What Explains Youth Unemployment in Morocco? A Look at Moroccans Not in Education, Employment, or Training

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INTRODUCTION

This chapter analyzes the evolution of Moroccan NEETs, an acronym for young people (between the ages of 15 and 29 years, or 15 and 24 years, depending on the definition) who are not in employment, education, or training.

Appearing for the first time in the mid-1990s, the acronym was formulated to capture the social situation of a growing category of the population: youth who do not build human capital through work, education, or training. Part of the reason the term was formulated is that development experts began to recognize that the conventional metrics and predictors of success—such as employment, academic education, and/or vocational training—no longer sufficiently captured the multidimensional nature of the challenges faced by many young people during their school years or during their transition from school to the labor market, nor the resulting long-term fragility that marks their lives.

According to the most recent national census of 2014 (RGPH 2014), there were about 6 million Moroccans between the ages of 15 and 24. Morocco is currently in a development window that demographers call a "demographic bonus." This means that the proportion of working-age people in the total population is high compared to the share of the population who are either younger or older than the productive age bracket (15–64 years old).

Lopez-Acevedo and others (2021) estimated that Morocco's demographic bonus will end in 2040, when the progressive aging of the population, combined with increased life expectancy, begins to raise the share of the population aged 65 and older. With such a high proportion of people in the productive age

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range, and a low proportion of dependents, a demographic bonus therefore presents a country—for a limited number of decades—with a one-time opportunity for accelerated economic growth.

The current age distribution of Morocco's population represents an opportunity, but it also presents the major challenge of harnessing that human capital and putting it to the best use (Lopez-Acevedo and others 2021). Until now, the Moroccan labor market has not been able to absorb all of its new entrants in an optimal way. Calculations based on subsequent rounds of the Moroccan Labor Force Survey indicate that of approximately 390,000 new entrants in the national workforce every year, barely a third manage to find employment in the formal or informal sector.

Because of the importance of this age group, the NEET phenomenon has increasingly gained attention in both developed and developing countries. In Morocco, by contrast, labor market analysis (see, for example, Verme, Gadiry, and Guennouni 2016; Verme and others 2016) has tended to focus on understanding what determines unemployment or inactivity within the entire population, with no specific focus on those between 15 and 24 years old. The work presented in this chapter aims at filling this gap by providing a comprehensive analysis of the characteristics and dynamics of NEETs in Morocco over the last decade.

Examining NEET profiles is a relatively straightforward exercise if longitudinal or panel data are available that allow the construction of transition matrices (that trace movements in and out of the NEET condition). The Moroccan Labor Force Surveys has a panel component (50 percent of the overall sample) but it rotates every 2 years, making it impossible to construct a transition matrix over a longer period than that. To overcome this data limitation, these transition matrices for individuals between 15 and 24 were estimated over a 9-year period (2010–18).

The chapter is organized as follows. After describing the profile of NEETs, drawing comparisons in different countries around the world, the third section present a literature review of studies on the NEET phenomenon. The fourth section presents data and the methodology of the analysis on Morocco, and the fifth section displays the results. The final section draws the main conclusions.

PROFILING THE NEETS AROUND THE WORLD: WHO ARE THEY, AND WHAT ARE THEIR LIFE CONDITIONS?

In 2019, the Organisation for Economic Co-operation and Development (OECD) released the latest update of its own perspective on NEETs. The OECD defines NEETs as people aged between 15 and 29 who are neither enrolled in a formal educational or training program, nor in paid employment (defined as at least 1 hour per week), during the relevant survey reference period. As Table 8.1 shows, in 2018 the average NEET rate for the 15–29-year-old population across OECD countries is about 13 percent, ranging from 6.1 percent in Iceland to 26.5 percent in Turkey. Southern European countries, Mexico, and Turkey exhibit the highest NEET rates, whereas northern and central European countries show the lowest rates. In almost all OECD countries, NEET rates are higher for women than for men; the OECD average rate for young women is almost 4 percentage

TABLE 8.1.

| NEET Rates for 15–29-Year-Olds in OECD Countries *(Percent)*							
Country	**2006**	**2011**	**2018**	**Country**	**2006**	**2011**	**2018**
Iceland	5.1	9.8	6.1	Estonia	11.4	15.2	12.7
Netherlands	6.2	6.9	7.0	Poland	17.4	15.5	12.7
Malta	13.6	12.1	7.3	United States	12.9	15.9	12.7
Switzerland	10.0	21.9	8.1	Belgium	13.9	13.9	12.8
Luxembourg	8.6	7.2	8.4	OECD average	14.3	15.9	13.2
Norway	7.9	8.5	8.7	Israel	30.0	27.6	13.3
Sweden	10.5	9.1	8.9	Hungary	17.0	18.5	13.5
Germany	13.6	11.0	9.2	Cyprus	11.9	14.8	14.9
Slovenia	10.8	10.7	9.7	Slovak Republic	19.1	19.1	15.1
Japan	12.0	11.7	9.8	Croatia	15.8	19.1	15.6
Czech Republic	14.1	12.7	10	France	15.2	16.4	16.1
New Zealand	12.0	14.3	10.2	Romania	16.5	19.5	17.0
Lithuania	NA	18.0	10.5	Bulgaria	23.9	24.7	18.1
Australia	11.4	11.5	10.8	Chile	NA	21.8	18.4
Denmark	6.2	11.0	10.8	Spain	15.9	24.3	19.1
Austria	12.0	10.3	11.1	Mexico	23.2	24.0	20.9
Latvia	14.4	19.6	11.2	Greece	16.7	21.6	21.5
Portugal	12.4	15.3	11.6	Colombia	NA	20.1	22.7
Ireland	10.4	21.9	11.7	Costa Rica	NA	20.1	23.1
Canada	12.0	13.4	11.9	Italy	20.1	23.2	23.9
Finland	10.4	11.8	11.9	Brazil	NA	19.3	24.9
United Kingdom	15.1	15.5	12.6	Turkey	42.6	34.6	26.5

