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Intergenerational joblessness across Europe: the role of labour markets, education, and welfare generosity

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Highlights

- At a time of increasing unemployment across Europe, this paper is the first to consider the role of multiple drivers of intergenerational joblessness, including the role of labour markets, educational achievement, and welfare generosity.
- We use individual, regional, and cross-national variation in intergenerational joblessness to explore these drivers, both separately, and in combination.
- We find that education and regional labour markets alone cannot account for the transmission of joblessness across generations. Instead, there is a combined penalty to coming from a jobless household, achieving low levels of education, and experiencing weak labour markets in adulthood.
- For those from a jobless household who are tertiary educated or experience booming labour markets, there is little difference in employment prospects to those from a working household in childhood. But those from jobless households who are low educated, or / and in weak labour markets are disproportionately more likely to be jobless in adulthood.
- Intergenerational joblessness is less prevalent in countries that offer more generous welfare systems, in terms of education investment and welfare payments. This challenges the idea that restricting state generosity will reduce the incidence of intergenerational joblessness.
- In the post-COVID-19 recession, those from the most deprived backgrounds, with low levels of education, and in weak labour markets will be hardest hit. They are at the 'back of the queue' for limited employment opportunities.

Why does this matter?

At a time of increasing unemployment as the post-COVID-19 recession looms, people from deprived families, with low education, in weak labour markets will be hardest hit.

Policy makers should direct support towards these individuals, who are disproportionately affected when work disappears.

Intergenerational joblessness across Europe: the role of labour markets, education and welfare generosity

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Abstract

Recent studies of intergenerational income mobility have used cross-area and cross-national variation in intergenerational elasticities to explore possible drivers of persistence in incomes across generations. We contribute to this literature, and the parallel literature on the effects of social exclusion, utilising a conceptual framework to explore the role of family factors (education and welfare generosity) and labour market conditions in accounting for intergenerational joblessness across Europe. Country-level differences suggest that lower expenditure on education and less generous welfare systems are associated with more intergenerational persistence in jobless spells across countries. We show that simple explanations, such as high unemployment and low education alone do not account for individual-level intergenerational joblessness. Instead, a combination of living in a jobless household in (late) childhood, low education and weak labour markets co-load to create penalties. Taken together, the individual- and country- level analysis point to multiple disadvantage creating persistence of deprivation across generations rather than individual risk factors. This suggests that a targeted and combined policy intervention is required to reduce such associations.

1. Introduction

As Europe faces the prospect once again of experiencing mass unemployment in the post-COVID-19 era with young people experiencing acute levels of joblessness, it is important to understand the role of various factors in accounting for the jobless experiences of young adults, and particularly those from the most disadvantaged families. In this paper we explore multiple drivers of intergenerational joblessness for the first time, considering the role of labour markets education and welfare generosity in protecting against or exacerbating the transmission of joblessness across generations in Europe.

Earlier literature on intergenerational transmission across different disciplines used different approaches to explore the extent to which childhood disadvantage is associated with later adult disadvantage. These include the association between parents' and their adult children's socio-economic status or poverty (Black and Deveraux, 2011, Erikson and Goldthorpe, 2010, Blanden and Gibbons 2006), inequalities in education outcomes associated with family background (Jerrim and Macmillan, 2015) and adult employment outcomes from family joblessness in childhood (Macmillan, 2014, Gregg et al., 2018).

Recent evidence goes beyond documenting the strength of these associations toward exploring variations in their strength according to differing economic or policy circumstances. One set of studies of intergenerational mobility have begun to use geographical variation to explore how economic inequalities relate to persistence of incomes across generations (Corak, 2013, Chetty et al., 2014b, Jerrim and Macmillan, 2015). These descriptive studies have begun to point to possible routes through which family circumstances are passed across generations.

A further group of studies have used experimental or policy driven area variation to estimate the causal effect of family income on child education among deprived families (Clark-Kauffman et al. 2003, and Dahl and Lockner, 2011 and Milligan and Stabile 2012, whilst Cooper and Stewart, 2013, provide a systematic review) and of early adult unemployment on later earnings and employment (Gregg, 2001, and Gregg and Tominey, 2005). Yet these have been limited to studying only one potential driver of intergenerational transmissions, constrained by the exogenous variation available.

While we do not provide causal analysis, we place ourselves between two literatures noted above by using individual, regional, and cross-country variation to explore multiple drivers of intergenerational joblessness. The paper highlights that the ability to explore multiple drivers is particularly important in this context based on the interactions between childhood

disadvantage, education and labour market conditions. Informed by the theoretical literature on intergenerational transmissions on potential routes through which parents pass (dis)advantages on to their children, we test various hypotheses using our three different sources of variation in the data; at the individual level, which is potentially influenced by different country-level policies, at the within-country regional level, which shows variation in the labour market conditions, and at a cross-country level.

We show that a combination of experiencing a jobless household in childhood, achieving below a degree education and being in weak regional labour markets all contribute to the intergenerational persistence at the individual level. This combination is more powerful than the sum of its parts, consistent with previous findings that disadvantaged families are disproportionately impacted in bad labour markets (Macmillan, 2014, Wilson, 2009, Li, 2012, List and Rasul, 2012). The key role of area labour market conditions (combined with education) suggests that this intergenerational persistence is not about cultures of welfare dependency or other adverse selection of families explanations.[1] This is particularly important in understanding the likely impacts of the post-COVID-19 recession. The cross-country variation is shown to be inversely related to educational spending and generosity of welfare spending. This reinforces the message that more generous welfare states (both in terms of education and financial transfers) appear to reduce the scarring from growing up in a deprived family, over cultural explanations.

The paper proceeds as follows. In Section 2 we discuss the conceptual framework informed by theoretical models of intergenerational transmissions and our empirical strategy that follows from this. In section 3 we introduce the data we use to test our empirical hypotheses, before section 4 presents the main results. In section 5 we offer some concluding remarks.

2. Conceptual framework and empirical strategy

Models of intergenerational transmissions by Becker and Tomes (1986), Blau and Duncan (1967), Duncan and Hodge (1963), Duncan and Murnane (2011) and Solon (2004) set out theoretical frameworks, highlighting the central role of human capital in the transmission of socio-economic status across generations. These models describe how children from more advantaged families have greater opportunities than children from disadvantaged families by

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[1] Unfortunately we do not observe the same processes before the Great Recession in the same countries which could offer stronger causal evidence.

virtue of a combination of greater resources to invest in human capital, other favourable cultural and social attributes such as better connections in the labour market and parental supports for education and work, and the genetic transmission of endowments. Characteristics and attributes of parents are therefore passed onto their children both genetically and environmentally through the behaviour (financial and non-financial), knowledge, attitudes and preferences of the parents.

These models of intergenerational transmissions are helpful to consider possible channels to understand why those who experience jobless households in childhood may be more likely to be jobless in adulthood. From a *family* perspective, the models point to three main channels through which this may occur:

1. Parents in jobless households may have lower innate ability that is passed on to children through genetic endowments.
2. Jobless households will have fewer financial resources to invest in children's human capital.
3. There may also be fewer non-financial resources, such as connections to the labour market and lower aspirations for education and work.

