



Munich Personal RePEc Archive

**Counting the NEETs for Countries with
no or less Data, Using Information on
Unemployment of Youth Aged 15-24:
The Case of Arab Countries**

Driouchi, Ahmed and Harkat, Tahar

IEAPS, Al Akhawayn University, Ifrane, Morocco

23 May 2017

Online at <https://mpra.ub.uni-muenchen.de/79330/>

MPRA Paper No. 79330, posted 23 May 2017 13:36 UTC

Counting the NEETs for Countries with no or less Data, Using Information on Unemployment of Youth Aged 15-24: The Case of Arab Countries

By:

Ahmed Driouchi & Tahar Harkat, IEAPS, Al Akhawayn University, Ifrane, Morocco

Copyright note: I certify that I have the right to deposit the contribution with MPRA

Abstract:

The present paper focuses on the estimation of the NEET rate for countries that do have few or lack of data on this matter. Arab countries are selected for applying the empirical framework suggested for NEET data recovery. The attained results show that the outcomes from the framework adopted are not statistically and significantly different from the few data that exist already. These data can be used for monitoring and enriching economic and social policies targeting the inclusion of NEETs.

JEL: C22, I25, J64.

Keywords: NEETs, Labor Markets, Education, Arab Countries

Introduction

This research focuses on finding data for the non-educated, non-employed and not on training young people (NEET) in those countries that have only few observations on the rate of NEETs. This is based on the observation that most economies have information on the unemployment rate for the segments of youth aged 15-to 24 years. With limited information and with few data available on NEETs, the unemployment data for this category is assumed to represent the NEETs. International organizations such as ETF (European Training Foundation) (ETF, 2015a, 2015b and 2015c), ILO (2012, 2013, 2015 & 2016) and World Bank (2010) have been able to offer information on NEETs in the Euro-Mediterranean context and in the Arab world but with only limited and few data on Arab economies. Databases as well as analyzes and simulations would be able to accompany the projects of poverty alleviation and the inclusion of young people through further training and employment, based on estimated time series information. While cross-section data and surveys are necessary for providing accurate information on the counting of NEETs, indirect methods of estimation do provide useful information that is less costly as it can address the contours, directions and likelihood of promising economic and social policies. This is crucial

for Arab countries as further policies are continuously needed for the inclusion of the youngest segments of the population.

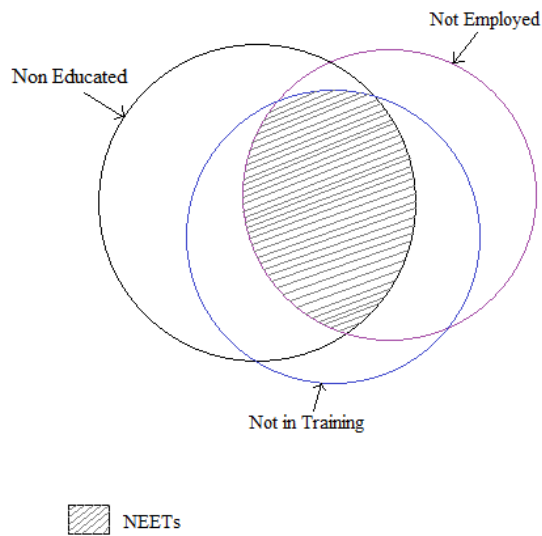
The current paper starts with a conceptual framework for the NEETs. This is followed by the empirical framework suggested for countries with limited data. Such a selected empirical model is developed after a literature review on the best practices for empirical assessment of NEETs. The attained results with their discussion are introduced in the last section of this paper.

I. The Conceptual framework

The conceptual framework for identifying the NEETs takes into account the consecutive stages that lead to this status meaning schooling, employment and vocational training. The center of the model is the non-education, the absence of employment and the non-realization of a vocational training. The overall framework could be shown under the following Venn diagram where the three sets of non-education, non-employment and non-vocational training, have a common intersection representing the NEETs (Figure 1).

Being a NEET is depicted by the intersection of three sets of ‘being not educated’, ‘unemployed’, and ‘not in vocational training’. For a given age segment, the probability of being NEETs is consequently equal to the product of the probability of non-education by that of non-employment multiplied by the probability of not being in vocational education, for the same age segment. The probability of ‘not being educated’, is the number of young people that are not in education divided by the total population of this segment. The probability of ‘being unemployed’, is the number of individuals in the segment that are unemployed divided by the total population of this same group. The probability of youth that are ‘not vocational education’, is the number of youth that are not in training divided by the total number of this group segment. Figure 1 shows three sets representing young individuals that are not in education, not in employment, and not in training respectively. The intersection of all these three sets represents the NEETs.

