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Intergenerational Transmission of (Dis)advantages on Labour Market among Gen Z vs. Millennials in Central and Eastern European Countries: A Two-stage Instrumental Variable Probit Approach

Abstract. *The topic of intergenerational persistence of inequalities on the labour market has gained momentum since social mobility has declined in Europe in the last 20 years. Having this in mind, the paper investigates the intergenerational transmission of labour market (dis)advantages in Central and Eastern Europe and contributes to the existing literature by highlighting the causal impact of higher education on labour market attachment for both Generation Z and Millennials cohorts. We use data from EU-SILC 2023 module and employ a novel two-stage Instrumental Variable Probit framework that includes not only familial background and individual characteristics, but also national context variables. The results confirm the relevance of parents' education and socio-economic status for offsprings' participation in tertiary education, which further predicts labour market attachment. The causal link is slightly more influential for Generation Z compared to Millennials, while gender gaps also emerge.*

Keywords: *intergenerational transmission, education, labour market attachment, Gen Z, Millennials, gender gap.*

JEL Classification: J24, C36, J62, D15.

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1. Introduction

In recent years, research on labour market inequalities has increasingly highlighted the role of intergenerational transmission in shaping people's life chances. Education plays a central role in this process: it can both reproduce advantages linked to family background and offer opportunities for increased

mobility. This makes the link between family background, educational attainment, and labour market outcomes particularly important for understanding how inequalities are maintained or reduced over time. At the same time, evidence shows that labour market outcomes are not only driven by current conditions but also by longer-term processes rooted in early-life experiences and shaped by family, education, and institutional contexts.

Our paper examines the endogenous relationship between education and labour market attachment. Education is shaped by family circumstances, but also plays a key role in determining employability, while intergenerational factors, especially maternal education and labour market participation, remain influential across cohorts and genders. These findings support the use of an econometric approach that considers both familial and structural factors, allowing us to better identify the causal effect of education in the context of Central and Eastern European countries (CEE) among two distinct cohorts: Generation Z of age 25-27 (Gen Z) and Millennials of age 28-42.

The following research questions are to be addressed through this paper:

RQ 1: What are the main similarities and divergences in the determinants of labour market attachment among Gen Z and the Millennials in the CEE countries?

RQ 2: How does familial background impact the chances of employability for Gen Z and the Millennials?

RQ 3: Does the gender gap in education and employment exist among Gen Z and Millennials?

A Two-step Instrumental Variable (IV) Probit approach is designed to address the endogeneity of education and labour market attachment, since unobserved factors like non-cognitive skills or family-network tend to be simultaneously influencing both the chances of employability and of attaining higher education.

As a novelty, this paper contributes to the literature in several ways. First, it combines an intergenerational perspective with a focus on labour market attachment, a dimension that has been less explored in previous research. Second, it looks at differences between Gen Z and Millennials in the CEE context, highlighting how these patterns vary across cohorts. Third, it explicitly deals with the endogeneity of education using an IV Probit approach. Finally, it takes into account both gender differences and country-level factors, such as public investment in education and active labour market policies.

The structure of the article is the following: Section 2 is dedicated to the literature review on the topic, while the data and methodology are described in Section 3. The main results and discussions are tackled in Section 4, while the last section concludes.

2. Literature Review

The literature shows that socio-economic inequalities are transmitted between generations through cumulative mechanisms, in which persistent disadvantages in the labour market play a central role. These are not simple individual outcomes but reflect family trajectories shaped in time.

Studies on the intergenerational transmission of labour market position show that job instability, weak labour market attachment and lower occupational positions tend to be reproduced between generations. Longitudinal data indicate that parents' labour-market position, education, and family context shape children's life trajectories, including transitions between education, precarious employment, unemployment, and NEET status (OECD, 2016; Brydsten & Baranowska-Rataj, 2022). From a life-course perspective, these results reflect cumulative processes in which early experiences influence subsequent labour market integration (Heckman & Mosso, 2014).

Education is the main channel of intergenerational transmission, but it is not independent. Parental education remains a robust predictor of children's educational attainment, and family background resources (including occupational status and economic conditions) are closely correlated with both education and subsequent earnings (Fabrizi et al., 2024; Vasilescu & Stănilă, 2025). In CEE, these correlations are particularly strong. However, the overlap of the determinants of education and labour market outcomes indicates issues of endogeneity, which requires empirical approaches capable of identifying causal effects (Heckman et al., 2018).

