**Being poor and being NEET in Europe: Are these two sides of the same coin?**

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**Abstract**

We implement a dynamic bivariate probit model to explore the possible relation between at-risk-of-poverty and NEET (Not in Employment, Education or Training) in 21 European countries using 2016–2019 European Union Statistics on Income and Living Conditions panel data. We identify genuine state dependence and account for possible feedback effects from past poverty to the NEET status. We also consider two alternative definitions of NEET, i.e. unemployed and inactive NEET and inactive NEET only. We find that both poverty and NEET are characterized by significant genuine state dependence. We also observe a vicious circle between the phenomena, especially when adopting the definition that includes unemployed and inactive NEETs. This suggests a leading role of unemployment in the detrimental effect of being NEET on poverty. We offer supplementary analyses and further insights on country heterogeneity by looking at the role of social protection expenditure. Finally, we stress that for young NEETS living outside of the family of origin, the NEET condition is not detrimental for poverty, conditional on the provision of adequate youth support.

**Keywords: Poverty; NEET; Youth; Persistence; Europe**

## 1. Introduction

The reduction of youth unemployment by effectively engaging as many of Europe's young people in the world of work plays a key role in the European policy agenda. This topic is quite relevant as the unemployment rate amongst young individuals is consistent and persistent over time, although its distribution is not homogeneous between European countries.

Recent statistical data from Eurostat show that in 2021, the average EU-27 unemployment rate for the 15–24 age group was 16.6%. However, this percentage ranges from 6.9% in Germany to 29.7%, 35.5% and 34.8% in Italy, Greece and Spain. Similarly, the distribution of young people Not in Employment, Education or Training (NEET), a term introduced to broaden the understanding of the vulnerable status of young people and to better monitor their problematic access to the labour market, going beyond the conventional youth unemployment rate (Contini et al., 2019), confirms this trend. In the 15–29 age group, the average NEET rate in 2021 was 14%, with 9.2% in Germany and 23.1% in Italy, which registered the worst performance in Europe.[1]

In the debate about the diagnosis of labour market integration and marginalization problems faced by European young people and the policies to be implemented, the concept of NEET has become increasingly popular (Eurofound, 2012; Serracant, 2013; ILO, 2015; Mussida and Sciulli, 2018). The phenomenon is characterized by a relevant heterogeneity, as the NEET concept includes youth in different conditions and states.

More generally, the definition of NEET is the summation of two different negative states: not in employment (unemployed) and not involved in further education or in training (inactive). Unemployment is the most important component, especially in Southern European countries (i.e. Caroleo et al., 2020). A further source of heterogeneity is the particular characteristics of the unemployed and/or the reasons behind inactivity. To address such diversity, Eurofound (2012, 2016) proposed a more detailed classification of NEET into five, and more recently seven, subcategories: re-entrants, short-term unemployed, long-term unemployed, unavailable due to illness or disability,

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[1] Figures available online at
https://ec.europa.eu/eurostat/databrowser/view/EDAT_LFSE_23__custom_2723495/default/table

unavailable due to family responsibilities, discouraged workers and other inactive persons (for a discussion, see Mascherini, 2019, for instance). This detailed classification is quite useful, especially for policymakers, to target specific interventions for specific disadvantaged labour market categories. In this work, we will mainly refer to the overall NEET concept, to its disaggregation into unemployment and inactivity, and we provide robustness checks for some specific subgroups.

The Great Recession worsened the labour market opportunities of young people. The 2008–2013 economic crisis led to high levels of youth unemployment, labour market vulnerability, and thus disengagement among young people. In fact, this cohort has been disproportionately affected compared to others, with the unemployment rate of individuals aged 15–24 years old increasing significantly, as did the share of NEET. Interestingly, the existing evidence has also confirmed an important decline in the already fragile living conditions of young people during the crisis in Europe.

Considering the worsening conditions for youths, it is necessary to better understand the underlying mechanisms so as to prevent the NEET status from easily becoming permanent, which would impede the achievement of Sustainable Development Goal (SDG) number 8 of the 2030 Agenda, namely 'Decent work and economic growth' for everyone (United Nations, 2015). A better characterization of the fragile condition of young people approaching the labour market might help support policymakers.

In light of this descriptive evidence, in this work we aim to investigate the possible relation between the condition of being NEET and poverty in Europe, as there is likely an important association between these phenomena. On the one hand, being NEET is likely to be positively associated with at-risk-of-poverty, but on the other hand, as suggested by the available literature/empirical evidence poor household income conditions (as measured by the at-risk-of-poverty rate) are among the most important determinants of NEET status (e.g. Görlich et al., 2013; Mut et al., 2017; Papadakis et al., 2020). There is likely a vicious circle, implying that the phenomena of NEET and poverty are somehow dynamically interrelated. Figure 1 shows the evolution of poverty and NEET rates over the 2012–2020 period, and we note that there is indeed a relationship between the two phenomena, with some important heterogeneities across European countries (for details, see Section 3.2). We find differences for both the relative importance of each phenomenon and their relation/association.

While some studies have analysed the determinants of the NEET phenomenon per se, and some others the relationship between labour market status (i.e. unemployed) and poverty at either the macro (Ayala et al., 2017) or the micro level (Saunders, 2002), here we start from the individual status/condition of NEET and extend the investigation to the household, examining the effect of this status on household poverty. At least to our knowledge, no studies have yet offered an analysis of the dynamic interrelation between being NEET and household poverty. We aim to fill this gap.

We analyse twenty-one European countries using longitudinal data from the European Union Statistics and Living Conditions (EU-SILC) survey for the 2016–2019 period and implement a dynamic bivariate probit model that accounts for genuine state dependence, endogenous initial conditions, correlated random effects and possible feedback effects from past poverty to the NEET condition. Moreover, to address the complexity and diversity of the phenomenon, as well as the fact that in some countries this is driven by a relatively high youth unemployment rate, in our analysis we consider both the benchmark definition and a more restricted one that excludes young unemployed individuals and includes only the inactive. As additional evidence, we provide insight into the role of the cohabiting status of the potential NEET, i.e. whether youths aged 15–34 live independently of their family of origin or not.

We also offer a supplementary analysis of country heterogeneity by adopting an augmented specification of our model, as well as further insights into the dynamics of the poverty–NEET and past poverty–NEET relationships by looking for the presence regularities in the heterogeneous impacts we find at the country level, focusing on the role of social protection expenditure (on total and function-specific unemployment, family and social exclusion).

Our findings suggest that, in general, both poverty and the NEET status are characterized by a significant genuine state dependence. However, while the poverty-trap effect increases over time, we find differences between the two definitions of NEET employed, the trap effect being stronger for the benchmark definition compared to the restricted one.

We also observe an association between the phenomena. Notably, we find that the NEET–poverty relationship is somehow different for inactive and unemployed NEET individuals. The vicious circle between poverty and NEET, i.e. poverty increases the probability of being NEET in the future

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and being NEET is detrimental for income formation and thus increases the risk of being currently poor, is relevant when adopting the benchmark definition, while it is almost negligible when focusing just on inactive NEET individuals (restricted definition). This may indicate a leading role of unemployment in the detrimental effect of being NEET on poverty. We also find a role for cohabiting status. Interestingly, we highlight that for those not cohabiting, being NEET reduces the risk of poverty, possibly because of the availability of other sources of income. This finding is especially true in countries with a greater emphasis on youth policies.

The paper proceeds as follows. Section 2 reviews the existing literature. Section 3 describes the data used and offers a descriptive analysis. The empirical model is described in Section 4. Section 5 discusses the main findings, and Section 6 offers some concluding remarks.

## 2. Literature

In most European countries, the rise of the phenomenon of the NEET was a consequence of the increase in youth unemployment rates (rather than inactivity), as a result of labour market segmentation, lack of aggregate demand, and poor education and vocational training (Rodriguez-Modroño, 2019). Interestingly, in some countries—especially Southern European ones—the evolution of the NEET rate is driven by youth unemployment, increasing and decreasing following the business cycle. In general, NEET status is associated with disadvantaged positions at the margins of the labour market, a relatively high risk of poverty, and more broadly, social exclusion (Görlich et al., 2013; Salvà-Mut et al., 2017; Papadakis et al., 2020).

The deterioration of the labour market conditions of young people has been particularly severe under the Great Recession, since youth unemployment (as pinpointed in the literature, e.g. Choudhry et al., 2012; Pastore, 2019), is more sensitive to cyclical conditions than adult unemployment due to the work experience gap and weaker work contracts among young workers. The worsening of youth labour market prospects was also exacerbated by the more recent COVID-19 shock, as the probability of being NEET significantly increased across Europe during the pandemic (Aina et al., 2021).

