

Pesquisar para mudar (a educação)



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VOCATIONAL TRAINING IN PORTUGAL: WHAT HAVE WE LEARNED

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Among the OECD countries, Portugal is one of the countries that shows lower school attainment by its population, even by its younger cohorts.

In the table 1 taken from Education at a Glance 2008, we see that the percentage of population 25 to 64 years old who attained at least upper secondary in Portugal (28%) is less than half of the OECD average (68%). For the younger cohort (25 to 34) this percentage (44%) is the second lowest (Turkey has the lowest) and 20 percentage below the third lowest (Poland 64%).

This evidence has lead governments and institutions to support the implementation of policies aimed at increasing the country's average level of competencies. For poor educated older workers and for young people that dropped from school, vocational training seems a way of acquiring some of the competencies they need. The 2006 OECD Economic Survey for Portugal states that “the participation of adults in training activities should be stimulated, by targeting support toward needy groups, enhancing the quality of training courses and evaluating the effectiveness of existing programs”.


Among the different ways of evaluating the existing programs, the result in terms of labor market is for sure one to be considered. So in

Table 1.

| Population that has attained at least upper secondary education ¹ (2006) | | | | | | |
|---|---------------------------------|-----------|-----------|-----------|-----------|-----------|
| Percentage, by age group | | | | | | |
| | Age group | | | | | |
| | 25 to 64 | 25 to 34 | 35 to 44 | 45 to 54 | 55 to 64 | |
| OECD countries | Australia | 67 | 80 | 68 | 63 | 52 |
| | Austria | 80 | 87 | 84 | 77 | 71 |
| | Belgium | 67 | 82 | 74 | 60 | 50 |
| | Canada | 86 | 91 | 89 | 85 | 76 |
| | Czech Republic | 90 | 91 | 94 | 89 | 84 |
| | Denmark | 82 | 88 | 84 | 78 | 76 |
| | Finland | 80 | 90 | 87 | 80 | 63 |
| | France | 67 | 82 | 72 | 61 | 52 |
| | Germany | 83 | 84 | 85 | 83 | 79 |
| | Greece | 59 | 75 | 67 | 53 | 34 |
| | Hungary | 78 | 86 | 82 | 77 | 66 |
| | Iceland | 63 | 67 | 67 | 64 | 51 |
| | Ireland | 66 | 82 | 71 | 58 | 41 |
| | Italy | 51 | 67 | 55 | 47 | 32 |
| | Korea | 77 | 97 | 90 | 62 | 37 |
| | Luxembourg | 66 | 78 | 67 | 60 | 55 |
| | Mexico | 32 | 39 | 36 | 28 | 17 |
| | Netherlands | 72 | 81 | 76 | 70 | 60 |
| | New Zealand | 69 | 78 | 72 | 69 | 55 |
| | Norway | 79 | 83 | 79 | 77 | 75 |
| | Poland | 53 | 64 | 51 | 49 | 44 |
| | Portugal | 28 | 44 | 28 | 20 | 12 |
| | Slovak Republic | 87 | 94 | 91 | 86 | 70 |
| | Spain | 50 | 64 | 55 | 43 | 27 |
| | Sweden | 84 | 91 | 90 | 82 | 73 |
| | Switzerland | 85 | 88 | 87 | 84 | 80 |
| | Turkey | 28 | 37 | 25 | 22 | 15 |
| | United Kingdom | 69 | 76 | 70 | 67 | 61 |
| | United States | 88 | 87 | 88 | 89 | 87 |
| | OECD average | 68 | 78 | 72 | 65 | 55 |
| EU19 average | 69 | 80 | 73 | 65 | 55 | |
| Partner countries | Brazil ² | 30 | 38 | 32 | 27 | 11 |
| | Chile ² | 50 | 64 | 52 | 44 | 32 |
| | Estonia | 88 | 87 | 93 | 92 | 80 |
| | Israel | 80 | 86 | 82 | 76 | 70 |
| | Russian Federation ³ | 88 | 91 | 94 | 89 | 71 |
| | Slovenia | 82 | 91 | 85 | 77 | 71 |

1. Excluding ISCED 3C short programmes.
2. Year of reference 2004.
3. Year of reference 2002.

Source: OECD. See Annex 3 for notes (www.oecd.org/edu/eag2008).

StatLink  <http://dx.doi.org/10.1787/401474646362>

our research we have looked, in a first phase, at data in the labor market to see what was the result of training in terms of wages (returns to training) and in terms of employability. In a second phase we have been looking to data on how the trainees felt about the training in terms of: 1) helping them to get a job; 2) relation to their current job; and 3) increase their productivity in the job they have. Follows what we have learned and questions we still have or appeared in the research process.

