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DOES THE REGIONAL WELL-BEING AFFECT NEET PHENOMENON? EVIDENCE FROM ITALY

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Abstract

GDP has been the most widely used measure index to explain the factors contributing to economic and social growth. However, it seems to be a limited measure as it fails to provide images about the decline in people’s lives, such as unemployment, health, safety and social interactions. For this reason, following the line of research that deals with how the quality of life affects economic growth, the objective of the present work is to Study how the effects of the indicators of well-being attenuate the phenomenon of those who cannot engaged in education, employment or training (NEET). Focusing on the Italian regions, we implement a Principal Component Analysis (PCA), in which we have extracted synthetic indicators for each of the dimensions of well-being under consideration, and the SYS-GMM procedure. The main findings reveal that, among the regional indicators of well-being, the pillars associated with culture and leisure, the environment, the provision of public services, health status, personal safety, and social relations contribute to reducing the phenomenon of NEET in Italy.

JEL CLASSIFICATION: I31, J13, R23

KEYWORDS: NEET, REGIONAL WELL-BEING, UNEMPLOYMENT

1. Introduction

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The term 'NEET' is intended to describe young people who are not in education, employment or training'.

According to the existing literature, the NEET indicator is intended to indicate two different conditions, namely unemployment, understood as the active behaviour of job seekers, and inactivity, indicating the lack of effort to change the status of unoccupied and unoccupied in education or training (Caroleo et al., 2020).

The effects on the Neets of GDP (Bruno et al., 2014; Drakaki et al., 2014; Quintano et al., 2018; Vancea & Utzet, 2018; 6. Rodriguez-Modroño, 2019), unemployment (Bell & Blanchflower, 2010), school dropout (Pastore, 2014) and third level of education (Kotroyannos et al., 2015; De Luca et al., 2020) are known in literature. In particular GDP has been the most used measuring index to explain the factors contributing to social and economic growth. However, it appears to be a limited measure (Michalos, 2008; Larraz Iribas & Pavia 2010; Costanza et al., 2009; Fleurbaey & Beyond, 2009; Stiglitz et al., 2009; UNDP, 2010; OECD, 2011) as it fails to provide images about people's dimensions of life, such as unemployment, health, safety and social interactions (Sarra & Nissi, 2020).

An important part of the empirical literature has focused its studies on factors influencing welfare indicators, including culture and leisure (Grossi et al., 2012; Konlaan et al., 2000; Hyppa et al., 2006; Bygren, 2009); employment and essential public services (Cersosimo & Nisticò, 2013); environment (Khan et al., 2020); health (Diener & Chan, 2011; Dolan et al., 2008); personal safety (OECD, 2013); research and innovation (Annoni & Dijkstra, 2013; Annoni & Kozovska, 2010; Hong et al. 2012; Huggins & Davies, 2006; McCann & Oxley, 2012); social relations (Schwab & Porter, 2008). In this wake of thought, recent studies have deepened the theme with reference to the Italian regions (Sarra & Nissi, 2020; Ferrara & Nisticò, 2015).

A further innovative strand that is gaining ground in recent years is the one that sees the relationship between some indicators of well-being and the NEET phenomenon. A mechanical and alienating work, tends to make men dissatisfied, as well as lack of employment both academically and at work. Some authors, in fact, taking inspiration from an indigenous paradigm, *sumak kawsay*¹, that defines the necessary pillars for a better quality of life, have found that within the working environment, Well-being is fundamental as it makes individuals dynamic, contributing to their personal growth (González-

¹ It's neologism in Quechua created in the 1990s by socialist-indigenous organizations.

Díaz et al., 2021).

Other research, examining the self-reported subjective well-being of young people, within 24, European countries that do not have a job, education or training, noted that the welfare of young NEETs will be higher in contexts where the availability of social protection is greater and that inequalities in welfare between neet and non neet groups will be reduced to a minimum in contexts where school transitions-prolonged working towards adulthood are supported by social norms (Jongbloed & Giret, 2022).

