Long-term Effect of Parental Unemployment during Depression on Children's Socioeconomic Achievement

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Abstract

We studied the intergenerational impact of parental unemployment on the socioeconomic status of the children, seeking to determine whether or not the impact is reduced in the context of a profound economic depression. In our analyses we applied data from one of the deepest depressions in the history of the OECD countries, the Finnish depression of the 1990s, and compare the findings to pre-depression results. We compared parental unemployment of children aged 12-18 during a period of economic growth and depression, the duration of the unemployment, and whether it was the father or the mother who was unemployed, so as to identify the mechanisms behind the negative effects. The ISEI status of the children was observed when they were 30 years old. We used propensity score matching to analyze high-quality Finnish register data, comprising 15991 children. We matched individuals experiencing parental unemployment in childhood to a pair with a similar parental background, and calculated the average treatment effect on the treated group (ATT). Our results show negative effects of parental unemployment that are not significantly reduced by occurring during a depression. In general, the results underline the importance of economic mechanisms behind the negative effects of parental unemployment.

Introduction

> *"…how do you go on? I feel sorry for the children too, they took it so hard. […] Oh god, goddamn, I cried in my mind. I'm no sort of father. […] Oh God, if you do exist, don't let this happen to my family. Take me away from here so I don't have to take this shame. I collapsed on the floor and squeezed my painfully empty stomach with both hands and cried."*
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> *Unemployed father of three children experiencing hunger and humiliation during the 1990s depression in Finland* (quoted in Kortteinen and Tuomikoski 1998, p. 34, translated by the authors)

Unemployment is a negative experience, producing economic deprivation and stress in families; these in turn play a crucial role in transmitting social advantage and disadvantage to children. It is assumed that in a knowledge-based society, with growing requirements for cognitive and social skills, parental economic and social support becomes increasingly important for children (Bowles, Gintis, and Groves 2009; Corak 2006; Cutrona et al. 1994; Esping-Andersen 2002). It can therefore be argued that parental unemployment during childhood and youth is now even more disadvantageous for children than previously. The current economic crisis has raised unemployment levels in many developed countries (OECD 2014), and the question of the intergenerational effects of unemployment has thus become particularly relevant.

While unemployment becomes more common during a depression, thus increasing disadvantages in families, the association between parental unemployment and the adult outcome for the child may change. During a depression unemployment is far more common

than during periods of growth, and the stigma associated with parental unemployment may be less severe, thus reducing the supposedly negative intergenerational consequences of unemployment. On the other hand, the loss of economic and other resources in a family is not likely to depend as much on the prevailing economic conditions as it is on the length of unemployment spell. If economic deprivation is the driving factor behind the possible negative effects, the impact of parental unemployment can be expected not to vary with the business cycle. These two mechanisms can lead to radically different intergenerational effects for various times and forms of unemployment. Yet relatively little is known about the long-term consequences of parental unemployment, in particular the impact on them of an economic depression. There is an explicit need for research concerning the mechanisms behind these negative effects and behind economic depressions in general (Brand and Thomas 2014).

Here we examine the intergenerational effects of parental unemployment during periods of economic growth and depression in Finland, applying register data. Finland underwent an exceptionally profound economic crisis at the beginning of the 1990s, with an unemployment rate peaking at twenty percent; this came after a preceding period of strong economic growth, with a low unemployment rate of around three percent. The country context is extraordinarily well suited for this kind of comparative study. This is the most profound economic depression many developed countries have witnessed since the 1930s. Furthermore, the children of the early 1990s depression have now grown up, thus allowing us to observe their adult status. Here we compare the effects of long and short unemployment spells, together with the influence of having one or both parents unemployed, so as to gain a deeper understanding of the mechanisms underlying these effects. As selection bias is one of the most difficult problems in the estimation of such effects, we employ propensity score

matching methods to control for it (Rosenbaum 2002; Rosenbaum and Rubin 1985; Rubin 1979). We used Finnish register data for children who faced parental unemployment when they were 12-18 years old during the years of economic growth 1987-1990 and during the economic depression 1991-1994. The children's social status was measured on the ISEI scale at the age of thirty in the mid-2000s, after a decade of economic growth.

Intergenerational transmission and parental unemployment

Studies of the intergenerational transmission of socioeconomic status have shown that family background affects people through various mechanisms, which can be observed in social status and occupational class (Breen 2004; Erikson and Goldthorpe 1992; Featherman, Lancaster Jones, and Hauser 1975); education (Björklund and Salvanes 2011; Hauser and Featherman 1976; Sieben, Huinink, and De Graaf 2001) and income (Björklund, Jäntti, and Solon 2007; Solon 1992, 2002). This literature suggests that parental unemployment influences the adult status of the children through two main mechanisms: economic deprivation and social stigma.

Parental resources

One of the most obvious results of parental unemployment involves the reduced economic resources of the family. Gangl (2006) has shown that in both the US and Western Europe unemployment reduces not only a worker's immediate earnings but subsequent earnings as well. Lower parental earnings limit the parents' opportunities for financial support and the children's access to material resources. While the modern welfare state may have eliminated the most extreme outcomes of economic deprivation arising out of unemployment (such as

malnutrition), other effects have prevailed. Child poverty has been shown to have a negative impact on the development of social skills and traits, on family formation, and on education and health, to mention just some of its consequences (Brooks-Gunn and Duncan 1997; Duncan et al. 1998; Heckman 2000, 2006; Hobcraft and Kiernan 2001; Wagmiller et al. 2006).

The negative influence of lower resources of the childhood family on the adult status of the children does not have conclusive support. For example (Hauser and Sweeney 1995; Mayer 2009) have argued that the evidence for the effects of childhood poverty lasting beyond entry into adulthood is rather weak, largely because of the lack of studies following the children of deprived families beyond that point. A weak or non-existent effect should be particularly likely in the context of an all-embracing welfare state, where education and health care is free of charge, the level of unemployment benefits relatively high, and welfare benefits are extensively targeted at families and at young people living independently. Evidence, however, does exist for the inheritance of low-end economic status, in a Nordic context as well as elsewhere. Airio et al. (2005), for instance, showed that childhood poverty did predict adult poverty status in Finland in 1990 and 1995 (before and during the depression), although the effect was relatively low and did not change in a statistically significant manner. In comparative terms, children from low-income families growing up in one of the Nordic welfare states tend to fare relatively well, but intergenerational income elasticity appears to be stronger at both ends of the income distribution (Jäntti, Saari, and Vartiainen 2006; Sirniö, Martikainen, and Kauppinen 2013). Kauppinen et al. (2014) have also shown that receiving social assistance is inheritable in Finland, Sweden and Norway, even after the mediating effects of various life course risk factors are taken into account.

If economic resources play a particularly important role, we should expect both longer and more frequent unemployment spells to have a more negative impact on child attainment. Moreover, unemployment of the higher-earning parent is likely to have more negative outcomes. Given that men have higher average earnings than women, especially paternal unemployment should be expected to result in negative child outcomes. This argument is consistent with the economic theory of the family (Becker 1991) suggesting that maternal unemployment is not necessarily as harmful as that of the father. According to Becker, mothers may have a lower threshold to protect themselves against unemployment by adapting to their traditional role as homemakers, at least in the case of a longer-lasting unemployment spell. In dual-earner families maternal employment may also be seen as a supplement to that of the father, and such families can switch quite easily from the dual-earner model to that of the male breadwinner. In such theorizing, the mother's main function is to be a traditional homemaker; her labor outside the home is seen as supplementary.

But the relationship between parental unemployment (whether paternal or maternal) and the adult outcomes of the children may well be more complex. According to Oppenheimer (1994), in developed societies the mothers' contribution to the family income tends to increase over time, while paternal employment has become less certain. When this is the case, families adapt a dual-earner strategy so as to increase their investment in the children and their future prospects. Such equalization should take place especially in those societies where childcare can be outsourced at a relatively low cost; this should apply to Finland as well, due to the universal availability of highly subsidized child care. The more mothers share equal wage-earner status with fathers, however, the more the children can be expected to be harmed by the mother's unemployment. The importance of maternal earnings is also increasing because of the growing number of single-mother families. If the key mechanism

underlying the impact of parental unemployment lies in the lowering of family resources, the children's socioeconomic status may thus be affected by maternal as well as paternal unemployment.

Unemployment also has a negative effect on other than economic resources. A substantial part of the positive effects of parental employment may be related to the value of the social networks associated with social standing both in the work-place and in society in general (Lin 1999). This form of parental social capital may be especially important when entry into labor market becomes crucial for social success (Erola 2009; Härkönen and Bihagen 2011). In our data, the importance of such resources is hard to estimate. We can nonetheless assume that if parental social networks associated with work are important, even multiple short-term unemployment spells should not be particularly harmful for the children. On the contrary: a parent who has been employed multiple times could actually have more extensive social networks, albeit characterized by weaker ties than those of a parent remaining in the same job (cf. Granovetter 1973).

Social stigma

As the epigraph to this article suggests, parental unemployment may also affect the children via other routes, in particular through stigmatization. This mechanism operates through the sense of disgrace, humiliation and low self-esteem associated with unemployment. It weakens social connections and trust, and generates psychological distress (Jahoda 1982; McKee-Ryan et al. 2005). There is evidence that the stigmatization related to unemployment may actually prolong individual unemployment spells (Biewen and Steffes 2010) and increase health problems (Turner 1995) as well as the chances of premature death (Martikainen and Valkonen 1996).

Like their unemployed parents, the children too may feel stigmatized, especially in a community where their parents are unemployed but others are working (Levine 2009). A parent's social and emotional disadvantages may disturb the child's well-being, psychological and cognitive development, and social ties (Christoffersen 1994). Parental unemployment has been found to exert intergenerational negative psychological effects by giving rise to a more pessimistic outlook concerning life opportunities in general (Davis-Kean 2005). Children may be socialized to see themselves as marginalized and lacking in opportunities, thus inhibiting their striving toward higher attainment.

Stigmatization is sometimes linked to *habituation theory* (also called the *treadmill effect*), according to which the family members of the long-term unemployed begin to view unemployment as normal and thus more acceptable (Brickman and Campbell 1971; Clark, Georgellis, and Sanfey 2001). The negative social stigma associated with unemployment decreases as the duration of unemployment is prolonged. In this case we would actually expect the negative effects on children to diminish rather than grow. Previous studies have not supported the habituation theory in the case of the unemployed themselves. The duration of an unemployment spell has not been shown to affect the well-being of the unemployed in a positive manner (McKee-Ryan et al. 2005; Oesch and Lipps 2012).

The negative influence of parental unemployment due to stigma could also take the form of a difference between the effects of maternal and paternal unemployment. Traditional gender ideology should reduce the stigma resulting from maternal unemployment, as women are not expected to provide economically for their families. On the other hand, egalitarian views should generate a more equal stigma for maternal and paternal unemployment (cf. Inglehart

and Norris 2003; Seguino 2007). In the Finnish context, this should reduce the gender difference.

Previous studies

Previous studies have found that parental unemployment is associated with the children's unemployment in adulthood. O'Neill & Sweetman (1998) found that having an unemployed father at the age of 11-16 almost doubled the adult unemployment risk of the sons. Miller (1998) found that youth unemployment is related to parental unemployment; the impact of maternal unemployment was even greater than that of the father. Parental education had only a small effect or none on the labor market success of the children. However, these results may be biased by the negative background selection: parents who are unemployed are a select group, possessing certain features not valued by employers; these are wittingly or unwittingly transmitted to the children. Fully controlling for this with traditional regression methods might be extremely hard. The children's disadvantageous experiences are thus not necessarily the direct consequence of parental unemployment but of one or more unobserved third factors explaining both.

In order to better estimate the causal effect of parental unemployment, economists have examined the effect of exogenous economic shocks, such as unforeseen loss of work due to plant closure, on the income of the unemployed, and their intergenerational impact on the children's economic and education outcome. Oreopoulos, Page, & Stevens (2008), using Canadian data, found that sons whose fathers had experienced unemployment shock had incomes 9 % lower than sons without such a background. The sons of displaced workers were also more likely to be receiving unemployment insurance and social benefits. The writers emphasize that the results reflect the experience of individuals whose family income in

childhood was in the lower quartile of the general income distribution. In a Norwegian study with a similar design, on the other hand, Bratberg et al. (2008) found that the father's job loss did not significantly affect the earnings of their children in their late twenties. Rege et al. (2011), likewise using Norwegian data – and again applying plant closure as an exogenous shock – found that paternal but not maternal unemployment had a significant negative effect on the children's school performance. They argue that the effect is not entirely due to material deprivation caused by the fall in income, but also to the father's mental distress, which can influence the children's school performance; in other words, to a combination of economic disadvantage and stigmatization.