In a research previous to our joint research, Pedro Pereira and some colleagues (Joop Hartog , Pedro Pereira, José Vieira, “Vocational Training and Earnings in Portugal”, *Economia*, vol. XXIV, Janeiro/Maio/Outubro 2000, 35-52) using data from the European Community Household Panel, 1994 (3598 obs., men 2193, women 1405), five training types: 1) at College; 2) at Vocational School; 3) in a Working environment; 4) in a Dual system and 5) Less than one year, found that:

Returns to training are significant: Men 11,4%, Women 6,7%, but not in all types of training. It is higher if the training is taken in at a College (Men 32,6%, Women 15,2%) and for men also in a working environment (Men 18,1%, Women not significantly different from zero). It is lower but still significantly different from zero if the training is less than one year (Men 9,3%, Women 7,6%), but it is not significantly different from zero if taken in a Vocational School or in a Dual system.

Using data from Inquérito ao Emprego (Labor Survey) 1998 to 2000, we (see Santiago Budria e Pedro Pereira, “The Wage Effects of Training in Portugal: Differences across skill groups, genders, sectors and training types”, *Applied Economics*, 2007, 39, 787–807) saw the influence of different types of training in wages and studied the participation in training.

The types of training considered were the following:

Table 2. Training incidence by categories (%)

| | Men | Women | | |
|--|----------------|----------|------|------|
| <i>(A) Training Location</i> | | | | |
| College or university | 3.2 | 4.1 | | |
| Firm | 45.2 | 37.4 | | |
| Professional school | 14.6 | 15.4 | | |
| Centre of vocational training | 12.7 | 14.0 | | |
| Other | 24.4 | 29.2 | | |
| <i>(B) Training Purpose</i> | | | | |
| To help get started with a first job | 5.0 | 6.8 | | |
| To improve or update skills | 57.5 | 60.5 | | |
| To switch to another job or duties | 12.1 | 6.2 | | |
| Within a program of promotion of employment: initial training | 2.5 | 4.5 | | |
| Within a program of promotion of employment: continuous training | 7.2 | 7.1 | | |
| For personal interest | 10.6 | 11.3 | | |
| Other | 5.2 | 3.6 | | |
| <i>(C) Training Duration</i> | | | | |
| Vocational formation of tertiary level | 4.7 | 6.3 | | |
| Specific professional formation with one year or longer duration | 20.8 | 20.8 | | |
| Any training with less than one year duration | 43.8 | 40.7 | | |
| Other | 30.7 | 32.2 | | |
| <i>(D) Detailed decomposition of training</i> | | | | |
| Long duration | Current skills | Internal | 4.5 | 5.1 |
| | | External | 10.7 | 14.0 |
| | Future skills | Internal | 1.0 | 1.1 |
| | | External | 9.3 | 6.9 |
| Short duration | Current skills | Internal | 35.0 | 29.2 |
| | | External | 22.0 | 30.6 |
| | Future skills | Internal | 4.7 | 2.0 |
| | | External | 12.8 | 11.1 |

The empirical results show (see table below) that the participation into training increases with education (more educated are more prone to participate - more than 3 times), decreases with age, increases if in the Public Sector for men and is higher if a person has a second job.