At a theoretical level, intergenerational mobility results from the interaction between family and contextual factors. The family provides economic and human capital, while the context (schools, neighbourhoods, institutions) shapes opportunities (Cholli & Durlauf, 2022; Stuhler, 2018). Public investment in human capital also shapes mobility, highlighting the role of education and social policies (Aizer, 2014).

Intergenerational transmission extends beyond education to labour market participation and outcomes. The occupational status of parents is correlated with that of children, with variations between countries and genders (Giménez-Nadal et al., 2022). Mechanisms include social capital, networks, and the transmission of preferences, which influence both occupation choice and employment stability (Lo Bello & Morchio, 2020). Thus, labour market integration reflects both human capital and cumulative exposure to family and social conditions.

These results support the endogeneity of the relationship between education and labour market outcomes. The family context simultaneously influences education and professional integration through multiple channels: networks, norms, aspirations and health factors. Therefore, empirical analysis must treat education as an endogenous variable and adequately control for family background.

The gender dimension is essential in this context. Attitudes regarding gender roles and behaviours in the labour market are transmitted between generations, and mothers' education and occupational status significantly influence daughters' decisions (Farré & Vella, 2013). Additionally, indirect family influences, including those from the partner's family, can affect women's labour-market participation (Papapetrou & Tsalaporta, 2018). These findings indicate the complex transmission of norms and behaviours. Moreover, recent literature also emphasises the increasingly important role of mothers. Increased female labour-market participation and access to education amplify their influence on children's trajectories (Ciaschi et

al., 2025). At the same time, maternal education and employment help reduce gender gaps in labour force participation (Haaland et al., 2018), suggesting that these inequalities are sensitive to institutional and behavioural changes.

The national context generates significant variation. Intergenerational mobility is higher in the Nordic countries and lower in CEE, reflecting institutional differences in education, labour market and social protection (Nybom, 2018; Jarroch et al., 2020). In emerging economies and some post-socialist states, the correlation between parental status and children's outcomes remains strong (Britto et al., 2022). Although CEE countries share a common institutional legacy, cross-country differences in public policies and labour market structures call for comparative analysis.

Overall, the literature shows that intergenerational inequalities arise from the interaction between education, family background, and institutions. Education remains central, but it is strongly dependent on family background resources, and labour market outcomes are influenced by both human capital and networks, norms and structural opportunities. These conclusions support the need for empirical strategies that simultaneously address family and institutional dimensions and explicitly address the endogeneity of education.

3. Data and Model Specification

3.1 Data Description

The study uses the European Union Statistics on Income and Living Conditions (EU-SILC) 2023 database. EU-SILC is an annual data collection on working and health status, social exclusion, and living conditions in the European Union. The database contains representative national-level samples for both households and individuals. In particular, we used the 6-yearly rolling module on intergenerational transmission of advantages and disadvantages and housing difficulties, which collected data on the socio-economic and educational status of respondents' families of origin when the respondents were 14 years old. CEE countries (Bulgaria, Estonia, Croatia, the Czech Republic, Hungary, Poland, Romania, Latvia, Lithuania, Slovenia and Slovakia) were selected. Since the individuals are the unit of analysis, the initial sample comprises 111.150 observations. We excluded people under 25 from the sample because they were not asked questions about their family situation at age 14. We further selected only individuals who were in Gen Z or Millennials in 2023, namely those aged 25-42 years (N=30.602 observations). The micro-dataset was split into two generations: Millennials, born between 1981 and 1995, and Gen Z, born after 1996 (EPRS, 2020). From those, we excluded pupils and students, people in early retirement, people permanently disabled, and/or/ and unfit to work, based on the self-defined current economic status. Our final sample included 3.405 individuals from Gen Z and 27.198 individuals from the Millennials cohort.

The outcome was dichotomised to capture the presence of high labour market attachment. The categorical variables reflecting familial background, socio-

demographic and economic characteristics were also turned into dummies, with the reference category representing the absence of the specific traits (see Table 1 below).

