PAWEU

Policies for an Aged Workforces in EU

FINAL REPORT OF SECOND PHASE

Co-funded by European Union
DG Employment, Social Affairs and Inclusion

INPS

FGB Fondazione Giacomo Brodolini

Ministerul Muncii, Familiei, Protecției Sociale și Persoanelor Vârstnice

Ose European Social Observatory

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FINAL REPORT OF SECOND PHASE:

The empirical analysis of older individual's employability and workability in EU countries

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1. Introduction

In the economic policy debate, raising the retirement age, independently on workers' conditions and characteristics, is often considered as a measure able to foster both economic efficiency – increasing the number of active individuals and reducing public spending on pensions – and equity – improving individuals' pensions prospects due to a longer working life and reducing risks of social exclusion and material deprivation.

However, this line of reasoning tends to neglect to consider that individuals might be largely heterogenous as concerns their possibility to continue working at older ages. Indeed, individuals' employment opportunities depend on the matching between labour supply and labour demand. On the one hand, labour supply is affected by pension rules (i.e. when individuals are eligible to receive an old-age or an early retirement pension) and a set of individual characteristics (e.g., skills, occupational task, health, family conditions) that affect the individual incentives to continue working even when eligibility requirements for retirement have been fulfilled. On the other hand, labour demand for older workers, apart from firms' characteristics (e.g. sector, size, labour costs), might vary according to some individual characteristics: for instance, one can assume that firms have a higher propensity to keep in occupation, when they get older, more productive high skilled workers (that often rank in top occupations), whereas they may incentivise retirement of less productive workers (e.g. less skilled or less healthy workers). Likewise, the latter types of individuals might be exposed to higher unemployment risks at older age and might find higher difficulties to be re-employed once fired.

Focusing on an ideal "average worker" when analysing employment opportunities of older workers might thus be not enough in order to deeply analyse constraints and opportunities in the labour market for older individuals. Therefore, "homogenous" pension rules – i.e. eligibility requirements for pensions that do not take into account heterogenous possibilities to continue working due to constraints coming from both labour demand and supply – might not be the best option for coping with all older individuals with heterogenous labour market risks and, thus, for achieving an effective equity between heterogenous individuals without negatively affecting their wellbeing (e.g. without forcing bad health individuals to continue to work or leaving aside those individuals that, due to extremely low skills, might meet severe difficulties for being reemployed or postponing their retirement).

Furthermore, constraints and opportunities for older workers might differ across countries according to the type of labour market and welfare policies and the characteristics of the productive system. For instance, countries with well-developed active labour market policies towards older workers and effective age management strategies by firms might consider rational to tighten early retirement schemes, while countries with limited active ageing policies and a productive system oriented towards traditional production schemes where individual vigour is needed for being productive might find convenient to incentivise early retirement. Therefore, following this line of reasoning, pension rules that do not consider the complementarity with the other institutional and market-based features that affect opportunities and constraints of older workers might not reveal as optimal.

The aim of this report, that summarizes the activities carried out during the Work Package 2 of the PAWEU project, is to provide empirical evidence about a possible heterogeneity of individuals in their chances to be employed at older ages and about the major individual features that make individuals different as to their employability and workability at older ages. Moreover, we also aim at verifying whether these features similarly affect individual chances across EU countries or the association between some characteristics (e.g. skills) and the probability to be active at older ages changes across countries, thus suggesting that, apart from pension rules,

a set of complementary policies and national features also affects older workers' opportunities and wellbeing. Finally, by comparing evidence related to the pre- and post-crisis period, we also aim at verifying whether this picture has changed overtime, also because of the crisis and of possible reforms that have been phased in during the crisis phase.

To this end, several cross-country analyses will inquire – by means of descriptive and econometric multivariate analyses – the association between major characteristics of older workers (e.g. skills, gender, occupation, self-rated health) and their propensity to postpone retirement or to continue to perform some working activity also after retirement. Thus, this report aims at identifying across countries, the characteristics of the individuals more able to extend their working life or, on the contrary, more penalized by a cogent increase in retirement age. In other terms, we aim at answering to a set of questions related to the chances to increase older workers' employability without reducing their wellbeing, as the following: i) is tightening eligibility requirements for receiving a pension enough to increase older workers' employment? Are older workers heterogeneous about their employability and workability and is this heterogeneity related to observable individuals' characteristics as gender, skill, health, typology of occupation, family responsibilities?

More in detail, the report is structured as follows. After having discussed in Section 2 the hypotheses to be tested and the data and the methodology followed for carrying out the empirical analyses, we will show the main findings about the link between a set of individual characteristics and the probability to continue working at older ages. Section 3 will present descriptive evidence about employment rates of individuals aged 60-64 in EU countries distinguishing individuals by their educational attainment while Sections 4 and 5 will present the results of a set of econometric estimates about the association between individual characteristics and the probability to be active when aged 60-65 (Section 4) and the probability to combine pension income and labour income even after retirement for individuals aged 60-75. Finally, Section 6 will conclude discussing some policy implications of our findings.

2. Hypotheses to be tested, data and methodologies

Workers' retirement choices represent complex decisions that depend on a number of constraints, personal characteristics, information and motivations. The main constraint, of course, is represented by eligibility requirements for early or old-age retirement. Once these requirements have been achieved, the voluntary choices of individuals regarding the continuation of employment are linked, on the one hand, to the monetary incentives implied in the calculation rule for pension benefits (for instance, some defined benefit rules might represent an implicit tax on the prosecution of the working life), on the other hand, to a series of individual characteristics – also representative of "non-monetary" aspects related to the job (satisfaction, prestige) – which may affect preferences about the retirement. Moreover, the ability to continue working presupposes a matching between the will of the individual and the demand from firms.

A causal analysis of all the features that could affect the demand and supply of older workers is, however, extremely complex to be performed, since it would require longitudinal data – that is, following the same person for many years – where many employers and employee characteristics are collected and, crucially, and recording the moment when the individual becomes eligible for a pension. Only these data would allow researchers to investigate who, and for how long, decides to postpone retirement.

Unfortunately, detailed longitudinal data where the moment in which one becomes eligible for retirement are extremely rare, also for single countries. Nevertheless, available microdata for EU countries – namely the Labour Force Survey (LFS) and the European Union Statistics on Income and Living Conditions (EU-SILC) – can be used in order to infer multivariate evidence about the characteristics of individuals who continue working at older ages and to compare across countries and overtime the link between each of these characteristics and the individual probability of being active when aged over 60.

Specifically, as mentioned in the introduction we focus on two events:

a) the probability to be active when aged in the class 60-65;
b) the probability that old-age retired individuals (aged 60-75) combine pensions with labour income.

Focusing on these events is useful for our scopes as it allows us to verify whether individual choices about activity at older ages only depend on pension rules (that are basically the same for individuals in the same age class in the same country) or are also related to a set of individual characteristics that jointly influence labour supply and labour demand.

More in detail, in the empirical analyses we test the two following hypotheses:

a) If older workers' activity is only affected by eligibility conditions to (early) retirement instead than by characteristics affecting labour demand and labour supply, we should expect to find no differences in older individuals' employment or activity rates by their characteristics (e.g. education, occupation). On the contrary, if different activity rates emerge we might argue that the possibility/propensity to continue working is differentiated according to population subgroups.

b) If individual characteristics do not affect individual propensity to continue working and demand by firms, we should expect that individuals who continue to work after retirement are not differentiated according to these characteristics or, at most, individuals who continue working after retirement are those who receive low pensions (e.g. low skilled or previously blue-collar workers) and thus need to increase their income. Instead, if the possibility to continue working after retirement is not only a free choice available to all individuals but is differentiated among workers and mostly advantages those who performed good jobs (e.g. the high skilled or previously working as a manager) we might argue that the possibility/propensity to continue to work after retirement is an option that mostly advantages well-off individuals. Therefore, a further signal that extending homogenously retirement age would not affect chances and wellbeing of all individuals in the same manner would emerge.

As mentioned, we inquire into these issues exploiting evidence provided by LFS and EU-SILC data.

More in detail, we investigate propensity to continue to work at older ages, before retirement, following two strategies.

First, we exploit evidence available on the Eurostat website to compare employment rates at age 60-64 in 2008 and 2016 in EU countries distinguishing individuals by educational attainment in order to provide a first descriptive evidence about a possible heterogeneity of behaviours of older workers related to their socio-economic conditions (Section 3).

Second, making use of microdata recorded in the 2008 and 2014 waves of the EU-SILC survey, we deeply analyse the characteristics of those who are still active when aged 60-65 (i.e., are employed or are actively searching for a job) compared to those who are retired (inactive individuals, e.g. housewives or disable are not considered in the analysis) running a set of multivariate logit regressions to estimate the association between individual characteristics and their probability of being active at older ages in 2008 and 2014 all EU countries where proper data are available (Section 4).

Finally, we investigate the characteristics of those who continue working after retirement making use of microdata recorded in the 2008 and 2014 waves of the EU-SILC survey and running a set of multivariate logit regressions to estimate the association between individual characteristics and their probability of combining pension and labour income once retired (those only receiving survivors' pensions are not considered as retired) and aged 60-75 in 2008 and 2014 all EU countries where proper data are available (Section 5).

Regressions carried out in both Section 4 and Section 5 are based on two models: a "short model" where a parsimonious set of control variables is included among the covariates and a "full model" where a wider set of covariates is included among the covariates. Extending the number of covariates allows us to better control for individual characteristics that could influence the estimated events, but the con is that the number of individual missing or country observation rises (for instance, in some countries total individual experience since the entry into activity is not recorded in the EU-SILC).

More in detail, in Section 4, exploiting the information about the self-defined economic status that is recorded in the EU-SILC, we investigate the probability of being active (i.e. full or part time employed or unemployed) versus retired (as mentioned, those who are inactive but not retired are not included in the sample) controlling for age, age squared, dummies about gender, marital status (single, married or divorced, separated, widow), self-rated health (good or very good, fair, bad or very bad) and education (at most lower secondary, upper secondary, tertiary). In the "full model" labour market experience and its square (measured in years since the entry into activity) and dummies about current or pre-retirement occupation (blue-collar, white-collar, manager) are added to the covariates.

in Section 5, exploiting the information about the various annual income source recorded in the EU-SILC, we define as a "retired who work" those (old-age or early retired since more than one year) who combine in a single year pension income and labour income (from employment or self-employment). Our dependent variable is then a dummy where the value "1" is assigned to those who combine pensions with earnings while "0" is assigned to pensioners who do not earn labour income. As in Section, 4 in the "short model" age, age squared,

dummies about gender, marital status (single, married or divorced, separated, widow), self-rated health (good or very good, fair, bad or very bad) and education (at most lower secondary, upper secondary, tertiary) are included among the covariates, while labour market experience and its square (measured in years since the entry into activity) and dummies about the pre-retirement occupation (blue-collar, white-collar, manager) are added to the covariates in the "full model".

Results of estimates of Sections 4 and 5 are summarized showing average marginal effects (AME) that express the probability of the event for those characterized by a characteristic (e.g. an AME of being active when aged 60-65 equal to 60% for males and 50% for females signals that males have a 10 percentage points higher probability than females of being still active at older ages).

3. Older individuals' employment rates by educational attainment in EU countries

Making use of data available in the Eurostat online database on labour market[1] that compute indicators provided by LFS data and report time series at the country level of employment rates by age, gender and educational attainment, we observe if, and how much, employment rates in the age group 60-64 differ by education.

Assessing employment rates by educational attainment (that is, a proxy of individual skills) is particularly relevant as a higher education can lead to a higher labour supply – usually tasks performed by high skilled workers are less tiring and more stimulating and prestigious, apart than better paid – and higher labour demand, because human capital of the high skilled workers would more slowly decline and, thus, high skilled older workers would be less easily replaced by the younger.

Similar employment rates between high and low skilled older workers would let us to argue that the determinants of retirement choices mostly reside in the regulatory framework of eligibility requirements for early retirement or old-age pensions. Conversely, higher employment rates among the high skilled would point out that – apart from regulatory constraints – features of labour supply and demand are also crucial determinants of the probability to continue working at older ages. Policies that neglect this aspect, without a careful look at the characteristics of labour supply (workers) and demand (firms) might engender suboptimal outcomes, reducing, on the one hand, the efficiency of the economic system because of the continuous use of a less productive labour force and decreasing, on the other hand, the wellbeing of older workers, risking of forcing many of them into harsh activities or of exposing them to high unemployment risks.

Eurostat-LFS data show that, considering all educational groups and both males and females, employment rates of individuals aged 60-64 largely differ across EU countries in 2016 (Figure 1A). Using the EU27 value (40.7%) as a benchmark, 11 countries are characterized by a value at least 10 percentage points lower than the EU27 value (Luxembourg, Slovenia, Belgium, Greece, Croatia, Austria, Slovakia, Malta, France, Romania and Poland), while 6 countries present values at least 10 percentage points higher than the EU27 value (the UK, Netherlands, Denmark, Estonia, Germany, Sweden).

As concerns employment rates of older individuals EU countries seem to cluster consistently with their welfare regime. Northern, Anglo-Saxon and Baltic countries are all characterized by an employment rate higher than the EU27 value, while values of all Eastern countries and Southern countries (apart from Cyprus) are below the benchmark, even if the 60-64 years old employment rate in Portugal is very close to the EU27 value. However, the picture is mixed for Continental countries, as Germany and Netherlands belong to the group with the highest employment rates while Luxembourg, Belgium, Austria and France to the group of countries with the lowest values.

1 http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_ergaed&lang=en

Confirming the idea that individual skills largely affect individuals' propensity to continue to work and firms' attitude to retain more skilled workers when they get old[2], in all countries employment rates of individuals aged 60-64 rise when educational attainments increase (Figures 1B-1D). In the EU27 employment rates at 60-64 are equal to 29.5%, 40.7% and 58.1%, respectively, among at most lower secondary graduates, upper secondary graduates and tertiary graduates.

Different employment rates by education also imply that country rankings in employment rates at older ages are biased by the distribution by educational attainment of the older population. For instance, being the same the employment rates by education in two countries, the country with the higher share of low skilled workers would rank in a lower position than the country with the higher share of high skilled workers.

Furthermore, country rankings change when we focus on different educational groups, suggesting the existence of country-specific interplay between the characteristics of the older workforce and the labour demand directed to each type of worker.

See, for instance, the case of Italy: among those holding at most a lower secondary degree the employment rate in Italy is 5.3 percentage points lower than the EU27 value (Figure 1B), but it becomes 4.9 percentage points higher when we focus on upper secondary graduates (Figure 1C) and even 12.5 percentage points among those holding a tertiary degree. Thus, the low ranking of Italy shown in Figure 1A – considering all educational groups the Italian employment rate is 3.8 percentage points lower than the EU27 value – does not depend at all on a low propensity to work of all individuals aged over 60, but it is related to the lower employment rates of the relatively high share of older individuals holding at most a lower secondary education. And differences in employment rates by education are clearly related, apart from rules about early retirement schemes that might favour those who started to work at early ages, to the interaction between a number of factors as a higher propensity for the high skilled to continue working once requirements for retirement have been fulfilled due to the better quality and the higher prestige of the job, a higher propensity by firms to retain employed the higher skilled and, conversely, to fire or provide incentives for early retirement to low skilled and less productive workers (that are also more likely to be affected by a worse health). Policies for an ageing workforce should then take into account the interplay between all these factors rather than only focus on tightening requirements for receiving a pension.

As mentioned, country rankings in employment rates change according to the population subgroup considered. Interestingly, Sweden always lies in the top position, but the other steps in the podium change: second and third steps are, respectively, occupied by Denmark and Netherlands, as concerns the least educated, Netherlands and the UK as concerns upper secondary educated, and Italy and Germany as concerns tertiary educated. Conversely, the bottom positions are more stable since they are almost always occupied by Luxembourg, Slovenia and Greece, except for the ranking for the least educated group where Greece ranks in a middle position.

Consistently with a trend of continuous rise of employment rate of older workers due to both a cohort effect (being usually the cohort that currently are close to the retirement more work oriented than the previous cohorts, also due to an increase in average skills) and the tightening of eligibility requirements for old-age and early retirement pensions that has been established in many EU countries in the last decade, in all countries, apart from Greece, Portugal and Romania, employment rates in the age group 60-64 has increased since 2008 up to 2016 (Figure 2A).

Within the group of those with at most a lower secondary degree, a decrease in employment rates since 2008 up to 2016 was observed in Greece, Portugal, Cyprus, Slovenia, Croatia, Ireland and Luxembourg (Figure 2B). Within the middle-educated group (Figure 2C), a decrease only concerns Greece, while employment rates within tertiary graduates reduced in the period 2008-2016 only in Greece and Luxembourg (Figure 2D).

Therefore, the most striking result emerged so far concerns the fact that relative employment rates by differently educated individuals largely differ across countries. We then consider the ratio between the employment rates at age 60-64 of tertiary workers and the employment rates of at most lower secondary educated as a synthetic

2 Note, however, that the eligibility requirements for early retirement schemes might be more easily fulfilled by low skilled workers when these requirements are only based on years of experience on the labour market (and years spent at tertiary education cannot be redeemed for acceding to early retirement), because the low skilled workers usually start to work earlier than the high skilled.

indicator of the different opportunities to continue working of heterogenous individuals in the various EU countries.

Figure 3A clearly shows that the relative opportunities (related, as stressed, on various factors linked to pension rules and to workers' and firms' characteristics) largely differ across countries. On average, in EU27 in 2016 a tertiary educated individual aged 60-64 is characterized by an employment rate double than an individual with at most a lower secondary degree, but this ratio is close to the unity in some countries (Portugal, Greece, Cyprus, Denmark, Sweden, Ireland and the UK) and, on the contrary, is around or higher than 3 in Hungary, Belgium, Italy, Austria, Poland, Slovenia, Croatia, Czech Republic, Luxembourg and Slovakia. Note also that a large heterogeneity in "relative employment rates" also emerged in 2008 (Figure 3B) and cannot be merely imputed to the effects of the crisis on unemployment risks of low-skilled workers or to the tightening of requirements for being eligible to a pension benefit that make more difficult for the high skilled workers to fulfil requirements for early retirement at young ages.

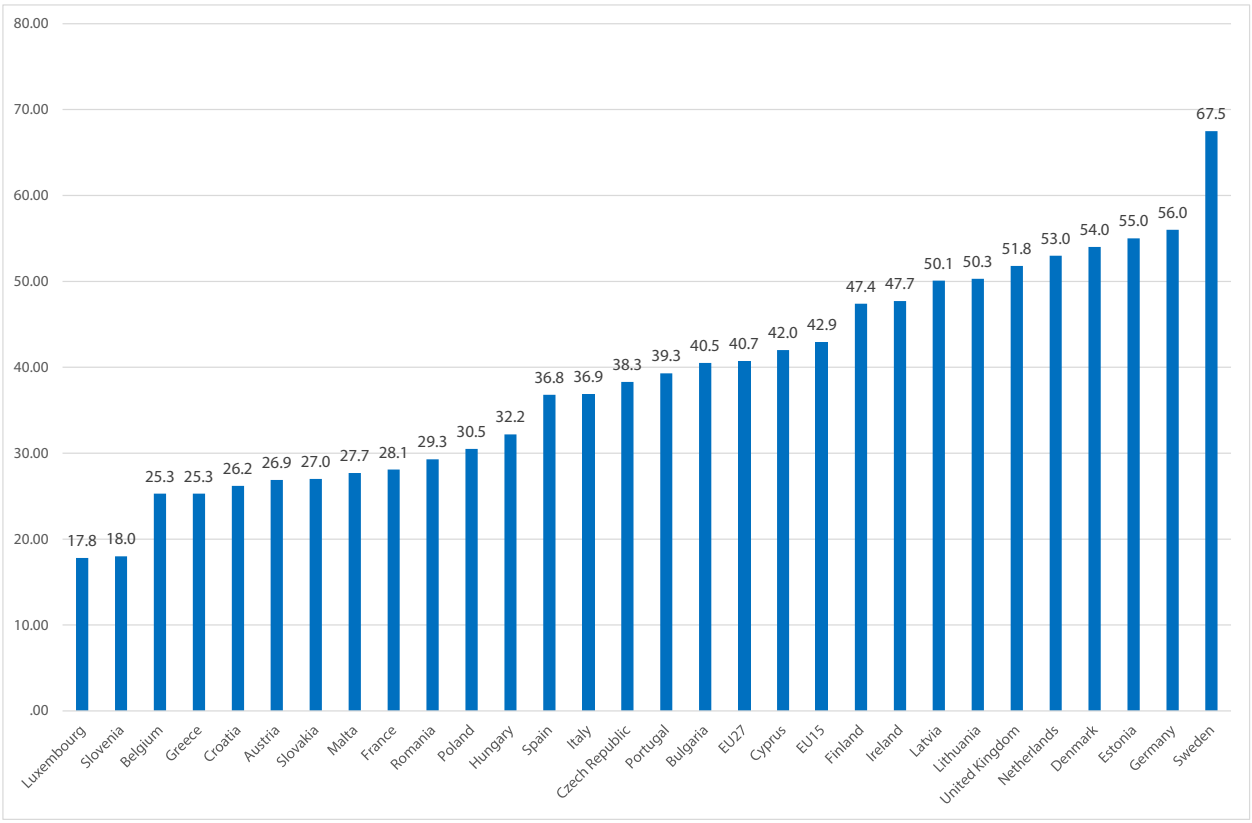
Distinguishing individuals by gender (Figures 4A-6B as concerns males and Figures 7A-9B as concerns females) does not change the observed patterns. As expected, male employment rates at 60-64 are everywhere higher than female employment rates and the employment rates rise by education. However, using the synthetic indicator of "relative employment rates" by the two extreme educational groups, it is interesting to observe that the gender dimension adds a further feature that enlarges differences across countries. Indeed, as concerns males (Figure 6A), the country ranking varies from 1.0 (Cyprus) to 3.1 (Slovakia), while, as concerns females (Figure 9A), the gap widens and varies from 1.0 (Greece) to 6.2 (Slovakia).

In this report, for the sake of space, we compare 2008 and 2016 and focus only on those aged 60-64. Nevertheless, it is interesting to show trends in employment rates by educational attainments since 2000 and to focus also on individuals aged 65-69. To this aim, we compare the performances of three large EU countries, Italy, Germany and France, without distinguishing the population also by gender (Figures 10A-12B).

Patterns followed by countries since 2000 largely differ. In Italy, the employment rate in the age class 60-64 was rather constant, at each educational level, since 2000 until the end 2011, when the very tightening new rules about retirement ages were introduced (Figure 10A). Afterwards, employment rates have steeply risen, even if the increase has been relatively lower for those with at most a lower secondary degree. The pattern is different within those aged 65-69 (a group of individuals less or not affected at all by the 2011 reform; Figure 10B), because the slight rise in employment rate in the recent years has been mostly driven by low and medium educated individuals, while the employment rate of tertiary graduates has decreased but remaining beyond the 20% threshold. In Germany, the rise in older workers' employment rates has instead been rather constant since 2000 for all educational groups and for both age classes (Figures 11A and 11B). A trend like the German one also characterizes France as concerns those aged 60-64 (Figure 12A) – even if employment rates are currently much lower than those characterizing Italy and Germany – while a slight increase in the (still very limited) employment rates in the 65-69 age group was observed until 2012 and stopped in the most recent years, especially for low and middle educated workers (Figure 12B).

Fig. 1A: Employment rates in the age group 60-64 in 2016. Males & Females.

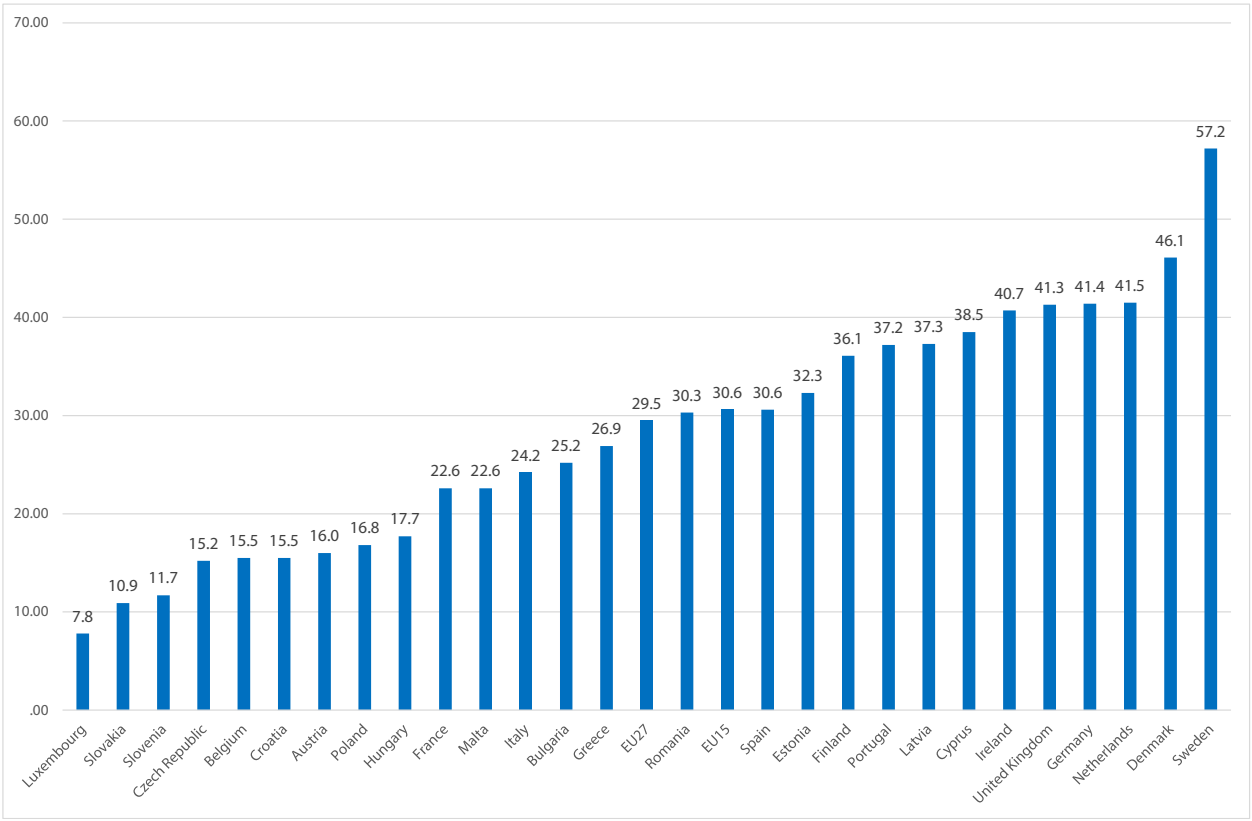
All educational groups



Source: elaborations on LFS data

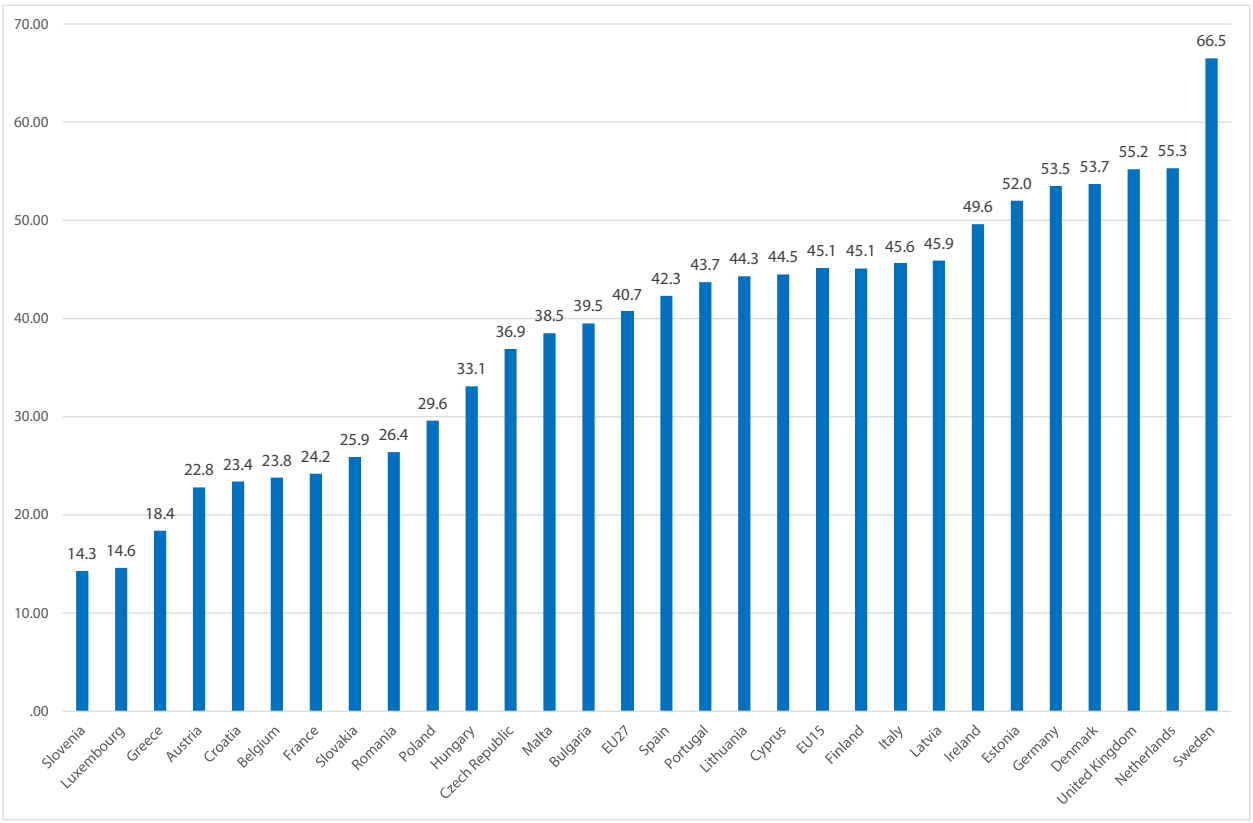
Fig. 1B: Employment rates in the age group 60-64 in 2016. Males & Females.