Table 3. Selection into training

| | Men | | Women | |
|--------------------------------|-----------|---------|-----------|---------|
| | Odd ratio | z-ratio | Odd ratio | z-ratio |
| Primary | 3.065*** | 11.23 | 3.317*** | 9.28 |
| Secondary or higher | 3.712*** | 12.55 | 3.373*** | 9.91 |
| 30 years ≤ age ≤ 44 years | 0.717*** | -2.91 | 0.669*** | -3.21 |
| age > 44 years | 0.518*** | -4.52 | 0.554*** | -3.54 |
| Public sector | 1.485*** | 2.88 | 1.248 | 1.50 |
| Part-time | 1.182 | 0.51 | 0.927 | -0.33 |
| Tenure | 1.117*** | 7.47 | 1.115*** | 5.98 |
| Tenure squared | 0.998*** | -4.30 | 0.997*** | -3.83 |
| firm size < 20 employees | 1.023 | 0.23 | 1.124 | 1.16 |
| 20 ≤ firm size ≤ 500 employees | 2.770*** | 9.85 | 2.604*** | 8.44 |
| Second job | 1.678*** | 4.29 | 2.002*** | 3.87 |
| Resided abroad | 1.159 | -1.45 | 1.153 | -1.33 |
| Food, drinks and tobacco | 0.578* | -1.94 | 0.706 | -1.03 |
| Retail | 0.772 | -1.05 | 0.556** | -2.36 |
| Wood and paper | 0.728 | -1.32 | 1.251 | 0.69 |
| Chemical products | 0.873 | -0.59 | 0.931 | -0.19 |
| Metallurgy | 0.929 | -0.43 | 1.051 | 0.19 |
| Construction | 0.369*** | -4.84 | 0.409 | -1.21 |
| Restaurants | 1.222 | 0.86 | 1.454* | 1.73 |
| Transports | 1.171 | 0.96 | 1.436 | 1.36 |
| Insurance, finance | 1.531** | 2.30 | 2.228*** | 3.25 |
| Public administration | 1.140 | 0.77 | 1.463* | 1.76 |
| Education | 0.722 | -1.43 | 0.819 | -0.92 |
| Health | 1.031 | 0.14 | 1.430** | 1.87 |
| Culture, sport, leisure | 1.361 | 1.17 | 2.291*** | 3.61 |
| Others | 1.454* | 1.89 | 0.911 | -0.43 |
| Average probability | 0.0515 | | 0.0512 | |
| Pseudo R-squared | 0.1512 | | 0.1267 | |
| No. of observations | 15,016 | | 12,145 | |

Notes: *Signals significant at the 10% level, **signals significant at the 5% level and ***signals significant at the 1% level.
The reference individual is a worker with less than primary education, aged <30 years, who has not a second job, has always resided in Portugal, is working full-time in the private, commerce sector, in a firm with more than 500 workers.
Control variables are included for region and quarter.
SE are obtained using White's (1980) method.

The returns to training were 12.7% for men and for women 8.4%, but were much higher if we corrected by selectivity (returns to training with treatment effects - 30.3% for men, 37.5% for women). This can be seen in the table below.

Table 4. Wage returns to training – OLS and Treatment effects model

| | Men | | | | Women | | | |
|--------------------------------|-----------|---------|-------------------|---------|-----------|---------|-------------------|---------|
| | OLS | | Treatment effects | | OLS | | Treatment effects | |
| | Coeff. | t-Ratio | Coeff. | t-Ratio | Coeff. | t-Ratio | Coeff. | t-Ratio |
| Training | 0.127*** | 9.46 | 0.303*** | 4.29 | 0.084*** | 6.29 | 0.375*** | 6.35 |
| Primary | 0.196*** | 24.38 | 0.187*** | 20.55 | 0.210*** | 24.38 | 0.193*** | 20.38 |
| Secondary | 0.334*** | 31.58 | 0.322*** | 27.18 | 0.346*** | 35.43 | 0.330*** | 32.21 |
| Tertiary | 0.305*** | 58.29 | 0.890*** | 52.51 | 0.926*** | 81.23 | 0.904*** | 71.30 |
| Experience | 0.026*** | 32.67 | 0.025*** | 31.94 | 0.020*** | 22.92 | 0.019*** | 22.51 |
| Experience squared (x100) | -0.042*** | -25.19 | -0.041*** | -24.62 | -0.035*** | -17.96 | -0.034*** | -17.63 |
| Public sector | 0.128*** | 11.58 | 0.121*** | 10.55 | 0.176*** | 16.59 | 0.171*** | 15.76 |
| Part-time | 0.145*** | 4.03 | 0.143*** | 3.98 | 0.151*** | 9.13 | 0.152*** | 9.16 |
| 6 years ≤ tenure ≤ 25 years | 0.089*** | 13.98 | 0.084*** | 12.69 | 0.109*** | 17.27 | 0.102*** | 15.29 |
| tenure > 25 years | 0.227*** | 19.24 | 0.219*** | 18.04 | 0.275*** | 21.26 | 0.265*** | 19.66 |
| firm size < 20 employees | -0.058*** | -8.90 | -0.058*** | -8.90 | -0.045*** | -6.46 | -0.046*** | -6.56 |
| 20 ≤ firm size ≤ 500 employees | 0.036*** | 3.78 | 0.023** | 2.15 | 0.010 | 1.19 | -0.006 | -0.67 |
| Food, drinks and tobacco | -0.051*** | -3.58 | -0.047*** | -3.33 | -0.020 | -1.22 | -0.015 | -0.94 |
| Retail | 0.065*** | 5.29 | 0.064*** | 5.15 | 0.074*** | 6.62 | 0.070*** | 6.16 |
| Wood and paper | -0.032** | -2.47 | -0.031** | -2.34 | -0.023 | -1.06 | -0.026 | -1.18 |
| Chemical products | 0.059*** | 3.93 | 0.060*** | 3.99 | 0.045** | 2.14 | 0.047** | 2.20 |
| Metallurgy | 0.000 | 0.01 | 0.000 | 0.05 | 0.047*** | 3.62 | 0.046*** | 3.48 |
| Construction | 0.041*** | 4.77 | 0.043*** | 4.94 | 0.096*** | 3.25 | 0.104*** | 3.46 |
| Restaurants | -0.083*** | -5.19 | -0.084*** | -5.21 | 0.015 | 1.21 | 0.010 | 0.79 |
| Transports | 0.106*** | 7.98 | 0.105*** | 7.88 | 0.176*** | 7.10 | 0.172*** | 6.82 |
| Insurance, finance | 0.398*** | 20.98 | 0.390*** | 20.14 | 0.358*** | 13.49 | 0.340*** | 12.67 |
| Public administration | 0.011 | 0.81 | 0.010 | 0.78 | 0.103*** | 6.47 | 0.096*** | 5.86 |
| Education | 0.025 | 1.29 | 0.029 | 1.49 | 0.102*** | 7.20 | 0.108*** | 7.45 |
| Health | -0.027 | -1.59 | -0.027 | -1.56 | 0.003 | 0.25 | 0.000 | 0.01 |
| Culture, sport, leisure | 0.015 | 0.51 | 0.012 | 0.41 | 0.005 | 0.33 | -0.007 | -0.42 |
| Others | 0.044*** | 2.58 | 0.040** | 2.34 | 0.004 | 0.36 | 0.004 | 0.38 |
| Selection term | | | -0.089** | 2.52 | | | -0.145*** | 4.89 |
| No. of observations | 15 016 | | | | 12 145 | | | |

