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The Rising NEET Phenomenon in Italy: an Empirical Study of the SHIW Sample

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To Giulio and Silver

Abstract:

The share of young (and not-so-young) Italians who live at home with parents has always been high. Besides this, a new category worries parents and policy-makers: NEET. This acronym defines youths Not in Education, Employment or Training, who stay at home appearantly doing nothing. Which are the determinants, or the risk factors, behind these linked phenomena? This work puts together theory and empirical findings in order to carry out a complete statistical analysis using the most recent data from the Bank of Italy's surveys. It also gives an insight about the effects of the 2008 economic crisis on young Italians' occupations and behaviours.

Contents

Part I. Introduction

Italians often complain that young people live for too long with their parents. This is true: compared to other European countries, Italy is one of the nations where children leave home later, together with Portugal, Spain, Greece and Ireland[1]. Just like all other countries, also in Italy young women leave home earlier, and more than men.

Many papers have focused on the determinants of young Italians' decision about whether leaving home, and some relevant factors were found. Becker et al. (2004) discovered that the degree of job insecurity (both for parents and for children) affects coresidence rate. Manacorda and Moretti (2006) found, through a natural experiment, that the likeliness of leaving home is inversely proportional to parental income[2]. Modena and Rondinelli (2011) focused on housing supply, and proved that high housing prices negatively affect the decision of leaving home. Fixed costs for moving out, and in particular the necessity of saving money for it, were found to be important factors also in Alessie et al. (2005). Rizzica (2013) argues that the local supply of tertiary education is a determinant of home-leaving decision. The authors of all these studies note that women behave quite differently from men: as a confirmation of this, Chiuri and Del Boca (2010) found that gender interacts with many determinants. In particular, Italian females are (still) linked to family structure and traditional roles. In fact, culture is a very important factor in determining both home-leaving decisions and gender differences, as Giuliano (2007) showed.

A less studied - but emerging - phenomenon is that of NEET youths. NEET is an

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[1]Chiuri and Del Boca (2010).
[2]Their hypothesis is that this is due to parents' preference for coresiding.

acronym which stands for Not in Education, Employment or Training, and refers to young inactive people, who stay at home ufficially doing nothing. This category - created in UK in the late 1990s - initially comprised only youths aged 16 to 18[3], but was then extended to wider age ranges, commonly 15-29[4]. In fact, as reported by Robson (2008), the definition of NEET is often subject to arguments, mainly because it is not clear whether unemployed people should be included. Nevertheless, this distinction is difficult to exploit in practice, because of the lack of objective criteria in distinghishing between the inactive and the unemployed.

In Italy there is increasing concern for NEET youths, because people started to realize that Italy is well above average when considering NEET incidence. Moreover, this phenomenon has expanded over the last years: from 21.1% in 2005, the incidence of NEETs reached 23% in 2010[5], possibly due to the economic downturn that followed the 2008 financial crisis. A specificity of the Italian context is that inactivity hits mainly on "old" youths: in fact, this is a problem especially for over-20-year-olds, and it is quite persistent over age groups, even until 30 or more.

There are few microeconomic empirical studies about the determinants of being NEET: most papers are simply descriptive - for example Marshall (2012) - or focus on the macroeconomic differences between countries, as Robson (2008). More than an issue for economists, it is sometimes considered as a psychiatrists' business: for example, Nardi et al. (2013) study Italian adolescent NEETs with unlawful behaviour. The bulk of researches was conducted in UK in the late 1990s and early 2000s[6], but little was made

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[3]Assirelli (2011).
[4]Istat (2013).
[5]OECD (2012).
[6]See Robson (2008) for a review.

outside this. One nice exception can be found in Shinozaki (2012), who carries out a microeconometric study for Japan, considering different factors - such as personal characteristics, family background and economic environment - as possible determinants of NEET status.

It is quite logical to think about coresiding decisions and youth inactivity as linked phenomena, and both aspects must be taken into account when evaluating youths' condition. For this reason, in order to have a complete picture of Italian young people's situation, I focus both on coresiding decisions (part III), and on NEET status predictors (part IV).

The samples used are taken from the Bank of Italy's Survey on Household Income and Wealth (SHIW), a biannual survey with detailed information about personal and financial characteristics of Italian households' members. A nice feature of this survey is that it has a panel section, so it was possible to check whether the child has left home in the subsequent two years. The most recent data are used, i.e. for years 2008 and 2010[7].

For coresiding decisions the sample used is necessarily limited to children living with parents in 2008, regressing a dummy indicating whether the child will leave home on a series of independent variables. The model used is probit.

The analysis for NEETs turns out to be more interesting and more flexible. The structure of this study follows Shinozaki (2012)'s empirical analysis for Japan. The regressions used are probit - the dependent variable is binary, indicating whether the person is NEET or not - and the sample can be crafted in order to study the importance of different variables. Moreover, the availability of data both for 2008 and 2010 allows us to see

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[7]Unfortunately, data from the 2012 SHIW are not yet available while I am writing.

how youths' condition and behaviour changed after the economic crisis.

This work is organized as follows: in part II data are presented for a broad understanding of young people condition. Inside this part, the phenomena of both coresiding children and NEETs are described, in section 1 and section 2 respectively. Part III contains the study of young people living with parents, comprising a review of some theoretical models, and the econometric analysis. In part IV you can find the risk factors for being NEET found by the literature, as well as regressions carried out over different samples, whose results are put together in section 11. Concluding remarks can be found in part V, and right afterwards there is the Appendix containing technical information.

Part II. Some data

In Italy many young people live with parents, often until they are not so young anymore. Some say it is because of necessity, some say it is because they are spoilt. As a starting point, it is useful to take a look at data in order to try painting a picture of the phenomenon, and this can be found in section 1.

But what do these youths do, at home? Even though, quite surprisingly, most of them work, there is a consistent share who takes part of a new category: being NEET. This word stands for Not in Education, Employment or Training, and describes young people who are still at home, appearantly doing nothing. A description of the meaning of NEET and data concerning young NEETs are in section 2.

1   Young people at home

Italy is characterized by a large share of young people who live in their parents' house, not only while studying, but also afterwards. First, we may take a look at Figure 1, and see that the percentage of people living at home with parents remains over 70% until the age of 27. Then it slowly decreases, but stays above 50% until among the 30-year-olds.

Only after 25 the fraction starts decreasing faster. 24 years old is the normal age at which people should finish a second-cycle degree in tertiary education, but it has to be noted that the rate of participation in the educational system of people aged 20-29, only 21.5% in 2013[8], does not justify these high fractions of stay-at-homes. Chiuri and Del Boca (2010) note that this behavior in children's coresidence rate is similar in Italy,

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[8]Istat (2013).

Fig. 1: Fraction of people living with parents by age group. Italy, 2008

Source: Banca d'Italia, SHIW 2008 (own elaboration)

Greece, Ireland, Portugal and Spain, and in a less strong way in Austria and Luxemburg, as it can be seen in Figure 2. Some studies compare this type of statistics with those of other countries: Alessie et al. (2005) study Italy versus Netherlands, and report that, in the Netherlands, coresidence rate is 57% in the age group 20-24, and suddenly drops to 11% among children aged 25-29.

We can also see that, in all countries, males stay longer, and in a larger percentage, at home. In Figure 3 we can see that recent data confirm this behaviour for Italy. Looking at data from the Bank of Italy's Survey on Household Income and Wealth (SHIW), we can see that, comparing to an overall 50-50% presence of males and females aged 20-39 in the sample, males are 58% among children at home in 2008, and 55% in 2010.

In 2008, 97% of people who live with parents is not married: the remaining 3% are either married (presumably separated) or divorced. This means that, even though there is some sign of a coming-back after a marriage failure, the phenomenon is negligible.

Fig. 2: Coresidence rate by country and gender

[Blue = males]

Source: Chiuri and Del Boca (2010) elaboration on EUROSTAT data (ECHP 1994-2001)

Fig. 3: Young people at home by gender, 2008

(a) Frequencies over a total of 2,342 children at home

(b) Fraction living with parents by age. To see the percentage of genders over age groups, consider each pile's height as 100%

Source: Bank of Italy, SHIW 2008 (own elaboration)

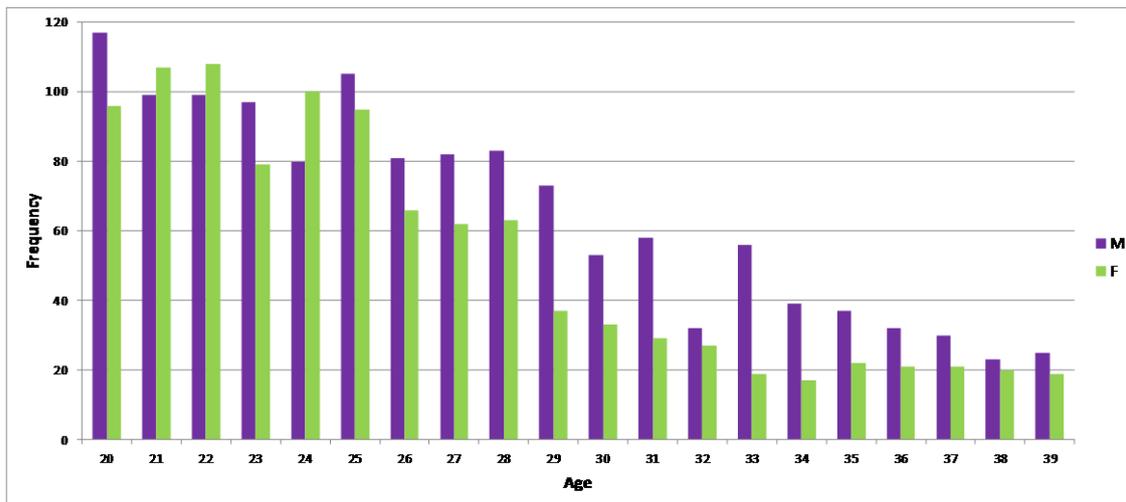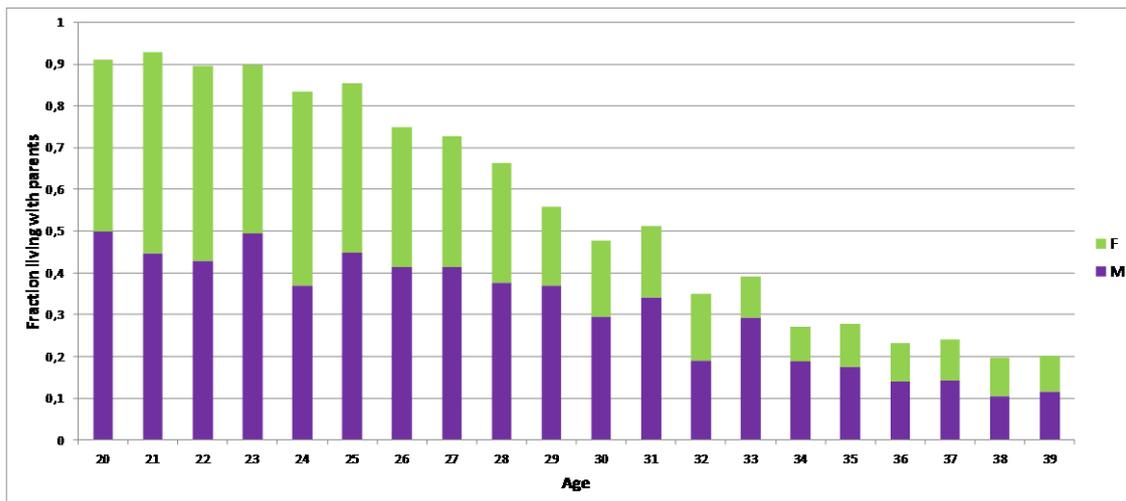**Employment**   Turning at analyzing the employment status of people at home versus independent people of the same age (20-39) in 2008, the picture that emerges is unexpected: most children work while coresiding with parents. The share of people who work is 50% (versus 73% among independent children), while students are only 24%. The share of unemployed is not so different across the two groups: 5.9% among children at home, 4.8% among the others. It has to be noted that "being a homemaker" is a different entry in the survey, and almost no one answered it among people coresiding with parents. The share of people looking for the first job is of course much higher among cohabiting children: 17.6% compared to 3.3%.

A crucial factor in determining coresidence, more than having a job or not, is the degree of job insecurity, as proved empirically by Becker et al. (2004). As noted by Dota (2011), over the years Italy has seen an erosion of indefinite term jobs, replaced by temporary jobs. These latter, in particular, are prevalent among the youngest: in 2009, 42% of workers aged 15-24 had temporary jobs, compared to 16% among 25-34 and 7% for people over 34 years old.

According to a survey in 2008[9], for an estimated 40% of under-35 workers, employment instability continues for a period of 5-10 years after entering the job market. Young people are more and more stuck into precariousness, with detrimental consequences:

> ... employment instability, which implies in itself a condition of discontinuity in terms of employment, contract and wages, also entails a disadvantage in terms of income, which in turn impacts on the living conditions of young workers, curtailing their immediate capacity to save and to achieve indepen-

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[9]Ires-Cgil survey involving 1,000 young workers interviewed by phone.

dence, forcing them to stay with parents. (Dota; 2011)

Crisis   How did the financial and economic crisis, exploded in 2008, affect the behaviour of children? Temporary jobs, which, as we have seen, comprise a large share of young workers, were the main target for the cuts that immediately followed the beginning of the crisis[10].

According to the Bank of Italy[11], youths condition deteriorated more and more over the past years, gotten worse by the crisis: between 2005 and 2008 occupation in Italy had an increase of 1.1%, but over the same period it decreased by 1.9% among young people aged 15-34. Between 2008 and 2010 occupation of the young plummeted: -6.8% in 2009 and -5.6% in 2010, while for people over 35 years old it increased. The flexion was driven by youths who finished their studies[12].