Source: OECD (2018).
Note: For 2011, data for Switzerland refer to 2009, those for Lithuania to 2010, and those for Colombia and Costa Rica to 2013. For
    2018, data for Japan refer to 2014 and those for Chile to 2017. The Organisation for Economic Co-operation and Development
    (OECD) average excludes Chile and Korea. NA = not available; NEET = not in employment, education, or training.

points higher than the rate for young men. In Mexico and Turkey, rates for females are about 25 percentage points higher than rates for males. By contrast, Austria, Belgium, Canada, Luxembourg, Portugal, and Switzerland show a NEET rate higher for males than for females, although the difference is negligible.

As shown in Figure 8.1, NEET rates are generally higher for young people in their 20s than for those in their teens. In the OECD countries, on average about 18 percent of those aged between 25 and 29 years old are NEET compared to less than 6 percent of 15–19-year-olds. This difference may be the result of the expansion of upper secondary education in many OECD countries. Furthermore, NEETs are less likely to live with their parents than non-NEETs—about 50 percent of NEETs live with their parents compared to about 75 percent of non-NEETs.

Caring for children and/or living with a partner can also make a substantial difference. About 26 percent of NEETs, but only 9 percent of non-NEETs, live with a partner and one or more children—an almost 3:1 ratio. The reason is likely that parenthood compels young people to devote their time and energy to childcare rather than to education or working outside the home. Parenthood *with no partner* makes even more of a difference. Single (nonpartnered) young women account for just 1 percent of non-NEETs compared to 5 percent of NEETs—a 5:1 ratio versus 3:1. Caring for children, especially all by oneself, often forces a young person to stay at home instead of attending school or working outside the home (OECD 2016).

Figure 8.1. NEET Rate by Age Group and Gender, 2019
(Percent)
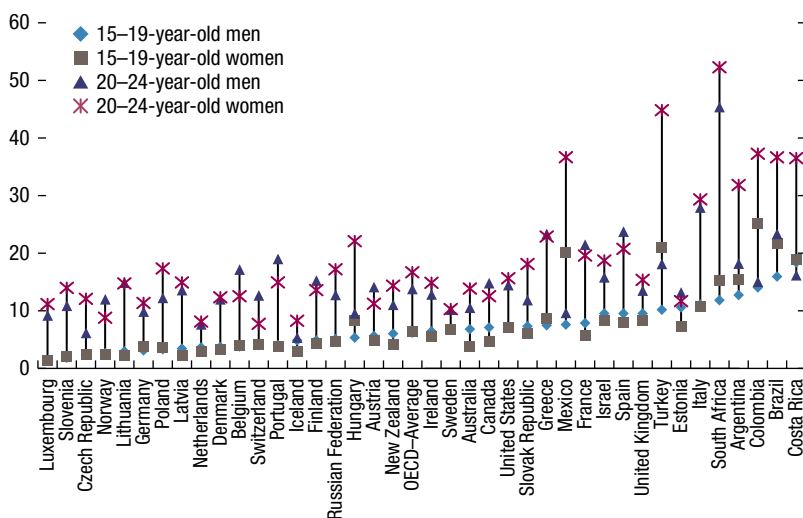
Source: Organisation for Economic Co-operation and Development, Youth Not in Employment, Education or Training (NEET) indicator.

International Labour Organization (ILO) data allow the view to be extended to other regions of the world. The ILO (2015) defines youth as "all persons between the ages of 15 and 24 (included)" and employees as "all persons of working age who during a specified brief period, such as one week or one day, were in the following categories: *a*) paid employment (whether at work or with a job, but not at work); or *b*) self-employment (whether at work or with an enterprise, but not at work)." People are defined as being in training if engaged "in a non-academic learning activity through which they acquire specific skills intended for vocational or technical jobs." Finally, vocational and technical training includes only programs that are solely school based.

As Table 8.2 shows, nearly 22 percent of youth worldwide are NEET, about 77 percent of whom are women. This underscores the observation that deeply ingrained social norms drive the unequal labor market outcomes between men and women.[1]

Figure 8.2 narrows the focus to Morocco and other countries in the Middle East and North Africa regions. The Middle East and North Africa (MENA) region, in particular the North African part, seems to perform worse than many other regions both in the developed and developing world. In 2017, Morocco was the worst performer among MENA countries that were not in a situation of conflict or state fragility (Iraq, West Bank and Gaza, and Yemen). Its NEET rate was 2 percentage points above that of Egypt and 4 and 5 percentage points higher than that of Tunisia and Algeria, respectively.

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[1] ILO (2017) analyzes in depth the drivers of gender disparities in educational attainment and labor market outcomes, and the constraints that influence these disparities.

TABLE 8.2.