Nonetheless, the labour market segmentation of young people and their possible marginalisation into the state of NEET involves a complex set of mechanisms that might be associated with difficulties

in the school-to-work transition, as well as structural inequalities and household characteristics (Rodriguez-Modroño, 2019). There is a wide strand of literature exploring the determinants of the NEET status and its possible persistence. In this respect, the evidence suggests that persistence in the NEET status is more likely to occur among youths coming from more socio-economically disadvantaged family backgrounds, poor housing or a bad economic situation (Salvà-Mut et al., 2017), implicating poverty and socio-economic inequality (O'Reilly et al., 2017; Papadakis et al., 2020). Moreover, the literature suggests that the likelihood of being NEET is positively associated with poor educational attainment (Carcillo et al., 2015), sometimes early school-leaving (Vallejo and Dooly, 2013), and people who perceive their state of health to be bad or very bad or who have some sort of disability (Mascherini, 2019).

Another strand of literature, although less broad, explores the consequences for poverty (and inequality) resulting from the labour market status of the individual—especially considering the unemployed—either at the macro or micro level. There is strong evidence that while at a macro level unemployment increases the risk of poverty and contributes to inequality (e.g. Ayala et al., 2017), at the micro level it also gives rise to a series of debilitating social effects on unemployed people themselves, their families and the communities in which they live (Saunders, 2002). Additionally, at the individual level being NEET predisposes individuals to social exclusion and poverty (Gregg and Tominey, 2004; Mroz and Savage, 2006; Luijkx and Wolbers, 2009), which can have psychological, material and behavioural consequences (e.g. self-destructive behaviour).

To conclude, while existing studies primarily analyse the determinants of the NEET phenomenon or the relationship between labour market status (i.e. unemployed) and poverty at either the macro (Ayala et al., 2017) or the micro level (Saunders, 2002), here we consider both levels of investigation. We start from the individual (labour market) status, i.e. NEET, and we extend the investigation to the household to examine the effect of this status on household poverty.

## 3. Data and sample

### 3.1 Data

We explore data from the longitudinal sample of the European Union Statistics on Income and Living Conditions (EU-SILC) survey for the 2016–2019 period. The survey is conducted in most countries across the European Union by the relevant national institutes of statistics, using harmonized definitions and survey methodologies. The topics covered by the survey encompass living conditions, income, social exclusion, housing, work, demography and education.

We select data for twenty-one European countries. The EU-SILC survey includes all European countries, but we select countries for which the information relevant to our investigation are available. Adopting a European perspective is important for many reasons. First, we assume a European perspective as the European Union should be considered a social entity in the spirit of Tony Atkinson (1998). Second, this enables us to investigate potential heterogeneity across countries and to try to link this to the provision of social expenditure. Third, this allow exploring all the potential of the EU-SILC database, as no better data are available for all these countries.

We focus on the dynamic relationship between the phenomena of at-risk-of-poverty and NEET, and our units of analysis are the individuals. We estimate a dynamic bivariate probit model that accounts for genuine state dependence, endogenous initial conditions, correlated random effects and possible feedback effects from past poverty to the condition of NEET. Table 1 reports summary statistics for the variables used in the econometric analysis for the overall sample and according to the relevant NEET definition (no NEET, NEET and restricted definition of NEET) to capture potential heterogeneity within and between the NEET definitions.


[Table 1 about here]


The dependent variables used in our investigation are poverty and NEET status (0, 1). At-risk-of-poverty is defined as the fraction of people living in a household with an equivalized income below the threshold of 60% of the national household median. Equivalized household income is defined as the total disposable household income (after taxes and social transfers) divided by an equivalized household

size calculated according to the modified OECD scale.[2] As for NEET, according to the ILO (International Labour Organization) there is no standard international definition. The most common definition presents this concept as a rate: the percentage of the population of a given age that is not employed and not involved in further education or training (ILO, 2015).[3] Usually, young people are considered to be 15 to 24 years of age; nonetheless, to adequately capture the NEET status the upper bound is (often, but depending on the country) extended either to 29 or even to 34, to better reflect transition patterns to adulthood. We therefore refer to the 15–34 age bracket. Moreover, the complexity of the phenomenon and the fact that in some countries it is driven by relatively a high youth unemployment rate, in our analysis (as explained above) we also consider a more restricted NEET definition that excludes unemployed NEETs and includes only inactive NEETs. The comparison between the benchmark NEET definition and the restricted one might offer important insights regarding differences between pooled unemployed and inactive NEETs (benchmark definition) and inactive NEETs only (restricted definition).[4]

From Table 1, we note an important difference between the poverty rate of not NEET and NEET: the latter exceeds the former by approximately 20 p.p. (34.5% compared to 14.9%). Nonetheless, the rate is quite similar between the two NEET definitions (standard and restricted).

We now briefly describe the covariates included in our specification, sketching out the most important differences across the subsamples investigated. We control for household and individual characteristics. The former includes the age of the head of household[5] (divided into age ranges from younger than 25 years to over 64 years), gender, education, marital status (civil union), home ownership, the number of disabled people and the presence of employees, fixed-term employees, self-employed persons and children (considering the age ranges of 0–3 and 4–15) in the household.

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[2] This is a standard equivalence scale to calculate the number of 'equivalent adults' in a household. The scale assigns a weight of 1.0 to the first adult, 0.5 to the second and each subsequent person aged 14 and over, and 0.3 to each child under 14.

[3] At an operational level, the ILO (2015) defines the NEET rate as the ratio between (the number of youths – number of youths in employment + number of youths not in employment who are in education or training) and the total number of youths. Sometimes it is defined in a more simplified way as the ratio between (unemployed non-students + inactive non-students) over the youth population.

[4] Figure A1 in the Appendix shows the composition of NEETs by country, pinpointing the importance of the components of unemployment and inactivity. We see that unemployment is an important component of NEET, especially in Southern European countries and, interestingly, in Sweden and Slovenia.

[5] The head of household is defined as the highest income earner.

While for the gender of head of household the differences between not NEET and NEET are almost negligible (0.349 and 0.287, respectively), we note some differences in the educational attainment level. Although for both samples there is a prevalence of heads of household educated to the secondary level (0.486 and 0.445 for not NEET and NEET, respectively), we see that not NEETs have a relatively high proportion of tertiary-educated heads of household (0.333) compared to NEETs (0.181), while the reverse is true for primary education (0.181 for not NEET and 0.374 for NEET). Other differences involve the number of employed individuals in the household (1.163 and 0.841 for not NEET and NEET) and the number of children. Here we see that the proportion of children aged 0–3 ranges from 0.070 to 0.225 for not NEETs, and it increases up to 0.407 for the restricted NEET definition.

Individual characteristics refer to those of youths (not NEET and NEET), and we control for age by considering the age ranges of 16–24 and 25–34, as well as gender, level of educational attainment and cohabiting status. The latter is defined based from information about individuals responsible for the household's accommodation, which is available in the EU-SILC data. This can be considered a reasonable proxy for the cohabiting status of youths as it should be informative about whether youths still live with their family of origin or whether they have left it.

Interestingly, we see that not NEETs are, on average, younger than NEETs: the proportion of youths aged 16–24 is 0.666 for not NEETs and 0.465 for NEETs, while for those 25–34 years of age the proportion of NEETs is higher. This suggests that the phenomenon of NEET increasingly involves the relatively older age group. Finally, 17.1% of households report a youth not cohabiting with the family of origin. This variable is used both as a covariate and to split the sample for a supplementary investigation.

**3.2 Descriptive analysis**

Figure 1 shows the evolution of poverty and NEET rates over the 2012–2020 period. As mentioned in the Introduction, we can see that there is a relationship between the two phenomena, with some important heterogeneities across European countries. We find differences in terms of both the relative importance of each phenomenon and their relation/association. As for poverty, we see that the at-risk-of-poverty rate ranges from below 10% in Czech Republic and around 12% in Denmark, Finland and

Norway (12.2%, 12.1% and 11.8%, respectively) to percentages that exceed 20% in Bulgaria, Estonia, Greece, Lithuania, Romania and Spain. For NEET, the rate is below 10% in Austria, Denmark, the Netherlands, Norway and Sweden, while it exceeds 20% in Bulgaria (21.9%), Greece (25.6%) and Italy (25.7%). Notably, we find both negative and positive associations between poverty and NEET, and the difference/gap between the two phenomena differs in magnitude and sign. From Figure 1, we note that while the two phenomena almost overlap in Belgium, Bulgaria, Finland, France, Poland and Spain, the gap is relevant in Estonia, Germany, Italy, Lithuania and Sweden.