Table 1, based on an elaboration of data from the Bank of Italy's surveys for years 2008 and 2010, is particularly useful, because it allows us to see what happened in the two years immediately after the crisis. Both categories of people, those cohabiting with parents and those who do not, were hit severely by a decrease in the employment rate. It is quite curious that there was a realignment of unemployment rate at about seven and a half percent, with people living with parents now less unemployed than independent people. Most likely, children at home tried to escape from unemployment by remaining more in education, while their independent peers' decrease in occupation fell almost entirely into unemployment. It is also evident that there has been a problem of entry in the labour market, because people in search of a first occupation increased, even though

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[10]See Dota (2011).
[11]Banca d'Italia (2011).
[12]Banca d'Italia (2012).

Fig. 4: Fraction of young people living at home with parents in Italy, by age group

(a) 2008

(b) 2010

Source: Bank of Italy, SHIW 2008 and 2010 (own elaboration)

Status	2008		2010	
	w/ parents	independent	w/ parents	independent
Employed	49.5%	72.9%	44.1%	69.6%
Looking for 1st job	17.6%	3.3%	19.2%	3.3%
Unemployed	5.9%	4.8%	7.4%	7.7%
Student	23.8%	1.5%	26.4%	1.9%
Homemaker	1.2%	17.0%	1.2%	16.7%
Other	2.0%	0.5%	1.7%	0.8%
	100%	100%	100%	100%

Source: Bank of Italy, SHIW 2008 and 2010 (own elaboration)

Tab. 1: Employment status of people aged 20-39, both living with parents and on
their own, in 2008 and 2010

exclusively among people coresiding with parents[13].

In Figure 4 we can compare the fraction of people aged 20-39 who live with their parents
right before (a) and after the crisis (b). The shape of the plot did not have dramatic
changes.

North vs South   We cannot talk about Italy without evidencing the strong territorial
dualism between the North-Center and the South-and-Islands. This territorial break is
strong in all fields, and in all of the statistics available.

For example, educational attainments are much lower in the South, as it can be seen in
Figure 5.

The South has always had a big problem of cronical unemployment, and the difference

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[13]This is consistent with the habit of finding a job first, and only then moving out of parental home.

Fig. 5: People with tertiary education among those aged 30-34, percentage, 2011

in occupation between genders is much higher than the rest of Italy[14]. For young people

the situation is really bad in terms of work opportunities, especially for those who exit

the educational system: Southern Italy does not have a job market capable of absorbing

them. The rate of employment among those who just finished their studies is 48.6%,

compared to a rate of 79% in Northern Italy[15]. In Figure 6 there is a map of youth

unemployment in the Italian regions, but it has to be noted that the unemployment rate

does not take into account people who exit the labour force.

In Figure 7 we can see what happened to employment and unemployment rates for people

between 18 and 29 years old over the past twenty years, divided by macro-areas. It is

interesting to note that, while the differential between Northern-Central and Southern

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[14]Istat (2013).
[15]Banca d'Italia (2012).

Source: Istat (2013)

Fig. 6: Unemployment rate among young people (aged 15-24), 2011

unemployment rate has always been more or less the same, employment rates started converging at around year 2002, getting close to each other in 2011. The 2008 crisis affected both North and South in the same way for what concerns unemployment, but hit harder employment rates in the North, accelerating the convergence.

Fig. 7: Time series of unemployment and employment rates among people aged 18-29, by macro-area

2   NEETs

The acronym NEET means Not in Education, Employment or Training. It was created in the second part of the 1990s in the United Kingdom, in order to give a name to the rising phenomenon of young people completely inactive. The definition of NEET is not exactly the same for all countries, also because in UK it was created to meet a specific problem, that of the difficult transition between school and work[16]. So in the beginning, the definition of NEET comprised only "...people aged 16 to 18 not holding a job, not involved in the educational system, nor in any other form of training." (Assirelli; 2011).

Since we are talking about Italy, I recall the definition currently used by ISTAT and the Bank of Italy:

> ... [NEETs are] the population aged 15-29 who are neither in employment nor education or training, which means any kind of school/university education and any kind of training activity (regional vocational training courses, other types of vocational training courses, other training activities such as seminars, conferences, private tuition, language courses, computer courses, etc.), with the sole exception of "informal" learning activities such as self-study. On the basis of indications provided more recently by Eurostat, therefore, not only young people who are in regular (so-called "formal") learning activities are excluded from Neet status, but young people involved in so-called "non-formal" learning activities as well. (Istat; 2013)

Theoretically, it would not be correct to include unemployed people among NEETs, since they are actively seeking a job, but there are severe potential measurement problems

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[16]Robson (2008).

because in surveys people often self-define their status, and they may prefer to be viewed

as "unemployed" rather than "inactive" because of social desirability[17]. Often, hence, it

is practically difficult to clearly distinguish whom is inactive from whom is unemployed.

Moreover, some definitions further categorize NEETs either as unemployed or as Not In

the Labour Force (NILF), implicitly implying unemployed youths should fall within the

broad NEET definition[18].

What varies is also the age range used to define NEETs. Usually the widest range used is

between 15 and 29, which is quite arbitrarily divided into subgroups to better understand

the phenomenon[19]. Assirelli (2011) notes that the NEET definition clearly does not fit

anymore only to youths making a critical but short transition from compulsory school to

work. The extension of the age range indicates, therefore, that the NEET category is

meant to describe, regardless of the structure of the educational and employment system

of the country studied, all young people entering the labour market after finishing their

studies. This transition can happen at different ages, and it may last for many years.

Nardi et al. (2013), from a psychiatric point of view, recognize that "the concept defines

young people by what they are not, and subsumes under a negatively-perceived label

a heterogeneous mix of young people whose varied situations and difficulties are not

conceptualized", and propose three kind of NEET categories:

- "Core NEET", with social and behavioural problems, including those who come

  from families where worklessness and unemployment is an accepted norm;

- "Floating NEET", who lack direction and motivation, moving between different

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[17]Robson (2008).
[18]See for example Marshall (2012).
[19]See Assirelli (2011).

phases of activity but returning to NEET status repeatedly after unsuccessful engagements with activities;

- "Transition / gap year NEET", who have often chosen to take time out before progressing onto further or higher education opportunity and are likely to return to education, training or employment, even though it is not always clear when this will occur.

These definitions are of course interesting and potentially able to capture the different motives of inactive youths, but are difficult to exploit in practice because they require rich longitudinal information.

International and Italian case   The average percentage of young NEETs over the total youths aged 15-29 in OECD counties is 16%, and it is almost everywhere higher for females than for males[20]. In Figure 8 we can see that Italy was (and is) above the average both before and after the 2008 crisis.

The overall incidence of NEETs increased substantially in 2009 and 2010. From Figure 8, it is easy to see which countries suffered the most after the 2008 crisis: the most dramatic increases in the proportion of NEETs were in Ireland and Spain. Even though Italy suffered less in relative terms, the incidence of NEETs aged 15-29 passed from 21.1% in 2005 to 23% in 2010, and it is still increasing although at a lower pace[21]. But how did the worldwide recession worsen young people's employment status? During an economic downturn unemployment rates increase, favouring experienced workers over new entrants. Moreover, high unemployment rates also drive down the opportunity

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[20]OECD (2012).
[21]Istat (2013).

Fig. 8: Percentage of NEETs over youths aged 15-29, OECD countries

Source: OECD (2012)

cost of education, making people study longer. These facts totally offset the effect of population ageing in OECD countries, which would - alone - create employment for young people[22].

It is however necessary to distinguish between age groups: in general, and in particular for Italy, the problem of youth inactivity concerns especially young people over 20 years old. This happens because most 15-19 year-olds are still in secondary education. Figure 9 is particularly useful to visualize where the problem lies. Still taking into account that many unemployed could have become discouraged and fall into the inactive category, it is interesting to notice that, among NEETs, people actively seeking for jobs comprise a larger share in the 25-29 group than in the 15-19 group, suggesting a problem of transition from tertiary education to the labour market more than a personal choice. Still talking about Italy, in 2008 30.8% of NEETs was looking for a job, while in 2010 they were 33.8%[23].

Using data from the Bank of Italy Survey on Households Income and Wealth (SHIW), in Figure 10 it is depicted the percentage of NEETs for each age group, both for year 2008 and 2010. We can see that, apart from an increase at age 19 (the typical transition age for high school graduates), which could be transitory, what is most worring is the inflation of the phenomenon also for all age categories over 20 years old.

Also in this field, there is a territorial break (see Figure 11). In Southern Italy, where, anyway, the activity rates are lower for all age groups, the incidence of NEETs has always been very high. As it can be seen in Figure 12, the proportion of NEETs increased more in the Center and North than in the South, but more recent data tell us that in 2011 the

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[22]OECD (2013).
[23]Banca d'Italia (2011).

(a) age range 25-29

(b) age range 15-19

Source: OECD (2012)

Fig. 9: Employment status and inactivity among young people, 2010

Fig. 10: Fraction of NEETs over total population with the same age, for each age group

(a) 2008

(b) 2010

Source: Bank of Italy, SHIW 2008 and 2010 (own elaboration)

Fig. 11: percentage of NEETs among youths aged 15-29, 2011

increase in the share of NEETs happened exclusively in the South and in the Center[24].

An issue of black labour market also exists, since Italy has a high incidence of underground workers. People who self report as unemployed or as inactive might actually work and earn some money illegally, and they would likely be suspicious about self declaring doing so. As found by Cappariello and Zizza (2010), a low level of personal education significantly increases the probability of working illegally, so a problem of measurement may sussist especially for less educated people, and especially in the South, where irregular labour is more widespread. Boeri and Garibaldi (2002) estimated that in Italy about 45% of those classified as unemployed and 10% of those classified as inactive are actually working irregularly.

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[24]Istat (2013).

Fig. 12: NEETs incidence among young people aged 15-29 in Italy

Source: Bank of Italy elaboration on Istat data

NEET permanently?   The condition of NEET people differ from country to country, being mostly transitory in many countries, but Mediterranean youths risk to stay more persistently in this status[25]. As reported by Robson (2008), some authors link the permanence of NEET status to the "regime" of each country: some countries might have some features which can help young NEETs become active, or not. For example, the presence and the amount of social benefits, the degree of regulation and flexibility of the labour market, the structure of the educational system and the cultural "concept of youth" that is held in each country (the social norms about what young people ought to do).

In Italy, it is not impossible to get out of NEET status, but there is a territorial divide: while in the North the probability of becoming active after 12 months is 40%, in the South

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[25]Assirelli (2011).

Fig. 13: Probability of getting out of NEET condition after 12 months (youths aged 15-29)

Source: Bank of Italy elaboration on Istat data

it is just above 20% (see Figure 13). On the other hand, the 2008 crisis has deteriorated the chances for young NEETs especially in the North-East and in the Center. But what do NEETs do, when exiting this condition? Between 2008 and 2010, transitions towards employment got down from 74.5% to 69.5%, while those towards educational activities increased from 25.5% to 30.5%[26].

In Italy, speaking in general, unemployment status persistence increased too. In 2011, due to the permanence of the economic downturn, long-term unemployment increased again: from an incidence of 48.5% in 2010 to an incidence of 51.3% in 2011, the highest level since the previous decade. This has most likely also affected NEET status persistence.

Taking into consideration both 2008 and 2010 SHIW survey, looking at panel families, it is possible to check whether NEET status is found in both periods for the same person.

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[26]Banca d'Italia (2011).

2008 panel (17-38 y.o.)		NEET in 2010		
		no	yes	total
NEET in 2008	no	4,822	438	5,260
	yes	373	**610**	983
	total	5,195	1,048	6,243

Source: SHIW 2008 and 2010 (own elaboration)

Tab. 2: Permanence of NEET status in 2008-2010 panel survey

This can be considered as a sign of NEET status persistence, although some error is possible because "floating" NEETs might be caught in NEET status both in 2008 and 2010 without having stayed persistently in this status inbetween, and conversely, some cronical NEETs might not be registered as such, just because they had an episode of activity during one of the two surveys. Anyway, it is interesting to analyze this statistic because these, most likely, are the "core" NEETs Nardi et al. (2013) have described. As it can be seen in Table 2, the amount of persistent NEETs is not negligible at all. In the table it is considered the whole group of people aged between 17 and 38 as of 2008, whose families have been interviewed again in 2010. Around 62% of those who were NEETs in 2008 are found to be NEET again in 2010. Another interesting piece of information is that 29.1% of 2010 NEETs were reported as being students in 2008, while 10.9% were employed.

NEETs at home   According to Banca d'Italia (2011), the majority of young people aged 15 to 29 not in employment nor in education lives at home with at least one parent: in Southern Italy this is true for three out of four NEETs.

Even though men are more often living with parents than women, females are more likely to be NEETs than males (around 25.5% compared to around 20%[27]), and this is

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[27]Istat (2013).

Fig. 14: Incidence of NEETs among youths aged 15-29 in EU countries, by gender, 2011

Source: Istat elaboration on Eurostat labour force survey

particularly true for Italy although it is true almost everywhere (see Figure 14). This is likely to be due to the role traditionally attributed to women, who are primarily responsible for the care of children and of elderly or unhealthy relatives, especially men[28], and who still are, sometimes, the only ones who keep the house.

Looking at the Bank of Italy survey data and taking into analysis people aged 20 to 39, in 2008 33.4% of people living at home with parents is NEET, while in 2010 the percentage got up to 38.4%.

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[28] As empirically tested by Modena and Rondinelli (2011), who find that the home-leaving decision of women aged 25-35 is strongly and negatively affected by the presence of the father when the mother is absent.

Part III. Young adults living with parents

3   Modeling coresidence decisions

The most complete (and most convincing) model which describes the coresiding decisions of children and parents is that by Becker et al. (2004). Constructed to study the effects of children's and parents' job insecurity, it is actually very useful in giving an insight about the role of parental income in the child's decision of coresiding.