Table 1. Data description

Code	Variable	Description	Descriptive statistics	
			Gen Z	Millennials
Outcome variable				
High_LM_attach	Labour market attachment	1 = high labour market attachment	90.93%	93.89%
		0 = low labour market attachment	9.07%	6.11%
Socio-demographic and economic variables				
High_edu	Educational attainment level (ISCED)	1 = high (ISCED 6-8) 0 = other (ISCED 0-5)	36.61% 63.39%	42.56% 57.44%
Female	Gender	1=female	44.70%	47.24%
		0=male	55.30%	52.76%
Healthy	General health self-evaluation	1=very good or good	93.93%	88.59%
		0=other	6.07%	11.41%
Married	Marital status	1 = yes	18.64%	52.37%
		0 = other	81.36%	47.63%
Interrupted_educ	Education interrupted or abandoned	1 = yes	13.01%	13.50%
		0 = other	86.99%	86.50%
Training	Participation in formal education and training (student or apprentice)	1 = yes	7.09%	2.45%
		0 = no	92.91%	97.55%
Housing_difficulties	Experience of housing difficulties throughout life	1 = yes	2.2%	2.78%
		0 = no	97.8%	97.22%
Years_worked	Accumulated work experience throughout life	In years of work during a lifetime	Mean=4.89 SD=2.66	Mean=12.98 SD=5.52
Familial background				
Fin_distress	Financial situation of the household when resp. was 14 years old	1=bad or very bad	5.83%	6.82%
		0 = other	94.17%	93.18%
Presence_father	Father's presence when respondent was of age 14	1 = yes	89.06%	89.26%
		0 = other	10.94%	10.74%
Presence_mother	Mother's presence when respondent was of age 14	1 = yes	98.02%	98.23%
		0 = other	1.98%	1.77%
High_edu_father	Highest level of education attained by the father	1 = high	14.01%	15.67%
		0 = other	85.99%	84.33%
High_edu_mother	Highest level of education attained by the mother	1 = high	18.53%	18.05%
		0 = other	81.47%	81.95%
LM_status_father	Father's activity status when the respondent was of age 14	1 = employed or self-employed	96.94%	97.43%
		2 = other	3.06%	2.57%
LM_status_mother	Mother's activity status when the respondent was of age 14	1 = employed or self-employed	85.07% 14.93%	87.60% 12.40%
		2 = other		
Context variables				
Public_invest_educ	Public investment in education – when the respondent was 14 years old (9 years average)	% of GDP	Mean=4.72 SD=0.62	Mean=4.79 SD=0.78
Public_invest_ALMPs	Public investment in Active Labour Market Policies (ALMPs) – average of 2021-2023	% of GDP	Mean=0.93 SD=0.46	Mean=0.89 SD=0.42
Job_vacancy_rate	Job vacancy rate	3 years average	Mean=1.88 SD=1.04	Mean=1.88 SD=1.07

Source: Authors' processing.

To account for country-level heterogeneity among the CEE, we included the following context variables: the job vacancy rate, the three-year average public investment in ALMPs, and the public investment in education by the time the respondents were 14 years old. Even though they vary only by nation and age, they provide essential context for the individual-level employment status.

3.2 Model Specification

To examine the main determinants of employment for Gen Z and Millennials in CEE countries, a Two-stage Instrumental Variable Probit approach was designed to isolate the direct impact of family background from the indirect one observed through the education obtained (Newey, 1987). The IV Probit model addresses the endogeneity of higher education with unobserved factors that are likely correlated both with the probability of attaining a high degree of education and with labour market status. Even though some parental background instruments may directly influence the chances of employment, we mitigate this concern by including a rich set of controls to capture the respondents' socio-economic and labour market conditions.

Given the binary nature of both the endogenous variable (*High_edu*) and the outcome variable (*High_LM_attach*), we conduct a recursive bivariate Probit approach, where the model is estimated through a two-step instrumental variable procedure: (1) a Reduced-Form Equation that predicts the probability of attaining higher education, by including a vector of instrumental variables that are theoretically correlated with education, but satisfy the exclusion restriction, as they only indirectly influence current employment status through education; and (2) a Structural equation that estimates the probability of high labour market attachment.

The Reduced-Form Equation (First Step) is designed as a function of instrumental variables and exogenous controls, with the *High_edu_i* as a binary outcome to ensure that predicted values remain within the unit interval. In this manner we assume to have more efficient estimates in the second equation.