Lórinč et al. (2020) believe that unfulfilled support needs, lack of career advice and socio-economic disadvantage can lead to school disengagement, dropout and finally, NEET. Since, in the long term, this issue not only generates high social costs, but can also undermine future job opportunities, earnings, psychosocial well-being and the health of individuals, some economists have tried to prevent the spread of the phenomenon, underline the importance of funding in education and support services, together with changes in socio-economic deprivation policies and in the labour market.

In light of previous studies, in order to contribute to the literature on the topic, the aim of the following paper is to investigate the relationship between well-being indicators and NEETs.

2. Method and data

Through the following econometric dynamic model applied to panel data, we examine the extent to which the regional socio-economic well-being alleviate or not the NEET phenomenon at the Italian regional level. In particular, we estimate the following equation:

$$NEET_{i,t} = \beta_0 + \beta_1 RWBI_{i,t} + \gamma_n \sum_{j=1}^J X_{ni,t} + \mu_i + \eta_t + \varepsilon_{i,t} \quad (1)$$

In Equation [1], the dependent variable (NEET_{i,t}) is the share of NEET aged 15-29 over the respective population in the same age class². The study covers 20 regions observed during a period of 17 years (2004-2020). Regional well-being indicators (RWBI), instead, represent our key regressors and are extracted from ISTAT dataset and in particular: “Aspects of daily life” dataset, BES indicators related to the report on equitable and sustainable well-being

² NEET are defined as young individuals who are not in employment, education or training.

and DPS dataset related to territorial indicators for development policies, elaborated. More specifically, according to Ferrara and Nisticò (2015), being a large database (see table 1) we implement a Principal Component Analysis (PCA), technique commonly used for reducing the dimensionality of our dataset while preserving as much as possible of the information contained in the original data, minimizing information loss. Through the PCA we have extracted the synthetic indicators for each of the dimensions of well being examined.

Table 1. Well-being dimensions

Indicator	Definitions
<i>Culture and free time</i>	It summarizes a set of activities carried out in the cultural and free time fields including: attending theater, cinema, music, sporting events, etc.; read books and newspapers; to practice sports or not.
<i>Social relations</i>	It summarizes the degree of satisfaction with friends and family relationships, social participation and interest in voluntary.
<i>Research and innovation</i>	It summarizes referable including public spending on R&D, workers in the R&D sector, propensity to patent and ability to export.
<i>Environment</i>	It summarizes variables related to environmental protection, including electricity produced from renewable sources, use of fertilizers in agriculture, urban waste produced, population density and protected areas.
<i>Employment</i>	It summarizes variables referable to the labor market such as employment rate, long-term unemployment, irregular employment, youth unemployment, persons with temporary jobs for at least 5 years, employment rate of women aged 25–49.
<i>Health</i>	It summarizes health variables including life expectancy at birth, infant mortality, overweight and obesity, sedentary lifestyle and adequate nutrition.
<i>Material living conditions</i>	It summarizes variables including disposable income per capita, income inequality, risk of poverty, severe housing deprivation, difficulty making ends meet, low work intensity and overburdening of the cost of housing.
<i>Personal security</i>	It summarizes variables such as numbers of burglaries, pickpocketings, robberies and perception of crime risk.
<i>Essential public services</i>	It summarizes variables such as difficulties in accessing some services, Irregularities in the distribution of water and electricity, satisfaction with mobility services, use of public transport, number of general practitioners.

Source: ISTAT database.

Furthermore, the wide socio-economic differences among the Italian regions lead us to consider a set of well-established structural characteristics ($X_{i,t}$). In particular, we control for the, gross domestic product (GDP) per capita³, the unemployment rate ($ur_{i,t}$), the school dropout rate ($dropout_{i,t}$)⁴, and the population with a tertiary education (graduates)⁵.