While these studies, making use of exogenous shock as natural experiments, deal well with the problems of unobserved third factors, they still have their limitations (also discussed in Brand and Thomas 2014, and in greater detail in Gangl 2010). It is crucial to note that unemployment due to plant closure differs from that experienced individually in at least two ways. First, with plant closure the humiliation and stigmatization, if any, is not directed at the individual but at the social group of fellow workers. This may reduce or negate the stigmatization effect associated with parental unemployment. On the other hand, since social networks are normally tied at least in part to the workplace, the unemployment of one's fellow workers might weaken one's chances of finding a new job or otherwise enhance the negative effects of unemployment (e.g. Kauppinen, Kortteinen, and Vaattovaara 2011). In short, the effects of unemployment analyzed in these studies may be different from those of unemployment in the society in general.

Parental unemployment during childhood can have a crucial impact on educational choice. Coelli (2011), for example, using longitudinal data from Canada, found that parental job loss

when the children are at high school age (16-17) affects post-secondary education enrollment. He attributes this to the income loss of the unemployed parents. This is consistent with an earlier finding, showing that in the United States parental income during the high school years affects college attendance (Jencks and Tach 2006:47). Likewise Kalil & Ziol-Guest (2008), applying US survey data, found an association between the father's job loss and the children's grade repetition and school suspension. Certain other studies have proposed a causal mechanism between parental income and the children's cognitive achievement; these effects are greater for children growing up in more disadvantaged families, and matter more if experienced during early childhood (Brooks-Gunn and Duncan 1997; Dahl and Lochner 2012; Duncan et al. 1998)

The impact of parental unemployment is likely to depend on the other socioeconomic characteristics of the parents. (Levine 2009) studied the impact of the aggregate level unemployment rate on children's educational tests scores, finding that among low-educated mothers a higher contextual unemployment rate was associated with lower test scores for the children, but that the effect was very small and had little socioeconomic significance. At higher maternal education levels the association between contextual level unemployment and the children's test scores further decreased, disappeared or even turned positive (when the mother had a college-level degree). These effects could not be observed at the individual level when the father or mother was actually unemployed. These results suggest that families with greater resources are better able to cope with the threat of unemployment than lower-SES families. The mechanism operating here, however, does not have to be related to resources as such. (Levine 2009) also argues that it may simply signal that unemployment means different things to different people from different social backgrounds.

Parental unemployment in Finland

The changes occurring in the Finnish economy at the turn of the 1980s and 90s provide a very suitable context for the purposes of this study. The case of Finland provides a particular setting, a natural experiment, for observing the impact of parental unemployment and the mechanisms behind that impact. In the late 1980s Finland had one of the most rapidly growing economies among the Nordic countries, with an advanced welfare system and a corporatist labor market (Kalela et al. 2001). During the 1970s and 1980s people became used to relatively low unemployment levels of around five percent (OECD 2013). High taxation and income transfers ensured a state-regulated welfare policy. Then, however, unemployment begun to rise very quickly: from 3 percent in 1990 to almost 20 percent in 1995 (it was lowest at 2.9 % in February 1990, highest at 20 % in April 1994; see Figure 1 for annual data).

< Figure 1. Unemployment rate and GDP annual change in Finland, 1985–2000. (Source: Statistics Finland, Labour Force Survey) >

As already mentioned, Finland and the other Nordic countries can be considered part of the social-democratic welfare regime (Esping-Andersen 1990). The state together with unemployment funds provide social security for the unemployed; if the duration of work before the start of unemployment has been at least ten months, the employee is entitled to an earnings-related unemployment allowance for 500 days of continuous unemployment. The level of this provision is usually about 70 % of the recipient's pay prior to the start of unemployment. After 500 days the benefits decrease to a level around one third of the average pay. This amount is assumed to meet the family's minimum needs. Since long-term

unemployment entails both greater financial strain and a more profound loss of social connections compared to short-term unemployment, the magnitude in particular of economic deprivation can be expected to be greater.

International comparisons of socioeconomic inheritance have usually found the Nordic countries, including Finland, to be among the most egalitarian (Björklund et al. 2002; Breen 2004; Erola 2009); Pfeffer 2008). The educational system is free of charge at all levels, including the tertiary, and studies are subsidized with student grants. Together with the strong system of social security, this should reduce in particular the negative impact of parental unemployment due to lower economic resources in the childhood family.

According to the Global Gender Gap Report 2012, Finland is also the second most gender egalitarian country in the world. To mention just some examples: in Finland women's labor force participation rate is almost as high as that for men (women 74 %, men 77 %); women are better educated than men; 43 percent of Members of Parliament are women; and dual-earner families are the prevailing family form. Women's earnings, however, are on average some 20 percentage points lower than men's (Hausmann, Tyson, and Zahidi 2012). Already in the 1970s the female labor-force participation rate was the highest of the OECD countries (62 %), and by the end of the 1980s it had increased to 72 % (OECD 2013). During the economic depression of the 1990s women's labor-force participation was approximately 7 percentage points lower than those of men, and their earnings were 25 percentage points lower than men's (OECD 1997). The gender-role attitudes of Finnish men and women can be considered very egalitarian. On the gender equality scale computed from the World Values Survey, Finland follows Sweden and Norway as the third most gender-equal country (Inglehart and Norris 2003). According to a study applying ISSP data set from 28 countries,

Finnish men were fourth most gender-egalitarian in their values (after Sweden, Denmark and Northern Ireland), and women second (after Sweden) (Stickney and Konrad 2007). The impact of lowered parental income can thus be expected to be weaker for mothers than for fathers, but the effect of social stigma can be assumed to be very low because of the fairly equal social roles and very equal gender roles.

The intergenerational effects of parental unemployment have not been extensively studied in Finland. Erola and Moisio (2005) studied the immediate effects of increased long-term parental unemployment on the children's social mobility, using data from 1990 and 1995. They found no significant effects. This is not surprising; those who had reached the age of 30 by 1995 had experienced the decisive years of early childhood and youth much earlier, in the 1970s and 1980s. The set-up applied here, in which parental unemployment occurred during the children's adolescence, is more useful for identifying the long-term intergenerational effects of the depression of the early 1990s.

Research questions

Following the discussion above, we list three research questions:

(1) Does parental unemployment have a detrimental effect on the socioeconomic attainment of the children even in the context of the Nordic welfare state?

(2) Does parental unemployment also have detrimental effect during a depression?

(3) What are the likely mechanisms underlying these effects, if any? More specifically, is there support for the theories a) of stigmatization, b) of a deficit of economic and other resources?

We expected the answer to the first two questions to be positive. Although we were operating in the context of the Nordic Welfare state it would be surprising if parental unemployment did not have negative consequences for children. Even if the depression lessens the severity of the effects, we would still expect the impact to be significant. When it comes to our last research question, we approached it by contrasting unemployment effects during growth and depression, long- and short-term unemployment and paternal vs. maternal unemployment. If only social (stigma) mechanisms are present (3a), we would expect the effects to be stronger during a period of prosperity. At such times, children presumably experience more pronounced negative effects of social exclusion and stigmatization due to their parents' unemployment, both directly and indirectly. As for economic and other resource theories (3b), we expect prolonged parental unemployment to have a negative impact, especially when the family's economic circumstances worsen after 500 days of unemployment. In the context of the Finnish welfare state, families with shorter unemployment periods suffer far less pronounced an economic disadvantage. When it comes to the last comparison, concerning paternal and maternal effects, our hypothesis is that if economic resources matter more, the mother's unemployment will have a negative but smaller effect on the children than that of the father, due to the wage gap between the genders. On the other hand, if stigmatization matters more we expect the negative influence to be equally strong for mothers and fathers, due to the dual earner model and gender-egalitarian attitudes in Finland discussed in the previous section.

Data

The unusual economic circumstances of Finland at the turn of the 1980s and 1990s allowed us to compare close birth cohorts experiencing parental unemployment on the one hand during a time of strong economic growth (1987–1990), on the other during one of the most severe depressions in the history of the OECD countries (1991–1994).

We compared the socioeconomic statuses of children experiencing parental unemployment in adolescence to children without this experience. To ensure comparability we measured parental unemployment at six-year intervals for all the children: when the children were aged either 12 to 17 or 13 to 18, between the years 1987 and 1994. The socioeconomic status of the children was measured on the ISEI scale at the age of 30. While we might expect the effects to be stronger for younger children, in particular the stigmatizing effects might be expected to be stronger at this age (Brand and Thomas 2014). As the later cohorts have not yet achieved maturity, however, we were unable to test this with our data-set.

We analyzed a high-quality Finnish sample from the registers of Statistics Finland, comprising 15991 children born between 1974 and 1977. The data were constructed by taking a roughly representative sample of the Finnish population for 1970 and then expanding it to include parents, spouses and children of the sample persons up and down as many generations as could be found from the registers, from the 1950 census to the year 2007. This method of data construction results in a roughly representative sample of the Finnish population, including information about the family members of individuals. It should also be noted that in 1970 there were very few immigrants in Finland; they are thus not present in the sample except through marriage. Our results therefore mainly concern the native population.

Parental unemployment was measured with register-based information from Statistics Finland. While register-based information is in general very reliable, it should be noted that not all the persons inactive in the labor force are registered as unemployed. The definition of 'unemployed' excludes students and mothers on maternity leave, as well as persons who for one reason or another are not collecting unemployment benefits. Parents who exit from unemployment for purposes of study or for maternal or paternal leave are thus excluded from official unemployment measures. In principle this makes sense, as many of the negative effects of unemployment are partly or fully avoided when the person exits from official unemployment.

In this study we defined a parent as unemployed in a given year if she or he had more than six unemployment months during the year. This was done so as to exclude people with short transitory periods of unemployment and employed people with regular seasonal (summer or winter unemployment). We wanted to exclude the latter group in particular, as they quite often have regular work in spite of few months of annual seasonal unemployment. We also distinguished between long-term and short-term unemployment. Long-term unemployment was defined as more than six months of unemployment during each of the three consecutive years. Persons experiencing unemployment in shorter spells were considered to be short-term unemployed. This decision was to a large extent driven by the form of Finnish unemployment social benefits: during the years covered in the study, an individual was eligible for 500 days of higher, wage-tied unemployment benefits after becoming unemployed (Honkapohja and Koskela 1999). Thus economic resources in particular were greatly reduced after one and half years of continuous unemployment, and people experiencing more than two years of unemployment were hit much harder in this respect.

The outcome variable in all the analyses is the children's occupational status at the age of 30. Occupational status can be considered the optimal measure of socioeconomic standing, since it is related to both social status and earnings. Occupational status is also less sensitive to short-term variation in the family situation, compared for instance to income level. We coded the data on occupations into the ISEI status scales (see Ganzeboom, De Graaf, and Treiman 1992). The ISEI was originally intended to measure the status of men, which may make it less than optimal as a status measure for women (Ganzeboom et al. 1992). A composite index such as the ISEI may also overestimate the importance of occupational income (Hauser and Warren 1997). Our sensitivity analyses nonetheless show that the results are not statistically different for boys and girls.

In order to match children according to parental characteristics, we divided the childhood families into income quintiles; distinguished between five different levels of education for both mothers and fathers (primary or less, lower secondary, higher secondary, lower tertiary, higher tertiary); included a dummy for parental separation before the period of observation of parental unemployment; and classified both parents according to their occupational standing. In order to arrive at a sufficiently high number of cases in each cluster, paternal and maternal occupational standing was classified according to the seven levels of the Erikson-Goldthorpe class classification, rather than measured as ISEI status (see Erikson and Goldthorpe 1992 Occupational classes for mothers: I Higher managerial and professional occupations, II Lower managerial and professional occupations, IIIa Routine non-manual in admin and commerce, IIIb Routine non-manual in sales and services, IVa+b Self-employed, IVc, Farmers and V-VIIb Working class occupation. Occupational classes for Fathers: I Higher managerial and professional occupations, II Lower managerial and professional occupations,

IIIb Routine non-manual occupation, IVa+b Self-employed, IVc Farmers, V Lower supervisors and lower technical occupation and VI-VIIb Other working class occupation).

Methods

Children experiencing parental unemployment are likely to be disadvantaged due to other background characteristics as well, which is why we tend to overestimate its negative effect. We controlled for this selection bias by applying propensity score matching. The method has seen a revival in recent studies of unemployment and job displacement (Brand and Thomas 2014; Gangl 2006), along with other topics (e.g. Apel et al. 2010; Gebel and Voßemer 2014; Lee 2010). All the models were run in R using the optmatch package.