[Insert Figure 1 here]

Figure 2 offers additional insights into the correlation between poverty and being NEET by considering the standard NEET definition and the restricted one, which excludes unemployed youths. We note that there is a positive correlation between poverty and both NEET definitions. Interestingly, there is a more significant positive association between poverty and the benchmark NEET definition (left panel) compared to the restricted one (right panel). On the one hand, this might be partly due to the fact that the standard definition also includes unemployed youths, who are searching for a job and are therefore more active in the potential reduction of poverty compared to the more marginalized inactive youths included in the restricted definition. On the other hand, this suggests that effective searching activities of unemployed youths (leaving this state for employment) would greatly contribute to the reduction of poverty compared to the reduction of inactive youths (restricted definition).

[Insert Figure 2 here]

## 4. Econometric approach

We implement a dynamic bivariate random effects probit model to study how the presence of a NEET in the household affects the poverty status of individuals. Because current shocks in poverty status may affect future NEET status, we account for feedback effects from poverty to a future NEET condition. We model both the poverty and NEET processes and estimate a first-order Markov chain random effects bivariate probit model where the NEET condition is considered endogenous (e.g. Biewen, 2009). The model configuration provides that the poverty equation includes current NEET status in its right side but that the NEET equation only includes lagged poverty condition among explanatory variables, thus implying a recursive structure. This assumption is justified both methodologically and economically: methodologically because when considering qualitative outcomes simultaneous systems are non-logically consistent, economically because while the NEET condition immediately affects income formation, the effect of a poor income status is likely to require more time to exert its effects on labour market outcomes. As noted by Biewen (2009), thanks to the recursive structure of the model its identification may be pursued without imposing exclusion restrictions.

Let us define $p_{ict}$ as the individual poverty status of individual $i = 1\ldots n$ in country $c = 1\ldots C$ at time $t = 1\ldots T$. We assume that poverty status is described by the following benchmark model:

$$p_{ict} = 1\{\gamma p_{ict-1} + \beta n_{ict} + \delta n_{ict-1} + \omega x_{ict} + a_{ic} + u_{ict} > 0\}, \tag{1}$$

where $p_{ict-1}$ is the lagged poverty status, $n_{ict}$ is a dummy variable indicating whether an individual aged 16–34 in the household is NEET in the current year or not, $n_{ict-1}$ is the lagged NEET dummy variable, while $x_{ict}$ is a vector of strictly exogenous individual and household characteristics. $\gamma$ is the state dependence parameter, and $\beta$ is the parameter of interest describing the impact of the presence of a NEET in the household on poverty, while $\delta$, $\omega$ and $\varphi$ are sets of parameters to be estimated. Finally, $a_{ic}$ and $u_{ict}$ represent the unobserved time-invariant individual effect and the idiosyncratic error term; we assume that these are both normally distributed and that $u_{ict}$ is not serially correlated. The NEET equation reads as

$$n_{ict} = 1\{\alpha p_{ict-1} + \kappa n_{ict-1} + \tau x_{ict} + \lambda y_{ict} + h_{ic} + \epsilon_{ict} > 0\}, \tag{2}$$

where $y_{ict}$ is a vector of variables describing the youths aged 16–34, $h_{ic}$ is the random effects term and $\epsilon_{ict}$ is an idiosyncratic error we assume to be normally distributed. $\alpha$, $\kappa$, $\tau$ and $\lambda$ are parameters to be estimated. While not expressly required, the inclusion of a set of additional youth covariates (e.g. youth age, gender, education and cohabiting status; see Section 3.1) in the NEET equation may provide supplementary variation for the identification of the relationship between poverty and NEET status (e.g. Biewen, 2009).

The presence of unobserved heterogeneity requires us to be cautious for at least two related reasons. First, the initial values of the outcomes are potentially correlated with the unobserved heterogeneity, generating the so-called initial conditions problem. Second, because of the incidental parameters problem (Heckman, 1981), the time-invariant unobserved individual effects cannot be estimated as standard parameters. The former is approached by adopting the strategy proposed by Wooldridge (2005), who proposed the use of an alternative conditional maximum likelihood (CML) estimator that considers the distribution conditional on the value in the initial period. The latter is addressed by relaxing the hypothesis that individual-specific random effects are independent of other covariates (Mundlak, 1978).[6]

Another potential issue is related to the use of short panels. Akay (2012) stressed that state dependence parameters may be biased when applying the Wooldridge approach to panel with a small number of years. In this respect, Rabe-Hesketh and Skrondal (2013) proposed to include the initial period of time-varying variables as additional regressors, to deal with possible biased estimates. Thus, the conditional densities of the unobserved effects are specified via the following auxiliary models:

$$a_{ic} = \theta_0 + \theta_1 p_{ic1} + \theta_2 n_{ic1} + \theta_3 \bar{x}_{ic} + \theta_4 x_{ic1} + \mu_{ic}, \tag{3}$$

$$h_{ic} = \pi_0 + \pi_1 p_{ic1} + \pi_2 n_{ic1} + \pi_3 \bar{x}_{ic} + \pi_4 \bar{y}_{ic} + \pi_5 x_{ic1} + \pi_6 y_{ic1} + \varepsilon_{ic}, \tag{4}$$

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[6] We assume correlated random effects by decomposing the unobserved heterogeneity term into two parts, one correlated and one uncorrelated with time-variant covariates.

where $p_{i1}$ is the initial poverty status, $n_{i1}$ is the value of the NEET dummy variable at time 1, $\bar{x}_i$ and $\bar{y}_i$ are sets of time-averaged time-variant control variables calculated from periods 2 to T, while $x_{ic1}$ and $y_{ic1}$ are initial values of both household and youth aged 16–34 covariates. Finally, $\theta_k$ and $\pi_k$ are parameters to be estimated.

Considering that unobservable factors that determine the NEET condition also increase the probability of being poor, we model the correlation between unobserved heterogeneity terms to reduce the risk of biased estimates of the NEET effect on poverty. We assume that poverty and NEET equations are linked via random effects and that they are drawn from a bivariate normal distribution with zero mean and variance $\sigma^2$. Their association is captured by the correlation term $\rho = corr(\mu_i, \varepsilon_i)$. The significance of the correlation term is suggestive of the importance of using a joint estimation approach to avoid inconsistent estimates (e.g. Ayllón, 2015).

Finally, because the estimated coefficients describe the sign of the relationship but are inappropriate for determining the magnitude of the impact between outcome and explanatory variables, we compute and report average marginal effects (AMEs).

## 5. Results

In the following sections, we discuss the findings for both the poverty and NEET equations, pinpointing the potential dynamic interrelation between the phenomena, as well as heterogeneous poverty–NEET relationships according to the cohabiting status of the youth (Section 5.1). Then we explore country heterogeneities in our findings by also looking at the role of social protection expenditure (Section 5.2).

### 5.1 The relationship between poverty and NEET

Tables 2 and 3 summarize evidence on the dynamic relationship between being poor and being NEET. More specifically, Table 2 reports estimates related to the poverty equation while Table 3 reports estimates related to the NEET equation. For each equation, we control for the full set of covariates, and related estimates are reported in the Appendix (Tables A1 and A2).

We show results for both definitions of NEET, namely the benchmark definition (which includes both unemployed and inactive NEETs, columns 2–4) and the restricted one (which includes only inactive NEETs, columns 5–7). We note that the phenomena of poverty and NEET are both characterized by a significant genuine state dependence. From Table 2 (row 1), we can see that being poor in the previous period increases the probability of being currently poor by 8.4 p.p. This finding is confirmed when adopting the restricted definition of NEET (+8.6 p.p.). The presence of genuine state dependence is indicative that experiencing poverty may determine a poverty-trap effect, possibly because of the disincentivizing role of access to social programs, increase in demoralization, depreciation of human capital and unfavourable attitudes usually associated with experiencing poverty, which may affect the probability of escaping this condition (e.g. Biewen, 2009). We also stress the role played by the initial status (row 2). Its statistical significance suggests that the initial conditions and confounding factors are correlated, thus confirming the importance of accounting for initial-condition problems and unobservable heterogeneity to avoid estimation bias in state-dependence parameters. In addition, and in line with Ayllón (2015), the joint interpretation of estimates of past and initial poverty status allows us to uncover the evolution of the trapping effect of poverty. The latter coefficient being greater than the former, we can conclude that the poverty-trap effect increased over time.

Focusing on Table 3, we note that the NEET condition is characterized by genuine state dependence and a trap effect that increases over time (rows 3 and 4). Quite interestingly, however, the magnitude of the mentioned effects differ according to the definition of NEET used. For example, past NEET status increases the probability of being currently NEET by 13.1 p.p. according to the benchmark definition and by 'just' 5 p.p. when adopting the restricted definition. Similar disparities emerge for initial NEET status. These differences may be indicative of a relatively high mobility in and out the labour market (across unemployment and inactivity status) and substantial segmentation between the employed and those not employed.