At most lower secondary graduates



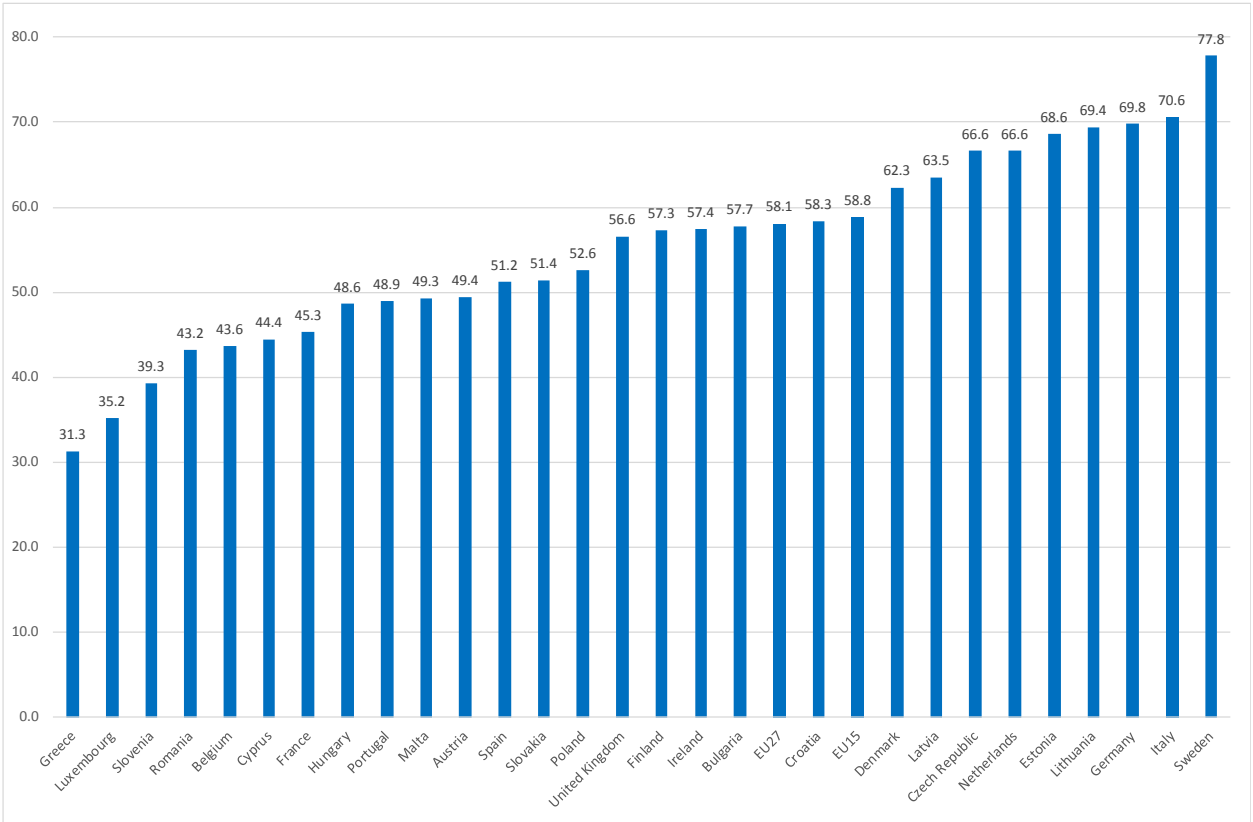
Source: elaborations on LFS data

Fig. 1C: Employment rates in the age group 60-64 in 2016. Males & Females.
Upper secondary graduates



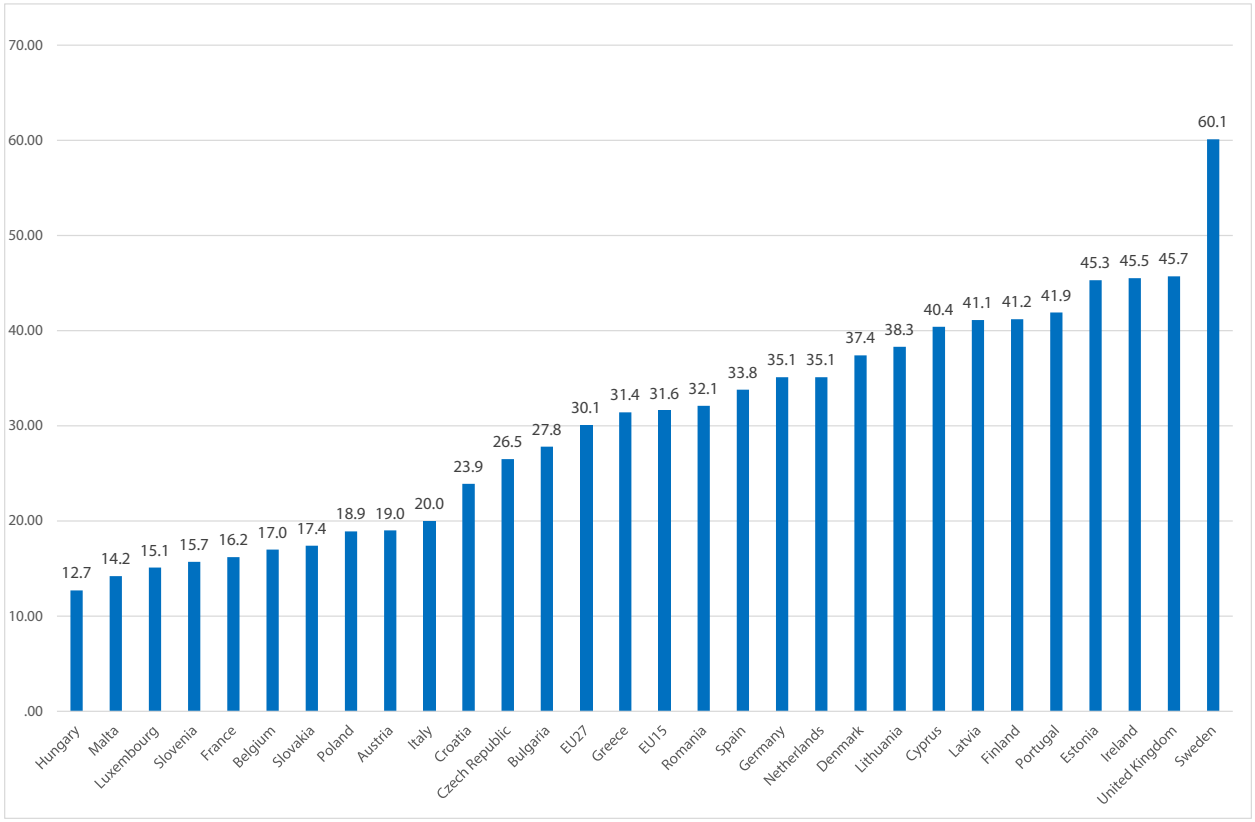
Source: elaborations on LFS data

Fig. 1D: Employment rates in the age group 60-64 in 2016. Males & Females.
Tertiary graduates



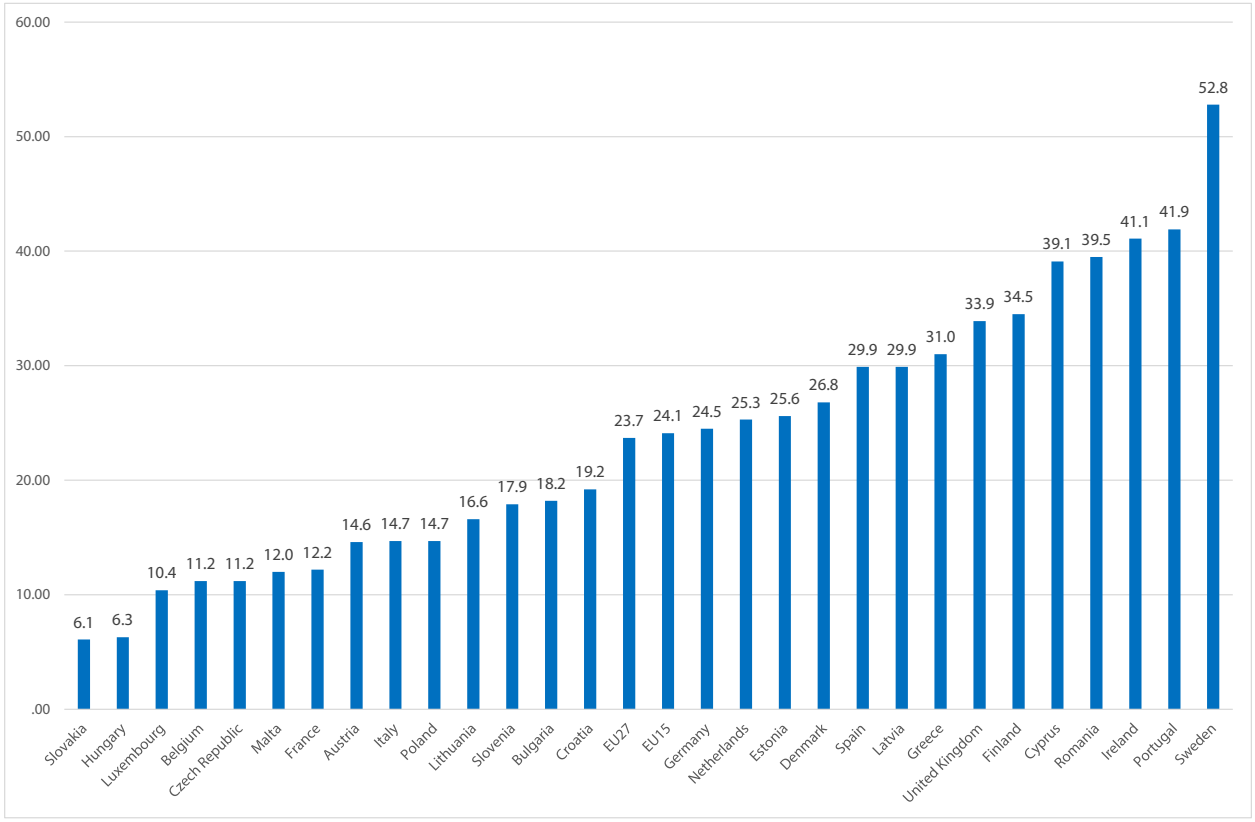
Source: elaborations on LFS data

Fig. 2A: Employment rates in the age group 60-64 in 2008. Males & Females.
All educational groups



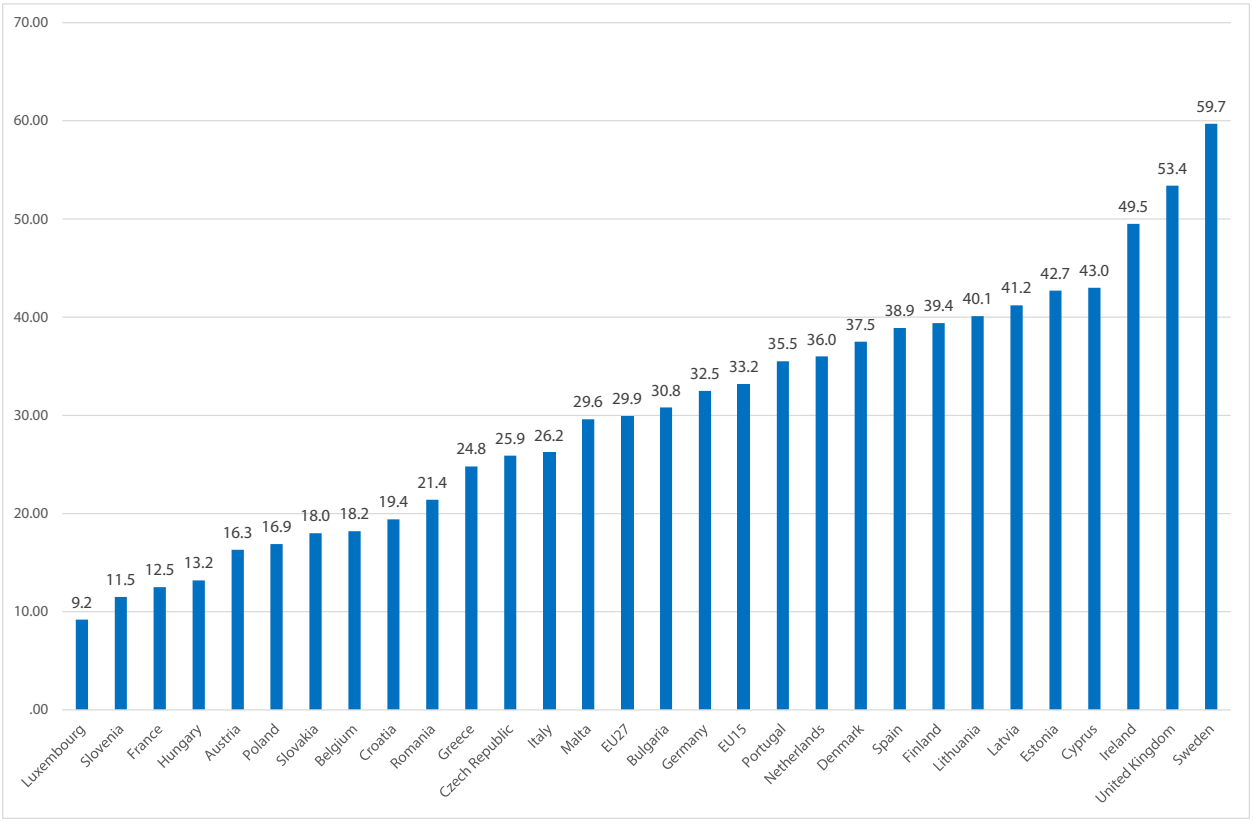
Source: elaborations on LFS data

Fig. 2B: Employment rates in the age group 60-64 in 2008. Males & Females.
At most lower secondary graduates



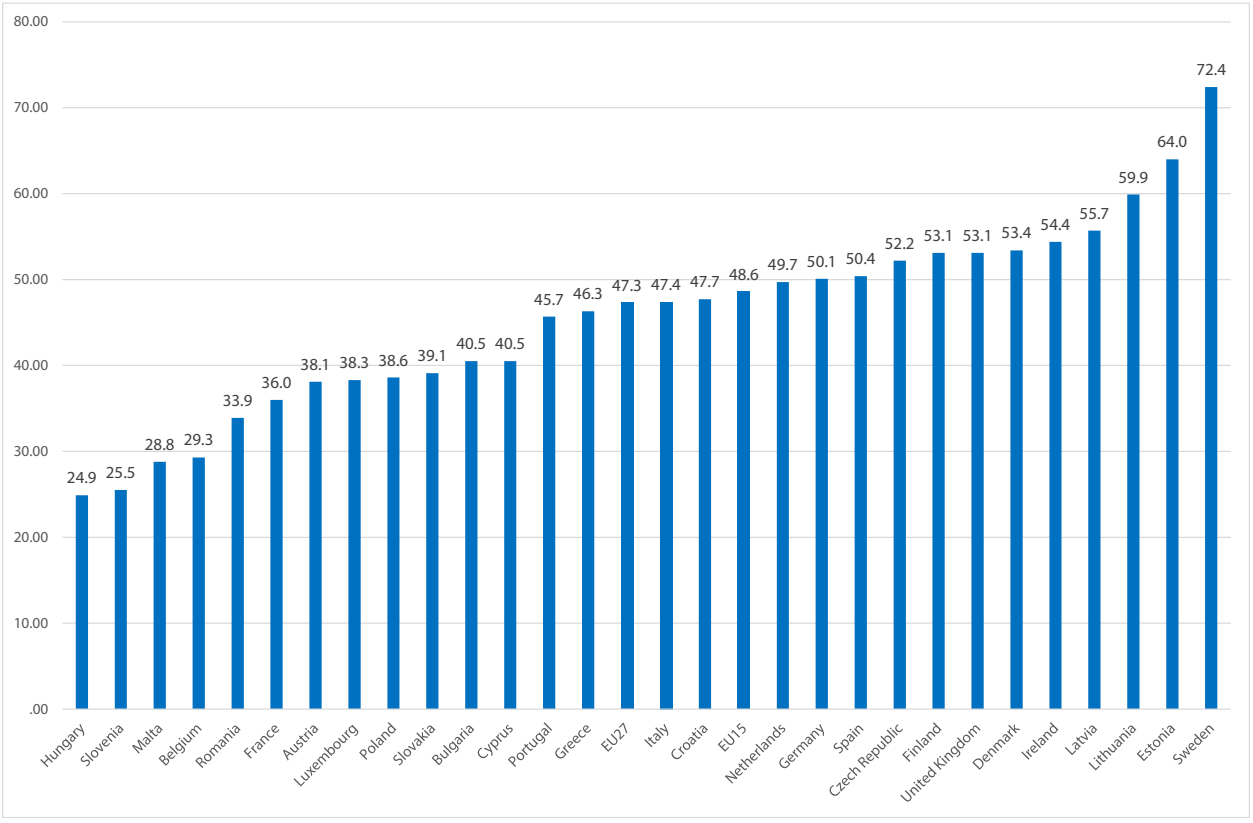
Source: elaborations on LFS data

Fig. 2C: Employment rates in the age group 60-64 in 2008. Males & Females.
Upper secondary graduates



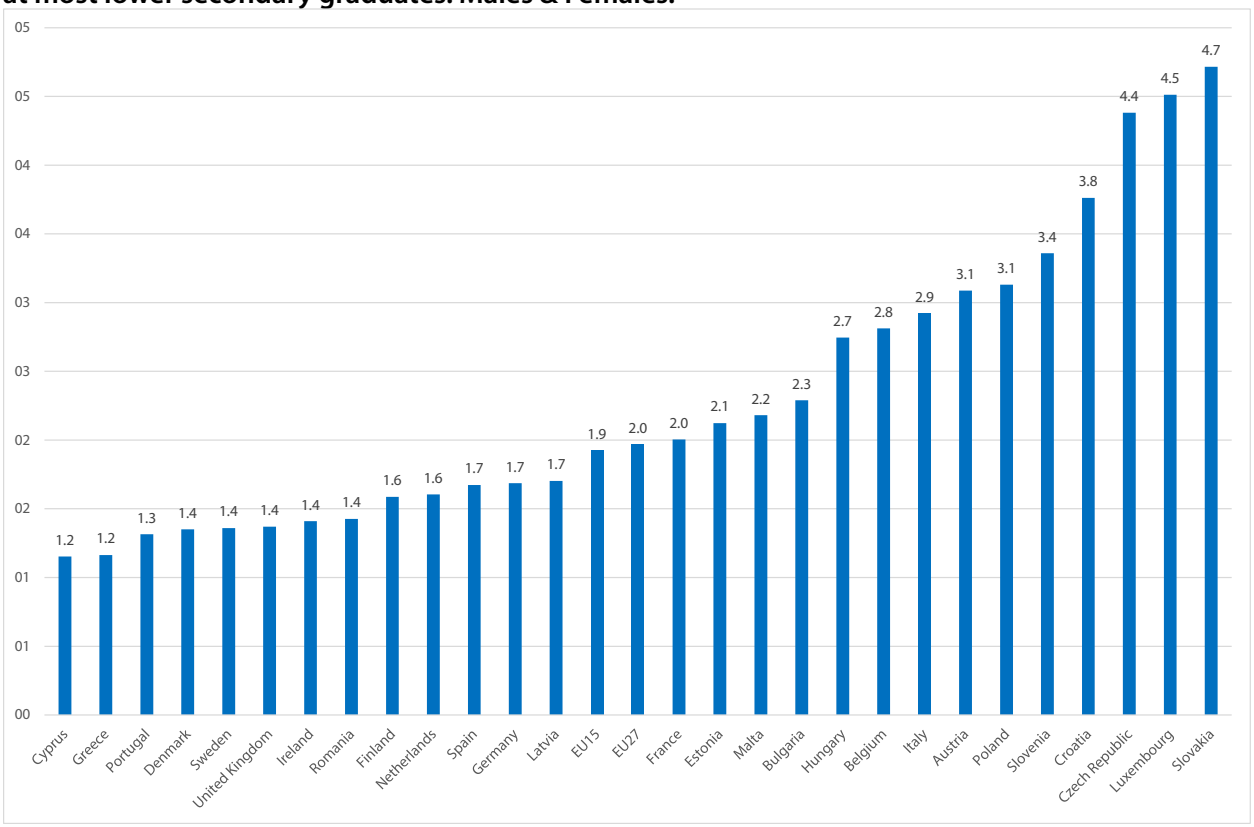
Source: elaborations on LFS data

Fig. 2D: Employment rates in the age group 60-64 in 2008. Males & Females.
Tertiary graduates



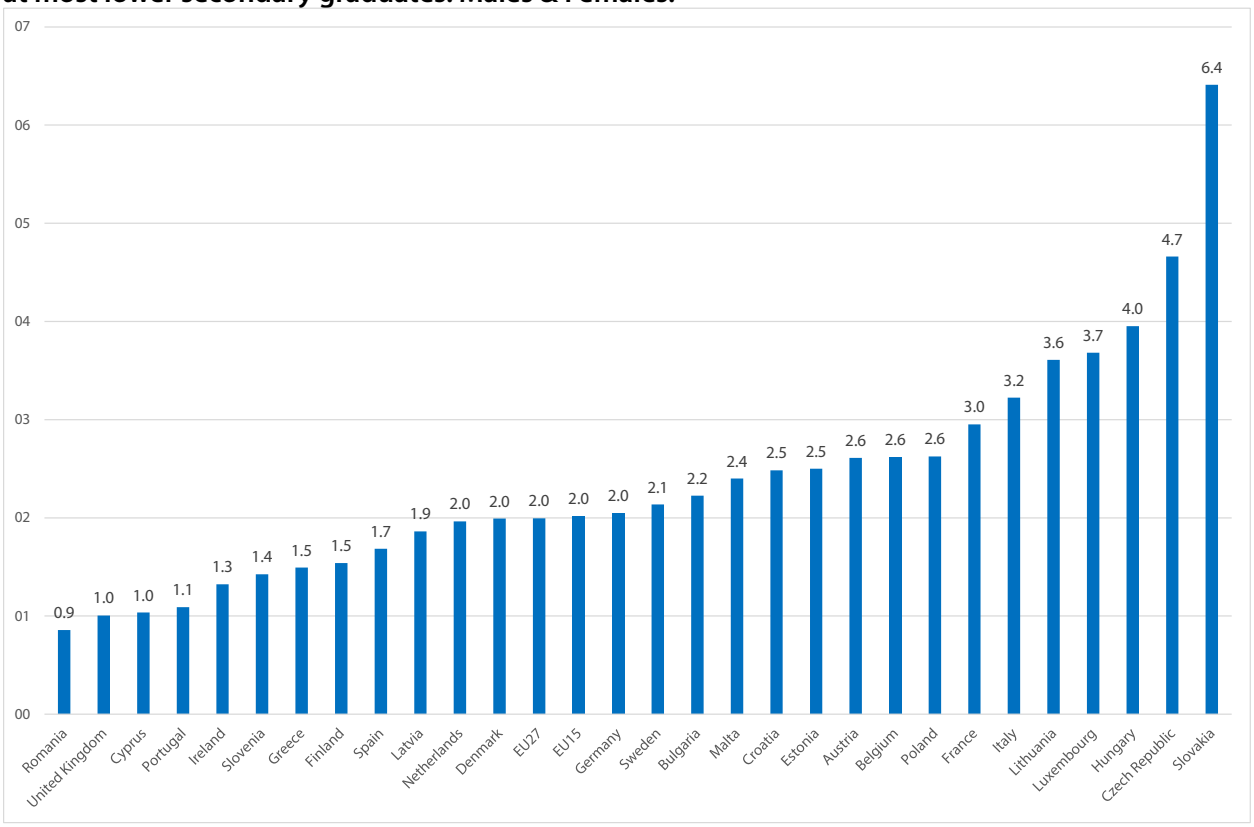
Source: elaborations on LFS data

Fig. 3A: Relative employment rates of older workers in 2016. Ratio between emp. rates of tertiary and at most lower secondary graduates. Males & Females.



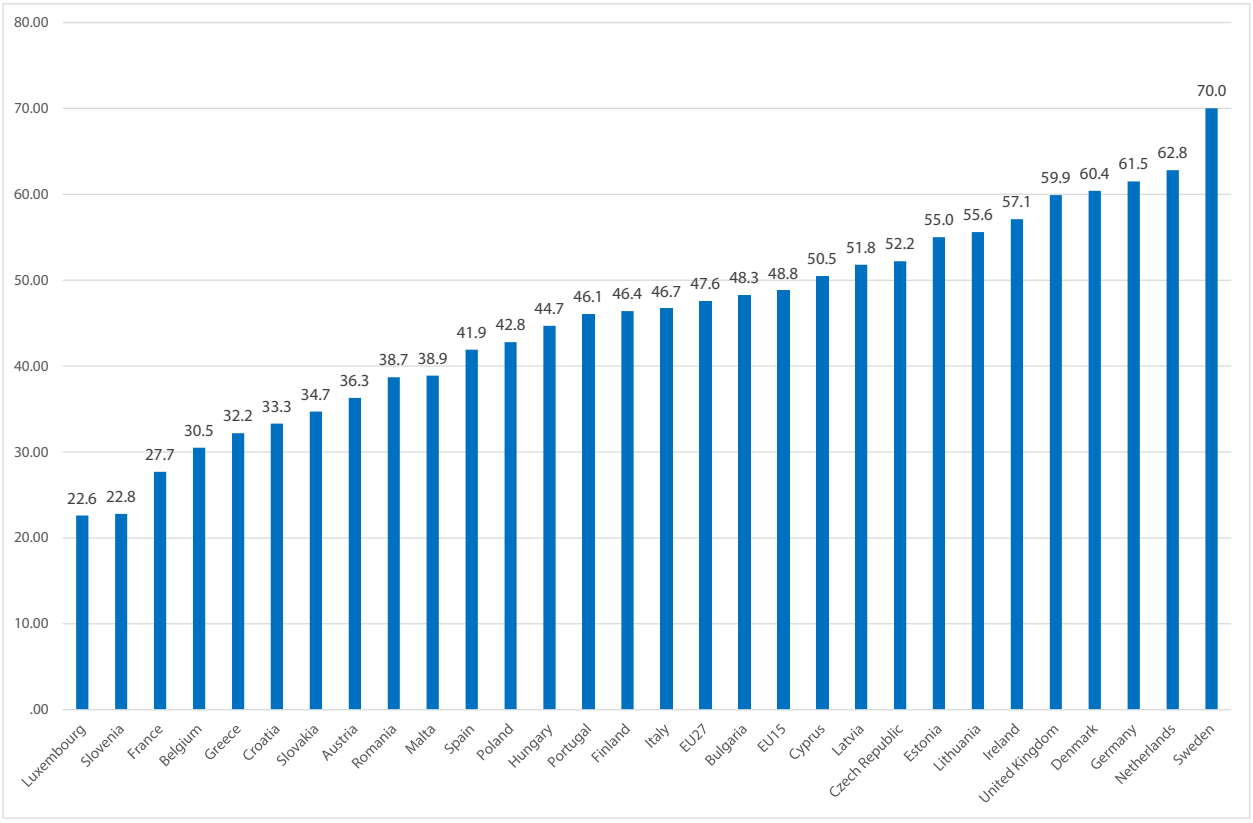
Source: elaborations on LFS data

Fig. 3B: Relative employment rates of older workers in 2008. Ratio between emp. rates of tertiary and at most lower secondary graduates. Males & Females.