Matching approaches rely on the idea of the classic experimental framework, in which we ideally assign cases randomly to treatment and control groups and then apply the desired intervention to the treatment group (Morgan and Winship 2007; Rosenbaum 2002). This classic experimental setup is familiar from medical research, where the treatment group receives the actual medical treatment and the control group the placebo. As the groups are randomly assigned, it is possible to conclude whether any differences between the groups observed after the treatment are large enough not to have resulted from random variation.

In an observational study, of the type most common in the social sciences, we have to rely on other approaches in order to imitate the experimental design. In matching methods this is done by artificially creating a control group (Morgan and Winship 2007; Rosenbaum 2002; Rosenbaum and Rubin 1985; Winship and Morgan 1999). In our study it took the form of matching children according to their family background characteristics, including paternal and maternal SES and educational level, household income by quintile, and an indicator for

parental divorce. All of these factors influence both the risk of parental unemployment and the SES of the children in adulthood, and can be thus considered relevant matching variables (Rosenbaum 2002).

In propensity score matching, the propensity to experience the treatment, here parental unemployment, is the same for the treatment and control groups, but only the first group has actually experienced unemployment (Rosenbaum 2002; Rosenbaum and Rubin 1985; Winship and Morgan 1999). Propensities are obtained by analyzing the association of the matching variables on the treatment variable with some form of regression analysis and extracting the predicted values, i.e. *propensity scores (P)*. The propensity scores correspond theoretically to the probability of being assigned to a treatment group. Here we employed logistic regression models to obtain the propensity scores. They were then used to match children without the actual experience of parental unemployment, but with an equal propensity toward it, to children who did in fact experience parental unemployment. By this means we obtained an artificially created control group. By comparing the treatment and matched control groups we were able to give estimates for the negative effects of parental unemployment that correspond to the actual treatment effects we would theoretically obtain for children experiencing parental unemployment in adolescence, i.e. the differences in SES on the ISEI scale.

The matching approach also allows us to differentiate between the average treatment effect on the treated (ATT) and the untreated (ATU) (Gangl 2010). The ATT reflects the effect on the treated group, here children actually experiencing parental unemployment:

$$E(\delta|d=1,P) = E(y^{d=1} - y^{d=0}|d=1,P) \qquad (1)$$

The ATU shows the effect on the untreated group, here all children not experiencing parental unemployment:

$$E(\delta|d=0,P) = E(y^{d=1} - y^{d=0}|d=0,P). \qquad (2)$$

In other words, there is a possible difference between the treatment effect on children likely to experience parental unemployment and that on children unlikely to experience it. This has indeed been shown to be the case for single mothers, for whom a heterogeneous treatment effect was found (Brand and Thomas 2014). Here we focus on the ATT, as we are mainly interested in the effects on people whose parents are likely to be unemployed. We do not report or analyze the ATUs as these effects are not in focus here.

Figure 2 shows the standardized differences in the ISEI between children who experienced parental unemployment and those who did not, before and after matching. Once the groups were matched according to propensity scores, the differences were very small. This was the case in all models (see supplementary material for details).

< Figure 2. Balance of matching variables before and after matching in first model, including all forms of parental unemployment. (For other balance plots see supplementary material.) >

Rather than adding mediators, as in some previous studies employing matching methods (Kirk and Sampson 2013; Torche and Costa-Ribeiro 2012), we examined the possible mechanisms by conducting comparisons according to different types of parental unemployment. The types covered are unemployment during an economic depression, growth

or both; long-term, multiple-spell and short-term unemployment; and with father, mother or both unemployed. Each type is analyzed separately.

Using the matching approach instead of the usual regression framework has two important advantages. First, we can control more rigorously for differences in other background characteristics often associated with unemployment (e.g. Hansen 2004). The matching approach allows us to exclude individuals to whom we are not able to assign a corresponding control person (Hansen 2004; McLanahan, Tach, and Schneider 2013; Rosenbaum 2002). With regression methods we usually assume that we can extrapolate the results outside the covariate support. In the best case this assumption holds true, but the worst case carries the risk of serious errors in extrapolating the results (Gangl 2010; Morgan and Winship 2007; Rosenbaum 2002). Even though in our analyses we were applying a large register-based dataset, there were some children with such a family background that no child with a similar background could be identified. To ensure that this did not lead to bias in our estimates we applied strict restrictions, allowing a propensity score difference of only 0.01.

Second, in reporting our results we focus on the average treatment effect on the treated group (ATT), so as to give prominence to the fact that the effects we are calculating concern children experiencing parental unemployment. Regular regression analysis results are often interpreted as concerning the whole population, and the effect is assumed to be homogeneous. If the assumption of similar effects of parental background in different situations does not hold, this biases the estimates. In our case, however, the results of the similar analyses conducted applying regular OLS estimates did not differ significantly from the matching results (see supplementary material for regression table).

Results

Descriptive statistics

Table 1 shows the absolute and relative levels of parental unemployment by background variables between 1987-1994, including both the period of economic growth (end of the 1980s) and the depression (beginning of the 1990s). In the lowest income quintile over 40 percent of households suffered some form of unemployment, as contrasted with 13 percent of highest quintile households. Similarly to parents with higher household income, parents with higher socioeconomic status likewise suffer less from unemployment. Approximately 16 percent of higher managerial mothers and 15 percent of fathers were unemployed during the period covered, compared to over 40 percent of working-class mothers and 37 of fathers. More highly educated mothers and fathers were much less likely to be unemployed than less educated ones. Parental separation predicts a greater probability of unemployment: separated parents had a 45 percent probability of unemployment, while parents who were married or cohabiting had a probability of only 25 percent.

Our descriptive statics show clearly that higher socioeconomic status, higher income, higher education and marriage or cohabitation are associated with lower levels of unemployment, somewhat more for fathers than for mothers.

< Table 1. Parental unemployment by background variables (1987-1994) >

Overall effect of parental unemployment

We began our analysis of the effects of parental unemployment on the children by examining the possible harm caused by parental unemployment in general for the children's adult socioeconomic attainment. We compared the ISEI of children experiencing any form of parental unemployment to that of a control group, with a similar family background but no experience of unemployment (Figure 3, all the means and ATTs can be found as well in the appendix A in table A1 and box-plot figures for the distributions in appendix B figures B1 to B4). First of all, we can note that the SES of children with parental unemployment is almost 5 points lower than the average for their cohorts on the ISEI scale. When children with similar family background characteristics (control group) are compared to children with parental unemployment, the difference is still significant but is also significantly lower. The average treatment result is nonetheless clearly negative: on average parental unemployment in Finland has a negative impact on the children, even after various factors related to negative background selection are taken into account.

< Figure 3. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing any form of parental unemployment; reference line for average ISEI. >

This confirms our hypothesis in the first research question: parental unemployment has a negative effect on children even in the context of the Nordic welfare-state model. The suggestion that parental unemployment can have a negative intergenerational effect even in a society with extensive financial support for the unemployed is in line with most of the previous literature on the topic (Miller 1998; O'Neill and Sweetman 1998; Oreopoulos et al. 2008; Rege et al. 2011), but in disagreement with some findings for Norway (Bratberg et al. 2008). The contrast with the Norwegian study may be due to differences in the type of unemployment analyzed: we analyzed all forms of parental unemployment while Bratberg et

al (2008) applied plant closure as an instrument, thereby restricting their results to this specific, non-individual form of unemployment.

All in all, the statistically significant ATT observed in ISEI was not as large as the effect of other family background factors for the children in question. While the difference is relatively small in absolute terms, however, for an effect of a single childhood event it is relatively large. Compared to negative selection due to other family background variables, it constituted almost a third of the impact on the children in question. Since we know that the family background of the children of the unemployed is clearly disadvantageous to begin with, the negative effect is also substantially significant.

Parental unemployment and economic situation

Our second research question considered whether the negative effect of parental unemployment is smaller during a period of depression than during one of economic prosperity, as suggested by stigmatization theories. Our results, shown in Figure 4, suggest that economic conditions do not make much of a difference. Children experiencing parental unemployment during times of growth show about the same decrease in the ISEI as those who experience it during a time of depression. Negative background selection appears to contribute more or less equally in both cases. The ATT, however, is not statistically significant during growth due to the lower case numbers. This implies little support for a negative intergenerational effect due to stigmatization; in that case, a clearly stronger negative effect should have been observed during times of growth.

< Figure 4. Means and 95 percent confidence intervals of ISEI according to economic situation for control groups and children experiencing parental unemployment; reference line for average ISEI. >

Figure 4 also suggests that it is the children who experience parental unemployment at times both of growth and depression that are doing worst. This is the case both in absolute terms and in terms of the ATT. This is to be expected, since this group consists of parents with either long-term unemployment or multiple spells of short-term unemployment; they can therefore be expected to be both more stigmatized and financially deprived. Note, however, that in this case too the confidence intervals are relatively wide.

Long or multiple unemployment spells

The strong negative effect of people experiencing parental unemployment during both growth and depression suggests that the duration or number of unemployment spells may be related to the negative intergenerational effect. The question is, which one matters more. Answering this question should provide further evidence for the relative importance of economic and stigmatization effects related to parental unemployment. As noted above, the Finnish unemployment benefit system gives earnings-dependent and relatively high benefits for the first 500 days of unemployment. Multiple but brief unemployment spells are thus not necessarily economically equally constraining as a single, prolonged spell. If economic resources matter, the negative effects should be weaker in the case of multiple spells and stronger if a spell lasts longer than two years in a row.

The results are shown in Figure 5. Indeed it appears that those with long-term unemployed parents fare clearly worse than those with single or multiple short-term spells. Furthermore,

the ATTs for the latter two groups are not statistically significant in the 95 percent confidence level in the case of multiple short-term spells and only barely statistically significant for the single short-term spells. The finding of the especially strong ATT related to long-term unemployment does not appear to be simply related to background selection; the effects for treatment groups for both long-term and multiple short-term unemployment were more or less the same. We would not expect children with the long-term parental unemployment to be a more selective group than those with multiple short-term experiences of parental unemployment.

< Figure 5. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing parental unemployment according to length of unemployment spell; reference line for average ISEI. >

The results further indicate that the decline in economic resources associated with parental unemployment is indeed a key mechanism at work when it comes to the negative effects of parental unemployment. Multiple short-term unemployment spells should be even more stigmatizing than a single long-term spell. Thus our results suggest that the negative stigma associated with unemployment may not be that important an explanation for the negative intergenerational effects of parental unemployment.

The sins of the fathers

In the final part of the analysis we consider differences between the effects of maternal and paternal unemployment. If economic resources mattered most, the father's unemployment would have a slightly stronger negative impact than that of the mother due to the higher average income of the fathers, while having both mother and father unemployed should have

the strongest negative influence. We assume the stigmatization effect of paternal and maternal unemployment to be relatively similar, as Finland is one of the most gender-neutral countries in the world.

The ATT associated with the unemployment of the father is indeed stronger than with that of the mother (Figure 6). Children experiencing paternal unemployment do slightly worse in terms of the ISEI, and a smaller part of this can be attributed to negative selection due to family background. We conclude that this difference is due to the higher average income of the fathers.

< Figure 6. ISEI means and 95 percent confidence intervals for control groups and for children experiencing paternal, maternal or biparental unemployment; reference line for average ISEI. >

Children experiencing the unemployment of both parents indeed do worst in adulthood, with the lowest level of socioeconomic attainment. However, this is chiefly due to negative background selection, as the ATT is not statistically significant for this type of unemployment. This may be due to even stronger negative selection for other family background characteristics than those expected. These children may come from such disadvantageous family backgrounds that further reduction of economic resources is almost completely buffered by the state and any increase in stigmatization is unlikely.

We conclude that the comparison of maternal and paternal unemployment provides some support for the economic disadvantage assumption. Paternal unemployment matters more,

and the most logical explanation is the increased economic hardship associated with the loss of the father's usually higher income.

Conclusion

In the 2010s many developed societies are witnessing what is perhaps the most severe economic crisis since the Great Depression of the 1930s, taking the form for example of increasing and persistent unemployment (OECD 2014). While opinions as to how society should react to unemployment can vary, there is a wide consensus that children should not suffer from their parents' misfortunes or mistakes. In this study we tested certain assumptions concerning the key mechanisms responsible for the negative effects of parental unemployment on children, and sought to determine whether these effects are equally strong during a period of severe economic depression as at times of general prosperity.

According to our results, parental unemployment can have serious negative effects on the children's socio-economic outcomes. Even in the context of the Nordic welfare state, the effects of parental unemployment experienced in adolescence are still observable at the age of 30. Our results further indicate that from the point of view of the children, parental unemployment seems equally detrimental at any phase of the economic cycle; parental unemployment at a time of deep economic depression had a statistically significant negative effect on the children's ISEI, used as a measure of SES. Theories assuming stigmatization effects would have predicted the opposite: a reduced impact during depression.