Becker, Bentolila, Fernandes and Ichino build a two-period model in which all family components pool income and equally share it as consumption. In the first period, both child and parents observe their income realization, and the child decides whether to move out or not. If she decides to move out, she will consume her personal income, net of housing and moving costs, *plus* a possible transfer of money from parents. A very realistic feature is that the child may choose to work while living at home with parents. In the model, moving out is irreversible, which is quite realistic too.

Three key factors of the model are:

- Partial altruism of parents. Parents weight their own direct utility by a sub-unitary factor, say, λ, and their children's utility by $(1 - \lambda)$;

- Non excludability from household's consumption. Parents cannot possibly decide to limit the consumption of a coresiding child;

- Possibility of regret for the child's choice. If the child moves out, and in the following period it turns out that it would have been better to cohabit with parents, this is a source of regret.

The latter point is a feature that is in line with modern behavioural economics, and it can give a hint about why children may decide to stay at home, even if economic theory predicts they would not. Coricelli et al. (2005), in the field of neuroscience, empirically confirm that people naturally tend to avoid choices that could lead to regret, because the brain assigns a much bigger-than-normal disutility to such choices. Going back to Becker et al. (2004), the possibility of staying at home in the first period waiting for period two to see the income realizations to decide whether or not to move out is an option that could avoid regret, and as such it is very valuable.

The first two points, partial altruism and non excludability, imply that a child gains more from shared consumption at home than from parental trasfers (if present) when independent. This happens because parents, even though they would in principle weight child's utility by a fraction, in the case of coresidence they are "forced" to share equally. An additional reason why the child could get a larger share might also be that, when coresiding, the pooled resources are larger by the cost of moving, so the resources to be shared are overall more. On the other hand, if the child is independent, parents can more successfully limit the amount of transfers.

Taking a look at Figure 15 we can grasp the direction of the effects on the decision of moving out of child's and parental income. In the two graphs it is depicted the second period decision, the child having decided in the first period to stay at home. Δ_2 represents the change in utility if deciding to move out in the following period, so as a thumb rule, if $\Delta_2 > 0$ the child will move out, with $\Delta_2 = 0$ the child being indifferent between staying at home and moving out. Becker et al. (2004) define $\bar{y}_{c2}$ as the child's income level that makes the child indifferent, and $\bar{y}_{p2}$ the parental income level that makes the child indifferent. $\tilde{y}_{c2}$ is the child's income below which the parent give

(a) child's income

(b) parental income

Fig. 15: The effects of income on the child's home-leaving decision

monetary transfers, and $\tilde{y}_{p2}$ is the parents' income level above which they give monetary transfers to the child.

Looking at the shape of the curves, derived from the authors' model, their implications intuitively make sense. Given child's preference for independence, an increase in her income most likely always increases the probability of leaving home. More interesting is the conclusion about parental income, whose effects appear to be ambiguous. While for low levels of income the child is pushed to move out, an increase in the income of parents first decreases the probability of moving - the child has an advantage to stay at home sharing higher pooled income - but then, above the point parents can afford positive transfers to an independent child, further increases push again the child towards moving out. Of course the overall result depends on the combinations of child's and parents' income[29], but the *ceteris paribus* effects seem logical.

Summing up, Becker et al. (2004) give us a very important suggestion in order to understand the determinants of the coresiding decision: the possibility of ambiguous effects of parental income.

Other points of view   There are some aspects the model by Becker et al. (2004) does not focus on, and that other authors, although building models which are overall less realistic, can overcome.

Alessie et al. (2005) importantly introduce savings into play. Cohabitation is viewed as an optimal way for the young to accumulate liquidity for the purchase of a house. Both parents and child can work and save, and there is some strategic interaction between them. If the child decides to move out, consumption is a public good in the first period

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[29]In any case, it is reasonable to assume that, on average, parents earn more than their child.

and a private good both for child and parents in the second period. Parents and child can decide whether to cooperate, so savings would be optimal, or to play a Nash game. In the latter case, given parents' preference for cohabitation and child's preference for independence, savings would be too much compared to efficiency. Even in the case of infra-household borrowing, parents may withheld financial help in order to make the child stay with them.

Manacorda and Moretti (2006) suggest a strategic interaction also in parental transfers: assuming cohabitation is a good for parents and a bad for the child, parents who are in part (or completely) selfish may offer income transfers to the child only if she decides to cohabit. In this way they would compensate the child, who accepts to stay at home, with higher consumption, giving up some of their own consumption.

These kind of strategic interactions are really interesting, but not very easy to use in practice, also because strategic behaviors may actually vary widely across households.

In all models a very important part is played by the so-called "fixed costs" of moving out, which comprise down payments, housing costs, forniture, etc. Intuition and empirical evidence[30] suggest that housing prices, rental rates and the mortgage market efficiency play a primary role, and interact with family savings in non-trivial ways.

Gender, especially in the Italian environment, is a variable that filters the effect of many factors, in particular family income and housing prices, as noted by Chiuri and Del Boca (2010) and Modena and Rondinelli (2011), for example. This behaviour reflects country's culture traditional roles, as well as some form of discrimination in the social context. The idea that culture plays a role in cohabiting decision is evident after reading Giuliano

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[30]See for example Modena and Rondinelli (2011) for Italy.

(2007), who takes on a clever statistical strategy to prove that the more liberal attitudes following the 1970s sexual revolution have allowed children to stay at home longer. From this study it also emerges that parents might behave more strictly with daughters, pushing them to leave home earlier. On the other hand, females might also be viewed according to their traditional role, suggesting they would stay at home helping taking care of relatives and keeping the house. These two contrasting aspects could explain why, looking at data, women living with parents are less than men, but NEETs among women are more.

4   Dataset

The dataset used is part of the data from the 2008 Survey on Household Income and Wealth (SHIW) by the Bank of Italy. The SHIW occurs every two years, and its questionnaire contains specific questions about demographic and personal characteristics of each household member, although the main focus is on income, wealth, savings and financial behaviour of Italian families. A good portion of the households interviewed are panel families taken from the previous survey, while the rest are newly-interviewed ones. For example, the 2008 survey was on 7,977 households[31], of which 4,621 were going to be interviewed again in 2010.

The subsample used in estimations consists of all 2008 families with children aged 20-39 which were going to be interviewed again in 2010. In other words, only households with coresiding adult children which could be followed also in 2010 were taken into consideration. All independent variables are based on 2008 information, while the 2010

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[31]19,907 individuals.

data was only used to check whether the child was still coresiding, or not, two years later. Of the total 1,524 children taken into analysis, the ones who moved out are 275.

5 Variables selection and methodology

The dependent variable is a dummy which indicates whether the child has left parental home or not between 2008 and 2010. In particular, it takes value of zero if in 2010 the child is still present in the household or if she has left home for reasons different than personal will[32], and it takes value of one if the child has left home to form a new household (or for different reasons).

Independent variables, whose description follows, are grouped into personal, household, and parental characteristics.

Personal characteristics In light of what has been said, it is straightfoward to include gender as a variable, and also age and age squared. There is a dummy for student status, and one indicating whether the child is employed. There are two dummies for educational attainments: one for high school degree, and one for college degree.

Household characteristics Apart from territorial dummies, one for Central Italy and one for Southern Italy, there are also other indicators which should help identifying the type of household taken into consideration. A dummy tells whether the number of components is bigger than four (for Italian standards, this is a big family), and another one indicates whether the family lives in a big city, i.e. if the city has more than

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[32]e.g. transfer in hospital, prison... For more information see the Appendix.

40,000 inhabitants (again, for Italian standards, this is a big city). There is also a variable measuring per capita squared meters of the house the family lives in. In some specifications, it was included an interaction term of gender with the "big family" dummy in order to check for a family-keeping role of daughters.

The logarithm of family wealth is included[33]. It was also taken the logarithm of the sum of parental incomes, and it was then added a squared term in order to check for non-linearities. A dummy indicates whether the family owns a second house, and another dummy which tells whether the family self-reported difficulties in reaching the end of the month with family income[34].

Parental characteristics   First of all, there is a dummy which takes value of one whenever the child has only one parent living in the household. This is particularily useful when including measures of parental income. Also dummies for the Head of Household's educational attainments are included[35]. A dummy indicates whether at least one parent in the household suffers from bad health. This variable was used interacted with gender in order to check for a possible caring role of daughters. It is although necessary to keep in mind that health status is self-reported (or reported by the HH), so it is quite a subjective measure.

Because the dependent variable is binary, the models used for regressions are the probit, estimated by maximum likelihood, and the Linear Probability Model (LPM) with heteroskedasticity-robust standard errors, estimated by OLS.

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[33]In order to take this transformation, the variable was first shifted in order to have positive values.

[34]Those who reported having "some difficulties" were not considered as having difficulties, because of the natural attitude of complaining about the status quo. Only those who reported having "difficulties", or "severe difficulties" were considered as in trouble.

[35]Information about the education of the other parent is sometimes lacking, either because there is only one parent or because information is simply missing.

6   Estimation results

Tab. 3: 2008 coresiding children (panel section) - estimation set I

Estimation	(1)		(2)		(3)	
dep. var.: out	Probit	LPM	Probit	LPM	Probit	LPM
age	.496***	.111***	.438***	.095***	.435***	.093***
	(.089)	(.020)	(.091)	(.021)	(.091)	(.021)
age^2	- .0081***	- .0018***	- .0071***	- .0015***	- .0070***	- .0015***
	(.0015)	(.0004)	(.0016)	(.0004)	(.0016)	(.0004)
female	.189**	.048**	.156**	.041**	.158**	.041**
	(.079)	(.020)	(.079)	(.020)	(.080)	(.020)
student	- .286**	- .061**	- .275**	- .058**	- .278***	- .060**
	(.129)	(.027)	(.130)	(.028)	(.132)	(.028)
employed	.095	.028	.104	.031	.121	.034
	(.096)	(.026)	(.098)	(.026)	(.102)	(.027)
high school degree			.0091	.0036	- .032	- .0075
			(.1035)	(.0253)	(.108)	(.0262)
college degree			.323**	.101***	.263**	.086**
			(.128)	(.037)	(.133)	(.038)
Central Italy	- .105	- .025	- .106	- .026	- .110	- .027
	(.114)	(.030)	(.115)	(.030)	(.115)	(.030)
Southern Italy	- .115	- .028	- .113	- .027	- .095	- .021
	(.092)	(.023)	(.092)	(.023)	(.098)	(.025)
big city	- .0054	- .0016	- .0068	- .0013	.0020	- .000048

	(.0794)	(.0199)	(.0795)	(.0198)	(.08027)	(.01994)
HH high school degree	.167*	.048**	.095	.028	.063	.019
	(.088)	(.023)	(.092)	(.023)	(.095)	(.024)
HH college degree	.233	.056	.100	.018	.053	- .00037
	(.150)	(.039)	(.163)	(.041)	(.178)	(.0449)
only one parent					- .166	- .038
					(.115)	(.028)
log parental income					.579	.014
					(.581)	(.022)
log parental income^2					- .026	.00015
					(.030)	(.0022)
log family wealth					.041	.0084
					(.050)	(.0117)
difficulty with income					.060	.013
					(.099)	(.024)
out = 1 correctly classified	0%		0%		0.36%	
out = 0 correctly classified	100%		100%		99.92%	
out = 1 correctly predicted	/		/		50%	
out = 0 correctly predicted	81.96%		81.96%		82%	
Hosmer-Lemeshow test	p = 0.20		p = 0.20		p = 0.01	
pseudo-R^2	0.0580		0.0647		0.0705	
Number of observations: 1524. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$						

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Tab. 4: 2008 coresiding children (panel section) - estimation set II

Estimation	(4)		(5)		(6)	
dep. var.: out	Probit	LPM	Probit	LPM	Probit	LPM
age	.434***	.092***	.435***	.092***	.434***	.092***
	(.091)	(.021)	(.090)	(.021)	(.091)	(.021)
age^2	- .0070***	- .0015***	- .0070***	- .0015***	- .0070***	- .0015***
	(.0016)	(.0004)	(.0016)	(.0004)	(.0016)	(.0004)
female	.157**	.041**	.227***	.058***	.138*	.036*
	(.080)	(.020)	(.088)	(.023)	(.083)	(.021)
student	- .274**	- .059**	- .277**	- .059**	- .268**	- .057**
	(.132)	(.028)	(.132)	(.028)	(.133)	(.029)
employed	.127	.035	.131	.036	.130	.036
	(.102)	(.027)	(.102)	(.027)	(.102)	(.027)
high school degree	- .026	- .0059	- .022	- .0055	- .027	- .0065
	(.108)	(.0263)	(.108)	(.0263)	(.108)	(.0263)
college degree	.263	.086**	.265**	.085**	.268**	.087**
	(.134)	(.038)	(.134)	(.038)	(.134)	(.038)
Central Italy	- .116	- .029	- .122	- .029	- .117	- .029
	(.116)	(.030)	(.116)	(.030)	(.116)	(.030)
Southern Italy	- .094	- .021	- .093	- .020	- .095	- .021
	(.099)	(.025)	(.100)	(.025)	(.099)	(.025)
big family			.142	.030		
			(.134)	(.034)		
big city	- .0092	- .0032	- .012	- .0034	- .0049	- .0022

	(.0815)	(.0203)	(.082)	(.0204)	(.0818)	(.0204)
house size per capita	- .0031	- .00078	- .0032	- .0008	- .0031	- .00077
	(.0026)	(.00061)	(.0027)	(.0006)	(.0026)	(.00061)
only one parent	- .120	- .026	- .118	- .026	- .114	- .024
	(.120)	(.029)	(.121)	(.029)	(.120)	(.029)
HH high school degree	.063	.019	.063	.020	.067	.020
	(.095)	(.024)	(.095)	(.024)	(.095)	(.024)
HH college degree	.053	.00028	.044	- .00066	.044	- .0029
	(.178)	(.04481)	(.177)	(.04446)	(.178)	(.0450)
parent with bad health					.055	.014
					(.194)	(.049)
big family × female			.024	.0064		
			(.156)	(.0347)		
bad health parent × female					.512**	.146*
					(.240)	(.079)
log parental income	.563	.0122	.585	.011	.597	.0088
	(.588)	(.0229)	(.618)	(.023)	(.615)	(.0230)
log parental income^2	- .025	.00034	- .026	.00039	- .026	.00064
	(.031)	(.00222)	(.032)	(.00223)	(.032)	(.00224)
log family wealth	.045	.0096	.045	.010	.046	.0096
	(.054)	(.0124)	(.054)	(.012)	(.055)	(.0124)
second house	.098	.025	.106	.026	.099	.025
	(.112)	(.030)	(.112)	(.030)	(.112)	(.030)
difficulty with income	.051	.011	.060	.013	.041	.0084

	(.100)	(.024)	(.100)	(.024)	(.100)	(.0240)
out = 1 correctly classified	1.09%		1.82%		1.82%	
out = 0 correctly classified	100%		99.92%		99.92%	
out = 1 correctly predicted	100%		83.33%		83.33%	
out = 0 correctly predicted	82.12%		82.21%		82.21%	
Hosmer-Lemeshow test	p = 0.03		p = 0.41		p = 0.17	
pseudo-R^2	0.0720		0.0741		0.0736	
Number of observations: 1524. ***= $p < 0.01$, **= $p < 0.05$, *= $p < 0.1$						

6.1 Validity

The predictive power of the models used is very low. In particular the sensitivity[36], using a probability cutoff of 0.5, is near to 0% in all specifications. In fact, the models almost always predict that the child will not move out, scoring in this way a very high specificity[37]. Although the error rate for predictions is low, the number of predicted NEET = 1 is too low to make this important.