NEET Rates for 15–24-Year-Olds, by Region
(Percent)

Region	NEET Rates (latest years)			Female Share
	Total	Male	Female	
World	**21.8**	**9.8**	**34.4**	**76.9**
Developing countries	12.1	8.0	16.0	66.1
Emerging economies	25.2	9.6	41.8	80.3
Developed countries	13.1	11.3	14.9	55.7
Northern Africa	26.1	16.7	36.0	67.6
Sub-Saharan Africa	15.5	11.2	19.0	61.4
Latin America and the Caribbean	19.4	11.9	27.0	68.6
North America	16.3	14.1	18.6	55.8
Arab states	18.2	9.9	27.1	71.8
Eastern Asia	3.7	2.8	4.7	61.8
Southeastern Asia and Pacific	18.0	13.4	22.6	61.5
Southern Asia	28.6	5.8	53.3	89.5
Northern, southern, and western Europe	12.3	12.2	12.4	49.2
Eastern Europe	15.6	13.8	17.4	54.5
Central and western Asia	23.4	14.8	32.1	67.5

Source: International Labour Organization (2017).
Note: The table shows the not in employment, education, or training (NEET) rate in different regions of the world, using youth-population-weighted averaging. The number of countries with available data is as follows: world (98); developing countries (12); emerging economies (46); developed countries (40); northern Africa (3); sub-Saharan Africa (16); Latin America and the Caribbean (16); North America (2); Arab states (5); eastern Asia (4); southeastern Asia and the Pacific (8); southern Asia (6); northern, southern, and western Europe (27); eastern Europe (7); and central and western Asia (4). The most recent year is 2015, with 67 observations. There are 15 observations for 2014 and 16 observations for 2009–13.

Figure 8.2. NEET Rates in the MENA Region
(Percent)
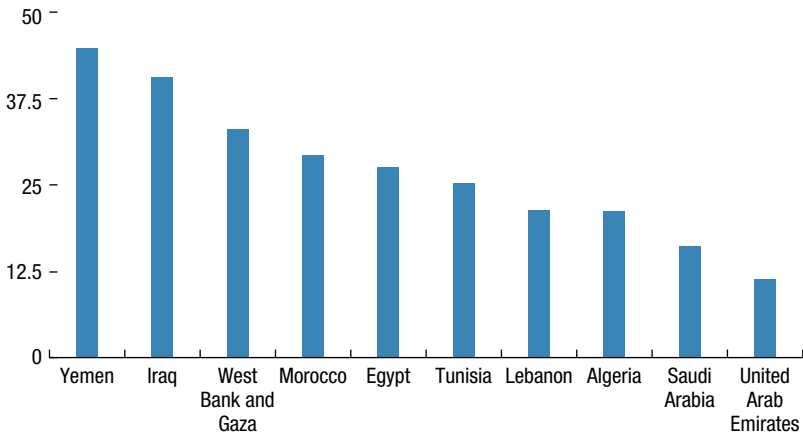
Source: ILOSTAT (https://ilostat.ilo.org/).
Note: MENA = Middle East and North Africa; NEET = not in employment, education, or training.

RESEARCH FINDINGS ON THE STATUS OF NEETS WORLDWIDE

A few studies have focused on a quantitative investigation of the condition and dynamics of NEETs for specific countries around the world. Employing longitudinal data, Ranzani and Rosati (2013) presented evidence concerning the extent, characteristics, and evolution of the NEET phenomenon in Mexico over a 10-year period. In addition, they investigated the existence and extent of state dependence by disentangling unobserved heterogeneity from genuine state dependence. For example, they found that, compared to other NEETs, females and lower-educated youths are more likely to remain in this status than be employed.

Bilgen Susanli (2016) examined the phenomenon of NEET in Turkey, drawing on data from the Household Labor Force Surveys over the 2004–13 period. The analysis indicated that gender and educational attainment are key factors in explaining the probability of being in a NEET condition. A greater number of household members that are in employment is associated with a lower likelihood of NEET. Transition matrix analysis revealed that NEET status remains highly persistent despite the substantial fall over the sample period. In South Africa, Akinyemi and Mushunje (2017), investigating the determinants of rural youth participation in agricultural activities, showed that 21 percent of youth are NEET and 77 percent of them are in the 20–24 age bracket. Variables such as age, government funding, and parent participation in farming increase the likelihood of young people's participation in agricultural activities. By contrast, being married, having young children, and receiving social grants reduce the likelihood.

Cabral (2018), focusing on Senegal, showed that about 40 percent of young people are NEET. In his analysis, the key factors affecting the probability of being NEET are the existence of a physical and mental disability, age and gender of the person, education, occupational and marital status of the household head, as well as household income.

Research by Abayasekara and Gunasekara (2019) using 2016 Labour Force Survey data revealed some of the risk factors that predispose young people to become NEET in Sri Lanka. Using binomial and multinomial logistic regression models, the results indicate that the risk factors center on being female, belonging to an ethnic and religious minority, being in the 20–24 age group, having very low or very high levels of education, being English-illiterate, belonging to a low-income household or to a male-headed household, having young children, and living in a more remote area. The authors also offer important policy recommendations for how to reduce Sri Lanka's NEET rate and include more youth in education and in the labor force.

Looking at developed countries, Quintano, Mazzocchi, and Rocca (2018) analyzed the determinants of the NEET condition in Italy through a step-by-step procedure. They first determined the main characteristics of NEET, then focused on specific homogeneous clusters of NEETs, assessing the role played by various observed personal characteristics in determining the probability of being in a NEET position. Using a bivariate selection probit model based on the propensity to look for a job against the condition of being inactive, the authors then assessed

the role played by unobserved factors. The results confirmed the crucial role of education, as well as the importance of economic and social disparities between men and women in the Italian territorial districts.

