# The Effect of Paternal and Maternal Unemployment on Children's Educational Achievement in Finland

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## Introduction

The existing empirical evidence on how parental unemployment influences intergenerational socioeconomic transmission is somewhat mixed. Some studies have found that parental unemployment has a negative impact on children's income and cognitive performance (e.g. Oreopoulos et al. 2008; Rege et al. 2011) but others have failed to show such a relationship (e.g. Bratberg, Nilsen, & Vaage 2008).

One potentially important limitation of the previous studies has been that they have ignored the varying importance of mothers' and fathers' statuses in intergenerational socioeconomic attainment (as exceptions, see Ermish et al 2004; Boll & Hoffmann 2015). Mothers' and fathers' unemployment spells differ systematically due to the gendered occupational class structure (Goldthorpe & McKnight 2006) and are thereby likely to have different effects. Another potential caveat is that parents differ in their ability to compensate for the disadvantages followed from their unemployment. For instance, highly educated parents are likely to have multiple types of resources; becoming unemployed is likely to have a negative influence only on some of them. Even if unemployment is followed by a reduction in economic resources available for the family, parental human (and to some extent also social) capital is likely to remain (cf. Ström 2003).

We may also expect to observe other differences. Some of the earlier studies suggest that especially the early economic resources of a family are decisive for later educational and socioeconomic outcomes (Duncan & Brooks-Gunn 2000). If this is the case, especially the early experiences on parental unemployment, reducing the economic resources available for the family, should have a negative effects on children. Further, the existing evidence suggests that it is especially the paternal characteristics that matter for future attainment (Beller 2009; Erola, Jalonen & Lehti 2015). Because of this paternal unemployment may be particularly disadvantageous for children.

Based on the earlier literature we expect the following:

1. Parental unemployment has a negative effect of children's education.
2. Other resources of the family may compensate for the negative intergenerational effects of parental unemployment.
3. The earlier experience on parental unemployment has more negative consequences than unemployment experienced later.
4. Mother's unemployment is less consequential than that of the father.

## Data and methods

We use register based 10 % sample of Finnish population of 1980 that is matched with all their children born in 1980-1987. The data include annual information on paternal and maternal unemployment when children were 7-15 years old, still in compulsory school. Children's educational achievement is measured by enrollment in higher education when they were 23 years old (or completion of it by the same age, ISCED-levels 5 & 6). In order to simplify comparisons reported here we analyze only siblings in intact families and our dataset consist both married and cohabiting biological parents of the children. A parent is defined as an unemployed if unemployment continues more than 6 months during a year. The final data covers 28537 children in 13066 families, of which 25 % families as well as children faced parental unemployment.

We employ sibling fixed effect linear probability models to control for the potential omitted variables bias. This means that any family background related effects shared by the sibling are controlled for in the models. The baseline fixed effects models are compared to similar random effect model results. The effect of parental unemployment can be estimated by distinguishing the different ages of the sibling when they experienced unemployment. Three age groups for this are distinguished: at age 7-9, 10-12 and 13-15. In the effects observable in our models these children are contrasted with those siblings that are older and did not experience parental unemployment. We further distinguish three levels of paternal and maternal education: 1. compulsory level or less, 2. secondary and lower tertiary, and 3. higher tertiary. In addition we control for children's gender.

## Preliminary results

Table 1 shows results for fixed and random effect models of paternal and maternal unemployment in the three age groups of children and children's probability to achieve higher education. Fixed effect model 1 suggests that paternal unemployment reduces higher educational achievement in the two youngest age groups but not in the oldest age group. The effect is strongest in the youngest age group. A child experiencing paternal unemployment at age 7-9 has about 11 percentage points lower probability to achieve higher education than her sibling who did not experience paternal unemployment at the same age. Model 2 shows the similar patterns for the maternal unemployment although the estimates are in all the age groups somewhat smaller compared to paternal unemployment. Model 3 - that controls for both paternal and maternal unemployment - suggest a very similar pattern to the previous two models, even though estimates are smaller and maternal unemployment is statistically significant only in the youngest age group. We also report sibling random effects that shows similar pattern as fixed effects. Younger children suffer more from parental unemployment than older and both paternal and maternal unemployment is disadvantageous for children's education achievement, maternal unemployment somewhat less.