The GDP per capita, besides capturing the overall level of development, can be considered a proxy of wages (Etzo, 2011). We expect a negative coefficient associated to this variable since it should be negatively correlated with NEET phenomenon. The unemployment rate is included to take into account the degree of efficiency of labour market. According to the economic theory the sign of its coefficient is expected to be negative as well (Bradley et al., 2020). Furthermore, according to a well-established literature a higher dropout rate can be associated to a larger share of NEET, and this is due to the fact that leaving school or other forms of training prematurely increases the risk of becoming NEET (Giret et al., 2020). Finally, since the human capital has been considered as a factor able to shape NEET status, we included the share of tertiary educated over the total population among the control variables the adult population education level. Each regression also control for a full set of time dummies η_t and for the regional time-invariant characteristics μ_i , while $\varepsilon_{i,t}$ represents the idiosyncratic error term.

The adoption of a dynamic panel data approach prompted us to discard a priori static estimators such as fixed- or random-effects models. In contexts characterized by “small T, large N” (as in our case), static panel approaches lead to biased estimations of the coefficient associated to the lagged dependent variable (Nickell, 1981). Furthermore, the endogeneity issues that stem from the reverse causality between the regional well-being indicators and the share of NEET could bias the estimates as well. For these reasons, we opt for a System Generalized Method of Moments (SYS-GMM) estimator developed by Blundell & Bond (1998) which is able to address several endogeneity issues related to: the inclusion of a lagged dependent variable, the reverse causality, and the time-invariant individual characteristics.

The validity of moment conditions is tested through the Hansen's J test of

³ Gross domestic product at current market price (euro per inhabitants).

⁴ People (aged 18-24) with at most the middle school certificate, who have not completed a professional training course (2 or more years) recognized by the Region and who do not attend school courses or are involved in training activities (% over the respective population aged 18-24).

⁵ Number of graduates as a percentage of provincial population.

overidentifying restrictions (Hansen, 1982), while the absence of second-order autocorrelation is controlled by implementing the Arellano and Bond test (Arellano & Bond, 1991).

3. Results

In Table 2, we report the SYS-GMM estimation results. First of all, the positive and statistically significant coefficient associated to the initial share of NEET indicates a persistence of this phenomenon over time. This means that region characterized by a higher weight of NEET tend to register an increase of this share in the following periods. Many regional well-being indicators, instead, seem to alleviate this phenomenon. In particular, we find that pillars associated to the culture and free time, the environment, the public services endowment, the health condition, the personal security, and social relations play a crucial role in reducing the risk of becoming NEET. In the light of the increasing awareness about the role of quality of life elements, the statistical significance of these pillars highlights important socio-economic factors that should be strengthened in order to reduce the share of NEET.

Yet, the results, besides revealing original elements associated to the well-being pillars, also indicate an important role associated to the consolidated economic determinants of NEET. More specifically, by looking at the control variables we can observe that the labour market characteristics (unemployment rate) and the dropout rate are always positive and statistically significant confirming that both the lower probability to find a job and the premature school leaving increase the regional base of NEET. On the contrary, a higher level of wage proxied by the GDP per capita seems to produce beneficial consequences by reducing the NEET phenomenon. Finally, we do find statistically significant evidence concerning the human capital endowment.

Table 2. Estimation results for all the Italian provinces.

Dependent variable	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM
	Neet (1)	Neet (2)	Neet (3)	Neet (4)	Neet (5)
<i>neet_{t,t-1}</i>	0.4834*** (0.0831)	0.4184*** (0.116)	0.4606*** (0.0928)	0.7222*** (0.1346)	0.6747*** (0.1253)
ur	0.2757*** (0.0635)	0.1451** (0.072)	0.2902*** (0.0529)	0.2054*** (0.0781)	0.2220*** (0.0573)
GDP	-0.1360** (0.0567)	0.11 (0.0829)	0.0237 (0.078)	-0.2315** (0.1012)	-0.2816** (0.1349)
dropout	0.1005*** (0.023)	0.0782** (0.0322)	0.1206*** (0.0215)	0.1236*** (0.0303)	0.1145** (0.0451)
graduates	-0.0457 (0.0379)	0.0986** (0.0461)	-0.0019 (0.041)	0.0024 (0.0372)	-0.0273 (0.0489)
culture	-0.0492*** (0.0127)				
labour		0.1807*** (0.0456)			
environment			-0.0685*** (0.0228)		
public services				-0.0895*** (0.0271)	
health					-0.1046** (0.0505)
constant	2.1999*** (0.6135)	-0.2104 (0.8015)	0.4258 (0.8315)	2.4029** (1.0626)	3.1318** (1.4574)
Observations	320	320	320	320	320
Provinces	103	103	103	103	103
Time effects	Yes	Yes	Yes	Yes	Yes
Provincial effects	Yes	Yes	Yes	Yes	Yes
Arellano-Bond (1)	0.000	0.000	0.000	0.000	0.000
Arellano-Bond (2)	0.727	0.143	0.868	0.588	0.548
Hansen's J test	0.469	0.584	0.49	0.47	0.494