Table 2 reports AMEs that illustrate how the presence of a NEET in the household affects the probability of being poor. According to the benchmark definition, the presence of a NEET increases the probability of being poor by 1.2 p.p. The detrimental effect increases in the short-term, as the AMEs associated with past NEET condition being equal to +2.6 p.p.

The AMEs related to the NEET equation when adopting the benchmark definition suggest that current NEET condition is determined by past poverty status (+0.9 p.p.) and initial poverty status (+3.7 p.p.). On the one hand, this is suggestive that as the time spent in poverty increases, the probability of having a NEET in the household also increases, thus proving the existence of feedback effects. On the other hand, when jointly interpreting estimates from both equations, our results indicate the existence of a vicious circle between poverty and the NEET condition, as poverty increases the probability of being NEET in the future and being NEET is detrimental for income formation and thus increases the risk of currently being poor.[7]

Quite interestingly, these findings are not confirmed when adopting the restricted definition of NEET. First, the current presence of a NEET in the household decreases the probability of being poor (- 1.5 p.p.). The standard detrimental effect of being NEET (only inactive young people) emerges in the medium–long term, however, as the AMEs related to past and initial NEET status are +2 p.p. and +1.4 p.p., respectively. Focusing on the NEET equation, we find that past poverty has a negligible and not statistically significant effect on the probability of being NEET (-0.1 p.p.), while initial poverty status increases the probability of being currently NEET by 1.7 p.p., a smaller effect than that found when adopting the benchmark definition.

A comprehensive interpretation of these findings stresses that the NEET–poverty relationship is somehow different for inactive and unemployed NEET individuals. The vicious circle between poverty and NEET is at work when adopting the benchmark definition, which includes both inactive and unemployed NEET individuals, while it is not confirmed when focusing solely on inactive NEET individuals. This suggests a leading role of unemployment in the detrimental effect of being NEET on poverty. In interpreting these results, we stress that unemployed and inactive NEET individuals behave quite differently, at least in the short term. Poverty is more likely to determine a future unemployed NEET status, that is, someone who lives conditions of poverty—possibly because of a poor family background—trying to escape poverty by putting effort into a (quite ineffective) job search. The

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[7] The existence of a vicious cycle is somewhat confirmed by the positive and statistically significant correlation of the random effects of both equations. This might suggest that unobserved factors affect both phenomena in the same direction.

opposite happens when considering only inactive NEET individuals. We can interpret this as a sign that youth inactivity is driven by relatively good income conditions.

The poverty condition has negligible effects on the risk of being an inactive NEET in the future, and this condition is associated with a lower risk of being currently poor. In this respect, some evidence of the detrimental effect of the poverty–inactive NEET relationship emerges only in the long term.[8]


[Table 2 about here]

[Table 3 about here]

Finally, we briefly describe results related to the role of other covariates. Results are reported in the Appendix Tables A1 and A2 for the poverty and NEET equations, respectively. We find that control variables exert the expected effects on the probability of being poor. In particular, we stress the greater disadvantage of households with a female head of household and with children, and the protective role of a high level of education and of a permanent job (Table A1). Looking at the NEET equation, we note that the risk of having a NEET in the household is lower in households with a female head of household and in households with a relatively high number of other household members who are employed, while it is higher in the presence of children, possibly because of the caring role of young mothers. Focusing on the characteristics of NEET individuals, the risk of being NEET is greater for individuals aged 25–34, females (Mascherini, 2019), highly educated individuals and youths living with their family of origin (Table A2).


**5.2 Country heterogeneity**

In Figure 3, we provide the results of a supplementary analysis of country heterogeneity undertaken by adopting an augmented specification of our model in which the (benchmark) NEET variable in the poverty equation (left panel) and the lagged poverty variable in the NEET equation (right panel) are

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[8] As a robustness check, we estimated our model using a different definition of NEET, which, as suggested by Eurofound (2012, 2016), excludes those unavailable due to family responsibilities, i.e. we exclude mothers. The findings remain basically unchanged. For the sake of brevity, these results are available upon request.

interacted with dummy-specific country variables. The impact for each country, shown in Figure 3, is expressed as an additional effect with respect to the AME we estimated for our reference country (i.e. Austria). The AME for Austria is 0.035, that is, the presence of a NEET in the household increases the risk of poverty by 3.5. p.p. In the graph, we normalize to zero the effect of having a NEET in the household in Austria and interpret the effects for other countries in a relative way. An additional impact to the left of the vertical line suggests that the impact for that country is lower than for Austria, while an additional impact to the right of the vertical line indicates that the impact for that country is higher than for Austria. Similar considerations can be undertaken for the lagged poverty effect on the probability of being NEET. In this case, the AME for the reference country is very small, at 0.008, indicating that in Austria being poor in the previous period increases the probability of having a NEET in the household by 0.8 p.p. Again, we set to zero the effect of lagged poverty on being NEET for Austria.

We can observe that both relationships are characterized by a certain degree of heterogeneity at the country level. Focusing on the effect of being NEET on the risk of poverty (left panel), for many countries the coefficient of the interacted dummy variable is negative, indicating that the effect of being NEET is smaller than in Austria. However, the size of related AME is usually small, thus the NEET effect at the country level remains positive, i.e. the presence of a NEET in the household increases the risk of being poor. The main exception is represented by Poland and partially by France and Denmark. The statistical significance of the mentioned AMEs is limited to nine countries out of twenty-one, as can be inferred by the graph.

Focusing on the effect of past poverty status on the probability of having a NEET in the household (right panel), we note that several countries show a statistically significant coefficient for the interacted dummy variable. The detrimental effect of past poverty is especially relevant in Eastern European countries (Bulgaria, Hungary, Estonia, Lithuania, Romania, and Slovenia), as well as in some Southern countries (Portugal, Italy, and Greece). For Estonia, the negative AME of the interacted variable countervails the positive (and small) impact we find for Austria, thus suggesting that past poverty decreases the probability of having a NEET in the household. Other countries do not differ in a statistically significant way from the base category.

[Insert Figure 3 here]


We provide additional insights into the dynamics of the poverty–NEET relationship by looking for the presence of regularities in the heterogeneous impact we find at the country level. We find some common paths when focusing on the role of social protection expenditure. Figure 4 investigates the existence of an association between the estimated NEET effect on current poverty and social expenditure. We consider total expenditure and expenditure related to three specific functions, i.e. unemployment, family and social exclusion (Eurostat data).[9] We note that the detrimental effect of NEET on poverty decreases as the total social expenditure increases. Quite interestingly, we remark that the effect of social expenditure for unemployment benefits is quite ineffective in the NEET–poverty relationship, while social expenditure to fight social exclusion, and especially that allocated for family and children, appears to be more effective. This stresses once more the importance of increasing protections for families to combat poverty, as recently highlighted in Mussida and Sciulli (2022), also considering that childbearing is strictly connected to NEET ages. Supporting families, indeed, appears important to mitigate the negative effects that difficulties in the labour market integration of youths may have on the income conditions of related households.


[Insert Figure 4 here]


Figure 5 repeats the above exercise focusing on the relationship between past poverty and NEET status. The association of the estimated effect of past poverty on the probability of having a NEET in the household and expenditure for social protection is similar to the one discussed above. We find that higher levels of social expenditure reduce the probability that past poverty increases the presence of NEETs in the household. In contrast to above, social expenditure for unemployment benefits plays only a slightly protective role against the probability of being NEET for households that experienced poverty

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[9] Figures available online at https://ec.europa.eu/eurostat/web/social-protection/data/database.

conditions in the previous period. Expenditure for social exclusion and family/children, however, once again appears more effective than the unemployment function.