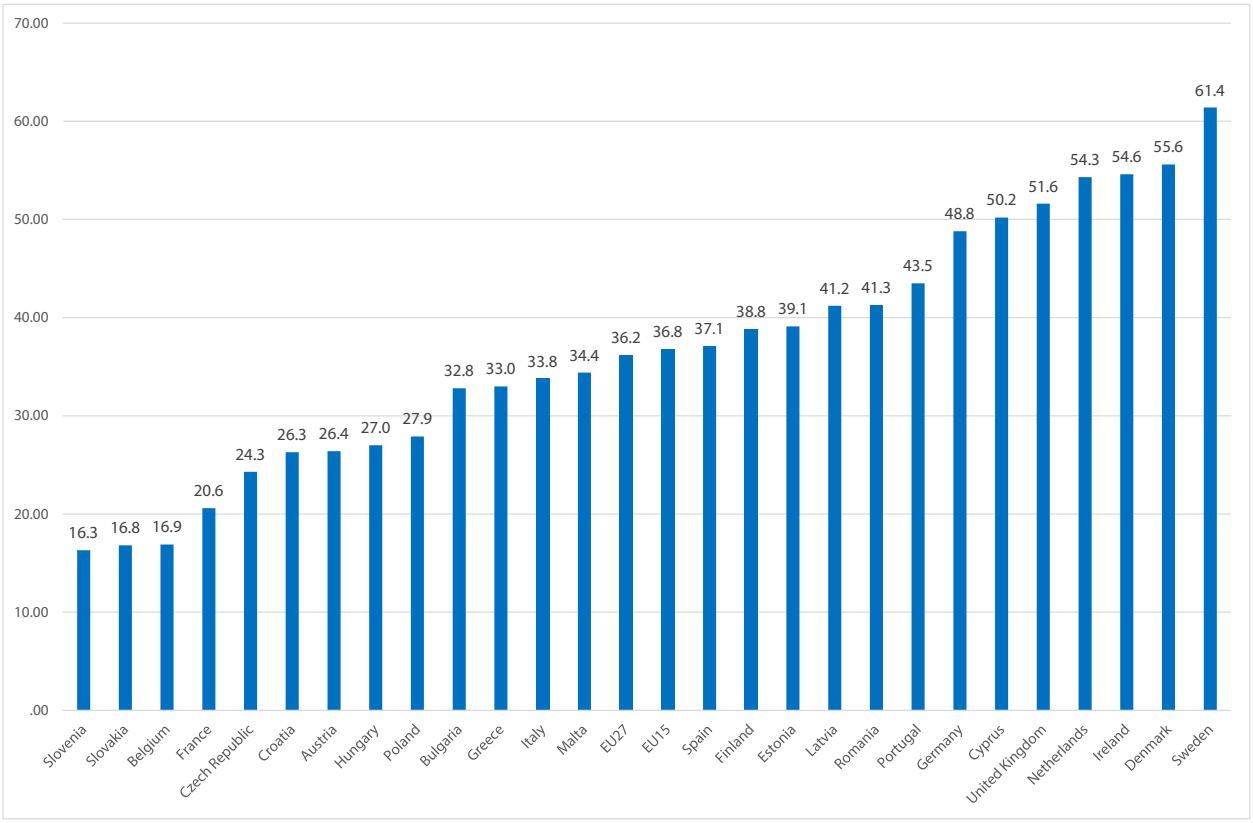
Source: elaborations on LFS data

Fig. 4A: Employment rates in the age group 60-64 in 2016. Males.
All educational groups



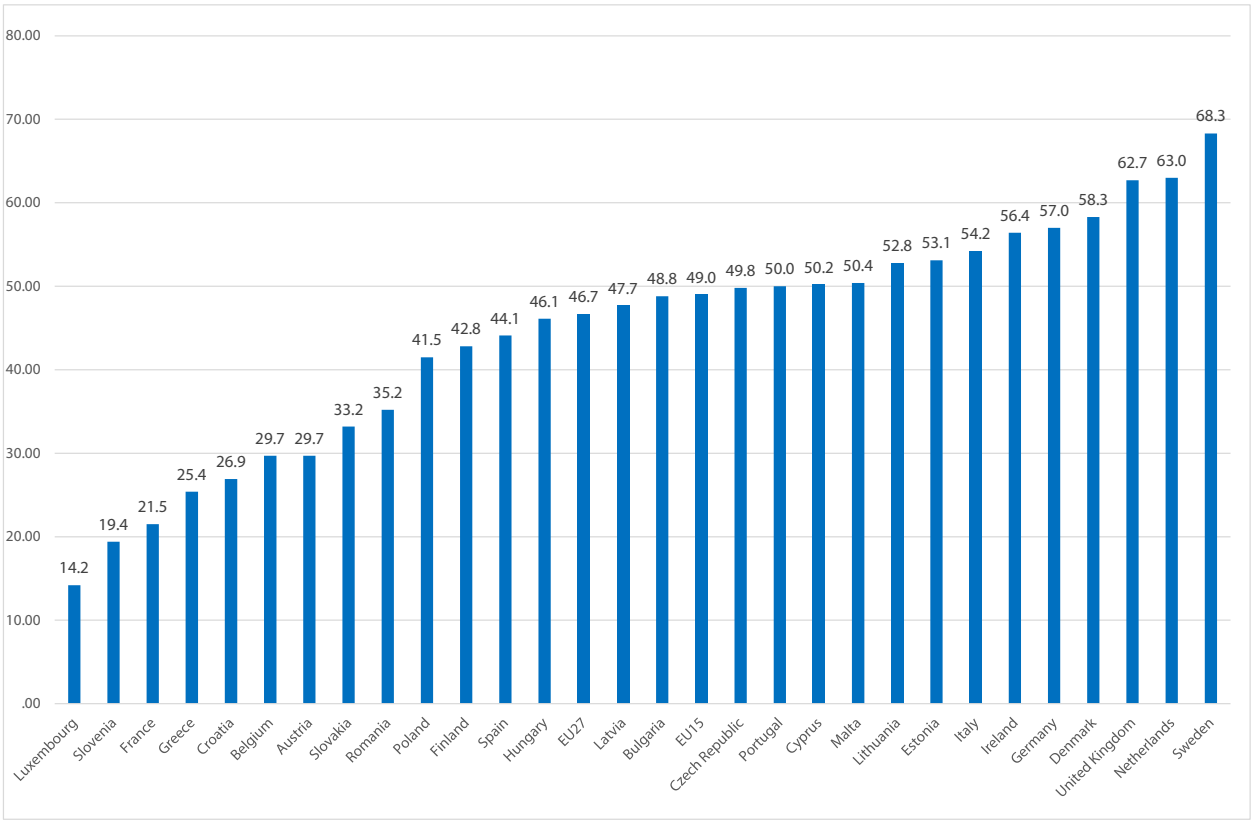
Source: elaborations on LFS data

Fig. 4B: Employment rates in the age group 60-64 in 2016. Males.
At most lower secondary graduates



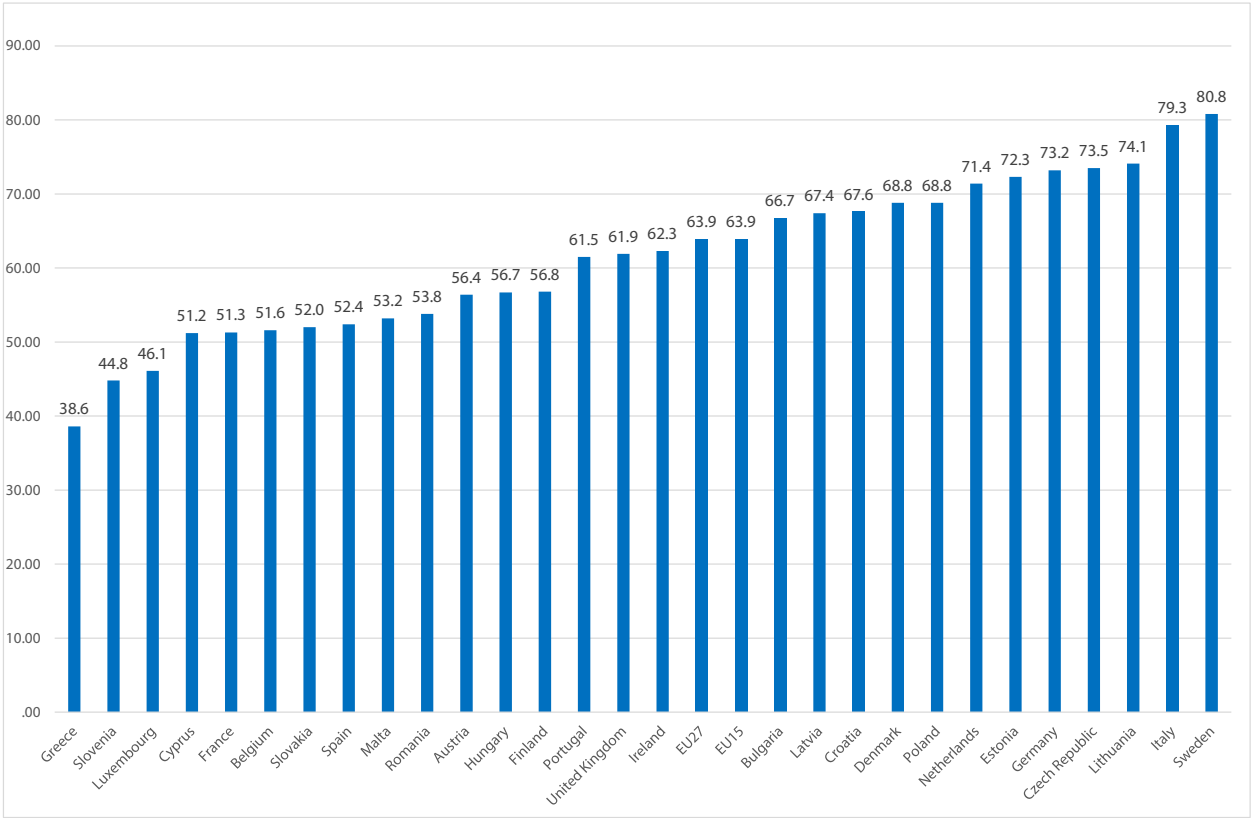
Source: elaborations on LFS data

Fig. 4C: Employment rates in the age group 60-64 in 2016. Males.
Upper secondary graduates



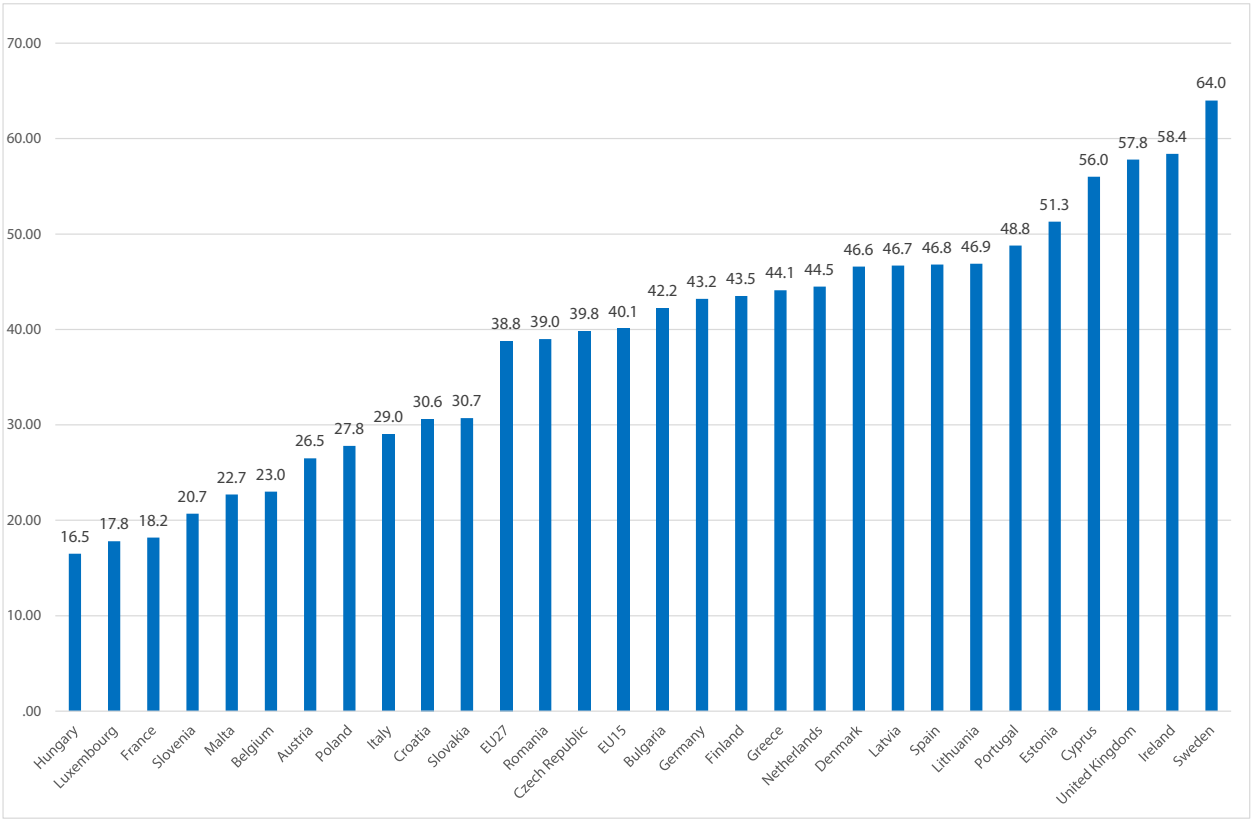
Source: elaborations on LFS data

Fig. 4D: Employment rates in the age group 60-64 in 2016. Males.
Tertiary graduates



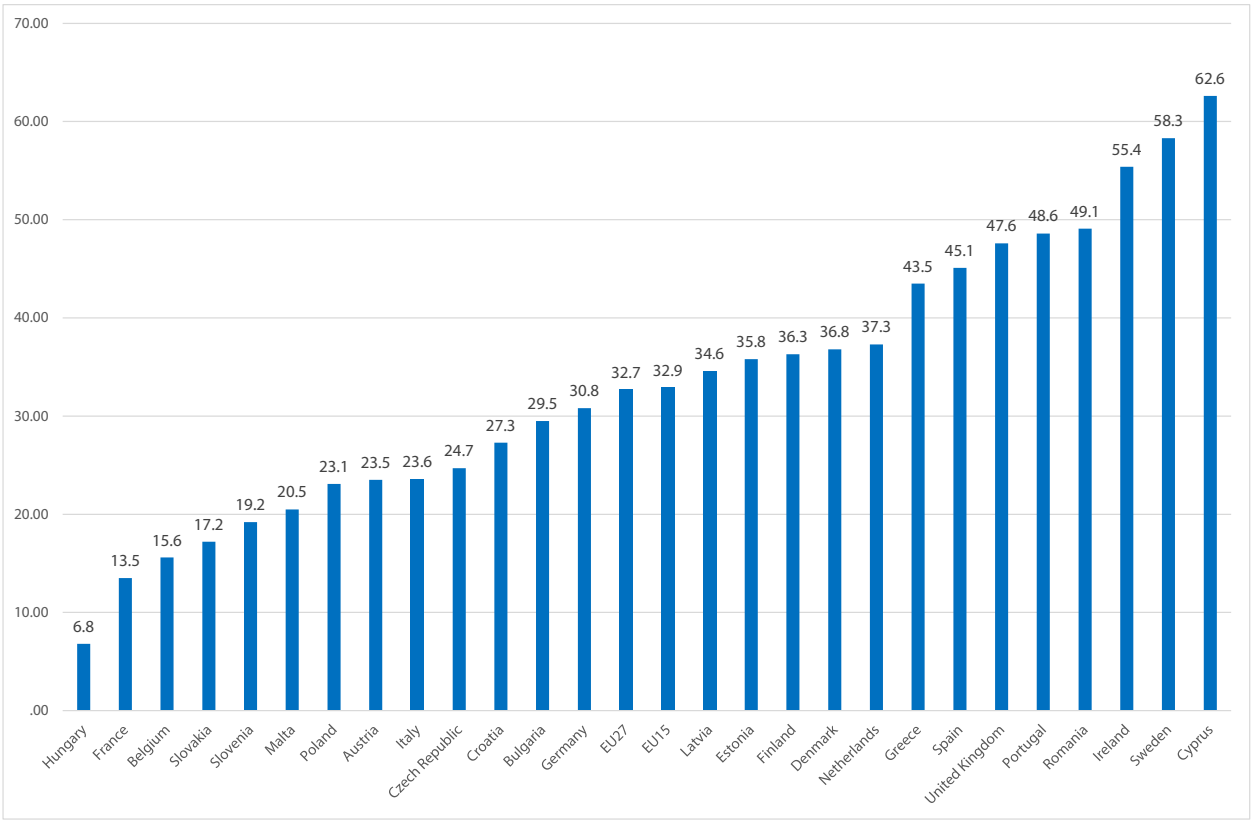
Source: elaborations on LFS data

Fig. 5A: Employment rates in the age group 60-64 in 2008. Males.
All educational groups



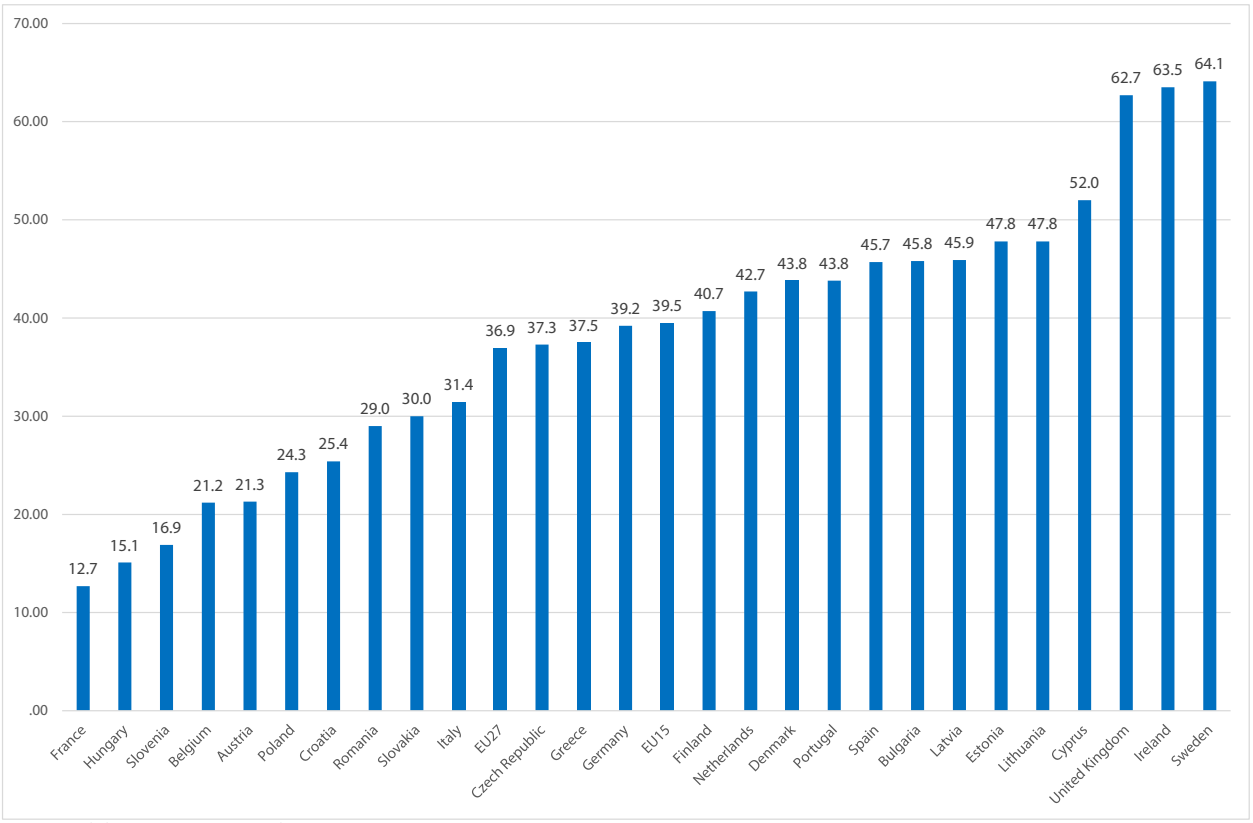
Source: elaborations on LFS data

Fig. 5B: Employment rates in the age group 60-64 in 2008. Males.
At most lower secondary graduates



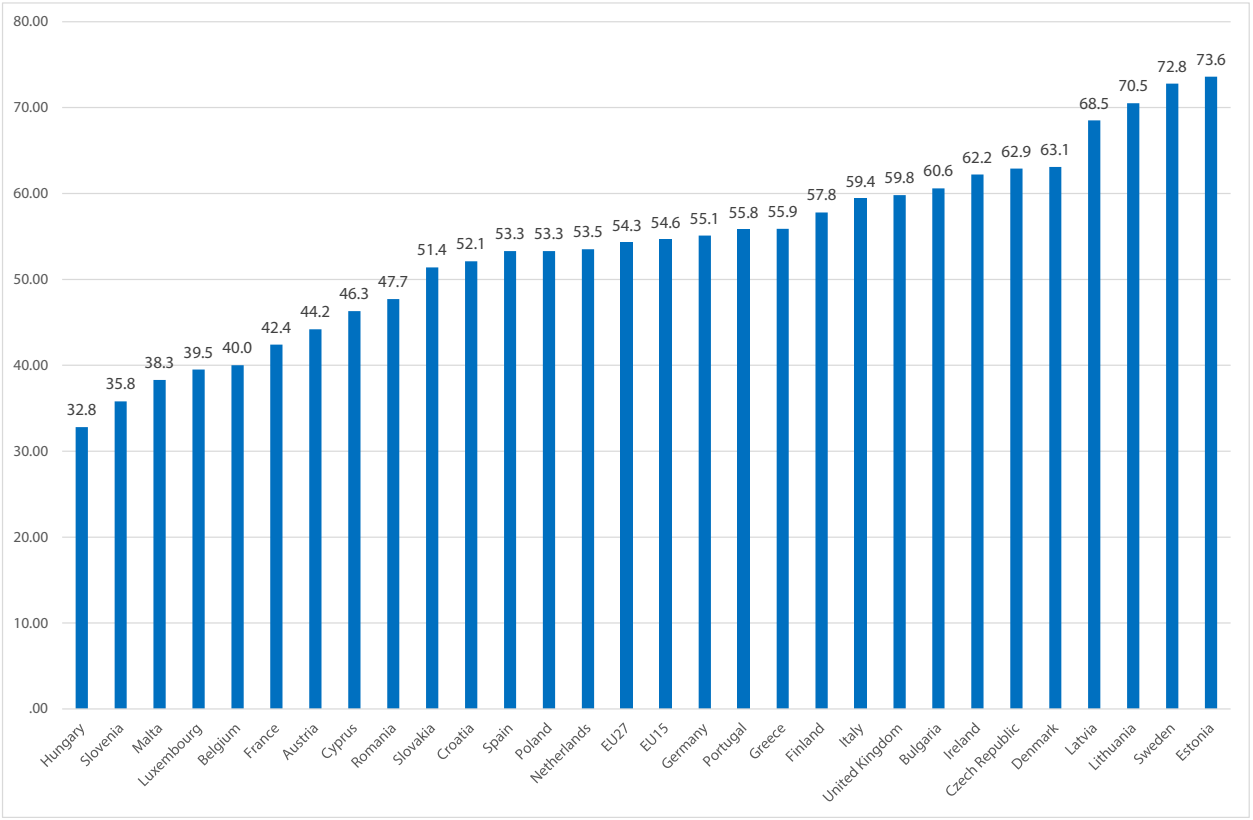
Source: elaborations on LFS data

Fig. 5C: Employment rates in the age group 60-64 in 2008. Males.
Upper secondary graduates



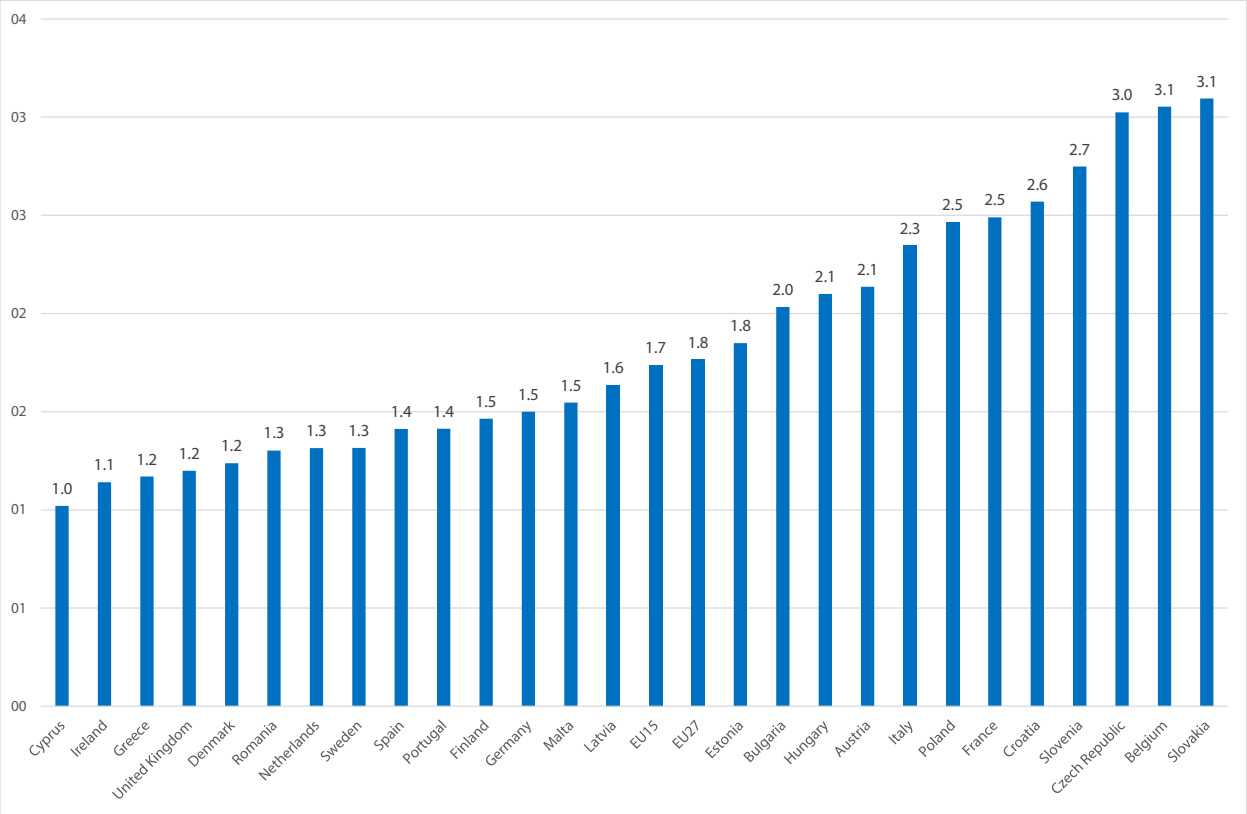
Source: elaborations on LFS data

Fig. 5D: Employment rates in the age group 60-64 in 2008. Males.
Tertiary graduates



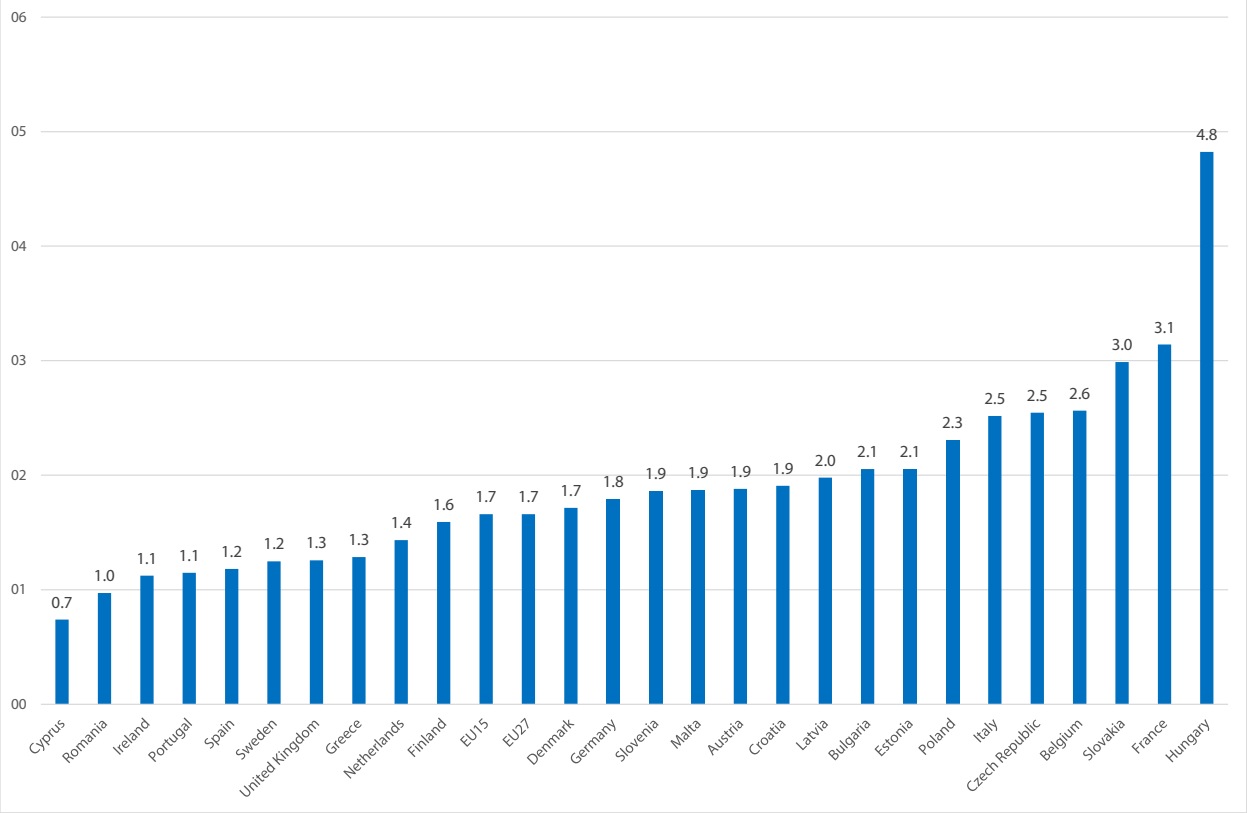
Source: elaborations on LFS data

Fig. 6A: Relative employment rates of older workers in 2016. Ratio between emp. rates of tertiary and at most lower secondary graduates. Males.



