"Human Capital Theory, Matching Theory And The Greek Labour Market"

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Abstract

In particular, the human capital theory is tested, as well as the matching theory. This article examines the impact that vocational training programmes and level of education had on the labour market, and especially on the chances of finding a job, of semi-peripheral EU countries, using Greece as a case study during the period 1988-2000, and links the research to the present economic situation in Greece. Apart from an extended interaction effects analysis, the study moves beyond the econometric analysis of micro-level data, and embeds the empirical findings within the institutional/organizational environment of Greek vocational training (meso-level) to provide a comprehensive explanation of what empirically is identified as the minimal impact of these policies. One of the contributions of this paper is that, given the experience in Greece, it is evident that abstract micro-level theories of skills mismatch, like the human capital theory, cannot be applied in political economies where labour markets cannot absorb high skills and where demand for jobs requiring these is weak. The results of this research support matching theory better than human capital theory.

Keywords: J08 Labor Economics Policies; J18 Public Policy; J24 Human Capital; Skills; D04 Microeconomic Policy: Formulation, Implementation, and Evaluation; C54 Quantitative Policy Modeling; I280 Education: Government Policy.

1. Introduction

Since the early 1990s, there was a shift from 'passive' to active labour market policies (ALMPs) in European countries. In the case of Greece, it is questionable whether vocational training from the end of the 1980s onwards was accompanied by any real improvement in matching supply with demand or increasing people's chances of finding a job. Behavioural models (micro-level), have yet to be considered along with the institutions and investment in relation to training (meso-level) in Greece, thereby allowing for robust evaluation of its effectiveness.

2. Research Questions and Methodology

2.1 The two levels (micro-meso) of analysis and how they are related

In particular, the human capital theory is tested, as well as the matching theory. What has become clear is that the EU approach to vocational training has been very much influenced by the human capital theory. The matching theory is also considered, because in contrast to the human capital view under this perspective too much education leads to a lack of training and consequently, an over-educated often unemployable workforce, which appears to be the case in Greece and other Southern European countries (Liagouras *et al.,* 2003; Tsakloglou and Cholezas, 2005; Dolton and Marcenaro-Gutierrez, 2009; Thomaidou *et al.,* 2009; Karamessini, 2010).

The key research questions of the paper are as follows:

What was the impact of EU funded vocational training on the Greek labour market and individual job seekers who undertook this training from 1988 to 2000?
How can this impact be explained?

To address these questions my research is organized along two inter-related levels of analysis (micro and meso) that correspond to specific research sub-questions discussed in the methodology section. The key point is to make explicit how we can evaluate success or failure of EU funded training programmes in Greece.

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An analytical strategy is proposed that brings together two levels of analysis that demonstrates that they relate to each other.

This analysis comprises two steps in accordance with the two identified levels. At the micro-level (sections 3 and 4), whether the vocational training courses and educational level increased the chances of finding a job at the participant level is examined econometrically. This part of the research will determine whether or not the programmes did help the unemployed to get any work and addresses the first sub-question, namely 'What was the impact of the training programmes at the participant level?'. This question was operationalized by empirically testing the following sub-questions:

•Did the social and demographic characteristics of an individual in Greece affect the probability of finding employment during the period under investigation?
•Did the introduction of training courses funded by the EU have a statistically significant effect on the probability of finding employment?
•Did university graduates in Greece face greater difficulties in finding a job compared to those less educated (as relevant literature and aggregate statistics have suggested - see Meghir et al., 1989; OECD, 1990; Eurostat: Education and Employment Prospects, 1995; Iliades, 1995; IN.E./GSEE-ADEDY, 1999; Katsikas, 2005)?

At the meso-level (section 5), any parameters that were not working effectively in Greece are identified (i.e. if there was any serious evaluation of the effects of vocational training courses on employment, whether there was a mechanism to estimate the real needs regarding continuing vocational training (CVT), if the function of employment offices was helpful for the matching between supply and demand for labour) and how these impacted on the matching mechanisms in the Greek labour market. The aim of section 5 is to describe the vocational education and training (VET) structure and to investigate why the Greek organisational structure could not provide adequate skills-matching, through the use of secondary data (other studies). This addresses the second sub-question 'Was the training system, i.e. the institutions, in Greece, both regionally and nationally, effective in helping people to find jobs and if not, why?'.

To help the reader to understand the two levels and their associated literature, Table 1 summarizes the above discussion.

Table 1: The analytical framework of the research

Level of analysis	Corresponding sections	Indicative literatures reviewed in this paper	Type of analysis	Type of data
Micro-level (behavioural and individual characteristics, impact of training at the participant level)	3 and 4	Human capital approach and human capital theory Matching theory The impact of training at participant level	Quantitative (micro-econometric analysis)	Quantitative data: individual anonymized records (micro-data) of the 1992, 1994 and 2000 LFSs for both employed and unemployed
Meso-level (the organisation of vocational training and institutional complementarities)	5	Vocational education & training structure Matching mechanisms in Greece	Qualitative (institutional analysis and secondary analysis of evaluation studies)	Policy documents, a number of (mainly) qualitative evaluation studies, aggregate statistics

3. Micro-Level of Analysis I: Theoretical Approaches

3.1 Training as human capital and the matching theory

The theory of human capital (Becker, 1964; Ben-Porath, 1967; Mincer 1974) has been criticized for not being able to explain comprehensively the functions of vocational training, for it merely considers it as an investment (Papakonstantinou, 1998).

There has also been a considerable amount of empirical research on the closely related topics of education and skills, including Prais (1995) and Murray and Steedman (1998); closely related to the current research is study on the increasing role of skilled labour in the economy (Berman *et al.*, 1994; Machin and van Reenen, 1998).

By contrast, the advocates of matching theory claim that under-education will result in an increased necessity for more training. However, it is not yet clear whether training can make up for inadequacies in formal education (substitution) or if it can just add to variations in human capital (complementarity) that are already present. It could be the case that it is only the features of the job (level and kind of job) in which the substitution aspects of training are to be found, and that it is only in those aspects of formal education (level and breadth) that the complementarity nature of training is obvious (van Smoorenburg and van der Velden, 2000).

