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ABSTRACT

Family background influences young education and job opportunities, affecting social and economic inclusion. Youth from disadvantaged families face an increased risk of being NEET and a high risk of labour or social marginalisation. An analysis of Chilean data examined gender disparities in the impact of familiar households lacking education, occupation, and social protection from 5D-multidimensional poverty measures on the likelihood of being NEET among youth aged 20-29. Using Propensity-Score Matching to account for selection bias, the average treatment effect on the population and the treated group were estimated. In the raw sample, 23.1% of young people aged 20-29 were NEETs, increasing with age and with women experiencing higher rates. Results showed that the population average effect of households lacking occupation-unemployment- in both genders have a significantly higher risk of being NEET than those without this deprivation. Conversely, living in a household lacking social protection significantly reduces this risk, especially in young women. A small effect of households lacking schooling on the probability of being NEET in both genders was observed, but only significant in men. Future research should include panel data to explore youth life trajectories to assist policymakers in preventing social exclusion and marginalisation of young people.

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I. INTRODUCTION

The shift towards green and digital economies in the coming decade will profoundly impact the labour market and reshape modern societies. Global changes in politics, economics, society, and culture affect youth employment. New social patterns related to a distinct life-course stage known as emerging adulthood or delayed transitions to adulthood are having a crucial impact on the employment of the young population [1,2].

Finding employment after studying is a crucial transition for young people from education to the labour market. Failure to get a job after leaving school can have long-lasting consequences, particularly when prolonged unemployment or inactivity leads to discouragement when looking for work [3,4]. Policy measures are, therefore, essential to prevent young people from becoming NEET and help those who need to return to education or work [5].

NEET, an acronym for "not employed, in education, or training," is a term that originated in the UK in the late 1980s. The concept refers to young individuals aged 16-17 (or indeed 16-25) who are not engaged in employment, education, or training. It was established due to changes in the benefits system, which replaced support for this age group with a "youth training guarantee" [6]. The term NEET was officially introduced in 1999 in the UK through the government's Bridging the Gap: New Opportunities for 16-18-year-olds not in education, employment or

training report [7]. In Latin America Spanish-speaking countries, the equivalent term for NEET is "ninus," ("ni estudia ni trabaja"), while in Brazil, they are known as the "nem-nem" generation (geração não estudam e nem trabalham)[8].

The definition and measurement of youth unemployment and NEET vary significantly among countries. NEET is commonly used to represent disengagement, social exclusion, and youth unemployment [9]. Intergovernmental organisations and national statistical offices use the NEET rate as a youth indicator. Initially limited to 18- to 24-year-olds, there is a tendency to extend the age range; OECD focuses on 15 to 29-year-olds, and Eurostat, Japan, and Korea range from 15 to 34-year-olds [10,11]. This difference is mainly due to variations in compulsory education or training years [10,12]. According to the ILO, in 2020, over 23.3% of youth aged 15-24 were NEETs globally, with young women outnumbering men two to one, facing challenges in securing decent employment amid significantly three times higher unemployment rates than adults, exacerbated by COVID-19 [13-16].

The NEET indicator measures the percentage of youth who are neither employed nor in education or training relative to the youth population within specific age and gender groups [17,18]. Youth in education include those in part-time or full-time programs but not those in non-formal or very short-term education. According to the OECD/ILO Guidelines, employment is defined as working for at least one hour during the survey week or being temporarily absent from a job. Consequently, NEET youth can be unemployed, inactive, or disengaged from education. The ILO defines inactive NEETs as those not actively seeking work [5,17,18]. Among inactive NEETs, a subgroup of "reluctant" NEETs decline work offers. This subgroup may be more susceptible to marginalisation, and thus, their reluctance to work should be viewed as a complex social issue rather than merely a labour market problem [19].