Figure 1: NEETs as Intersection of Three Sets

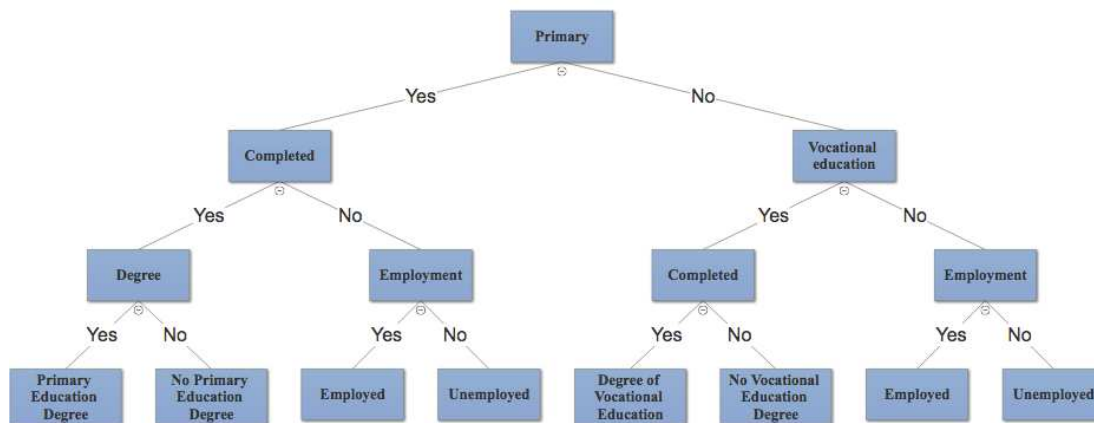


The initial training that begins with enrollment in primary education and the completion or not of this training, can be a decisive step that affects everything else. This step is followed by college and secondary training. At each of these stages, failure and success can mark the rest of the trajectories. Such paths can be represented by decision trees with branches linked to the possibilities of achieving results that are often perceived as random and that can be related to probabilities of realization.

The following three graphs (Figures 2, 3 and 4) illustrate simplified trajectories for elementary, college and secondary levels. Graduation at each stage can also enrich the decision-making process. With regard to individuals who are not enrolled or have left education at any level, the conceptual framework suggests asking for employability status, as it is a logical consequence of the outcomes from regular or professional training.

The link between the decision trees at each level of education shows those that have graduated from the previous level, such as the transition from primary to secondary education and to high school. Thus the status of NEET can correspond to any level that leads to a failure in the pursuit of studies, in employment and in the realization of a vocational training. The primary, college and secondary levels of education provide insights to how the NEET status can be attained.

Figure 2: Primary education decision tree



To define the NEETs, the first root of the decision tree starts from primary education, where individuals in their early stage of life, either engage in the regular primary education or not. For those who attend the primary school, they are subject to two possibilities that are either ‘dropping out’ from school at an early stage, or ‘complete primary education’. Such a completion can be with or without a degree.

Young individuals not enrolled in primary education, have the possibility of going through vocational education that can either be formal or informal. In this case, these individuals can ‘obtain a diploma’ or ‘not’. In addition, there is a category of young individuals that do not enroll in general education, not the vocational one. Among this latter category, there are those who start their initial stage of life by employment, and there are those who are NEETs.

Figure 3: Secondary education decision tree

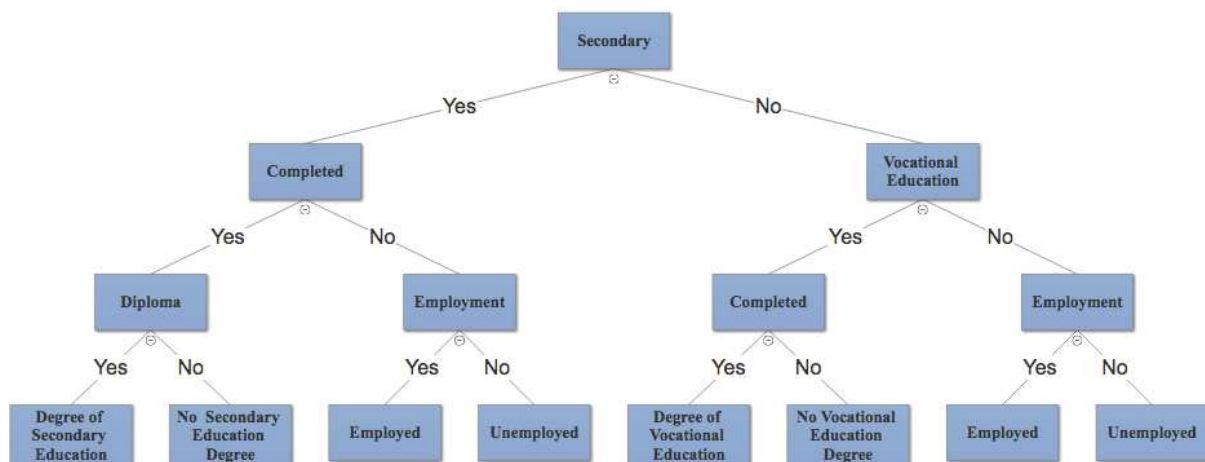


Figure 3 provides information that is similar to that of figure 2. The secondary education is a decision option for students who complete regular primary education and obtain its corresponding diploma. This category can either enroll in the secondary education or move to the vocational. For each of these choices, young individuals can either complete and obtain diplomas, or ‘drop out’. Leaving school at this stage, can either lead for employment or stay unemployed. Those who do not enroll in regular or vocational education and are unemployed are more likely to be NEETs.