ASSESSING NEETS IN MOROCCO: DATA AND DESCRIPTIVE STATISTICS

In this chapter, the Enquête Nationale sur l'Emploi, a nationally representative labor force survey conducted by the Moroccan Haut-Commissariat au Plan, is used. Its main objective is identifying the volume of active population as well as the main demographic, cultural, and socioprofessional characteristics of workers. The data set may also be used to measure the Moroccan population's access to basic social services.

The survey has been conducted every year since 1999 using a comprehensive questionnaire covering both urban and rural areas. The sampling frame follows a two-stage stratification strategy in the country's urban and rural areas and regions, which in 2013 were consolidated into 12 from an original 16. On average, every year the sample comprises about 80,000 households, out of which 60,000 reside in urban areas and 20,000 in rural areas. The survey also contains a rotating panel component that can be used to examine the persistence and dynamics of labor market status. This rotating panel component, however, is available only for about half of the sample for two adjacent years—specifically, 2010–11 through 2017–18. In this chapter, the analysis focuses on the period ranging from 2010 to 2018.[2]

Table 8.3 presents descriptive statistics of control variables for 2010 and 2018. In 2018, about 28 percent of young Moroccans (about 2 million people) could be classified as NEET, with only a slight decline from 2010 (32.4 percent). The percentage of youth who have secondary education or are pursuing any type of education beyond high school increased over time. In particular, enrollment in secondary education moved from 23 to 30 percent between 2010 and 2018, with tertiary education rising from 6.7 percent in 2010 to 13.8 percent in 2018.

Figure 8.3 shows that the NEET rates are much higher for women. Whereas the age distribution of male NEETs did not change substantially between 2007 and 2018, a significantly smaller share of younger (aged 15–20) women were in a NEET position in 2018 (19 percent of girls aged 15 were NEET in 2018 compared to more than 30 percent in 2007). The rapid increase in enrollment rates of young women in secondary and tertiary education explains this marked difference. However, when women approach the age at which they would normally be entering the labor market—their early 20s—this positive improvement has all but been erased: the NEET rate for women aged 23–24 is virtually the same in 2018 as in 2007, more than twice as high than for men (70 percent compared to 22 percent). Figure 8.4 shows that, in 2018, about 10 percent of women aged 24 were in school, and fewer than 20 percent were working, compared to about 20 and 60 percent for men, respectively.

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[2] The year 2016 was excluded from the sample because in the available data set a set of variables regarding family background was not available that could be used subsequently in the econometric analysis. In any case, in 2016 the NEET rate was 29 percent, very similar to both previous and subsequent years.

TABLE 8.3.

	2010			2018		
Variable	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
NEET (1 = yes)	32.4	0	1	28.4	0	1
Household member is female (1 = yes)	49.7	0	1	49.5	0	1
Household member is 20–24 years old (1 = yes)	55.7	0	1	54.2	0	1
Household member is single	87.8	0	1	88.3	0	1
Household member is married	11.8	0	1	11.2	0	1
Household member is widower/divorced	0.4	0	1	0.4	0	1
Household living in rural area	46.2	0	1	40.3	0	1
Household living in most developed regions	68.7	0	1	50.5	0	1
No education	12.5	0	1	5.1	0	1
Koranic school	1.3	0	1	0.7	0	1
Primary school	56.2	0	1	50.6	0	1
Secondary school	23.2	0	1	29.7	0	1
Tertiary education	6.7	0	1	13.8	0	1
Asset index (normalized)	37.4	0	1	43.6	0	1
Household living in rural accommodation (1 = yes)	35.8	0	1	26.9	0	1
Household living in villa (1 = yes)	1.3	0	1	1.3	0	1
Household living in apartment (1 = yes)	7.3	0	1	10.3	0	1
Household living in traditional house (1 = yes)	3.3	0	1	2.6	0	1
Household living in modern house (1 = yes)	47.3	0	1	55.5	0	1
Household living in shanty (1 = yes)	5.0	0	1	3.4	0	1

Source: Authors' elaboration based on the Enquête Nationale sur l'Emploi.