The NEET issue continues to be of great interest in the current sociological and economic literature

debate. Some authors maintain that it represents a transitory phase without harmful consequences [2, 20, 21]. However, others, adopting a more critical stance, highlight the lack of sociological coherence in the NEET concept. They note that it includes social categories, such as caring for one's family or being permanently ill/disabled, and specific administrative categories of labour market activity [21-25]. Furthermore, some authors question the NEET concept and its applicability beyond labour market dynamics, as it overlooks people who actively seek work, participate in informal employment, or occupy insecure or precarious jobs intermittently [21, 26-30].

From a sociological perspective, NEETs represent a heterogeneous population with varied life histories and socioeconomic resources [1,32]. While NEETs face vulnerability, not all are at risk of marginalisation, criminal behaviour, or health issues [33-38]. From a socioeconomic perspective and during economic crises, particularly in Low –and middle-income countries, young people, especially vulnerable NEETs, face high levels of unemployment, increasing the risk of economic inactivity and social marginalisation [33, 37, 39-41].

Various theories explain the factors contributing to NEET status. Reintegrating into education or the labour market poses challenges that require a life-course perspective [12]. Recent attention has focused on the role of family background in predicting the risk of being NEET, as it determines educational attainment and later-life class positions [12-42-45]. Low parental education, unemployment, and household economic adversity increase the risk of NEET [46-48]. However, family background may not fully explain the variation over the life course [49,50]. Institutional factors such as education, labour market arrangements, and social protection policies influence NEET risks and outcomes [12,51].

The impact of family economic and educational background not only shapes access to resources and opportunities for youth but also influences their likelihood of becoming NEET.

Higher-income families can give their children better schools, extracurricular activities, and educational support, improving academic success and job opportunities. Conversely, lower-income families face socioeconomic constraints that hinder their children's educational progression, exposing them to risks of school dropout and marginalisation in the labour market [52]. Additionally, youth from disadvantaged families often face uncertainty in educational goals and lack motivation. Psychological issues like self-efficacy and adaptability relate to lower academic achievement, affecting school-to-work transitions and increasing NEET likelihood [52, 53].

The multidimensional 5D poverty measurement in Chile complements traditional income-based measures. It aims to understand poverty better and support public policy efforts. The measurement focuses on various aspects of well-being, including education, health, work-social security, housing-environment, networks, and social cohesion. Based on Alkire and Foster's 2007 framework [54], the methodology identifies households in multidimensional poverty and analyses which dimensions most affect the poverty index. Deprivation is measured against set thresholds for each indicator. Households that fall below these thresholds are classified as deprived in those indicators. If the proportion of indicators with deficiencies is equal to or greater than 22.5%, the household is considered multidimensionally poor [55]. In 2022, 13.4% of households experienced multidimensional poverty, affecting low-income households, rural communities, native peoples, migrants, and female heads of households. At the household level, the CASEN-2022 showed that 23.9% lacked schooling, 10.7% lacked occupation, and 28.5% lacked social security [56].

To contextualise this research, some relevant figures about the labour market in COVID-19 post-pandemic Chile. In 2022 in Chile, the COVID-19 pandemic caused significant job losses, with 2 million jobs lost and a 7.9% unemployment rate affecting especially urban women and low-skilled youth [57, 58]. By July 2023, youth unemployment (ages 15-24) reached

21.4%, with women more impacted [57]. On the other hand, the informal employment rate was at 27.4%, involving over 2.4 million persons, primarily women and young people, in 2022 [58]. In the same year, there were 709,864 NEET individuals, with women being 62% of this group, and Chile had high NEET rates among young people compared to other OECD countries [5, 59].