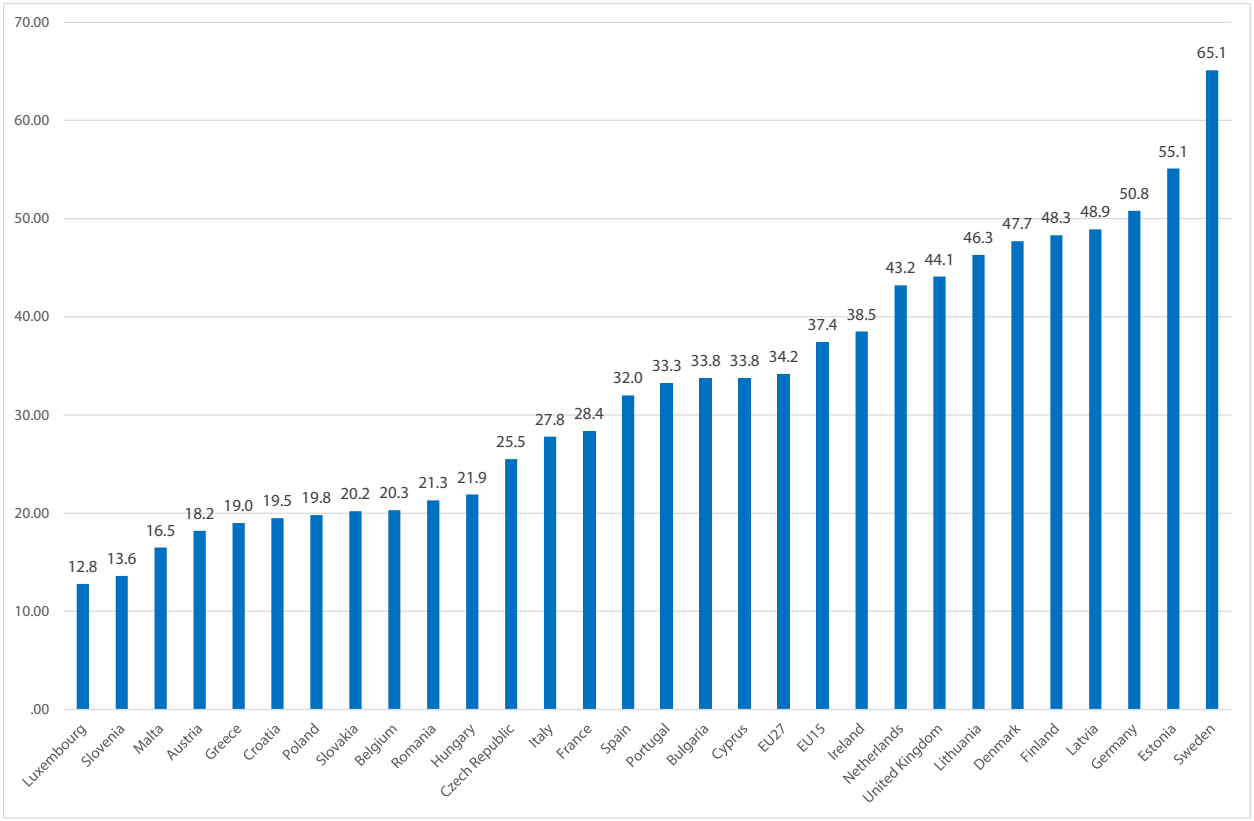
Source: elaborations on LFS data

Fig. 6B: Relative employment rates of older workers in 2016. Ratio between emp. rates of tertiary and at most lower secondary graduates. Males.



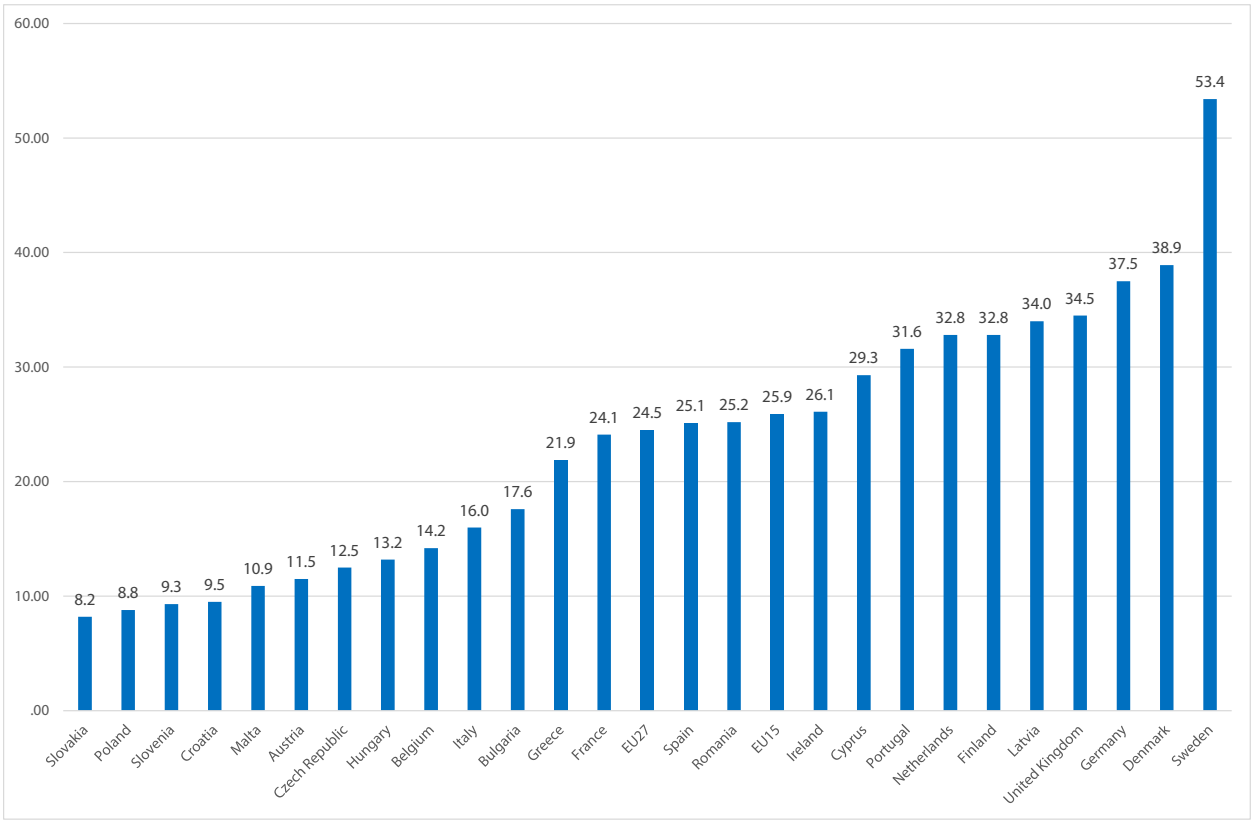
Source: elaborations on LFS data

Fig. 7A: Employment rates in the age group 60-64 in 2016. Females.
All educational groups



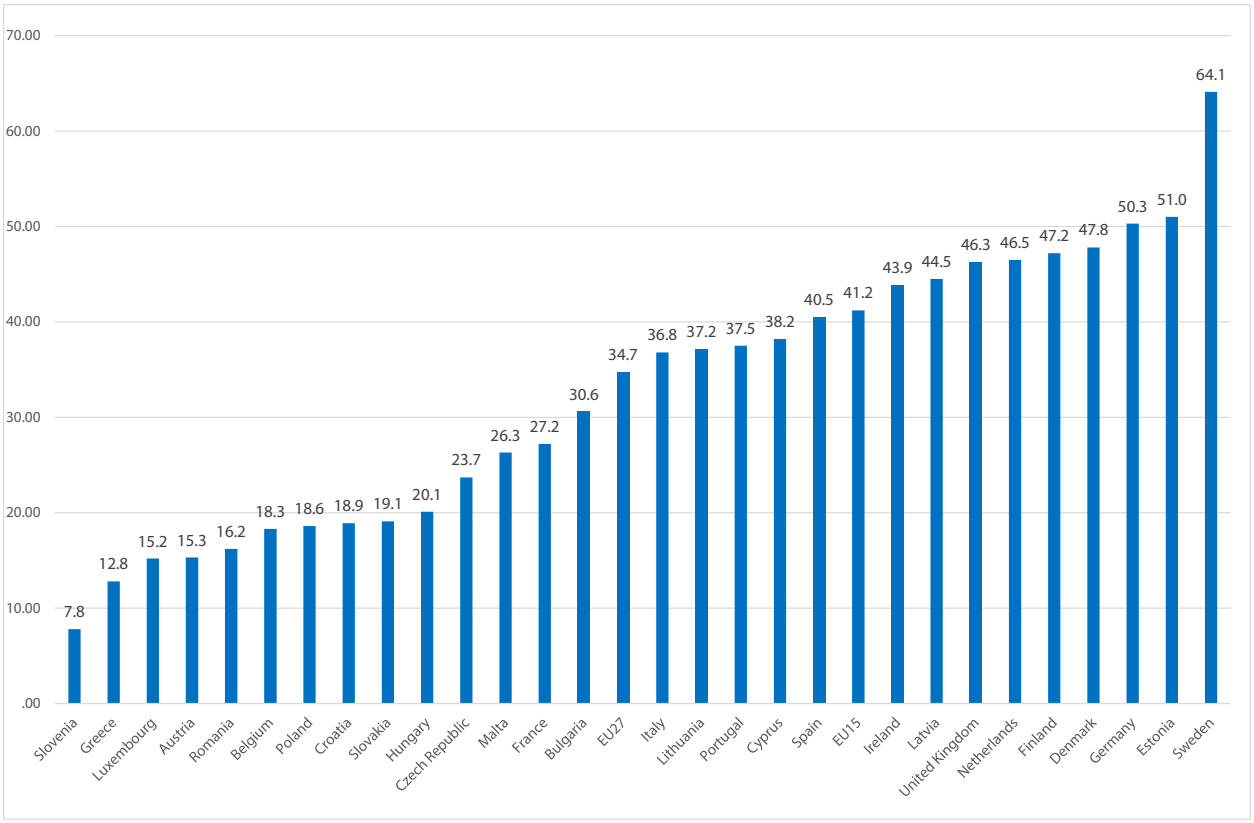
Source: elaborations on LFS data

Fig. 7B: Employment rates in the age group 60-64 in 2016. Females.
At most lower secondary graduates



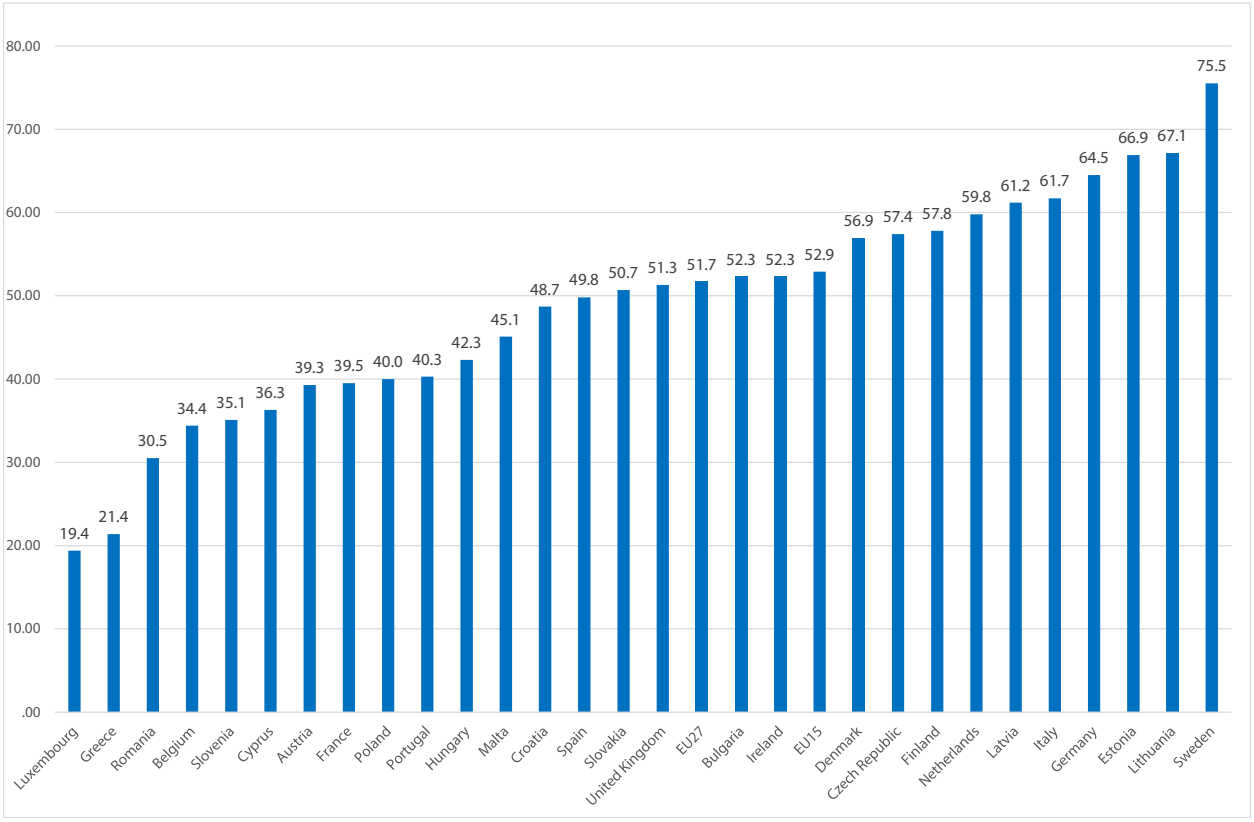
Source: elaborations on LFS data

Fig. 7C: Employment rates in the age group 60-64 in 2016. Females.
Upper secondary graduates



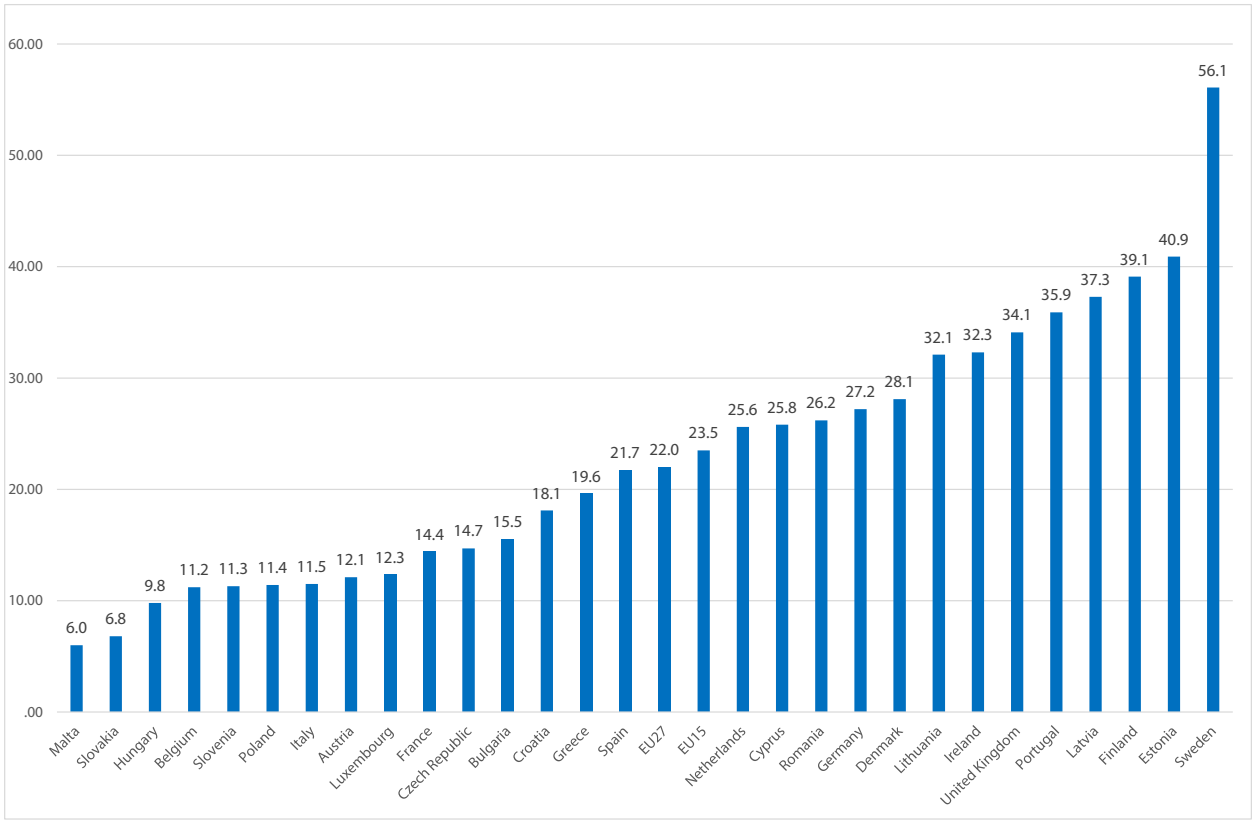
Source: elaborations on LFS data

Fig. 7D: Employment rates in the age group 60-64 in 2016. Females.
Tertiary graduates



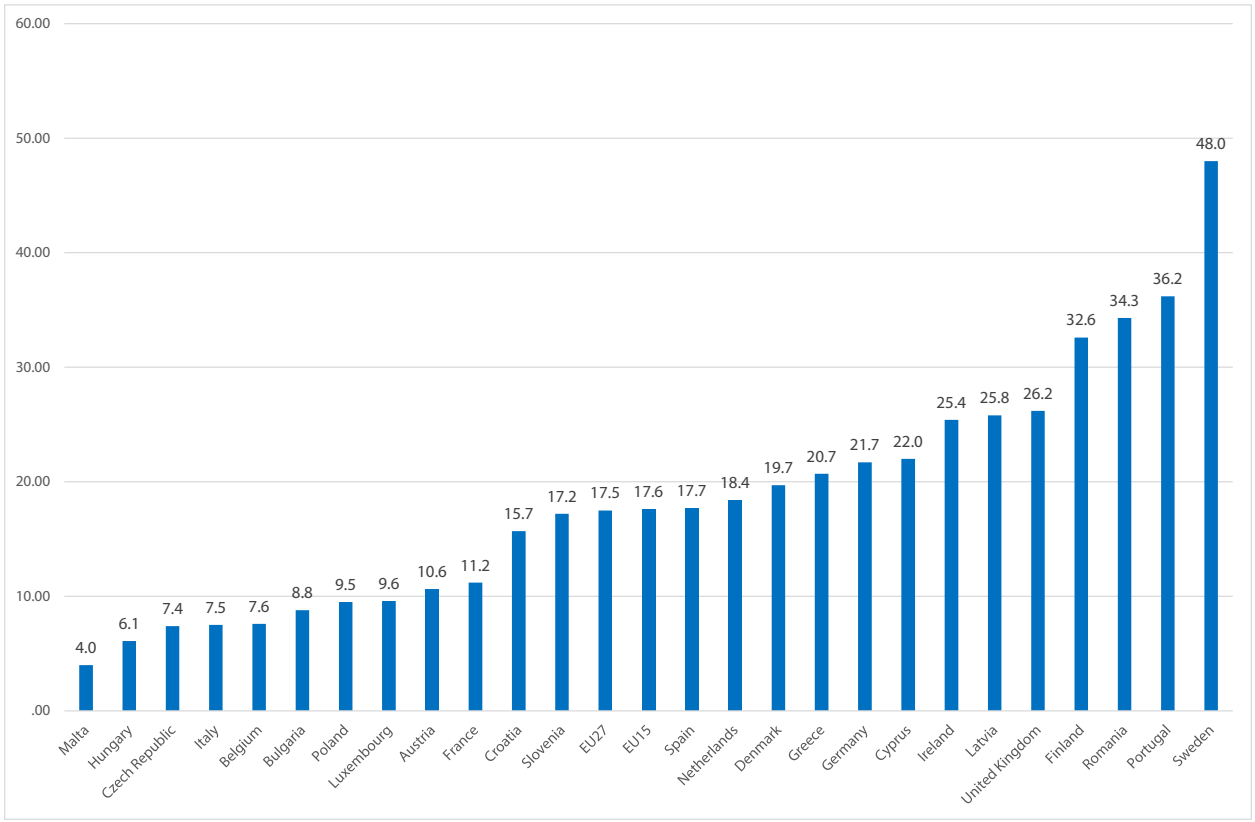
Source: elaborations on LFS data

Fig. 8A: Employment rates in the age group 60-64 in 2008. Females.
All educational groups



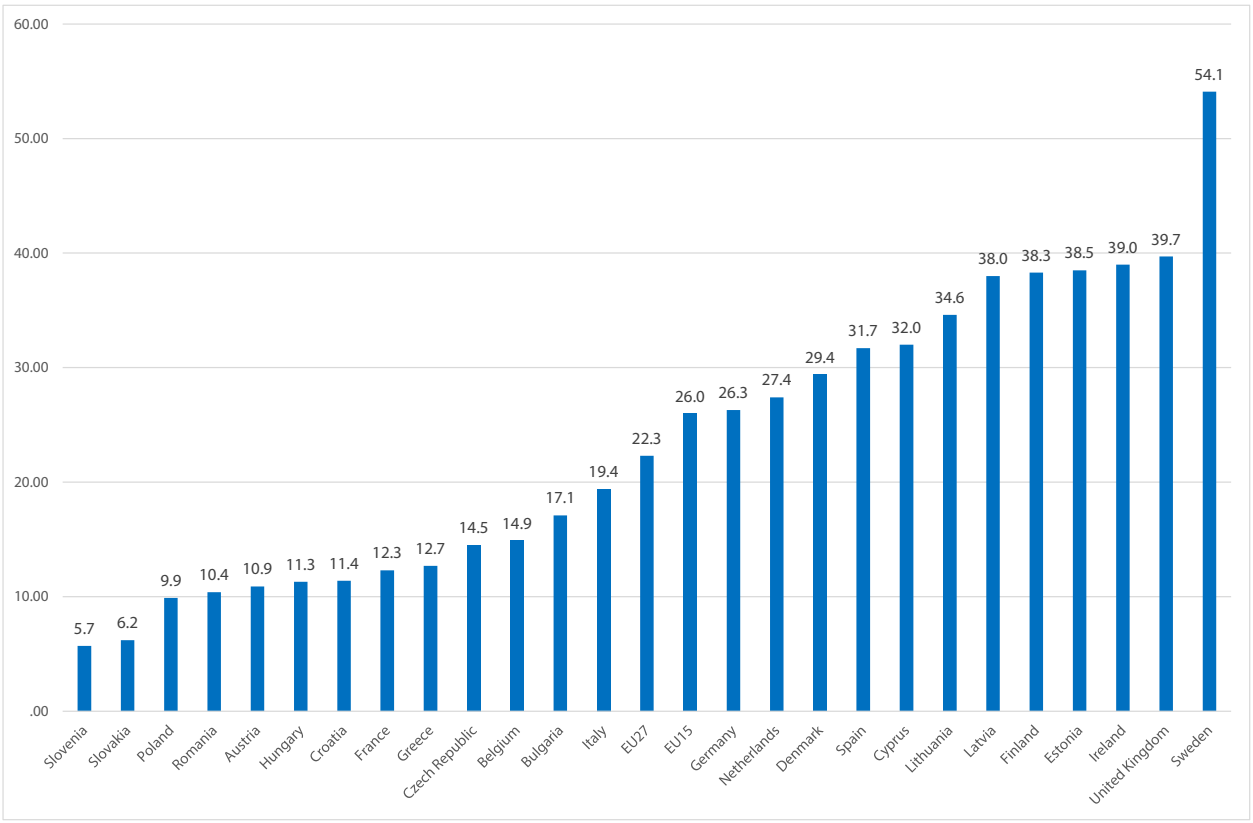
Source: elaborations on LFS data

Fig. 8B: Employment rates in the age group 60-64 in 2008. Females.
At most lower secondary graduates



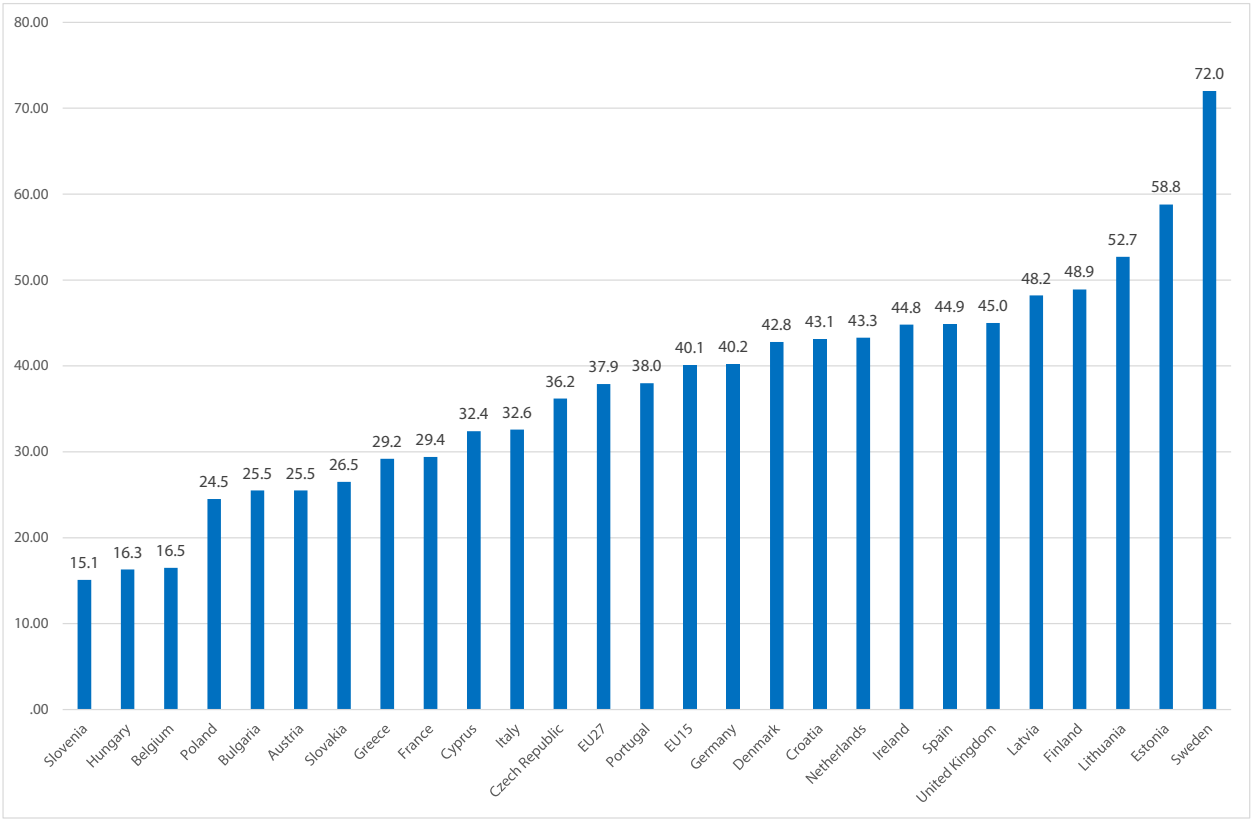
Source: elaborations on LFS data

Fig. 8C: Employment rates in the age group 60-64 in 2008. Females.
Upper secondary graduates



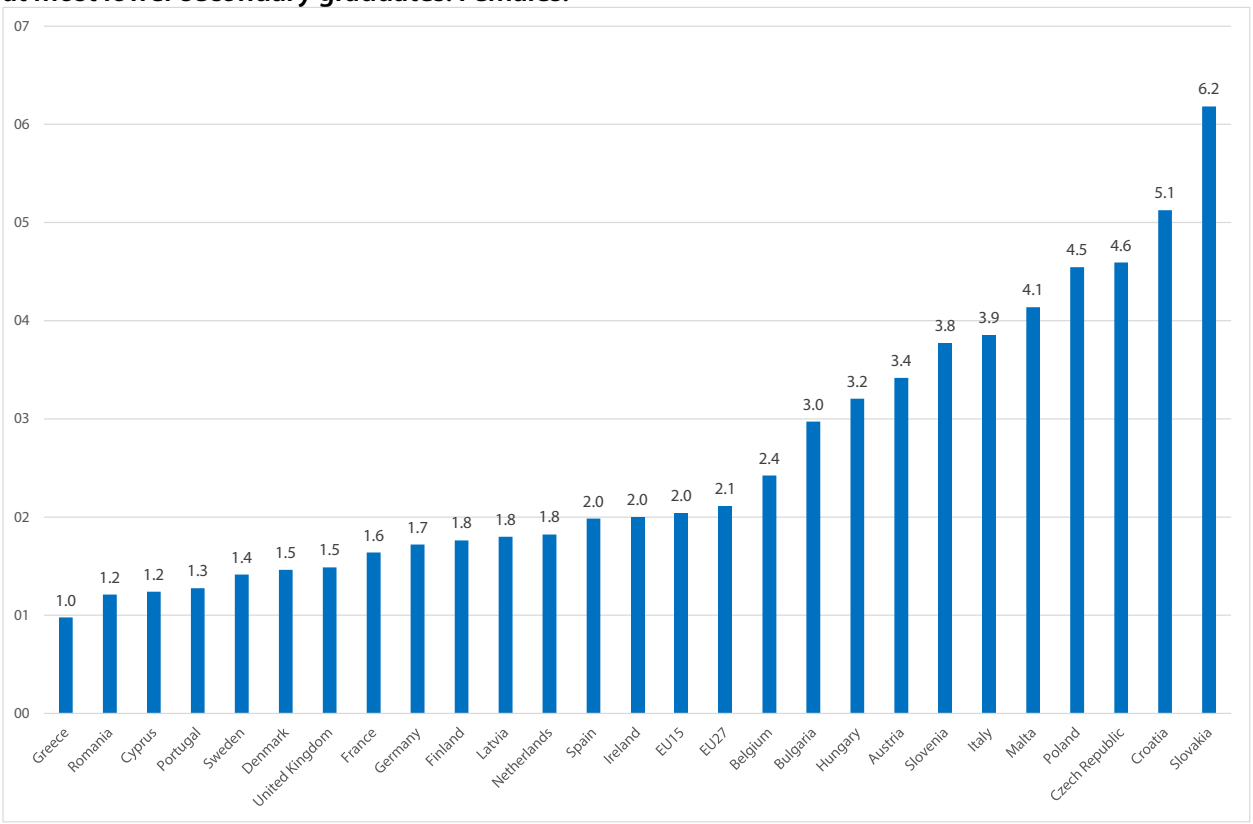
Source: elaborations on LFS data

Fig. 8D: Employment rates in the age group 60-64 in 2008. Females.
Tertiary graduates



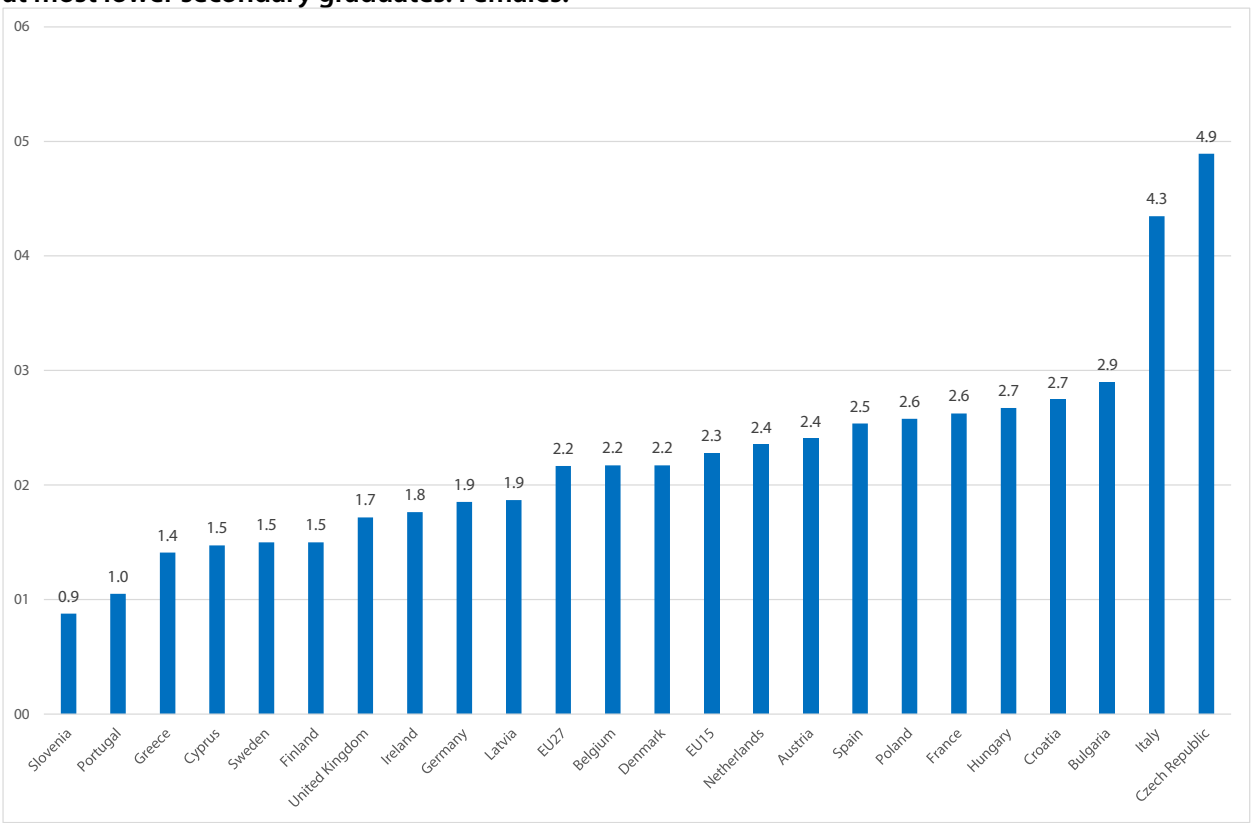
Source: elaborations on LFS data

Fig. 9A: Relative employment rates of older workers in 2016. Ratio between emp. rates of tertiary and at most lower secondary graduates. Females.