3.2 Literature review on the impact of training at the micro-level

The findings show that the more expensive programmes with a significant amount of training appear to have been the most effective at increasing employment prospects (see Brodaty *et al.*, 2001; van Ours, 2001; Kluve and Schmidt, 2002; Raaum and Torp, 2002; Kluve *et al.*, 2005). However, national studies during the early to mid-2000s did not find positive impacts of training on employment (Gerfin and Lechner, 2000; Regner, 2002). Other studies that found mixed effects of participation in training programmes on employment/unemployment are those of Lechner and Wunsch (2009), Fitzenberger *et al.* (2010), Lechner *et al.* (2011), McGuinness *et al.* (2014), Riphahn and Zibrowius (2016), Brunello and Rocco (2017), and Bratti *et al.* (2018 - on earnings as well) depending on the section of the population being targeted, but overall they reported a positive linkage, especially the last three mentioned studies where the differences among target groups are small.

A number of studies in the 2000s found no positive impact of training on employment probability in European labour markets (Larsson, 2002 - on earnings as well; Stenberg, 2003 - on mobility between branches and on earnings; Weber and Hofer, 2003; Graversen, 2004; Hujer *et al.*, 2004; Rosholm and Svarer, 2004; Centeno *et al.*, 2005 - on earnings as well; Hogelund and Holm, 2005; Aakvik and Dahl, 2006; Meadows and Metcalf, 2008; Rosholm and Skipper, 2009). According to Rosholm and Skipper (2009) training raised the unemployment rate of participants but this effect disappeared over time and this would indicate a locking-in effect, i.e. technical knowledge which is specific to a particular production process and is not transferable to other processes. Other research (Malmberg-Heimonen and Vuori, 2005; Steiger, 2005; Andren and Andren, 2006 - unobservables slightly increased the effect for those treated; Lechner *et al.*, 2007 - on earnings as well; Cueto and Mato, 2009 - the locking-in effect found regarding trainees suggested decreasing labour mobility; Lechner *et al.*, 2011 - on earnings as well) found that the employment effects of training were mixed, i.e. there were positive and negative results.

The findings suggest that training programmes seem to have had some positive effects on employment and no effects on earnings. Moreover, the effects on the former appear to diminish over time. The negative effects reported by several evaluations can be explained, on the one hand, by a locking-in effect, and on the other by the fact that some participants seemed to enrol in training merely in order to collect unemployment insurance benefits (Cueto and Mato, 2009).

Micro-econometric analyses usually confirm that training had "mixed" results, but nearly always a statistically insignificant impact on the participants' prospects of employment. Training might help an unemployed person to return to work faster and because another unemployed worker therefore finds a job more slowly the training programme is lacking effectiveness (Boone and van Ours, 2004). On the other hand, macro-economic studies have reached the conclusion that training was the only category of active employment policy that appears to have had a notable positive effect on the overall performance of the labour market (CEC, 2006:145).

3.3 Mismatch and over-education

According to Chevalier and Lindley (2007), over-education can be defined as not being in a graduate job when a person has a degree, thus resulting in skill mismatching. In general, the vast majority of studies during the period 1990-2000 have indicated greater prevalence of over-education rather than under-education (Green *et al.*, 1999).

Despite a great deal of American and European empirical evidence being available on the subject of over-education, it has been argued that "a solid relation [regarding the over-education / under-education literature] with a formal theory of the labour market is lacking" (Hartog, 1997).

According to human capital theory, over-education is not a permanent occurrence and is the result of a poor match between employer and employee. This appears to go against the empirical evidence, which suggests there is always a large percentage of the labour force that is over-educated.

It is possible that there is always over-education in the labour market generally, but for each individual it is short lived. However, it could also be the case that an individual chooses to be over-educated for a position, temporarily, so as to remain in touch with the labour market in order to find a better job in the future. From this point of view, over-education could be thought of as being a sort of human capital investment (Green *et al.*, 1999).

A different interpretation of over-education is offered by matching theory. Under this lens, there might be a poor match between employer and employee causing over-education, often resulting in the worker looking for a better match elsewhere. The fact that both over- and under-education are to be found lends credence to the opinion that they are both indications of the occurrence of poor matching in the labour market. In this instance, over-education would be just short lived for the worker concerned (Green *et al.*, 1999). However, when persistent over-education occurs, according to Patrinos (1997), the focus needs to be shifted away from the individual and his/her characteristics towards institutions and policies regarding employment and vocational training across the focal society and its political economy.

The next section presents the micro-econometric work of the research.

4. Micro-Level of Analysis Ii: Econometric Analysis For Greece

4.1 The logit model for applying the micro-data of the Greek LFS

In this research, the individual anonymised records (micro-data) of the 1992, 1994 and 2000 Labour Force Survey (LFS) for both employed and unemployed (1.5% of the total population of each area) are examined, covering the spring and early summer, namely from the 14th to 26th week of the year. The reason these years are chosen is because 1992 was the first year in the Greek LFS questionnaire with detailed questions on training, 1994 was the first year after the end of the Community Support Framework (CSF)-1, whereas 2000 was one year after the end of the CSF-2.

A logistic regression model is used for studying differences between those that did participate in training programmes and those that did not. Moreover, regression models allow for group comparisons by adjusting for demographic and socioeconomic variables. All three years have merged together in order to take advantage of the time-series features of the data (three time-sets of observations in 1992, 1994 and 2000) and used dummies for the years instead. One logit model for all three areas under examination (Central Macedonia, Attica and the rest of Greece) with all the main effects, all variables of interest, plus all the control variables has been generated and has been run in a pooled format. Namely, all the available data have pooled together into one database. Also, some of the categorical variables with few observations (types of training) have been aggregated in order to increase the observations within each cell, so as to avoid exceptionally large coefficients and confidence intervals.

The base (or reference) categories are those with which the rest of the corresponding variables are compared. The reference categories are chosen so as to match the needs of the research.[2] In the next sub-section, the first part of the micro-level econometric analysis of the paper is discussed.

4.2 Main effects

The descriptive statistics of the logit model are summarised in *Table 2*.