[Insert Figure 5 here]


**5.3 Heterogeneous effect by cohabiting status**

In this section, we offer a subsample analysis by cohabiting status, considering two groups: youths living independently from their family of origin (not cohabiting) and those still living with their family of origin (cohabiting). This enables us to explore whether there are heterogeneous poverty–NEET relationships according to cohabiting status. Results are reported in Tables A3 and A4 for the poverty and NEET equations, respectively. In general, we find a heterogeneous impact of NEET on poverty in the short term. According to the benchmark definition, the probability of being poor increases by 1.5 p.p. in the presence of a currently cohabiting NEET, whereas it is reduced by 2.4 p.p. for non-cohabiting NEETs. This negative effect is even stronger (–5.4 p.p.) when considering the restricted definition. These findings may suggest that non-cohabiting NEETs rely on other sources of income (e.g. benefits, money transfers from parents, financial and property assets) that may mitigate the risk of poverty. To explore this issue in more depth, in Figure A1 we offer an analysis of non-cohabiting youths at the country level. In the left panel, we can see that the effect of being NEET on poverty for those not cohabiting is heterogeneous across countries. Considering Austria as the base category (where being NEET increases the risk of poverty by 3.9 p.p.), we note that the negative effect of NEET on poverty is confirmed for some countries, such as Germany, Denmark, The Netherlands, Norway, Estonia and Hungary. On the other hand, in Greece, Spain, Lithuania, and Romania, the NEET condition strongly increases the risk of poverty for those not cohabiting. Among other things, this might be an indication of the importance of youth policies in mitigating the detrimental effect of NEET on poverty (i. e. Assmann and Broschinski, 2021).

Interestingly, from Table A4 we note that past poverty condition increases the risk of being NEET by 0.8 p.p. for cohabiting youths (benchmark definition), while for those not cohabiting the association is not statistically significant (see the right panel of Figure A1 for country heterogeneity in

regard to this aspect, considering that, in this case, the base category Austria is not significant). In addition, we see stronger NEET state dependence for cohabiting youths compared to non-cohabiting youths (+ 13 p.p. and +9.2 p.p., respectively).

## 6. Conclusions

The phenomena of poverty and NEET regained attention with the Great Recession, as well as more recently with the COVID-19 pandemic. In this work, we offer new evidence on the dynamic relationship between household poverty and being a NEET in 21 European countries. Using EU-SILC panel data for the 2016–2019 period, we estimate a dynamic bivariate probit model that allows for the presence of feedback effects from poverty to the NEET status. Our framework accounts for state dependence, unobserved heterogeneity and endogenous initial conditions. Moreover, to address the complexity and diversity of the NEET phenomenon, as well as the fact that in some countries this is driven by a relatively high youth unemployment rate, in our analysis we consider both the benchmark definition and a more restricted one that excludes unemployed young individuals and includes only the inactive.

Our results suggest that both poverty and the NEET status are characterized by a significant genuine state dependence. Nonetheless, while the poverty-trap effect increases over time, for NEET status we find differences between definitions, the trap effect being stronger for the benchmark definition compared to the restricted one.

We also observe an association between the phenomena. Interestingly, we find that the NEET– poverty relationship is somehow different for inactive and unemployed NEET individuals. The vicious circle between poverty and NEET is significant when adopting the benchmark definition, while it is almost negligible when focusing only on inactive NEET individuals. This may indicate a leading role of unemployment in the detrimental effect of being NEET on poverty. We also try to explain country heterogeneity, and we find a protective role in the NEET–poverty relationship for some specific functions of social protection expenditure, namely that aimed at social exclusion and family/children.

Our findings offer important insights to policymakers. In general, institutions have tackled the phenomena of poverty and NEET separately and have implemented some initiatives to combat the

disadvantages faced by young people specifically. Among others, the European Commission introduced the Youth Guarantee (2013) across member states, the 'Investing in Europe's Youth' initiative (2016), the EU Youth Strategy (2018), which set out a framework for cooperation with member states on their youth policies for the 2019–2027 period, as well as more recent initiatives to reduce the effects of the COVID-19 pandemic. From our results, we note an important dynamic interrelation between household poverty and NEET status, and therefore, a need to tackle the phenomena together, as well as to consider the diversity of situations of NEET individuals. We indeed find that inactive NEET and unemployed NEET individuals behave differently and that these groups exhibit a different relationship with household poverty. In particular, policy interventions supporting unemployed NEETs living in poor households might be particularly effective considering the relatively strong association between unemployed and inactive NEETs (the benchmark definition) and household poverty, compared to the relatively weak association between inactive NEETs and poverty. Finally, we stress the role of the cohabiting status of youths. We uncover that for those not cohabiting, being NEET reduces the risk of poverty, possibly because of the availability of other sources of income. The country analysis clarifies that this finding is especially true in countries where youth policies receive more attention.

The availability of longer panel data and more specific information on cohabiting status would stimulate future research, including the modelling of cohabiting patterns as an integrated element in the complex processes involving poverty and NEET status.


**Declarations**

**Ethical Approval:** not applicable

**Competing interests:** The authors declare no competing interests.

**Authors' contributions:** Chiara Mussida wrote the Introduction; Literature; Data and sample.

Dario Sciulli wrote the Econometric approach and the Results.

The authors jointly wrote the Conclusions. All authors reviewed the manuscript.

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**Availability of data and materials:** The data that support the findings of this study are available from EUROSTAT, but restrictions apply to the availability of these data, which were used under license for

the current study and so are not publicly available. Data are, however, available from the authors upon reasonable request and with permission from EUROSTAT.

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Figure legends
Figure 1. The evolution of poverty and NEET rates
Figure 2. Correlation between (average) poverty rate and (average) NEET rate by NEET definition
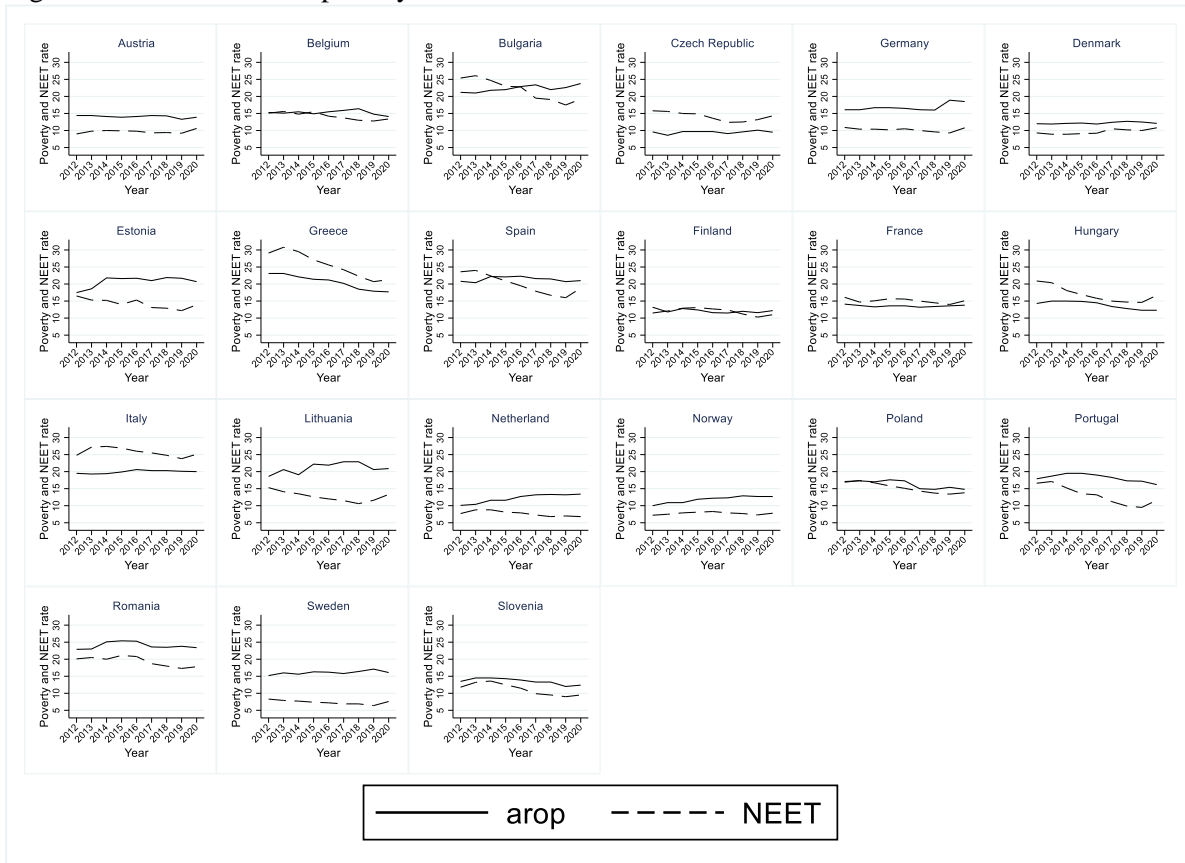Figure 3. Effects at the country level
Figure 4. The association between the estimated NEET effect on current poverty and social expenditure
Figure 5. The association between past poverty and NEET status and social expenditure
Figure A1. Effects at the country level: subsample non-cohabiting youths

Figure 1. The evolution of poverty and NEET rates



Source: Authors' calculations from EUROSTAT 2012–2020 data; AROP = at risk of poverty