Further, the results indicate that the negative effects of parental unemployment are stronger in the case of long-term unemployment. As the unemployed in Finland receive higher earnings-dependent benefits for the first 500 days of unemployment, stronger economic deprivation

could explain the more severe effect of long-term parental unemployment. Multiple short-time parental unemployment spells during adolescence did not seem to influence SES in adulthood as strongly.

Finally, we found implications that the impact of paternal unemployment may be stronger than that of the mother. We see two possible reasons: either stronger stigmatization associated with the father's unemployment, or the higher mean income of men (still prevalent even in the Nordic countries) and thus increased economic deprivation. Based on the other results and previous findings concerning Finnish gender norms, we conclude that economic resources are the most likely explanation of the differences observed between paternal and maternal ATT.

All our results are consistent with the assumption that the strongest mechanism behind the effects is economic deprivation. These results are quite different from what might easily be assumed in the context of the generous welfare state. Finland has welfare benefits targeted specifically at reducing the economic constraints related to unemployment, and their level can be considered comparatively speaking very high. One would therefore expect parental economic resources to matter less, and our findings are rather surprising. Is it perhaps the case that our results do not actually reflect the importance of the lost economic resources but of the other, non-economic resources often correlated with them? While our data do not allow us to draw definitive conclusions in this respect, some of our results contradict the argument. For instance, if it is the work-associated social networks that matter, the negative effect should be weaker at a time of depression because the networks would presumably be easier to maintain when many others are also unemployed. On the other hand, the negative effects of

long-term unemployment compared to multiple shorter spells may well be presumed to result from the weakening of social networks and ties.

When we look back at the situation of the father quoted at the beginning of the article, we see suffering, humiliation and mental distress. However, this might well be the result not of unemployment per se but of the loss of economic resources, which can lead to actual hunger and an aching stomach. One interpretation of the importance of economic resources is indeed a social one. Hanging on the brink of absolute poverty due to unemployment is a stressful situation. It is important to note that although we underline the importance of economic resources, we are not claiming that the association between them and the negative consequences for the children is a simple one. It is probably at least mediated in part by the social consequences of material deprivation, including stigmatization.

Our evidence thus suggests that economic resources still matter, and that in countries with less generous unemployment benefits the negative impact of unemployment can be expected to be even higher. This does not mean that no other mechanisms play a role, but implies that whenever unemployment leads to significantly reduced income, we can expect there to be negative consequences for the children. In the current context of great economic depression, this means that children will most likely suffer from the unemployment of their parents; this burden will not be significantly lessened by the possibly diminished stigma associated with unemployment in general and parental unemployment in particular.

It would seem that the quite high unemployment benefits for the first 500 days were able to counterbalance all of the negative effects. The policy implications of our study would therefore lead in the direction of economic support for unemployed parents with children.

Our results also suggest that government policies aimed at reducing the stigmatizing effects of parental unemployment are probably less effective, as far as the impact on the children is concerned, than increasing economic support for the families.

Three methodological limitations should be kept in mind in evaluating the results of our study. First, while the counterfactual approach adopted here means that the results can be considered to measure causal treatment effects with greater validity than the normal regression approach, and to resolve many of the issues associated with causality, they do not completely eradicate the problem of unobserved third factors. Any causal interpretations of the results should thus be treated with caution. The second issue concerns the natural limitations associated with unemployment during different phases of the economic cycle. In our data unemployment was not experienced very often during times of prosperity, thus making the confidence intervals of those estimates quite wide. While we consider that the main arguments presented here do not depend on specific coefficients, the reader should note the confidence intervals and interpret findings concerning specific groups with caution. Thirdly, while Finland at the turn of the 1990s offers a unique opportunity for exploring the effects of parental unemployment during a depression and for studying the different mechanisms underlying the negative effects of unemployment, it should also be noted that the effects were measured in the context of the Nordic welfare-state. The results might easily be different in different institutional contexts. Based on the international comparison by Gangl (2006), we would expect the effects to be stronger in other institutional contexts, including the US. We thus feel safe in concluding that our main argument – that of the significant negative effects of unemployment during a depression and the importance of the economic mechanisms behind them – would merely be more pronounced in many other countries, if they are different at all.

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Figures

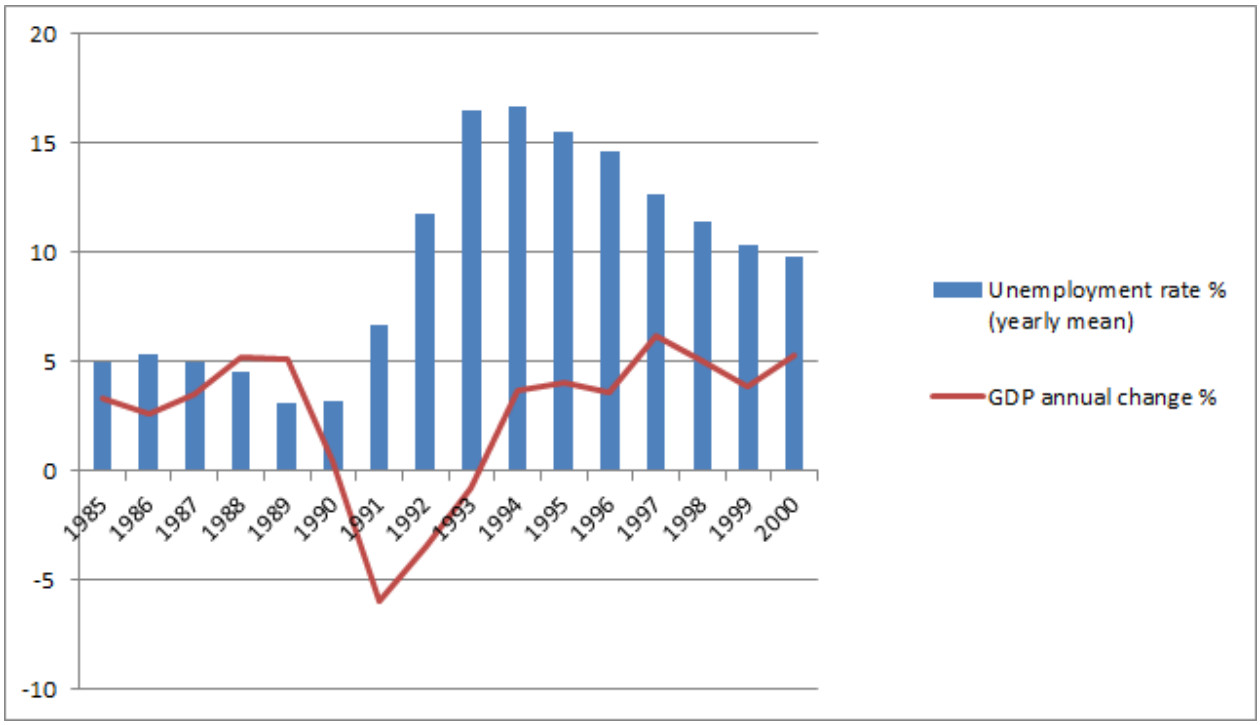

Figure 1. Unemployment rate and GDP annual change in Finland from 1985 to 2000. (Source: Statistics Finland, Labour Force Survey)

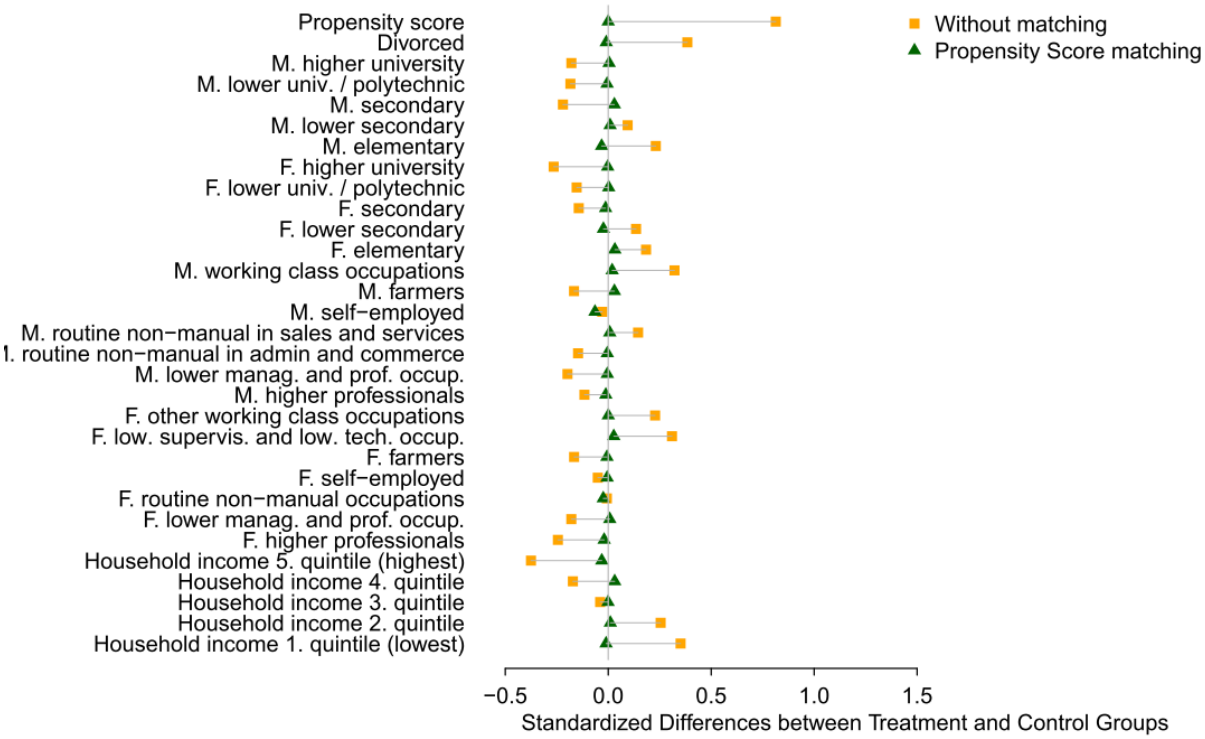

Figure 2. Balance of matching variables before and after matching in the first model, including all forms of parental unemployment. (For other balance plots see supplementary material.)

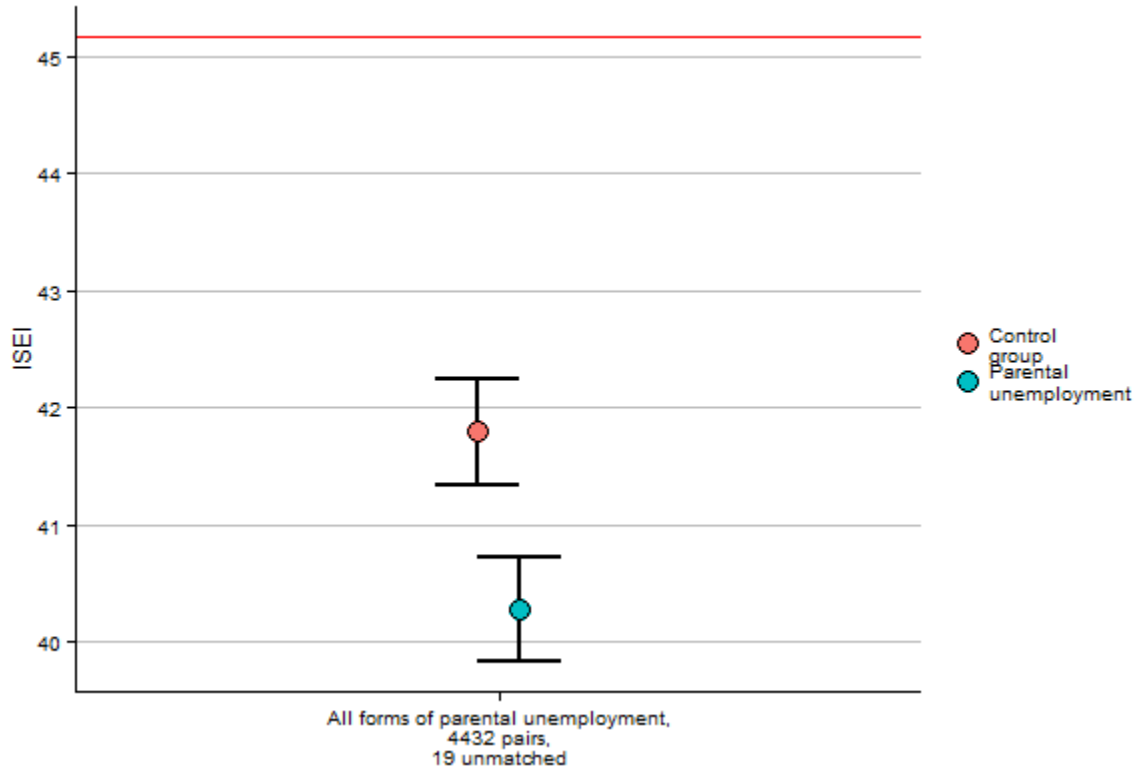

Figure 3. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing any form of parental unemployment; reference line for average ISEI.