The Hosmer-Lemeshow test[38][39] for the goodness-of-fit rejects the third and fourth specification at a 5% confidence level. In this respect, including Head of Household's bad health or especially family size, and their interactions with gender, improves the model significantly. This is qualitatively confirmed by the increase in pseudo-R^2.

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[36]The percentage of actual out = 1 correctly classified as such, using model predictions.
[37]The percentage of out = 0 correctly classified.
[38]Hosmer and Lemeshow (1980).
[39]Standard, with 10 groups.

6.2   Discussion

Unfortunately, there is not much to say about these results. Age and age squared are always strongly significant, resulting as the main determinants of the probability of quitting the household, which increases up to a point and then decreases, as expected.

Being a female makes it significantly more likely to leave home. The increase in the probability of leaving home is of around 4 percentage points if the person is a female. Considering estimation 4, switching the female dummy from zero to one generates an average increase of 23% on the level of predicted probability[40]. The coefficient for female remains significant even after controlling for interactions of the gender with other factors. One interesting hint is the significance of the interaction coefficient between female gender and the dummy which takes value of one if at least one parent suffers from bad health status, although the sign is the opposite to what was expected. If daughters were "used as nurses" for ill parents, one would expect to find a reduction in the probability of quitting the household. In fact, the opposite seems to be true: a bad health status for at least one parent is associated to an increase in the probability of quitting the family, but only for daughters. Also, daughters do not seem to be used as housekeepers either, because the interaction of gender with the "big family" dummy is insignificant.

Of course, being a student significantly decreases the probability of leaving home, but this is not surprising at all since many students are not going to finish their studies and leave home soon. Having a college degree increases this probability, but again this is of no surprise since being a college graduate, in many cases, means that the child is at the

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[40]See the Appendix for details about the computation of relative effects.

end of her educational path. It is important to remember that the majority of students, in Italy, coreside (at least officially) with parents throughout their education.

It is interesting that the likeliness of quitting the household is not linked to being employed. Being employed never yields significant coefficients, under any specification. It seems like having a job, or not, does not influence the probability of leaving home: it means that other factors might be more important, in this decision. Housing solutions sounds like a good alternative, but in this case it was reasonable to expect the "second house" dummy to be significant and positive after controlling for income and wealth, which is not the case.

Territorial divides do not seem to exist: the macro-area dummies and the dummy for a big city are never significant.

Surprisingly, measures for income, wealth and economic difficulties are never significant.

These results are overall quite puzzling but, as previously noted, the validity of these estimates is not the best.

Part IV. NEETs

Differently from young people living with parents, the phenomenon of NEETs is more slippery, at least in principle, and does not lend itself to be modeled. In the literature, being NEET is usually associated to problematic situations. Moreover, it is proved that being NEET in a difficult social context may lead to lonelyness, frustration, aggressiveness, psychiatric problems and crime[41].

7   Predictors for NEET status

In the UK, where the problem was first found, many empirical studies attempted to find predictors for NEET status. All of them, as pointed out in Robson (2008), found that young NEETs came primarily from poor, low-educated families. Some of the risk factors found in these studies were:

- poor socioeconomic background, low family income and rented accomodation;

- little or no educational attainments, truancy, school exclusion;

- low-skilled parental occupation and education;

- health problems or disabilities, having a baby at an early age.

Other authors have pointed out a different category of determinants, namely institutional factors. The idea, that has some support[42] is that each country has its own "youth transition regime", i.e. economic, institutional and cultural specificities that characterize

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[41]Nardi et al. (2013).
[42]See Robson (2008), who carries out an empirical test and recalls other studies.

the transition from school to work. Not only a general difficulty in finding a job, but also the feeling of being "abandoned" by the government could play, in this context, an important role in inducing NEET status. Moreover, in some countries the fact of being inactive could be more socially accepted than in others.

A very interesting study about Japan is by Shinozaki (2012), who empirically tests the relationship between being NEET and a list of individual, familiar and environmental factors. Just as hypothesized by Becker et al. (2004) in the case of young people living at home, Shinozaki suggests that parental income may have ambiguous effects. An increase in family income might be associated with a decrease in the probability of being NEET up to a point, but increase it above that point:

> Non-employed people do not accumulate human capital as employed people are expected to do and are at high risk of becoming less productive than working people in their age group. Furthermore, because so many of the non-employed have no more than a high school education or left school early, they will not receive the wage premium that is usually given to the more educated. As a result, the non-employed are likely to be offered a wage that is below average. [...] It is quite possible that a more affluent background keeps people's reservation wages high because they want to maintain their living standards. [...] This wage gap between what is available and what is desired may be keeping the non-employed from seeking employment. (Shinozaki; 2012)

This suggests there might be opposite reasons why a young person is NEET. Besides problematic families, also wealthy families may possibly suffer from a high share of NEETs.

Anyway, the problem always seems to lie in labour market entry. As proved by Brunello (2001), a failure in entering the labour market would have differentiated effects according to educational attainments: the earning prospects of a college graduate would disintegrate quickly after a spell of unemployment. In fact, college graduates are less likely to be unemployed, but the effects of unemployment are more detrimental for this category, compared to less educated people. Brunello suggests this is due either to the fact that higher education depreciates faster, or that unemployment is, for college graduates, a stronger negative signal in the labour market.

Shinozaki (2012) also finds that, at least in Japan, the unemployed's educational and family background are more similar to the employed's rather than to the totally-inactive NEETs. A difficulty in distinghishing between who is unemployed and who is willingly inactive may thus lead to understate the differences between NEETs and the employed.

Italy   The reasons behind the incidence of NEETs are probably peculiar to each country, so it is necessary to outline the specificities of the Italian socio-economic context. As reported by Assirelli (2011), the factors more likely to be associated to NEET status in Italy are:

- being woman

- low educational qualifications

- foreign nationality

- coming from families with low economic and cultural capital

- coming from Southern Italy

And these factors seem to have a larger importance the higher the age group considered. In the range 15-19, in particular, the gap between NEET shares among the categories defined by these variables is small, becoming important in the age range 20-24, and stronger between 25-29 year-olds.

An Italian specificity is the level and type of regulation of the labour market: Italy is characterized by a strong regulation of indefinite-term jobs, which makes insiders protected and entry difficult, and by a "jungle" of temporary contracts, with little regulation and protection, and often no limits in the possibility of being dumped and under-paid (or not paid at all). Some NEETs, then, may not be permanently in this status, but periodically fall in it between a precarious work and another. Although not favourable to whom wants to form a new household, this flexibility, on the other hand, might have spared youths long periods of NEET status, and permitted some turn-over among young people. But the 2008 crisis, with the cut of both temporary and indefinite-term contracts, hurting mostly youths[43], has blocked many to enter in the labour market at all.

It is also important to remember that long-term NEETs in Italy represented a large fraction even before the crisis, compared to other European countries[44].

Nardi et al. (2013), looking at Istat data, give us a picture of the typical Italian NEET. Although she has a lot of free time, she spends it mostly sleeping, eating and bathing. She does not have a cultural life, she reads less books and newspapers than her peers, and surprisingly, she uses less internet. She also participates less in social and political activities, and her lifestyle is not very healthy. She does not practice much physical activity.

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[43]See Dota (2011).
[44]Quintini et al. (2007).

8   Datasets

The datasets used are subsamples of the data from the 2008 and 2010 Survey on Household Income and Wealth (SHIW) by the Bank of Italy. The SHIW occurs every two years, and its questionnaire contains specific questions about demographic and personal characteristics of each household member, although the main focus is on income, wealth, savings and financial behaviour of Italian families. A good portion of the households interviewed consists of panel families taken from the previous survey, while the rest is made of newly-interviewed ones.

The age group taken into analysis, considering the specificities of the Italian context, is between 20 and 39 years old. This was also chosen to exclude (as much as possible) the "transitory NEETs" who exit the high school at age 18-19 and take a year off.

For the reasons I will now tell, there are some problems in having all of the variables at the same time, and for the same sample. In fact, detailed information about years of schooling are only present in the 2008 SHIW survey, while in that of 2010 they are lacking. In order to include the variable of unemployment at labour market entry, hence, it is necessary to use the 2008 survey. Otherwise, the 2010 survey can be used. Moreover, because this measure makes no sense for students (as they have not yet entered the labour market!), in some specifications students are excluded from the sample. Also people who were born abroad were excluded altogether, because it was impossible to link them to unemployment rate at labour market entry, since this measure was matched by (Italian) area of birth.

On the other hand, taking the whole sample of people in the same age group (i.e. both those who are living with parents and those who live on their own) does not

allow to have information about parental characteristics for independent children. In the survey, questions about parents' education and nationality are only asked for the Head of Household, so an important share of information would be lost in a non-random fashion. For this reason, parental characteristics are not used when using the entire sample. In order to study the effects of these factors, some regressions are done using only the sub-sample of people who live with parents. Also, using this sample eliminates problems about the interpretation of per capita family income and wealth, that have different meanings in families in which the person lives on her own compared to families in which the person coresides with parents.

9   Variables selection and methodology

It is important not to confuse NEETs with married housekeepers and young parents who stay at home looking after children, because both categories may formally result as totally inactive. Instead of leaving married people out of the sample, as Shinozaki (2012) does, which could lead to biased results, I will define as NEET only those people who are both:

- living with parents at parental home

- defined as either unemployed, looking for first occupation, housekeeper, or wealthy

and compare them to their peers who are not in this condition. The dependent variable, hence, is the dummy taking value of one if the person is defined as NEET, zero otherwise. Following the suggestions of previous studies about NEETs, the preferred variables are the following, divided into groups:

Personal characteristics   Other than age, age squared and gender, it is important to take into account the educational qualifications of the child, so a dummy for high school degree and one for college graduates are included. Because being foreigner is regarded as a risk factor, there is a dummy for foreign citizenship. A dummy for bad or so-and-so health status is included, in order to check if NEET status is associated to worse health[45].

Household characteristics   To identify household characteristics, there is a dummy for Southern Italy and one for Central Italy, as well as a dummy for "big" families (arbitrarily defined by a number of components above 4). A dummy indicating whether a family lives in a big city[46] was constructed. Because of the well-known strenght of tradition in Southern Italy, it was included an interaction term of the "South" dummy with gender, so to evaluate the possibility that NEET status of females is linked to family traditions and/or to a labour market that does not absorb women.

A measure of wealth is necessary, as well as a measure of family income and income squared, to account for non-linearities. Both household's wealth and income were divided by the number of components, so to have them in per capita terms, and transformed by logarithms[47]. It was chosen to include also a dummy for self-reported difficulty in reaching the end of the month with family income.

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[45]Keeping in mind that health status is subjectively reported by the interviewed component of the household.

[46]i.e. a city with more than 40,000 inhabitants.

[47]Since wealth could assume negative values, the variable was shifted by a constant before taking the transformation.

Parental characteristics   In order to check for low socio-economic or cultural status, some parental characteristics, such as parental education and nationality, were included (when possible). In principle, it would be good to include both father's and mother's schooling, but there are households in which one of the parents (or information about the second) is missing, so the information about parental education will be limited to the Head of Household (HH).

Economic environment   It was created a variable measuring the labour market conditions the child faced when exiting the education system, namely unemployment rate at labour market entry. The hypothetical year of entering the labour market was derived by computing the year in which the child has finished her studies[48]. It was then attached the rate of unemployment in the macro-area where the child was born, for her gender, at the year of entering the labour market. The unemployment rate used was the one computed by Istat for the age group 15-24.

The models used for regressions are the probit, more correct for this case, and the Linear Probability Model (LPM), that is easier to interpret, estimated by OLS with heteroskedasticity-robust standard errors.

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[48]See the Appendix for further details.

10   Estimation results

In this section estimates carried out over different datasets, with different variables, are presented. For each estimation it is briefly described the dataset, and the results. A discussion about results can be found in section 11.