On the *labour market* side, Wilson (1997) in his book 'When Work Disappears', describes the multiple impacts of jobs disappearing from urban centres in the US on the (majority of) disadvantaged black residents of these areas. This phenomenon was driven by the mass exodus of high-income families from urban centres out to the suburbs with potential employers following suit to capture the migration in labour and cheaper land costs. An intergenerational association in jobless spells could therefore arise simply due to:

4. The fact that parents and children will often experience the same local labour market.

We test these straightforward explanations for intergenerational transmissions empirically by estimating intergenerational jobless associations across countries using non-linear probit models. Following the literature on intergenerational transmissions, the simple empirical model shows the association between jobless spells across generations, controlling for a small number of demographic variables that may lead to measurement bias in the estimation if not included.[2]

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[2] Note here we are not trying to estimate a causal impact of parental joblessness on the jobless experience of the next generation. We do not then attempt to control for confounding factors in these models but rather any variables that lead to measurement bias, such as life cycle bias (see Haider and Solon, 2006, Macmillan, 2014).

$$F(j_{it}) = \Phi\left(\alpha_k + \beta_k j_{i,t-1.} + C_{it}\right) \nabla K, \tag{1}$$

j_{it} = Whether the second-generation (offspring) is defined as working (0) or jobless (1)

$w_{i,t-1.}$ = Whether the second-generation lived in a working (0) or jobless household at 14 (1)

C_{it} = A vector of controls, including immigration status, age, gender

K = Country

These estimates provide our baseline intergenerational jobless estimates across countries to explore the potential drivers of these associations.

Innate ability

We argue that if innate ability transmitted across generations was the main driver of intergenerational jobless association then we would not expect to find any differences in estimates of intergenerational joblessness across countries, since the transmission of ability from one generation to the next is likely to be very similar, for example in Germany compared to the UK. By comparing variation in estimates across countries then, we can ask whether the genetic transmission is a central driver of the transmission of joblessness across generations. Any genetic component will reside in the part that is *common* to all countries, along with other processes that work in similar ways across countries.

H1: Variation in the intergenerational joblessness associations across countries is driven by the genetic transmission of ability.

Education and Labour Market Conditions

To explore the roles of education and labour markets in driving the association in jobless associations across generations, we condition on these measures in the model.

$$F(j_{it}) = \Phi\left(\alpha_k + \beta_k j_{i,t-1.} + E_{it} + C_{it}\right) \nabla K, \tag{2}$$

$$F(j_{itr}) = \Phi\left(\alpha_k + \beta_k j_{i,t-1.r} + U_{itr} + C_{itr}\right) \nabla K, \tag{3}$$

E_{itk} = Education (ISCED) level of the second generation

U_{itr} = Regional unemployment rate at time second-generation economic activity observed

Any difference in the intergenerational association once controlling for education indicates the extent to which jobless experiences across generations are being driven by the fact that people

from jobless households are likely to have lower education and hence a higher probability of being jobless than those with parent(s) who are working. Similarly, the reduction in the estimated country-level association when conditioning on regional unemployment indicates the extent to which this arises across generations purely because parents and children are exposed to the same labour markets.

H2: Variation in the intergenerational joblessness associations across countries is driven by differences in the labour market experiences between those from jobless and working households.

H3: Variation in the intergenerational joblessness associations across countries is driven by the education differences between those from jobless and working households.

Combined Effects of Deprivation, Education and Labour Market Conditions

Yet the work of Wilson and others such as Edin and Shaefer (2016) show that joblessness within urban-poor areas result from more than just simple explanations. The families experiencing this lack of work are predominantly economically disadvantaged families. In a similar vein, a growing literature has shown that disadvantaged groups, including those from jobless families, are more likely to experience spells out of work in bad labour markets (Macmillan, 2014, Wilson, 2009, Rodgers, 2000, Li, 2012, List and Rasul, 2012). Related, the work of Blau and Duncan (1967) highlights the multiplicative nature of disadvantages, combining to create additional penalties for disadvantaged group. It therefore is likely that we need to consider *combinations* of multiple disadvantage when attempting to account for the intergenerational transmission of joblessness. We therefore expand our simple models to include interactions between experiencing a jobless household in childhood, unemployment and education to consider whether there is a double disadvantage.

$$F(j_{itr}) = \Phi\big(\alpha + \beta j_{i,t-1.r} + \delta j_{i,t-1.r} * U_{itr} + U_{itr} + C_{itr}\big) \tag{4}$$

$$F(j_{itk}) = \Phi\big(\alpha + \beta j_{i,t-1.k} + \gamma j_{i,t-1.k} * E_{itk} + E_{itk} + C_{itk} + \theta_k\big) \tag{5}$$

H4: Variation in the intergenerational joblessness associations across countries is driven by a combination of deprivation and adverse labour market conditions.

We move from estimating country-specific models to estimating Europe-wide models, utilising individual- and regional-level variation, with country fixed-effects, to estimate the *additional penalty* of experiencing bad labour markets *and* experiencing a jobless household in childhood

in model (4). As highlighted in the family model, it may be that individuals that experience jobless households in childhood have weaker labour market connections, which become particularly important when there is high unemployment.

Similarly, we ask if higher educational attainment acts in a meritocratic way to protect those from the most disadvantages households, estimating the additional intergenerational association arising within education levels (estimating model (5)). Again, the third channel from the family model suggests that aspirations towards education may vary by family circumstance, so this analysis allows us to compare individuals who reach lower or higher levels of education, by whether they experienced a jobless household or not. It may be the case that while jobless households have lower financial resources to invest, if their aspiration for education are high and their child attends university, then education can act as a protective factor against the lack of financial resources.

H5: Variation in the intergenerational joblessness associations across countries is driven by a combination of deprivation and low education.

$$F(j_{itr}) = \Phi\big(\alpha + \beta j_{i,t-1.r} + \rho j_{i,t-1.r} * U_{itr} * E_{itr} + \delta j_{i,t-1.r} * U_{itr} + U_{itr} + \gamma j_{i,t-1.r} * E_{itr} + E_{itr} + C_{itr}\big)$$
(6)

Our final individual-level analysis asks whether these is a triple-disadvantage in model (6): whether those who experience a jobless household in childhood face an additional penalty through both achieving lower education *and* then experiencing high unemployment in the labour market.

H6: Variation in the intergenerational joblessness associations across countries is driven by a combination of deprivation, low education and adverse labour market conditions.

We complement our individual-level analysis with country-level analysis that speaks to the broader question of whether differences in intergenerational jobless associations across countries are associated with key features of the countries government policies. Specifically, we consider the total expenditure on education as a proportion of GDP, and two measures of welfare state investments - country expenditure on education as % of GDP and country generosity of welfare transfers (mostly cash).