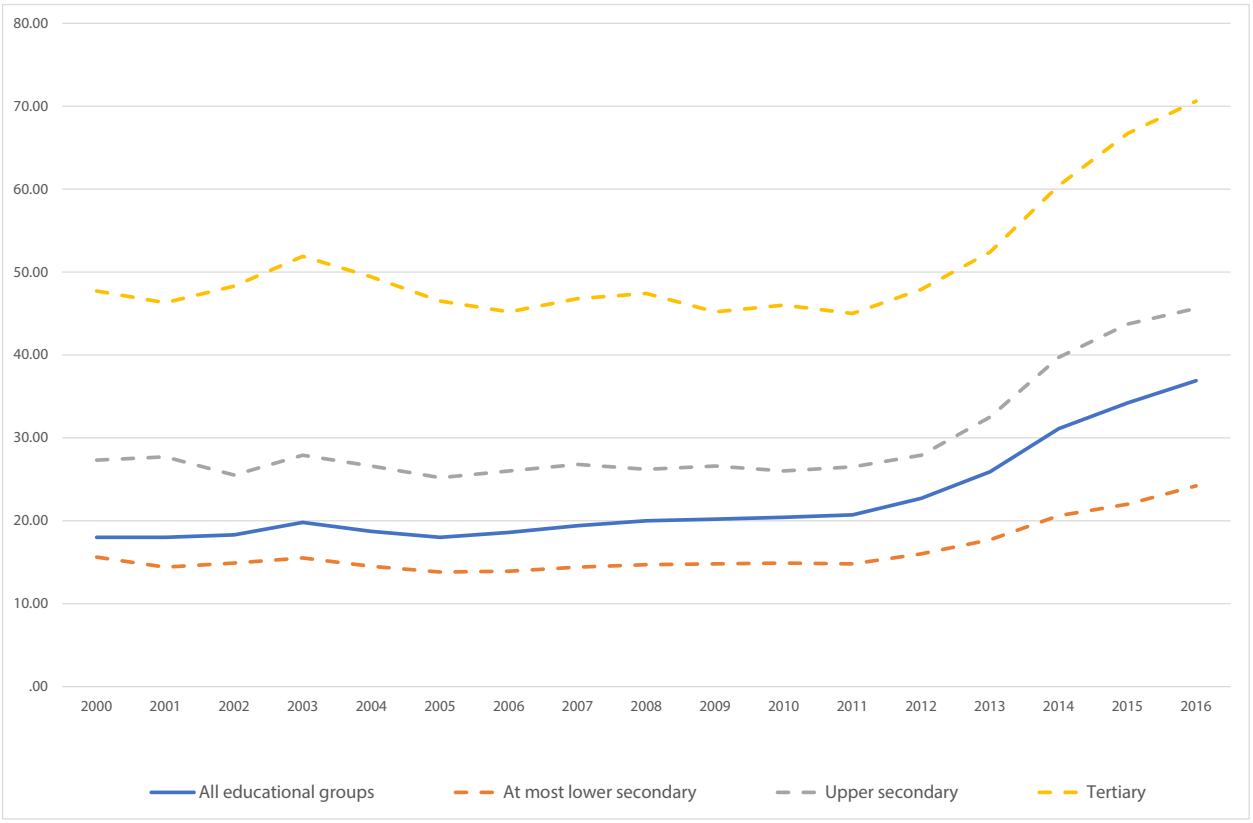
Source: elaborations on LFS data

Fig. 9B: Relative employment rates of older workers in 2008. Ratio between emp. rates of tertiary and at most lower secondary graduates. Females.



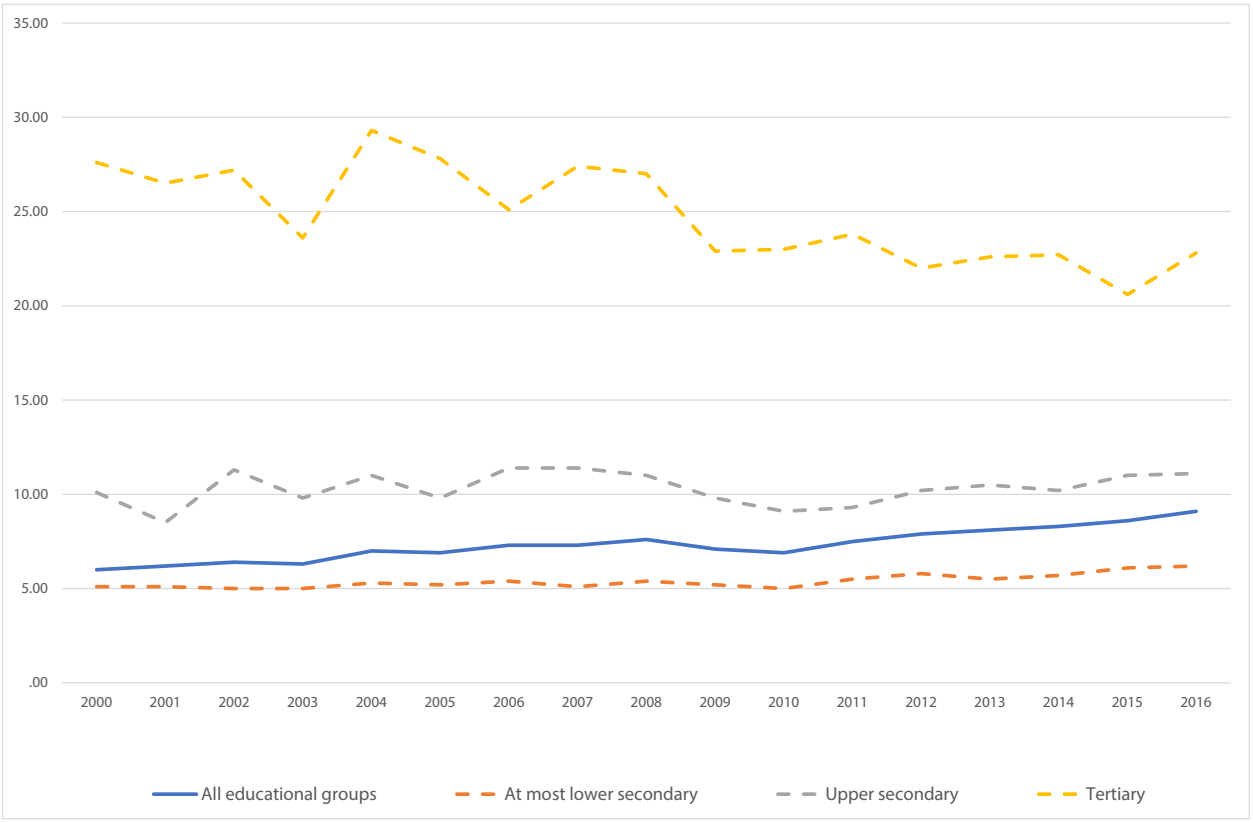
Source: elaborations on LFS data

Fig. 10A: Employment rates in the age group 60-64 by educational attainment. Total population. Italy



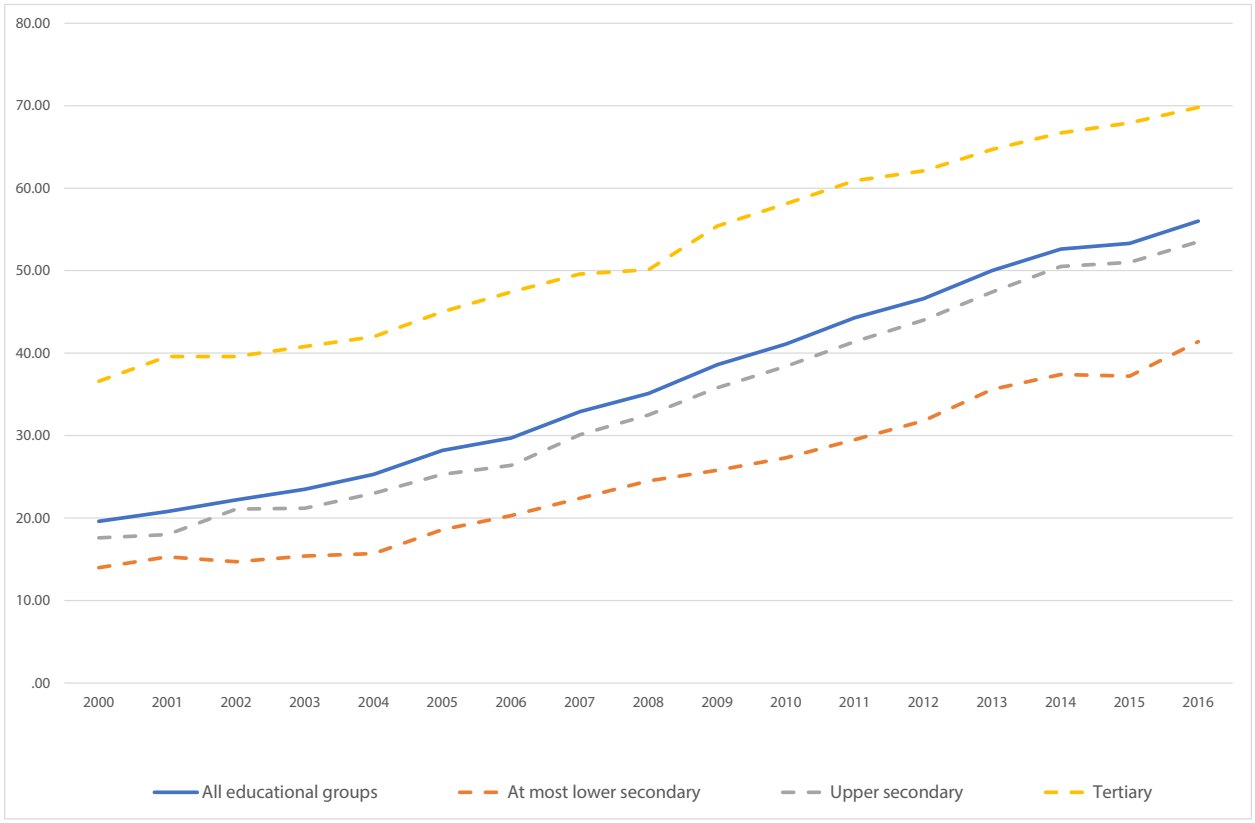
Source: elaborations on LFS data

Fig. 10B: Employment rates in the age group 65-69 by educational attainment. Total population. Italy



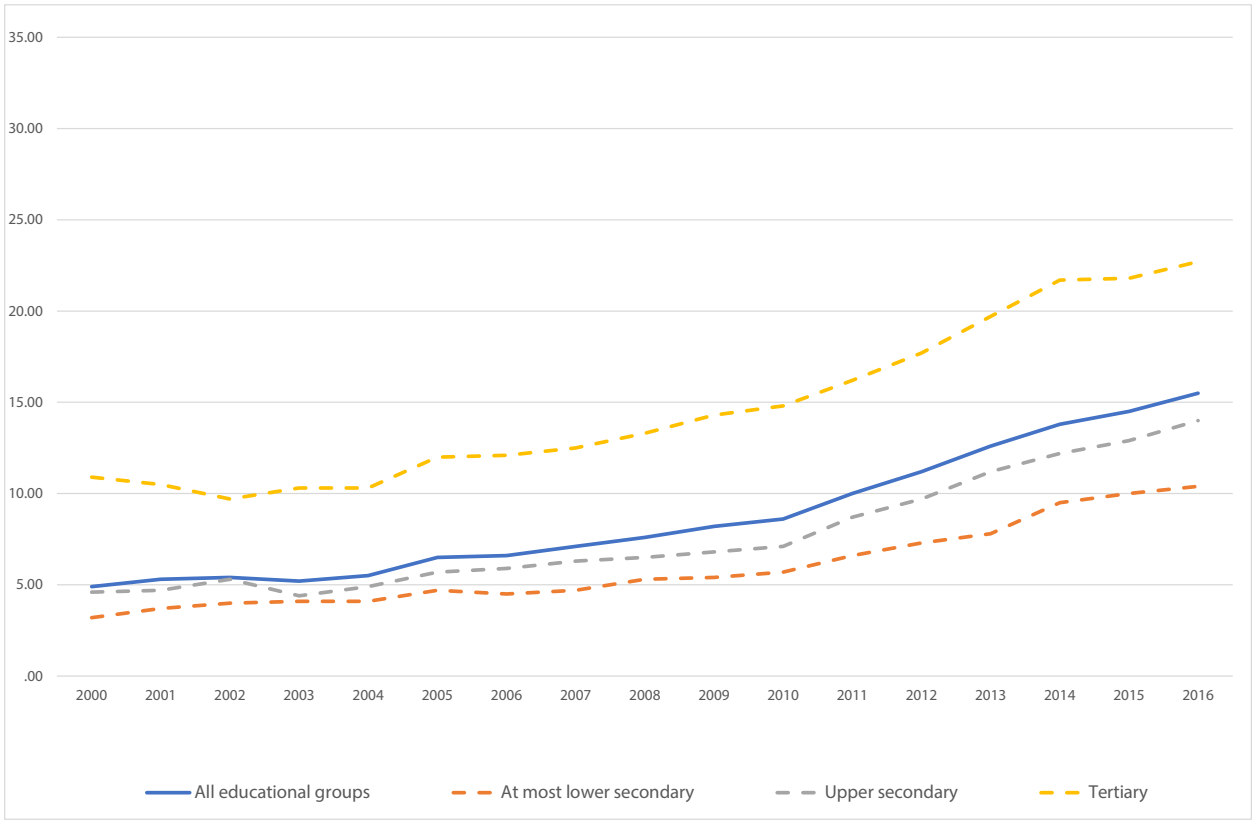
Source: elaborations on LFS data

Fig. 11A: Employment rates in the age group 60-64 by educational attainment. Total population. Germany



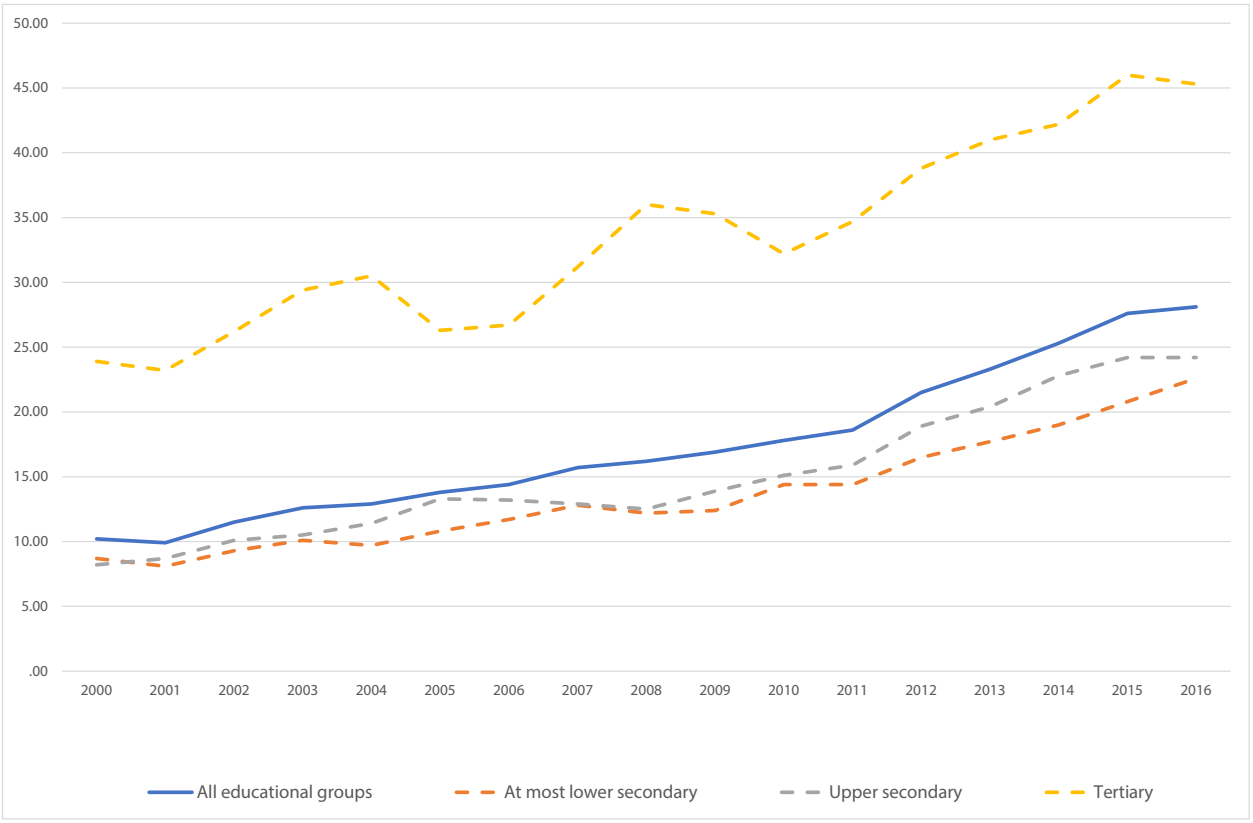
Source: elaborations on LFS data

Fig. 11B: Employment rates in the age group 65-69 by educational attainment. Total population. Germany



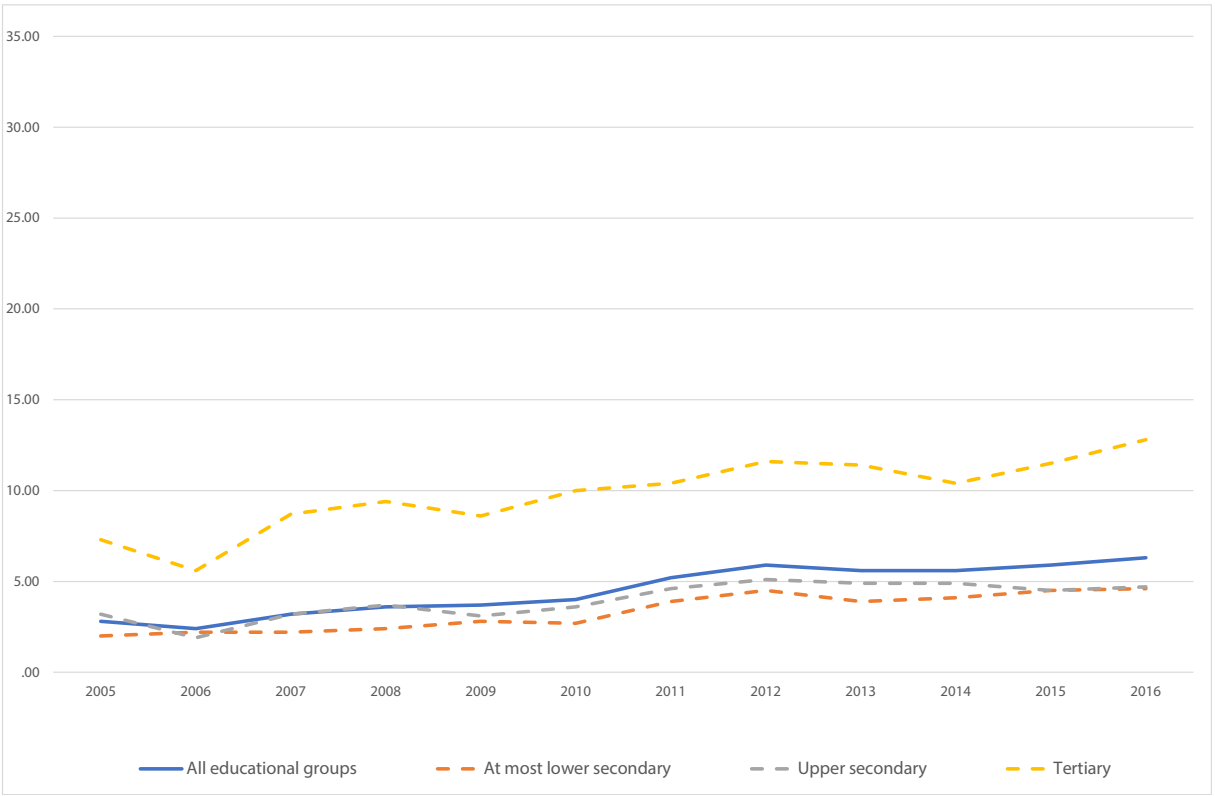
Source: elaborations on LFS data

Fig. 12A: Employment rates in the age group 60-64 by educational attainment. Total population. France



Source: elaborations on LFS data

Fig. 12B: Employment rates in the age group 65-69 by educational attainment. Total population. France



Source: elaborations on LFS data

4. The characteristics of active individuals aged 60-65 in EU countries

By making use of the 2008 and 2014 waves of the EU-SILC, we have carried out econometric logit estimates by countries aimed at computing the direction and the size of the association between a set of individuals' characteristics and their probability of being active (i.e. employed or unemployed) rather than retired when aged 60-65 (inactive individuals not retired are not considered in our sample).

As noted above, survey datasets usually do not allow researchers to identify, in a causal fashion, the determinants of job prosecution or early retirement. However, to our goals estimating in a multivariate design the association between some individual features – that, as stressed, could affect both labour demand and labour supply of older workers – and their employment status when aged 60-65. As mentioned, results are expressed through average marginal effects (AME) that show the probability of the event associated to each characteristic, for all possible combinations of the other individual features.

We first discuss results of the "short model" presented in Section 2 and then also present what changes when occupation and experience are added to the estimates in the "full model". Results are presented following a welfare regime approach, that is discussing if different findings characterize countries belonging to the various EU country clusters.

Starting from Nordic and Anglo-Saxon countries (Table 1A) it has to be noticed that no clear patterns emerge as concerns gender differences: in Sweden and Ireland no large gaps emerge in 2014 (in 2008 in Ireland females even had a higher probability than males of being active at older ages), while in Denmark, Finland and the UK retirement in the age group 60-65 is more frequent among females than among males (note that, as already pointed out, we are not including in our analyses inactive individuals and inactivity at all ages is more frequent among females than among males). Apart from Ireland, divorced or widow tend to work longer, maybe in order to increase their incomes having not at disposal the incomes earned by a partner. Those who report to have good health usually tend to work more than those who rate themselves as characterized by fair or bad health; however, large gaps in probabilities advantaging those with good health only emerge in Ireland. Finally, and very interesting to our scopes, no clear patterns emerge as regards the link between educational attainment and the probability of being active at older ages when controlling for other individual characteristics (note instead that employment rates shown in Section 3 can be interpreted as mere bivariate relations between education and employment probability). Indeed, a steady increase in activity rates when education rises only characterizes Denmark, while in Sweden only tertiary graduates are characterized by a much higher probability and no large differences between upper secondary and tertiary graduates emerge in Finland. Conversely, in the two Anglo-Saxon countries, once controlling for the other individual features, the high skilled tends to retire earlier than the low skilled.

In all Continental countries (Table 1B) except for France males retire later than females and no longer working lives characterize divorced and widows. Apart from France and Netherlands where no large differences emerge, a good health is associated with a higher probability of being active at age 60-65. Finally, tertiary graduates tend to work longer than upper secondary and at most lower secondary graduates everywhere, even if the size of the gaps in probability largely differs across countries and is maximum in France and minimum in Netherlands.

Southern countries follow a mixed pattern as concerns female activity rates at older ages (Table 1C): they tend to retire earlier than males in Cyprus, Greece and Italy, but later than males in Spain and (slightly) Portugal. As concerns, marital status no clear patterns emerge, while those with self-rated bad health are less likely to be active after age 60. However, consistently with the features of a pension system that takes into account health conditions and arduous jobs in an imperfect way, the estimated differences in the probability of continuing to be active after 60 according to self-rated health status are not large in Italy. Finally, clear differences in "multivariate activity rates" emerge among Southern countries when estimating the association between education and the activity probability at older ages: indeed, apart from Italy, tertiary graduates are characterized by a lower probability of being still active than those with at most a lower secondary or an upper secondary degree (only in Greece upper secondary educated are less likely to be active than tertiary graduates).

In all Eastern European countries, higher activity rates characterize males, singles and individuals with a good self-rated health (Table 1C). Furthermore, the probability of being active is positively correlated with the educational attainment apart from Hungary where no large differences emerge and the highest estimated AME characterizes those with at most a lower secondary degree.

Apart from Estonia, large gaps in activity rates by gender emerge in Baltic countries plus the countries that acceded to the EU in 2007 (Romania and Bulgaria) and males are more active than females (Table 1E). No clear patterns emerge as concerns marital status while self-rated health is positively associated to the probability of being active everywhere. Finally, in all countries tertiary graduates are active longer than lower skilled individuals, even if in Bulgaria and Romania those with at most a lower secondary education have a probability to be active higher than those holding an upper secondary diploma.

The "full model" allows us to also estimate the association between the current occupation or the past occupation for those who are retired and the probability of being active also controlling for years of experience in the labour market (and its square) that is a good proxy for controlling whether individuals fulfil possible requirements for early retirement[3].

First, it must be pointed out that the cross-country link between education and probability to be active previously shown in Tables 1A-1E does not change when we also control for occupation and experience (two variables that are clearly correlated with education; Tables 2A-2D).

As concerns the link between occupation and activity probability the picture is mixed in EU15 countries (Table 2A). The probability of continuing working is indeed the highest among managers in Austria, Germany, Spain, Finland, Italy, Portugal and Sweden, while the highest probability characterizes blue-collars in Belgium, France, Ireland and the UK. Different patterns also emerge in countries that acceded to the EU since 2005 (Table 2C), where a much higher propensity to continue working for managers with respect to white-collars and blue-collars regards Czech Republic, Lithuania and Slovakia, while in Cyprus and Latvia blue-collars are characterized by the highest probability of being active in the age class 60-65.

Summarizing, multivariate estimates on the individual characteristics associated to activity rates at older ages show that EU countries are characterized by different patterns, that, furthermore, change also within each country cluster identified by the welfare regime literature. In particular, while in some countries the high skilled workers (tertiary educated or managers) tend to retire later, in other countries the trend is reversed and, keeping constant the other variables, low and medium skilled workers are characterized by a probability of being active when aged 60-65 higher than high skilled workers.

Comparing Italy, France and Germany clearly shows different country patterns (Figures 13A-14C): in Italy in 2014 the probability of being active estimated by the full model is much larger for tertiary educated (48.6%) than for upper secondary (39.3%) and at most lower secondary educated (32.4%), and for managers (44.0%) than for blue-collars (36.1%) and white-collars (35.1%); in Germany the differences between high, medium and low skilled individuals are rather limited (considering both education or occupation as a proxy of skills); in France managers tend to retire earlier than blue-collars but, on average, tertiary graduates are much more likely to be active than at most lower secondary or upper secondary educated individuals.

3 The full model cannot be run for all EU27 countries since the variable about experience is not recorded in all countries in the EU-SILC.

Tab. 1A. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Short model"[a]. Nordic and Anglo-Saxon countries.