The gender perspective becomes necessary when the NEET phenomenon is analysed. Individuals, familial values and circumstances, and demographic and socioeconomic differences, particularly in vulnerable socioeconomic groups, justify a gender-separate analysis. Young women globally experience higher NEET rates than men, and several factors can explain this difference. Unpaid care and domestic duties limit women's education and work opportunities (OECD, 2019)[60]; motherhood can disrupt women's workforce participation (UNESCO, 2020) [61]; limited access to education in low-income countries affects women's qualifications (UNICEF, 2018) [62]; labour market discrimination, including wage gaps and segregation, reduces women's employment incentives (ILO, 2021) [63]; lack of childcare and flexible work options challenges women's work-life balance (OECD, 2020) [64]; safety concerns and limited mobility, especially in urban areas, impact women's job prospects (UN Women, 2021) [65]; insufficient access to financial resources restricts women's ability to start businesses (World Economic Forum, 2020) [66]. Then, it is essential to view the NEET issue from a gender perspective to address systemic discrimination and create policies that reduce gender disparities in education and employment.

This study aims to examine, from a gender perspective, the effect of family background in terms of education, occupation, and social protection based on the 5D multidimensional poverty assessment on the risk of being NEET in young people aged 20 to 29. It hopes to better understand young NEETs' situation and social inequalities and provide empirical evidence for developing inclusive and gender-sensitive public policies that favour young people, particularly women, in Chile.

II. METHOD

The study analysed the effect of three familiar household 5D- multidimensional poverty indicators, lack of schooling, lack of occupation, and lack of social protection, on the risk of youth being NEETs from a gender perspective.

Study Population and Data Collection

This study is based on the Chilean National Socioeconomic Characterization Survey (CASEN-2022) conducted in Chile by the Ministry of Social Development and Family (MSDF) in collaboration with the National Institute of Statistics (NIS). The survey is conducted every two years and provides information on poverty, education, health, housing, work, and income at a national, regional, and rural/urban level. The survey used a new housing sampling frame based on the 2017 Census and employed a probabilistic, stratified, two-stage design. Trained teams conducted face-to-face interviews using smartphones and Survey Solutions software. The study includes data from 28,498 young people aged 20-29 out of the 72,056 households, and 202,231 individuals interviewed [67,68].

Measures

Treatment Variables

This study examines the variables of households lacking schooling, occupation and social protection indicators from the dimensions of work, social security, and education in the household 5D-multidimensional poverty measurement [67]. These indicators represent important family background factors for understanding the youth risk of being NEET.

According to CASEN-2022, a household is classified as lacking schooling if at least one member over 18 has achieved fewer years of schooling than required by law. A household is considered to lack occupation—unemployment- if at least one member over 18 years old (or under 19 if they have completed high school) is unemployed, meaning they do not currently have a job and are actively seeking work during the reference period. Additionally, a household lacks social protection if at least one member aged 15 or older who is employed does not contribute to the

pension system and is not an independent worker with a completed higher education degree. Constructed in this way, this indicator concentrates on informal household work. The database represents these variables with binary values (1 = treated, 0 = controls).

Outcome Variable

The outcome variable corresponds to young people aged 20-29 who were unemployed and not engaged in study or training (NEETs). The 15-19 age group was excluded, as they are mostly still in school, and it is not expected to transition to the labour market.

An operational definition of NEET was constructed to identify individuals who did not attend school in 2022 (question e3) and did not work for at least one hour during the past week (question o1). This definition includes young NEETs who have not actively searched for work in the last month (question o6) and those who reject work even when offered (question o5). Young people who were preparing for exams, attending pre-university courses, not actively seeking employment due to having another source of income, or participating in other activities for at least one hour during the past week were excluded. The analysis then classified individuals into a binary variable (1 = NEET, 0 = non-NEET).

Covariates

The CASEN-2022 survey selected individual and familiar household factors based on their potential association with exposed and outcome variables. The CASEN-2022 questionnaire collected data on age, sex, marital status, mental health, disability, pregnancy, number of children, head of household, and household subsidies. MSDF provided tune-up data on ethnicity, household structure, household size, education attainment, and 5D multidimensional poverty. In turn, the Economic Commission for Latin America (ECLA) contributed a variable for total household income to determine deciles. Additionally, regional aggregated data were obtained from the Ministry of Education and NIS for the university-enrolled cohort rate, unemployment rate, and informal employment

rate variables used to adjust the models, ensuring the accuracy of the analysis.