Table 2: Descriptive statistics of the logit model
         The reference or base categories are in bold

Variables/Area/Year	Frequencies	Percent
Employed	138,405	90,4%
Unemployed	14,628	9,6%
Males	94,943	62,0%
Females	58,090	38,0%
Non-married	10,339	6,8%
Married or divorced or widows	142,694	93,2%

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[2] The working age population is between 14-65 years old. However, SPSS would not accept these age limits, defaulting to 13 and 66 years old, so people from 15 to 64 years of age were included, which the programme was able to compute.

Aged 15-24	19,395	12,7%
Aged 25-34	39,975	26,1%
Aged 35-44	39,708	25,9%
Aged 45-64	53,955	35,3%
Training	4,208	2,7%
Non-participation in training	148,825	97,3%
Greek Citizenship	149,881	97,9%
Foreigner Ctizenship	3,152	2,1%
Athens area	45,994	30,1%
Thessaloniki area	12,662	8,3%
Rest of urban areas	36,433	23,8%
Semi-urban areas	18,989	12,4%
Rural areas	38,955	25,5%
MSc or PhD holders	554	0,4%
University graduates	15,048	9,8%
TEI graduates	11,358	7,4%
Twelve years of schooling	40,762	27,8%
Nine years compulsory education	14,532	9,9%
Primary school graduates and below	64,561	44,0%
Central Macedonia	24,398	15,9%
Attica	53,773	35,1%
Rest of Greece	74,862	48,9%
Year 1992	53,297	34,8%
Year 1994	65,858	43,0%
Year 2000	33,878	22,1%

After taking into account missing records, restricting the sample by age (15-64 years old) and removing the non-active population, *Table 3* shows the numbers of records eligible for analysis in the LFS samples.

Table 3: Numbers of records eligible for analysis in the LFS samples

Year	Geographical level	No. of records
1992	**Greece**	**53,297**
	Central Macedonia	9,290
	Attica	20,301
	Rest of Greece	23,706
1994	**Greece**	**65,858**
	Central Macedonia	9,543
	Attica	22,399
	Rest of Greece	33,916
2000	**Greece**	**33,878**
	Central Macedonia	5,565
	Attica	11,073
	Rest of Greece	17,240

The *Table 4* presents the results (main effects), namely, the estimated coefficients (B), the standard errors (S.E.) and the p values for each explanatory variable in the logistic regression for unemployment in Greece. Column "Sig." (level of statistical significance or p value) provides the coefficients for the variables and those above 0.05 are not statistically significant. In *Table 4,* b_k is the log of the odds, whereas Exp (b_k) is the odds ratio.

Table 4

Results (main effects) for Greece, 1992, 1994 and 2000 (parameter estimates b_k, standard errors (s.e.), p-values, exponent of b_k)

Variables	b_k	S.E.	Sig.	Exp (b_k)
Gender	0 .915	0 .019	0.000	2.497
Marital status	-0.398	0.039	0.000	0.671
Aged 15-24	ref.	ref.	ref.	ref.
Aged 25-34	-1.023	0.024	0.000	0.359
Aged 35-44	-1.706	0.029	0.000	0.182
Aged 45-64	-1.977	0.031	0.000	0.139
University graduates	ref.	ref.	ref.	ref.
MSc or PhD holders	0.110	0.183	0.546	1.116
TEI graduates	0.371	0.046	0.000	1.449
12 years of schooling	0.601	0.038	0.000	1.824
9 years compulsory education	0.550	0.044	0.000	1.734
Primary school graduates and below	0.518	0.040	0.000	1.679
Rest of Greece	ref.	ref.	ref.	ref.
Attica	0.083	0.041	0.046	1.086
Central Macedonia	-0.075	0.041	0.064	0.927
Rural areas	ref.	ref.	ref.	ref.
Athens area	0.738	0.050	0.000	2.091
Thessaloniki area	0.787	0.054	0.000	2.196
Rest of urban areas	0.899	0.030	0.000	2.457
Semi-urban areas	0.518	0.037	0.000	1.679
Non-participation in training course(s)	ref.	ref.	ref.	ref.
Training	-0.013	0.052	0.808	0.987
Citizenship	0.077	0.058	0.179	1.080
Year 1992	ref.	ref.	ref.	ref.
Year 1994	0.025	0.022	0.266	1.025
Year 2000	0.055	0.033	0.096	1.056
Constant	-2.262	0.062	0.000	0.104

Females, non-married individuals, people in the age group 15-24 years old, people who lived either in the Athens or Thessaloniki areas, the other urban areas or semi-urban areas were more likely to be unemployed than males, married people, people aged between 25 to 64 and those in rural areas. University graduates had more chances of finding a job compared to all other educational categories apart from MSc or PhD holders (these differences were not found significant). These results are in contrast to some studies which have asserted the opposite. The variable 'immigrant status' was found to be statistically non-significant.

Most importantly, the participation in vocational training programmes did not seem to reduce the odds of unemployment, that is, training was found to be statistically non-significant during the first and the second CSFs. This means that the results of training variables are not compatible with the human capital theory. In other words, the more trained a person was did not affect his chances of finding a job, in Greece, during the time period of CSFs 1 and 2. The same results on training were found for other Greek regions and the entire country as well (see Livanos, 2007 and 2009; Rodokanakis, 2010a and 2010b; Rodokanakis and Vlachos, 2013). The exceptions are the findings for the region of Eastern Macedonia and Thrace in 2000 concerning the training variables 'apprenticeship' and 'CVT' (less likely to be unemployed than the non-trainees - see Rodokanakis and Vlachos, 2012).

Whether or not someone lived in Central Macedonia in 1992, 1994 or 2000 was statistically non-significant. By contrast, people who lived in the region of Attica were more likely to be unemployed than those living in the rest of Greece. Both of the years 1994 and 2000 were found to be statistically non-significant, i.e. the variable 'time' did not influence the probability of being unemployed.

In the main, the econometric results of this paper for Greece confirm the human capital theory concerning education, namely, university graduates had higher probabilities of finding a job than people from lower educational categories. However, this was not the case in the field of training, since this variable was found to be statistically non-significant.

Thus, it would appear that matching theory has better explanatory power than human capital theory in the Greek context. This is because the former perspective holds that those with more education need less training and in Greece there are many over-educated people.