Figure 2. Correlation between (average) poverty rate and (average) NEET rate by NEET definition
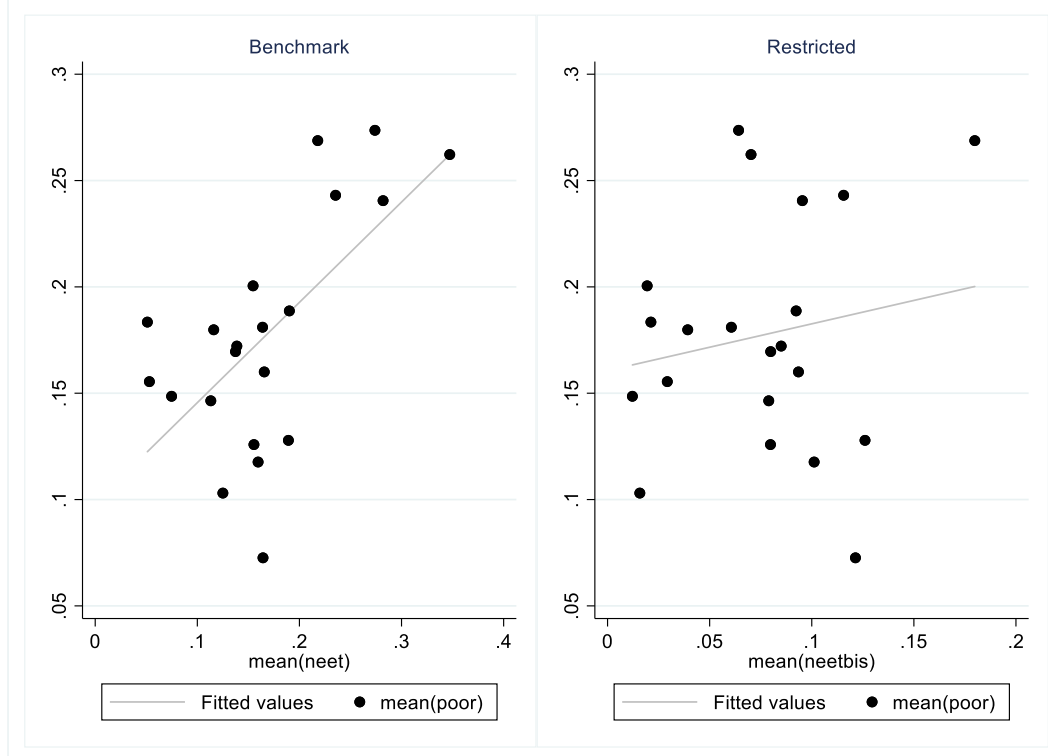


Source: Authors' calculations from EU-SILC 2016–2019 data

Table 1. Descriptive statistics

| Variable | Whole sample | | Neet = No | | Neet = Yes | | Neet = Yes (restr.) | |
|---|---|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. |
| Poverty | 0.184 | 0.388 | 0.149 | 0.356 | 0.345 | 0.475 | 0.347 | 0.476 |
| NEET | 0.183 | 0.387 | | | | | | |
| HH aged below 25 | 0.045 | 0.207 | 0.045 | 0.207 | 0.044 | 0.204 | 0.030 | 0.169 |
| HH aged 25–34 | 0.228 | 0.420 | 0.215 | 0.411 | 0.291 | 0.454 | 0.368 | 0.482 |
| HH aged 35–44 | 0.173 | 0.378 | 0.170 | 0.376 | 0.186 | 0.389 | 0.284 | 0.451 |
| HH aged 45–54 | 0.347 | 0.476 | 0.370 | 0.483 | 0.247 | 0.431 | 0.183 | 0.387 |
| HH aged 55–64 | 0.179 | 0.383 | 0.176 | 0.381 | 0.192 | 0.394 | 0.113 | 0.317 |
| HH aged over 64 | 0.028 | 0.165 | 0.025 | 0.156 | 0.041 | 0.199 | 0.023 | 0.149 |
| HH female | 0.337 | 0.473 | 0.349 | 0.477 | 0.287 | 0.452 | 0.190 | 0.392 |
| HH low educated | 0.217 | 0.412 | 0.181 | 0.385 | 0.374 | 0.484 | 0.353 | 0.478 |
| HH middle educated | 0.478 | 0.500 | 0.486 | 0.500 | 0.445 | 0.497 | 0.463 | 0.499 |
| HH highly educated | 0.305 | 0.460 | 0.333 | 0.471 | 0.181 | 0.385 | 0.184 | 0.388 |
| HH married | 0.746 | 0.435 | 0.743 | 0.437 | 0.762 | 0.426 | 0.860 | 0.347 |
| # of persons with disabilities | 0.406 | 0.697 | 0.387 | 0.671 | 0.490 | 0.798 | 0.425 | 0.795 |
| Homeowner | 0.768 | 0.422 | 0.786 | 0.410 | 0.689 | 0.463 | 0.664 | 0.472 |
| # of permanent employed other than youths | 1.105 | 0.959 | 1.163 | 0.973 | 0.841 | 0.847 | 0.817 | 0.816 |
| # of temporary employed other than youths | 0.135 | 0.401 | 0.133 | 0.400 | 0.145 | 0.403 | 0.124 | 0.378 |
| # of self-employed other than youths | 0.189 | 0.502 | 0.189 | 0.508 | 0.191 | 0.478 | 0.199 | 0.491 |
| Presence of children aged 0–3 | 0.098 | 0.297 | 0.070 | 0.255 | 0.225 | 0.418 | 0.407 | 0.491 |
| Presence of children aged 4–15 | 0.373 | 0.484 | 0.365 | 0.481 | 0.411 | 0.492 | 0.579 | 0.494 |
| Youth aged 16–24 | 0.629 | 0.483 | 0.666 | 0.472 | 0.465 | 0.499 | 0.359 | 0.480 |
| Youth aged 25–34 | 0.482 | 0.500 | 0.427 | 0.495 | 0.725 | 0.446 | 0.805 | 0.396 |
| Youth female | 0.648 | 0.478 | 0.622 | 0.485 | 0.762 | 0.426 | 0.908 | 0.288 |
| Youth low educated | 0.419 | 0.493 | 0.418 | 0.493 | 0.421 | 0.494 | 0.454 | 0.498 |
| Youth middle educated | 0.543 | 0.498 | 0.531 | 0.499 | 0.589 | 0.492 | 0.557 | 0.497 |
| Youth highly educated | 0.233 | 0.422 | 0.233 | 0.423 | 0.232 | 0.422 | 0.206 | 0.404 |
| Youth not cohabiting | 0.171 | 0.376 | 0.155 | 0.362 | 0.240 | 0.427 | 0.352 | 0.478 |
| Observations | 326,255 | | 266,504 | | 59,751 | | 24,016 | |

Source: Authors' calculations from EU-SILC 2016–2019 data

Table 2. Poverty equation

| | Benchmark | | | Restricted | | |
|---|---|---|---|---|---|---|
| | AME | s.e. | | AME | s.e. | |
| Poverty time t–1 | 0.084 | 0.003 | *** | 0.086 | 0.003 | *** |
| Poverty time 1 | 0.129 | 0.002 | *** | 0.132 | 0.002 | *** |
| NEET time t | 0.012 | 0.004 | *** | -0.015 | 0.006 | ** |
| NEET time t–1 | 0.026 | 0.003 | *** | 0.020 | 0.004 | *** |
| NEET time 1 | 0.004 | 0.003 | | 0.014 | 0.004 | *** |

Source: Authors' calculations from EU-SILC 2016–2019 data

Table 3. NEET equation

| | Benchmark | | | Restricted | | |
|---|---|---|---|---|---|---|
| | AME | s.e. | | AME | s.e. | |
| Poverty time t–1 | 0.009 | 0.004 | ** | -0.001 | 0.002 | |
| Poverty time 1 | 0.037 | 0.003 | *** | 0.017 | 0.002 | *** |
| NEET time t–1 | 0.131 | 0.004 | *** | 0.050 | 0.003 | *** |
| NEET time 1 | 0.153 | 0.003 | *** | 0.073 | 0.002 | *** |