Notes: *Signals significant at the 10% level. **signals significant at the 5% level and ***signals significant at the 1% level. The reference individual is an untrained worker with less than primary education, < 6 years of tenure, working full-time in the private, commerce sector, in a firm with more than 500 workers. Control variables are included for region and quarter. SE are obtained using White's (1980) method.

When considering the returns to different types of training (see table below) we found that they are higher in company training than in external training.

When considering the selectivity correction training to improve future skills has a return that is not significantly different from zero while the returns are positive if the training is to increase skills at the current job.

Training of short term duration seems to bring higher returns than longer term courses.

Table 5. OLS and treatment effects estimates for alternative definitions of training

| | Men | | Women | |
|------------------------------|----------|-------------------|----------|-------------------|
| | OLS | Treatment Effects | OLS | Treatment Effects |
| <i>(A) Training location</i> | | | | |
| Internal | 0.174*** | 0.850*** | 0.125*** | 0.601*** |
| Selection term | | -0.321*** | | -0.215*** |
| External | 0.087*** | 0.102 | 0.059*** | 0.514*** |
| Selection term | | -0.008 | | -0.210*** |
| <i>(B) Training purpose</i> | | | | |
| Current skills | 0.124*** | 0.754*** | 0.081*** | 0.700*** |
| Selection term | | -0.304*** | | -0.299*** |
| Future skills | 0.134*** | -0.200 | 0.095*** | 0.257 |
| Selection term | | 0.141** | | -0.066 |
| <i>(C) Training duration</i> | | | | |
| Long duration | 0.072*** | 0.526*** | 0.098*** | 0.499*** |
| Selection term | | -0.186*** | | -0.167*** |
| Short duration | 0.146*** | 1.160*** | 0.079*** | 1.427*** |
| Selection term | | -0.483*** | | -0.630*** |

Notes: *Signals significant at the 10% level, **signals significant at the 5% level and ***signals significant at the 1% level.
 The reference individual is an untrained worker with less than primary education, < 6 years of tenure, working full-time in the private, commerce sector, in a firm with more than 500 workers.
 Control variables are included for region and quarter.
 SE are obtained using White's (1980) method.

We used interactions terms to see the influence of education on returns to training and found that, in our data, returns are lower for more educated people (see table below).