Note: Figure is based on 48,024 observations in 2010 and 55,280 in 2018. Max = maximum; Min = minimum; NEET = not in employment, education, or training.
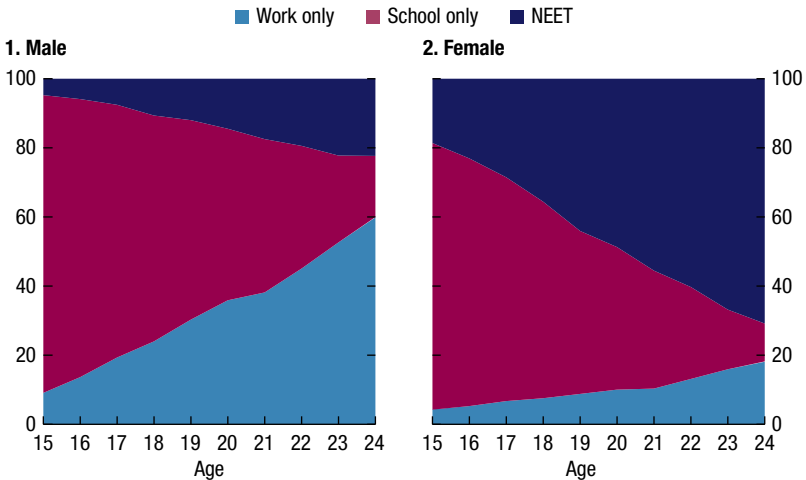
Figure 8.3. Moroccan Population Members Who Are NEET: Males and Females by Age
(Percent)
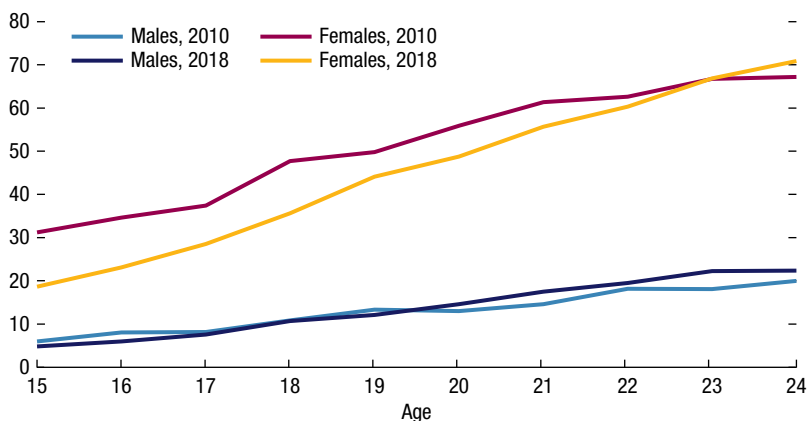
Source: Authors' elaboration based on the Enquête Nationale sur l'Emploi.
Note: NEET = not in employment, education, or training.

Figure 8.4. School-to-Work Transition for Population Aged 15–24 Years, 2018
(Percent)

Source: Authors' elaboration based on the Enquête Nationale sur l'Emploi.
Note: NEET = not in employment, education, or training.

Both Figures 8.3 and 8.4 portray a situation for Morocco not dissimilar from other MENA region countries, where the share of employed youth is higher among young men than young women, and the share of NEET is higher for young women. Interestingly, both in Morocco and in the rest of the region (Doss and others 2018), when the NEET information is crossed with marital status, married women—either with or without children—represented a significant percentage of female NEETs. When this married group is removed from the NEET calculation, the share of female NEETs (for example, those who are neither married nor have children) becomes comparable to the share of NEET men.

WHAT AFFECTS THE PROBABILITY OF BEING NEET IN MOROCCO?

This question was answered estimating a logit model for the NEET binary dependent variable (NEET = 1, non-NEET = 0).[3] The results (Figure 8.5) suggest the following:

- The likelihood of being NEET increases with *age,* suggesting a complex transition from school to the labor market that tends to result in unemployment as the person gets older.

- The *area of residence* matters; people living either in big towns or in rural areas are less likely to become NEET than those living in medium-sized towns. In big towns, there are many more chances to continue studying or

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[3] See Annex 8.1 for more details.
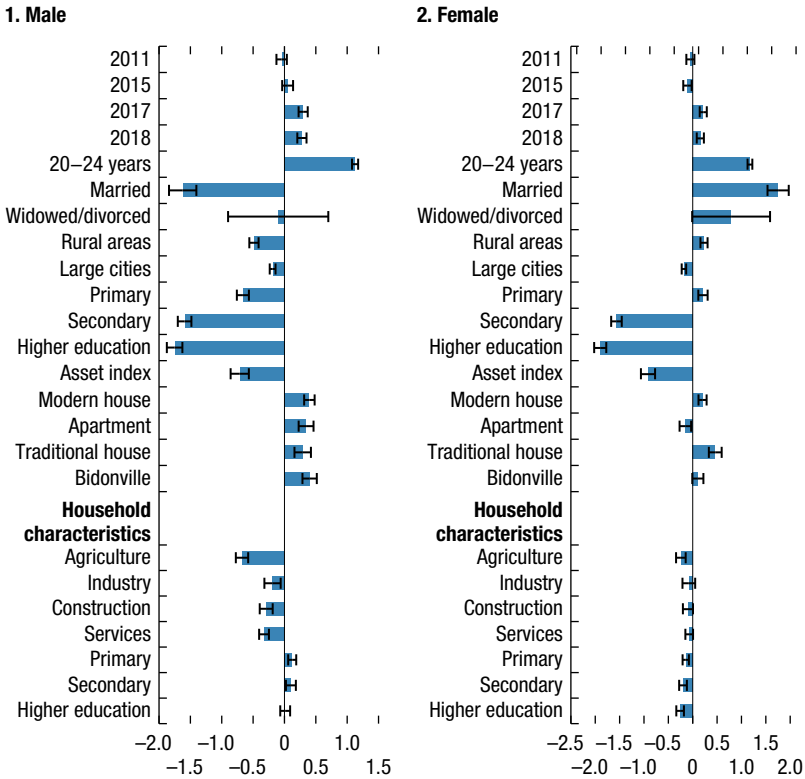
Figure 8.5. Results of Logit Regression
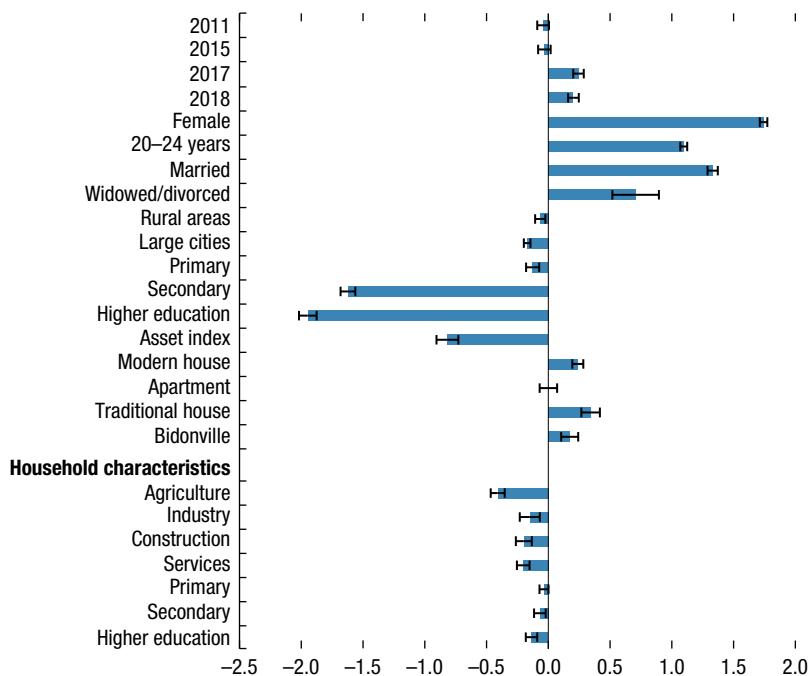
Source: Authors' calculations using International Labour Organization Labour Force Surveys, 2010–18.
Note: Dependent variable is the not in employment, education, or training (NEET) binary variable (NEET = 1, non-NEET = 0). Number of observations = 194,609; Wald χ^2 = 33,419.46 (p-value = 0.00); pseudo R^2 = 0.2741.