The education measure picks up directly the expenditure on education in each country but is likely to proxy for how much education is valued across countries. If education can act as a meritocratic escape route for those who experience jobless households in childhood, then it is

likely that countries that invest more of their GDP in education will have lower jobless associations across generations. The generosity of countries' social assistance systems in replacing incomes lost when experiencing spells out of work or the labour market. If the loss in resources associated with jobless households contributes negatively to the investments in children and increases their risk of joblessness in adulthood then we would expect a negative relationship between generosity and intergenerational joblessness: countries that offer more protection against these income shocks will have less persistence across generations. Alternatively, if tastes or preferences for leisure over work (cultures of dependency) are the main drivers of the transmission of jobless spells across generations then we may see a positive relationship between generosity and intergenerational joblessness: countries that offer more generous 'outside options' to working may see more persistence in jobless spells across generations.

3. Data

We use data from the European Survey of Income and Living Conditions (EU-SILC) from 2011. The cross-sectional survey in this year included an intergenerational unit, asking questions regarding the labour market participation of parents of survey respondents when the respondents were 14 years old.[3] Experiencing a jobless household in childhood, our main dependent variable, is created using the main activity of the parents' present in the household at this age. Each parent is defined as jobless if they were not employed or self-employed when the respondent was 14 years old.[4] Joblessness is typically defined based on non-earning roles, rather than the more restrictive ILO unemployment definition to capture a broader concept of joblessness. The retrospective focus on the 'main activity' of parents when an adult was aged 14, and the household focus means that we are likely to capture a particularly persistent form of joblessness in childhood. Transitory unemployment is unlikely to be reflected here.

Given that the questions on the childhood experience of the survey respondent may suffer from recall-bias, Gregg et al. (2018) compare the country-level reported jobless rates for mothers and fathers to jobless rates (1-employment/population ratio) from OECD Labour Force Statistics over the same time period. They find that while reported rates for Eastern European countries in particular are less reliable, whilst the reported rates are highly correlated with the

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[3] Note, that while EU-SILC does have a longitudinal component, the intergenerational unit is not linked to this data.

[4] As in Gregg et al., (2018), lone parents are included in the analysis as literature on jobless households find family structure to be a second-order issue relative to employment polarisation.

national rates for 15 Western European (EU) countries. We therefore focus our analysis here on these European nations, detailed in Table 1.[5] The table indicates that the rates of jobless households experienced in childhood (given the term first generation here) are particularly pronounced in UK, Belgium and Ireland, consistent with existing literature, while Denmark, Greece and Sweden had the lowest rates.

Table 1 here

To ensure reliability of our estimates further, we restrict our sample survey respondents to those born 1965 to 1985. These individuals are 26-46 when responding to the survey, limiting the period of recall from age 14 and also minimising issues of life cycle bias found in jobless spells before age 23 and after age 50 (Macmillan, 2014). The main dependent variable measures whether the survey respondent spent the entire 12-month reference period of the survey[6] out of work. The respondent describes their main activity in each month of the reference period, with priority given to economic activity if a similar time is spent in two activities in the same month. As with the parents' generation, joblessness is defined as any non-earnings activity each month. Those reporting any employment or self-employment within the 12-month period as their main activity status are assigned as employed. We are therefore also measuring a persistent spell of joblessness in the second generation and thus sustained disadvantage in both generations.[7]

While rates of joblessness vary by gender across the two countries (last two columns of Table 1), the main drivers of intergenerational jobless associations explored here are strikingly similar across genders. For brevity, we therefore combine genders in this analysis. All results are reported separately by gender in the Appendix for transparency. Table 1 indicates that Greece, Spain, Italy and Ireland had particularly high jobless rates in the second generation, which is not surprising in the aftermath of the Great Recession. Netherlands, Denmark and Sweden had much lower jobless rates by comparison. Weights from this intergenerational module are used throughout our estimation. Sample sizes for each country for both of our outcomes are presented in column 3 of Table 1.

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[5] Note that Norway is excluded from our analysis as it only has one jobless household in childhood. The estimates are therefore highly volatile, with large standard errors.

[6] Typically a fixed 12 month period such as the previous calendar or tax year or the 12 months preceding the survey

[7] Gregg et al. (2018) compare male and female respondents, sons and daughters for the purpose of this analysis, from the EU-SILC to men and women from the OECD LFS from 2011, finding strong correlations between the jobless rates across surveys.

Given that our first generation is a household measure of deprivation and our second generation measure is an individual measure, we present additional results in the Appendix for a household measure of deprivation in the second generation, namely poverty rates. Adult poverty in the second generation is defined based on the survey respondents' equivalised disposable household income (after transfers) over the 12-month reference period of the survey. The country-level median equivalised disposable income (weighted using adjusted personal weights) is used to create an at-risk-of-poverty threshold (ARPT), which is defined here, as standard, at 60 per cent of the median country-level value. Adult poverty is then defined as 1 for those with equivalised disposable household incomes at or below the ARPT in their country and 0 for those above this threshold. This measure has more similar rates across genders in the second generation - see Appendix Table A1 for summary statistics.

Our measures of education, local labour market conditions and generosity of welfare provision are collected across various sources. Focusing first on our individual-level analysis, our education measure uses information from the EU-SILC survey on the highest achieved education level of the respondent. This is measured in the form of International Standard Classification of Education (ISCED) levels, a categorical measure from 0 to 6 where 0 is pre-primary education and 6 is higher tertiary education. In our simple analysis these variables are included as dummy variables relative to a base category (level 3, upper secondary education). For the purposes of our double- and triple-disadvantage analysis, we focus on the binary division between non-tertiary (levels 0-4) and tertiary (levels 5 and 6) education as this is where there is a clear de-lineation in the intergenerational association. Table 2 illustrates that the rate of tertiary education across Europe for this age group (26-46) is around 40%, ranging from 22% in Italy to above 60% in Ireland.

Table 2 here

We match in information on local labour market conditions based on regional unemployment rates from Eurostat 2011. The regional information is available at NUTS2 level in EU-SILC for 9 of our 15 countries[8] with over 100 regional unemployment rates matched in to the survey. Countries without NUTS2 data are assigned a country-level unemployment rate for this analysis. Table 2 shows that Ireland, Greece and Spain all have high regional unemployment

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[8] Switzerland, Germany, Denmark, Ireland, Netherlands and Portugal do not have regional variation within country. There is therefore a good spread of countries across intergenerational jobless and unemployment rates.

rates in 2011 around 20% on average, while Netherlands, Germany and Denmark all have low regional unemployment rates, around 5%.