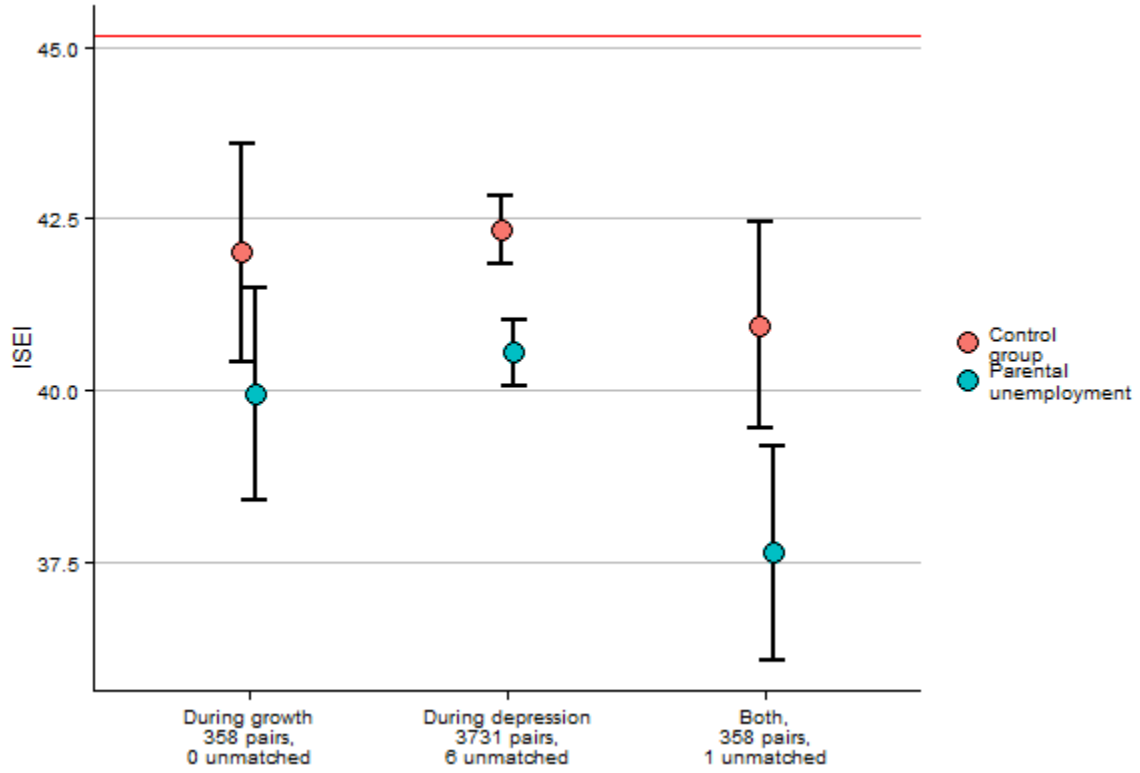

Figure 4. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing parental unemployment according to economic situation; reference line for average ISEI.

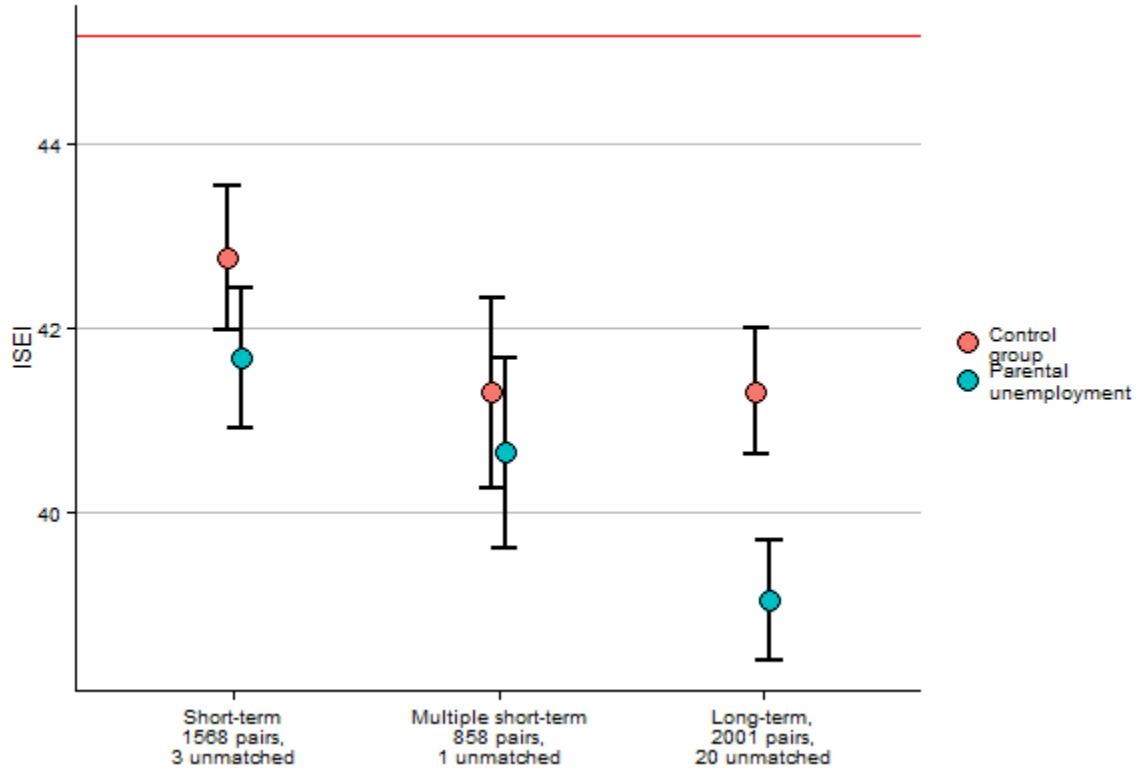

Figure 5. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing parental unemployment according to length of unemployment spell; reference line for average ISEI.

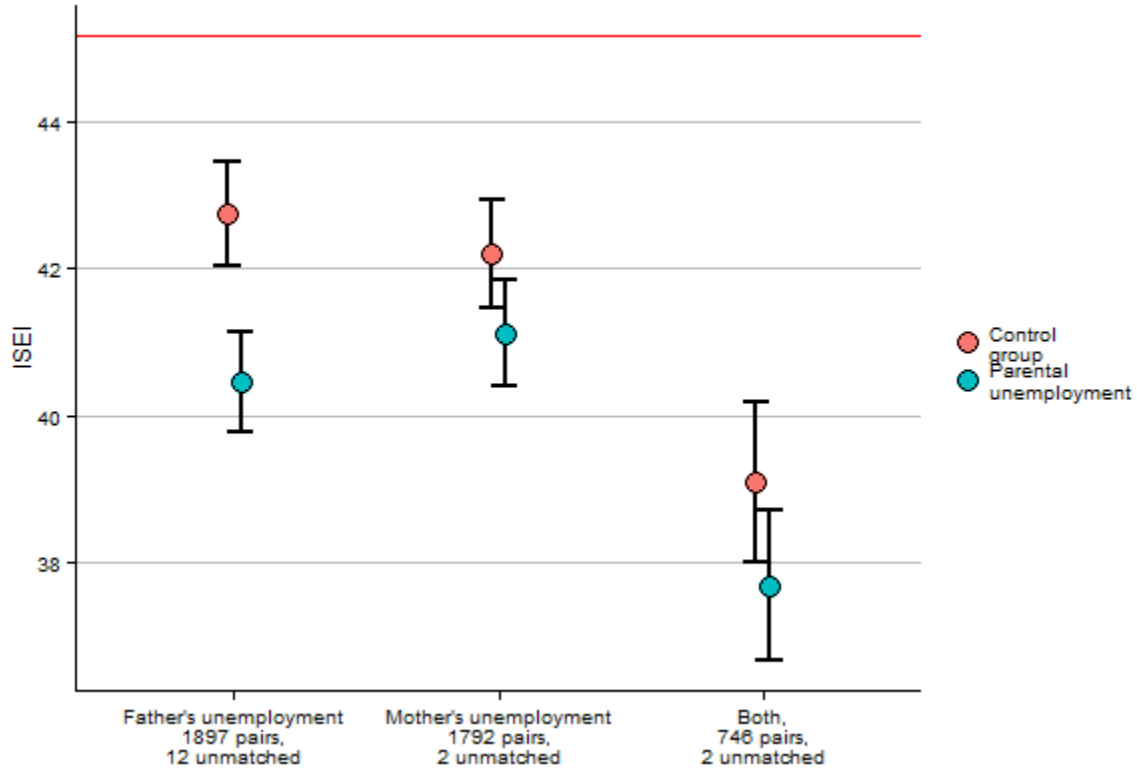

Figure 6. Means and 95 percent confidence intervals of ISEI for control groups and children experiencing paternal, maternal or biparental unemployment; reference line for average ISEI.

Tables

Table 1. Parental unemployment by background variables (1987-1994)

1.quintile	43,05	1246
2.quintile	37,94	1222
3.quintile	26,21	858
4.quintile	21,09	696
5.quintile	13,21	434
M.Working class occupation	40,92	1267
M.Farmers	18,29	318
M.Self-employed	25,53	240
M.Routine non-manual in admin and com.	31,9	1.776
M.Routine non-manual in sales and serv.	19,5	333
M.Lower manag. and prof. occup.	18,22	425
M.Higher managerial and prof. occup.	16,39	97
F.Other working class occup.	37,99	1058
F.Low. supervis. and low. tech. occup.	38,51	1548
F.Farmers	18,87	369
F.Self-employed	24,99	477
F.Routine non-manual occup.	27,48	155
F.Lower manag. and prof. occup.	20,15	571
F.Higher managerial and prof. occup.	14,58	278
M.Elementary	34,23	1942
M.Lower secondary	30,2	1866
M.Secondary	18,22	501
M.Lower univ./polytech	11,76	94
M.Higher university	9,25	53
F.Elementary	32,55	1968
F.Lower secondary	31,69	1779
F.Secondary	20,6	445
F.Lower univ./polytech	16,34	176
F.Higher university	8,17	88
Marriage or cohabitation	24,5	3287
Separation	45,72	1169

Appendix A

Table A1. Means of ISEI for the control group and the treatment group and average treatment effect on treated (ATT) with 95 percent confidence intervals for all the different models.

	Mean of control group	Mean of treatment group	ATT with 95 % ci
Any form of parental unemployment	41.79	40.28	-1.51 [-2.15 , -0.87]
During growth	42.01	39.95	-2.06 [-4.28 , 0.16]
During depression	42.33	40.54	-1.79 [-2.49 , -1.09]
During both growth and depression	40.94	37.63	-3.31 [-5.48 , -1.14]
Short-term	42.76	41.67	-1.09 [-2.19 , -0.00]
Multiple short-term	41.30	40.65	-0.66 [-2.12 , 0.80]
Long-term	41.31	39.05	-2.27 [-3.21 , -1.32]
Father's unemployment	42.74	40.46	-2.28 [-3.26 , -1.30]
Mother's unemployment	42.20	41.11	-1.09 [-2.11 , -0.06]
Biparental unemployment	39.09	37.69	-1.40 [-2.89 , 0.09]

Appendix B

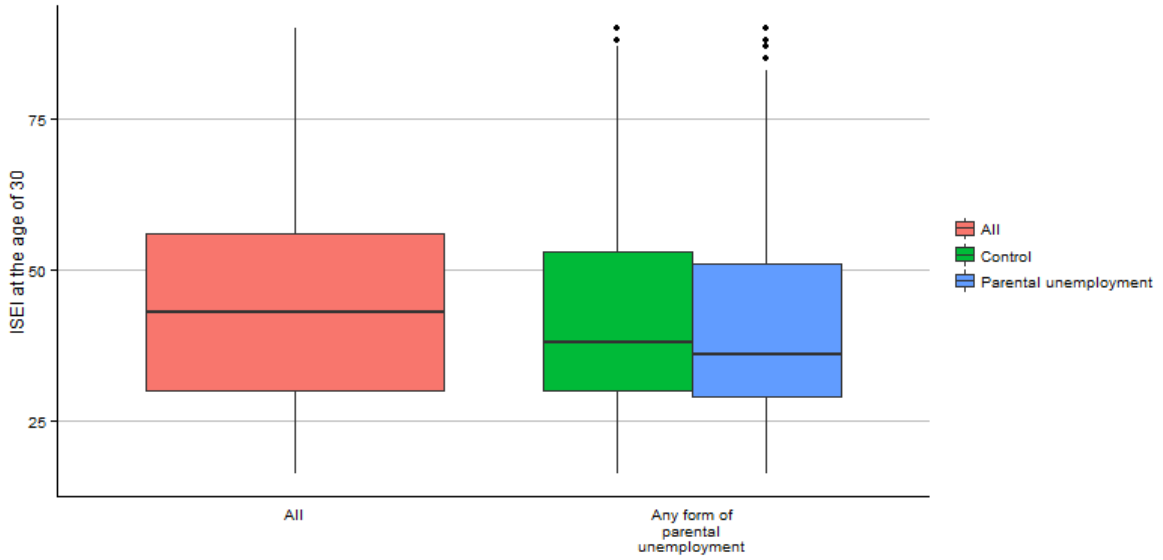

Figure B1. Box-plot of ISEI at the age of 30 for all of the sample persons, artificial control group and persons experiencing any form of parental unemployment.