The latent-variable representation is given by:

$$High_edu_i = \alpha_0 + \alpha_1 Z_i + \alpha_2 X_i + \varepsilon_i \quad (1)$$

where: Z_i is the vector of instrumental variables that capture both the familial background of the respondent and the national context through:

- parental labour market status (*LM_status_father*, *LM_status_mother*),
- presence of parents in the household in adolescence (*Presence_mother*, *Presence_father*),
- parental education (*High_edu_mother*, *High_edu_father*),
- household financial distress during adolescence (*Fin_distress*)
- public investment in education (*Public_invest_educ*)
- job vacancy rate (*Job_vacancy_rate*) when the respondent was of age 14;

X_i represents the vector of exogenous controls, including demographic factors such as gender (*Female*).

ε_i is the first-stage error term

The Structural Equation (Second Step) is designed to estimate the probability of high labour attachment (*high_LM_attach*), by including the instrumented endogenous variable from the first stage. The latent-variable form is:

$$High_LM_attach_i^* = \beta_0 + \beta_1 \widehat{High_edu}_i + \beta_2 X_i + \beta_3 W_i + u_i \quad (2)$$

where $\widehat{High_edu}_i$ is the endogenous regressor implicitly corrected through the joint estimation of the error structure ($\rho \neq 0$),

X_i is the exogenous control represented by gender (*Female*)

W_i represents structural controls that directly influence employment, but were excluded from the first stage to ensure identification, such as:

- health status (*healthy*),
- marital status (*married*),
- years of experience (*years_worked*),
- housing difficulties (*housing_difficulties*),
- educational interruption (*interrupted_educ*),
- training experience (*training*),
- the three-year average public investment in ALMPs (*Public_invest_ALMPs*) to account for the macro-economic context

ε_i, u_i are the error terms assumed to follow a bivariate normal distribution with zero means, unit variances, and correlation coefficient ρ :

$$\begin{pmatrix} \varepsilon_i \\ u_i \end{pmatrix} \sim N \left(\begin{pmatrix} 0 \\ 0 \end{pmatrix}, \begin{pmatrix} 1 & \rho \\ \rho & 1 \end{pmatrix} \right) \quad (3)$$

Since the dependent variable is actually a binary indicator, the probabilistic form of the model becomes:

$$\begin{aligned} P(High_LM_attach_i = 1 | \widehat{High_edu}_i, X_i, W_i) &= \\ &= \Phi_2(\beta_0 + \beta_1 \widehat{High_edu}_i + \beta_2 X_i + \beta_3 W_i) \end{aligned} \quad (4)$$

where $\Phi_2(\cdot)$ is the bivariate normal cumulative distribution function.

The model is estimated using Maximum Likelihood (ML) via IV Probit, which jointly estimates both equations. The robustness and validity of the model are checked through two main tests: the Wald Test of Exogeneity and the First-stage F-statistic. On the one hand, the Wald Test of Exogeneity evaluates the correlation between the error terms of the two equations, following a chi-square distribution:

$$W = \frac{\hat{\rho}^2}{\text{var}(\hat{\rho})} \sim \chi^2(1) \quad (5)$$

The null hypothesis of the Wald test is expected to be rejected to confirm our assumption that education is endogenous and to justify the use of the IV Probit framework over a univariate Probit (Rivers & Vuong, 1988).

Next, the First-stage F-statistic allows checking the instrument relevance by ensuring that we have selected strong instruments. In this paper, all estimated models are robust and valid since all the First-stage F-statistic values significantly exceed the 10 threshold recommended by Staiger and Stock (1997), confirming that the chosen instruments are powerful predictors of educational attainment. Moreover, the significance of the Wald test confirms a correlation between structural and reduced-form errors ($\rho \neq 0$), validating the control function logic of the IV Probit model.

4. Results and Discussion

4.1 *Determinants of Educational Attainment*

In order to investigate the main factors of employability in the CEE countries, we first estimated the Reduced-Form Equations that predict the probability of attaining higher education for the Gen Z and the Millennials cohorts. By including the familial background as instrumental variables that are correlated with education, but satisfy the exclusion restriction, the first stage allowed us to highlight the intergenerational transmission of both advantages and disadvantages on labour market among Gen Z and Millennials.

Given the mixed types of data (continuous, ordinal, and binary variables), we computed a heterogeneous correlation matrix using the polycor package in RStudio, to automatically apply the appropriate correlation coefficient for each pair of variables, namely: the Pearson correlation for pairs of continuous variables, the polyserial correlation for pairs of one continuous and one binary variable, and the tetrachoric correlation for pairs of binary variables (see Figure 1 and Figure 2).