Figure 4: High school education decision tree

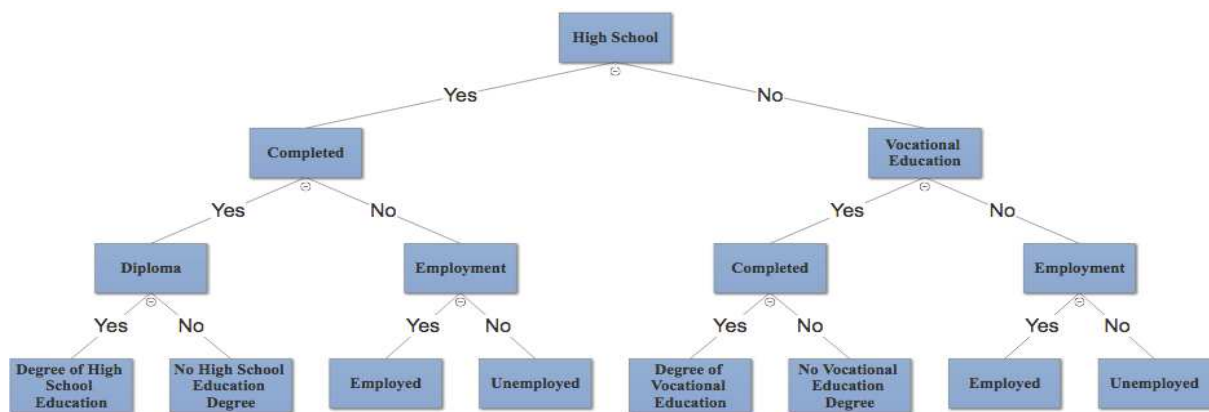


Figure 4 is similar to figure 3. Those who complete the secondary education and obtain a diploma, have the choice to continue in regular or vocational education. Students can either obtain diplomas upon completion, or not. Students also have the choice to leave education for work or stay unemployed. Those choosing not to enroll in education while staying unemployed, are more likely to be NEETs.

The above conceptual framework allows for the counting of NEETs with extensive use of conditional probabilities that need to be empirically elicited from existing data on each of the variables included. In addition, the connections of decision trees, involve also other complications. Yukselturk, Ozekes, & Türel (2014) provide an example of such complications for the assessment of the dropout in an online educational program. The above conceptual framework is dynamic in nature as time is required for each stage and for all the steps. It is related to age segments, aging and career development. Time is consequently important for the pursuit of the above trajectories. The availability of time series data is consequently fundamental in understanding, testing and predicting series of components related to NEETs.

The following sections are devoted to a literature review on the empirical methods with the selection of an empirical framework that accounts for the data limitations not only on NEET rate but also on labor market variables.

II. Literature Review

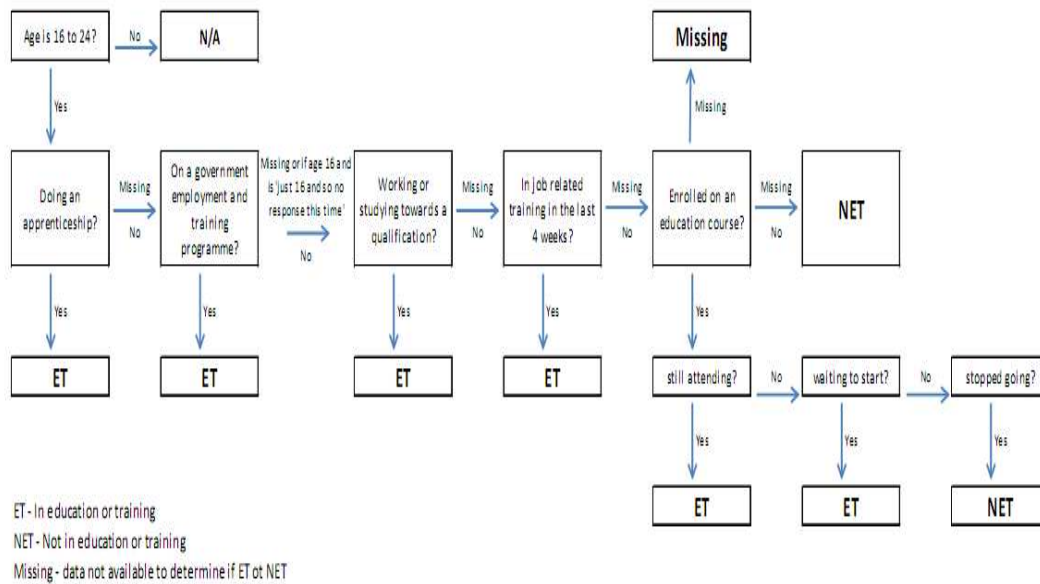
Different sources and reports (Statistics New Zealand, 2011; Statistics Canada, 2015; The Office of National Statistics of the UK, 2017; OECD, 2010, 2011, 2013a, 2013b, 2014 & 2016; ETF, 2015a, 2015b and 2015c & Eurofound, 2011 & 2012) have emphasized the indicators used to understand youth labor markets. Due to the number of youth in education, labor market indicators have limitations when assessing the state of youth labor markets.

For these reasons, an indicator that considers young people labor market participation, together with their engagement in education, can be a useful complete information about potential youth labor underutilization. Youth NEET is defined as a 15–24 years old, who is unemployed (part of the labor force) and not engaged in education or training (International Labor Organization, 2011). NEET is therefore, a residual category.