10.1   Children of 2008

The dataset consists of all children living at home with parents as of 2008. It allows us to compare the situation with that of 2010, described in subsection 10.2. Moreover, it depicts a "normal" period of time, avoiding the economic crisis perturbations.

The total set of people aged 20-39 was reduced to comprising only those who live with parents. In this way, measures for a parent (the Head of Household) are available, and variables such as per capita income and wealth, and the size of the family, have a homogeneous interpretation.

Over a total of 2,419 children, 598 of them (about 25%) are classified as NEETs.

Tab. 5: 2008 coresiding children - estimation set I

Estimation	(1)		(2)		(3)	
dep. var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	.021	.011	.018	.010	.018	.010
	(.064)	(.017)	(.064)	(.016)	(.064)	(.0164)
age^2	- .00027	- .00015	- .00024	- .00014	- .00024	- .00014
	(.00111)	(.00029)	(.00111)	(.00028)	(.00111)	(.00028)
female	.115*	.030*	.116*	.030*	.108	.028
	(.063)	(.017)	(.063)	(.017)	(.073)	(.018)
high school degree	- .365***	- .107***	- .355***	- .102***	- .355***	- .103***
	(.077)	(.022)	(.077)	(.022)	(.077)	(.022)
college degree	.060	- .0077	.082	.0014	.083	.0014
	(.106)	(.0301)	(.107)	(.0301)	(.107)	(.030)
big city	.187***	.053***	.180***	.050***	.181***	.050***
	(.063)	(.016)	(.063)	(.016)	(.063)	(.016)
Central Italy	.293***	.054**	.283***	.051**	.284***	.051**
	(.096)	(.021)	(.096)	(.021)	(.096)	(.021)
Southern Italy	.443***	.113***	.449***	.113***	.448***	.113***
	(.081)	(.020)	(.081)	(.020)	(.081)	(.020)
big family	- .073	- .0010	- .057	- .0050	- .071	- .0092
	(.077)	(.0220)	(.077)	(.0220)	(.104)	(.0287)
log per capita income	.634***	.131***	.578***	.114***	.578***	.114***
	(.138)	(.037)	(.139)	(.037)	(.138)	(.037)
log per capita income^2	- .088***	- .022***	- .081***	- .019***	- .081***	- .019***

	(.011)	(.003)	(.011)	(.003)	(.011)	(.003)
log per capita wealth	.178***	.053***	.180***	.053***	.180***	.053***
	(.065)	(.015)	(.064)	(.015)	(.064)	(.015)
difficulty with income			.201***	.079***	.200***	.078***
			(.076)	(.023)	(.076)	(.023)
big family×female					.068	.028
					(.107)	(.032)
HH high school degree	.036	.0075	.038	.0085	.038	.0085
	(.075)	(.0185)	(.075)	(.0185)	(.075)	(.0185)
HH college degree	.328**	.080**	.317**	.078**	.319**	.078**
	(.133)	(.032)	(.134)	(.032)	(.134)	(.032)
NEET = 1 correctly classified	33.78%		35.62%		35.62%	
NEET = 0 correctly classified	94.62%		94.29%		94.34%	
NEET = 1 correctly predicted	67.33%		67.19%		67.41%	
NEET = 0 correctly predicted	81.31%		81.68%		81.69%	
Hosmer-Lemeshow test	p = 0.21		p = 0.86		p = 0.85	
pseudo-R^2	0.1926		0.1952		0.1953	
Number of observations: 2419. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$						

Tab. 6: 2008 coresiding children - estimation set II

Estimation	(4)		(5)		(6)	
dep. var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	.016	.0095	.018	.0097	.017	.0098
	(.064)	(.0164)	(.064)	(.0164)	(.065)	(.0164)
age^2	- .00020	- .00013	- .00025	- .00014	- .00022	- .00014
	(.00111)	(.00028)	(.00111)	(.00028)	(.00112)	(.00028)
female	.059	.014	.114*	.029*	.109*	.028*
	(.072)	(.018)	(.063)	(.017)	(.064)	(.017)
high school degree	- .355***	- .103***	- .359***	- .104***	- .375***	- .109***
	(.078)	(.022)	(.078)	(.022)	(.078)	(.022)
college degree	.085	.0016	.078	- .00028	.057	- .0067
	(.107)	(.0301)	(.107)	(.03011)	(.107)	(.0302)
bad health					- .380**	- .119**
					(.192)	(.049)
big city	.182***	.051***	.179***	.050***	.179***	.051***
	(.063)	(.016)	(.063)	(.016)	(.063)	(.016)
Central Italy	.286***	.052**	.275***	.050**	.272***	.049**
	(.096)	(.021)	(.096)	(.021)	(.096)	(.021)
Southern Italy	.445***	.112***	.432***	.109***	.433***	.109***
	(.081)	(.020)	(.081)	(.020)	(.081)	(.020)
big family	- .057	- .0053	- .053	- .0035	- .062	- .0057
	(.078)	(.0221)	(.078)	(.0222)	(.078)	(.0220)
log per capita income	.577***	.115***	.586***	.117***	.582***	.115***

	(.137)	(.036)	(.140)	(.037)	(.141)	(.037)
log per capita income^2	- .081***	- .019***	- .081***	- .019***	- .081***	- .019***
	(.011)	(.003)	(.011)	(.003)	(.012)	(.003)
log per capita wealth	.182***	.054***	.175***	.052***	.179***	.052***
	(.065)	(.015)	(.065)	(.015)	(.065)	(.015)
difficulty with income	.200***	.079***	.201***	.078***	.203***	.079***
	(.077)	(.023)	(.077)	(.023)	(.077)	(.023)
HH high school degree	.039	.0088	.045	.010	.050	.011
	(.075)	(.0185)	(.075)	(.018)	(.075)	(.018)
HH college degree	.318**	.078**	.323**	.079**	.331**	.081**
	(.134)	(.032)	(.134)	(.032)	(.134)	(.032)
HH bad health	- .096	- .028	.017	.0030	.041	.010
	(.097)	(.026)	(.076)	(.0213)	(.077)	(.021)
HH foreign			- .408	- .134*	- .425	- .139*
			(.326)	(.076)	(.327)	(.076)
HH bad health×female	.213*	.061*				
	(.112)	(.033)				
NEET = 0 correctly classified	36.12%		35.12%		36.79%	
NEET = 1 correctly classified	93.96%		94.29%		94.34%	
NEET = 1 correctly predicted	66.26%		66.88%		68.11%	
NEET = 0 correctly predicted	81.75%		81.57%		81.97%	
Hosmer-Lemeshow test	p = 0.88		p = 0.95		p = 0.77	
pseudo-R^2	0.1963		0.1959		0.1977	

Number of observations: 2419. ***= $p < 0.01$, **= $p < 0.05$, *= $p < 0.1$

10.1.1 Validity

The sensitivity[49] here is around 36%, while the specificity[50] is very high, a sign that the model tends to predict NEET = 0. Besides this, the error ratio is low: given all predicted NEET = 1, more than 66% are actually true, for all specifications.

The Hosmer-Lemeshow test[51][52] for the goodness-of-fit suggests that all specifications are significant at a 10% confidence level. The first specification has a worse performance than all the others: the inclusion of the dummy for economic difficulties greatly improves the goodness-of-fit, as confirmed by the increase in pseudo-R^2.

10.1.2 Results

Across all specifications, the significant coefficients remain the same, assuming quite stable values. As expected, living in Central Italy increases the probability of being NEET with respect to Northern inhabitants, and living in the South increases it by more. Estimation 6 yields an estimated average increase in probability of 46% if living in the Center (about 8 percentage-points), and of 61% if living in the South (12 and a half percentage-points)[53]. Living in a big city also increases this probability, even after controlling for income and wealth factors. The estimated increase in probability due to living in a big city is of about 20%.

Being female tends to increase the likeliness of being NEET by 11%, but this is sensitive to specifications. In particular, adding interaction terms of gender with big family or

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[49]The percentage of actual NEET = 1 correctly classified as such, using model predictions.
[50]The percentage of actual NEET = 0 correctly classified.
[51]Hosmer and Lemeshow (1980).
[52]Standard, with 10 groups.
[53]See the Appendix for details about the computation of percentage change in probability.

with Head of Household's bad health makes the female dummy insignificant.

Surprisingly, having a college degree does not make it different from having no degree at all, while on average having a high school degree decreases the probability of being totally inactive by 32%, but this might be due to the fact that students are included in the sample.

What seems interesting is the response to income and wealth: appearantly, increasing per capita income *increases* the probability of being NEET up to a point, and decreases it afterwards, due to the negative coefficient of the squared term. Since the young NEET does not contribute to the family income, we would expect, if anything, a lower income being associated to a higher probability of being NEET. This would be also be true if the NEETs are more present in poor families. Plugging in interesting values for per capita income and computing fitted probabilities, however, we see that this is actually the case. In fact, even for very low per capita annual income (1,000€) an increase in income decreases the probability of being NEET. To have an idea about the relative effects, consider that a change in income from 8,000 to 11,000€ decreases the probability by about 30%. An increase from 11,000 to 12,000€[54] decreases it, on average, by 10%.

Increasing per capita wealth increases the probability of being NEET. Taking the median per capita wealth (54,640€) and adding 10,000€ the estimated average increase in probability is of 1.8%. Adding 50,000€ to the median increases this probability by about 8%.

If we include a dummy indicating economic difficulties its coefficient is always highly significant and positive, and it does not affect significance and magnitude of the co-

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[54]In this sample, the median income is almost 11,000€, while the average one is slightly more than 12,000€.

efficients of income, income squared and wealth. Moreover, since it greatly improves the goodness-of-fit, it is a very important variable. The estimated average increase in probability associated to having economic difficulties, everything else being equal, is of 23% (about 6 percentage-points).

After controlling for all of these factors, having a parent with a college degree is associated to a higher probability of being NEET (+35%), while having a foreign parent does not increase it (if anything, decreases it). The Head of Household's health status does not affect NEET status, but if we interact it with the gender of the child we can see that, appearantly, a bad health status of the parent increases the likeliness of being NEET for daughters, while leaving sons unaffected. Although some caution must be taken (after all, health status is self-reported), this can be a hint about the role of women in taking care of parents. To further check the role of women in looking after the family, it was included an interaction of female dummy with the dummy for a big family, but it was largely insignificant.

Including a dummy for bad health of the child was significant but negative (the opposite of what I expected), although it must be said that the number of children with reportedly bad health is very little (around 3% of the sample).

10.2   Children of 2010

The same set of regressions was run for the 2010 sample, allowing comparisons over time and giving more recent information. The sample was constructed in the same way as that of 2008: it comprises all children aged 20-39 living with parents. The total number of children is 1,692, of which 650 (about 28% percent) are NEETs.

Tab. 7: 2010 coresiding children - estimation set I

Estimation	(1)		(2)		(3)	
dep. var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	.082	.023	.083	.023	.082	.023
	(.064)	(.018)	(.064)	(.018)	(.064)	(.018)
age^2	- .0011	- .00030	- .0011	- .00031	- .0011	- .00031
	(.0011)	(.00032)	(.0011)	(.00032)	(.0011)	(.00032)
female	- .024	- .0053	- .029	- .0074	- .062	- .017
	(.063)	(.0173)	(.063)	(.017)	(.071)	(.019)
high school degree	- .235***	- .083***	- .227***	- .078***	- .224***	- .078***
	(.077)	(.024)	(.077)	(.024)	(.077)	(.024)
college degree	.098	- .00091	.117	.0084	.124	.010
	(.105)	(.03125)	(.106)	(.0313)	(.106)	(.031)
big city	.180***	.051***	.169***	.046***	.169***	.046***
	(.063)	(.017)	(.063)	(.017)	(.063)	(.017)
Central Italy	.111	.018	.104	.015	.101	.014
	(.097)	(.022)	(.097)	(.022)	(.097)	(.022)
Southern Italy	.271***	.076***	.274***	.076***	.274***	.075***

	(.083)	(.022)	(.083)	(.022)	(.083)	(.022)
big family	- .093	- .019	- .087	- .018	- .161	- .040
	(.079)	(.024)	(.079)	(.024)	(.107)	(.032)
log per capita income	.843***	.176*	.800***	.164*	.797***	.163*
	(.198)	(.093)	(.198)	(.092)	(.198)	(.092)
log per capita income^2	- .099***	- .024***	- .093***	- .022***	- .093***	- .022***
	(.014)	(.006)	(.014)	(.005)	(.014)	(.005)
log per capita wealth	- .022	- .0016	- .013	.0021	- .012	.0023
	(.038)	(.0110)	(.038)	(.0110)	(.038)	(.0110)
difficulty with income			.160**	.076***	.160**	.075***
			(.075)	(.024)	(.075)	(.024)
big family×female					- .071	- .0090
					(.109)	(.0337)
HH high school degree	.026	.0078	.034	.011	.032	.010
	(.073)	(.020)	(.073)	(.020)	(.073)	(.020)
HH college degree	.198	.070**	.199	.070**	.198	.070**
	(.132)	(.032)	(.132)	(.031)	(.132)	(.031)
NEET = 1 correctly classified	39.23%		40.15%		40.77%	
NEET = 0 correctly classified	93.09%		92.97%		92.73%	
NEET = 1 correctly predicted	68.55%		68.68%		68.30%	
NEET = 0 correctly predicted	79.95%		80.17%		80.30%	
Hosmer-Lemeshow test	p = 0.31		p = 0.04		p = 0.31	
pseudo-R^2	0.1854		0.1870		0.1875	