The visual correlogram was generated with the seaborn library in Python to enhance interpretability. The correlation matrix indicated a single case of high correlation between the selected variables, namely between paternal and maternal education (0.8 for the Millennials cohort and 0.76 for the Gen Z). Thus, maternal education was prioritised as a key instrument to ensure the stability of the first-stage estimates. Finally, for robustness and comparability, we extended the investigation to the entire 25-42 age cohort, to check if these patterns persist among the entire cohort, or if each cohort has a unique pattern. The results are presented in Table 2.

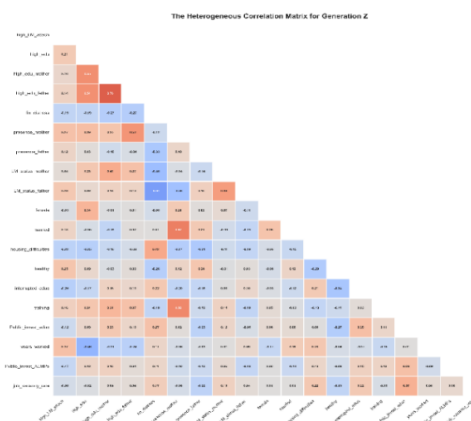


Figure 1. The Heterogenous Correlation Matrix for Generation Z

Source: Authors' computation using RStudio and Python.

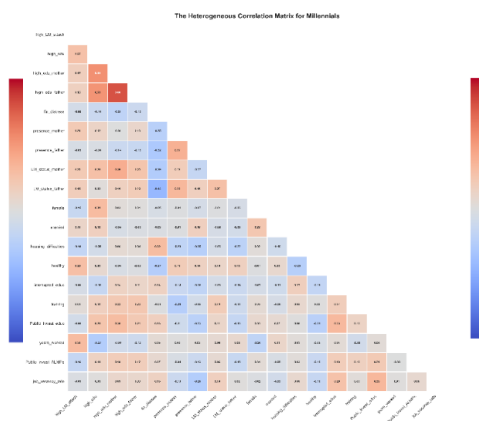


Figure 2. The Heterogenous Correlation Matrix for Millennials

Table 2. Econometric estimation results of the Reduced-Form Equations

Variables	The entire 25-42 age cohort	Gen Z (25-27 age cohort)	Millennials (28-42 age cohort)
Female	0.18*** (0.006)	0.21*** (0.017)	0.17*** (0.006)
High_edu_mother	0.36*** (0.008)	0.38*** (0.022)	0.36*** (0.008)
Fin_distress	-0.09*** (0.012)	-0.10*** (0.037)	-0.09*** (0.013)
Presence_father	0.05*** (0.010)		0.05*** (0.010)
LM_status_mother	0.11*** (0.009)	0.07*** (0.024)	0.11*** (0.010)
Public_invest_educ	0.07*** (0.004)		0.08*** (0.004)
Const.	-0.21*** (0.022)	0.14*** (0.023)	-0.22*** (0.024)
Diagnostics			
F-Statistic	699.5	117	673.9
F-Statistic (p-value)	0.000	0.000	0.000
R-squared	0.156	0.160	0.156
Observations	24615	2720	21898

Note: ***, ** and * suggest statistically significant results at 1%, 5% or 10% level respectively; while between brackets are summarized the standard errors.

Source: Authors' own computations in STATA.

The reduced-form education equations for each cohort provide evidence on the intergenerational transmission of socio-economic advantages and disadvantages in the CEE countries. In general, across all cohorts, maternal education tends to be the most robust predictor of tertiary education attainment, with a slightly stronger impact

noticed for Gen Z. This finding is consistent with the literature on the topic (e.g. Jacobs and Van der Velden, 2021; Liu, 2018), that states the importance of multiple channels of intergenerational transmission of educational attainment from parents to offsprings, such as human and cultural capital and social genetic effects.

Similarly, maternal labour market participation has a positive and statistically significant effect on educational attainment for all cohorts, but with weaker impact on Gen Z. While the implications of maternal labour force participation for children early-school enrolment are studied over time (e.g. Waldfogel et al., 2023; Arvin & Summers, 2011), their effects on offspring's later-school attendance are under addressed. Mother's labour market attachment could positively influence children joining education through resources-based channels, such as financial and material environment. Our results are consistent with other studies (Palmisano et al., 2021) that state the high inequality of opportunity in tertiary education participation in Mediterranean and Eastern countries, the most important positive factors being parental education and their participation on the labour market.