Furlong (2006 & 2007), Quintini and Martin (2006), the European Commission (2010), the Eurofound (2012) and Eurostat (2016) have also contributed to the enrichment of the estimation processes for the NEETs. The NEET rate is calculated as the unemployed youth, plus the youth ‘not in the labor force’, minus the unemployed youth and youth ‘not in the labor force’ who are in education or training, divided by the total number of youth with a multiplication by 100 to express this ratio as a percentage. This accounts also for the Eurostat (2016) definition of unemployment and youth unemployment indicators as a labor force status falls into one of three categories. These are employed, unemployed or economically inactive.

Murphy (2013) introduces a useful diagram (figure 5) that helps with the counting of NEETs in the context of Northern Ireland. Such a diagram allows for identifying the steps leading to the status of NEETs. More recent publications focusing on NEET assessment include the contribution of Holt (2017) and that of Hyejin & Bong (2017).

Figure 5: Process for Counting NEETs (Murphy, 2013)



Other methods have been suggested. They include stochastic methods as introduced in Balan (2015). This latter author (Balan, 2013) uses econometric methods to estimate the structure and size of NEET rates in Romania compared to other countries of South East Europe. Assirelli (2015) searches for the determinants of the NEET using cross-sectional methods and with longitudinal data, making an event history analysis. Batini, Corallino and Toti (2017) provide a literature survey of the situation regarding the NEET. They find that in Italy, even if the NEET phenomenon is not recognized by its acronym, statistics show a rise in numbers (26 % of the total population for the age group considered). Dixon and Crichton (2016) evaluate the impact of the Youth Services (YS) or NEET (New Zealand) program on the educational retention, qualification achievement, benefit receipt, inactivity and employment rates of participating youth in the 18–24 months of enrollment. They find positive impacts of 9 % increase in education retention for the first year and another 2 % for higher qualification.

III. Selected Empirical Method

The conceptual framework introduced above allows for considering that the NEETs measured by number or by relative ratios for each category of youth is hypothetically related to school variables, employment and to failures in both skill acquisition and jobs.

As time series data on NEETs with also limitations in unemployment and employment categories in Arab countries, new series are to be generated for these countries based on unemployment data for those aged 15-24.

Under the assumption that the unemployment rate for this category of age reflects the rate of NEETs based on the definition of NEETs in relation to unemployment for this age segment, regression analysis is pursued on countries that have good data on both unemployment and NEET rate. In this sense, the ECE are selected and NEET series are developed for Arab countries.

In order to solve the limitation of the data for NEETs in Arab economies, a time series analysis is run for each of the ECE countries to see whether there is a significant relationship between the NEET rate and the unemployment rate for the age segment between 15 and 24.

1. The Empirical Approach

For the above purpose, the introduction of a lagged variable for the NEET is included as the following model:

$$NEET_i = \alpha + \beta_1 Une_i + \beta_2 LagNEET_i + \varepsilon_t \text{ with:}$$

$$LagNEET_i = NEET_{i-1}$$

Otherwise, the above empirical model can be rewritten using the lag operator L with:

$$L \cdot NEET_t = NEET_{t-1}$$

Under the additional assumption of $E(\varepsilon_t) = 0$, the model can be written as:

$$NEET_t(1 - \beta_2 \cdot L) = \alpha + \beta_1 \cdot Une_t$$

$$\text{Or: } NEET_t = (\alpha + \beta_1 Une_t) / (1 - \beta_2 \cdot L)$$

$$NEET_t = \frac{\alpha}{1-\beta_2} + \beta_1(1 + \beta_2L + \beta_2^2L^2 + \beta_2^3L^3 + \dots).Une_t$$

Assuming that β_2 is less than 1, higher powers of β_2 will become close to zero and an approximation of the above formula is:

$$NEET_t = [\alpha/(1 - \beta_2) + \beta_1(1 + \beta_2L)].Une_t$$

This leads to recovering for each country the NEET data, based on the unemployment rate of the country for the same year multiplied by β_1 and the unemployment rate of the previous year multiplied by the coefficient ($\beta_1 \cdot \beta_2$).

2. Variables and Data

The NEET data of Eastern and Central European (ECE) countries are extracted from Eurostat, and cover the period 2000-2015. For Arab countries, data are extracted from the World Bank database. But, Arab economies have limited data. For this, the use of different reports such as ETF (2015a, 2015b & 2015c, ILO (2012, 2013, 2015 & 2016), as well as country specific reports from national statistical agencies such as the Haut Commissariat au Plan (HCP, 2015 & 2017) in Morocco, can be used to expand the data related to these economies. But, even under these adjustments, only Algeria, Egypt, Saudi-Arabia and Palestine appear with more data. For the remaining countries, observations range between one and three requiring that NEET series to be recovered using appropriate methods. The unemployment data for total population aged 15-24 are extracted from the World Bank database.

IV. The Attained Results & Discussion

Table 1 shows the results for the regression analysis between the NEET rate and the unemployment rate for the age segment between 15 and 24. The model indicates that the relationship between these variables is significant for all countries except for Hungary. For Romania, it is considered as an outlier as the coefficient value for unemployment equals to 0.64 and is higher than all the remaining coefficients. Otherwise, all R-squared are in the range of 0.703 and 0.955 while the value of the Durbin Watson ranges between 0.72 and 2.26.