Number of observations: 2342. ***= $p < 0.01$, **= $p < 0.05$, *= $p < 0.1$

Tab. 8: 2010 coresiding children - estimation set II

Estimation	(4)		(5)		(6)	
dep. var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	.080	.023	.083	.023	.080	.022
	(.064)	(.018)	(.064)	(.018)	(.065)	(.018)
age^2	- .0011	- .00030	- .0011	- .00030	- .0010	- .00028
	(.0011)	(.00032)	(.0011)	(.00032)	(.0011)	(.00032)
female	.0069	.0022	- .027	- .0068	- .028	- .0069
	(.069)	(.0186)	(.063)	(.0172)	(.063)	(.0172)
high school degree	- .227***	- .078***	- .232***	- .080***	- .249***	- .085***
	(.077)	(.025)	(.077)	(.024)	(.078)	(.025)
college degree	.124	.010	.122	.0089	.097	.00032
	(.106)	(.031)	(.106)	(.031)	(.107)	(.03156)
bad health					- .357**	- .122**
					(.171)	(.053)
big city	.166***	.046***	.162***	.045***	.164***	.045***
	(.063)	(.017)	(.063)	(.017)	(.063)	(.017)
Central Italy	.110	.017	.105	.016	.106	.015
	(.097)	(.022)	(.097)	(.022)	(.097)	(.022)
Southern Italy	.279***	.076***	.257***	.071***	.260***	.072***
	(.083)	(.022)	(.083)	(.022)	(.083)	(.022)
big family	- .093	- .018	- .087	- .017	- .091	- .018
	(.080)	(.024)	(.080)	(.024)	(.080)	(.024)
log per capita income	.795***	.162*	.810***	.166*	.795***	.161*

	(.194)	(.089)	(.197)	(.091)	(.189)	(.083)
log per capita income^2	- .093***	- .022***	- .094***	- .022***	- .094***	- .022***
	(.014)	(.005)	(.014)	(.005)	(.014)	(.005)
log per capita wealth	- .016	.0015	- .027	- .0017	- .027	- .0018
	(.038)	(.0111)	(.039)	(.0110)	(.039)	(.0110)
difficulty with income	.165**	.077***	.168**	.078***	.170**	.078***
	(.075)	(.024)	(.075)	(.024)	(.075)	(.024)
HH high school degree	.028	.0098	.032	.011	.035	.012
	(.073)	(.0197)	(.073)	(.020)	(.073)	(.020)
HH college degree	.193	.069**	.220	.075**	.230*	.077**
	(.132)	(.031)	(.131)	(.031)	(.132)	(.031)
HH bad health	- .016	.0028	- .094	- .019	- .079	- .014
	(.103)	(.0308)	(.079)	(.023)	(.080)	(.024)
HH foreign			- .597*	- .172**	- .611**	- .177**
			(.309)	(.079)	(.310)	(.079)
HH bad health×female	- .188	- .047				
	(.115)	(.034)				
NEET = 1 correctly classified	40%		40.92%		41.08%	
NEET = 0 correctly classified	93.14%		92.97%		92.85%	
NEET = 1 correctly predicted	69.15%		69.09%		68.81%	
NEET = 0 correctly predicted	80.16%		80.38%		80.40%	
Hosmer-Lemeshow test	p = 0.26		p = 0.20		p = 0.05	
pseudo-R^2	0.1879		0.1897		0.1914	

Number of observations: 2342. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$

10.2.1   Validity

The fitted values of these specification are satisfying: even if sensitivity is not too high (around 40%), the error rate for predicting NEET $= 1$ is low, around 30%. Although the model tends to predict NEET $= 0$, there are also some errors in the opposite direction, since about 20% of predictions are actually NEET $= 1$.

The Hosmer-Lemeshow test for goodness-of-fit is a bit going up and down, rejecting specifications 2 and 6 at a 5% confidence level, and accepting the others, although for no specification it reaches extremely high values.

10.2.2   Results

After the economic crisis, territorial differences have weakened: the dummy for Central Italy does not produce significant coefficients in any specification, and the coefficient for Southern Italy, although still strongly significant, is always smaller than that of 2008. In particular, considering specification 5, the estimated average increase in probability associated to living in the South is 30%. Living in a big city still increases the probability of being a NEET, but more than 2008: by around 40%.

On the other hand, results for education are similar: having a college degree does not make a difference from having no superior education at all, while having a high school degree decreases the probability of being NEET but, still, the interpretation is tricky because students are included in the sample. The magnitude of the high school degree coefficient produces a lower average decrease in probability than in 2008: about 19% (versus 32%).

Being female never leads to significant differences in probability, neither when the female

dummy is alone, nor when it is interacted with other dummies.

Having a parent with college degree tends to increase the probability of being NEET, but in probit estimations the coefficient is not significant. Having a foreign parent seems to decrease the probability of being NEET, but the children with a foreign parent are too few in the sample (around 1%) to draw conclusions. Interactions of HH characteristics with the gender of the child does not lead to significant coefficients.

Per capita wealth is now insignificant. On the other hand, the same pattern as 2008 appears for income: a positive coefficient for per capita income, and a negative coefficient for its squared term. But, again, in practice, an increase in per capita annual income is always associated to a decrease in the probability of being NEET. For example, an increase from 8,000 to 11,000€ generates a decrease of 29% in probability, and an increase from 11,000 to 12,000 decreases it by 10% (in absolute terms, by 2.4 percentage-points).

The dummy that indicates difficulties in getting to the end of the month with family income is always significant and positive, and it generates an estimated average increase of 18% in the probability of being NEET (in 2008 it was 23%).

10.3   Measures of unemployment

In order to check whether labour market conditions at entry influence negatively the chances of young people, it was constructed a sample to test this hypothesis. Because data useful for deriving the unemployment variable are available only in 2008, and because this variable would not make sense for students, the sample used was that of all people aged 20-39 in 2008, living both independently or with parents, students excluded. Also people who were born in a foreign country were excluded, because of the unemployment variable construction. See the Appendix for further details.

Over the total 3,383 people, 1,796 were living at home (about 53%), and 585 were both at home and NEET (about 17% of the total).

Tab. 9: 2008 youths, students and foreigners excluded - estimation set I

Estimation	(1)		(2)		(3)	
dep. var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	- .088	- .060***	- .096	- .062***	- .064	- .061***
	(.062)	(.013)	(.062)	(.013)	(.062)	(.013)
age^2	- .000059	.00069***	.000063	.00072***	- .00041	.00071***
	(.001049)	(.00021)	(.001046)	(.00021)	(.00105)	(.00021)
female	- .101*	- .018	- .062	- .0077	.071	.011
	(.060)	(.012)	(.093)	(.0130)	(.082)	(.014)
high school degree	.147**	.041***	.137*	.040***	.106	.039***
	(.074)	(.014)	(.074)	(.014)	(.075)	(.014)
college degree	.692***	.147***	.686***	.148***	.609***	.145***
	(.100)	(.020)	(.100)	(.020)	(.104)	(.021)
big city	.144**	.034***	.143**	.034***	.152**	.035***
	(.061)	(.012)	(.061)	(.012)	(.061)	(.012)
Central Italy	.469***	.064***	.470***	.064***	.579***	.069***
	(.094)	(.015)	(.094)	(.015)	(.105)	(.016)
Southern Italy	.503***	.095***	.534***	.108***	.850***	.111***
	(.085)	(.014)	(.100)	(.019)	(.151)	(.021)
big family	.165**	.048**				
	(.075)	(.020)				
South × female			.404***	.076***		
			(.105)	(.020)		
log per capita income	.809***	.145***	.838***	.152***	.852***	.152***

	(.101)	(.025)	(.099)	(.025)	(.099)	(.025)
log per capita income^2	- .092***	- .017***	- .096***	- .018***	- .097***	- .018***
	(.009)	(.002)	(.009)	(.002)	(.009)	(.002)
log per capita wealth	.358***	.053***	.360***	.054***	.355***	.054***
	(.058)	(.012)	(.058)	(.012)	(.058)	(.012)
difficulty with income	.184***	.046***	.173**	.044***	.178**	.044***
	(.071)	(.015)	(.071)	(.016)	(.072)	(.016)
unemployment at entry					- .015***	- .00064
					(.005)	(.00073)
NEET $= 1$ correctly classified	32.14%		31.28%		32.31%	
NEET $= 0$ correctly classified	96.53%		96.46%		96.32%	
NEET $= 1$ correctly predicted	65.96%		64.89%		64.73%	
NEET $= 0$ correctly predicted	87.19%		87.04%		87.19%	
Hosmer-Lemeshow test	p $=$ 0.52		p $=$ 0.47		p $=$ 0.30	
pseudo-R^2	0.2604		0.2590		0.2611	
Number of observations: 3383. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$						

Tab. 10: 2008 youths, students and foreigners excluded - estimation set II

Estimation	(4)		(5)		(6)	
dep.var.: NEET	Probit	LPM	Probit	LPM	Probit	LPM
age	- .063	- .062***	- .064	- .062***	- .065	- .061***
	(.063)	(.013)	(.063)	(.013)	(.062)	(.013)
age^2	- .00042	.00071***	- .00040	.00072***	- .00039	.00071***
	(.00106)	(.00021)	(.00106)	(.00021)	(.00105)	(.00021)
female	.060	- .0033	.058	- .0036	.069	- .011
	(.100)	(.0152)	(.100)	(.0152)	(.082)	(.014)
high school degree	.106	.039***	.103	.038***	.103	.038***
	(.075)	(.014)	(.075)	(.014)	(.075)	(.014)
college degree	.608***	.145***	.603***	.144***	.604***	.144***
	(.104)	(.021)	(.104)	(.021)	(.104)	(.021)
bad health			- .125	- .033	- .125	- .033
			(.176)	(.029)	(.176)	(.029)
big city	.152**	.035***	.151**	.035***	.151**	.035***
	(.061)	(.012)	(.062)	(.012)	(.062)	(.012)
Central Italy	.582***	.067***	.583***	.068***	.580***	.069***
	(.106)	(.016)	(.107)	(.016)	(.105)	(.016)
Southern Italy	.848***	.117***	.849***	.118***	.852***	.111***
	(.152)	(.023)	(.152)	(.023)	(.151)	(.021)
South × female	.933***	.092***	.933***	.092***		
	(.216)	(.031)	(.216)	(.031)		
log per capita income	.852***	.152***	.851***	.152***	.851***	.152***

	(.099)	(.025)	(.099)	(.025)	(.099)	(.025)
log per capita income^2	- .097***	- .018***	- .097***	- .018***	- .097***	- .018***
	(.009)	(.002)	(.009)	(.002)	(.009)	(.002)
log per capita wealth	.354***	.054***	.356***	.054***	.356***	.054***
	(.058)	(.012)	(.058)	(.012)	(.058)	(.012)
difficulty with income	.179**	.044***	.181**	.045***	.181**	.045***
	(.072)	(.016)	(.072)	(.016)	(.072)	(.016)
unemployment at entry	- .015***	- .00046	- .015***	- .00048	- .015***	- .00065
	(.005)	(.00073)	(.005)	(.00073)	(.005)	(.00073)
NEET = 1 correctly classified	32.31%		32.31%		32.31%	
NEET = 0 correctly classified	96.32%		96.39%		96.39%	
NEET = 1 correctly predicted	64.73%		65.17%		65.17%	
NEET = 0 correctly predicted	87.19%		87.20%		87.20%	
Hosmer-Lemeshow test	p = 0.27		p = 0.39		p = 0.19	
pseudo-R^2	0.2611		0.2613		0.2613	
Number of observations: 3383. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$						

10.3.1   Validity

The percentages of values correctly predicted and classified are not bad, although the actual values of NEET = 1 correctly classified (the sensitivity) is only 32%. Besides this, the predictions for NEET = 1 are correct in about 65% of the cases. The model tends to predict NEET = 0.

All specifications are accepted by the Hosmer-Lemeshow test at a 10% confidence level, although the p-value decreases after the introduction of unemployment at labour market

entry, suggesting this variable does not improve goodness-of-fit. On the other hand, the pseudo-R^2 increases after the introduction of the same variable.

10.3.2 Results

In these estimations, territorial dummies are very significant and very large in magnitude. Living in Central Italy increases the probability of being NEET by 13 percentage-points (causing an estimated average increase in probability of 130%, according to estimation 6), and living in the South increases it by 17 percentage-points (a stunning +186%). This remains true across all specifications, the divide becoming bigger when income and wealth controls are added. Also living in a big city increases NEET likeliness (+18%).

About education, we can see that having a high school degree tends to be significant only in the linear model but, when it is, it is always positive, although not very large. Now it is possible to consider the coefficient to educational dummies, because students, whose educational attainments are still in progress and put weight against the NEET group, are excluded from the sample. Having a college degree is always very significant and the coefficient is positive and large, increasing the probability of being NEET in a non-negligible way. In particular, the probit coefficient represents a 14-percentage-points increase in probability: the fact of having a college degree leads to an estimated average increase of 41% in the probability of being NEET.

The coefficient in front of the dummy indicating female gender is almost always insignificant. The interaction of female gender with the Southern Italy dummy is always positive and significant, and very large when unemployment at labour market entry is also included.

Although the interpretation of per capita income and wealth measures is quite tricky in

this case, because they have different meanings when the person lives with parents and when it has formed her own family, they are always significant and of the same sign and magnitude as estimates over other samples.

Also, belonging to a family that reported economic difficulties makes it more likely to be a NEET (+22%).

Unemployment at (presumed) labour market entry is significant and stable, although exclusively in probit estimates, but it is not of the sign one would in principle expect. Appearantly, in fact, an increase in unemployment rate faced at the end of the educational path decreases the probability of being NEET in the present, which is not the effect an unfavourable labour market is supposed to yield. Taking into account a 30% rate of youth unemployment at labour market entry (which is close both to the average and to the median), an increase of 5% makes the probability of being NEET decrease by 7.4%.