Source: Authors' calculations from EU-SILC 2016–2019 data
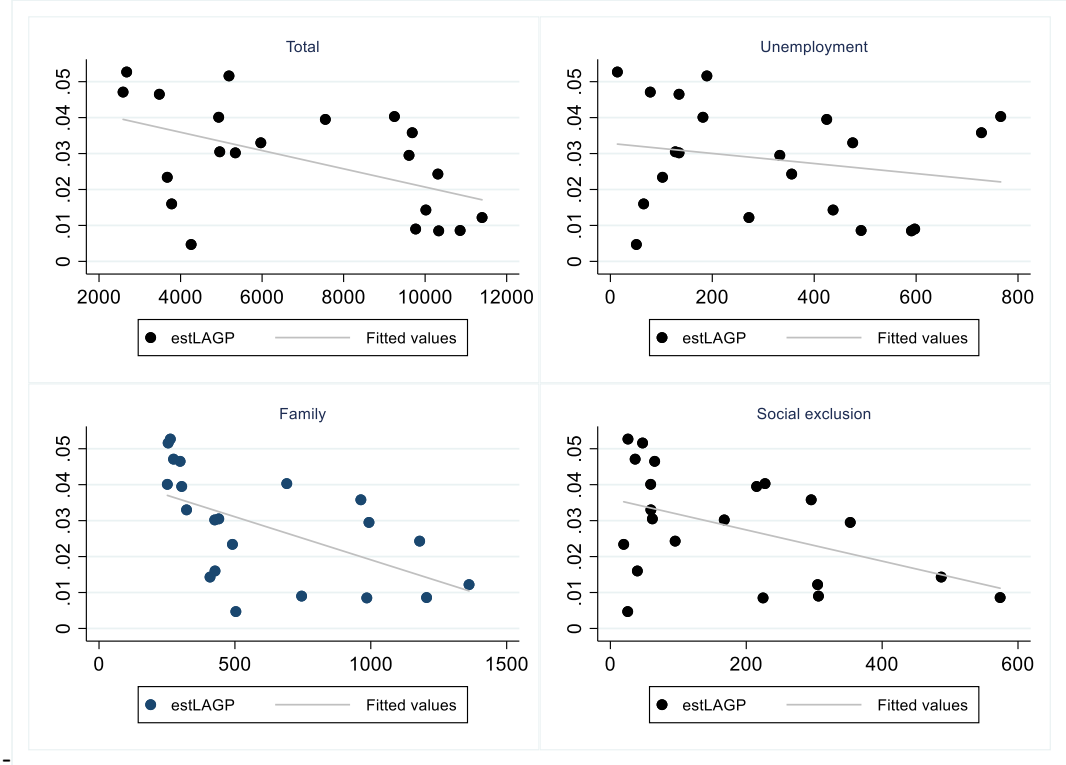
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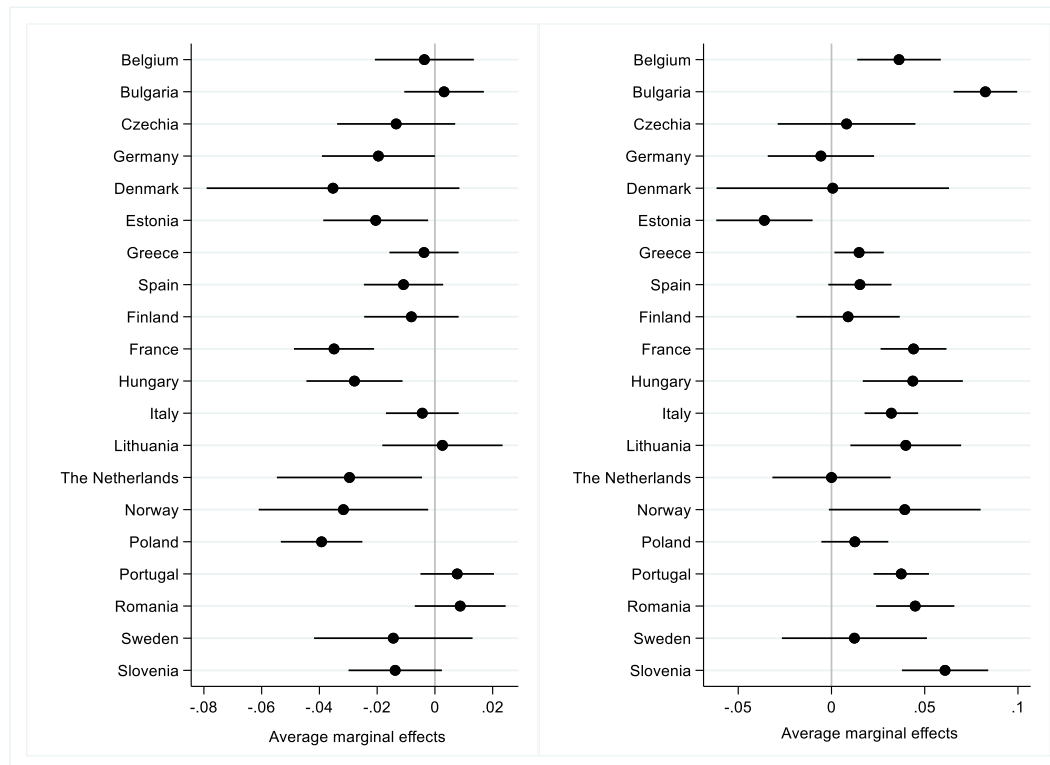


Source: Authors' calculations from EU-SILC 2016–2019 data

Figure 4. The association between the estimated NEET effect on current poverty and social expenditure
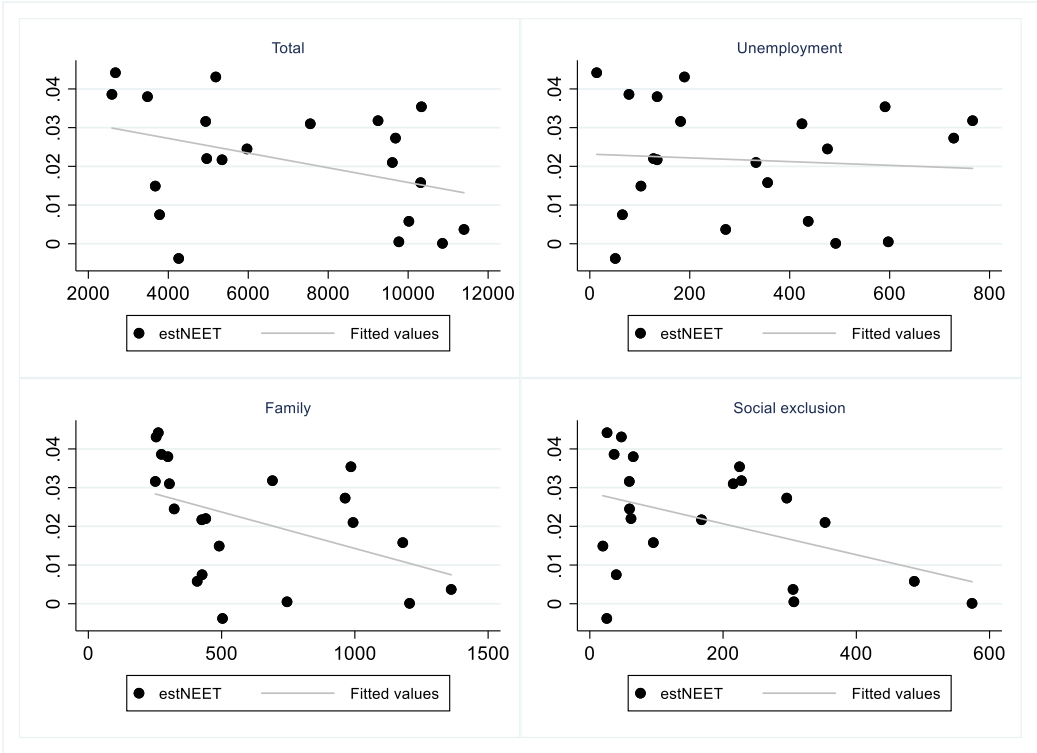


Source: Authors' calculations from EU-SILC 2016–2019 data

Figure 5. The association between past poverty and NEET status and social expenditure