to find a job, whereas in rural areas young people are often involved, depending on the season, in family-based farming activities.

- The effect of *education* is as expected: all other things being equal, higher levels of education are associated with a lower probability of being NEET. This effect is particularly pronounced in the case of higher (tertiary) education.

- As expected, *household well-being* also matters substantially. The Asset Index (constructed by aggregating various household assets) is negatively associated with the probability of having a NEET in the household. The wealthier the household, the higher the chances are that young members will continue on to higher education or find a job. Coming from less-affluent families, on the other hand, can in practice virtually preclude the possibility of continuing to study beyond a certain level, or it may affect access to the jobs market.

- Finally, the *education level of the household head* and their *sector of activity* both significantly impact the probability of having NEETs in the family, In particular, whenever the family (and household head) is active in the agriculture sector, young members tend also to be active in that sector.

Figure 8.6. Results of Logit Regression by Gender

Source: Authors' calculations using International Labour Organization Labour Force Surveys, 2010–18.
Note: In panel 1, dependent variable is the not in employment, education, or training (NEET) binary variable (NEET = 1, non-NEET = 0); number of observations = 94,287; Wald χ^2 = 5,117.66 ($p = 0.00$); pseudo R^2 = 0.0844. In panel 2, dependent variable is the NEET binary variable (NEET = 1, non-NEET = 0); number of observations = 100,322; Wald χ^2 = 20,375.69 ($p = 0.00$); pseudo R^2 = 0.2846.

Figure 8.6 shows the results by dividing the sample into males and females to better explore the role of gender differences. Because the regressors are the same as those used in the whole sample, it is worth commenting only on the key aspects that differ in the two subgroups.

- *Marital status* seems to matter differently, because married men have a lower probability of being NEET, whereas the opposite can be observed for women. These results suggest that once married, it is even harder for women to enter the labor market. They often must rely economically on their husbands' income.

- *Higher education* seems to matter more for women than men in determining the risk of becoming NEET (having higher education reduces the probability of being NEET more for women than for men).

TABLE 8.4.

NEET and Non-NEET Rates in 2010, 2011, 2014, 2016, and 2018 *(Percent)*								
Years/Status		2011		2014		2016		2018	
		Non-NEET	NEET	Non-NEET	NEET	Non-NEET	NEET	Non-NEET	NEET
2010	Non-NEET	88.48	11.52	74.53	25.47	71.63	28.37	69.13	30.87
	NEET	22.95	**77.05**	52.25	**47.75**	60.15	39.85	63.04	**36.96**

Source: Authors' calculations using International Labour Organization Labour Force Surveys, 2010–18
Note: Values in boldface refer to the results discussed in the text. NEET = not in employment, education, or training.

- The *household head education variables* remain significant and negative for women only, suggesting that family background matters more for women than for men. This is further confirmed by the size of the marginal effect of the Asset Index, as well as by most of the housing quality variables: in absolute value, they are bigger for women than for men and are always negative and significant.

- Finally, results by *area of residence* show different effects for men and women. For men, living in rural areas reduces the probability of being NEET, whereas for women the effect is the opposite. This may be because in rural areas men can often find work in agriculture or can undertake jobs that require high levels of physical effort.

MARKOV CHAIN MATRICES

In the preceding section, a static snapshot of the NEET condition was captured, but it is also important to understand the dynamics of the phenomenon, especially the probability of moving in or out of a NEET position and for how long. The lack of panel data over a period longer than 1 year limits the possibility to undertake a meaningful analysis: 1 year is not enough, for example, to gauge whether or not a person is stuck in the NEET condition. A longer time span is clearly needed. With the adaptation of a Markov chain method to the analysis, it was possible to overcome this limitation and estimate 2010–18 transition matrices.[4] Table 8.4 shows the percentage of those NEET/non-NEET in 2010 who changed status or remained in the same position after 1, 4, 6, and 8 years (2011, 2014, 2106, and 2018), and Table 8.5 splits the sample between men and women.