4.3 Interaction effects among variables

For the 1992, 1994 and 2000 samples together, I fitted the interaction effects between education and gender, age groups and education, age groups and areas, age groups and years, gender and years, as well as education and residence location, years and education, and years and areas. Also, I fitted the interaction effects between training and age groups, training and level of education, training and geographical areas or residence location, and training and years.

In all tables of the interaction effects analysis, as with the main effects, the variable "MSc or PhD holders" was statistically non-significant. According to *Table 5-1*, females when compared to males, who were both Technological Educational Institutions (TEI) graduates, had lower probabilities of being employed in comparison to the case where both males and females were University graduates. In addition, females who were TEI graduates were 1.46 times less likely to be employed than males and this was similar for the remaining three educational categories in terms of gender.

Also, concerning age group and educational category, someone who was between 15 and 24 years old in the four educational categories was less likely to be unemployed in relation to those in this age group who were university graduates. The same applied to those aged 25-34. Moreover, people in the age group 45-64 were less likely to be employed than those in the same age group who were university graduates. In addition, in Attica, people aged 35-64 were more likely to be unemployed than those between 15 and 24 in the same region. Furthermore, someone aged 15-44 in all residential locations (Athens area, Thessaloniki area, semi-urban areas and rest of the urban areas) had less probability of being unemployed when compared to those in the same age group in rural areas; however, the opposite was the case in the age group 45-64. Moreover, females, when compared to males, had a lower probability of being unemployed in 1994 than in 1992. Age groups 15-24 and 25-34 in 2000 were less likely to be unemployed than the same age groups in 1992. In contrast, people in the age groups 35-44 and 45-64 were less likely to be employed than those in the same age groups in 1992.

Table 5.1

Interactions with education and gender, age groups and education, age groups and areas, age groups and years, gender and years (variables in the equation)

Variables	b_k	S.E.	Sig.	Exp (b_k)
Gender and University graduates	ref.	ref.	ref.	ref.
Gender and MSc or PhD holders	-0.286	0.385	0.457	0.751
Gender and TEI graduates	0.381	0.095	0.000	1.464
Gender and twelve years of schooling	0.559	0.078	0.000	1.748
Gender and nine years compulsory education	0.902	0.089	0.000	2.465
Gender and primary school graduates and below	0.681	0.079	0.000	1.976
Aged 15-24 and University graduates	ref.	ref.	ref.	ref.
Aged 15-24 and MSc or PhD holders	-0.976	1.241	0.431	0.377
Aged 15-24 and TEI graduates	-1.130	0.187	0.000	0.323
Aged 15-24 and twelve years of schooling	-0.905	0.156	0.000	0.404
Aged 15-24 and nine years compulsory education	-1.487	0.174	0.000	0.226
Aged 15-24 and primary school graduates and below	-1.929	0.155	0.000	0.145
Aged 25-34 and University graduates	ref.	ref.	ref.	ref.
Aged 25-34 and MSc or PhD holders	0.510	0.638	0.424	1.666
Aged 25-34 and TEI graduates	-0.784	0.163	0.000	0.457
Aged 25-34 and twelve years of schooling	-0.748	0.131	0.000	0.473
Aged 25-34 and nine years compulsory education	-0.931	0.154	0.000	0.394
Aged 25-34 and primary school graduates and below	-1.063	0.128	0.000	0.345
Aged 35-44 and University graduates	ref.	ref.	ref.	ref.

Aged 35-44 and MSc or PhD holders	0.651	0.717	0.364	1.918
Aged 35-44 and TEI graduates	-0.357	0.193	0.065	0.700
Aged 35-44 and twelve years of schooling	-0.071	0.153	0.645	0.932
Aged 35-44 and nine years compulsory education	0.047	0.177	0.791	1.048
Aged 35-44 and primary school graduates and below	0.052	0.146	0.723	1.053
Aged 45-64 and University graduates	ref.	ref.	ref.	ref.
Aged 45-64 and MSc or PhD holders	-0.329	0.624	0.599	0.720
Aged 45-64 and TEI graduates	0.652	0.157	0.000	1.919
Aged 45-64 and twelve years of schooling	0.431	0.126	0.001	1.539
Aged 45-64 and nine years compulsory education	0.717	0.146	0.000	2.049
Aged 45-64 and primary school graduates and below	0.850	0.120	0.000	2.339
Aged 15-24 and Attica	ref.	ref.	ref.	ref.
Aged 25-34 and Attica	-0.082	0.104	0.433	0.922
Aged 35-44 and Attica	0.265	0.119	0.026	1.303
Aged 45-64 and Attica	0.481	0.121	0.000	1.618
Aged 15-24 and Central Macedonia	ref.	ref.	ref.	ref.
Aged 25-34 and Central Macedonia	0.031	0.101	0.759	1.031
Aged 35-44 and Central Macedonia	0.067	0.120	0.578	1.069
Aged 45-64 and Central Macedonia	-0.012	0.126	0.927	0.989
Aged 15-24 and rural areas	ref.	ref.	ref.	ref.
Aged 15-24 and Athens area	-1.329	0.149	0.000	0.265
Aged 15-24 and Thessaloniki area	-1.650	0.166	0.000	0.192
Aged 15-24 and rest of urban areas	-1.245	0.096	0.000	0.288
Aged 15-24 and semi-urban areas	-0.903	0.115	0.000	0.405
Aged 25-34 and rural areas	ref.	ref.	ref.	ref.
Aged 25-34 and Athens area	-0.988	0.153	0.000	0.373
Aged 25-34 and Thessaloniki area	-1.331	0.166	0.000	0.264
Aged 25-34 and rest of urban areas	-1.054	0.099	0.000	0.348
Aged 25-34 and semi-urban areas	-0.715	0.118	0.000	0.489
Aged 35-44 and rural areas	ref.	ref.	ref.	ref.
Aged 35-44 and Athens area	-0.667	0.172	0.000	0.513
Aged 35-44 and Thessaloniki area	-0.930	0.190	0.000	0.395
Aged 35-44 and rest of urban areas	-0.594	0.113	0.000	0.552
Aged 35-44 and semi-urban areas	-0.454	0.134	0.001	0.635
Aged 45-64 and rural areas	ref.	ref.	ref.	ref.
Aged 45-64 and Athens area	1.506	0.086	0.000	4.509
Aged 45-64 and Thessaloniki area	1.324	0.112	0.000	3.758
Aged45-64 and the rest of urban areas	1.097	0.088	0.000	2.994
Aged 45-64 and semi-urban areas	0.813	0.103	0.000	2.255
Gender and year 1992	ref.	ref.	ref.	ref.
Gender and year 1994	-0.099	0.045	0.028	0.906
Gender and year 2000	0.060	0.052	0.243	1.062
Aged 15-24 and year 1992	ref.	ref.	ref.	ref.
Aged 15-24 and year 1994	-0.060	0.054	0.268	0.942
Aged 15-24 and year 2000	-0.961	0.074	0.000	0.382
Aged 25-34 and year 1992	ref.	ref.	ref.	ref.
Aged 25-34 and year 1994	-0.013	0.055	0.815	0.987

