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NEETs in Europe

Between 2000 and 2022 they decreased on average by a value equal to -22.13%

Eurostat calculates the amount of NEET-Not in Employment, Education and Training in Europe. The indicator measures the share of the population aged between 15 and 29 who is not employed and is not involved in education or training activities. The indicator measures the share of the population aged between 15 and 29 who is not employed and is not involved in education or training activities. The numerator of the indicator refers to people who fulfill the following two conditions: (a) are not employed (i.e. unemployed or inactive as defined by the International Labor Organization) and (b) have not received any education or training (i.e. neither formal nor non-formal) in the four weeks preceding the Labor Force Survey (LFS). The denominator includes the total population aged 15-29.

Ranking of European countries by value of NEETs in 2022. Romania is in first place by value of NEETs with a value equal to 19.8, followed by Italy with a value equal to 19 and Greece with an amount equal to 15, 3. In the middle of the table are Lithuania with an amount of 10.7 units, followed by Estonia with a value of 10.6 units and Finland with a value of 9.3 units. Sweden closes the ranking with a value of 5.6 units, followed by Iceland with a value of 5.3 units and the Netherlands with a value of 4.2 units.

Ranking of European countries by the value of the percentage change of NEETs in European countries between 2000 and 2022. Cyprus is in first place by the value of the percentage change of NEETs between 2000 and 2022 with an amount equal to 27.83% equal to an amount of 3.2 units, followed by Romania with a value equal to 10.61% equal to 1.9 units, and by Denmark with a value equal to +6.76% equal to an amount of 0.5 units. In the middle of the ranking are Poland with a change equal to an amount of -23.78% equal to an amount of -3.4 units, followed by Belgium with a value of -24.59% equal to an amount of -3 .00 units and from Slovakia with an amount of -25.45% equal to an amount of -4.2 units. The ranking is closed by Iceland with a variation equal to an amount of -43.01% equal to an amount of -4 units, followed by Latvia with a variation equal to an amount of -45.67% or equal to an amount of -9.5 units, followed by Ireland with a change equal to an amount of -56.93% equal to an amount of -11.5 units.

Clustering with k-Means algorithm using the Silhouette coefficient. A Silhouette coefficient clustering is presented below. Two clusters have been identified, namely:

- Cluster 1: Bulgaria, Greece, Romania, Spain, Italy, Croatia, Ireland, Slovakia, Cyprus, Latvia;
- Cluster 2: Austria, Norway, Slovenia, Germany, Finland, Denmark, Sweden, Malta, Luxembourg, Netherlands, Iceland, Czechia, Belgium, Portugal, Lithuania, France, Estonia, Hungary, Poland.

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From the point of view of the median, it appears that the median value of NEETs for C1 is equal to 14, while the value of NEETs for C2 is equal to 8.6. The following ordering of the clusters therefore derives: $C1 > C2$. From a geographical point of view, it appears that the value of NEETs tends to be higher in the countries of Southern and Eastern Europe than in the countries of Central-Northern Europe.

Network Analysis with Euclidean distance. A network analysis with Euclidean distance is presented below. The presence of one complex network structure and three simplified network structures is detected.

The complex network structure is indicated as follows:

- Denmark has a connection with Austria amounting to 0.62 units;
- Austria has a connection with Denmark in the amount of 0.62 units and with Finland in the amount of 0.62 units;
- Finland has a connection with Austria amounting to 0.62 units.

In addition, the following simplified network structures are detected, i.e.:

- Luxembourg and Norway have a connection amounting to 0.56 units;
- Malta and Germany have a connection worth 0.54 units;
- The Czech Republic and Belgium have a connection worth 0.62 units.

Conclusions. The value of NEETs decreased on average in all European countries between 2000 and 2022. However, there are some countries for which the value of NEETs increased, namely Cyprus, Romania, Denmark, and Slovenia. However, there are also huge differences between European countries. Specifically, countries such as Italy and Romania have nearly three times as many NEETs as Sweden, Iceland, and the Netherlands. There is therefore an essentially positive phenomenon, namely the reduction in the value of NEETs as an average between 2000 and 2020. However, this reduction is associated with a significant heterogeneity of the presence of NEETs in the various countries considered. The issue of NEETs is very relevant as it poses problems for the future sustainability of European economic systems and connected to the dimension of demographic growth. In fact, if young people have difficulty entering the world of work, or have difficulty following training and formal education, then the conditions are created for a weakness of the future working and managerial class both from the point of view of income and from the point of view of vocational training. Furthermore, it must be considered that the increase in NEETs can delay the formation of families, with negative consequences in terms of birth rate and demographic growth. It follows that the countries that employ a greater number of young people and which therefore have a lower value of NEETs are more ready to face the challenges of the future and could also have extra-premiums in terms of per capita income growth, human capital, research and development, and technological innovation.

Declarations

Data Availability Statement. The data presented in this study are available on request from the corresponding author.