The parental presence during adolescence has a more nuanced contribution to the educational outcomes of future generations among cohorts. While father's presence is statistically significant for Millennials, it remains insignificant for Gen Z, suggesting perhaps a possible structural shift in family dynamics. As a general picture, parental educational attainment influences children's participation in school through parental educational expectations; but when one or both parents are absent, children replace parental expectations with self-educational expectations, reducing the causal chain between ascendants' and descendants' participation in education (Xu & Fu, 2024). For Millennials, results also suggest that the transmission of intergenerational advantages has a strong intra-gender dimension, with the presence of each parent being more significant for same-gender child.

On the contrary, financial distress during adolescence consistently acts as a significant economic barrier, indicating that early-life economic constraints reduce the propensity of accessing higher education. While the influence is slightly higher for Gen Z, the results are largely consistent between all cohorts, indicating a drop of chances by approximately 9-10 percentage points. This result is consistent with OECD (2019) findings that emphasise the importance of socio-economic familial background for offspring's educational pathway.

At the macro level, our findings suggest that public investment in education is a social-level indicator that positively influences tertiary education attainment. We bring, therefore empirical evidence to support the importance of institutional factors in shaping access to higher education, particularly for Millennials, the effect being weaker for the younger cohort. Similarly, other authors (Cunningham et al., 2019) point to the importance of public investment in school infrastructure for children's educational achievement, although the results apply to children in primary education.

Finally, our findings suggest a persistent gender gap in education among all cohorts, with females having a significantly higher propensity for attaining tertiary education than males. This finding reflects the ongoing reversal trend of the gender

gap in education within OECD countries, with 48% of female entrants in university graduating on time, compared with only 37% of male entrants (OECD, 2025).

4.2 Individual and Structural Determinants of Labour Market Attachment

The structural equations among all cohorts estimate the causal effect of tertiary education on labour market attachment, accounting for endogenous selection into education through the recursive bivariate Probit approach. The Wald test of exogeneity ($p < 0.05$ in all specifications) confirms that higher education is indeed endogenous, validating the use of the IV Probit framework over a standard Probit model. Table 3 summarises the Average Marginal Effects (AME), representing the change in the probability of labour market attachment.

Table 3. AME of the Structural Equations

Variables	The entire 25-42 age cohort	Gen Z (25-27 age cohort)	Millennials (28-42 age cohort)
High_edu (Instrumented)	0.88*** (0.091)	1.02*** (0.267)	0.35*** (0.105)
Female	-0.28*** (0.030)	-0.30*** (0.085)	-0.12*** (0.038)
Healthy	0.39*** (0.037)	0.28** (0.130)	0.49*** (0.045)
Married	0.33*** (0.028)		0.16*** (0.036)
Years_worked			0.06*** (0.004)
Interrupted_educ		-0.18* (0.102)	
Housing_difficulties			-0.22** (0.090)
Diagnostics			
Wald Test	13.38	4.19	4.81
Wald Test (p-value)	0.000	0.041	0.028
Wald Chi ²	530.88	42.52	431.65
Observations	24268	2667	18746

Note: ***, ** and * suggest statistically significant results at 1%, 5% or 10% level respectively; while between brackets are summarized the standard errors.

Source: authors' own computations in STATA.

The results indicate that higher education significantly increases the probability of strong labour market attachment, with distinct effects across cohorts. The impact of attaining tertiary education on the labour market seems to be significantly high among Gen Z and relatively high for the overall cohort, but rather moderate for the Millennials, where the instrumented higher education increases the probability of employability by only 35 percentage points. Given the instrumental variable framework, these estimates can be interpreted as a Local Average Treatment Effect (LATE), thus capturing the impact of education for individuals whose educational attainment is influenced by family background and contextual factors.

Regarding marital status, Millennials tend to follow a specific pattern, which is also confirmed by the overall cohort, as married individuals have higher chances of a strong labour market attachment. In comparison, this pattern remains absent for Gen Z, most likely as age at first marriage tends to exceed 27 years old (Eurostat, 2026). Similar findings concern the role of accumulated experience (*years_worked*) as a booster for strong labour market attachment among Millennials, but not for Gen Z, where this factor is once again not yet fully present. The findings may indicate that the link between education and labour market participation has a life-cycle dimension, with education's importance decreasing over time as other factors, such as accumulated experience, health, and family arrangements, become more important. Also, a structural change in the labour market may emerge as participation in tertiary education increases and the nature of work changes.