Aged 25-34 and year 2000	-0.331	0.065	0.000	0.718
Aged 35-44 and year 1992	ref.	ref.	ref.	ref.
Aged 35-44 and year 1994	-0.118	0.059	0.046	0.889
Aged 35-44 and year 2000	0.351	0.070	0.000	1.420
Aged 45-64 and year 1992	ref.	ref.	ref.	ref.
Aged 45-64 and year 1994	0.085	0.060	0.157	1.089
Aged 45-64 and year 2000	0.449	0.076	0.000	1.567
Constant	-0.502	0.130	0.000	0.605

According to *Table 5-2*, people aged 25-64 who had participated in vocational training courses were more likely to be unemployed than those 15-24 years old who had also done so. In addition, those who undertook training and were residents of the Thessaloniki area or the rest of the urban areas had more chances of finding a job in relation to people in agrarian areas who also participated in such courses.

Table 5.2

Interactions with training (variables in the equation)

Variables	b_k	S.E.	Sig.	Exp (b_k)
Gender and training	0.025	0.101	0.806	1.025
Aged 15-24 and training	ref.	ref.	ref.	ref.
Aged 25-34 and training	0.408	0.112	0.000	1.503
Aged 35-44 and training	0.484	0.149	0.001	1.623
Aged 45-64 and training	0.757	0.175	0.000	2.132
University graduates and training	ref.	ref.	ref.	ref.
MSc or PhD holders and training	-18.519	8563,539	0.998	0.000
TEI graduates and training	0.179	0.324	0.580	1.196
Training and twelve years of schooling	0.146	0.325	0.652	1.158
Training and nine years compulsory education	0.005	0.353	0.989	1.005
Training and primary school graduates and below	-0.249	0.411	0.545	0.780
Training and the rest of Greece	ref.	ref.	ref.	ref.
Training and Attica	-0.261	0.197	0.186	0.771
Training and Central Macedonia	0.452	0.250	0.070	1.572
Training and rural areas	ref.	ref.	ref.	ref.
Training and Athens area	-0.422	0.250	0.091	0.656
Training and Thessaloniki area	-0.992	0.305	0.001	0.371
Training and the rest of urban areas	-0.408	0.179	0.022	0.665
Training and semi-urban areas	-0.014	0.216	0.947	0.986
Training and year 1992	ref.	ref.	ref.	ref.
Training and year 1994	0.360	0.212	0.089	1.433
Training and year 2000	0.021	0.183	0.908	1.021
Constant	-2.243	0.062	0.000	0.106

According to *Table 5-3*, those who had been educated up to lyceum graduate level (12 years of schooling) living in the rest of the urban areas and not in rural ones, had a higher probability of being unemployed than university graduates residing in the same areas. This was also the case for those in semi-urban areas and in the Athens area, but in the Thessaloniki area this was so only for people with up to a high-school graduate level of education (nine years compulsory education). University graduates in Attica were less likely to be unemployed than in the rest of Greece. In both Attica and Central Macedonia, TEI, lyceum and high-school graduates were more likely to be employed than their corresponding educational categories in the rest of the country. Only those completing primary school education or below this level in both the NUTS-2 regions under investigation were more likely to be unemployed than the same educational category in the rest of Greece.

Table 5.3

Interactions with education and areas* (variables in the equation)

Variables	b_k	S.E.	Sig.	Exp (b_k)
University graduates in Athens area	ref.	ref.	ref.	ref.
MSc or PhD holders in Athens area	18.970	14594,110	0.999	17330000
TEI graduates in Athens area	0.116	0.171	0.496	1.123
Twelve years of schooling in Athens area	0.492	0.140	0.000	1.635
Nine years compulsory education in Athens area	1.187	0.153	0.000	3.277
Primary school graduates and below in Athens area	2.049	0.142	0.000	7.762
University graduates in Thessaloniki area	ref.	ref.	ref.	ref.
MSc or PhD holders in Thessaloniki area	18.777	14594,110	0.999	14280000
TEI graduates in Thessaloniki area	-0.204	0.202	0.314	0.816
Twelve years of schooling in Thessaloniki area	0.157	0.163	0.335	1.170
Nine years compulsory education in Thessaloniki area	0.578	0.189	0.002	1.783
Primary school graduates and below in Thessaloniki area	1.617	0.167	0.000	5.039
University graduates in the rest of urban areas	ref.	ref.	ref.	ref.
MSc or PhD holders in the rest of urban areas	19.015	14594,110	0.999	18110000
TEI graduates in the rest of urban areas	0.206	0.176	0.244	1.228
Twelve years of schooling in the rest of urban areas	0.607	0.144	0.000	1.834
Nine years compulsory education in the rest of urban areas	0.986	0.157	0.000	2.680
Primary school graduates and below in the rest of urban areas	1.905	0.144	0.000	6.721
University graduates in semi-urban areas	ref.	ref.	ref.	ref.
MSc or PhD holders in semi-urban areas	0.442	16746,825	1.000	1.555
TEI graduates in semi-urban areas	0.458	0221	0.038	1.581
Twelve years of schooling in semi-urban areas	0.635	0.182	0.000	1.886
Nine years compulsory education in semi-urban areas	0.814	0.198	0.000	2.258
Primary school graduates and below in semi-urban areas	1.493	0.181	0.000	4.450
University graduates in the rest of Greece	ref.	ref.	ref.	ref.
University graduates in Attica	-0.640	0.085	0.000	0.527
University graduates in Central Macedonia	0.003	0.109	0.981	1.003
MSc or PhD holders in the rest of Greece	ref.	ref.	ref.	ref.
MSc or PhD holders in Attica	-0.283	0.634	0.656	0.754
MSc or PhD holders in Central Macedonia	0.176	0.762	0.817	1.192
TEI graduates in the rest of Greece	ref.	ref.	ref.	ref.
TEI graduates in Attica	-0.855	0.077	0.000	0.425
TEI graduates in Central Macedonia	-0.389	0.105	0.000	0.678
Twelve years of schooling in the rest of Greece	ref.	ref.	ref.	ref.
Twelve years of schooling in Attica	-0.807	0.050	0.000	0.446
Twelve years of schooling in Central Macedonia	-0.384	0.069	0.000	0.681
Nine years compulsory education in the rest of Greece	ref.	ref.	ref.	ref.
Nine years compulsory education in Attica	-0.395	0.069	0.000	0.674
Nine years compulsory education in Central Macedonia	-0.246	0.095	0.010	0.782
Primary school graduates and below in the rest of Greece	ref.	ref.	ref.	ref.
Primary school graduates and below in Attica	0.395	0.069	0.000	1.485
Primary school graduates and below in Central Macedonia	0.246	0.095	0.010	1.279
Constant	-0.502	0.130	0.000	0.605