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Declaration of Competing Interest. The author declares that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication.

Software. The authors have used the following software: Gretl for the econometric models, Orange for clusterization and network analysis, and KNIME for machine learning and predictions. They are all free version without licenses.

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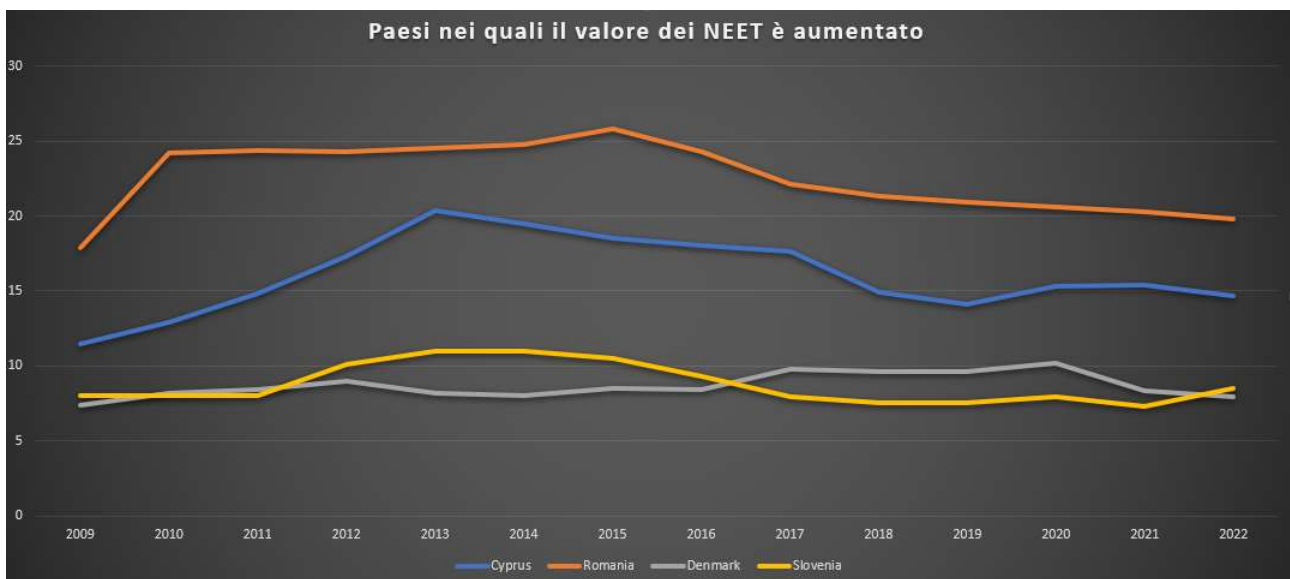
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Appendix



NEET 2022 EUROSTAT					
Rank	Country	2022	Rank	Country	2022
1	Romania	19,8	16	Finland	9,3
2	Italy	19	17	Belgium	9,2
3	Greece	15,3	18	Austria	9,1
4	Bulgaria	15,1	19	Ireland	8,7
5	Cyprus	14,7	20	Germany	8,6
6	Croatia	13,3	21	Slovenia	8,5
7	Spain	12,7	22	Portugal	8,4
8	Slovakia	12,3	23	Denmark	7,9
9	France	12	24	Malta	7,2
10	Czechia	11,4	25	Luxembourg	6,8
11	Latvia	11,3	26	Norway	6,8
12	Poland	10,9	27	Sweden	5,6
13	Hungary	10,8	28	Iceland	5,3
14	Lithuania	10,7	29	Netherlands	4,2
15	Estonia	10,6			

Ranking of Countries Based on Percentage Variation of NEET in European Countries

Rank	Country	Abs Var	Per Var	Rank	Country	Abs Var	Per Var
1	Cyprus	3,2	27,83	16	Slovakia	-4,2	-25,45
2	Romania	1,9	10,61	17	Bulgaria	-5,7	-27,4
3	Denmark	0,5	6,76	18	Lithuania	-4,3	-28,67
4	Slovenia	0,5	6,25	19	Hungary	-4,7	-30,32
5	France	0	0	20	Portugal	-4,1	-32,8
6	Greece	-0,2	-1,29	21	Germany	-4,3	-33,33
7	Norway	-0,6	-8,11	22	Netherlands	-2,3	-35,38
8	Italy	-1,7	-8,21	23	Spain	-7,2	-36,18
9	Austria	-0,9	-9	24	Sweden	-3,7	-39,78
10	Luxembourg	-0,7	-9,33	25	Estonia	-7,1	-40,11
11	Czechia	-1,3	-10,24	26	Malta	-5,4	-42,86
12	Croatia	-1,6	-10,74	27	Iceland	-4	-43,01
13	Finland	-1,5	-13,89	28	Latvia	-9,5	-45,67
14	Poland	-3,4	-23,78	29	Ireland	-11,5	-56,93
15	Belgium	-3	-24,59				