Feminine gender, single or divorced marital status, mental difficulty, disability, pregnancy, head of household, no study for over three years, presence of people aged 60 or over in the home, living in a two-parent home, belonging to native ethnicity, and living in a 5D-multidimensional household poverty home were included as dichotomous variables (1 = a positive condition; 0 = others). A household is classified as being in 5D multidimensional poverty if the proportion of indicators with deprivation is equal to or greater than 22.5% [56,67].

The educational attainment of young people and households receiving subsidies from the State were included as categorical variables. Schooling level was categorised into four groups based on the highest level of achievement. The reference group was graduates/postgraduates. The households receiving social transfers were categorised into three groups based on the proportion of subsidy received, and those that received more than 10% of household income were the reference group.

The discrete variables included age, number of children, total number of people in the household, autonomous household income deciles, university 2018-2022 cohort graduates, unemployment rate, and informal employment rate.

Statistical Analyses

The study was conducted from a gender perspective, using separate models for men and women. For women, the pregnancy covariate was included in the models. Before applying the propensity score models to reduce bias, the multicollinearity of variables was examined using correlation matrices and the variance inflation factor. Then, a Propensity Score Matching (PSM) approach matched the treated and control groups to create a similar distribution of baseline characteristics. Finally, the average treatment effect was estimated for the overall population and the treated individuals.

The propensity score was estimated using the *pscore* command with the logistic model [69].

The propensity score models included the survey weights to maintain external validity [70]. The balance of the propensity score was assessed through graphs and standardised mean differences using the *pstest* command. The PSM models used the *psmatch2* command with a one-to-one nearest-neighbour matching technique and a 0.2 calliper level. The balance in the matched sample was also assessed using graphs and standardised mean differences.

Once an acceptable PSM balance was achieved, the Absolute Risk Reduction (ARR) and Relative Risk Reduction (RRR) were computed to compare outcomes between treated and control participants in the matched sample. The average treatment effect in the population (PATE) and on the treated (PATT) was estimated using the *teffects psmatch* command with one-to-one nearest-neighbour without calliper, with a logit model, and standard errors calculated with the Abadie-Imbens standard [71].

Statistical analyses were performed using STATA version 14.0. Descriptive statistics provided a profile of the sample's general characteristics. Statistical significance was tested using Wald's chi-square statistic for categorical variables and t-test for discrete variables, accepting a significance level of 5%.

III. RESULTS

In the sample, 23.1% of young people aged 20-29 were NEETs, with variations seen by age and gender. The NEET rate was 20.4% for those aged 20-24 and 25.4% for those aged 25-29. The gender gap in NEET rates widens with age, with women experiencing higher rates.

In the raw data, the 5D multidimensional poverty indicators reveal that, on average, 29.2% of young people live in households that lack schooling, 18.7% lack occupation, and 38.5% lack social protection. Among those who are NEET, these figures are even more concerning: 39.8% live in households that lack schooling, 39.3% lack occupation, and 33.6% lack social protection.

Individual factors such as feminine gender, married/union marital status, native ethnicity, psychiatric/mental difficulties, disability, and

lower education levels, and family factors such as numerous families, living in a two-parent home, belonging to lower-income deciles, receiving social transfers, and experiencing higher rates of

5D-multidimensional poverty are significantly associated with a higher likelihood of being NEETs. Table 1 provides further socio-demographic details of the study population.