	2008					2014				
	DK	FI	SE	IE	UK	DK	FI	SE	IE	UK
Gender										
Male	41.3%	57.8%	60.7%	65.6%	67.5%	57.2%	50.4%	64.3%	68.8%	62.5%
Female	25.5%	45.9%	60.6%	78.2%	40.7%	35.7%	43.2%	62.6%	68.0%	45.7%
Marital status										
Single	39.2%	56.4%	59.3%	56.4%	32.9%	43.8%	48.3%	61.1%	66.1%	52.8%
Married	33.7%	51.0%	60.9%	69.9%	55.5%	44.6%	45.9%	63.7%	70.3%	53.0%
Divorced-widow	31.4%	51.2%	61.3%	78.8%	56.0%	52.2%	49.2%	69.5%	57.2%	60.4%
Self-rated health										
Bad health	13.3%	49.4%	66.4%	33.6%	25.9%	47.0%	34.6%	57.7%	53.7%	34.9%
Fair health	27.2%	47.1%	67.7%	65.6%	48.2%	41.0%	47.8%	59.9%	54.6%	52.8%
Good health	38.3%	54.5%	58.7%	71.6%	56.9%	48.0%	47.2%	64.5%	71.9%	56.0%
Education										
At most low. sec.	24.2%	49.1%	55.8%	76.7%	56.1%	36.3%	43.0%	58.9%	79.4%	56.0%
Up. sec.	38.1%	54.8%	58.7%	67.5%	54.9%	44.4%	48.0%	59.2%	68.7%	57.5%
Tertiary	47.4%	52.1%	68.1%	55.5%	50.4%	54.2%	48.6%	72.2%	54.8%	49.5%
Sample size	502	797	546	608	1262	590	1023	455	539	1019

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 1B. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Short model"[a]. Continental countries.

	2008					2014				
	AT	BE	DE	FR	NL	AT	BE	DE	FR	NL
Gender										
Male	14.8%	22.3%	33.2%	11.5%	37.6%	22.7%	30.2%	55.5%	17.6%	55.9%
Female	5.3%	19.4%	29.3%	14.9%	33.5%	8.1%	26.5%	50.6%	22.8%	50.8%
Marital status										
Single	7.5%	36.2%	31.4%	12.8%	40.6%	23.7%	32.5%	61.8%	23.2%	54.0%
Married	10.7%	21.3%	33.1%	13.5%	36.2%	14.6%	28.5%	52.8%	19.9%	55.2%
Divorced-widow	11.1%	10.9%	23.8%	9.6%	29.5%	20.3%	26.8%	48.9%	15.2%	41.5%
Self-rated health										
Bad health	6.8%	15.2%	18.9%	14.6%	19.0%	8.4%	25.3%	37.0%	18.3%	46.7%
Fair health	6.9%	23.3%	33.1%	9.4%	35.5%	10.9%	26.9%	51.0%	19.8%	53.5%
Good health	13.3%	21.1%	32.7%	14.7%	37.0%	19.5%	29.3%	56.8%	20.2%	54.3%
Education										
At most low. sec.	9.1%	16.4%	29.8%	12.4%	32.4%	9.8%	19.5%	50.9%	18.2%	48.7%
Up. sec.	8.7%	25.5%	27.9%	9.2%	36.0%	13.3%	27.6%	51.8%	15.2%	54.3%
Tertiary	16.9%	22.8%	43.9%	25.4%	39.9%	25.1%	37.9%	59.0%	34.1%	56.8%
Sample size	724	741	2085	1337	640	786	763	2159	1743	802

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 1C. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Short model"[a]. Southern countries.

	2008					2014				
	CY	EL	ES	IT	PT	CY	EL	ES	IT	PT
Gender										
Male	52.9%	40.7%	45.9%	29.9%	43.1%	53.2%	34.4%	49.2%	41.2%	36.1%
Female	40.4%	40.5%	53.9%	14.2%	40.3%	42.4%	27.6%	57.4%	30.9%	36.5%
Marital status										
Single	42.0%	45.4%	46.9%	27.2%	39.8%	63.0%	35.8%	43.0%	44.6%	55.8%
Married	49.4%	40.3%	49.8%	22.7%	42.7%	47.8%	30.8%	53.0%	35.5%	35.1%
Divorced-widow	37.7%	41.6%	40.0%	28.2%	37.0%	53.5%	39.5%	56.4%	40.9%	33.5%
Self-rated health										
Bad health	36.6%	23.6%	35.6%	16.8%	31.7%	38.8%	25.8%	36.3%	33.8%	30.0%
Fair health	47.4%	29.0%	48.7%	21.7%	44.0%	46.8%	27.5%	55.7%	34.7%	38.5%
Good health	51.7%	47.8%	49.8%	26.4%	49.6%	51.4%	35.1%	53.0%	39.1%	37.7%
Education										
At most low. sec.	57.0%	42.6%	48.6%	19.6%	44.8%	54.0%	37.5%	53.8%	32.3%	37.4%
Up. sec.	37.9%	31.5%	44.4%	27.1%	24.1%	48.0%	23.9%	50.0%	38.8%	36.3%
Tertiary	34.6%	43.0%	50.0%	39.1%	32.8%	40.9%	30.0%	49.5%	50.7%	28.9%
Sample size	472	820	1415	2852	660	652	1182	1526	2818	1112

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 1D. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Short model"[a]. Eastern countries.

	2008					2014				
	CZ	HU	PL	SI	SK	CZ	HU	PL	SI	SK
Gender										
Male	32.7%	10.6%	29.3%	10.1%	24.4%	40.7%	28.4%	45.1%	15.7%	28.9%
Female	7.8%	5.5%	8.4%	1.3%	4.0%	13.9%	14.0%	9.9%	3.2%	11.9%
Marital status										
Single	17.7%	6.4%	20.3%	4.4%	20.0%	30.9%	24.3%	34.3%	19.0%	25.5%
Married	18.4%	8.5%	17.0%	5.5%	12.5%	24.3%	21.0%	24.5%	6.8%	20.5%
Divorced-widow	22.2%	5.9%	19.1%	3.5%	17.7%	24.5%	21.0%	26.4%	9.5%	16.8%
Self-rated health										
Bad health	9.2%	6.0%	14.4%	4.4%	6.6%	16.3%	16.2%	18.2%	7.3%	12.2%
Fair health	18.1%	7.1%	16.9%	4.3%	13.8%	20.8%	22.1%	25.4%	8.6%	19.4%
Good health	22.7%	10.1%	21.0%	6.4%	17.6%	30.6%	22.9%	28.0%	10.4%	24.4%
Education										
At most low. sec.	12.5%	5.9%	15.3%	3.2%	10.7%	17.8%	23.7%	18.5%	9.3%	14.5%
Up. sec.	17.4%	5.2%	15.2%	3.1%	11.3%	23.2%	20.5%	24.7%	6.1%	18.6%
Tertiary	34.3%	17.0%	30.7%	14.3%	25.1%	38.1%	21.1%	35.5%	18.7%	36.4%
Sample size	1871	1227	1822	703	876	1293	1475	2552	875	1198

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 1E. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Short model"[a]. Baltic countries plus Bulgaria and Romania.

	2008					2014				
	BG	EE	LT	LV	RO	BG	EE	LT	LV	RO
Gender										
Male	39.4%	56.6%	44.7%	47.2%	16.5%	51.6%	46.5%	51.2%	42.3%	32.5%
Female	12.5%	34.8%	21.5%	32.3%	12.3%	32.9%	46.2%	28.4%	39.8%	12.9%
Marital status										
Single	48.3%	28.5%	34.9%	42.3%	34.5%	56.4%	49.1%	24.4%	33.7%	33.6%
Married	22.9%	45.7%	28.3%	40.5%	14.7%	42.3%	46.2%	34.4%	40.4%	23.2%
Divorced-widow	26.5%	43.2%	36.4%	33.7%	11.6%	34.7%	45.3%	44.5%	44.6%	17.8%
Self-rated health										
Bad health	20.2%	23.9%	17.3%	22.3%	11.8%	27.1%	24.3%	20.0%	26.8%	7.3%
Fair health	21.0%	44.6%	32.7%	40.0%	11.8%	41.6%	45.6%	37.1%	39.8%	18.2%
Good health	31.2%	56.9%	40.8%	61.5%	18.0%	45.6%	59.1%	56.2%	57.3%	31.2%
Education										
At most low. sec.	19.6%	36.8%	19.6%	34.1%	19.8%	43.2%	35.6%	18.3%	33.9%	29.8%
Up. sec.	25.7%	37.2%	29.8%	37.0%	8.8%	37.7%	43.1%	35.7%	39.9%	16.6%
Tertiary	30.6%	58.8%	44.4%	50.7%	12.9%	49.9%	56.0%	46.2%	46.7%	34.5%
Sample size	961	544	720	729	1257	1001	761	748	875	1581

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 2A. Estimated probability to be active of individuals aged 60-65 according to individual characteristics (% values). "Full model"[a]. EU15 countries. 2014.

	AT	BE	DE	EL	ES	FI	FR	IE	IT	NL	PT	SE	UK
Gender													
Male	24.6	31.5	53.8	34.7	52.0	48.6	17.9	66.1	40.9	62.0	34.0	63.9	55.8
Female	7.2	26.9	52.1	27.2	52.8	44.0	23.2	72.5	31.3	57.4	38.9	63.6	53.5
Marital status													
Single	24.3	32.0	61.9	37.5	43.3	48.3	23.8	68.7	44.7	64.8	53.9	61.5	54.2
Married	15.4	29.5	52.7	30.8	53.0	45.3	20.0	69.9	35.4	61.5	35.0	63.0	53.7
Divorced-widow	17.5	27.4	48.7	40.5	56.3	49.2	16.3	55.1	41.0	43.1	35.0	73.3	61.5
Self-rated health													
Bad health	8.5	26.9	38.1	25.5	36.9	32.7	18.6	63.5	33.1	54.2	32.9	61.3	40.5
Fair health	11.5	27.0	51.5	27.7	55.7	48.9	19.7	54.3	35.3	60.0	37.4	62.1	53.5
Good health	20.1	30.3	56.2	35.2	52.9	46.0	20.7	71.3	38.9	60.7	36.9	64.2	56.2
Education													
At most low. sec.	10.8	18.2	52.8	36.1	53.5	41.0	17.8	73.2	32.4	52.1	34.8	58.3	52.7
Up. sec.	14.4	28.7	51.1	24.7	50.3	48.5	15.8	68.7	39.3	59.5	45.1	61.5	57.1
Tertiary	23.3	41.1	58.6	32.7	50.2	48.0	35.2	63.2	48.6	65.2	39.8	70.1	55.0
Occupation													
Blue-collar	21.0	32.8	51.8	29.0	52.3	43.7	24.9	74.2	36.1	58.7	36.5	65.1	62.9
White-collar	12.7	30.4	52.2	32.9	51.8	44.4	17.8	71.2	35.1	62.8	35.7	60.8	55.1
Manager	23.0	26.8	57.2	32.1	54.0	53.5	21.8	56.8	44.0	57.5	37.6	68.1	51.0
Sample size	750	733	2135	1170	1511	993	1656	520	2801	673	1110	407	999

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education, occupation.

Source: elaborations on EU-SILC data

Tab. 2B. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Full model"[a]. EU15 countries. 2008.

	AT	BE	DE	ES	FR	IE	IT	NL	PT
Gender									
Male	15.0%	24.4%	31.4%	44.9%	12.3%	61.4%	30.2%	40.6%	40.2%
Female	5.9%	22.6%	31.0%	57.7%	14.4%	83.9%	13.9%	35.1%	45.5%
Marital status									
Single	7.9%	41.4%	32.0%	49.9%	12.6%	57.7%	28.5%	42.0%	45.5%
Married	11.3%	23.6%	32.9%	50.1%	13.6%	69.6%	22.6%	39.5%	42.2%
Divorced-widow	11.7%	12.5%	23.0%	39.6%	10.4%	79.4%	28.1%	28.8%	40.8%
Self-rated health									
Bad health	7.1%	18.6%	21.6%	36.1%	15.7%	40.3%	16.7%	17.6%	31.9%
Fair health	7.1%	26.1%	32.0%	51.2%	9.8%	70.0%	21.9%	35.9%	44.2%
Good health	14.1%	23.5%	32.6%	49.3%	14.6%	70.6%	26.4%	40.3%	49.6%
Education									
At most low. sec.	8.8%	17.8%	28.3%	49.9%	13.9%	73.2%	20.9%	36.8%	44.5%
Up. sec.	9.5%	29.1%	28.6%	48.8%	9.0%	69.2%	26.4%	39.8%	27.6%
Tertiary	17.3%	25.4%	42.2%	45.3%	21.3%	64.0%	32.5%	39.3%	35.7%
Occupation									
Blue-collar	14.0%	20.0%	31.8%	43.7%	12.2%	66.6%	19.0%	28.8%	33.0%
White-collar	10.0%	21.2%	29.0%	46.5%	11.7%	74.3%	21.9%	35.9%	42.6%
Manager	11.6%	29.1%	40.9%	61.4%	17.0%	67.7%	33.8%	46.0%	60.9%
Sample size	684	642	2030	1352	1249	589	2832	557	651

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education, occupation. Source: elaborations on EU-SILC data

Tab. 2C. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Full model"[a]. New accession countries. 2014.

	BG	CY	CZ	EE	HU	LT	LV	PL	SK
Gender									
Male	53.3%	51.3%	37.8%	45.0%	28.9%	49.5%	41.6%	39.6%	28.5%
Female	31.9%	47.0%	14.7%	47.4%	14.1%	28.2%	40.9%	12.1%	12.5%
Marital status									
Single	50.8%	62.1%	28.8%	47.4%	25.0%	22.1%	39.1%	33.5%	26.3%
Married	42.6%	48.3%	24.3%	47.0%	21.2%	33.3%	40.3%	24.4%	20.6%
Divorced-widow	36.5%	57.4%	25.8%	44.8%	21.5%	46.7%	44.1%	26.8%	17.6%
Self-rated health									
Bad health	26.5%	43.2%	17.5%	31.0%	16.9%	23.2%	30.4%	20.2%	13.5%
Fair health	42.4%	46.5%	21.2%	45.4%	22.6%	36.7%	39.6%	25.8%	19.6%
Good health	45.6%	52.3%	29.5%	55.3%	22.7%	49.3%	55.2%	26.2%	24.1%
Education									
At most low. sec.	42.1%	48.2%	20.2%	39.3%	25.5%	24.9%	36.4%	19.7%	15.0%
Up. sec.	39.0%	49.9%	22.6%	43.6%	19.9%	36.9%	40.1%	24.4%	18.8%
Tertiary	49.3%	52.4%	39.0%	53.8%	23.3%	37.7%	45.9%	34.3%	36.3%
Occupation									
Blue-collar	36.0%	58.2%	17.7%	44.3%	18.9%	32.8%	43.9%	22.7%	18.5%
White-collar	44.1%	49.1%	25.8%	46.7%	23.6%	31.3%	38.8%	25.1%	20.4%
Manager	44.5%	40.3%	28.6%	49.4%	19.3%	45.0%	42.6%	27.6%	25.3%
Sample size	988	640	1291	755	1449	701	866	2546	1177

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education, occupation. Source: elaborations on EU-SILC data

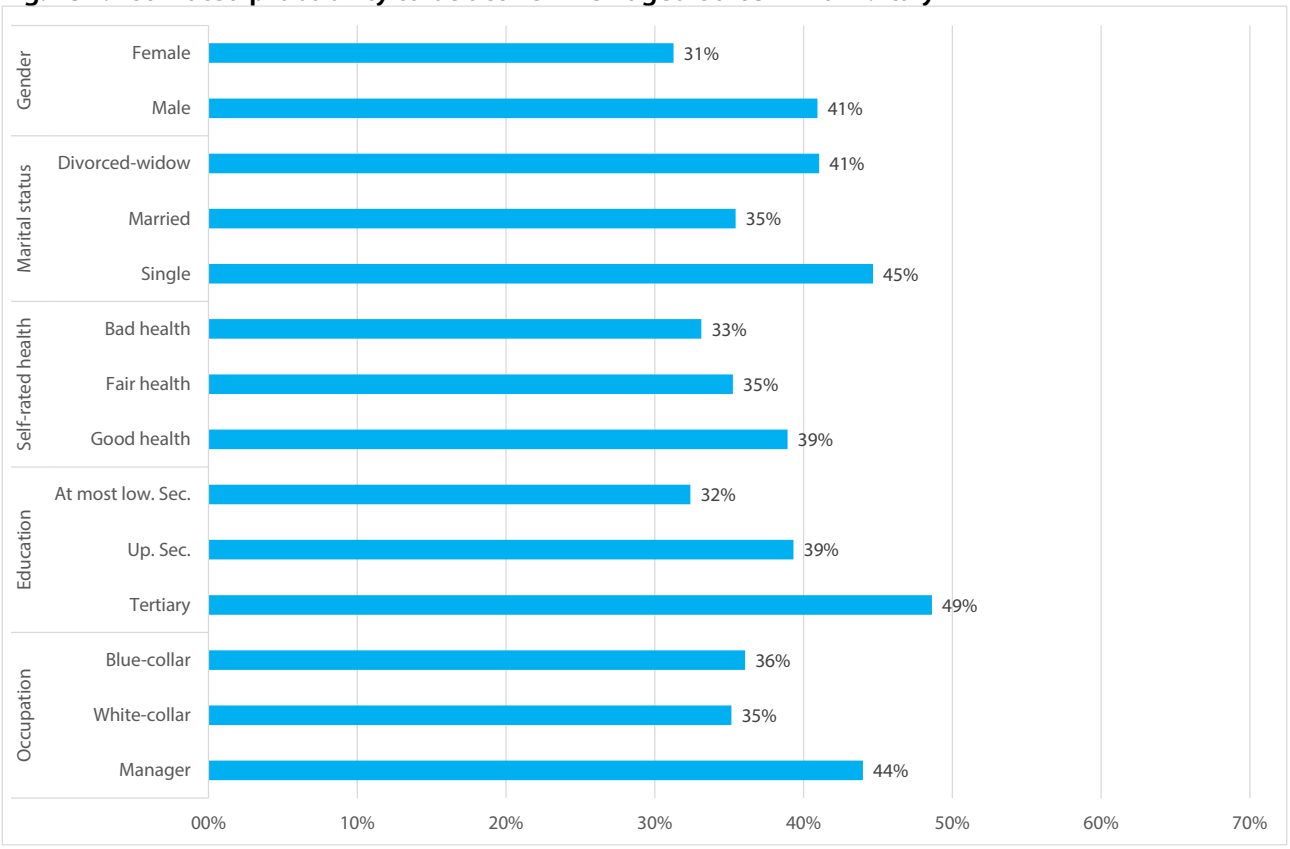
Tab. 2D. Estimated probability to be active of individuals aged 60-65 according to individual characteristics. "Full model"[a]. New accession countries. 2008.

	BG	CY	CZ	EE	HU	LT	LV	PL	RO	SI
Gender										
Male	38.6%	49.0%	25.5%	50.5%	0.1%	40.2%	43.9%	26.4%	16.0%	12.5%
Female	12.9%	53.1%	10.7%	38.9%	0.8%	23.9%	36.4%	9.6%	13.2%	1.0%
Marital status										
Single	42.1%	43.6%	16.8%	36.7%	2.3%	37.5%	47.6%	21.2%	33.8%	6.9%
Married	23.4%	51.0%	18.6%	44.4%	0.6%	28.6%	40.9%	16.9%	14.7%	4.8%
Divorced-widow	26.1%	44.2%	21.5%	44.1%	0.5%	36.1%	34.6%	20.1%	12.7%	5.2%
Self-rated health										
Bad health	20.9%	43.5%	11.0%	33.3%	1.0%	19.1%	25.9%	15.7%	11.2%	3.6%
Fair health	21.5%	49.4%	18.2%	44.0%	0.4%	33.1%	40.3%	17.0%	12.5%	3.3%
Good health	30.6%	52.6%	21.5%	50.3%	0.4%	37.1%	57.2%	20.2%	18.1%	7.1%
Education										
At most low. sec.	18.7%	48.1%	9.2%	39.1%	0.6%	24.0%	36.4%	17.6%	23.5%	1.2%
Up. sec.	26.2%	48.4%	16.8%	39.7%	0.6%	30.0%	38.1%	15.2%	9.9%	3.6%
Tertiary	33.1%	61.6%	42.9%	53.0%	0.8%	38.4%	47.1%	26.7%	5.7%	10.0%
Occupation										
Blue-collar	26.6%	60.0%	17.7%	40.8%	0.7%	28.9%	41.7%	13.8%	8.6%	2.7%
White-collar	22.5%	53.7%	18.9%	41.8%	0.5%	29.5%	38.0%	17.5%	15.7%	4.1%
Manager	26.8%	23.3%	20.0%	51.5%	0.7%	34.2%	39.7%	21.1%	36.2%	7.2%
Sample size	943	456	1867	539	1131	713	718	1807	1225	657

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education, occupation.