Table 6. Wage returns to training – OLS and Treatment effects model with interaction terms

| | Men | | | | Women | | | |
|---------------------------------|-----------|---------|-------------------|---------|-----------|---------|-------------------|---------|
| | OLS | | Treatment effects | | OLS | | Treatment effects | |
| | Coeff. | t-Ratio | Coeff. | t-Ratio | Coeff. | t-Ratio | Coeff. | t-Ratio |
| Training | 0.221*** | 9.16 | 0.420*** | 6.49 | 0.178*** | 4.86 | 0.551*** | 8.78 |
| Primary | 0.194*** | 23.47 | 0.184*** | 20.67 | 0.205*** | 23.23 | 0.190*** | 20.35 |
| Secondary | 0.338*** | 30.49 | 0.324*** | 27.31 | 0.346*** | 34.41 | 0.331*** | 31.82 |
| Tertiary | 0.920*** | 56.70 | 0.904*** | 52.62 | 0.932*** | 79.44 | 0.912*** | 72.91 |
| Experience | 0.025*** | 31.97 | 0.025*** | 31.51 | 0.019*** | 22.31 | 0.019*** | 22.14 |
| Experience squared (x 100) | -0.041*** | -24.76 | -0.041*** | -24.34 | -0.034*** | -17.60 | -0.034*** | -17.41 |
| Public sector | 0.126*** | 11.44 | 0.116*** | 10.18 | 0.174*** | 16.45 | 0.169*** | 15.55 |
| Part-time | 0.146*** | 4.08 | 0.144*** | 4.05 | 0.152*** | 9.17 | 0.154*** | 9.26 |
| 6 years ≤ tenure ≤ 25 years | 0.088*** | 13.92 | 0.083*** | 12.66 | 0.107*** | 17.04 | 0.099*** | 15.08 |
| Tenure > 25 years | 0.272*** | 18.84 | 0.213*** | 17.50 | 0.270*** | 20.96 | 0.257*** | 19.30 |
| Firm size < 20 employees | -0.057*** | -8.89 | -0.058*** | -8.89 | -0.045*** | -6.44 | -0.046*** | -6.45 |
| 20 ≤ firm size ≤ 500 employees | 0.034*** | 3.57 | 0.018* | 1.66 | 0.0077 | 0.92 | -0.009 | -0.98 |
| Selection term | | | -0.115*** | 3.59 | | | -0.159*** | 6.62 |
| Interaction terms | | | | | | | | |
| Primary | 0.002 | 0.05 | -0.044 | -1.25 | 0.045 | 1.23 | -0.024 | -0.66 |
| Secondary | -0.029 | -0.82 | -0.077** | -2.03 | 0.020 | 0.54 | -0.046 | -1.23 |
| Tertiary | -0.162*** | -3.61 | -0.215*** | -4.62 | -0.087** | -2.32 | -0.157*** | -4.18 |
| Experience < 6 years | -0.182*** | -4.72 | -0.130*** | -3.18 | -0.231*** | -5.48 | -0.177*** | -4.07 |
| 6 years ≤ experience ≤ 25 years | -0.091*** | -3.19 | -0.074*** | -2.59 | -0.091*** | -2.77 | -0.074** | -2.27 |
| No. of observations | 15 016 | | | | 12 145 | | | |

Notes: *Signals significant at the 10% level, **signals significant at the 5% level and ***signals significant at the 1% level.
 The reference individual is an untrained worker with less than primary education, more than 25 years of experience, < 6 years of tenure, working full-time in the private, commerce sector, in a firm with more than 500 workers.
 Control variables are included for region and quarter.
 SE are obtained using White's (1980) method.

That lead us to conclude that training has a remedial effect meaning that people with lower education can overcome this “handicap” through training and this way decrease the wage gap to people with more education.

In more recent research we used data from the Survey of Insertion 2000 to 2005 (*Inquérito à Inserção, Direção Regional de Formação Profissional*) (Santiago Budria and Pedro Telhado Pereira, “The Contribution of Vocational Training to Employment, Job-related Skills and Productivity: Evidence from Madeira Island”, *International Journal of Training and Development*, 2009, 13:1, pp. 53-72, “Are Vocational Training Programs Truly Effective? Evidence from Self-assessed Data”, *ICFAI Journal of Training and Development*, 2009 e “Subjective Assessment on Vocational Training Activities: A Generalized Ordered Probit Approach”, revise and resubmit to *Empirical Research in Vocational Education and Training*)

This survey is carried out to evaluate the effects of vocational training programs on the transition to the labor market in Madeira Island, Portugal. The information provided in the survey can be divided in two main blocks. In the first block, individuals are asked to report their employment status at three different dates: one month, one year, and two years after the completion of the program. We use this information to explore how the probability of employment depends on the individual characteristics and on the type of vocational program. In the second block, individuals are asked to assess the extent to which the training i) facilitated their access to employment, ii) was related to their current job and iii) enhanced their productivity in the job. We use this information to assess the contribution of training along these dimensions and to explore how this contribution differs across groups of workers and across training programs.

Therefore, we do not confine the analysis to objective labor market

measures. Rather, we study the individuals' subjective evaluation of the training activities.