Table 1: Socio-demographic characteristics of the raw sample according to NEETs status. CASEN 2022

Characteristics	NEETs status	
	NEETs(n: 6,595)	Non NEETs (n: 21,903)
Age (avg, SD) n.s.	24.7 (2.83)	24.4 (2.87)
Women **	63.0%	47.2%
Single/divorced **	65.0%	74.7%
Psychiatric/mental impairment **	5.2%	1.7%
Disability **	9.9%	5.1%
Nº of children born alive (avg, SD) **	1.5 (0.70)	1.3 (0.60)
Belong to native people *	16.9%	15.4%
Living in two-parent home **	65.4%	62.6%
Head of household **	13.8%	16.6%
Nº of people in the household (avg, SD)**	4.08 (1.63)	3.75 (1.59)
People aged 60 or over in household (avg, SD)n.s.	0.29 (0.45)	0.28 (0.45)
deciles of household income (avg, SD)**	4.88 (2.63)	6.37 (2.63)
Schooling level **		
scientific-humanistic highschool	46.3%	23.3%
technical highschool	17.6%	10.6%
higher-level technicians	16.1%	19.3%
graduates/postgraduates (ref.)	20.0%	46.8%
No study for over 3 years **	72.6%	78.5%
Household get social transfers **		
no receive social transfers	35.7%	45.5%
up to 10% of household income	34.9%	37.5%
more than 10% of household income (ref.)	29.4%	17.0%
5D-multidimensional poverty **	30.8%	17.0%
Household lacking school **	39.8%	26.0%
Household lacking occupation **	39.3%	12.9%
Household lacking social protection **	33.9%	40.2%
Regional Graduated rate(avg, SD) **	0.208 (0.029)	0.211 (0.026)
Regional Unemployment rate (avg, SD)**	7.72 (1.33)	7.57 (1.39)
Regional Informal employment rate(avg, SD) **	29.3 (4.74)	28.5 (4.71)

avg: average ; **ref:** reference value ; ***** : pvalue < 0,05 ; ****** : p-value < 0,001 ; **n.s.:** non significant

Table 2 summarises the point estimates of RRR and ARI and coefficients de PATE and PATT of the women and men PSM models. After this Table, the main results of the PSM models are detailed from a gender perspective.

Table 2: The point estimates of the RRR and ARR, coefficients of the PATE and PATT on NEET in the matched samples. CASEN 2022

	RRR	ARR	PATE	PATT
Women				
H. lack schooling	-0.972 (-1.010 - -0.852)	-0.366 (-0.402 - -0.331)	-0.022 ^{n.s.} (-0.077 - 0.034)	-0.047 ^{n.s.} (-0.102 - 0.008)
H. lack occupation	-0.954 (-1.072 - -0.843)	-0.366 (-0.398 - -0.332)	0.353 ** (0.300 - 0.406)	0.321** (0.269 - 0.372)
H. lack social protection	0.261 (0.195 - 0.322)	0.121 (0.089 - 0.154)	-0.209** (-0.249 - -0.169)	-0.228** (-0.273 - -0.182)
Men				
H. lack schooling	0.091 (-0.019 - 0.189)	0.028 (-0.005 - 0.061)	-0.084** (-0.131 - -0.038)	-0.073* (-0.123 - -0.022)
H. lack occupation	-1.874 (-2.122 - -1.647)	-0.404 (-0.437 - -0.370)	0.348** (0.305 - 0.391)	0.340** (0.292 - 0.387)
H. lack social protection	0.354 (0.279 - 0.420)	0.129 (0.099 - 0.158)	-0.132** (-0.169 - -0.095)	-0.139** (-0.180 - -0.097)

RRR: Relative Risk Reduction, ARR: Absolute Risk Reduction.

PATE: Average Treatment Effect in the Population, PATT: Average Treatment Effect on the Treated.

*: p-value < 0,05 ; **: p-value < 0,0001 ; n.s.: non significant

IV. WOMEN NEETS MODELS

A sample of 14,501 women aged 20-29 was analysed. Of them, 28.1% live in a household lacking schooling, 18.2% lack occupation, and 37.9% lack social protection. Of the total, **28.6%** were considered to be NEETs. Among NEET women, 38.7% live in a familiar household lacking schooling, 32.2% in households lack occupation, and 33.2% in households lack social protection.

