[0.478]	[0.483]
Father completed first degree or higher	1.510**	1.441*	1.487**
	[0.754]	[0.757]	[0.755]
Mother completed O-level but lower than first degree	0.802**	0.789*	0.810**
	[0.404]	[0.404]	[0.408]
Mother completed first degree or higher	1.070	1.090	1.117*

	[0.669]	[0.675]	[0.671]
Observations	535	535	535
R-squared	0.310	0.312	0.314

**Note:** \*<10%; \*\*<5%; \*\*\*<1%. Happiness with life and self-esteem are normalized with a mean of 0 and a standard deviation of 1. Other controls include regional and survey wave dummies. Standard errors are in parentheses.

### Appendix A1: Ordered latent model with fixed effects

Independent variables	Happiness with life	Self-esteem
Father unemployed at $t$	-0.159 [0.250]	0.205 [0.283]
Ratio of time father spent in unemployment( $t-3$ to $t-1$ )	-0.541 [0.351]	-1.008** [0.420]
Father unemployed at $t$ x Past paternal unemployment	0.703 [0.507]	0.726 [0.658]
Mother unemployed at $t$	-0.561* [0.297]	-0.928*** [0.308]
Ratio of time mother spent in unemployment( $t-3$ to $t-1$ )	-0.673 [0.645]	-0.182 [0.618]
Mother unemployed at $t$ x Past maternal unemployment	2.034 [1.790]	1.909 [1.642]
Observations	7,001	6,330
Log-likelihood	-2677.4325	-2402.172
Number of individuals	1,772	1,622

**Note:** \* $<10\%$ ; \*\* $<5\%$ ; \*\*\* $<1\%$ . Controls are as in Table 2. The dependent variable takes the value of 1 if the raw happiness/self-esteem score is higher than the within-person averages of happiness/self-esteem, and 0 otherwise. The estimator is the Conditional Logit estimator (see Ferrer-i-Carbonell & Frijters, 2004, for more details on how to estimate the ordinal latent response model with fixed effects using Conditional logit estimator).

**Appendix A2: Fixed effects happiness with life and self-esteem regression equations with unemployment and inactive in the labor market as independent variables**

Independent variables	Happiness with life	Self-esteem
Father unemployed at $t$	-0.0648 [0.0982]	-0.0346 [0.112]
Ratio of time father spent in unemployment ( $t-3$ to $t-1$ )	-0.300** [0.137]	-0.420** [0.170]
Father unemployed at $t$ x Past unemployment	0.253 [0.187]	0.329 [0.236]
Ratio of time father was inactive in the labor market ( $t-3$ to $t-1$ )	-0.126 [0.142]	-0.265 [0.163]
Father unemployed at $t$ x Past inactive in the labor market	0.386* [0.226]	0.359 [0.240]
Mother unemployed at $t$	-0.144 [0.156]	-0.375** [0.161]
Ratio of time mother spent in unemployment ( $t-3$ to $t-1$ )	0.0416 [0.226]	-0.00290 [0.234]
Mother unemployed at $t$ x Past unemployment	0.347 [0.649]	1.086* [0.644]
Ratio of time mother was inactive in the labor market ( $t-3$ to $t-1$ )	0.107 [0.0702]	0.0910 [0.0780]
Mother unemployed at $t$ x Past inactive in the labor market	0.0358 [0.248]	0.149 [0.252]
Observations	9,336	6,830
R-squared	0.023	0.026
Number of pid	3,049	2,407

**Note:** \* $<10\%$ ; \*\* $<5\%$ . ILB = inactive in the labor market, which includes family care/housewife, full-time student, maternity leave, and government training scheme (and excluding retirement and disability). Same control variables as in Table 2. Standard errors are in parentheses.



**CENTRE FOR ECONOMIC PERFORMANCE**  
**Recent Discussion Papers**

1164	Natalie Chen Dennis Novy	On the Measurement of Trade Costs: Direct vs. Indirect Approaches to Quantifying Standards and Technical Regulations
1163	Jörn-Stephan Pischke Hannes Schwandt	A Cautionary Note on Using Industry Affiliation to Predict Income
1162	Cletus C. Coughlin Dennis Novy	Is the International Border Effect Larger than the Domestic Border Effect? Evidence from U.S. Trade
1161	Gianluca Benigno Luca Fornaro	Reserve Accumulation, Growth and Financial Crises
1160	Gianluca Benigno Huigang Chen Christopher Otrok Alessandro Rebucci Eric R. Young	Capital Controls or Exchange Rate Policy? A Pecuniary Externality Perspective
1159	Paul Dolan Georgios Kavetsos	Happy Talk: Mode of Administration Effects on Subjective Well-Being
1158	Alan Manning	Steady-State Equilibrium in a Model of Short-Term Wage-Posting
1157	Joan Costa-Font Mireia Jofre-Bonet Steven T. Yen	Not all Incentives Wash out the Warm Glow: The Case of Blood Donation Revisited
1156	Christian Siegel	Female Employment and Fertility - The Effects of Rising Female Wages
1155	Albrecht Ritschl	The German Transfer Problem, 1920-1933: A Sovereign Debt Perspective
1154	Gabriel M. Ahlfeldt Stephen J. Redding Daniel M. Sturm Nikolaus Wolf	The Economics of Density: Evidence from the Berlin Wall
1153	Nattavudh Powdthavee Yohanes E. Riyanto	Why Do People Pay for Useless Advice?
1152	Thomas Sampson	Selection into Trade and Wage Inequality
1151	Tim Barmby Alex Bryson Barbara Eberth	Human Capital, Matching and Job Satisfaction

1150	Ralf Martin Mirabelle Muûls Laure de Preux Ulrich J. Wagner	Industry Compensation Under Relocation Risk: A Firm-Level Analysis of the EU Emissions Trading Scheme
1149	Albrecht Ritschl	Reparations, Deficits, and Debt Default: the Great Depression in Germany
1148	Alex Bryson John Forth Minghai Zhou	The CEO Labour Market in China's Public Listed Companies
1147	Gianmarco I. P. Ottaviano Giovanni Peri Greg C. Wright	Immigration, Offshoring and American Jobs
1146	Thierry Mayer Marc J. Melitz Gianmarco I. P. Ottaviano	Market Size, Competition, and the Product Mix of Exporters
1145	Oriana Bandiera Luigi Guiso Andrea Prat Raffaella Sadun	What do CEOs Do?
1144	Oriana Bandiera Luigi Guiso Andrea Prat Raffaella Sadun	Matching Firms, Managers, and Incentives
1143	Michael Boehm Martin Watzinger	The Allocation of Talent over the Business Cycle and its Effect on Sectoral Productivity
1142	Johannes Spinnewijn	Heterogeneity, Demand for Insurance and Adverse Selection
1141	Raphael Calel Antoine Dechezleprêtre	Environmental Policy and Directed Technological Change: Evidence from the European Carbon Market
1140	Stephen J. Redding	Goods Trade, Factor Mobility and Welfare
1139	Oriana Bandiera Andrea Prat Raffaella Sadun Julie Wulf	Span of Control and Span of Activity
1138	Elhanan Helpman Oleg Itskhoki Marc-Andreas Muendler Stephen Redding	Trade and Inequality: from Theory to Estimation