All individuals were unemployed at the timing of the training.

The majority of the trainees were male (61,4%), young and went through courses of more than 1000 hours of training (see table below for details).

Table 7. Summary statistics (%)

| | Men | Women |
|---|------|-------|
| | 61.4 | 38.6 |
| <i>Education level</i> | | |
| Less than 4 years of schooling | 0.6 | 7.3 |
| 1 st cycle of Basic Schooling (4 th year) | 11.8 | 10.9 |
| 2 nd cycle of Basic Schooling (6 th year) | 26.0 | 18.7 |
| Primary education (9 th year) | 47.4 | 42.8 |
| Secondary education (12 th year) | 12.7 | 17.5 |
| 3-year Bachelor's Degree | 0.9 | 1.5 |
| 5- year Bachelor's Degree | 0.5 | 1.3 |
| Average years of schooling | 10.8 | 10.6 |
| <i>Age</i> | | |
| < 21 | 43.0 | 26.1 |
| 21 – 25 | 42.4 | 47.8 |
| > 25 | 14.6 | 26.1 |
| <i>Training Program</i> | | |
| Tourism | 19.9 | 32.2 |
| Accounting, Business & Administration | 11.3 | 21.4 |
| Agricultural Production & Food industry | 3.3 | 7.7 |
| Environment & Urbanism | 8.3 | 0.6 |
| Civil Construction | 15.4 | 1.3 |
| Electronics & Energy | 12.2 | 0.2 |
| Applied Computer Sciences | 7.2 | 4.8 |
| Others | 16.1 | 31.8 |
| <i>Training Duration (hours)</i> | | |

| | | |
|-------------|------|------|
| 300 – 1199 | 16.6 | 25.7 |
| 1200 – 2399 | 50.2 | 37.9 |
| 2400 – 3599 | 10.2 | 12.2 |
| ≥ 3600 | 23.1 | 24.2 |

One month after the completion of the training the majority had found a paid job, but the percentage of males that found it was higher than the percentage of females. This percentage was increasing with time for males, but no for females as the percentage that were unemployed after two years is higher than the percentage after one year (see table below). This means that women have more difficulty of finding a job and the job is less stable.

Table 8. Labor status after the completion of the program (%)

| Status | After one month | | After one year | | After two years | |
|---------------------|-----------------|-------|----------------|-------|-----------------|-------|
| | Men | Women | Men | Women | Men | Women |
| Wage earner | 74.4 | 69.4 | 79.3 | 80.9 | 80.1 | 72.9 |
| Self-employed | 3.8 | 1.0 | 4.6 | 1.3 | 6.0 | 1.7 |
| Family Job (unpaid) | 2.5 | 1.0 | 1.6 | 0.6 | 0.3 | 0.3 |
| Student | 4.6 | 3.4 | 5.4 | 3.9 | 6.0 | 4.8 |
| Military Service | 1.6 | 0.2 | 2.6 | 0.2 | 2.0 | 0 |
| Unemployed | 12.7 | 24.2 | 5.9 | 12.3 | 5.4 | 19.1 |
| Others | 0.4 | 0.9 | 0.5 | 0.9 | 0.3 | 1.1 |

We use a logit model to study the influence of education, age, gender, duration of training, field of training in the probability of being employed.

Table 9. Determinants of employment

| | After one month | | After one year | | After two years | |
|---|-----------------|---------|----------------|---------|-----------------|---------|
| | Odd ratio | z-ratio | Odd ratio | z-ratio | Odd ratio | z-ratio |
| Primary education | 0.785* | -1.63 | 1.283 | 1.26 | 1.749*** | 3.08 |
| Secondary education | 1.235 | 0.82 | 2.941*** | 2.88 | 7.222*** | 5.25 |
| Tertiary education | 2.115 | 1.31 | 2.016 | 1.21 | 11.775*** | 3.23 |
| 20 < Age ≤ 25 | 0.855 | -1.09 | 0.978 | -0.11 | 0.944 | -0.30 |
| Age > 25 | 0.865 | -0.85 | 0.714 | -1.58 | 0.618** | -2.41 |
| Female | 0.443*** | -5.34 | 0.501*** | -3.35 | 0.279*** | -5.94 |
| Tourism | 0.797 | -1.32 | 1.020 | 0.91 | 1.049** | 2.23 |
| Accounting, Business & Administration | 0.811 | -1.07 | 1.628* | 1.67 | 1.219 | 0.74 |
| Agricultural Production & Food industry | 0.533** | -2.34 | 0.994 | -0.02 | 0.333*** | -3.69 |
| Environment & Urbanism | 0.400*** | -2.73 | 1.154 | 0.25 | 0.968 | -0.06 |
| Civil Construction | 0.592* | -1.75 | 0.734 | -0.81 | 0.945 | -0.14 |
| Electronics & Energy | 0.881 | -0.32 | 2.026 | 1.10 | 1.376*** | 2.60 |
| Applied Computer Sciences | 0.600* | -1.80 | 0.674 | -1.11 | 0.811 | -0.54 |
| Duration | 1.035* | 1.83 | 1.035 | 1.40 | 1.103*** | 4.00 |
| Duration squared | 0.999** | -2.25 | 0.999 | -1.62 | 0.999*** | -3.84 |
| | | | | | | |
| Average Probability | 0.800 | | 0.895 | | 0.853 | |
| Pseudo R-squared | 0.044 | | 0.064 | | 0.206 | |
| No. of Observations | 1,915 | | 1,915 | | 1,915 | |