**Table 1. Fixed and random effects of paternal and maternal unemployment in three age groups on children's probability to achieve higher education**

| | | Fixed effects | | | Random effects | | |
|---|---|---|---|---|---|---|---|
| | | Model 1 | Model 2 | Model 3 | Model 1 | Model 2 | Model 3 |
| Child age at paternal unemployment | 7-9 | -0,115*** | | -0,102*** | -0,107*** | | -0,094*** |
| | | *0,028* | | *-0,028* | *0,016* | | *0,016* |
| | 10-12 | -0,075** | | -0,068** | -0,064*** | | -0,056*** |
| | | *0,026* | | *-0,026* | *0,013* | | *0,013* |
| | 13-15 | 0,004 | | 0,006 | -0,029* | | -0,024 |
| | | *0,026* | | *-0,026* | *0,015* | | *0,015* |
| Child age at maternal unemployment | 7-9 | | -0,069*** | -0,056** | | -0,083*** | -0,076*** |
| | | | *0,02* | *0,02* | | *0,013* | *0,013* |
| | 10-12 | | -0,039* | -0,03 | | -0,074*** | -0,070*** |
| | | | *0,018* | *0,018* | | *0,013* | *0,011* |
| | 13-15 | | 0,024 | 0,028 | | -0,044*** | -0,041*** |
| | | | *0,018* | *0,018* | | *0,015* | *0,015* |
| Constant | | 0,339*** | 0,336*** | 0,341*** | 0,339*** | 0,344*** | 0,351*** |
| | | 0,011 | 0,011 | 0,011 | 0,009 | 0,009 | 0,009 |
| -2 log likelyhood | | -6397,6 | -6400,5 | -6381,1 | -19548,1 | 19519,4 | -19486,1 |

Standard errors in *italics*
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
All models controls for children's gender

Table 2 shows fixed effect models of paternal and maternal unemployment on children's educational achievement according to three educational levels of mothers and fathers. The effects for each educational group are modeled separately.

**Table 2. Fixed effects of paternal and maternal unemployment according to educational levels and three children's age groups on children's probability to achieve higher education**

| | | Paternal education | | | Maternal education | | |
|---|---|---|---|---|---|---|---|
| | | Basic | Secondary | Tertiary | Basic | Secondary | Tertiary |
| Child age at paternal unemployment | 7-9 | -0,096* | -0,122** | -0,072 | -0,067 | -0,101* | -0,146** |
| | | *0,048* | *0,043* | *0,059* | *0,055* | *0,042* | *0,054* |
| | 10-12 | -0,082 | -0,07 | -0,058 | -0,045 | -0,078* | -0,069 |
| | | *0,044* | *0,04* | *0,055* | *0,05* | *0,038* | *0,053* |
| | 13-15 | 0,004 | 0,001 | 0,029 | 0,019 | 0,03 | -0,053 |
| | | *0,044* | *0,041* | *0,056* | *0,05* | *0,038* | *0,054* |
| Child age at maternal unemployment | 7-9 | -0,059 | -0,063* | -0,035 | -0,055 | -0,071* | -0,055 |
| | | *0,036* | *0,031* | *0,037* | *0,037* | *0,03* | *0,042* |
| | 10-12 | -0,023 | -0,05 | -0,005 | 0,039 | -0,062* | -0,048 |
| | | *0,033* | *0,028* | *0,034* | *0,033* | *0,027* | *0,039* |
| | 13-15 | 0,023 | 0,03 | 0,032 | 0,076* | 0,011 | 0,006 |
| | | *0,033* | *0,029* | *0,033* | *0,033* | *0,027* | *0,037* |
| Constant | | 0,130*** | 0,253*** | 0,575*** | 0,151*** | 0,261*** | 0,523*** |
| | | *0,023* | *0,018* | *0,018* | *0,027* | *0,017* | *0,018* |
| - 2 log likelyhood | | -1330,5 | -2769,5 | -2140,2 | -907,8 | -2882,4 | -2307,2 |

Standard errors in *italics*
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
All models controls for children's gender

The models for basic and secondary educated fathers suggest that if children experience paternal unemployment at the age of 7-9, they have approximately 10 % lower probability to achieve higher education compared to their siblings who did not experienced unemployment. We did not find any

statistically significant effect in the group of tertiary educated fathers. Thus father's higher education appears to protect children from the negative effects of his unemployment. Mother's education appears to have an opposite effect, making the negative effect of father's unemployment stronger. These differences are less contrasted if the children experience paternal unemployment at older age. For mothers unemployment the effects are the opposite. Maternal unemployment at age 7-9 is still generally negative in all educational groups. However, at the lowest educational level of mothers maternal unemployment experienced at older age actually seems to have a positive effect on children's educational attainment, statistically significantly so at the age of 13-15. It may be that unemployment increases mother's involvement in upbringing while the advantage of work related income would be relatively small both because of relatively high unemployment benefits and low earnings.

In our subsequent analyses we will further analyze the contribution of family earnings and family structure on the effects of parental unemployment.

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