There are two main results that are worth highlighting:

- *First, the NEET condition tends to persist* (see Table 8.4). About 37 percent of those who were NEET in 2010 are likely to still be NEET after 8 years. In other words, more than one-third of NEETs tend to remain in the same condition after 8 years and see their chances of entering the labor market dramatically diminish. On the other hand, even though 70 percent of those non-NEET in 2010 did not change their status (were still non-NEET after 8 years), the risk increases over time: whereas only 12 percent are likely to become NEET in 2011, in 2018 that probability is almost tripled (31 percent).

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[4] See Annex 8.1 for more details.

TABLE 8.5.

NEET and Non-NEET Rates in 2010, 2011, 2014, 2016, and 2018 by Gender *(Percent)*									
Years/Status		2011		2014		2016		2018	
		Non-NEET	NEET	Non-NEET	NEET	Non-NEET	NEET	Non-NEET	NEET
2010 Female	Non-NEET	81.20	18.80	61.82	38.18	56.91	43.09	53.03	46.97
	NEET	15.49	84.51	39.07	**60.93**	44.71	55.29	46.21	**53.79**
2010 Male	Non-NEET	88.48	11.52	87.34	12.66	87.00	13.00	85.70	14.30
	NEET	22.95	77.05	80.10	**19.90**	85.11	14.89	85.16	**14.84**

Source: Authors' calculations using International Labour Organization Labour Force Surveys, 2010–18
Note: Values in boldface refer to the results discussed in the text. NEET = not in employment, education, or training.

- *Second, the chances for NEETs to transition out of their status are concentrated in the early years* (see Table 8.4). There is a bigger drop in the probability to transition out of the NEET position between 1 and 4 years (from 77 percent to 47.8 percent) than between 4 and 8 years (from 47.7 percent to 37 percent). This most likely reflects the depreciation of human and social capital associated with being in a NEET status.

- *Persistence is higher for women than for men* (see Table 8.5). Only men see a reduction in the share of those persistently in the NEET status as time passes. Whereas the number of men with NEET status in 2010 remaining NEET in 2014 drops to about 20 percent, the number of women in the same condition is estimated at about 61 percent. After 8 years, the share for men declines to 15 percent, whereas for women it remains above 50 percent. These results confirm that the NEET condition has strong gender connotations, and it is generally women paying the larger costs of labor market inefficiencies (see also Lopez-Acevedo and others 2021).

CONCLUSION

Young people unemployed, outside the school system, and not undergoing any training—the so-called NEETs—form about 30 percent of the Moroccan population between ages 15 and 24, above the average for the MENA region (ILO 2019).

Subsequent rounds of Moroccan labor force surveys have already presented the opportunity to develop a clearer profile of NEETs in the country. What is missing, however, are the data to examine how the circumstances of people in the NEET condition have evolved over a reasonably long period of time. This analysis was able to overcome the data limitations and to provide helpful insights into NEET dynamics in the last decade.

The first part of the analysis showed the key determinants of the NEET condition. As expected, individual characteristics play an important role. The probability of becoming NEET is higher for women—particularly those married and/or with children—and for young men and women with lower levels of education. A higher concentration of NEETs is also more likely in medium-sized towns than

in big towns or in rural farming areas. In big towns, it is easier for young people to continue schooling or find a job, whereas in rural areas every household member is typically involved in some farming activities. The family context also influences the probability of being NEET. Higher parental education and better economic conditions tend—all other things being equal—to decrease the probability of young household members becoming NEET.

In the second part, the results are presented on NEET dynamics using estimated transition matrices. It was found that 37 percent of those who were NEET in 2010 tended to remain outside both the labor market and education even after 8 years, with very little chance of moving out. For a woman, the chance of remaining NEET after 8 years becomes 54 percent.

These preliminary results can already provide some initial suggestions for policy intervention. On one side, it would be important to work on "prevention" measures, because initial conditions tend to largely dictate a young person's future trajectory. This means improving the quality of education, reducing the likelihood of early dropouts, and financially supporting those whose initial relatively disadvantaged background might preclude continuing with formal academic studies or vocational skills training.

Ex-post interventions are also necessary. One important aspect stressed throughout the chapter is the persistent disadvantaged position of women. This is true for those analyzed as NEET (that is, between ages 15 and 24) but it also applies to those older than 24. According to the latest figures, more than 8 million Moroccan women are not active in the labor market (Lopez-Acevedo and others 2021). Among these, almost 2 million have more than a secondary level of education—a significant underutilization of human capital. Developing incentives and providing services to encourage Moroccan women to enter or remain in the labor market should be a top priority in the country's agenda of structural reforms.

ANNEX 8.1. ANALYSIS METHODOLOGY

Following Bilgen Susanli (2016), the probability of being NEET was estimated using a simple logit model based on a set of individuals (age, gender, and level of education) and household characteristics, geographical location, and housing conditions.

$$logit(p_{i,t}) = \beta_t x_{i,t} + \varepsilon_{i,t} \tag{8.1.1}$$

The model calculates the probability that the dependent variable acquires value 1:

$$E[Y_{i,t,h} = 1 | X = x] = P(Y_{i,t,h} = 1) \tag{8.1.2}$$

where $P(Y_{i,t,h} = 1)$ represents the probability of observing the condition of success for the i-th individual given a particular value of X.