Note: * denotes significant at the 10% confidence level, ** denotes significant at the 5% confidence level, *** denotes significant at the 1% confidence level.

Reference group: male, less than 21 years old, less than primary school, who completed a training course in the miscellaneous category “others”.

Having primary, secondary or tertiary education increases the predicted probability by a factor of 1.75, 7.22, and 11.78 respectively of being employed after two years. After one month the coefficients are not significantly different from zero, and after one year only the coefficient for having a secondary education is significant.

Age has a negative effect (significant at the two years span). Being a woman also has a negative impact, especially after two years where the odd ratio is less than 0.3.

Training in Tourism or Electronics or Energy has a positive impact on employment. The duration of training has also a positive effect.

To study the effectiveness of the training we start by doing a ordered logit regression. The results appear in the table below.

Table 10. Effectiveness of the training program

| | Helped to obtain current job | | Related to current job | | Increased productivity in current job | |
|---|------------------------------|---------|------------------------|---------|---------------------------------------|---------|
| | Coeff. | z-ratio | Coeff. | z-ratio | Coeff. | z-ratio |
| Primary education | 0.092 | 1.60 | 0.056 | 0.92 | -0.004 | -0.08 |
| Secondary education | 0.407** | 5.81 | 0.537*** | 7.25 | 0.331*** | 4.86 |
| Tertiary education | 0.395*** | 4.06 | 0.609*** | 6.88 | 0.481*** | 6.51 |
| 20 < Age ≤ 25 | -0.025 | -0.44 | -0.024 | -0.41 | 0.037 | 0.73 |
| Age > 25 | -0.221*** | -2.81 | 0.001 | 0.01 | -0.001 | 0.55 |
| Female | 0.083 | 1.51 | 0.026 | 0.45 | 0.083* | 1.69 |
| Tourism | 0.092** | 2.30 | 0.065* | 1.79 | 0.048 | 1.59 |
| Accounting, Business & Administration | -0.072 | -0.89 | -0.226*** | -2.61 | -0.057 | -0.80 |
| Agricultural Production & Food industry | -0.138 | -0.84 | -0.413** | -2.29 | -0.246 | -1.60 |
| Environment & Urbanism | 0.164 | 1.41 | -0.031 | -0.22 | -0.021 | -0.18 |
| Civil Construction | 0.067 | 0.67 | -0.129 | -1.10 | 0.030 | 0.33 |
| Electronics & Energy | -0.031 | -0.25 | -0.009 | -0.07 | -0.076 | -0.66 |

| | | | | | | | | |
|---------------------------|-----------|-------|--|-----------|-------|--|-----------|-------|
| Applied Computer Sciences | -0.714*** | -4.52 | | -0.590*** | -3.94 | | -0.367*** | -2.79 |
| Duration | 0.031*** | 3.94 | | 0.037*** | 4.52 | | 0.031*** | 4.35 |
| Duration squared | 0.000*** | -3.36 | | -0.001*** | -3.93 | | 0.000*** | -3.67 |
| Permanent contract | 0.231*** | 4.80 | | 0.270*** | 5.35 | | 0.222*** | 5.11 |
| | | | | | | | | |
| Average Score | 3.31 | | | 3.13 | | | 3.32 | |
| Pseudo R-squared | 0.046 | | | 0.048 | | | 0.041 | |
| No. of Observations | 1,621 | | | 1,621 | | | 1,621 | |

We see that there are complementary effects between schooling and training. Not only do the more educated have higher chances of getting a job, they also consider that training helped them to get that job and that the training was related to their current job and that they are more productive due to the training.

This is even more evident when we consider the results of a generalized order probit approach below.