*Rural areas are set as reference across all interactions with areas

According to *Table 5-4*, all educational categories (apart from MSc or PhD holders) in 1994 were more likely to be unemployed than university graduates and the same was true for 2000. Also, in 1994, those living in Athens or Thessaloniki were more likely to be unemployed than people in rural areas, whilst the opposite was the case for those living in semi-urban areas in 1994 and 2000, as well as in the rest of the urban areas in 2000. Finally, in 1994 it was more likely that someone was unemployed in Attica than in the rest of Greece. Also, marginal effect analysis was conducted, but this did not contribute anything new or different in comparison to the analysis of the main effects and therefore it was omitted from the analysis.

Table 5.4

Interactions with years and education, and with years and areas* (variables in the equation)

Variables	b_k	S.E.	Sig.	Exp (b_k)
Year 1994 and University graduates	ref.	ref.	ref.	ref.
Year 1994 and MSc or PhD holders	-0.313	0.46	0.496	0.731
Year 1994 and TEI graduates	0.407	0.123	0.001	1.502
Year 1994 and twelve years of schooling	0.447	0.102	0	1.563
Year 1994 and nine years compulsory education	0.446	0.115	0	1.563
Year 1994 and primary school graduates and below	0.485	0.105	0	1.624
Year 2000 and University graduates	ref.	ref.	ref.	ref.
Year 2000 and MSc or PhD holders	-0.649	0.436	0.136	0.522
Year 2000 and TEI graduates	-0.059	0.129	0.65	0.943
Year 2000 and twelve years of schooling	0.16	0.108	0.14	1.173
Year 2000 and nine years compulsory education	0.163	0.124	0.188	1.177
Year 2000 and primary school graduates and below	0.53	0.113	0	1.698
Year 1994 and rural areas	ref.	ref.	ref.	ref.
Year 1994 and Athens area	0.17	0.071	0.016	1.186
Year 1994 and Thessaloniki area	0.188	0.096	0.051	1.207
Year 1994 and rest of urban areas	0.044	0.072	0.543	1.045
Year 1994 and semi-urban areas	-0.294	0.087	0.001	0.745
Year 2000 and rural areas	ref.	ref.	ref.	ref.
Year 2000 and Athens area	-0.084	0.08	0.295	0.919
Year 2000 and Thessaloniki area	-0.1	0.105	0.338	0.904
Year 2000 and rest of urban areas	-0.173	0.08	0.03	0.841
Year 2000 and semi-urban areas	-0.275	0.095	0.004	0.759
Year 1994 and the rest of Greece	ref.	ref.	ref.	ref.
Year 1994 and Attica	0.213	0.052	0.000	1.238
Year 1994 and Central Macedonia	0.126	0.069	0.067	1.134
Year 2000 and the rest of Greece	ref.	ref.	ref.	ref.
Year 2000 and Attica	-0.029	0.055	0.601	0.971
Year 2000 and Central Macedonia	0.140	0.073	0.057	1.150
Constant	-1.914	0.103	0	0.147

* Year 1992 is set as reference across all interactions with years

The micro-level individual characteristics analysis has addressed the question 'what was the impact of the training programmes at the participant level?' and links to next level, namely the organisation of VET system to facilitate skills formation and skills matching. In the next section, the training system is examined and the situation in the field of vocational training during the implementation of the first three CSFs is researched. Also, a critique of matching mechanisms in that country follows.

5. Meso-Level Analysis

The aim here is to describe the VET structure and investigate how adequate or not was the Greek organisational structure to do skills-matching, through secondary data (other studies). The meso-level organisational structure analysis addresses the question 'Was the training system, i.e. the institutions, in Greece, both regionally and nationally, effective in helping people to find jobs and if not, why?'. The next two subsections focus on the characteristics of the vocational training system in Greece during the time period of the study.

5.1 The Greek VET and CVT systems

To date, there has never been a single, official, institutionalised system of CVT in Greece, even though the term itself was introduced in the late 1980s. Vocational training in Greece developed fast and in an un-coordinated manner under the influence of funding from the ESF. As a result of this development there was a conceptual ambiguity in Greece concerning the distinction between activities of initial and continuing vocational training. Many organizations of CVT offered, in reality, initial-basic vocational training; for instance, many of their programmes provided general knowledge aimed at flexibilisation and adaptability, an objective which should be the target of basic training. Activities of CVT in the real sense of the word had, therefore, remained essentially marginal, both in terms of their extent and in terms of their role until the end of the 1980s (Chasapis, 1994). Since then, and especially during the period 1990-2010, there was an impressive development of CVT activities, mainly as a result of fast restructuring of manufacturing processes, due to the rapid introduction of new technologies to Greek industry and the service sector.