Our country-level analysis of education expenditure as a proportion of GDP uses figures reported in the Appendix of West and Nikolia (2013) from 2001 (on average when our respondents would be leaving education). Table 2 illustrates a greater proportion of GDP is spent on education in the Scandinavian countries while Greece, UK and Spain invest less of their GDP in education. Finally, we use two measures of welfare generosity from two different sources. The first is a measure of social assistance replacement rates taken from Gough et al. (1997). The second uses the sum of unemployment and sickness (not retirement) decommodification indices from Esping-Andersen (1990). The aim of both measures is to capture the generosity of welfare in the first generation, when the survey respondent experienced a jobless household (on average around 1990). While there are obvious differences across the measures, the ranking of countries is quite similar in terms of generosity with Netherlands, Sweden and Denmark appearing most generous in terms of replacement rates and decommodification indices while UK, Belgium and France appear least generous. Note that the three countries that score lowest in the replacement rates measure, Portugal, Greece and Spain, do not feature in the decommodificaiton indices measure due to their large social insurance rather than social assistance systems. We present results for our country-level analysis with and without these countries included, focusing on without, as they are quite distinct from the other 12 systems.

4. Results

We begin by presenting the intergenerational jobless associations for each of the 15 countries in our sample in Table 3, and for Europe as a whole in the bottom row. We argue that any variations across countries cannot reflect the genetic transmission of ability. Genetics will be in the common degree of transmission along with other common process. As can be seen from Table 3, there is very large variation in the strength of the association of jobless spells across countries with Ireland, Italy, Belgium and the UK exhibiting strong persistence in disadvantage across generations while Denmark, Netherlands, Portugal and Switzerland see essentially no association in jobless experiences between parents and children. Consistent with the findings from Gregg et al. (2018) this evidence suggests no support for hypothesis H1, indicating that genetic ability is therefore unlikely to be the main driver of these associations. This is because genetics are common to all countries and some countries have essentially zero intergenerational

correlations while in others, children growing up in jobless households have 12 to over 20 percentage points higher likelihood in being out of work than those from employed households. This is around a base (mean) of just under 17% worklessness in the European working age population. These are therefore large deviations associated with deprivation in the worst countries, whilst in the best performers there is essentially no raised risk of joblessness from coming from a deprived family.

Table 3 here

Country Level Associations

We next explore how these country-level variations, which offer suggestive (correlational) evidence of the role of education and welfare generosity in accounting for intergenerational jobless associations across countries. While we acknowledge the limitations of this approach given the relatively small number of countries, we follow the lead of others such as Corak (2013) who use a similar number of countries to show the association between intergenerational income persistence and income inequality in the 'Great Gatsby Curve'. This can therefore be thought of us descriptive evidence of mechanisms that are likely to be related to individual experiences of joblessness.

Figure 2 plots the simple bivariate relationship between the percentages of GDP spent on education in 2001 and the intergenerational jobless associations for each country from Table 3. The graph indicates that countries that spend a greater proportion of their GDP on education have lower intergenerational associations. The correlation is around 0.5 with a significant regression coefficient suggesting an additional percent of GDP spent on education is associated with a 3 percentage point reduction in the intergenerational jobless association.

Our country-level analysis of welfare generosity takes a similar approach, with Figures 3 and 4 plotting measures of welfare generosity and country-level intergenerational jobless associations on the. Countries with more generous welfare systems have lower associations in jobless spells across generations. The correlations in Figures 3 and 4 are around 0.5 to 0.6 with significant negative regression coefficients in both cases.[9] This is consistent with the idea that generous replacement rates for income shocks protect against future jobless spells in the next generation through reduced deprivation, rather than the theory that more generous welfare systems incentivise intergenerational tastes for leisure over work. This is very much in line

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[9] Spain, Greece and Portugal, who have mainly social insurance systems, are excluded from this analysis (there are no decommodification indices for these countries).

with experimental and policy change-based evidence that income matters for educational attainment in deprived families (Cooper and Stewart, 2013, summarise this evidence).

Figure 1 2 and 3 here

Individual and Regional Level Analysis

Returning to the individual associations in Table 3, Columns 2 and 3 introduce simple controls for the regional unemployment rate in 2011 in column 2 and the education (ISCED) level of the survey member in column 3. These capture within-country labour market conditions by region and individual educational attainment. If these intergenerational jobless associations occur by virtue of the fact that parents and children experience similar labour markets, we would expect the intergenerational joblessness associations to be substantially smaller in column 2 compared to column 1. Similarly, if these associations occur because children from jobless households achieve lower education levels than children from working households, which leads to them having lower employment opportunities, then we would expect the intergenerational associations in column 3 to be substantially lower than those in column 1.

Focusing first on the inclusion of regional unemployment rates, we can see that the intergenerational associations are very similar to those seen in the baseline estimates in column 1: it is clear that these intergenerational jobless associations are **not** being driven by the fact that parents and children experience the same local labour markets so we do not find evidence in support of H2, that regional labour markets alone are a key driver of intergenerational joblessness. Given that the second generation is experiencing labour markets after the great recession means that conditions are likely to be very different to that experienced a generation before making this perhaps unsurprising.

The inclusion of education measures in column 3 does reduce the intergenerational association somewhat more, by around 35% on average across countries, with education doing more in Ireland and Belgium and less in Greece and Sweden. But the fact that a sizeable intergenerational association remains in the countries experiencing the most persistence across generations when comparing individuals with similar education levels suggests that the simple explanation of children from jobless households achieving low education and therefore being less employable is important, but not a sufficient explanation. This suggests only weak

evidence in support of H3, that education alone is a key driver of intergenerational joblessness. This is somewhat surprising, given the central role of human capital in theories of intergenerational transmissions and the role of education in transmitting incomes across generations in empirical studies (Blanden et al., 2007).[10]

Given our theoretical priors about the role of multiple disadvantages, we next explore whether a combination of experiencing a jobless household in childhood and weak labour markets, or experiencing a jobless household in childhood and low education create additional penalties in the labour market. Here, we utilise individual-level variation across Europe as a whole to combine the experience of a jobless household in childhood and regional unemployment in column 3, including a quadratic interaction between the two measures.

Table 4 here

Figure 4 here

Columns 1 and 2 replicate the finding from Table 3 (final column) that show the average intergenerational correlation across EU countries and when a level control for regional unemployment is included. As noted this shows that regional labour market differences do not account for the persistence in jobless spells across generations for Europe as a whole. Column 3 introduces an interaction term between jobless household in childhood and regional unemployment which is positive and strongly significant, with a negative quadratic term suggesting a concave function.

Figure 4 illustrates that this implies that at low levels of regional unemployment, those who experience a jobless household in childhood have the same probability of being jobless in adulthood as those from a households with an earner present. As regional unemployment increases, so too does this intergenerational association, with those who experience a jobless household in childhood up to 20 percentage points more likely to be jobless in adulthood than those who experience an earning household at high levels of regional unemployment. This supports H4, that a combination of coming from a jobless household and weak labour markets is driving this intergenerational association. Once regional unemployment gets above 15% the extra penalty from being from a jobless household starts to plateau off. This might suggest that when unemployment becomes very common then concentration on those from deprived families stops worsening as it spreads wide in the population. These findings are consistent

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[10] Note that this finding can be replicated in longitudinal survey data using detailed measures of education and early skills (see Macmillan, 2013).

when we measure intergenerational disadvantage based on poverty rather than jobless spells in the second generation (see Appendix Table A2).