Table 11. Marginal probability effect on the worker's evaluation - Contribution to employment (1 – Completely Disagree, 2 – Disagree, 3 – Agree, 4 – Completely agree)

| | 1 | 2 | 3 | 4 |
|---|----------------------|------------------|----------------------|----------------------|
| Primary education | -0.024 -0.880 | 0.008 0.370 | -0.043 -1.470 | 0.059 * 1.830 |
| Secondary education | -0.103 * -1.830 | -0.060 -1.350 | -0.094 * -1.700 | 0.257 *** 4.610 |
| Tertiary education | -0.014 -0.180 | 0.026 0.430 | -0.391 *** -4.920 | 0.378 *** 3.620 |
| 20 < Age ≤ 25 | 0.025 0.950 | -0.010 -0.460 | -0.005 -0.170 | -0.010 -0.340 |
| Age > 25 | 0.078 *** 2.640 | -0.005 -0.220 | 0.036 1.020 | -0.109 *** -2.790 |
| Female | -0.049 ** -2.050 | 0.026 1.520 | -0.005 -0.180 | 0.029 0.950 |
| Tourism | -0.024 * -1.740 | 0.032 1.360 | 0.053 1.630 | 0.061 * 1.660 |
| Accounting, Business & Administration | -0.065 -1.540 | 0.015 0.470 | 0.125 *** 3.090 | -0.075 * -1.790 |
| Agricultural Production & Food industry | 0.011 0.180 | 0.067 1.450 | -0.014 -0.220 | -0.064 -0.790 |
| Environment & Urbanism | -0.109 -1.630 | 0.042 0.860 | -0.009 -0.140 | 0.076 1.020 |
| Civil Construction | -0.111 * -1.940 | -0.026 -0.680 | 0.167 *** 2.770 | -0.030 -0.520 |
| Electronics & Energy | -0.063 -1.100 | -0.005 -0.130 | 0.140 ** 2.230 | -0.072 -1.080 |
| Applied Computer Sciences | 0.084 1.560 | 0.060 1.420 | 0.232 *** 3.580 | -0.376 *** -5.600 |
| Duration | -0.006 -1.520 | -0.005 -1.530 | -0.006 -1.560 | 0.016 *** 3.810 |
| Duration squared (x 1000) | 0.057 0.960 | 0.082 * 1.750 | 0.097 1.530 | -0.235 *** -3.370 |
| Permanent contract | -0.066 *** -2.500 | -0.021 -1.080 | -0.030 -1.110 | 0.117 *** 4.200 |
| Log-likelihood | -1607.864 | | | |
| LR test against SOP model | 60.48 *** | | | |
| No. of Obs. | 1,621 | | | |

Note: i) * denotes significant at the 10% confidence level, ** denotes significant at the 5% confidence level, *** denotes significant at the 1% confidence level; ii) standard errors are in smaller type.

The probability of being completely satisfied with the training in terms of contributing for employment increases with education. 25.7% for those with secondary education and 37.8% for those with higher education. This observation suggests that the complementarity of training and education acts, therefore, by improving the chances that an individual is completely satisfied with his/her training activity.

Having participated in a long program significantly raises the probability of giving the highest score to the training activity but, in turn, does not prevent an individual from reporting the lowest evaluation.

The same kind of results was obtained for the satisfaction with the skills and with the increase in productivity.

The degree of satisfaction with the training is high as we can see in the table below

Table 12. Distribution of responses (%)

| | 1- Completely Disagree | 2- Disagree | 3- Agree | 4- Completely agree |
|---------------------------------------|------------------------|-------------|----------|---------------------|
| Helped to obtain current job | 10.9 | 6.2 | 23.1 | 59.8 |
| Related to current job | 12.7 | 8.9 | 30.5 | 48.0 |
| Increased productivity in current job | 6.9 | 7.7 | 31.5 | 53.9 |

In Madeira Island, the public provision of vocational training is highly centralized at the regional level, which has resulted in a relatively small number of vocational paths, a clearer mapping between the regional labor market needs and vocational courses and a wider recognition by regional employers. Screening and signaling effects are more likely to operate in this particular context, providing training completers with useful labor market credentials.

As stated above we reported that in Portugal less educated workers

earned a higher wage premium from training activities, and concluded that training had a remedial nature. The results using the data from Madeira suggest that this is not the case when it comes to employment opportunities, job-related skills and productivity. If policy makers are concerned with promoting employment among the less favoured in the labour market, the existing training schemes should be redesigned in order to amend the educational and skills limitations that some training participants exhibit from the start. In this respect, training aimed to acquire general skills and competencies rather than specific knowledge may be of particular importance.