Beyond education, several other individual characteristics significantly influence labour market outcomes (see Figure 3 and Figure 4 below). For instance, our findings suggest a consistently positive and significant relevance of the health status of the respondents, as individuals reporting good health have a substantially higher probability of employability among all cohorts, but especially among Millennials. For them in particular, self-reported good health acts as a critical driver (AME of 0.49), whereas for Gen Z, the impact is much lower (0.28), likely because younger persons deal less with chronic health issues that could affect career opportunities. Similarly, the implications of health for labour market outcomes have also been identified by other studies (Pinna Pintor et al., 2024) that point to the positive impact of health on productivity and human capital.

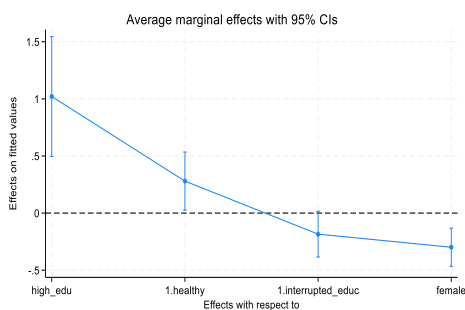


Figure 3. Main determinants of labour market attachment for Gen Z

Source: Authors' own computations in STATA.

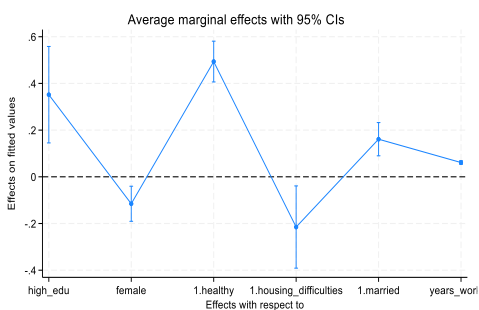


Figure 4. Main determinants of labour market attachment for Millennials

Gender disparities persist across the two cohorts, with females having a lower propensity for strong labour market attachment, even after controlling for education and other characteristics.

4.3 Gender Sensitivity Analysis

To deeper investigate the gender gap in education and employment among cohorts, our analysis was further extended with a gender sensitivity analysis. Thus, the two cohorts of Gen Z and Millennials were further split into females and males' subsamples and the two-step IV Probit approach was next conducted over the four subsamples. The main results of the estimations are summarised in Tables 4 and 5.

Table 4. Econometric estimation results of the Reduced-Form Equation

Variables	Gen Z (Men)	Gen Z (Women)	Millennials (Men)	Millennials (Women)
High_edu_mother	0.36*** (0.028)	0.41*** (0.035)	0.37*** (0.011)	0.34*** (0.012)
Fin_distress	-0.09** (0.045)		-0.08*** (0.017)	-0.12*** (0.019)
Presence_father		0.11** (0.046)	0.05*** (0.014)	
Presence_mother	0.22* (0.131)			0.12* (0.067)
LM_status_mother	0.08*** (0.077)	0.08** (0.040)	0.10*** (0.013)	0.13*** (0.014)
Public_invest_educ			0.05*** (0.006)	0.10*** (0.006)
Const.	-0.08 (0.134)	0.23*** (0.057)	-0.09*** (0.032)	-0.27*** (0.074)
Diagnostics				
F-Statistic	50.4	52.23	307.3	333.2
F-Statistic (p-value)	0.000	0.000	0.000	0.000
R-squared	0.117	0.116	0.119	0.137
Observations	1526	1193	11420	10486

Note: ***, ** and * suggest statistically significant results at 1%, 5% or 10% level respectively; while between brackets are summarized the standard errors.

Source: Authors' own computations in STATA.

Our findings reveal important gender heterogeneity in the mechanisms of intergenerational transmission among the two cohorts. On the one hand, for Gen Z, maternal education plays a role-model for both genders, with a slightly stronger impact on women, while parental presence exhibits asymmetric effects (being more significant the paternal presence for women in adolescence, and more relevant the maternal presence for men). On the contrary, for Millennials, parental influence exhibits stronger intra-gender transmission patterns, with both maternal education and labour market status remaining central determinants of education. In general, results confirm the importance of one-to-one parent-child interaction and – in relation to Millennials - the significance of each parent for the same-gender child, both results being previously documented in the literature (Bingley et al., 2022).