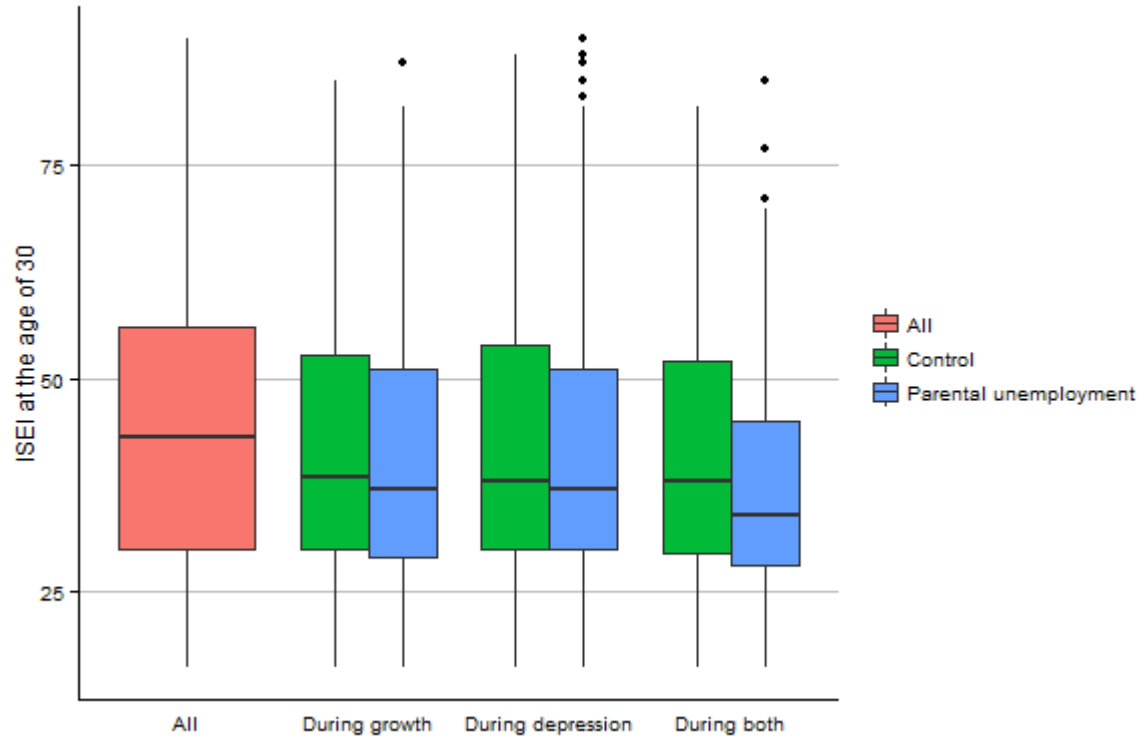

Figure B2. Box-plot of ISEI at the age of 30 for all of the sample persons, artificial control group and persons experiencing parental unemployment according to the timing of the unemployment.

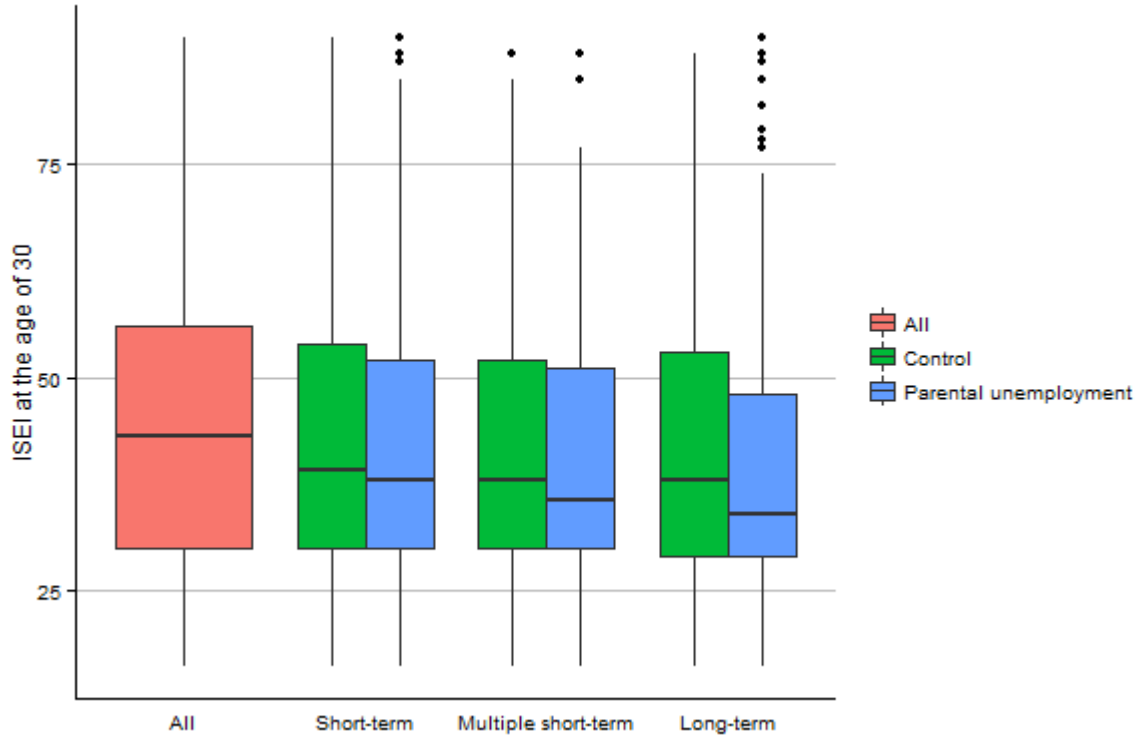

Figure B3. Box-plot of ISEI at the age of 30 for all of the sample persons, artificial control group and persons experiencing parental unemployment according to the length of the unemployment spell.

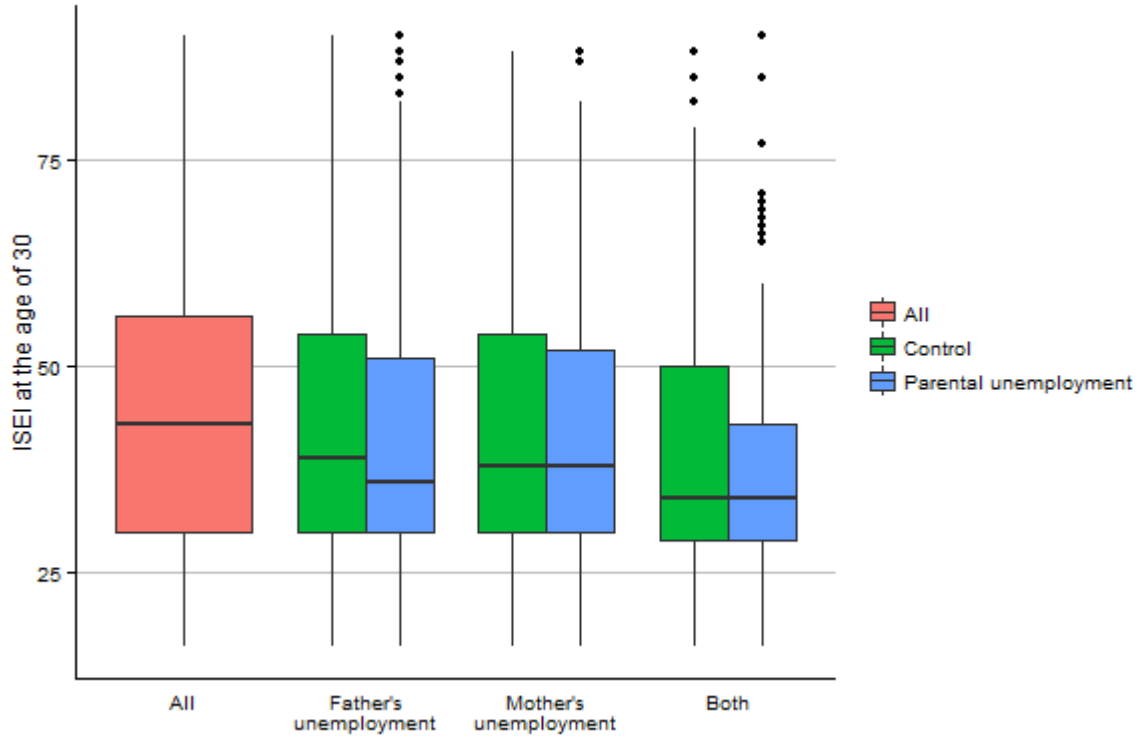

Figure B4. Box-plot of ISEI at the age of 30 for all of the sample persons, artificial control group and persons experiencing parental unemployment according to the parent's gender.

Supplementary material

This is supplementary material for the article “Long-term Effect of Parental Unemployment during Depression on Children’s Socioeconomic Achievement”. In the article we study the effect of parental unemployment on children’s socioeconomic status as adults.

Supplementary tables

Regression results compared with the matching

Table S1: Regression results concerning parental unemployment

	Any parental unemployment (1)	Any parental unemployment (2)	Time of parental unemployment (3)	Time of parental unemployment (4)	Length of parental unemployment (5)	Length of parental unemployment with controls (6)	Father's or mother's unemployment (7)	Father's or mother's unemployment with controls (8)
Any form of parental unemployment	−4.901***	−1.479***						
Household income 2. quintile		0.916*		0.881*		0.888*		0.877*
Household income 3. quintile		2.001***		1.962***		1.948***		1.946***
Household income 4. quintile		2.552***		2.518***		2.502***		2.504***
Household income 5. quintile (highest)		3.409***		3.372***		3.369***		3.369***
F. lower manag. and prof. occup.		−1.276**		−1.280**		−1.276**		−1.280**
F. routine non-manual occupations		−0.117		−0.120		−0.110		−0.099
F. self-employed		−1.209*		−1.215*		−1.207*		−1.217*
F. farmers		−3.713***		−3.715***		−3.716***		−3.715***
F. low. supervis. and low. tech. occup.		−3.125***		−3.125***		−3.106***		−3.094***
F. other working class occupations		−4.192***		−4.182***		−4.168***		−4.169***
M. lower manag. and prof. occup.		−0.682		−0.686		−0.672		−0.691
M. routine non-manual in admin and commerce		0.056		0.053		0.060		0.043
M. routine non-manual in sales and services		−1.557*		−1.549*		−1.551*		−1.576*
M. self-employed		−1.049		−1.057		−1.042		−1.057
M. farmers		−2.094*		−2.096*		−2.094*		−2.114*
M. working class occupations		−3.316***		−3.309***		−3.300***		−3.331***
F. lower secondary		1.435***		1.438***		1.423***		1.433***
F. secondary		4.351***		4.354***		4.349***		4.350***
F. lower univ. / polytechnic		6.585***		6.590***		6.581***		6.580***
F. higher university		8.713***		8.720***		8.720***		8.694***
M. lower secondary		0.937***		0.938***		0.926**		0.929**
M. secondary		4.218***		4.221***		4.211***		4.220***
M. lower univ. / polytechnic		5.360***		5.369***		5.350***		5.358***
M. higher university		6.645***		6.654***		6.637***		6.652***
Divorced		−1.887***		−1.869***		−1.850***		−1.857***
Parental unemployment during growth			−5.207***	−1.615*				
Parental unemployment during depression			−4.622***	−1.398***				
Parental unemployment during both growth and depression			−7.525***	−2.315**				
Only short-term parental unemployment					−3.473***	−1.110**		
Multiple short-term parental unemployment					−4.498***	−1.458**		
Long-term parental unemployment					−6.183***	−1.817***		
Father's unemployment							−4.699***	−1.622***
Mother's unemployment							−4.056***	−1.093**
Biparental unemployment							−7.444***	−2.145***
Constant	45.154***	42.876***	45.154***	42.899***	45.154***	42.904***	45.154***	42.922***
N	15,968	15,968	15,968	15,968	15,968	15,968	15,968	15,968
R^2	0.018	0.158	0.018	0.158	0.019	0.158	0.019	0.158
Adjusted R^2	0.018	0.156	0.018	0.156	0.019	0.156	0.019	0.156
Residual Std. Error	16.316 (df = 15966)	15.122 (df = 15941)	16.312 (df = 15964)	15.122 (df = 15939)	16.305 (df = 15964)	15.122 (df = 15939)	16.305 (df = 15964)	15.122 (df = 15939)
F Statistic	289.668*** (df = 1; 15966)	114.766*** (df = 26; 15941)	100.085*** (df = 3; 15964)	106.606*** (df = 28; 15939)	105.048*** (df = 3; 15964)	106.635*** (df = 28; 15939)	104.456*** (df = 3; 15964)	106.671*** (df = 28; 15939)

*p < .05; **p < .01; ***p < .001

Supplementary figures

Balance plots for all the models

Figure S1. Balance of matching variables before and after matching for the children experiencing parental unemployment during growth.