All the independent variables are dummies or categorical variables: female (1 = female, 0 = male); age group (1 = 19–24, 0 = 15–19); marital status (married or widower/divorced, with being single as the omitted reference case); education attainment (Koranic school, primary school, secondary school, and

tertiary education, with no-education as the omitted reference case); housing characteristics (villa, apartment, traditional Moroccan house, modern Moroccan house, with rural house as the omitted reference case); and two geographical areas, namely urban or rural regions (with urban as the omitted reference case) and macro-regions (less-developed regions and more-developed regions, with the former as the omitted reference case).

An asset index is constructed to capture household wealth. As suggested by Filmer and Pritchett (2001), a principal-components analysis was used to calculate the weights of the index. The first principal component—the linear combination capturing the greatest variation among the set of variables—is converted into factor scores, which serve as weights. The rationale for using this index is that it captures the household's permanent welfare dimension better than simple consumption data and can provide more reliable rankings among households.

For the logit regression model, the 2010, 2011, 2015, 2017, and 2018 survey rounds were used. The choice depended on whether a complete set of data required to perform the analysis was available. The regression results are shown in Annex Table 8.1.1 and Figure 8.5 (where significant results are indicated by the bar being

ANNEX TABLE 8.1.1.

Marginal Effects of the Logit Model: Full, Male, and Female Models					
	N2010_2018 Total		M2010_2018 Male		F2010_2018 Female
	Coeff.	SE	Coeff.	SE	Coeff.	SE
2011	−0.00719	0.00412	−0.00404	0.00378	−0.0117	0.00777
2015	−0.00546	0.00437	0.00472	0.00417	−0.0264**	0.0081
2017	0.0432***	0.00398	0.0290***	0.00378	0.0535***	0.00703
2018	0.0357***	0.004	0.0270***	0.00381	0.0385***	0.00709
Female	0.298***	0.0023				
20–24 years	0.182***	0.0023	0.102***	0.00217	0.278***	0.00423
Married	0.282***	0.00516	−0.0827***	0.00267	0.407***	0.00538
Widowed/Divorced	0.143***	0.0222	−0.00879	0.0345	0.194***	0.0257
Rural area	−0.0112**	0.00366	−0.0446***	0.00339	0.0569***	0.00703
Large cities	−0.0297***	0.00242	−0.0175***	0.00223	−0.0444***	0.00445
Primary school	−0.0218***	0.00464	−0.0631***	0.00484	0.0517***	0.00854
Secondary school	−0.227***	0.00356	−0.118***	0.00348	−0.343***	0.00691
Higher education	−0.212***	0.00239	−0.0966***	0.00205	−0.367***	0.00574
Asset index	−0.140***	0.00774	−0.0654***	0.00683	−0.226***	0.0141
Modern house	0.0406***	0.00379	0.0362***	0.00382	0.0495***	0.00764
Apartment	0.0000634	0.00621	0.0354***	0.00687	−0.0369***	0.011
Traditional house	0.0639***	0.00768	0.0298***	0.00758	0.115***	0.0126
Bidonville	0.0308***	0.00652	0.0424***	0.00703	0.0260*	0.0118
Household characteristics					
Unemployed	0.0772***	0.00593	0.0784***	0.00714	0.0603***	0.0096
Industry	0.0475***	0.00756	0.0533***	0.00869	0.0403**	0.0125
Construction	0.0382***	0.00555	0.0402***	0.00629	0.0358***	0.00995
Services	0.0348***	0.00379	0.0308***	0.00368	0.0418***	0.00764
Primary school	−0.00594	0.0032	0.0115***	0.0031	−0.0351***	0.00622
Secondary school	−0.0115**	0.004	0.00971*	0.00391	−0.0485***	0.00755
Higher education	−0.0229***	0.00386	0.00105	0.00369	−0.0629***	0.00736

Source: Authors' calculations using International Labour Organization Labour Force Surveys, 2010–18

Note: Coeff. = coefficient; F2010_2018 = female-only model pooling data from 2010 to 2018; M2010_2018 = male-only model pooling data from 2010 to 2018; N2010_2018 = full model pooling data from 2010 to 2018; SE = standard error.

*$p < .05$, **$p < .01$, ***$p < .001$.

away from zero and the symbol describing the confidence interval not including the zero value).

Although the annual labor market survey used in the chapter has a rotating panel component that allows the creation of year-over-year transition matrices, any longer-term analysis of labor-force transition is not feasible. However, the majority of the analyses of the Moroccan labor market conducted so far (HCP-WB 2017) indicate that the duration of inactivity or unemployment tends to be particularly long. To get a longer-term perspective on Moroccan labor market outcomes, Markov chain theory was used to obtain the probabilities of transitioning from one condition to another for longer time intervals.

Using Markov chains, the one-step probability of transitioning from state i to state j, for all $t \geq 0$ and all states $i, j, i_0, i_1, ..., i_{t-1}$, is

$$p_{t,i,j} = \Pr(X_{t+1} = j | X_t = i) \tag{8.1.3}$$

which depends on time t. The matrix $P(t)$, whose elements are the one-step transition probabilities in equation (8.1.3), is called the *transition matrix at time t*. Higher-order (multistep) transition probabilities can be derived through matrix multiplication as follows (Brémaud 2020; Miller and Childers 2012):

$$P(t, s) = P(t) \times P(t + 1) \times ... \times P(s - 1) \tag{8.1.4}$$

with $s > t \geq 0$. Therefore, in the following section, current panel data modules are first used to calculate year-over-year transition matrices. From these, the transitions over the longer period 2010–18 are derived by chaining (multiplying) the one-step transition matrices until the transition matrix $P(2010,2018)$ is reached.

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