Table 5 here

Table 5 considers the similar double-disadvantage in terms of educational attainment. Here we ask whether education can act as a meritocratic equaliser to protect against childhood experiences. Said another way, is there a differential association of jobless spells across generations for different levels of education? The first column of Table 5 presents the baseline estimate across Europe from Table 3 (final row) before columns 2 and 3 split the sample by those who achieve lower than tertiary education and those who achieve tertiary education. While education levels alone can only explain part of the intergenerational association, this double-disadvantage approach indicates that those who experience a jobless household in childhood who go on to achieve tertiary education (about 25% in our sample) face broadly the same probability of being jobless in adulthood as those who experience an earning household in childhood and achieve tertiary educational. All of the intergenerational association is happening at lower education levels. This supports H5, again that *a combination* of experiencing a jobless household and low education achievement is a driver of intergenerational joblessness.[11] So education can act as a protective factor against adult joblessness for those from jobless households if they achieve above a certain level (tertiary).

Table 6 and Figure 5 here

In Table 6 and Figure 5, we combine these two additional factors to ask whether there are additional labour market penalties to experiencing a jobless household in childhood if the individual experiences a combination of all factors (jobless household, non-tertiary education and high regional unemployment). This does appear to be the case with those from jobless households, who achieve lower educational attainment (non-tertiary) *and* high regional unemployment facing an additional 6 percentage point penalty in terms of probability of being jobless in adulthood, compared to those from jobless households with non-tertiary education in low unemployment regions. This difference is significant at conventional levels. The second column of Table 6 shows a similar finding to Table 5: regardless of the labour market faced, those who achieve tertiary education from jobless households face the same probability of

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[11] There is a small but statistically significant association across generations among the tertiary educated when measuring poverty rather than jobless associations (Appendix Table A3) but the intergenerational associations are significantly different across education levels.

being jobless in adulthood as those from earning households. Figure 5 shows this clearly. The tertiary educated intergenerational jobless association is essentially flat across labour market unemployment rates, while the trajectory from Figure 4 is working through the non-tertiary educated group. So those adults who were in jobless households at age 14 and do not enter higher education face a higher probability of being out of work for a year or more as an adult compared to those from other families who have the same educational level, and this is increasing with the unemployment rate. Those who enter higher education though have no higher extent of joblessness.

In the Appendix, we show that this finding is consistent when measuring poverty in the second generation rather than jobless experiences (Table A4) and that these patterns are similar for men and women when undertaken separately (Tables A5 to A7). Across genders: intergenerational jobless associations increase with regional unemployment at a similar rate, tertiary education protects both males and females who experience jobless households in childhood from differential probabilities of experiencing joblessness in adulthood, relative to earning households, and non-tertiary males and females experience additional penalties in high unemployment regions, relative to low unemployment regions, while unemployment makes no difference among the tertiary educated.

Overall there is a cumulative effect of children facing additional disadvantages, growing up in a jobless family is associated with high levels of joblessness in adulthood. This is stronger when the person experiences a weak labour market (increasing in regional unemployment) after the Great Recession relative to a more benign labour market, and is stronger again where the person has lower educational attainment (not achieving tertiary education). Higher educational attainment, (around a quarter of those from jobless families), protects people irrespective of regional labour market conditions.

5. Conclusions

Children growing up in deprived families have adverse life chances across a number of dimensions such as education, incomes and health. The available information is vast and universal across countries. A smaller number of studies compares the strengths of these associations across countries or explore geographical variation within a country using common measures, relating the variation in the strengths of these associations with other potential explanatory variables. For instance, Corak (2013), Chetty et al., (2014), and Jerrim and Macmillan (2015) explore how children from families with fewer resources do less well than

more affluent peers to a greater degree in countries with higher income inequality. Such studies are informative but not causal, and the pathways can only be speculated about.[12]

More causal studies have used experimental or policy-driven area variation to estimate the causal effect of family income on child education among deprived families (Clark-Kauffman et al. 2003, Dahl and Lockner, 2011, Milligan and Stabile 2012, Cooper and Stewart, 2013) and of early adult unemployment on later earnings and employment (Gregg, 2001, and Gregg and Tominey, 2005). The strength of the evidence is greater here but they can only explore one dimension of disadvantage in any one study.

This paper sits somewhere between these two literatures. It presents intergenerational correlations in joblessness as a measure of childhood deprivation which has a universal meaning. Adult poverty for the second generation has very similar cross-country patterns. The strength of these intergenerational correlations across 15 European countries is documented and mapped on other relevant cross-country indicators showing that societies with less spending on education and lower welfare generosity have greater intergenerational joblessness. These are, of course, non-causal associations which simply describe patterns – yet they go against some common wisdom that restricting welfare might reduce cross-generational jobless associations.

The paper goes further to explore individual pathways which are potentially influenced by policy variation at a cross-country level. We show for the first time that a combination of experiencing a jobless household in childhood (which we also take as a marker of sustained childhood deprivation), low educational attainment and weak regional labour markets underlies the generational persistence at the individual level. What is more, it is the combination of multiple deprivations that is much more powerful than the components separately. The key role of regional labour market conditions (combined with education), which was being heavily shaped by the Great Recession, provides robust evidence suggesting that intergenerational welfare persistence is not primarily about cultures of welfare dependency or other explanations based on adverse selection of families. Instead those from disadvantaged families seem to find themselves at the back of the queue when jobs disappear. Achieving tertiary education protects against this. Unfortunately we do not observe the same processes before the Great Recession in the same countries which could offer stronger causal evidence.

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[12] An exception is Jerrim and Macmillan (2015), who consider the role of educational attainment.

This new contribution supports previous findings that early attachment to the labour market that is hampered by weak local labour markets disproportionately hurts children from deprived families (Gregg et al. 2018, Macmillan, 2014, Gregg, 2001, Gregg and Tominey, 2005). The results here suggest that this is restricted to those not achieving higher levels of education. The paper presents a picture of the cumulative effects of childhood deprivation, poor educational attainment and more depressed labour markets representing more than the sum of their parts and hence suggests that any policy response should not operate just in any one domain. As Europe once again faces mass unemployment, which will affect children through parental joblessness, as considered here, and by dramatically reducing employment opportunities, especially for young people, this study shows how weak local labour market conditions heavily penalise those from disadvantaged families. Those people who come from disadvantaged families and have low educational attainment are the most at risk of sustained exclusion from the labour market when work disappears.