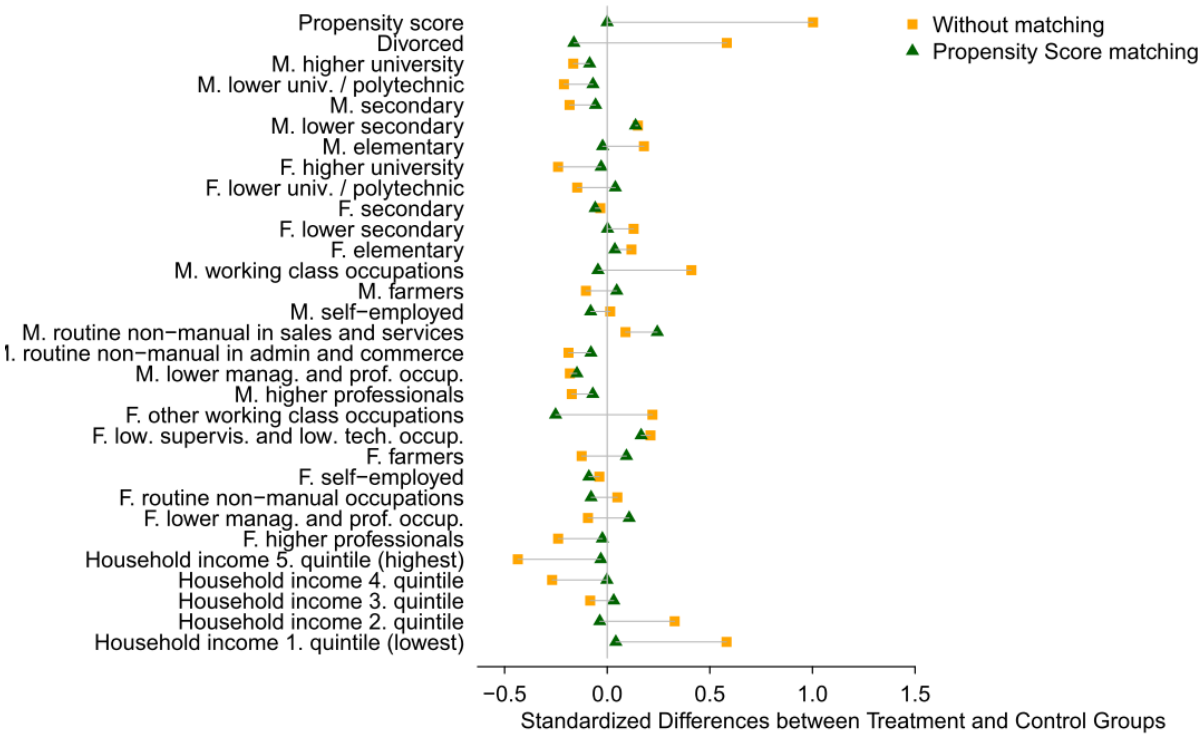

Figure S2. Balance of matching variables before and after matching for the children experiencing parental unemployment during depression.

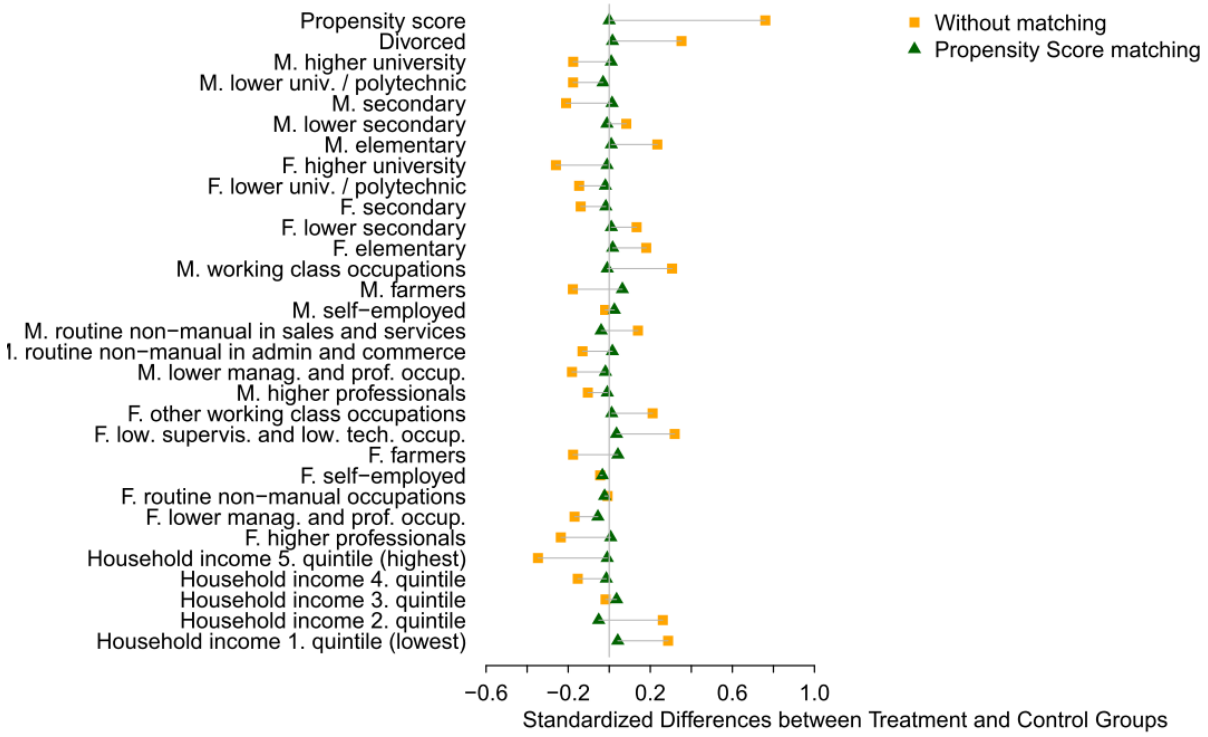

Figure S3. Balance of matching variables before and after matching for the children experiencing parental unemployment experienced during both growth and depression.

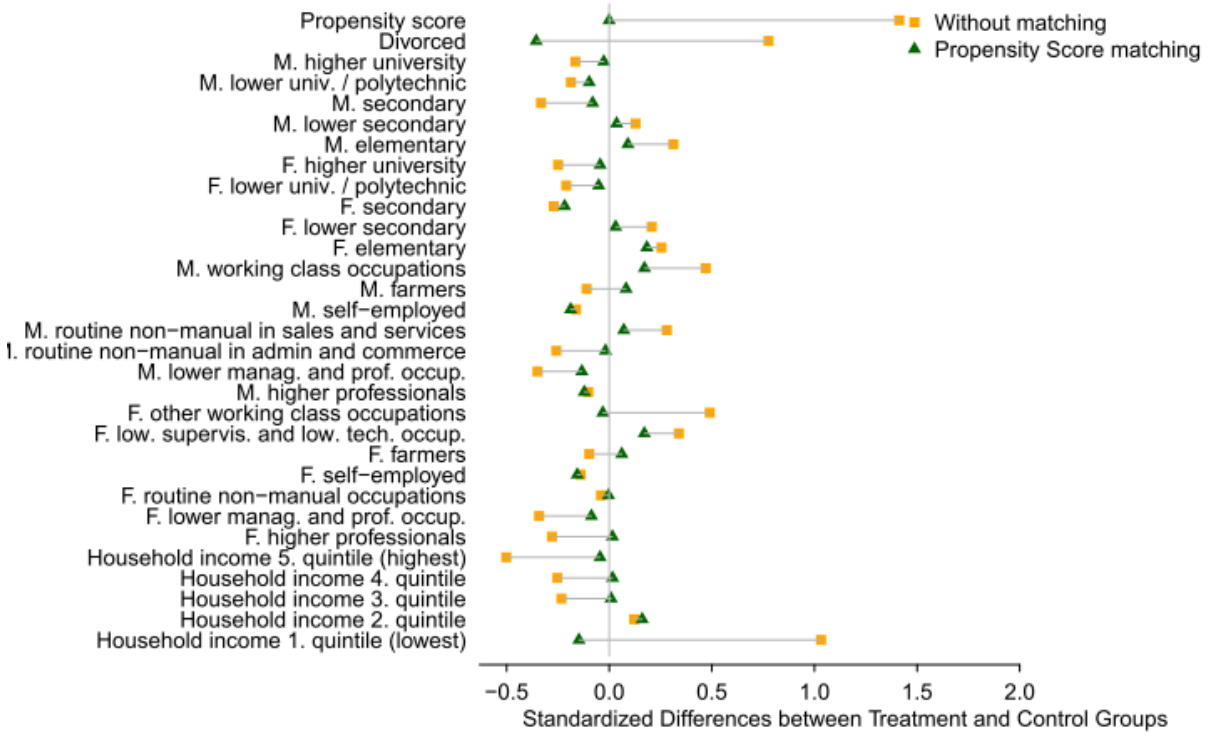

Figure S4. Balance of matching variables before and after matching for the children experiencing short-term parental unemployment.

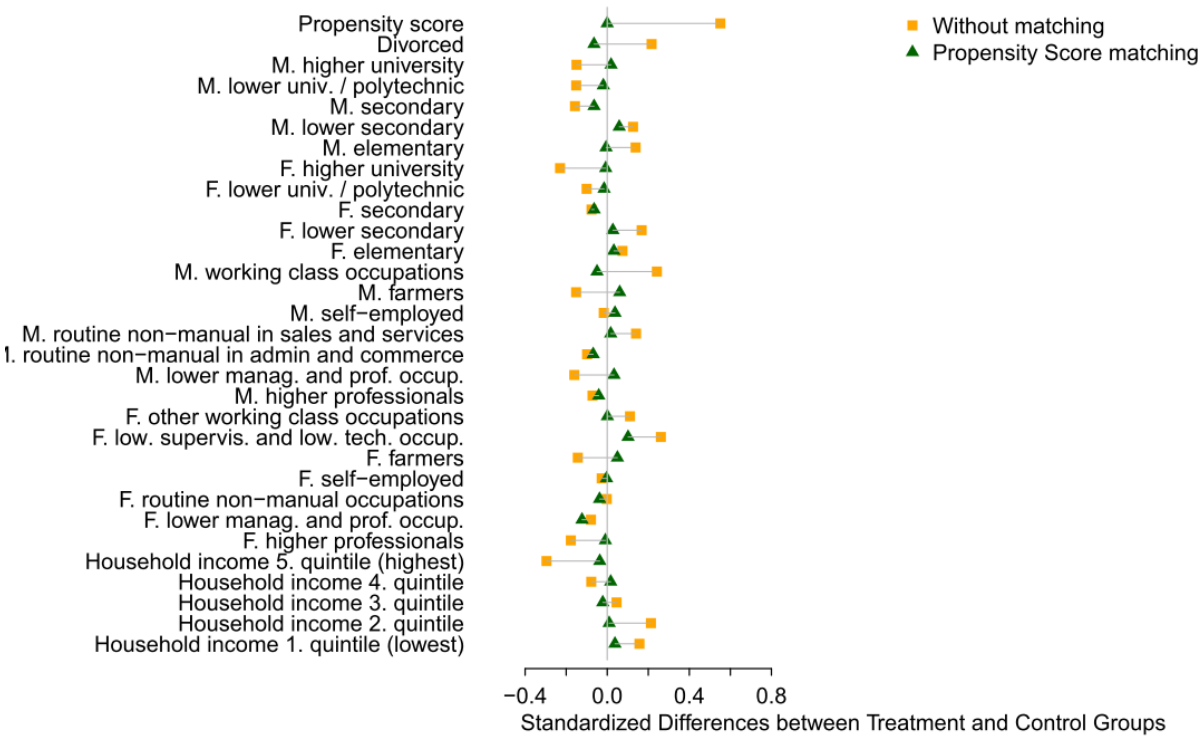

Figure S5. Balance of matching variables before and after matching for the children experiencing multiple short-term parental unemployment.