Although CVT was generally privatized, it was supported by the Greek state in the last decade of the twentieth century and in the 2000s. According to Prokou (2011), the increasing reliance on the private sector for training was because public initiatives against unemployment were increasingly being called into question.

There were problems which created obstacles and made it difficult for the CVT programme to reach its recipients, even when it was specially designed for them. This was the result of a lack of preparatory and reinforcing efforts as well as the absence of an adequate and effective information networks (Dedoussopoulos, 1996). There were no figures relating to the whole picture for the number of people who were working on CVT programmes (Iliades, 1995). Moreover, the programmes that were funded were selected using criteria that did not allow for the evaluation of their effects on production and employment. The prevailing criteria referred to typical specifications relating to the management of the programmes, and not to the content of the training. Owing to the impossibility of collecting the relevant information regarding the skills that were being selected and the content of the education, Centres of Vocational Training (KEK) programmes could not be evaluated (Linardos-Rylmon, 1998). Also, Brussels did not (and until now does not) evaluate the impact of vocational training programmes funded by the EU on the Greek labour market, focusing only on ensuring that bureaucratic and financial controls were in place.

The lack of a general institutional framework in relation to CVT resulted in, apart from other things, the weakness of the planning and application of a training policy, in connection with the development of specific geographical regions and branches of the economy (Iliades, 1995). The education-training policy could not, by itself, constitute the solution to unemployment, because unemployment was not exclusively due to the lack of educational qualifications and skills, but to the absence of a particular model of economic development (Chletsos, 1998).

5.2 Vocational training in Greece during the first three CSFs (1989-2006)

Even during the CSF-2 an issue of fundamental importance in the field of CVT was that there was no certification or recognition of skills and competences acquired by trainees. No system of examinations was in place and the structure and content of curricula was not controlled, which came under the responsibility and jurisdiction of the KEK. Thus, ordinary certificates of course attendance issued to participants had no value whatsoever in the labour market, as they reflected no recognised qualifications (IN.E./GSEE-ADEDY, 2000). As a result, a system similar to that of initial training was established for CVT, the main features of which were as follows:

- The majority of training course contents were neither job-specific nor firm-specific, but rather subject-specific (annual report by the National Employment Observatory - GSEE, 1999).
- The prevalence of a casual attitude to the preparation of curricula and the selection of teaching means, teaching methods and teaching staff (KEPE-REMACO, 1998).
- The absence of any systematic monitoring and evaluation of the activities of various agencies (apart from bureaucratic controls) and the skills and knowledge acquired by the trainees upon completion of the course, which often led to the preparation of programmes only minimally corresponding to the objectives and principles of the implementation framework (IN.E./GSEE-ADEDY, 2000).
- Difficulties in implementing actions, especially the more innovative ones.
- Lack of data with clear information on the funds spent on different programmes, e.g. comparing programme participants and their educational characteristics (IN.E./GSEE-ADEDY, 2000).

The 2000-06 Operational Programme (OP) of CVT and Promotion of Employment was one of the most important policies for the development of human potential in the country (IN.E./GSEE-ADEDY, 2000). The programme was characterised by contradictions in the preparation of policies responding to recognised needs for the development of the human potential in Greece, also being limited to generalities. Furthermore, there was a lack of co-ordination of policies and actions to resolve the employment issue, which were not fully processed and, therefore, the programme could not guarantee their timely, reliable and effective implementation. Finally, all the vocational training policies, whether they were initial, continuing or training for the unemployed, did not apply a complete system of evaluation and observation of their results that allowed permanent re-providing and readjustment. Instead, they functioned as closed systems where the determining factor for the planning and materialization of policies was the supply and not the demand of the relative vocations and specializations (INE/GSEE-ADEDY, 2007).

5.3 Matching mechanisms in Greece

In Greece, the matching of labour supply and demand remained the exclusive responsibility of the state during the reference time period of the study, and legally the only institution competent to supply such services was the Manpower Employment Organisation (OAED). Efforts to rationalise the distribution of personnel and the staffing of employment bureaus - both territorially and administratively - made during the 1980s came to nothing. It should be noted, meanwhile, that the staff of the organisation had been significantly reduced over the period 1987-1997, while at the same time there had been a considerable increase in the volume of work (unemployment subsidies and active interventions) (Dedoussopoulos *et al.*, 1998). Subsequently, several international institutions (OECD, EU) viewed reforming the OAED as essential, if Greek employment policy were to be improved. In line with this, successive laws were passed during the late 1990s and 2000s, which represented a substantial break from the historical legacy of immobility and stagnation (Zartaloudis, 2014).

The nature of European Employment Stategy (EES)-induced change was indirect, whereby the Greek employment policy introduced new programmes through Centres of Employment Promotion (KPA) and KPA2, aimed at providing individualized support to the unemployed in the form of consultation, training and employment subsidies. Nevertheless, the EES did not succeed in heading off the original aims of the Greek employment policy, KPA and KPA2, because they did not replace the OAED as its main institution (see Zartaloudis, 2014). Indeed, despite the change of the Greek employment policy's content, it remained and Europeanization was outsourced to small independent agencies tasked with delivering the new EES-induced policy. Consequently, it becomes apparent that the EES did not bring about a paradigm shift in the Greek employment policy. That is, Greece merely adjusted its existing processes, policies and institutions without altering their basic features or the underlying collective meanings attributed to them. In particular, although there was pressing the need to provide robust data on ESF programme performance, the Greek employment policy did not manage to achieve this. As a result, there was little produced at the policy evaluation level and there was no change at the domestic level, largely because the EES drivers failed to take hold.

6. Linking This Research To The Present Economic Situation In Greece

Employment in Greece was seriously affected by the crisis (starting according to official data on the third quarter of 2008 - EL.STAT), raising the estimated structural unemployment and the long-term unemployment (LTU) even further (OECD, 2011). High structural unemployment probably reflected policies that caused the labour market to function less strongly, including quite rigorous employment protection legislation, according to OECD surveys (OECD, 2009). Obstacles, like restrictions on investment, have also been noted by business surveys (World Bank, 2010).

It appears that cyclical unemployment has become structural in Greece, which means that it is more difficult to return people to employment after the recession (OECD, 2010; Guichard and Rusticelli, 2010).