Women NEETs Household Lacking Schooling Model

After the matching procedure in the household lacking schooling model, the sample size was reduced to 3,630 observations, and the overall standardised mean difference between treated and control groups was 3.9%, indicating balanced covariates.

The matched sample indicated that young women from households lacking schooling had a 36.6% higher absolute risk (ARR) of being NEET than those who did not experience this deprivation. Additionally, the relative risk (RRR) of being NEET increases by 97.2% for young women in households lacking schooling. On the other hand, the average treatment effect on the population (PATE) and the effect of households lacking schooling on those treated (PATT) showed a no significant 2.2% and 4.7% lower probability of being NEET, respectively. That means that the expected difference in the risk of being NEET between women aged 20-29 exposed to

households lacking schooling and those not exposed to this situation, and the effect of the households lacking schooling on the risk of women aged 20-29 being NEET, were small and insignificant.

Women NEETs Household Lacking Occupation Model

After the matching procedure in the household lacking occupation model, the sample size was reduced to 4,033 observations, and the overall standardised mean difference between treated and control groups was 2.1%, indicating balanced covariates.

The matched sample revealed that young women from households lacking occupation had a 36.6% higher absolute risk (ARR) of being NEET than those without this deprivation. The relative risk (RRR) of being NEET increases by 95.4% for young women in households lacking occupation. The PATE show that in the population, young women living in households lacking occupation had a significantly 35.3% higher probability of being NEET than those living without this deprivation. In turn, PATT shows that the average effect of a household lacking occupation was a significant 32.1% higher probability of being NEET in young women living with this household deprivation.

Women NEETs Household Lacking Social Protection Model

After the matching procedure in the household lacking a social protection model, the sample size was reduced to 3,606 observations, and the overall standardised mean difference between treated and control groups was 3.3%, indicating balanced covariates.

The matched sample indicated that young women from households lacking social protection had a 12.1% lower absolute risk (ARR) of being NEET than those without this deprivation. The relative risk (RRR) of being NEET decreases by 26.1% for young women in households lacking social protection. The PATE revealed that in the population, young women living in households lacking social protection had a significant 20.9% lower probability of being NEET compared to those living in households without this deprivation. In turn, PATT showed that the average effect of a household lacking social protection was a significant 22.8% lower probability of being NEET in young women facing this household deprivation.

V. MEN NEETS MODELS

A sample of 13,997 men aged 20-29 was analysed. Of them, 30.3% live in a household lacking schooling, 19.3% lack occupation, and 39.1% lack social protection. Of the total, 17.5% were considered to be NEETs. Among those men NEETs, 41.6% live in a household lacking schooling, 48.6% in households lacking occupation, and 34.4% in households lacking social protection.

Men NEETs Household Lacking Schooling Model

After the matching procedure in the household lacking schooling model, the sample size was reduced to 3,700 observations, and the overall standardised mean difference between treated and control groups was 2.2%, indicating balanced covariates.

The matched sample revealed that young men from households lacking schooling had a nonsignificant 2.8% lower absolute risk (ARR) of being NEET than those without this deprivation.

The relative risk (RRR) of being NEET does not significantly decrease by 9.1% for young men in households lacking schooling. The PATE showed that in the population, young men living in a household lacking schooling had a significantly 8.4% lower probability of being NEET than those living without this deprivation. In turn, the PATT showed that the average effect of a household lacking schooling was a 7.3% lower probability of being NEET in young men facing this household deprivation.

Men NEETs Household Lacking Occupation Model

After the matching procedure in the familiar household lacking occupation model, the sample size was reduced to 4,166 observations, and the overall standardised mean difference between treated and control groups was 2.0%, indicating balanced covariates.