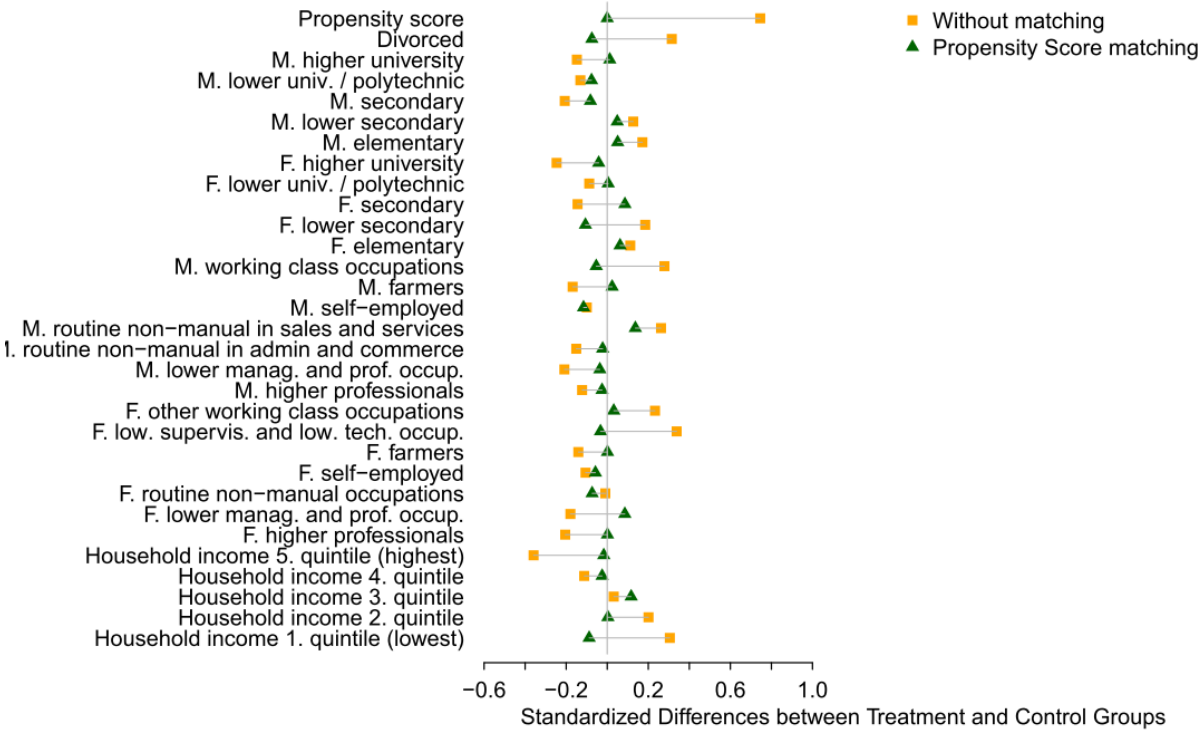

Figure S6. Balance of matching variables before and after matching for the children experiencing long-term parental unemployment.

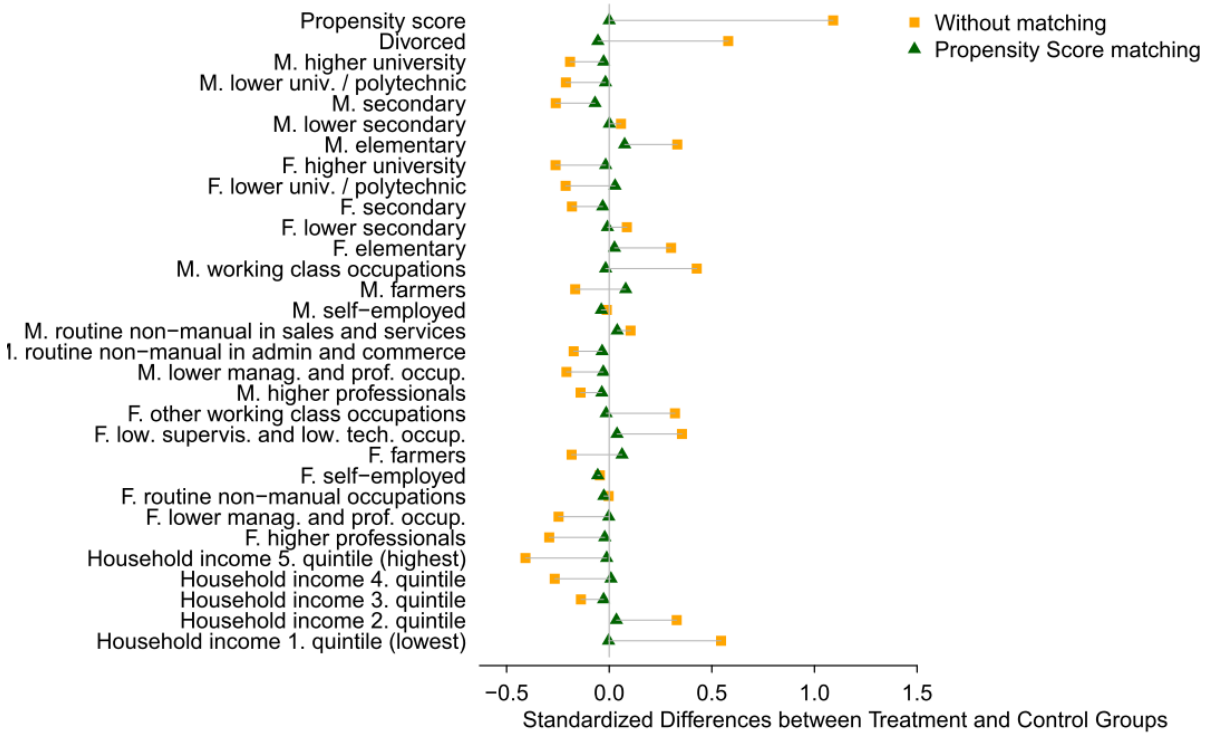

Figure S7. Balance of matching variables before and after matching for the children experiencing paternal unemployment.

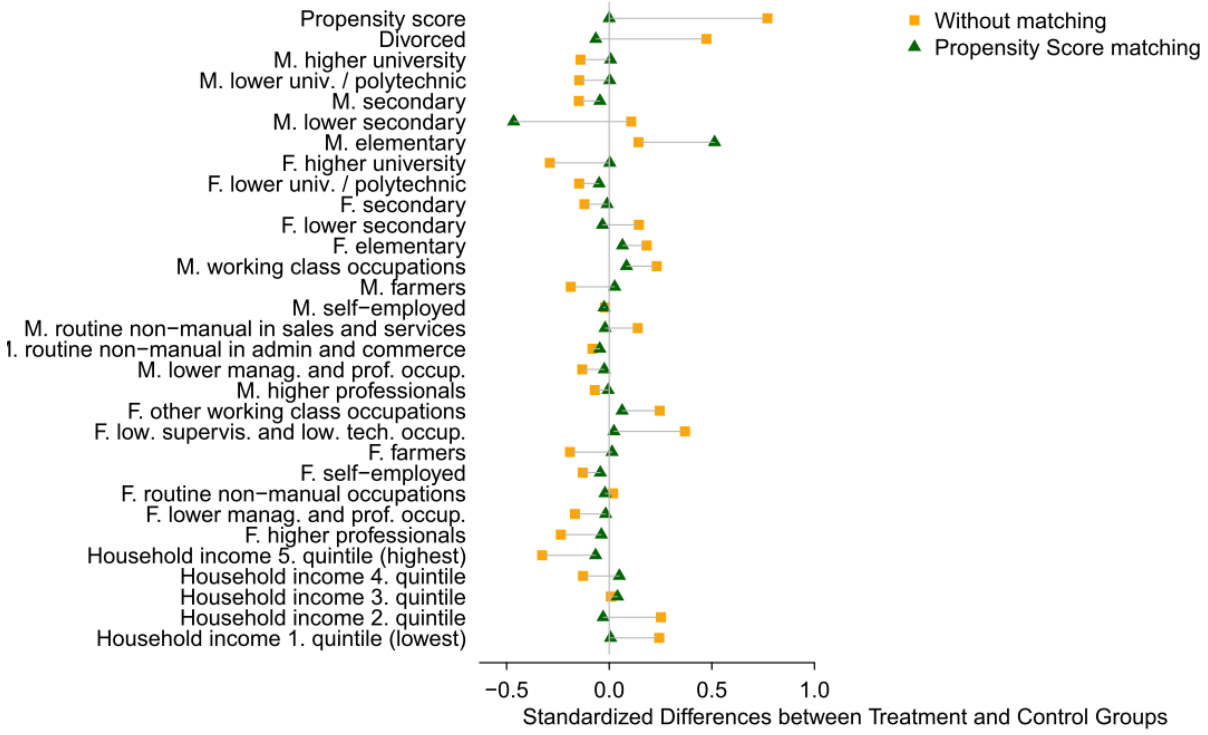

Figure S8. Balance of matching variables before and after matching for the children experiencing maternal unemployment.

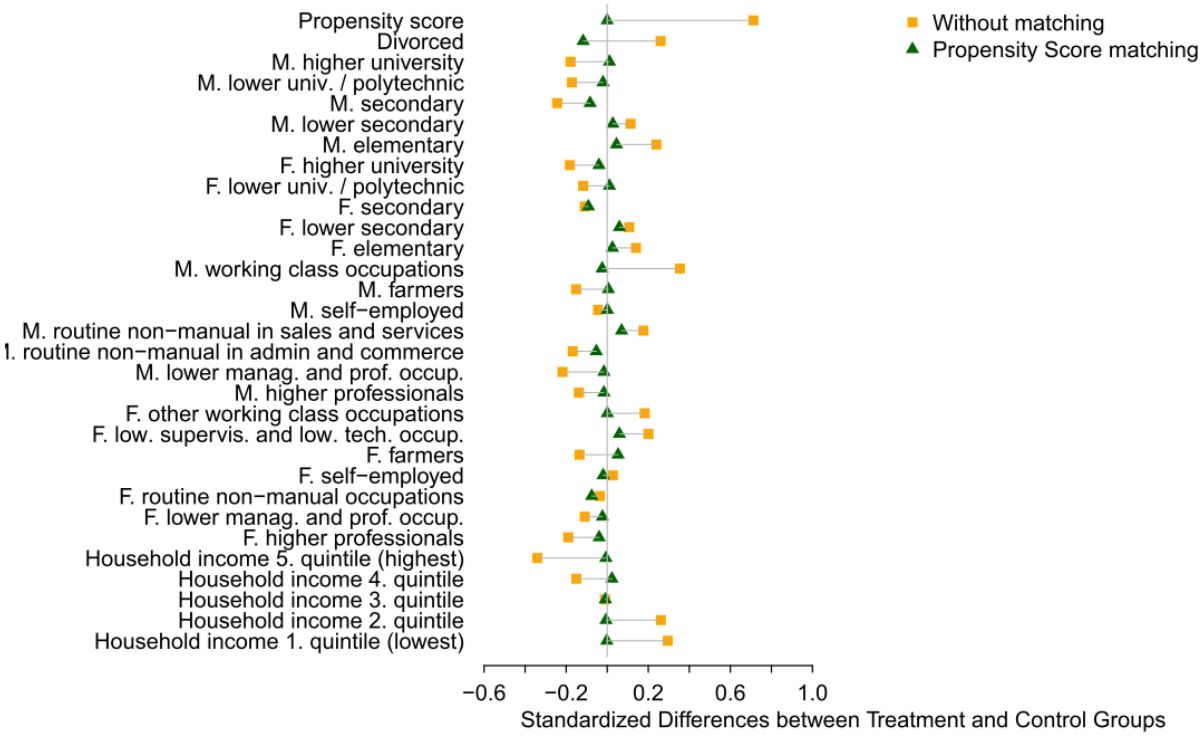

Figure S9. Balance of matching variables before and after matching for the children experiencing biparental unemployment.