In the past, the weaknesses of budget deficits, increasing public debt and a growing external trade deficit, had been partly offset by EU funds and policies. However, by 2009 the Greek economy was in an extremely bad way (Bakas and Papapetrou, 2014).

Since 2008, the GDP has fallen by over 25% (Antonopoulou *et al.*, 2014) and the events that caused this have been subject to heated debate. There are still unresolved questions regarding the extent of the problem, its management by the then Government and the rationale for the policy advocated (Dedoussopoulos *et al.*, 2013). In terms of figures, the unemployment rate rose from 7.7% in 2008, with the onset of recession, to over 27.8% in October 2013. In absolute terms, 1,000,000 more people became unemployed, making a total of 1,387,520 persons (EL.STAT, LFS, January 2014), of whom, 71% have been out of work for over a year (EL.STAT) (Antonopoulou *et al.*, 2014). These statistics are the worst for any Western economy since the Second World War and even the 1929–34 U.S. Great Depression levels have been overtaken by Greece in terms of depth and duration (Papadimitriou *et al.,* 2013).

Concerning now the linking of past and present in Greece comparing the micro and meso levels, what this research found is that:

(a) there was no effect of training for the period under investigation (micro-level). This finding has been further contextualised with reference to secondary analysis of evidence and available academic research. The findings show that:

(b) this 'non-effect' took place in (and can be seen as a by-product of) a particular context of vocational training 'system' that had specific characteristics (meso-level);

So, logically, one can expect that if (b) continues to be unreformed in the second period under investigation (post crisis Greece) then (a) will also remain the same. From the author's preliminary extra work it does not seem to be any serious changes in the reforms in the VET system, to indicate that any change in the outcomes is to be expected. Of course, this is an empirical question that we can only be expected to investigate as part of future research. The EU seems to continue to promote/fund training inspired by the same paradigm - which does not seem to work for Greece. Current reforms in Greece seem only to drive the labour costs even lower without any increase in demand for high skills. The solution for many well educated Greeks is now to migrate to Northern Europe. This could prove to be serious barrier to any re-orientation of the Greek economy involving higher level skills (Dedoussopoulos *et al.*, 2013). Also, the increase in social security demand will drive pensions down with significant new resources being allocated to pension funds (Dedoussopoulos *et al.*, 2013).

The next section is the concluding section of the paper.

7. Conclusion

The econometric results for Greece (main effects) support the human capital theory with regards to education, i.e. university graduates had a higher probability of finding employment than people with lower education levels. Hence, the findings of this paper support the main policy lessons of human capital theory in the field of education. However, this was not so in the case of training, as this variable emerged as being statistically non-significant. That is, the results of the logit model confirm the conclusions of the various studies that there was very limited impact of training on the labour market in terms of helping people to find long-term employment (see the critique of the vocational training policies in Greece in section 5). Also, the output of the logit model contrasts with some studies in that they found a positive impact of apprenticeship on the labour market (see below).

Regarding the interaction effects analysis, the findings in relation to education support the human capital theory, with the exceptions to this being the relation between educational level and age groups 15-34. Hence, most of the educational variable findings concerning this aspect of the analysis did not support human capital theory. In particular, the more educated a person was did not mean an improvement in his/her position in the Greek labour market during the period 1988-2000. These findings on education are consistent with those of some studies and aggregate statistics mentioned in section 1, which assert that university graduates in Greece were not in a better position in the labour market than non-university degree holders with regards to the probability of finding a job.

The results of the interaction effects analysis for training are not different from the findings of the main effects, with the exceptions being the age groups 25 to 64, who were more likely to be unemployed in relation to those 15-24 years old and concerning training, people who lived in Thessaloniki or in the rest of the urban areas were more likely to be employed than those living in rural ones.

In other words, the chances of finding a job did not change when training is counted as an additional qualification in relation to the other characteristics of individuals in the LFS.

These results were expected, first, because the findings on all training variables in the logit model were non-significant and second, because the number of training records used was apparently even smaller when the interaction effects were examined, hence logically, the same outcomes would be expected.

The results support matching theory better than human capital theory, because the former supports the perspective that more education leads to less training and Greece has many over-educated people. This supports even more my stance that the human capital theory could (and still can) not provide an explanation for the training configuration found in Greece. One of the contributions of this paper is that, given the experience in Greece, it is evident that abstract micro-level theories of skills mismatch, like the human capital theory, cannot be applied in political economies where labour markets cannot absorb high skills and where demand for jobs requiring these is weak.

The results of this research indicate that the mismatch between supply and demand for labour could be partially attributed to the training mismatch, but this was only one cause of the unemployment problem. The econometric findings on training are in line with those of Livanos (2007 and 2009) and to the best of my knowledge, our studies are the only econometric studies for Greece on this topic based on LFS micro-data. The results of this paper, in general, verify the conclusions of the studies carried out by other authors discussed in section 5 based on qualitative research concerning the impact of training courses on the Greek labour market (meso-level). However, the econometric findings contrast with a number of studies that set out to evaluate the apprenticeship system in Greece as a whole and found a positive influence (Kassimati *et al.*, 1984; University of Macedonia, 1994; University of Patra, 1994). But they are consistent with the more pessimistic perspective that the training was not 'fit for purpose' as determined in other studies (University of Piraeus, 1990; University of Piraeus Research Centre, 1994), and even by the OAED itself.

Of course the current crisis has not been magnified in Greece because of the ineffectiveness and inefficiency of these training programmes, but has to do with the structural problems already existing in the economy and the labour market well before the crisis. The country entered the euro under these conditions and dynamics and their non-resolution contributed, to an extent, to the country's current economic and social bottlenecks (Rodokanakis, 2017).

Although the EU approach to vocational training is very much influenced by the human capital theory, the Greek VET system was, and remains, incompatible with this EU perspective. In other words, the human capital theory on training does not appear to be applicable in the Greek context. Still, for the period under investigation, the high-skilled labour force could not be absorbed in Greece. It appears that a strategic plan to create demand for training was absent. Intentionally or not, the evidence suggests that EU funded training was utilized more for 'parking' the unemployed and less as part of a well articulated national economic strategy.

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