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Figure 1 Country-level jobless associations by expenditure on total education as a % of GDP, 2001
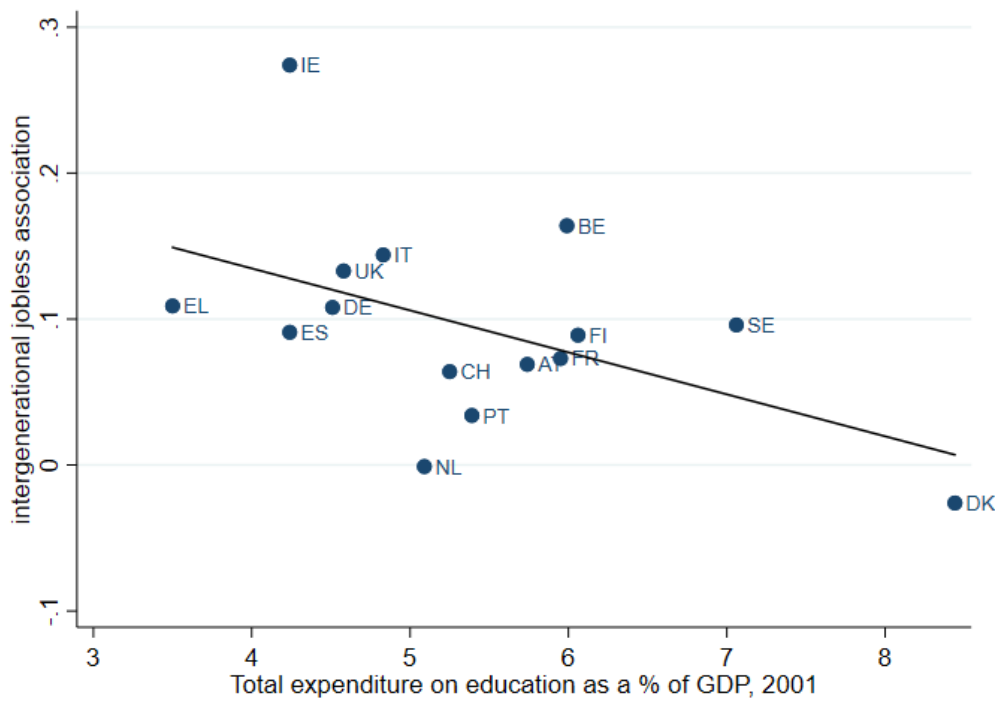
Pearsons-0.500, Spearman: -0.445, regression coefficient: -0.029 (0.02)*

Figure 2 Country-level jobless associations by social assistance replacement rates, excluding social insurance systems (Greece, Spain and Portugal)
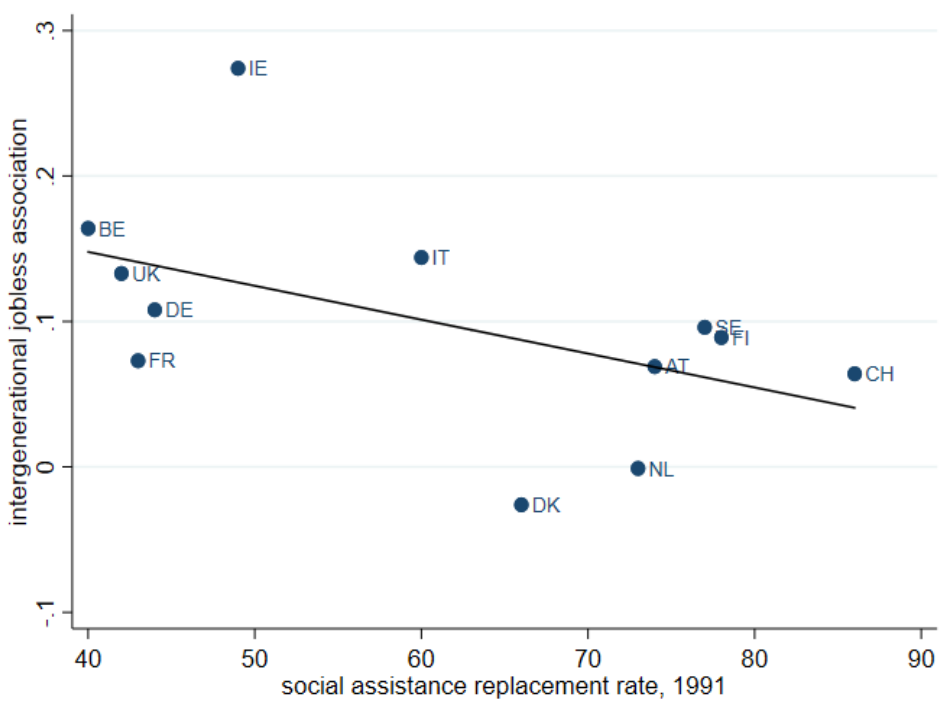
Pearsons-0.500, Spearman: -0.559, regression coefficient: -0.023 (0.01)*

Figure 3 Country-level jobless associations by welfare generosity (decommodification indices, unemployment + sickness), Esping-Andersen 1990
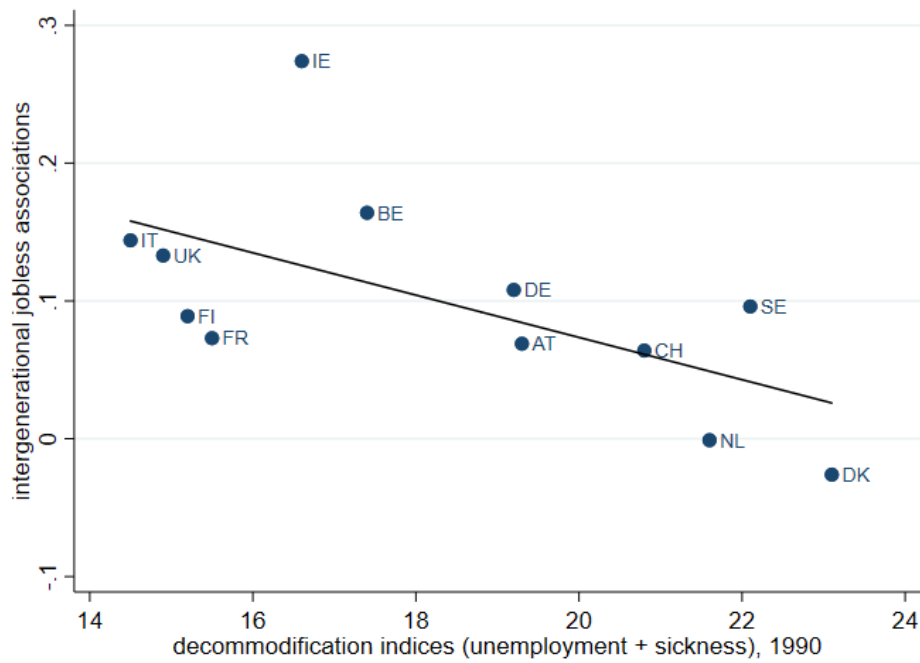
Pearsons-0.605, Spearman: -0.636, regression coefficient: -0.015 (0.01)**

Figure 4 Intergenerational joblessness by regional unemployment rates

Figure 5 Intergenerational joblessness by regional unemployment rates and education level