Source: Authors' calculations from EU-SILC 2016–2019 data

**Appendix**

Table A1. Covariates for the poverty equation

|  | Benchmark | | | Restricted | | |
|---|---|---|---|---|---|---|
|  | AME | s.e. | | AME | s.e. | |
| HH aged below 25 | | | Base category | | | |
| HH aged 25–34 | -0.008 | 0.004 | * | -0.008 | 0.004 | * |
| HH aged 35–44 | -0.008 | 0.005 | | -0.007 | 0.005 | |
| HH aged 45–54 | 0.000 | 0.004 | | 0.001 | 0.004 | |
| HH aged 55–64 | 0.002 | 0.005 | | 0.003 | 0.005 | |
| HH aged over 64 | 0.047 | 0.007 | *** | 0.047 | 0.007 | *** |
| HH female | 0.019 | 0.001 | *** | 0.018 | 0.001 | *** |
| HH low educated | | | Base category | | | |
| HH middle educated | -0.005 | 0.004 | | -0.004 | 0.004 | |
| HH highly educated | -0.048 | 0.005 | *** | -0.047 | 0.005 | *** |
| HH married | -0.011 | 0.002 | *** | -0.010 | 0.002 | *** |
| Number of persons with disabilities | -0.004 | 0.001 | *** | -0.004 | 0.001 | *** |
| Homeowner | -0.063 | 0.005 | *** | -0.063 | 0.005 | *** |
| Number of permanent employed other than youths | -0.052 | 0.002 | *** | -0.053 | 0.002 | *** |
| Number of temporary employed other than youths | 0.018 | 0.002 | *** | 0.018 | 0.002 | *** |
| Number of self-employed other than youths | -0.025 | 0.003 | *** | -0.025 | 0.003 | *** |
| Presence of children aged 0–3 | 0.012 | 0.004 | *** | 0.015 | 0.004 | *** |
| Presence of children aged 4–15 | 0.019 | 0.004 | *** | 0.018 | 0.004 | *** |

Source: Authors' calculations from EU-SILC 2016–2019 data

Table A2. Covariates for the NEET equation

|  | Benchmark | | | Restricted | | |
|---|---|---|---|---|---|---|
|  | AME | s.e. | | AME | s.e. | |
| HH aged below 25 | | | Base category | | | |
| HH aged 25–34 | -0.005 | 0.007 | | -0.001 | 0.004 | |
| HH aged 35–44 | 0.050 | 0.007 | *** | 0.018 | 0.004 | *** |
| HH aged 45–54 | 0.040 | 0.007 | *** | 0.013 | 0.004 | *** |
| HH aged 55–64 | 0.048 | 0.007 | *** | 0.006 | 0.004 | |
| HH aged over 64 | 0.051 | 0.010 | *** | 0.005 | 0.006 | |
| HH female | -0.014 | 0.002 | *** | -0.014 | 0.001 | *** |
| HH low educated | | | Base category | | | |
| HH middle educated | 0.002 | 0.006 | | 0.001 | 0.003 | |
| HH highly educated | 0.009 | 0.008 | | 0.022 | 0.004 | *** |
| HH married | 0.016 | 0.002 | *** | 0.012 | 0.001 | *** |
| Number of persons with disabilities | -0.002 | 0.002 | | -0.006 | 0.001 | *** |
| Homeowner | 0.016 | 0.008 | ** | 0.005 | 0.004 | |
| Number of permanent employed other than youths | -0.105 | 0.002 | *** | -0.030 | 0.001 | *** |
| Number of temporary employed other than youths | -0.035 | 0.003 | *** | 0.003 | 0.002 | |
| Number of self-employed other than youths | -0.015 | 0.004 | *** | -0.006 | 0.002 | ** |
| Presence of children aged 0–3 | 0.026 | 0.006 | *** | 0.011 | 0.003 | *** |
| Presence of children aged 4–15 | -0.005 | 0.005 | | 0.001 | 0.003 | |
| Youth aged 16–24 | | | Base category | | | |
| Youth aged 25–34 | 0.024 | 0.005 | *** | 0.009 | 0.003 | *** |
| Youth female | 0.059 | 0.005 | *** | 0.046 | 0.003 | *** |
| Youth low educated | | | Base category | | | |
| Youth middle educated | 0.105 | 0.004 | *** | 0.030 | 0.002 | *** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Youth highly educated | 0.181 | 0.006 | *** | 0.036 | 0.003 | *** |
| Non-cohabiting youth | -0.003 | 0.006 | | -0.005 | 0.003 | * |

Source: Authors' calculations from EU-SILC 2016–2019 data

Table A3 Poverty equation by cohabiting status

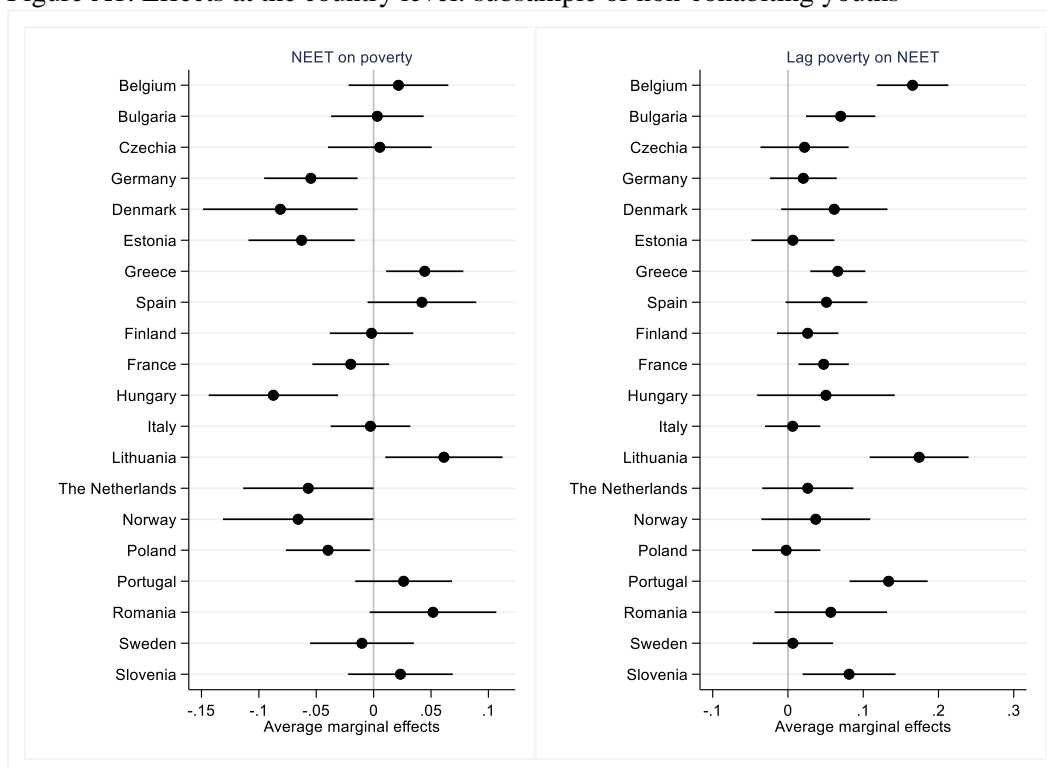| | Benchmark | | | | | | Restricted | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Non-cohabiting youth | | | Cohabiting youth | | | Non-cohabiting youth | | | Cohabiting youth | | |
| | AME | s.e. | | AME | s.e. | | AME | s.e. | | AME | s.e. | |
| Poverty time t–1 | 0.088 | 0.008 | *** | 0.071 | 0.003 | *** | 0.096 | 0.009 | *** | 0.073 | 0.003 | *** |
| Poverty time 1 | 0.139 | 0.007 | *** | 0.133 | 0.002 | *** | 0.142 | 0.007 | *** | 0.135 | 0.002 | *** |
| NEET time t | -0.024 | 0.014 | * | 0.015 | 0.004 | *** | -0.054 | 0.014 | *** | 0.004 | 0.007 | |
| NEET time t–1 | 0.059 | 0.007 | *** | 0.020 | 0.003 | *** | 0.042 | 0.009 | *** | 0.016 | 0.005 | *** |
| NEET time 1 | 0.030 | 0.008 | *** | 0.001 | 0.003 | | 0.033 | 0.009 | *** | 0.006 | 0.004 | |

Source: Authors' calculations from EU-SILC 2016–2019 data

Table A4. NEET equation by cohabiting status

| | Benchmark | | | | | | Restricted | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Non-cohabiting youth | | | Cohabiting youth | | | Non-cohabiting youth | | | Cohabiting youth | | |
| | AME | s.e. | | AME | s.e. | | AME | s.e. | | AME | s.e. | |
| Poverty time t–1 | 0.007 | 0.008 | | 0.008 | 0.004 | * | 0.003 | 0.006 | | 0.000 | 0.002 | |
| Poverty time 1 | 0.037 | 0.008 | *** | 0.042 | 0.004 | *** | 0.025 | 0.006 | *** | 0.014 | 0.002 | *** |
| NEET time t–1 | 0.092 | 0.007 | *** | 0.130 | 0.004 | *** | 0.060 | 0.006 | *** | 0.039 | 0.003 | *** |
| NEET time 1 | 0.160 | 0.007 | *** | 0.144 | 0.004 | *** | 0.106 | 0.005 | *** | 0.057 | 0.001 | *** |

Source: Authors' calculations from EU-SILC 2016–2019 data

Figure A1. Effects at the country level: subsample of non-cohabiting youths



Source: Authors' calculations from EU-SILC 2016–2019 data