Table 1: Regression results between NEET and unemployment for ECE countries

ECE	R-square	Intercept	Unemployment	LagNEET	Durbin-Watson
Bulgaria	0.710	7.033 (2.295)	0.167 (2.012)	0.478 (3.380)	1.58
Croatia	0.952	4.963 (3.527)	0.259 (6.974)	0.106 (0.786)	1.82
Czech Republic	0.709	-0.192 (-0.096)	0.297 (2.562)	0.459 (2.372)	1.655

Estonia	0.839	7.914 (4.439)	0.227 (6.089)	-0.062 (-0.496)	2.26
Hungary	0.065	10.927 (1.579)	0.132 (0.721)	-0.026 (-0.072)	1.81
Latvia	0.955	12.625 (7.341)	0.234 (8.253)	-0.308 (-3.223)	1.816
Lithuania	0.953	6.563 (7.359)	0.210 (9.086)	-0.079 (-0.68)	2.20
Poland	0.918	4.698 (4.709)	0.200 (5.716)	0.148 (1.247)	0.72
Romania	0.770	-6.388 (-1.423)	0.643 (2.984)	0.509 (3.137)	1.41
Slovak	0.813	1.431 (0.719)	0.142 (3.173)	0.586 (4.608)	1.46
Slovenia	0.703	2.129 (1.334)	0.233 (3.648)	0.287 (1.389)	1.96

The coefficients for all these relationships exhibit an average of 0.219 with a corresponding standard deviation of 0.046. These are for the unemployment rates for the age category between 15 and 24 for Arab countries. The mean minus one standard deviation provides the minimal rates of NEETs while the mean plus one standard deviation represents the maximal rates. This method will enable solving the limitation in the availability of the data related to the NEETs using the unemployment data for 15-24 years. This leads to the recovery for each country of NEET data, each year according to the country's unemployment rate for the same year, multiplied by the coefficient $\beta_1 (1 + \beta_2)$. The coefficient estimate is based on 11 ECE countries: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia by using the NEET rate of individuals with the group age between 15 and 24 of the period between 2003 and 2015, including the NEET delay variable. The model estimated above was calculated on the basis of the average of all models in the ECE countries. The results were such that $\alpha = 4.973$, $\beta_1 = 0.249$ and $\beta_2 = 0.164$, with standard deviations of 4.761, 0.139 and 0.295, respectively.

In order to apply this model to the Arab economies, a comparison is made between the available data and the results of the estimated model. The simulation of the results suggests that the Arab economies fall in the domain between \bar{X} and $\bar{X} + \sigma$ (σ referring to the standard deviation).

The estimation of the NEET rate is applied on Arab countries by using an estimation of $\bar{X} + 0.5\sigma$.

In order to test for the difference between the means for the already existing data (μ_A) and the estimated data from the model (μ_E), the t-test statistic is used to test for the following hypotheses:

$$H_0: \mu_A - \mu_E = 0$$

$$H_A: \mu_A - \mu_E \neq 0$$

In the case of Algeria, the t-test statistics resulted in a value of 0.033 that corresponds to a p-value of 0.973. This leads to the failure of the rejection of the null hypothesis, meaning that the two means are statistically non-significant. For Egypt, the t-statistic resulted in a value of 0.205 that corresponds to a p-value of 0.841, which concludes that the two means are not statistically significant. For Saudi Arabia, the difference between the observed means and the estimated means has a t-statistic value of 0.521 that corresponds to a p-value of 0.607. This indicates that the two means are not statistically significant for these two countries.

For countries that have limited observations also have estimated values that are close to the available data. Lebanon for instance, it had a NEET rate of 21.3% in 2007 while the model predicted a value of 20.13. In the case of Morocco, the estimated model uses $\bar{X} + \sigma$ as estimation, as the results were closer to the value of the NEET rate of the year 2016.

The following tables 2, 3 and 4 show the results of the estimation of the NEET rate in Arab countries. These Arab countries are divided into those who have enough observations, only few observations, and no observations.

Table 2 indicates both the data available of the NEET rate and the data estimated through the model. This data is the basis of the T-statistic for mean difference test. The data estimated of the NEET rate should be replaced by the available observations as these data are more accurate. The combination of the available data and the estimated data gives longer time series data.

Table 2: NEET rate estimation for Arab countries with enough observations

Year	Algeria Existing	Algeria Estimated	Egypt Existing	Egypt Estimated	Saudi Arabia Existing	Saudi Arabia Estimated	Palestine Existing	Palestine Estimated
1992		28.1		22.0		21.3		27.1
1993		28.3		23.4		21.6		26.0
1994		28.7		24.0		22.3		26.3
1995		30.4		24.1		22.7		25.5
1996		31.3		22.0		22.2		25.5

1997		29.7		20.9		22.5		24.0
1998		29.3		20.4		24.3		20.8
1999		29.4		19.4		21.6		18.5
2000		31.5		20.6		21.1		19.3
2001		30.8		22.1		21.6		23.9
2002		29.9		22.0		22.6		27.4
2003		29.1		22.9		23.1		25.8
2004		26.7		22.7		23.6		26.7
2005		24.6		23.9		24.2		25.8
2006		22.3		23.6		25.2		25.5
2007		22.9		21.8		23.8		25.3
2008		21.8		21.3		23.1		26.8
2009	25.4	20.1		21.9	18.7	23.1		27.0
2010	24.5	19.8		21.4		23.0		26.8
2011	26.0	20.1	32.1	22.9	20.5	22.8	27.0	25.8
2012	22.7	21.7	31.5	25.1	18.7	22.4	28.9	26.5
2013	21.5	21.4	27.8	25.6	18.4	22.7	31.0	27.5
2014	22.7	21.3		26.5	18.3	23.4		28.6
2015	21.2	21.6	26.8	25.3	16.1	23.2	31.5	28.4
2016	20.4	21.7		24.6		23.6		27.9

Table 3 shows the existing available data of the NEET rate in Lebanon, Morocco and Qatar besides the estimations. The values estimated for the years that already have an observation indicate that there are no big differences. Still, it should be replaced in the model by the available observations.