Table 1 Summary statistics of joblessness in each generation

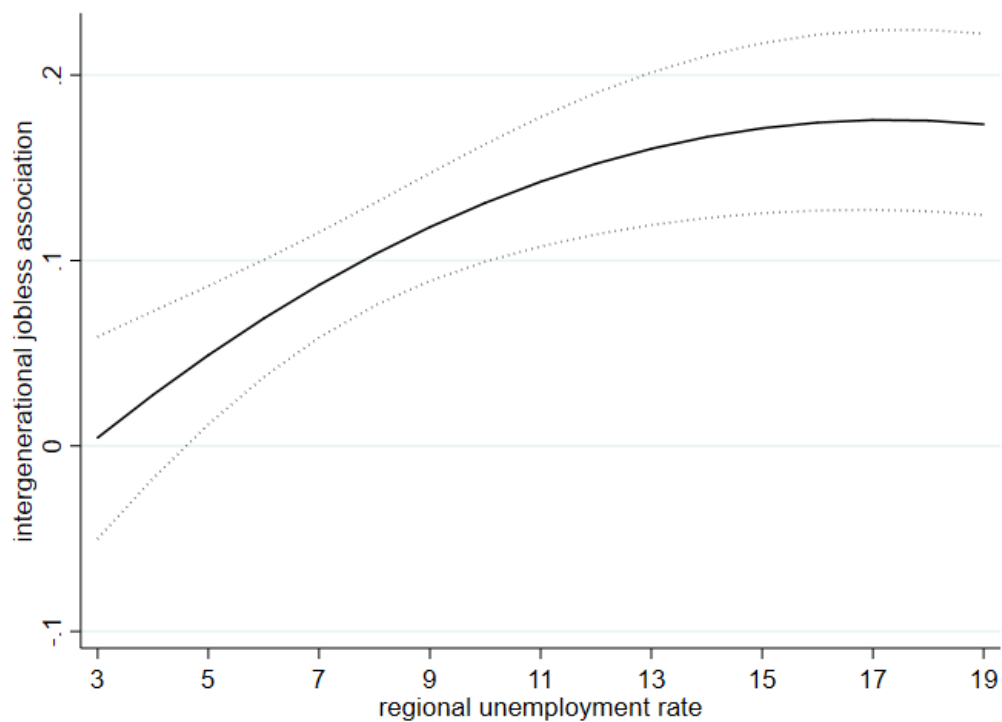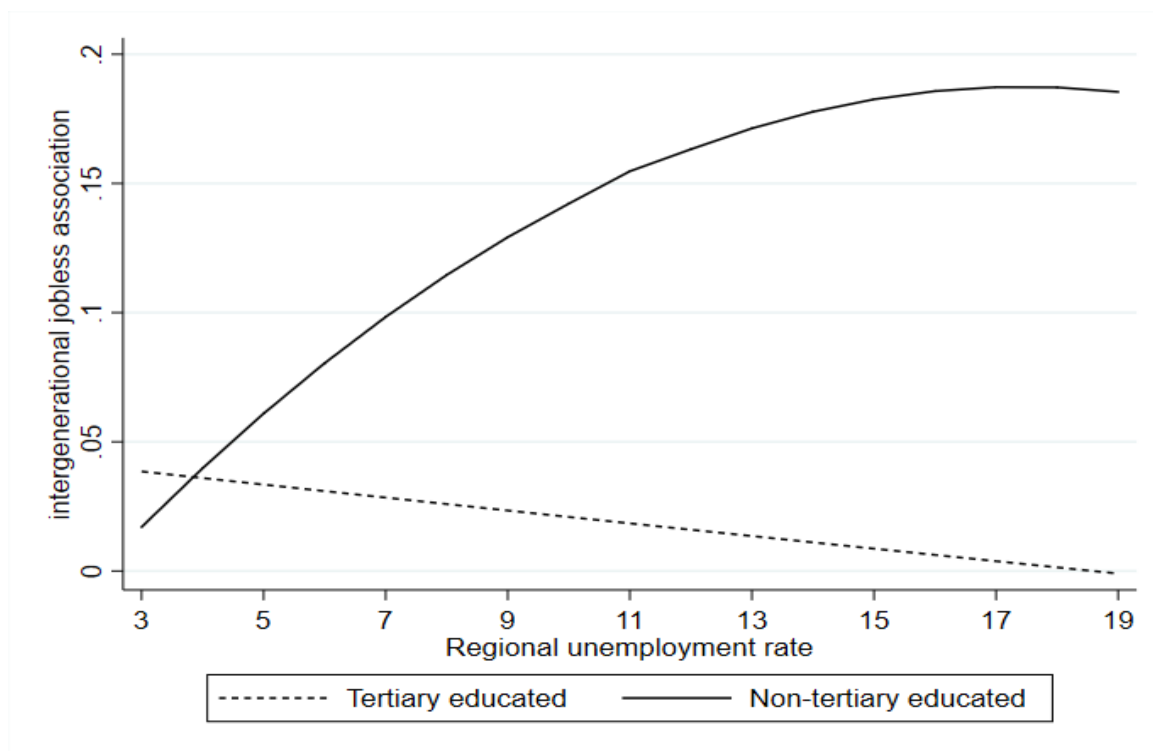|	Second gen. jobless	First gen. workless household	N	Males jobless rates	Females jobless rates
Austria	13.2	2.6	3066	5.7	20.7
Belgium	14.5	6.4	3096	11.6	17.4
Switzerland	9.8	3.7	3139	2.9	16.4
Germanu	12.8	4.2	5170	6.6	18.7
Denmark	9.2	2.1	1182	7.0	11.5
Greece	25.0	1.2	3110	17.1	33.5
Spain	21.7	3.6	7401	16.5	27.3
Finland	11.2	3.8	2184	7.4	15.4
France	11.1	3.7	5287	6.7	15.3
Ireland	28.9	5.8	1622	22.2	33.4
Italy	22.6	4.4	10,269	11.6	33.7
Netherlands	8.7	7.2	2816	5.9	11.2
Portugal	14.6	2.8	2868	11.8	17.5
Sweden	4.0	2.2	1560	2.0	6.2
UK	15.0	6.8	3083	8.4	20.9
EU	17.0	3.7	55,853	9.6	21.9

Table 2 Summary statistics of measures of mechanisms

	Percent tertiary (ISCED 5 or 6)	Average region unemp rate 2011	Percent of GDP on education	Social assistance replacement rates	Decommodification indices (unemp + sick)
Austria	35.7	4.8	5.7	74	19.3
Belgium	51.3	7.7	6.0	40	17.4
Switzerland	39.9	4.4	5.3	86	20.8
Germany	45.3	6.6	4.5	44	19.2
Denmark	43.0	7.8	8.4	66	23.1
Greece	43.1	16.2	3.5	16	n/a
Spain	39.3	22.0	4.2	25	n/a
Finland	47.9	8.7	6.1	78	15.2
France	42.1	9.0	6.0	43	15.5
Ireland	62.9	19.3	4.2	49	16.6
Italy	22.1	8.8	4.8	60	14.5
Netherlands	44.2	4.5	5.1	73	21.6
Portugal	21.5	13.6	5.4	19	n/a
Sweden	52.7	7.8	7.1	77	22.1
UK	47.5	8.5	4.6	42	14.9
EU	40.5	10.4			