10.4   Place of birth and NEET status

Up to now, the territorial variables used were those of current residence. Although the infra-territorial mobility of Italians is notoriously very low, there has always been a stream of migration from the South to the North, where job opportunities are more. Many young people moving out of parental home in the South may then go to the North: this is a possible source of distortion.

Presuming the place of birth is the area where the child's family was living, here are the results of some estimations which use the macro-area of birth as an independent variable, plus some controls. The base group is that of people born in North-Western Italy.

The sample used was that of all people aged 20-39 in the 2010 survey, who are in total 4,150. Of them, 2,342 (about 56%) were living at home with parents. Over the total, the number of NEETs is 650 (about 16%).

Tab. 11: 2010 youths - estimation set I

Estimation	(1)		(2)	
dep. var.: NEET	Probit	LPM	Probit	LPM
age	.0012	- .014	.062	- .0011
	(.0516)	(.011)	(.054)	(.0112)
age^2	- .00093	.000058	- .0019**	- .00015
	(.00089)	(.00019)	(.0009)	(.00018)
female	- .136***	- .027**	- .205***	- .041***
	(.050)	(.011)	(.052)	(.011)
high school degree	- .261***	- .056***	- .033	- .0068
	(.060)	(.014)	(.066)	(.0139)
college degree	- .034	- .010	.349***	.068***
	(.076)	(.017)	(.087)	(.018)
born in North-Eastern Italy	- .448***	- .058***	- .420***	- .047***
	(.112)	(.016)	(.113)	(.015)
born in Central Italy	- .080	- .015	- .103	- .019
	(.095)	(.017)	(.098)	(.017)
born in Southern Italy	.424***	.105***	.119	.037**
	(.080)	(.018)	(.087)	(.018)
born in Islands	.544***	.140***	.284***	.082***
	(.088)	(.022)	(.093)	(.022)
not born in Italy	- .419***	- .050***	- .681***	- .101***
	(.127)	(.017)	(.139)	(.018)
big city	.109**	.022**	.072	.017

	(.053)	(.011)	(.054)	(.011)
log per capita income			.733***	.138***
			(.158)	(.020)
log per capita income^2			- .072***	- .014***
			(.010)	(.001)
log per capita wealth			.103***	.017***
			(.032)	(.006)
difficulty with income			.219***	.058***
			(.064)	(.014)
NEET = 1 correctly classified	0.31%		10.31%	
NEET = 0 correctly classified	99.91%		98.66%	
NEET = 1 correctly predicted	40%		58.77%	
NEET = 0 correctly predicted	84.37%		85.56%	
Hosmer-Lemeshow test	p = 0.48		p = 0.10	
pseudo-R^2	0.1104		0.1611	
Number of observations: 4150. ***= $p < 0.01$, **= $p < 0.05$, *= $p < 0.1$				

Tab. 12: 2010 youths - estimation set II

Estimation	(3)		(4)	
dep. var.: NEET	Probit	LPM	Probit	LPM
age	.062	- .0012	.072	- .000047
	(.053)	(.0112)	(.054)	(.011171)
age^2	- .0019**	- .00015	- .0021**	- .00017
	(.0009)	(.00018)	(.0009)	(.00018)
female	- .205***	- .041***	- .203***	- .041***
	(.052)	(.011)	(.052)	(.011)
high school degree	- .034	- .0077	- .026	- .0071
	(.066)	(.0140)	(.066)	(.0139)
college degree	.348***	.067***	.363***	.068***
	(.087)	(.018)	(.087)	(.018)
bad health	- .025	- .025	- .016	- .023
	(.154)	(.032)	(.155)	(.032)
born in NE Italy	- .419***	- .047***	- .419***	- .047***
	(.113)	(.015)	(.113)	(.015)
born in Central Italy	- .103	- .019	- .100	- .019
	(.098)	(.017)	(.098)	(.017)
born in Southern Italy	.120	.038**	.116	.037**
	(.087)	(.018)	(.087)	(.018)
born in Islands	.284***	.082***	.280***	.081***
	(.093)	(.022)	(.093)	(.022)
not born in Italy	- .680***	- .101***	- .170	- .032

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	(.139)	(.018)	(.166)	(.030)
foreign			- .976***	- .102***
			(.238)	(.028)
big city	.072	.017	.064	.016
	(.054)	(.011)	(.055)	(.011)
log per capita income	.733***	.137***	.734***	.136***
	(.158)	(.020)	(.157)	(.020)
log per capita income^2	- .072***	- .014***	- .073***	- .014***
	(.010)	(.001)	(.010)	(.001)
log per capita wealth	.103***	.017***	.096***	.016***
	(.032)	(.006)	(.032)	(.006)
difficulty with income	.219***	.058***	.221***	.059***
	(.064)	(.014)	(.065)	(.014)
NEET = 1 correctly classified	10.31%		10.46%	
NEET = 0 correctly classified	98.66%		98.66%	
NEET = 1 correctly predicted	58.77%		59.13%	
NEET = 0 correctly predicted	85.56%		85.58%	
Hosmer-Lemeshow test	p = 0.09		p = 0.03	
pseudo-R^2	0.1611		0.1660	

Number of observations: 4150. ***$= p < 0.01$, **$= p < 0.05$, *$= p < 0.1$

10.4.1   Validity

The performance of these specifications is not the best, because the percentage of actual NEET = 1 predicted as such is really low, around 10% (except for estimation 1, where it is almost 0%), although the predictions for NEET = 1 are more true than false.

The Hosmer-Lemeshow goodness-of-fit test rejects all specifications (at a 10% confidence) except the first, which does not include measures for income and wealth, and which has a really bad predicting value and a much lower pseudo-R^2.

10.4.2   Results

Across all specifications, being born in North-Eastern Italy makes it less likely to have become a NEET, while in this respect, being born in the Center is not statistically different from being born in the North-West. Adding income and wealth controls makes territorial differences smaller, in particular by dramatically cutting coefficients for the Islands and the South, taking away significance from the latter. Being born in the Islands remains a strong source of increase in probability. Considering specification 4, with respect to North-Westerns, being born in North-Eastern Italy decreases the probability of being NEET by 51% (6 and a half percentage-points), while being born in the Islands increases it by 43% (6 percentage-points).

The dummy for living in a big city becomes insignificant after adding income and wealth controls.

Another interesting aspect is about immigration. People not born in Italy have lower chances to become NEETs, but adding a dummy for foreign citizenship makes the not-born-in-Italy dummy insignificant, while the coefficient for foreigners is strongly signif-

icant and large (most likely, this is because new immigrants have no parents living in Italy). In fact, having a foreign nationality decreases NEET likeliness by about 80% (11 percentage-points). These results suggest that immigrants who have lived in Italy for a long time do not behave much differently from (North-Western) Italians.

It is interesting to note that, although it is still better to be cautious in interpreting the coefficients for income and wealth, their signs are the same as in previous estimates.

11   Discussion

The first thing emerged from estimations is the territorial convergence happened during the years of the crisis. Estimations carried out using 2010 survey show that the difference between the North and the Center, which was still present in 2008, does not exist anymore. Even the distance between the Central-North and the South, although still important, halved. Going deeper into territorial divides, one can see that those less hit by NEET incidence are natives from North-Eastern Italy, followed by North-Western and Central Italy, then people born in the South, finally getting to natives from the Islands (Sicily and Sardinia), who fare the worst. It is also possible that usual statistics about the incidence of NEETs exaggerate territorial differences, because they do not take into account people from the South who go get a job in the North.

It was found evidence against the hypothesis that immigrant families suffer from a higher incidence of NEET status. The opposite seems to be true: having a parent who does not have Italian citizenship, if anything, decreases the likeliness of being NEET. The young immigrants' population has a significantly lower share of NEETs than Italians, while people not born in Italy but with Italian citizenship does not behave much differently from Southern-Central-North-Western Italians.

Although it is not very clear why, living in a big city, everything else being equal, was found to increase the probability of being NEET in many specifications.

Being female overall decreases the probability of being NEET, but that is because there are less daughters than sons at home with parents. In fact, if we take into consideration the sub-sample of children at home with parents, being a female tends to increase the probability of being NEET, although not always significantly. In particular, gender differences are less significant in 2010 compared to 2008. It was tested the hypothesis that daughters remain inactive at home to look after the family, but there was no clear confirmation of this. In particular, the interaction of female gender with the dummy indicating a big family was never significant, while the interaction of female gender with a dummy indicating a bad health status of the Head of Household is significant, but only in 2008. There is some concern that females are especially at risk in the South, because the interaction of female gender with the South dummy led to very significant coefficients.

Estimates give bad news to college graduates: considering those who finished their studies, having a college degree increases the probability of being NEET, although this status might be transitory, and it could come out from estimations because college graduate finish their educational path later, while transition ages for high school graduates (or less) are earlier, and are excluded from the sample. In any case, this indicates at least a problem of transition from college to work, which in principle should not happen because of the detrimental effects on future career described by Brunello (2001), and because of the common argument that, normally, a college degree should make it easier to find a job, not more difficult.

A higher income per capita is associated with a lower probability of being NEET. This

link might actually be overstated, because the fact that NEETs do not work decreases per capita income, making NEET status more likely to be associated to lower income. On the other hand, per capita income can also be endogenous in the sense that parents might work more to support an inactive child. Of course, this is possible - especially if having a NEET at home affects the second parent's choice whether to work or not - but in general, for how much parents can work more, it is not likely that they can raise per capita income more than the case in which the child works.

Higher per capita family wealth is associated with a higher probability of being NEET in 2008, while in 2010 it turns out to be insignificant. It is possible that children whose families are wealthier, in line with Shinozaki (2012)'s hypothesis, can afford waiting for a good job without weighting too much on their parents' shoulders.

Having controlled for income and wealth, adding a dummy for families which report difficulties in getting to the end of the month with their income led to a positive and strongly significant coefficient.

NEET status does not seem to be associated with bad health status. In any case, the measure of health status is subjectively reported by the Head of Household, and the group of youths with bad health is really small compared to samples.

Part V. Conclusions

In Italy, as in other countries with a poor welfare system for young people, there are two big problems regarding youths: people who live with parents for too long, and youths unemployment and inactivity.

The first problem, that of stay-at-homes, is widely recognised as such, but there is public debate over the true determinants of this coresiding choice. Why do young people in Italy stay at home so long? Is it a cultural matter or a necessity? Although it is a cold comfort, this happens in most Mediterranean countries, as well as in Ireland and - in a smaller scale - in Austria and Luxemburg.

On top of this social question there is a new definition, that of youths who are Not in Education, Employment or Training (NEET), which has not yet reached popularity, but which represents a worrying phenomenon. The share of Italian NEETs has been growing over time.

The 2008 economic crisis has had disruptive effects on youths' condition in Italy: the job loss hit almost entirely on young workers, especially new entrants in the labour market. At the same time, the rate of NEETs increased, especially among people in their twenties.

This study uses data from the Bank of Italy's SHIW[55] for 2008 and 2010 to empirically find the determinants both of NEET status and of the decision of leaving parental home, for young Italians. The age range chosen, 20 to 39, reflects the specificity of the Italian context, where the youths who suffer the most are relatively old, and where children emancipation happens later than in other countries.

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[55]Survey on Household Income and Wealth.

I initially put together data and literature concerning these problems in order to have a complete picture of the theoretical and practical variables useful to explain coresiding decisions and NEET status. I then select those variables which are feasible in the SHIW data, and use them as regressors. Especially for NEETs, this is a new approach because to my knowledge no other study has carried out a complete econometric analysis about the predictors of NEET status in Italy. The idea was to implement a statistical study similar to that of Shinozaki (2012) for Japan. A binary variable indicating NEET status was regressed, using a probit model, on personal characteristics, and on the characteristics of the household, of parents, and of the economic environment. A similar analysis was made for coresiding children, exploiting the panel section of the SHIW to build a dummy indicating whether the child has moved out in the subsequent two years, in the same way as Becker et al. (2004).

Summary of results

The study of coresiding children was not very satisfying, because the goodness-of-fit and the predictive power of regressions was very low. Nevertheless, data confirm that women are more likely to leave parental home: being a female increases the probability of leaving by 23% (in absolute terms, of about 4 percentage-points). Interactions of gender with critical family features were included, namely: whether the family has more than 4 components, and whether the Head of Household has a poor health status. Only the latter interaction was significant, but positive, which is not what one would expect if women stayed at home sticking to traditional roles of caring.

Unfortunately, the main determinants of the decision of leaving home resulted only age, gender, and whether the child is at the end of her educational path or not. Territo-

rial dummies and income and wealth indicators were largely insignificant, as well as - surprisingly - whether the child is employed or not.

Housing solutions and fixed costs for moving out could then play a major role, but the dummy indicating whether the family owns a second house, which should increase the probability of moving out, was insignificant. In order to improve the analysis of this aspect, more relevant variables are needed, such as housing and mortgage market indexes at a territorial level.

The empirical study of NEET youths, who seemed in principle more difficult to describe, actually yielded satisfying results. Most specifications, on most samples, yielded many significant coefficients, and had a good fit.

The sample of all people between 20 and 39 years old living with parents was used, both for 2008 and 2010. The same specifications were estimated, in order to make possible a direct comparison between the pre- and the post-crisis situation. In 2008 the fact of living in Central Italy used to increase the probability of being NEET by 46% (8 percentage-points), while living in the South increased it by 61% (12 and a half percentage-points). In 2010, living in Central Italy does not lead anymore to significant differences in the probability of being NEET, while living in Southern Italy increases this probability by only 30% (8 percentage-points). This is in line with the territorial convergence qualitatively described by public statistics.