The matched sample revealed that young men from households lacking occupation had a 40.4% higher absolute risk (ARR) of being NEET than those without this deprivation. The relative risk (RRR) of being NEET increases by 188% for young men in households lacking occupation. The PATE revealed that in the population, young men living in a household lacking occupation had a significantly 34.8% higher probability of being NEET than those living without this deprivation. In turn, the PATT showed that the average effect of a household lacking occupation was a 34.0% higher probability of being NEET in young men living with this household deprivation.

Men NEETs Household Lacking Social Protection Model

After the matching procedure in the familiar household lacking a social protection model, the sample size was reduced to 3,708 observations, and the overall standardised mean difference between treated and control groups was 3.2%, indicating balanced covariates.

The matched sample revealed that young men from households lacking social protection had a 12.9% lower absolute risk (ARR) of being NEET than those without this deprivation. The relative risk (RRR) of being NEET decreases by 35.4% for

young men in households lacking social protection. The PATE indicated that in the population, young men living in households lacking social protection had a significant 13.2% lower probability of being NEET than those living without this deprivation. In turn, PATT shows that the average effect of a household lacking social protection was a significant 13.9% lower probability of being NEET in young men facing this household deprivation.

VI. DISCUSSION

Ensuring successful transitions from education to employment for young people is crucial, as prolonged joblessness or inactivity can discourage them from re-engaging in education or seeking employment and have long-term consequences, such as economic and/or social exclusion [3-5].

The NEET status among youth is a significant socioeconomic issue that policymakers need to understand and address. To tackle the NEET problem, it's crucial to find out why young people are disengaged from education and work. A key factor is family background, which affects educational success and social status.

To better understand the study findings, it is essential to consider the national context. In Chile, after four decades of a neoliberal economic model, wealth concentration has increased, leading to social issues like weakened labour unions and privatised pension systems. This has caused a fragile job market, with rising unemployment and informal work, especially among young people and women, increasing income inequality. The COVID-19 pandemic worsened conditions for disadvantaged groups. In 2022, informal employment was 26.4% for men and 28.3% for women [72]. Total unemployment rose by 0.9 percentage points, while youth unemployment increased by 4.1 percentage points, reaching 21.4% in July 2023 [57]. In 2022, 13.4% of households faced multidimensional poverty, affecting lower income groups, rural communities, and female heads of households, particularly those aged 18-29 and 60 or older [56].

This study examines how family background influences the risk of being NEET among young people in Chile. It analysed the effect of the households experiencing a lack of education, employment, and social protection from a 5D multidimensional poverty assessment on the risk of being NEET in the young aged 20-29. The research utilised nationally representative data adjusted by national employment and education metrics. A PSM approach was employed to create a balanced dataset, allowing for the estimation of the effect of multidimensional household poverty indicators on the general population and treated individuals, providing valuable insights into the family factors contributing to youth NEET status.

The study found that 23.1% of young people aged 20-29 in Chile were NEET after the COVID-19 pandemic. NEET rates were exceptionally high among young women, individuals living in rural areas, those with a high school education or less, and those married or in unions. Additionally, 48% of NEET individuals came from economically disadvantaged households, specifically from the lowest two income quintiles.

From a gender perspective, it must be noted that the study also revealed that the NEET rate increased with age, especially among women. Various factors such as disability, mental health issues, marital status, ethnicity, number of children, head of household role, household unemployment or inactivity, single parenthood, father living at home, early pregnancy, and rural residence contributed to these gender differences. These statistically significant differences align with previous evidence that age and gender predict NEET [10, 12, 42, 44, 73-76], with women being disproportionately affected. [8, 10, 74]. As young people age, especially women, they are more likely to become parents (43%) or heads of households (18%). However, women fared worse than men in all aspects of being NEET, with a significantly higher percentage of women being inactive (18% higher than men) or reluctant to work if offered a job (16% higher than men). This gender disparity is further highlighted in the fact that 45% of NEET women are daughters, 21% are wives, and 15% are tenants about the head of household. In these situations, they are commonly

dedicated to caring for children, siblings, or older adults and performing household chores.