Table 5 reveals gendered differences in the transmission of human capital relevant for employment. For Gen Z women, participation in formal training and

years worked are highly significant, whereas these factors are less influential for their male counterparts. Our findings could suggest that young women in CEE countries need to rely more heavily on continuous skill acquisition to secure their market position. While the literature on the field (e.g., Tyrowicz and Van del Velde, 2024; Binglei et al., 2022) indicates a persistent and expanding penalty for motherhood, our findings also suggest a penalty for young women.

Table 5. AME of the Structural Equations

Variables	Gen Z (Men)	Gen Z (Women)	Millennials (Men)	Millennials (Women)
High_edu (Instrumented)	1.32*** (0.314)	0.25 (0.458)	0.84*** (0.151)	0.93*** (0.123)
Healthy	0.28* (0.168)	0.48** (0.225)	0.44*** (0.056)	0.38*** (0.054)
Married			0.46*** (0.048)	0.17*** (0.041)
Years_worked		0.15*** (0.051)		
Training		0.94** (0.432)		
Public_invest_ALMPs		-0.31*** (0.116)		-0.45*** (0.041)
Interrupted_educ		-0.45** (0.191)		
Diagnostics				
Wald Test	7.44	3.23	5.43	5.95
Wald Test (p-value)	0.006	0.073	0.0198	0.0147
Wald Chi ²	23.63	49.27	285.61	289.15
Observations	1497	1111	11228	10372

Note: ***, ** and * suggest statistically significant results at 1%, 5% or 10% level respectively; while between brackets are summarized the standard errors.

Source: Authors' own computations in STATA.

In terms of national context, the public investment in ALMPs shows a negative correlation with attachment for women in both cohorts. However, this result should not be interpreted as evidence of policy ineffectiveness, but rather as policy endogeneity and targeting effects, as ALMPs are typically directed toward individuals with weaker labour market prospects. Therefore, the negative association reflects a selection effect of the policy participation in regions or demographic groups with the highest structural unemployment, serving more as a social safety net than a booster for those already attached to the labour market. Similarly, educational interruptions are negatively associated with labour market attachment for the young Gen Z females, reflecting broader socio-economic vulnerability and instability.

5. Conclusions and Recommendations

This study provides a comprehensive econometric investigation of the intergenerational transmission of socio-economic advantages and disadvantages in

CEE countries, comparing cohorts' patterns among Gen Z and Millennials. By employing a recursive bivariate Probit framework, we addressed the endogeneity of education and isolated the causal drivers of labour market attachment.

In relation to the first research question, familial background in adolescence influences tertiary educational achievement for both cohorts, this being the main predictor for labour market attachment. However, there are significant differences between Gen Z and Millennials. While education has paramount importance for high labour market attachment among the younger cohort, for the more mature generation, the factors are diversified, with previous work experience, health and familial engagement being also relevant for integration in paid work.

Regarding the second research question, the empirical evidence confirms that family background remains a persistent determinant of success on the CEE labour markets through the causal chain of tertiary education attendance. While multiple familial aspects such as parents' education, their presence in offspring's lives, and financial distress are relevant for children's educational attainment, maternal education is the most robust predictor of higher education attendance among the two cohorts, slightly more influential among youth compared to Millennials.

For the third research question regarding gender disparities, results indicate that within Gen Z, tertiary education and fair good health significantly boost labour market attachment for males. Interestingly, these attributes seem not to be enough for females, who also need previous work experience and professional training in order to increase their chances of finding a full-time job. These differences are even more intriguing since participation in tertiary education is higher for women compared to men. Within the Millennial cohort, the antecedents for labour market attachment are generally similar, with attributes such as previous working experience being more relevant for men compared to women.

As main limitations, we must acknowledge data-sample limitations, especially for the Gen Z cohort, for which we only investigated the 25-27 years old cohort due to unavailable data. Moreover, the reduced dimensions of gender subsamples may affect the precision of some estimates for Gen Z. Finally, as methodological limitation, the two-step IV probit model was designed through a recursive bivariate Probit framework, since both the output and the endogenous variable were transformed into binary variables to better predict the respondents' chances of employability.

Future research on the topic could integrate the inter-generational comparative perspective with the life-cycle approach to further discriminate between structural societal changes that translate into differences between generations and life-course changes common for all generations. Also, further research could explore what seems to be a potential disadvantage associated with being young and female.

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