Among coresiding children, in 2008 being female tended to increase the probability of being NEET by 11%, although the female dummy became insignificant after including interactions with the "big family" dummy and the dummy indicating bad health status of the Head of Household. In particular, this latter interaction yielded for daughters a significant positive coefficient on the probability of being NEET: the LPM estimate yields

an increase in probability of 6 percentage-points. These gender differences vanished two years later: in 2010, the female dummy was never significant, nor its interactions. It seems like, while traditional roles for females were still active in 2008, the subsequent economic crisis re-equilibrated the situation among genders. Nevertheless, it is important to remember that more males than females coreside with parents, making it overall less (or at least, not more) likely to be NEET for females than for males.

Putting together previous results for coresiding decisions, it seems like females have a more polarized choice in front of family needs: either they leave parental home, or they stay "inactive" in a caring role, intended here as looking after an ill parent. Subsequent estimates about 2008 (section 10.3) suggest that this behaviour could happen especially in the South. The economic crisis could have re-equilibrated - or hidden - this behaviour for 2010.

The fact that the dummy indicating economic difficulties is always very significant and positive is in line with the idea that "poor" families are more at risk of having a NEET child: in 2008, it increased NEET likeliness by 23% (6 percentage-points), while in 2010 by 18% (5 percentage-points). This is also confirmed by the fact that an increase in per capita income decreases the probability of being NEET, although this might be affected by endogeneity. Anyway, an increase from 8,000 to 11,000€ is associated to a decrease in probability of 30%, and an increase from 11,000 to 12,000€ to a decrease of 10%, both in 2008 and 2010.

Nevertheless, some evidence was found also in the other sense, that is, that more spoilt children are also more at risk of being NEET[56]. In fact, an increase in per capita wealth is associated to an increase in probability, although this is true only for 2008. In this

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[56]Like Shinozaki (2012) hypothesizes.

year, adding 10,000€ to the median per capita wealth (that is around 54,600€) made the probability of being NEET increase by 1.8%, while an increase of 50,000€ made it increase by 8%. However, this relationship is not anymore true in 2010 (wealth is insignificant), like if the economic crisis pushed children of rich families to be less spoilt.

Having a parent with college degree is tendentially linked positively with NEET status, although this emerges clearly from data only in 2008 (in 2010 this is true only considering linear probability models).

It was then constructed a sample in order to test whether labour market conditions at entry - namely, unemployment at labour market entry - affect the subsequent probability of being NEET. The independent variable used was unemployment rate for the age range 15-24, for the gender of the person, in the macro-area of birth, at the (presumed) year of labour market entry of the person[57]. For the construction of this variable, the sample used had to be that of all people aged 20-39 in 2008, either living with parents or on their own, excluded students and people born abroad. The results were surprising: although the unemployment coefficient is always very significant and stable across specifications, it is negative. This is not what one would expect if unfavourable labour market conditions at entry were detrimental to personal chances. In fact, it seems that an increase of 5% from an unemployment rate of 30%[58] decreases the probability of being NEET by 7.4%.

The effects of educational attainments on NEET status are better estimated using this sample without students. While having a high school degree is significant (and positive) only in linear models, having a college degree is very significant also in probit models, and it is positive and large. Having a college degree increases the probability of being NEET

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[57]See the Appendix for more details.
[58]Which is close both to the mean and the median.

by 41%, with an estimated absolute increase in probability of 14-percentage-points. If the actual measure could be overestimated because the age range chosen possibly cuts out transitory ages for lower educational attainments, this implies at least a serious transition problem of college graduates from school to work.

Although in these estimates the female dummy alone is always insignificant, its interaction with Southern Italy, as already mentioned, is very significant, as well as the Southern Italy dummy alone. This suggests that while in Central-Northern Italy genders behave more or less in the same way, in Southern Italy there is more disequilibrium.

To go deeper into territorial divides and to check the hypothesis that being an immigrant is a risk factor, I then constructed a sample of all people aged 20 to 39 in 2010. The territorial independent variables considered were now people's place of birth. Goodness-of-fit and predicting-power measures suggest this model is not the best, but there are significant coefficients. In particular, considering North-Western natives as a base group and controlling for other covariates[59], being born in North-Eastern Italy decreases the probability of being NEET by 51% (6 and a half percentage-points), while being born in the Islands increases it by 43% (6 percentage-points). Being born in peninsular Southern Italy or in the Center is not statistically different from being born in the North-West.

While the dummy for being born abroad is significant and negative, adding a dummy for foreign citizenship makes it insignificant, while the latter is significant and negative. This means that, while new immigrants are at lower risk of being NEET (80% less, corresponding to 11 percentage-points), which is quite normal to find because new immigrants most likely do not have parents in Italy, people born abroad but with Italian citizenship are not statistically different from North-Western Italians. This is further

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[59]In particular income and wealth.

confirmed by the fact that, in previous estimates over the other samples, children in families whose Head of Household is foreigner are either at lower or at no higher risk of being NEET. All these results go against the argument that being a foreigner is a risk factor for NEET status[60].

Indications for public policy and future research

This study can be useful for policy purposes, because it points to the categories more at risk of having stay-at-homes and NEETs, and possibly to the variables where to operate.

Interestingly, the coresiding behaviour of children does not seem linked to particular parts of Italy or to particular socioeconomic classes. It is not even linked to the child having a job or not, which goes against intuition. The fact that the most relevant variables remain age, gender and whether the child is at the end of her educational path, suggest that this long timing in leaving home is in some sense physiological and depend more on culture than on other factors[61]. If this was true, the best strategy would be to generally incourage independence through education and creating more occasions for emancipation.

It is also possible that good measures for mortgages and housing prices could improve the analysis and emerge as significant variables - although if they were relevant, wealthier families and those with a second house should have resulted better off. Also measures for general job insecurity, which were not possible to include in these estimations[62], could be important both for employed and for entrants in the labour market, and this could

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[60]See for example Assirelli (2011).
[61]As in Giuliano (2007).
[62]For the construction of the unemployment at labour market entry variable, the sample size would have been reduced too much.

explain why having a job or not is not relevant.

An intervention on NEETs would be more targeted. The biggest problem is the transition from college to work, so measures favouring and protecting new entrants could help. It is also possible that young people wait for better jobs to come, in this case the more difficult task would be that of incentivizing the creation of more qualified jobs for young college graduates to avoid underuse and long-term losses of human and cultural capital.

On the other hand, two indicators suggest that the NEET phenomenon in Italy is moving more and more towards being a problem rather than a choice: in 2008, per capita wealth was positively linked to NEET status, as well as the dummy indicating a Head of Household with college degree. This can suggest that in 2008 there was a fraction of NEETs coming from a high socioeconomic status, being NEET because they were waiting for a better job, and not because of necessity. The same variables are not significant anymore in 2010. The fact that unemployment at labour market entry yields a negative coefficient on the probability of being NEET could then be explained by the fact that young entrants who face a hostile labour market get scared and start accepting less qualified jobs. The economic crisis started in 2008 could have caused NEET status to be forced rather than chosen, scaring "spoilt" youths and making them find an occupation of some sort, but creating unwilling NEETs in other socioeconomic classes.

Families with economic difficulties and low per capita income are more at risk: the causal direction is not clear - the child could be more at risk of being NEET because she belongs to a lower socioeconomic status, or conversely, families could suffer from having an inactive person in the household - but anyway, looking at economic indicators can help spotting NEETs. Another clue about where to find NEETs is the size of the city:

although the reason is not very clear, households in big cities[63] are more at risk.

Another aspect where to intervene is social welfare: the fact that (at least in 2008) women's NEET status is linked to a Head of Household's bad health status suggests that in many cases, especially for daughters, being NEET is a consequence of a lacking welfare sector. A system which takes care more extensively of ill adults could lift weight from the shoulders of daughters, who still stick to the traditional role of caring and give up personal realizations. The behaviour of genders is more unbalanced in Southern Italy, and measures aiming to the emancipation from traditional roles and creating more equality between genders' job opportunities could at least re-equilibrate the problem.

As statistics already showed, data confirm that there is a territorial convergence, and the difference between the North and the South is closing, unfortunately towards the worse. Nevertheless, those less at risk of becoming NEETs are natives from the North-East, while youths who suffer more from the lack of opportunities are those born in Sicily and Sardinia, who deserve a stronger intervention. Measures for people born abroad should not be differentiated from those for Italians, because being an immigrant of second, or especially first generation, is not a risk factor.

It would be interesting to repeat the analysis with 2012 data in order to observe lenght and strenght of the economic crisis effects on the NEET phenomenon. Moreover, this would be useful to check whether the presence of the convergence between areas and genders is structural or it was due to the immediate effects of recession.

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[63]More than 40,000 inhabitants.

Part VI. Appendix

Variables construction

Here follows detailed information about some critical variables.

Out This is the dummy - used as a dependent variable - which takes value of one if the child has left home in the two years following the survey. The base year was 2008. In the SHIW survey 2010, the panel section was composed by 4,621 households, which were interviewed both in 2008 and 2010, with unique identifiers for each member of each household. For the structure of the interview, it was possible to check both whether the child had left home between the two interviews, and the reason why she had left (five possible answers).

The dummy variable takes value of zero if either:

- the child had not left home, or

- the child had left, but the reason chosen was either "death" or "transfer to barracks, nursing home, hospital, prison, etc.".

The dummy variable takes value of one if both:

- the child had left home and

- the reason chosen was either "moved abroad", "formed a new household, married" or "other".

NEET   This variable is a dummy which takes value of one if the child is considered as "NEET", zero otherwise. The first requirement in order to be a NEET was living at home with parents, so that no independent child was possibly labeled as NEET. This was done in order to follow the definition of NEET, which does not include independent housekeepers, people who stays at home with babies and independent unemployed people.

Having pointed this out, the variable takes value of one if the person, during the survey, was both:

- living at home with parents and

- was labeled either as "seeking first job", "unemployed", "homemaker" or "wealthy".

Being "inactive" was not a possible answer, so an inactive person would most likely fall in the categories listed above. For this reason, it was impossible to discriminate between inactive and unemployed NEETs. Apart from - of course - employed people and students, also the following categories were excluded from the NEET status: "retired worker", "recipient of non-work-related benefits (disability/survivor's/old-age welfare benefits)", "voluntary worker", "other (please specify)".

Unemployment at labour market entry   This is a derived variable, available only for 2008. It was constructed in the following way:

1. given the answers to the questionnaire, calculate the years of schooling for each person

2. calculate the assumed year of entry in the labour market, considered to be the end year of personal education

3. attach the unemployment rate[64] for the age group 15-24[65], for the gender of the person, in the macro-area of birth of the person.

It was possible to construct an accurate picture of the years of schooling only in 2008, because the questions of the survey section concerning education were not enough detailed in 2010. In addition to the highest educational attainment, it is possible to know also the year in which the person graduated. Moreover, for high school graduates and college graduates, it is also asked whether, after graduation, the person has attended additional years of university and, if so, how many. Thanks to these questions, it is very easy to compute the (assumed) year of entry in the labour market: it is sufficient to add the college years attended to the year of graduation. Of course, some mistakes are possible, especially if the person had taken one or more years off before starting superior education, which is not possible to know.

One important piece of information that is lacking is about those who do not have a high school degree: they are not asked how many years of high school they have attended before dropping out. For them, I adopted the assumption that the entry in the labour market coincides with the year in which compulsory education had for them ended. Fortunately, as reported by Istat (2011), most high school dropouts have been leaving school immediately after the end of compulsory education, so errors in this sense, although present, should be limited.

The amount of compulsory education had changed in 1999/2000, following a reform of school system. Before that, one would go to school at least until she was 14 years old or,

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[64]Source: Istat
[65]Although not necessarily including the actual age of the person, this age group was chosen to represent the unemployment rate a young entrant faced in the labour market.

if junior high school degree was not reached, until 15 or 16 years old. After the reform, the compulsory age was set to 15 years old, for anyone. Since the cohorts I analyzed for 2008 range from those born in 1969 to those born in 1988, I adopted the convention to assign, to whom has less than high school degree, education until 14 years old to those born before 1986, and 15 years old to those born afterwards.

Moreover, it is important to remember that males born before 1986 had to spend one year in the army (or, equivalently, in the social service). This had to be done at 18 years old (or later). People with only compulsory education could not do it right after dropping out of education, so for them the year of labour market entry was unaffected. For high school and college graduates, on the other hand, compulsory military service had the effect to delay for one year the entry in the labour market, because nearly no one would hire someone who still had to go to the army. The cohort of those born in 1986 was the first one exonerated, so I added one year on top of the year of schooling for graduated males born before 1986. Except, because one could delay military service for studying, and because in any case no one could be called to the army after 2004, I did not add one year to whom graduated after 2004, even if he had the other requirements.

Of course, these suppositions remain as such, and, although I hope they described correctly most of the cases, some errors are likely to be present.

Computing percentage effects on probability

For calculating the estimated percentage effect of an increase in a independent variable, I followed - and extended - Wooldridge (2009).

Average Marginal Effects (AMEs)[66] for probit estimates, as well as OLS coefficients for LPM models, describe the change in the dependent variable, expressed in absolute probability-percentage-points. They do not produce information about the *relative* change in probability due to the independent variable movement. To overcome this, I computed the percentage effects using fitted probabilities for each outcome of interest.

For dummy independent variables, this was easy: as in Wooldridge (2009), first I estimated the probit model using the sample. Then I switched off the dummy for all the observations, regardless of the actual value taken, and estimated the fitted probability. Then I switched it on for all observations and, after fitting probability for this case as well, I computed the percentage variation between an average estimated probability and the other.

For mutually exclusive dummies, I did the same thing, but using only the base group and the treatment group for fitting probabilities (although the model used to make predictions was estimated on the whole sample). In this way, I obtained the percentage change in probability with respect to the base category only.

For continuous variables the process was more or less the same: after estimating the model, I fixed the variable at the value of interest for all observations and predicted the probability. Then I fixed the variable at the value of interest *plus delta,* predicted the probability and computed the percentage change in the fitted dependent variable.

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[66]Also known as Average Partial Effects (APEs).

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