Table 3: NEET rate estimation for Arab countries with few observations

Year	Lebanon Existing	Lebanon Estimated	Morocco Existing	Morocco Estimated	Qatar Existing	Qatar Estimated
1992		19.4		33.0		11.5
1993		19.2		32.6		11.3
1994		19.1		35.0		11.2
1995		19.2		38.2		11.2
1996		19.3		36.2		11.2
1997		18.5		34.1		14.6
1998		19.1		35.6		12.4
1999		19.5		31.7		11.3
2000		19.8		29.3		13.7
2001		19.5		28.8		18.7
2002		19.4		28.2		18.8
2003		19.6		27.7		17.2
2004		19.4		27.0		16.1
2005		19.4		26.8		14.9

2006		19.7		27.2		13.7
2007	21.3	20.1		27.6		11.8
2008		19.4		28.2		11.2
2009		19.3		28.3	9.4	11.2
2010		19.4		28.1		11.2
2011		19.3		28.1		11.2
2012		19.3		28.4		11.1
2013		19.3		28.6		11.1
2014		19.1		29.1		11.0
2015		19.2		29.4		10.8
2016		19.5	27.9	29.6		10.9

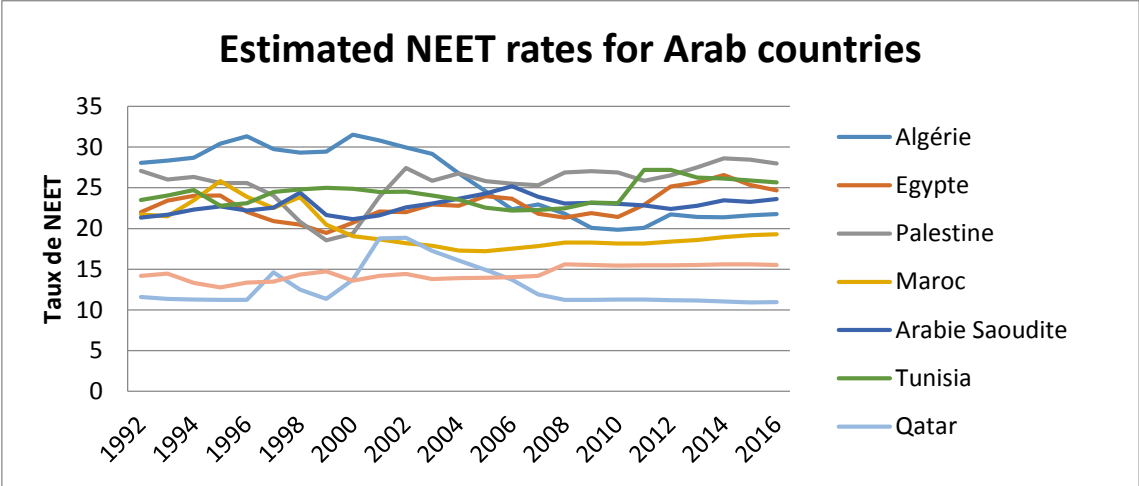
Table 4 gives the results of the estimated NEET rate for the Arab economies that does not have any observations.

Table 4: NEET rate estimation for Arab countries with no observations

Year	Bahrain	Iraq	Jordan	Kuwait	Libya	Mauritania	Oman	Sudan	Syria	Tunisia	UAE	Yemen
1992	12.8	25.2	25.1	12.3	28.2	21.3	29.5	20.1	16.4	23.5	14.1	21.3
1993	12.8	25.6	27.2	12.2	27.9	20.7	29.5	20.1	16.5	24.0	14.4	23.7
1994	12.8	25.2	26.9	12.1	28.0	20.5	29.6	20.2	16.5	24.7	13.3	19.5
1995	12.8	25.0	24.3	14.9	27.9	20.3	29.9	20.3	16.4	22.7	12.7	22.3
1996	12.8	25.5	23.1	13.1	28.1	20.1	30.0	20.5	19.2	23.1	13.3	24.1
1997	12.9	25.5	23.2	12.2	28.1	19.9	30.0	20.8	22.2	24.4	13.4	24.3
1998	12.9	25.5	23.2	12.2	28.2	19.7	30.0	20.6	20.1	24.8	14.3	22.1
1999	12.9	25.5	22.3	12.2	28.2	21.1	30.1	20.5	17.4	24.9	14.7	20.3
2000	13.0	25.2	22.2	12.5	28.3	23.1	30.1	20.5	18.2	24.8	13.5	19.9
2001	12.9	25.2	24.1	12.5	28.3	21.3	30.2	20.4	19.7	24.4	14.1	20.5
2002	12.8	25.1	25.1	13.0	28.3	21.8	30.3	20.3	21.6	24.5	14.4	22.8
2003	12.8	32.7	25.1	13.4	28.5	20.0	30.4	20.3	19.5	24.1	13.7	21.2
2004	12.8	34.4	22.8	14.2	28.5	17.5	30.5	20.3	18.7	23.5	13.8	22.8
2005	12.8	28.3	23.7	15.1	28.6	17.6	30.6	20.2	18.6	22.5	13.9	23.4
2006	12.8	26.2	23.5	14.0	28.6	18.5	30.3	20.2	18.4	22.2	14.0	23.2
2007	12.9	25.7	23.1	13.9	28.6	19.4	30.0	20.2	18.5	22.2	14.1	22.9
2008	12.9	24.6	22.8	14.5	28.6	21.2	29.8	20.5	19.4	22.4	15.5	22.6
2009	13.0	24.3	22.6	14.4	28.5	20.1	29.7	19.8	17.9	23.2	15.5	22.3
2010	12.8	24.3	23.1	14.7	28.6	18.2	29.7	19.6	18.3	23.1	15.4	23.1
2011	12.9	24.3	23.7	16.2	27.9	17.9	29.5	19.5	23.5	27.2	15.4	23.2
2012	12.8	24.4	23.7	16.7	29.3	17.4	29.3	19.5	24.9	27.1	15.4	23.3
2013	12.8	24.4	24.3	16.7	30.1	17.2	29.3	19.6	24.8	26.2	15.4	23.3
2014	12.8	24.4	23.7	17.2	30.4	17.3	29.5	19.6	24.5	26.1	15.5	23.9
2015	12.8	24.9	24.5	16.8	30.6	18.0	30.6	19.9	24.2	25.8	15.5	25.1
2016	13.0	25.6	24.8	16.3	30.7	18.5	31.7	20.0	23.9	25.6	15.5	24.9