Source: our elaborations. ISTAT data.

Note: *statistically significant at the 10%; **statistically significant at 5%. *** statistically significant at 1%. Standard errors clustered by provinces are given in parenthesis. Except for the regional well-being indicators, all the other variables are expressed in logarithm.

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Table 2. (continued)

Dependent variable	SYS-GMM	SYS-GMM	SYS-GMM	SYS-GMM
	Neet (6)	Neet (7)	Neet (8)	Neet (9)
<i>neet_{i,t-1}</i>	0.6680*** (0.057)	0.2720*** (0.0613)	0.4104*** (0.1101)	0.5760*** (0.1167)
ur	0.1742*** (0.0565)	0.4674*** (0.0361)	0.3818*** -0.0725	0.2258*** -0.0841
GDP	0.0505 (0.0663)	-0.0623 (0.0727)	-0.1625** -0.0717	0.0521 -0.0895
dropout	0.0737* (0.0383)	0.0998*** (0.0291)	0.0898*** -0.0257	0.0895*** -0.0258
graduates	0.0632* (0.0354)	0.0276 (0.038)	-0.0075 -0.0404	0.0181 -0.0376
living conditions	0.0516 (0.0358)			
personal security		-0.0254*** (0.0083)		
R&D			0.0396*** (0.0153)	
social relations				-0.0575* (0.0325)
constant	-0.2837 (0.5261)	1.4418 (0.8801)	2.3686*** (0.8798)	-0.0429 (0.9722)
Observations	320	320	320	320
Provinces	103	103	103	103
Time effects	Yes	Yes	Yes	Yes
Provincial effects	Yes	Yes	Yes	Yes
Arellano-Bond (1)	0.000	0.000	0.000	0.000
Arellano-Bond (2)	0.2739	0.4251	0.6761	0.4217
Hansen's J test	0.47	0.302	0.441	0.389

Source: our elaborations. ISTAT data.

Note: *statistically significant at the 10%; **statistically significant at 5%. *** statistically significant at 1%. Standard errors clustered by provinces are given in parenthesis. Except for the regional well-being indicators, all the other variables are expressed in logarithm.

4. Conclusions

During the past few decades, the economic literature has shown a growing interest towards the NEET phenomenon by exploring the different channels through which individuals are incentivized to actively find a job or prosecute with their formation. Among these factors, while a considerable attention has been paid on the role played by economic factor *strictu sensu* such as the unemployment rate, the income level or the dropout, lower consideration has been posed on institutional, environmental, and cultural elements.

By using a SYS-GMM procedure to account for: the endogeneity of the lagged dependent, the reverse causality, and provincial characteristics, this paper provides an original contribution to the literature by investigating within a comprehensive empirical framework the role associated to the consolidated determinants of the NEET phenomenon and to the less explored ones related to the welfare sphere. In particular, this study, focusing on the Italian regions, analyses the extent to which the several well-being pillars could have an effect in alleviating the weight of NEET.

Interesting novel evidence emerge. In particular, the main findings reveal that, among the regional well-being indicators, the pillars associated to the culture and free time, the environment, the public services endowment, the health condition, the personal security, and social relations contribute to reduce the NEET phenomenon in Italy. Among the economic determinants, the labour market inefficiencies as well as the dropout rate represent worsening conditions for young people, while higher level of income per capita stimulates individuals to find a job or to educate

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