The study found that households lacking occupation increased the likelihood of young people being NEET for both genders. This result may be linked to low household income and long-term unemployment among family members, leading to a lack of motivation and diminished support for education and work among young members. As a result, young people may experience unfavourable circumstances that contribute to NEET status and social isolation. The effect of households lacking occupation was found to be moderately influenced by gender, particularly affecting women's education and job opportunities due to traditional roles within the home. These findings align with previous research that indicated parental unemployment raises the likelihood of young people becoming NEET [44, 46, 77, 78].

Unexpectedly, the households lacking schooling reduced the risk of being NEET for both genders, but this was only statistically significant for men. This finding goes against previous studies linking low parental education to a higher NEET risk [10, 43, 46, 47, 50, 77, 79]. Methodological issues may explain this. The definition of households lacking schooling includes individuals over 18 who have not finished high school. This scope could overlap with the inclusion of some young NEET individuals in this definition, affecting the independence of both the treatment and outcome variables in the models. It was not possible to isolate this overlapping. Among NEET individuals from these households, 22% reported elementary school as their highest education level, with higher rates among men and increasing with age.

Finally, the study revealed that households lacking social protection, i.e., a proxy of informal employment, show a moderate decrease in the risk of being NEET, particularly for women. One possible explanation is that a higher proportion of non-NEET young individuals, mainly men, were informal workers than NEET individuals, primarily women, who probably fulfilled traditional household roles and caregiving responsibilities and faced labour market barriers.

Furthermore, 64.3% of households with NEET individuals receive social transfers from the state. This state transfer marginally favoured households with NEET and lacked social protection. This finding supports earlier research showing that increased public social spending can reduce the risk of young adults becoming NEET. Such spending mainly benefits disadvantaged youth, especially those with low educational attainment and backgrounds of low-educated parents [80-82].

This study has several strengths, including a large and representative sample, treatment variables generated by experts, the PSM approach to minimise confounding and selection bias, and the inclusion of survey weight for generalizability. However, there are limitations. Data relied on self-reports and indirect information about non-training activities. The analysis was performed based on cross-sectional data; longitudinal data would have been preferable. Furthermore, some methodological problems were identified. A possible overlap in the treatment and outcome variables could be affecting the independence of these variables in households lacking schooling models. Additionally, confounding factors like personality, substance addiction, and social benefits specific to youth were not captured, potentially leading to unobserved confounders in the models.

In conclusion, the study shows that the NEET phenomenon in Chile disproportionately affects young women. The gender gap in NEET rates widened with age as women became parents and/or heads of households. Women were also more likely to be inactive or unwilling to work due to traditional household roles or caregiving responsibilities, limiting women's workforce participation. Regarding 5D multidimensional poverty indicators, households lacking occupation have a significantly increasing effect on the risk of being NEET, particularly among women; the households lacking social protection decrease the risk of being NEET, mainly in women, and the households lacking schooling reduced the risk of being NEET for both genders, but it was significant only for men. However, this result

must be interpreted with precaution due to methodological issues.

Addressing the gender gap in NEET provides insights into women's life circumstances, including family background and barriers to education and employment, leading to more effective policy interventions [60]. Future research should consider panel data and youth life trajectory information to assist policymakers in preventing youth unemployment and social exclusion. Aligning education, training, and labour market policies is key to addressing these challenges effectively, particularly in Low and Middle-income countries.

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Data Availability Statement

The data supporting this study's findings can be found at <https://observatorio.ministeriodesarrollosocial.gob.cl/encuest-a-casen-2022> (a publicly available repository URL). In the heading named "Base de datos Casen 2022 STATA (versión 18 de marzo 2024)"

Conflicts of Interest

The authors declare no conflicts of interest.

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