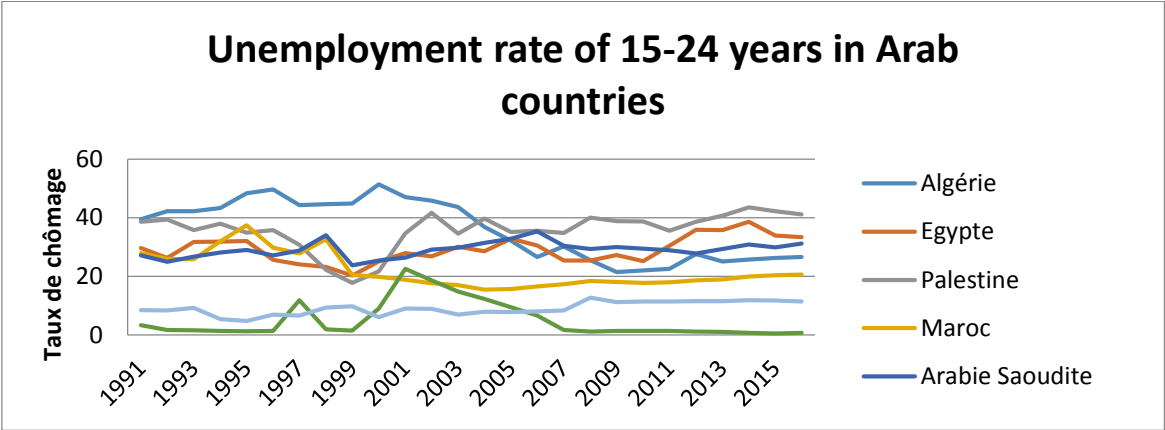
Figure 6 shows NEET trends among Arab countries. For Algeria, Morocco and Qatar from 2002 onwards, young NEETs have a downward trend, while for Egypt, Palestine, United Arab Emirates have increasing trends. For other countries such as Saudi Arabia, the NEET rate has remained the same over the years with minor variations.

Figure 6: The estimated NEET rate for Arab countries



The variation in NEET rates in the Arab economies is explained by the unemployment rate, which only catches the age segment between 15 and 24. Figure 7 shows trends almost similar to those in Figure 6.

Figure 7: Unemployment rate of 15-24 years in Arab countries



Conclusion

This paper is likely to be providing guidance to Arab countries with important contributions aiming at strengthening the system of assessing the rate of NEETs. The selected empirical framework appears to be capturing the few information existing on NEETs. The statistical comparisons show that the current model could be used for assessing the NEET rate

based on unemployment data for those aged 15-24. In the absence of cross-section data and survey-based information, the likelihood of economic and social policies could be built on the estimated data. Such a process is less costly but does not provide detailed information. With high levels of unemployment in Arab countries, the information on labor markets could be made useful for assessing NEETs as this latter is one of the consequences of job scarcity.

While the results attained in this paper do provide a window of further knowledge opportunities, they could not cover the gender issue, as this is also crucial for Arab countries. All the attempts made up to now, on this issue have been not successful implying that the current paper constitutes a preliminary contribution that needs further research.