Table 3 Intergenerational jobless associations across Europe

	Baseline	+ region unemp	+ education level	N
Ireland	0.274	0.274	0.155	1,622
	(0.06)***	(0.06)***	(0.06)***	
Belgium	0.164	0.157	0.092	3,096
	(0.05)***	(0.05)***	(0.04)***	
Italy	0.144	0.098	0.103	10,269
	(0.03)***	(0.03)***	(0.03)***	
United Kingdom	0.133	0.129	0.087	3,083
	(0.04)***	(0.04)***	(0.03)***	
Greece	0.109	0.109	0.116	3,110
	(0.09)	(0.09)	(0.08)	
Germany	0.108	0.108	0.072	5,170
	(0.04)***	(0.04)***	(0.04)*	
Sweden	0.096	0.096	0.081	1,560
	(0.06)	(0.06)	(0.06)	
Spain	0.091	0.087	0.050	7,401
	(0.04)***	(0.04)***	(0.04)	
Finland	0.089	0.088	0.043	2,184
	(0.05)*	(0.05)*	(0.04)	
France	0.073	0.071	0.030	5,287
	(0.03)***	(0.03)***	(0.03)	
Austria	0.070	0.071	0.029	3,066
	(0.05)	(0.05)	(0.05)	
Switzerland	0.064	0.064	0.047	3,139
	(0.05)	(0.05)	(0.05)	
Portugal	0.034	0.034	-0.024	2,868
	(0.05)	(0.05)	(0.04)	
Netherlands	-0.001	-0.001	-0.024	2,816
	(0.03)	(0.03)	(0.03)	
Denmark	-0.026	-0.026	-0.062	1,182
	(0.07)	(0.07)	(0.06)	
Across Europe	0.106	0.106	0.073	55,853
	(0.02)***	(0.02)***	(0.01)***	

Table 4 Intergenerational jobless double disadvantage by regional unemployment rates

	Baseline	+ region unemp	+ region* jobless household
Intergen association	0.106	0.105	0.134
	(0.02)***	(0.02)***	(0.02)***
Region unemp		0.015	0.014
		(0.01)***	(0.01)**
Region unemp^2		-0.000	-0.000
		(0.00)	(0.00)
Region unemp * jobless			0.012
			(0.00)***
Region unemp^2 * jobless			-0.001
			(0.00)***
N	55,853	55,853	55,853

Table 5 Intergenerational jobless double disadvantage by education level

	Baseline	Non-tertiary education	Tertiary education
Intergen association	0.106	0.105	0.027
	(0.02)***	(0.02)***	(0.02)
N	55,853	33,222	22,631

Table 6 Intergenerational jobless triple disadvantage by unemployment and education level

	Non-tertiary education	Tertiary education
Low unemployment (below average)	0.070	0.029
	(0.02)***	(0.02)
	20,170	15,424
High unemployment (above average)	0.133	0.014
	(0.02)***	(0.04)
	13,502	7,207

Appendix

Table A1 Summary statistics of alternative poverty measure in second generation

	Second gen. poverty	First gen. workless household	N	Males poverty rates	Females poverty rates
Austria	13.8	2.6	3216	14.0	13.6
Belgium	13.1	6.4	3173	12.3	13.8
Switzerland	9.1	3.7	3267	8.3	9.8
Germanu	13.5	4.2	5533	12.8	14.3
Denmark	15.4	2.1	1294	14.9	15.8
Greece	17.4	1.2	3195	15.9	19.1
Spain	18.4	3.6	7703	17.3	19.6
Finland	9.5	3.8	2394	11.0	7.9
France	11.4	3.7	5412	10.2	12.6
Ireland	10.5	5.8	1690	8.4	11.8
Italy	18.5	4.4	11,000	16.0	21.1
Netherlands	10.2	7.2	2923	7.9	12.2
Portugal	14.0	2.8	2957	13.3	14.7
Sweden	10.9	2.2	1687	9.3	12.4
UK	11.3	6.8	3155	10.4	12.1
EU	13.1	3.8	58,311	12.0	14.1

Table A2 Intergenerational poverty double disadvantage by regional unemployment rates

	Baseline	+ region unemp	+ region* jobless household
Intergen association	0.115	0.111	0.145
	(0.01)***	(0.02)***	(0.02)***
Region unemp		0.006	0.007
		(0.00)***	(0.00)
Region unemp^2			-0.000
			(0.00)
Region * jobless			0.011
			(0.00)**
Region * jobless^2			-0.001
			(0.00)***
N	58,311	58,311	58,311

Table A3 Intergenerational poverty double disadvantage by education level

	Baseline	Non-tertiary education	Tertiary education
Intergen association	0.115	0.124	0.032
	(0.01)***	(0.02)***	(0.02)*
N	58,311	34,310	24,001

Table A4 Intergenerational poverty triple advantage by unemployment and education level

	Non-tertiary education	Tertiary education
Low unemployment (below average)	0.095	0.027
	(0.01)***	(0.02)
	20,877	16,385
High unemployment (above average)	0.131	0.035
	(0.03)***	(0.05)
	13,433	7,616

Table A5 Intergenerational jobless double disadvantage by regional unemployment rates

	Males			Females		
	Baseline	+ region unemp	+ region* jobless household	Baseline	+ region unemp	+ region* jobless household
Intergen association	0.104 (0.02)***	0.104 (0.02)***	0.140 (0.03)***	0.109 (0.02)***	0.111 (0.02)***	0.128 (0.02)***
Region unemp		0.007 (0.00)***	0.011 (0.00)***		0.009 (0.01)**	0.017 (0.01)
Region unemp^2			-0.000 (0.00)			-0.000 (0.00)
Region * jobless			0.011 (0.01)**			0.012 (0.00)***
Region * jobless^2			-0.001 (0.00)***			-0.001 (0.00)*
N	26,541	26,541	26,541	29,312	29,312	29,312

Table A6 Intergenerational jobless double disadvantage by education level

	Males			Females		
	Baseline	Non-tertiary education	Tertiary education	Baseline	Non-tertiary education	Tertiary education
Intergen association	0.104 (0.02)***	0.119 (0.03)***	0.012 (0.02)	0.109 (0.02)***	0.095 (0.02)***	0.040 (0.03)
N	26,541	16,682	9,859	29,312	16,540	12,772

Table A7 Intergenerational jobless triple advantage by unemployment and education level

Males	Non-tertiary education	Tertiary education
Low unemployment (below average)	0.087 (0.04)** 9,977	0.026 (0.02) 6,845
High unemployment (average-17%)	0.153 (0.04)*** 6,705	-0.030 (0.04) 3,014
Females	Non-tertiary education	Tertiary education
Low unemployment (below average)	0.058 (0.03)** 10,193	0.035 (0.03) 8,579
High unemployment (average-17%)	0.109 (0.03)*** 6,347	0.040 (0.06) 4,193

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