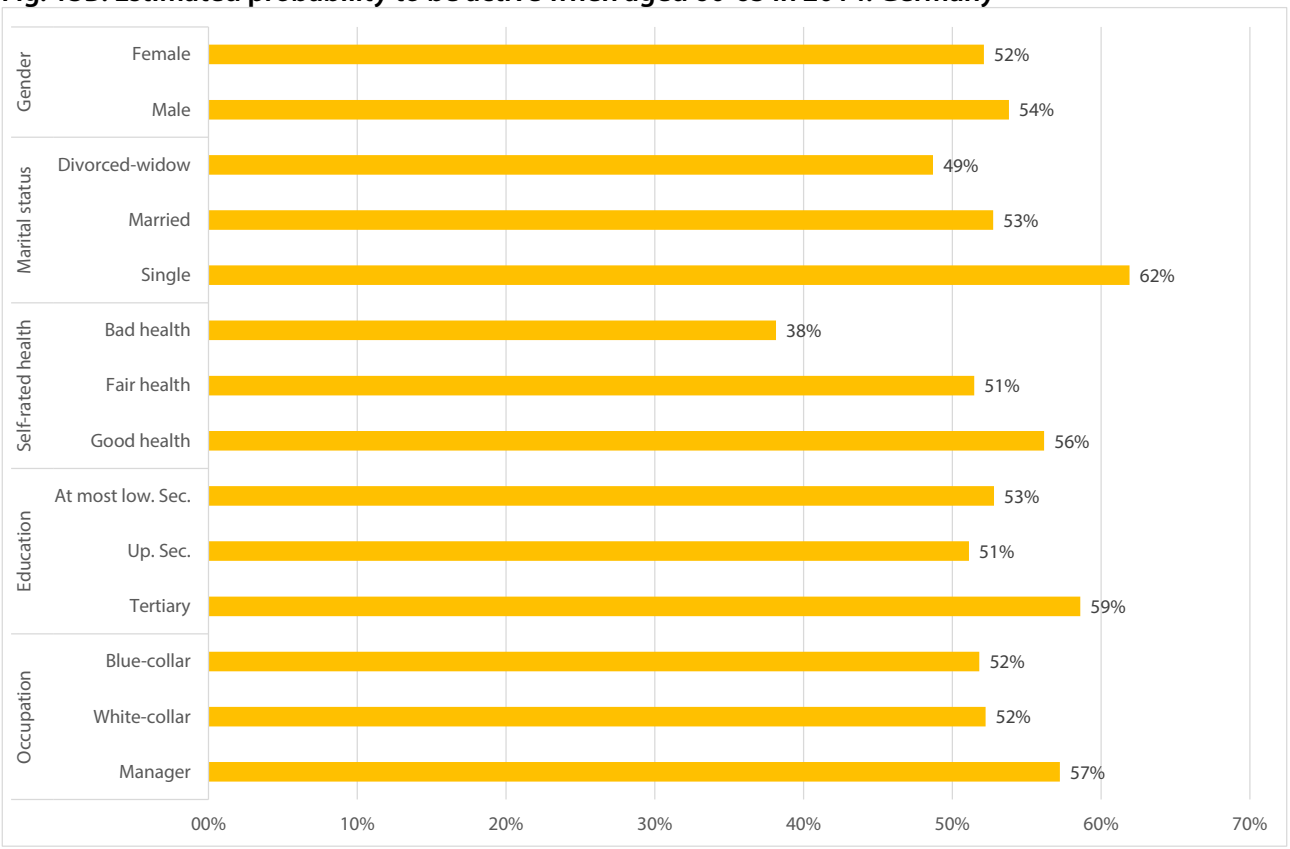
Source: elaborations on EU-SILC data

Fig. 13A: Estimated probability to be active when aged 60-65 in 2014. Italy



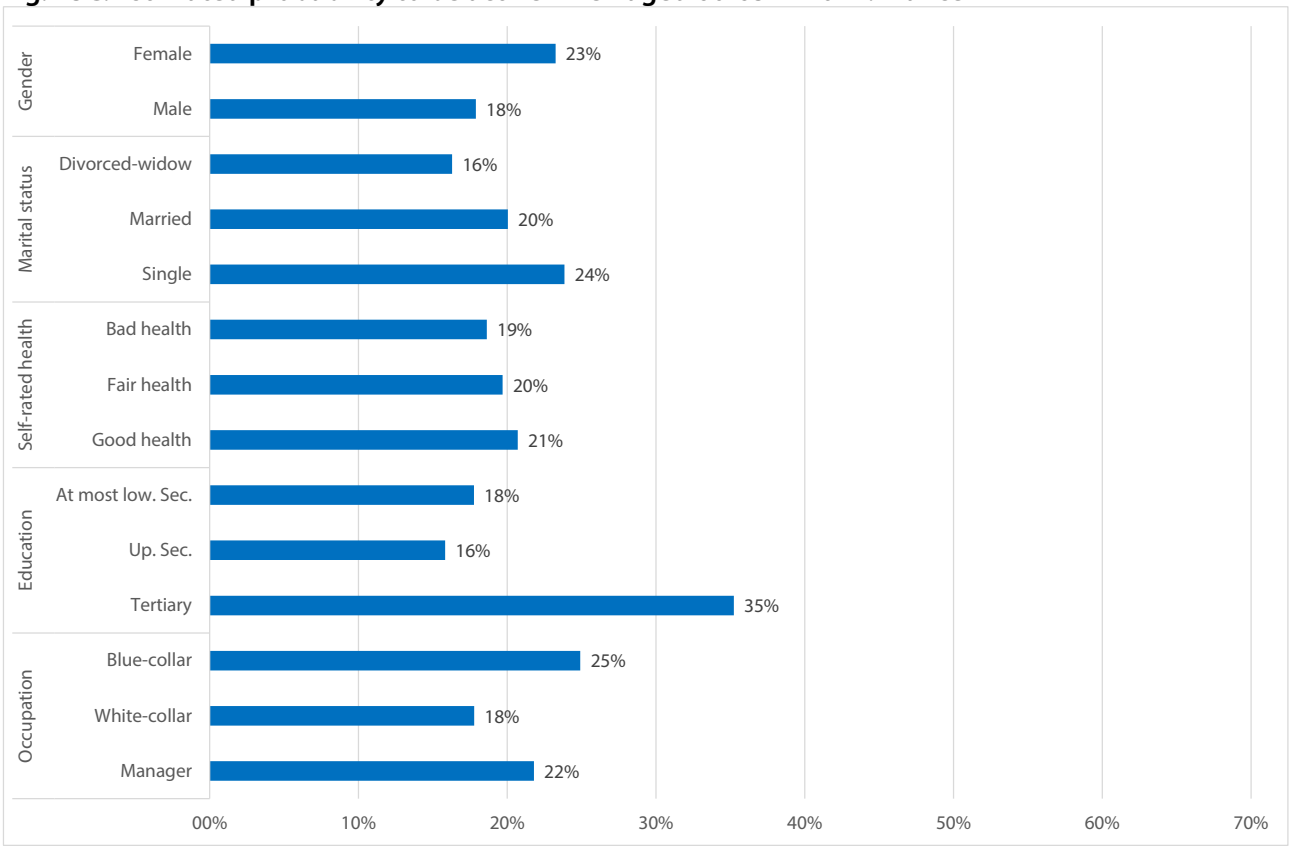
Source: elaborations on EU-SILC data

Fig. 13B: Estimated probability to be active when aged 60-65 in 2014. Germany



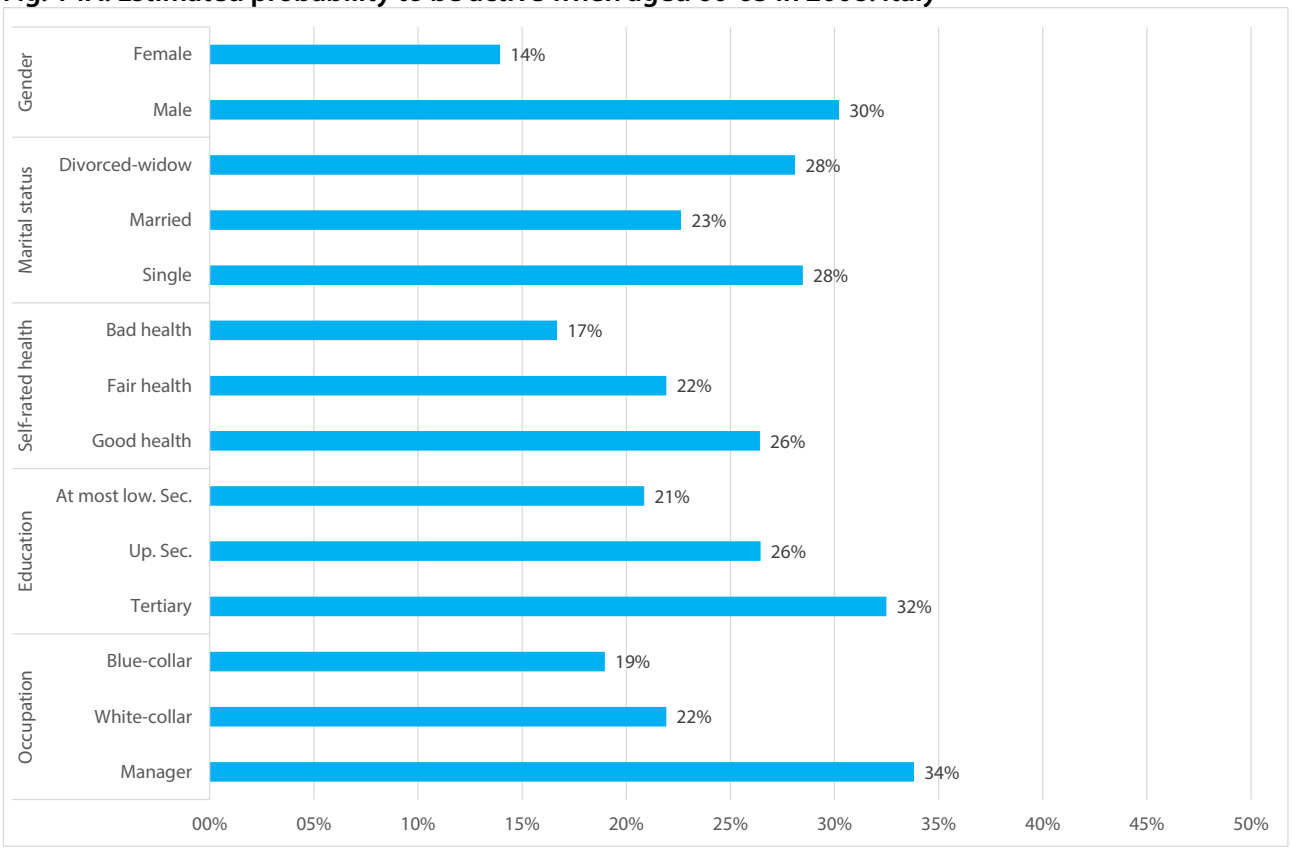
Source: elaborations on EU-SILC data

Fig. 13C: Estimated probability to be active when aged 60-65 in 2014. France



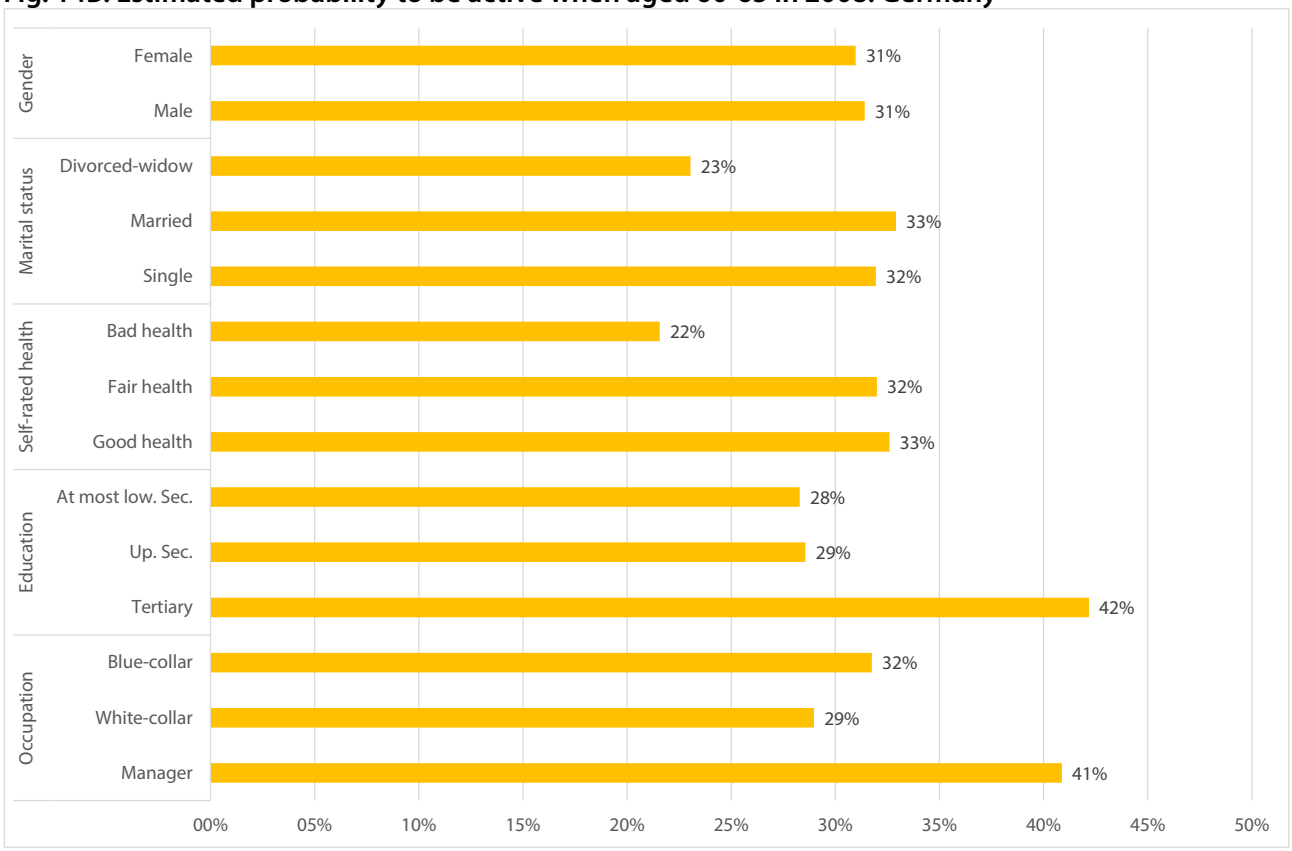
Source: elaborations on EU-SILC data

Fig. 14A: Estimated probability to be active when aged 60-65 in 2008. Italy



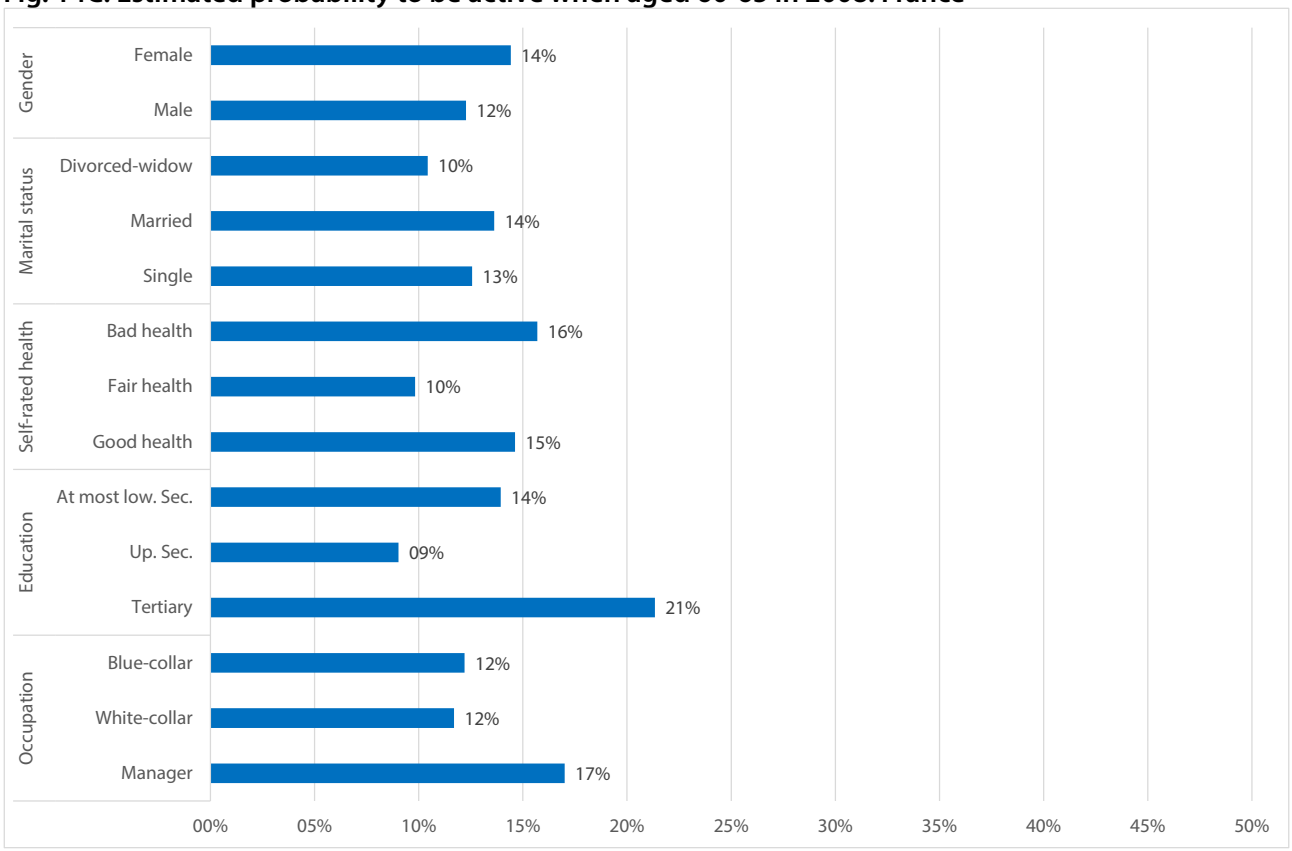
Source: elaborations on EU-SILC data

Fig. 14B: Estimated probability to be active when aged 60-65 in 2008. Germany



Source: elaborations on EU-SILC data

Fig. 14C: Estimated probability to be active when aged 60-65 in 2008. France



Source: elaborations on EU-SILC data

5. The characteristics of retired persons who combine pensions with earnings in EU countries

The heterogeneity of older individuals with respect to their chances to continue working at older ages can be also assessed looking at the characteristics of individuals who continue to work even after the retirement.

To this end we have defined as "working retired" those individuals aged 60-75 who combine pensions with labour income and have analysed, by making use of logit regressions based on EU-SILC data, the association between a set of individual characteristics and their probability of being a "working retired".

The share of individuals who combine pensions with earnings largely differs across EU countries (Table 3). On average in EU countries 11.8% of retired aged 60-65 received also labour incomes in 2014, while the share amounts to 8.7% and 6.0% among those aged, respectively, 66-70 and 71-75. Note also that the share of working retired, on average, increased since 2008 up to 2014.

Among those aged 60-65 the highest share of working pensioners emerges in Sweden (42,5%) where partial pension schemes exist, followed by Spain (26.1%), Finland (21.6%), Slovenia (21.3%) and Malta (21.0%), while in Greece, Belgium, Ireland, Luxembourg, Romania and the UK this share does not exceed 2.0%. The three Nordic countries are instead the countries with the highest share of working pensioners aged 66-70 and 71-75 (in the latter case together with Slovenia).

Among those who combine pensions with earnings, the share of labour income is not negligible (Table 4). The median value of the ratio between earnings and pensions (excluding from the analysis those who do not combine incomes from these two sources) is higher than 20% in all age groups.

Estimates on the association between individual characteristics and the opportunities to continue working after retirement show interesting insights (see Tables 5A-5E concerning the "short model", where occupation and experience in the labour market before the retirement are not controlled for).

In all countries, apart from Slovakia, the probability of continuing working is higher for males than for females, while no clear patterns emerge regarding the association between marital status and the probability of being a working pensioner. In all countries, except for Greece and Romania, having a good self-rated health is associated to a higher probability of combining pensions and labour incomes. In most of countries highly educated workers are characterized by a higher probability of being active also after the retirement. However, the picture differs across countries as in 8 countries in 2014 (Ireland, the UK, Belgium, Greece, Spain, Portugal, Poland and Romania) those holding a tertiary degree are not characterized by a probability of continuing working after retirement higher than those holding at most a lower secondary or an upper secondary degree.

The "full model" also allows us to estimate whether, controlling also for previous labour market experience, those who worked as a manager have a higher probability to combine pensions with earnings once retired, thus further improving their economic wellbeing, or, on the contrary, previously blue-collars continue to work more frequently, maybe to increase their relatively lower pension income (Tables 6A-6E).

Signalling that the opportunity of continuing to work is not an opportunity freely available to all individuals, in most of countries those who worked as a manager before the retirement have a higher probability to earn also labour income once retired. However, confirming the existence of differences across countries – and differences unrelated to specific country clusters – in 7 EU countries (Belgium, Germany, Netherlands, Greece, Hungary, Poland and Lithuania) the estimated probability of combining pensions with labour incomes is lower for ex managers than for those who worked before retirement as a blue-collar or as a white-collar.

Also estimates about the individual characteristics associated to the probability to continue to work after retirement confirm, on the one hand, that several individual characteristics significantly influence this probability but that, on the other hand, patterns differ across countries – suggesting complex interactions between workers and firms characteristics and pension rules in affecting individual choices – because in some countries low skilled individuals have higher opportunities of working after retirement than high skilled individuals.

Different country patterns clearly emerge comparing Italy, Germany and France (Figures 15A-16C). In particular, while in Italy the chance of being a working pensioner seems available especially to the most advantaged individuals (i.e. tertiary educated and previous managers), a different picture characterizes Germany – where the highest probability of combining pensions with earnings characterizes blue-collars – and France, where no large gaps in probabilities according to the previous occupation emerge.

Tab. 3: Share of retired combining pensions with earnings, by age class

	60-65		66-70		71-75	
	2008	2014	2008	2014	2008	2014
AT	9.3%	11.9%	4.2%	8.1%	5.7%	2.0%
BE	1.0%	2.0%	1.8%	1.8%	0.8%	1.1%
BG	6.8%	16.9%	5.2%	11.3%	4.4%	6.5%
CY	2.7%	11.9%	3.3%	7.8%	2.8%	8.5%
CZ	6.7%	5.9%	5.0%	7.1%	2.1%	3.1%
DE	7.1%	10.1%	4.6%	9.4%	2.5%	4.5%
DK	23.8%	13.0%	18.9%	18.3%	12.4%	10.4%
EE	7.5%	8.8%	1.4%	10.4%	1.4%	6.6%
EL	n.a.	0.9%	n.a.	1.5%	n.a.	1.5%
ES	1.2%	26.1%	0.9%	11.4%	0.9%	8.4%
FI	n.a.	21.6%	n.a.	19.6%	n.a.	16.5%
FR	11.0%	19.7%	5.6%	7.1%	3.3%	4.7%
HU	10.4%	7.8%	5.6%	6.7%	4.2%	4.6%
IE	1.5%	2.1%	4.5%	2.4%	5.9%	1.5%
IT	14.0%	15.0%	10.5%	9.2%	7.3%	7.1%
LT	6.1%	14.5%	5.6%	10.9%	7.2%	9.2%
LU	2.7%	0.8%	1.8%	1.9%	3.3%	n.a.
LV	14.4%	15.6%	11.8%	7.2%	4.5%	7.2%
MT	2.8%	21.0%	3.6%	13.7%	0.5%	8.6%
NL	12.5%	13.7%	5.8%	8.9%	4.4%	4.9%
PL	1.4%	3.8%	0.5%	2.2%	0.2%	2.7%
PT	2.4%	4.4%	1.8%	4.3%	1.0%	2.5%
RO	2.5%	0.9%	2.8%	2.1%	2.7%	2.8%
SE	n.a.	42.5%	n.a.	30.2%	n.a.	22.7%
SI	14.4%	21.3%	11.4%	14.9%	11.4%	11.4%
SK	4.9%	6.6%	3.6%	4.3%	1.6%	2.6%
UK	1.3%	0.9%	0.9%	1.1%	0.5%	1.0%
Mean	*7.0%*	*11.8%*	*5.0%*	*8.7%*	*3.8%*	*6.0%*

Source: elaborations on EU-SILC data

Tab. 4: Median value of the ratio between earnings and pensions for retired combining pensions with earnings, by age class

	60-65		66-70		71-75	
	2008	2014	2008	2014	2008	2014
AT	11.3%	10.0%	14.8%	15.9%	20.2%	2.2%
BE	27.7%	96.8%	74.1%	47.0%	51.0%	31.7%
BG	50.0%	36.6%	24.7%	47.8%	16.9%	38.5%
CY	9.8%	4.4%	6.8%	10.1%	11.2%	7.2%
CZ	32.2%	33.7%	25.8%	33.0%	19.2%	35.8%
DE	27.9%	23.4%	42.1%	30.1%	32.0%	24.9%
DK	14.6%	0.6%	17.3%	14.2%	5.9%	5.5%
EE	24.7%	18.5%	12.6%	43.5%	7.5%	38.0%
EL	n.a.	48.2%	n.a.	25.6%	n.a.	32.1%
ES	26.2%	21.4%	33.3%	7.7%	32.6%	9.9%
FI	n.a.	8.2%	n.a.	9.8%	n.a.	9.8%
FR	11.5%	35.4%	8.4%	13.9%	7.7%	14.5%
HU	23.1%	28.3%	11.9%	21.2%	7.8%	15.3%
IE	8.2%	42.9%	48.9%	30.8%	30.4%	50.9%
IT	18.3%	16.5%	13.8%	14.2%	15.6%	22.0%
LT	34.7%	64.5%	33.4%	53.1%	26.9%	56.2%
LU	28.5%	21.2%	27.5%	33.5%	n.a.	n.a.
LV	56.0%	45.2%	66.9%	43.3%	68.5%	28.4%
MT	69.1%	28.8%	73.2%	31.9%	34.9%	18.5%
NL	4.7%	16.7%	6.3%	12.7%	9.8%	16.8%
PL	11.1%	24.9%	8.4%	14.5%	16.2%	28.7%
PT	32.0%	57.9%	14.2%	50.1%	23.0%	30.8%
RO	22.3%	13.9%	25.4%	11.4%	18.7%	16.8%
SE	6.4%	27.7%	n.a.	13.2%	n.a.	7.2%
SI	n.a.	7.4%	9.2%	7.7%	9.0%	4.1%
SK	18.4%	17.6%	14.2%	10.1%	8.5%	3.3%
UK	34.9%	27.9%	74.5%	82.0%	36.7%	12.7%
Mean	*25.2%*	*28.8%*	*28.7%*	*27.0%*	*22.2%*	*21.6%*

Source: elaborations on EU-SILC data

Tab. 5A. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Short model"[a]. Nordic and Anglo-Saxon countries.

	2008		2014				
	DK	UK	DK	FI	SE	IE	UK
Gender							
Male	23.6%	1.2%	20.6%	28.5%	33.4%	3.1%	1.9%
Female	12.1%	0.7%	9.9%	15.4%	24.2%	0.7%	0.8%
Marital status							
Single	15.4%	0.5%	15.0%	21.7%	28.8%	4.1%	4.8%
Married	17.4%	0.8%	13.5%	21.4%	29.8%	1.6%	1.0%
Divorced-widow	19.1%	1.6%	17.4%	20.1%	24.5%	3.5%	1.4%
Self-rated health							
Bad health	10.8%	0.9%	7.3%	17.8%	16.8%	0.2%	0.2%
Fair health	15.9%	0.9%	13.3%	19.6%	21.5%	1.0%	0.8%
Good health	19.5%	0.9%	15.7%	23.2%	31.4%	2.6%	1.6%
Education							
At most low. Sec.	13.4%	0.7%	9.3%	17.5%	25.9%	2.6%	0.7%
Up. Sec.	23.2%	1.1%	14.9%	23.7%	25.7%	0.6%	2.5%
Tertiary	21.8%	1.0%	20.2%	24.4%	36.9%	2.4%	1.7%
Sample size	678	1957	668	1340	826	693	1818

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 5B. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Short model"[a]. Continental countries.

	2008				2014				
	AT	DE	FR	NL	AT	BE	DE	FR	NL
Gender									
Male	6.7%	5.0%	9.1%	7.4%	8.1%	1.9%	8.8%	13.6%	10.5%
Female	5.2%	3.5%	5.1%	4.9%	5.9%	0.9%	4.9%	8.9%	5.9%
Marital status									
Single	5.8%	4.9%	11.3%	5.1%	4.7%	1.3%	9.1%	14.6%	3.9%
Married	6.7%	4.0%	6.3%	7.1%	7.4%	1.4%	6.5%	10.8%	9.3%
Divorced-widow	3.5%	4.7%	6.9%	4.3%	6.7%	1.6%	7.5%	13.1%	7.6%
Self-rated health									
Bad health	6.3%	1.7%	3.1%	2.6%	0.9%	0.7%	3.5%	7.0%	1.7%
Fair health	4.3%	2.9%	6.5%	6.3%	6.1%	0.5%	5.1%	9.7%	6.8%
Good health	7.2%	6.3%	8.3%	6.6%	8.6%	1.9%	9.0%	13.0%	9.4%
Education									
At most low. Sec.	5.9%	2.5%	5.9%	4.0%	4.2%	1.1%	3.4%	10.3%	6.0%
Up. Sec.	5.3%	4.0%	8.4%	6.8%	6.8%	2.7%	6.2%	10.7%	9.1%
Tertiary	9.2%	6.8%	7.5%	10.4%	10.1%	0.7%	11.2%	16.5%	10.5%
Sample size	1428	5074	1921	1065	1625	1331	4608	3521	1136

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 5C. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Short model"[a]. Southern countries.

	2008			2014			
	CY	ES	IT	EL	ES	IT	PT
Gender							
Male	5.1%	1.4%	12.2%	1.8%	15.8%	12.0%	5.2%
Female	0.8%	0.3%	8.7%	0.9%	8.6%	8.3%	1.5%
Marital status							
Single	4.0%	0.3%	8.7%	1.0%	12.9%	10.3%	2.7%
Married	3.4%	1.0%	10.1%	1.4%	13.9%	10.2%	3.7%
Divorced-widow	2.0%	1.6%	14.9%	1.5%	11.3%	11.8%	2.5%
Self-rated health							
Bad health	1.2%	1.8%	7.3%	1.7%	8.7%	7.6%	1.4%
Fair health	3.9%	0.9%	10.2%	1.7%	13.7%	9.6%	4.1%
Good health	3.9%	0.8%	12.5%	1.1%	14.4%	12.0%	5.2%
Education							
At most low. Sec.	3.2%	1.0%	9.2%	1.7%	12.3%	8.6%	2.9%
Up. Sec.	2.7%	0.8%	13.8%	1.2%	17.7%	11.7%	7.5%
Tertiary	4.7%	1.0%	17.9%	0.1%	14.9%	19.3%	7.3%
Sample size	724	2345	5532	2596	2483	5477	2391

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.
Source: elaborations on EU-SILC data

Tab. 5D. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Short model"[a]. Eastern countries.

	2008					2014				
	CZ	HU	PL	SI	SK	CZ	HU	PL	SI	SK
Gender										
Male	4.5%	8.9%	0.8%	17.8%	3.8%	6.0%	7.0%	6.2%	21.0%	3.4%
Female	4.5%	5.8%	0.5%	8.9%	3.4%	4.4%	6.1%	1.5%	11.6%	4.6%
Marital status										
Single	6.6%	6.5%	0.8%	15.2%	5.3%	9.8%	10.7%	1.0%	16.5%	3.4%
Married	4.6%	6.9%	0.4%	11.6%	3.4%	4.5%	7.0%	2.7%	16.2%	4.2%
Divorced-widow	3.9%	7.5%	1.3%	13.5%	3.4%	5.8%	5.1%	4.6%	13.1%	3.9%
Self-rated health										
Bad health	1.7%	4.8%	0.4%	9.4%	2.7%	2.2%	3.3%	2.7%	14.9%	1.7%
Fair health	4.7%	7.3%	0.5%	13.0%	3.8%	4.6%	7.5%	3.0%	14.8%	3.6%
Good health	6.3%	10.8%	1.0%	13.8%	4.5%	7.2%	8.4%	3.5%	16.6%	6.9%
Education										
At most low. Sec.	2.4%	7.7%	0.2%	14.5%	2.5%	2.4%	5.0%	6.0%	17.3%	1.5%
Up. Sec.	4.3%	6.1%	0.5%	9.9%	3.8%	4.6%	6.9%	2.0%	11.9%	3.9%
Tertiary	12.1%	8.6%	2.2%	16.1%	4.0%	10.6%	7.6%	1.2%	23.9%	10.1%
Sample size	4072	3249	3938	1438	1975	2785	2875	4265	1734	2155

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.
Source: elaborations on EU-SILC data

Tab. 5E. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Short model"[a]. Baltic countries plus Bulgaria and Romania.

	2008					2014				
	EE	LT	LV	BG	RO	EE	LT	LV	BG	RO
Gender										
Male	4.2%	6.1%	15.2%	10.0%	4.3%	9.1%	11.9%	13.4%	16.2%	2.4%
Female	2.1%	7.0%	7.6%	2.8%	1.3%	7.8%	10.3%	8.5%	8.1%	1.4%
Marital status										
Single	3.7%	2.6%	7.9%	3.0%	3.7%	4.1%	13.8%	9.3%	13.9%	2.8%
Married	1.9%	7.1%	10.8%	5.5%	2.8%	8.2%	10.4%	10.3%	11.2%	1.4%
Divorced-widow	3.8%	6.5%	9.1%	5.5%	2.3%	9.8%	11.2%	10.6%	11.2%	2.5%
Self-rated health										
Bad health	2.6%	5.6%	6.2%	3.1%	0.7%	5.5%	7.4%	6.7%	6.3%	1.1%
Fair health	2.2%	6.9%	10.6%	6.6%	2.7%	8.4%	12.2%	11.8%	12.1%	2.3%
Good health	4.2%	14.3%	24.7%	6.3%	3.7%	12.5%	14.2%	12.4%	13.4%	1.3%
Education										
At most low. Sec.	1.2%	8.1%	9.3%	6.0%	4.4%	7.3%	6.0%	5.6%	8.8%	2.6%
Up. Sec.	3.5%	6.7%	10.4%	4.8%	0.9%	7.6%	12.2%	10.4%	10.2%	1.0%
Tertiary	2.9%	1.5%	11.1%	4.9%	1.2%	10.2%	13.5%	16.5%	19.4%	0.6%
Sample size	1189	1485	1562	1972	2859	1293	1562	1680	2049	3157

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 6A. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Full model"[a]. Nordic and Anglo-Saxon countries.

	2008	2014			
	IE	FI	IE	SE	UK
Gender					
Male	5.9%	27.8%	3.2%	31.6%	1.6%
Female	2.1%	16.0%	0.6%	26.6%	1.0%
Marital status					
Single	4.3%	22.9%	4.8%	32.1%	5.0%
Married	4.4%	21.0%	1.6%	30.3%	1.0%
Divorced-widow	7.1%	21.1%	3.6%	21.8%	1.5%
Self-rated health					
Bad health	2.0%	19.4%	0.5%	19.0%	0.4%
Fair health	2.7%	20.0%	1.0%	23.0%	0.9%
Good health	5.7%	22.7%	2.6%	31.2%	1.5%
Education					
At most low. sec.	5.9%	17.8%	3.4%	27.9%	0.7%
Up. sec.	4.8%	24.3%	0.6%	25.6%	2.4%
Tertiary	1.1%	23.4%	1.9%	35.8%	1.7%
Occupation					
Blue-collar	3.9%	16.5%	0.6%	25.6%	0.4%
White-collar	4.2%	21.7%	2.6%	27.8%	1.2%
Manager	6.6%	24.8%	3.9%	32.3%	1.8%
Sample size	711	1310	686	711	1817

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education.

Source: elaborations on EU-SILC data

Tab. 6B. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Full model"[a]. Continental countries.

	2008					2014				
	AT	BE	DE	FR	NL	AT	BE	DE	FR	NL
Gender										
Male	6.3%	1.6%	4.2%	8.0%	6.0%	6.7%	1.6%	7.1%	12.5%	8.3%
Female	5.8%	1.5%	4.6%	5.9%	6.4%	7.2%	1.3%	6.3%	9.1%	6.1%
Marital status										
Single	5.4%	1.0%	4.9%	11.1%	3.4%	4.6%	1.3%	8.3%	13.2%	3.8%
Married	6.8%	1.6%	4.2%	6.3%	7.1%	7.1%	1.5%	6.6%	10.4%	8.5%
Divorced-widow	3.6%	1.3%	4.7%	6.9%	4.6%	7.3%	1.4%	6.9%	14.2%	5.4%
Self-rated health										
Bad health	6.8%	0.8%	2.0%	3.3%	2.3%	1.1%	0.9%	4.3%	7.1%	2.1%
Fair health	4.5%	1.2%	3.0%	6.7%	6.6%	6.2%	0.5%	5.2%	9.4%	6.9%
Good health	6.9%	1.7%	6.2%	7.9%	6.2%	8.1%	1.9%	8.4%	12.4%	8.0%
Education										
At most low. sec.	6.5%	0.6%	2.0%	5.9%	4.0%	4.7%	0.7%	3.1%	9.3%	4.9%
Up. sec.	5.0%	3.4%	4.4%	8.3%	6.0%	6.7%	2.8%	5.9%	10.6%	8.0%
Tertiary	10.0%	2.5%	7.8%	7.4%	10.8%	8.9%	1.7%	12.9%	16.9%	10.5%
Occupation										
Blue-collar	4.8%	3.0%	9.7%	6.2%	4.1%	5.5%	2.3%	13.7%	11.3%	6.9%
White-collar	6.8%	0.5%	3.2%	6.5%	6.5%	6.4%	1.7%	5.9%	10.4%	8.0%
Manager	4.9%	3.1%	5.4%	9.3%	6.5%	9.4%	0.7%	5.7%	12.6%	6.7%
Sample size	1420	782	4920	1776	1007	1615	1302	4582	3327	1042

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education. Source: elaborations on EU-SILC data

Tab. 6C. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Full model"[a]. Southern countries.