References

- Assirelli, G. (2015). The NEET phenomenon. A comparative analysis. 10 pages.
- Balan, M. (2015). Methods to estimate the structure and size of the "NEET" youth. *Emerging Markets Queries in Finance and Business*. *Procedia Economics and Finance* 32 (2015) 119 – 124. doi: 10.1016/S2212-5671(15)01372-6.
- Balan, M. (2013). Estimates of the rise of neet and youth unemployment in South East European countries. *Proceedings of International Conference. European perspectives of the labour market, Innovation, competences, performance*. Bucharest, Romania. 9–10 December 2013. 29-42.
- Batini, F., Corallino, V. and Toti, G. (2017). NEET: A phenomenon yet to be explored. *Interchange* (2017) 48:19–37 DOI 10.1007/s10780-016-9290-x.
- Dixon, S. and Crichton, S. (2016). Evaluation of the impact of the youth service: NEET program. New Zealand Treasury. Working Paper 16/08. December 2016. 78 pages.
- ETF (2015a). Young people not in employment, education or training (NEET): An overview in ETF partner countries. European Training Foundation. 76 pages.
- ETF (2015b). The challenge of youth employability in Arab Mediterranean countries the role of active labor market programs. 44 pages.
- ETF (2015c). Les politiques de l'emploi et les programmes actifs du marché du travail au Maroc. 48 pages.

- European Commission (2010). Youth and segmentation in EU labour markets. In Employment in Europe 2010. Available from <http://ec.europa.eu>.
- Eurostat. (2016). Statistics explained. http://ec.europa.eu/eurostat/statistics-explained/index.php/Main_Page
- Eurofound (2012), NEETs – Young people not in employment, education or training: Characteristics, costs and policy responses in Europe. Publications Office of the European Union, Luxembourg. 172 pages.
- Eurofound (2011). Foundation findings: Youth and work. Brussels: Eurofound
- Furlong, A (2007). The zone of precarity and discourses of vulnerability: NEET in the UK. *The Journal of Social Sciences and Humanities (Jinbun Gakuho)*, 381, 101–121.
- Furlong, A. (2006). Not a very NEET solution representing problematic labor market transitions among early school-leavers. *Work, Employment & Society* **20** (3): 553–569 pages.
- HCP (2017). Note d’information du haut-commissariat au plan au sujet des principaux enseignements sur la qualité de l’emploi en 2016. 19 pages.
- HCP (2015). Note sur le marché du travail au Maroc entre 2000 et 2014, 15.
- Holt, B.H. (2017). Counting and meeting NEET young people: Methodology, perspective and meaning in research on marginalized youth. *Young*, 26(1) 1–16. 2017 Sage Publications and YOUNG Editorial Group, SAGE Publications sagepub.in/home.nav, DOI: 10.1177/1103308816677618. <http://you.sagepub.com>.
- Hyejin N. & Bong J. L. (2017). Risk factors of NEET (Not in employment, education or training) in South Korea: An empirical study using panel data, *Asia Pacific Journal of Social Work and Development*. <http://dx.doi.org/10.1080/02185385.2017.1289860>
- International Labor Organization (ILO). (2016). World employment social outlook, trends for youth, 2016. (Geneva).
- International Labor Organization (ILO). (2015). Global employment trends for youth 2015. (Geneva).

International Labor Organization (ILO) (2013). Global employment trends 2013. International Labor Office Publication, January 2013. 190 pages..

International Labor Organization (ILO) (2012). World of work report 2012: Better jobs for a better economy. International Institute for Labor Studies (IILS). 109 pages.

Murphy, E. (2013). Counting NEETs. Research and Information Service Briefing Paper. Northern Ireland Assembly. Paper 111/13 29 August 2013 NIAR 402-2013. 11 pages.

Office for National Statistics (2017). Statistical bulletin young people not in education, employment or training (NEET), UK: Feb 2017 Estimates of young people (aged 16 to 24) who are not in education, employment or training, by age and sex. 6 pages.

OECD (2016). Education at glance, OECD indicators. OECD, 510.

OECD (2014). Education at glance, highlights, 2014. OECD, 100.

OECD (2013a). Young people not in education or employment. OECD, Social Policy Division.

OECD (2013b). Youth inactivity in OECD factbook 2013: Economic, environmental and social statistics. OECD, Paris

OECD. (2011). Persistence of high unemployment: What risks? What policies?. Chapter 5 in OECD Economic Outlook, Volume 254, 2011/1 OECD 2011 – Preliminary Version, 33 pages. Retrieved from: <http://www.oecd.org/eco/outlook/47656668.pdf>

OECD (2010). A family affair: Intergenerational social mobility across OECD countries

OECD. (2007). Society at a glance: OECD social indicators. OECD, Paris

Quintini, G, & Martin, S (2006). Starting well or losing their way? The position of youth in the labour market in OECD countries. Paris: OECD

Statistics Canada (2015). Youth neither enrolled nor employed. Marshall, K, Labour Statistics Division. <http://www.statcan.gc.ca/pub/75-001-x/2012002/article/11675-eng.htm>

Statistics New Zealand (2011). Introducing the youth not in employment, education, or training indicator. Wellington: Statistics New Zealand, ISBN 978-0-478-37747-7 (online). 17 pages. .

UK National Office of Statistics (2017). NEET statistics quarterly brief October to December 2016, England. 10 Pages.

UK National Office of Statistics (2016). NEET statistics quarterly brief July to September 2016, England. 10 Pages.

World Bank (2010). Young people in Arab countries: Promoting opportunities and participation background paper to the Marseille conference April 28–30, 2010, 70 pages.

Yukselturk, E., Ozekes, S. & Türel, Y.K. (2014). Predicting dropout student: An application of data mining methods in an online education program. *European Journal of Open, Distance and e-Learning* Vol. 17 / No. 1 – 2014 DOI: 10.2478/eurodl-2014-0008.