	2008			2014				
	CY	ES	IT	CY	EL	ES	IT	PT
Gender								
Male	4.1%	1.7%	11.6%	13.1%	1.7%	14.6%	11.5%	5.0%
Female	1.2%	0.5%	9.3%	4.2%	1.0%	10.2%	8.8%	1.7%
Marital status								
Single	5.0%	0.5%	8.7%	9.0%	1.4%	12.9%	10.5%	2.5%
Married	3.4%	1.4%	10.1%	9.8%	1.4%	13.6%	10.1%	3.7%
Divorced-widow	2.0%	2.5%	15.4%	9.2%	1.5%	11.6%	12.1%	2.7%
Self-rated health								
Bad health	1.2%	2.7%	7.3%	9.0%	1.7%	9.1%	7.8%	1.4%
Fair health	4.0%	1.4%	10.3%	8.4%	1.7%	13.5%	9.6%	4.1%
Good health	3.7%	1.0%	12.4%	11.2%	1.1%	14.1%	11.8%	5.0%
Education								
At most low. sec.	2.7%	1.6%	9.4%	14.2%	1.7%	11.9%	9.1%	3.0%
Up. sec.	3.9%	1.1%	13.3%	7.9%	1.3%	18.3%	11.2%	7.7%
Tertiary	6.3%	0.9%	15.9%	3.8%	0.2%	15.3%	15.7%	5.6%
Occupation								
Blue-collar	2.8%	1.0%	7.5%	8.1%	1.5%	13.2%	8.1%	1.9%
White-collar	3.3%	1.1%	11.3%	9.4%	1.4%	13.0%	9.7%	3.3%
Manager	3.7%	4.2%	13.6%	15.7%	1.2%	14.4%	15.5%	6.0%
Sample size	724	1686	5532	1165	2596	2462	5477	2385

[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education. Source: elaborations on EU-SILC data

Tab. 6D. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Full model"[a]. Eastern countries.

	2008					2014			
	CZ	HU	PL	SI	SK	CZ	HU	PL	SK
Gender									
Male	3.6%	8.4%	0.8%	19.2%	3.2%	5.2%	6.8%	5.9%	3.3%
Female	5.6%	6.1%	0.5%	8.4%	3.8%	4.8%	6.3%	1.6%	4.9%
Marital status									
Single	6.3%	6.3%	0.8%	15.3%	4.7%	8.6%	10.6%	1.0%	3.4%
Married	4.6%	6.9%	0.4%	11.6%	3.4%	4.6%	6.9%	2.7%	4.3%
Divorced-widow	4.1%	7.5%	1.3%	13.2%	3.6%	5.8%	5.2%	4.5%	4.1%
Self-rated health									
Bad health	2.1%	4.9%	0.5%	9.0%	2.9%	2.3%	3.5%	2.8%	1.8%
Fair health	4.7%	7.2%	0.5%	13.0%	3.8%	4.7%	7.4%	3.0%	3.6%
Good health	5.6%	10.6%	0.9%	14.3%	4.1%	6.6%	8.2%	3.3%	6.8%
Education									
At most low. sec.	2.2%	7.2%	0.3%	13.3%	3.3%	3.0%	4.9%	6.2%	1.9%
Up. sec.	4.5%	6.2%	0.5%	10.4%	3.5%	4.8%	6.4%	2.0%	3.9%
Tertiary	10.6%	9.5%	1.5%	16.0%	4.5%	7.0%	10.2%	1.2%	9.3%
Occupation									
Blue-collar	5.1%	8.5%	0.3%	12.7%	2.1%	3.1%	6.7%	2.2%	3.2%
White-collar	3.8%	6.7%	0.5%	11.8%	4.4%	4.4%	7.4%	3.4%	4.1%
Manager	7.2%	6.3%	0.9%	12.6%	3.0%	9.4%	4.3%	3.0%	5.1%
Sample size	4071	3248	3903	1425	1966	2785	2870	4248	2118

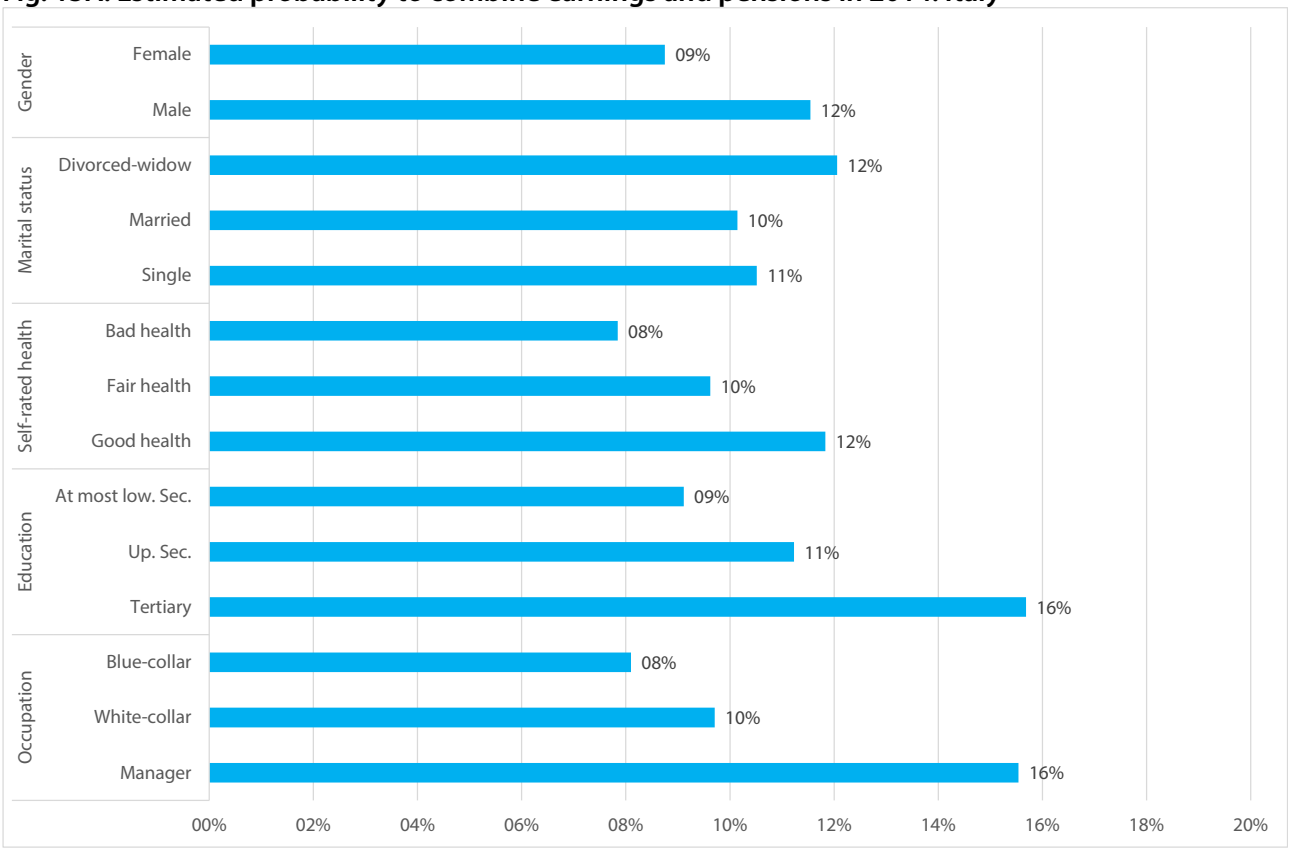
[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education. Source: elaborations on EU-SILC data

Tab. 6E. Estimated probability of combining pensions with labour incomes according to individual characteristics. Individuals aged 60-75. "Full model"[a]. Baltic countries plus Bulgaria and Romania.

	2008					2014			
	EE	LT	LV	BG	RO	EE	LT	LV	BG
Gender									
Male	4.2%	7.8%	12.7%	10.4%	4.2%	9.2%	12.1%	12.5%	15.5%
Female	2.1%	6.4%	8.6%	2.7%	1.3%	7.9%	9.7%	8.1%	8.4%
Marital status									
Single	3.9%	2.7%	9.9%	2.7%	4.1%	4.6%	14.0%	6.7%	14.7%
Married	1.9%	7.1%	10.7%	5.4%	2.8%	8.2%	9.6%	10.0%	11.2%
Divorced-widow	3.8%	6.6%	9.1%	5.4%	2.3%	9.7%	11.6%	10.1%	11.3%
Self-rated health									
Bad health	2.4%	5.4%	6.9%	3.0%	0.7%	5.8%	7.4%	6.1%	6.7%
Fair health	2.3%	7.2%	10.3%	6.4%	2.7%	8.4%	11.6%	11.2%	11.9%
Good health	4.3%	13.5%	22.3%	6.5%	3.7%	12.1%	15.0%	11.8%	13.4%
Education									
At most low. sec.	1.3%	6.9%	8.5%	5.7%	4.6%	9.1%	6.1%	5.9%	9.6%
Up. sec.	3.8%	7.6%	10.8%	5.0%	0.9%	7.7%	11.5%	10.3%	10.1%
Tertiary	2.2%	2.4%	13.3%	4.8%	1.2%	8.6%	13.9%	12.2%	17.5%
Occupation									
Blue-collar	2.7%	7.7%	13.5%	6.5%	1.8%	5.4%	9.5%	7.8%	9.7%
White-collar	1.9%	6.4%	9.3%	4.8%	3.1%	8.3%	11.6%	9.2%	11.2%
Manager	5.1%	4.8%	6.7%	4.8%	2.6%	12.9%	9.7%	13.6%	13.3%
Sample size	1185	1481	1552	1950	2859	1282	1496	1663	2038

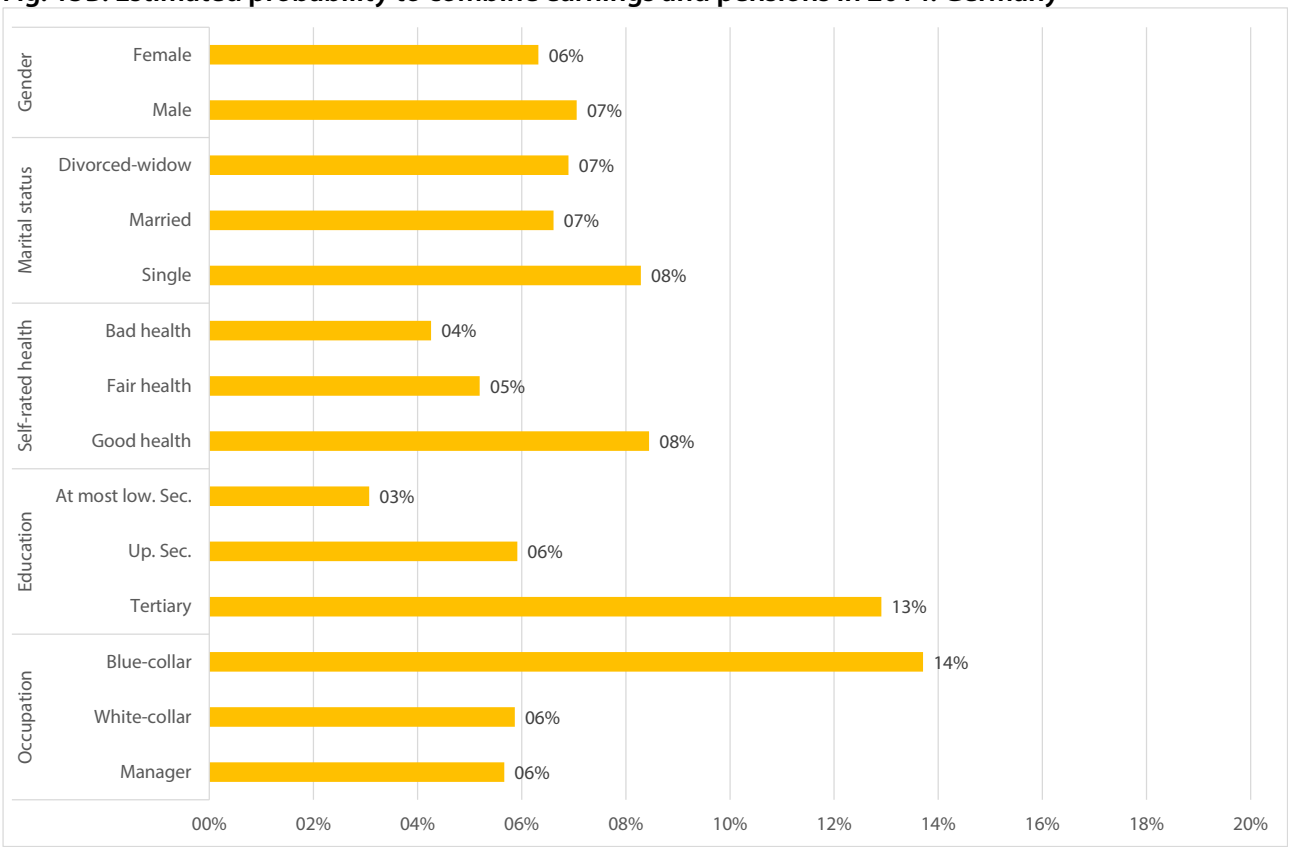
[a] Average marginal effects obtained by logit regressions on probability of being employed or unemployed versus retired (other inactive individuals are not included in the analysis). Control variables: age, age squared, experience, experience squared, gender, marital status, self-rated health, education. Source: elaborations on EU-SILC data

Fig. 15A: Estimated probability to combine earnings and pensions in 2014. Italy



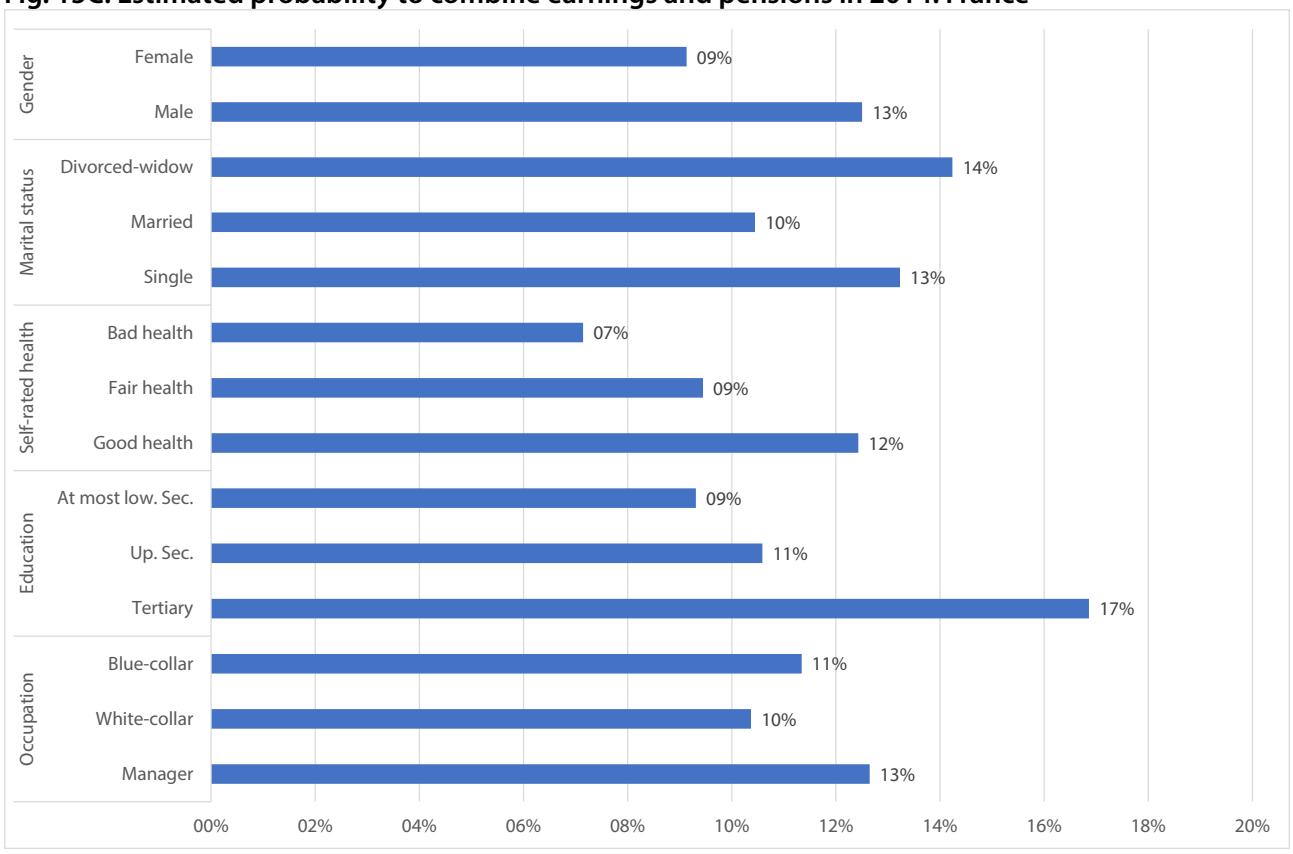
Source: elaborations on EU-SILC data

Fig. 15B: Estimated probability to combine earnings and pensions in 2014. Germany



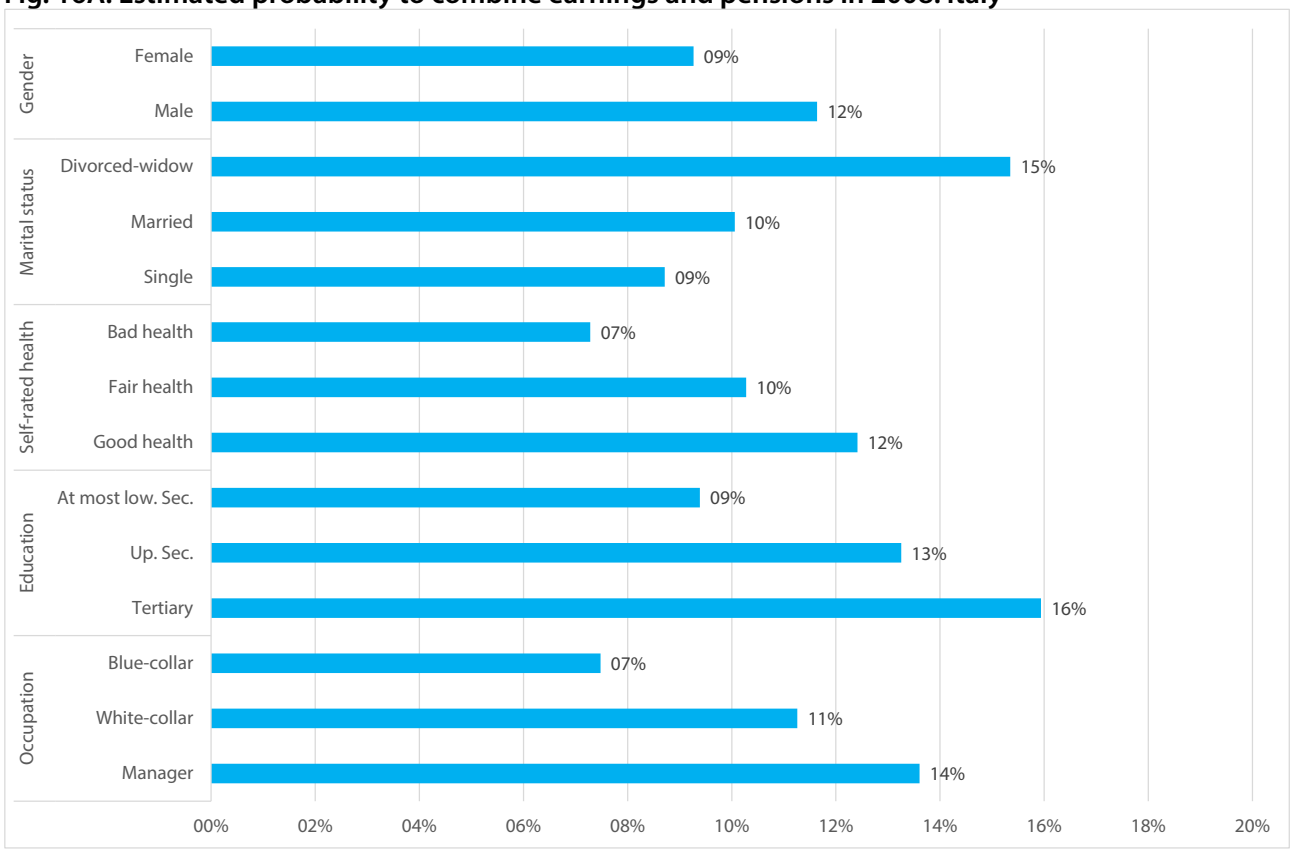
Source: elaborations on EU-SILC data

Fig. 15C: Estimated probability to combine earnings and pensions in 2014. France



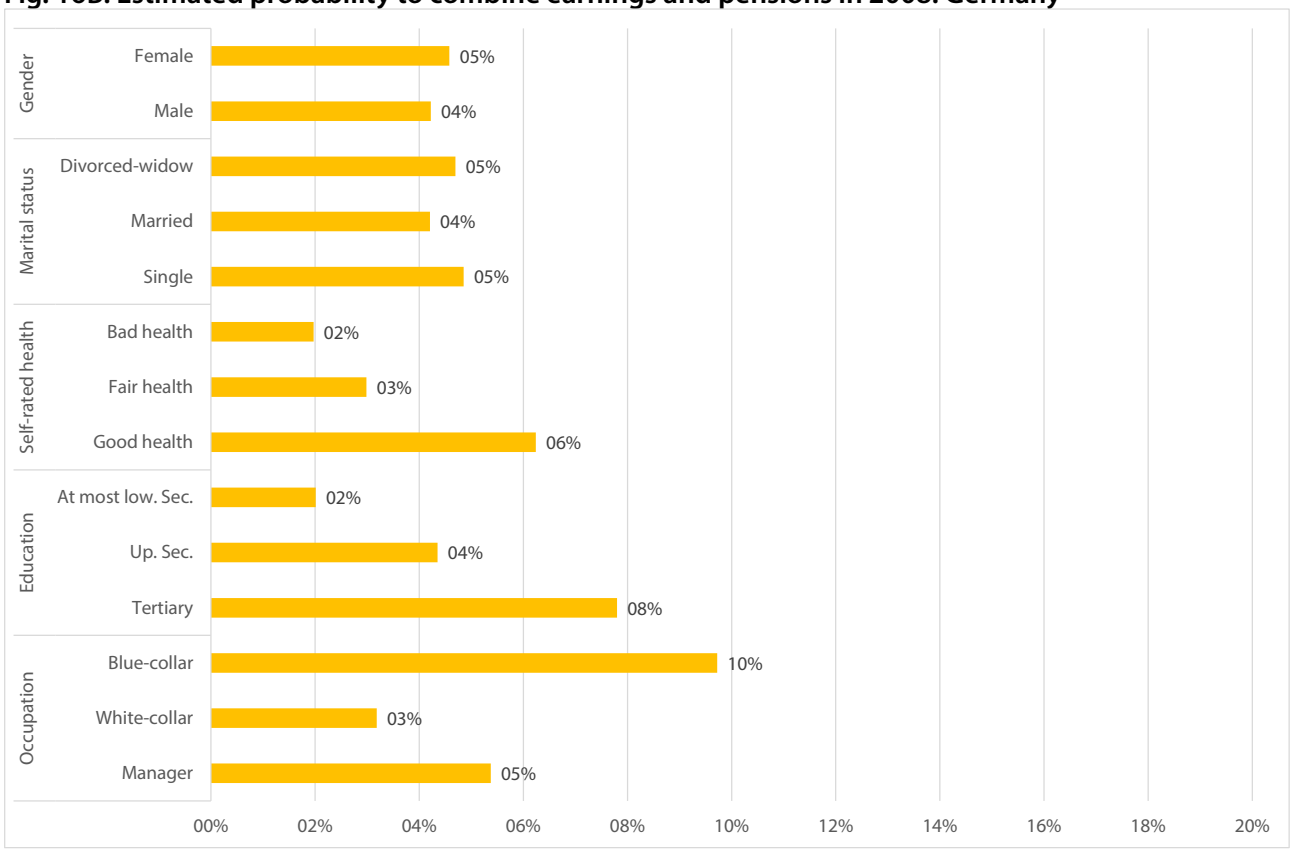
Source: elaborations on EU-SILC data

Fig. 16A: Estimated probability to combine earnings and pensions in 2008. Italy



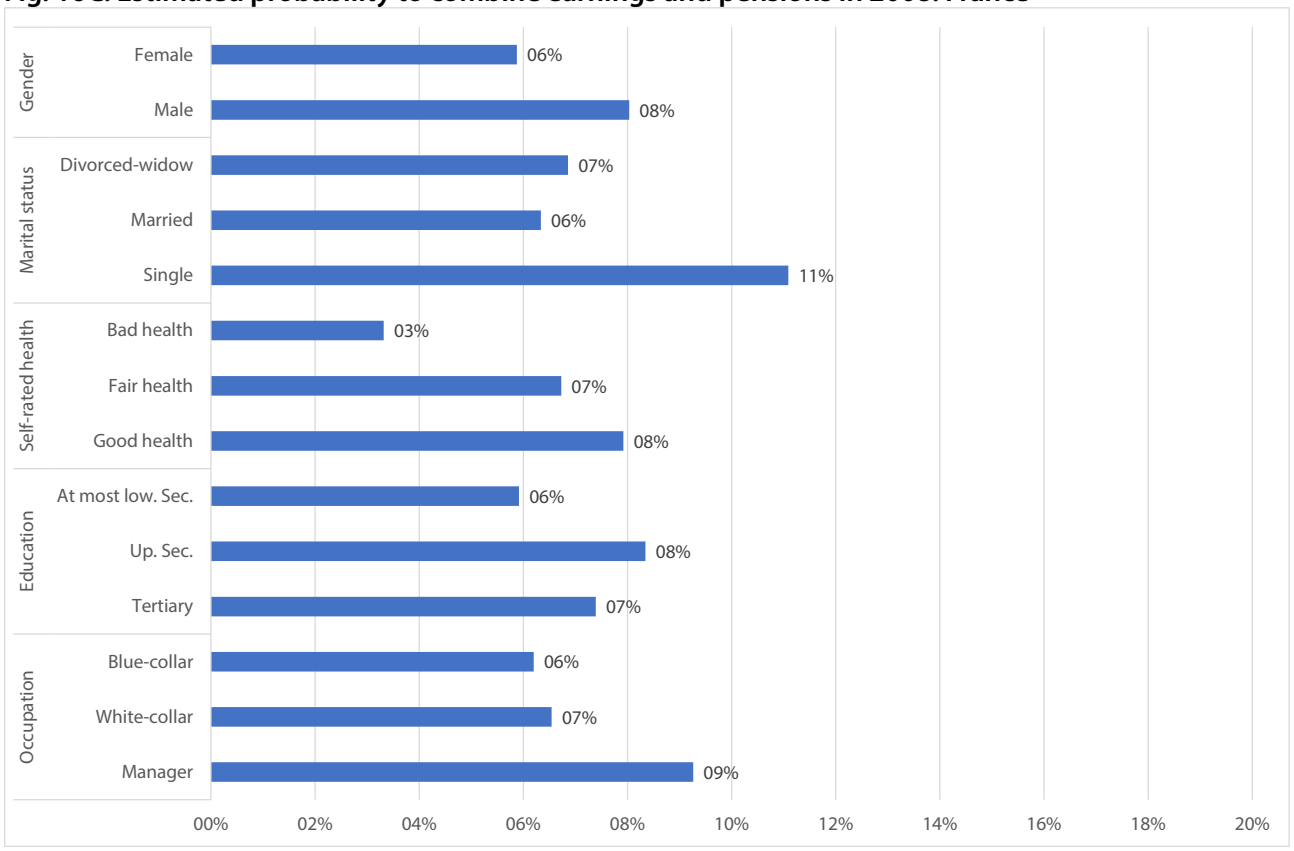
Source: elaborations on EU-SILC data

Fig. 16B: Estimated probability to combine earnings and pensions in 2008. Germany



Source: elaborations on EU-SILC data

Fig. 16C: Estimated probability to combine earnings and pensions in 2008. France



Source: elaborations on EU-SILC data

6. Conclusions

Exploiting data collected in the LFS and in the EU-SILC, the aim of this report has been inquiring into the individual characteristics associated to a higher probability of being worker at an old age, i.e. postponing retirement or continuing working also after the retirement.

As clarified in Section 2, we have thus tried to verify whether individual choices about activity at older ages only depend on pension or are also related to a set of individual characteristics that jointly influence labour supply and labour demand. Contrasting the idea that individual characteristics do not matter, we have found that in all countries some individual characteristics are associated to a higher probability of being active at old ages or of continuing working also after retirement. Hence, older workers cannot be considered at all as a homogenous group.

Therefore, individual characteristics matter and pension policies and public policies should carefully consider the interplay between pension rules and individual opportunities in the labour market in order to design policies able to jointly improve economic efficiency and individual wellbeing. However, we have also found that countries follow different patterns, maybe due to different complementarities between workers' characteristics and the features of the labour demand for older workers by firms and the other public policies (e.g. active labour market policies) that can influence individual opportunities of being active at older ages.

Being both individuals and countries heterogenous as concerns determinants and patterns of older workers' employability and workability, it seems reasonable that no single measures can improve wellbeing of all types of workers and no single reform might fit for all countries.

Therefore, multiple policy strategies based on the complementarity by various sets of public policies and firms' behaviours should be considered in order to improve economic efficiency, working conditions and wellbeing of older workers. Consistently with findings highlighted in the Work Package 1 of the PAWEU report, policies aimed at increasing active ageing without worsening older individual conditions should be organized through a consistent strategy. And a not exhaustive list of the policies to be considered in this strategy should include the following policies:

A. Pension policies: e.g. flexibility of retirement ages, introducing actuarial penalties for early retirement; considering individual health when defining requirements to early retirement; establishing partial pensions schemes (i.e. schemes who combine a reduced working hour with the provision of a share of the pension).

B. Passive and active labour market policies specifically devoted to older workers (e.g. also through retraining programmes and public jobs for older workers unable to continue performing the previous job tasks).

C. Age management strategies by private firms.