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**Working Paper**

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regional development:  
a case study**

ISSN: 1827-3580  
No. 04/WP/2019





## European Social Fund's lifelong learning and regional development: a case study

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**Abstract:** The aim of this paper is to evaluate the first impacts of the European Social Fund (hereafter ESF) lifelong learning interventions on the regional development. As is well known, lifelong learning is defined as the all purposeful learning activity, undertaken throughout life, on an ongoing basis, with the aim of improving knowledge, skills, and competence within a personal, civic, social and/or employment-related perspective (CEC, 2000). Beyond the benefits, lifelong learning represents an advantage for the regional economy that could be measured in terms of both estimation of direct impact on domestic demand and evaluation of impacts on the performance of the local economies. The combination of these two kinds of effects generates a positive impact on a wider scale: a higher and skilled workforce attracts more investment, contributing to improve the well-being of a local economy. The case study is the Veneto region. The applied methodologies used in the case study are both a survey and an econometric model. In the first case, the utilized method approaches the topic from a microeconomic perspective, while in the second case the approach is purely macroeconomic.

**Keywords:** Education, Lifelong learning, Regional economic development, regional policy, regional labour market

**JEL Codes:** H75, R58, R23, I26

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*This Working Paper is published under the auspices of the Department of Economics of the Ca' Foscari University of Venice. Opinions expressed herein are those of the authors and not those of the Department. The Working Paper series is designed to divulge preliminary or incomplete work, circulated to favour discussion and comments. Citation of this paper should consider its provisional character.*

# 1. Introduction

The shaping of the concept of lifelong learning started in the mid-1960s when the boom of technology triggered the need for continuing education: professional skills required regular improvements as technology upgraded and new industries emerged (Faure, 1972). Later the lifelong education became common in the 1970s (OECD, 2001) when it was prompted by UNESCO (Tuijnman & Bostrom, 2002) as part of its “Education for all” campaign<sup>1</sup>. However, all this remained at the level of a policy document at the time (Borg & Mayo, 2005), only in the early 1990s lifelong learning has been translated into action with various programs (Pepin, 2007). In the last decades, many instruments have been promoted especially by the public institutions to finance and support lifelong learning policies. This coincided with a global scenario featured by the increase of globalization, involving the mobility of both labour force and capital across different boundaries (Borg & Mayo, 2005).

In the case of the European Union, education has been considered, on the one hand, an instrument to bring nations closer and to pool their infrastructural resources, with the intention to render societies and economies competitive (Murphy, 1997). On the other hand, it has been deemed as equipment to empower citizens for actively handling the consequences of globalization, demographic and market modifications, digital technology and environmental problems (CEC, 2001; Cedefop & Eurydice, 2010).

At the European level, one the most important tool that operates in this area of interest is the European Social Fund (hereafter ESF), a major funder of the lifelong learning activities across the EU27.

The ESF<sup>2</sup> supported and is supporting explicitly lifelong learning, through measures and interventions that foster the economic, employment and social objectives of the EU and the Member States<sup>3</sup>.

To realize its interventions, the EFS *modus operandi* consists on designing a period programme of seven years, during which it participates in financing the activities according to a partnership established between the Member State (and/or regions) and the European Commission (European Social Fund, 2016a). The functioning of the EFS follows two fundamental principles:

- Co-financed programmes ensure ownership at both national and international level: public or private financing accompanied the EFS funding, the rates in average vary between 50% and 85% of the total project costs depending on the relative wealth of the region (European Social Fund, 2016a).

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<sup>1</sup> Literature of the main theorists who actively collaborated with the UNESCO Institute of Education’s programme of work on lifelong education from the late 1960s: Adiseshiah (1973), Manzoor (1982), Bélanger (1994), Copley (1977, 1978, 1980), Ravindra H. (1973, 1976), Gelpi (1984), Giere (1974, 1994), Torsten (1968, 1974), Knoll (1974), Lengrand (1970) and Suchodolski (1972, 1976).

<sup>2</sup> Regulation (EU) No 1304/2013 of the European Parliament and of the Council of 17 December 2013 on the European Social Fund and repealing Council Regulation (EC) No 1081/2006.

<sup>3</sup> EFS, with the European Regional Development Fund and the Cohesion Fund, is supporting the 2014-2020 strategy, in particular the priorities 8<sup>o</sup>-11<sup>o</sup>: promoting sustainable and quality employment and supporting labour mobility; promoting social inclusion, combating poverty and any discrimination; investing in education, training and lifelong learning; improving the efficiency of the public administration.

- Shared management allows for taking responsibility at the appropriate level during the execution of the programme (European Social Fund, 2016a).

Each Member States and/or regions agreed, in the Partnership Agreements, the strategic objectives which are furthered into concrete actions through the Operational Programme (OP), whose expectations are to provide each territory with efficient and effective instruments to face their needs relatively to the agreed themes (European Social Fund, 2016b).

Given this framework, the lifelong learning policies assumed certain practical importance especially with the raising of the application of new technologies to business and the changes in the labour markets. If businesses own quality human capital and have an opportunity to employ it efficiently, then they become more successful in both technology and revenues (Korshunov & Gaponova, 2017). The modifications in the market that followed the economic crisis in 2008 (Choudry et al., 2012; Verick & Sher 2009) highlighted gradually the value of knowledge as an asset in modern economy (Sahlberg, 2006), in a context dominated by dynamism and uncertainty the supply of professional skills contributed as one of the factors of labour productivity growth (Bassanini et al., 2007; Gimpelson et al., 2017).

Following these premises, the measurement of the effectiveness of the lifelong learning policies, announced by the EFS and reached through OPs, on the regional economic development is a fundamental tool to evaluate and to improve the planning of future policies, thus it is treated as the case study of this paper.

## **2. Methods**

The general aim of the analysis is the measurement of the impacts generated by the lifelong learning activities on the regional competitiveness, in order to support the public administration both in the evaluation of announced policies and in the individuation of corrections, if any, for future policies planning.

The methodology utilizes two different kinds of approaches: a macroeconomic and a microeconomic one.

### **The Macroeconomic Approach**

The macroeconomic approach is aiming to evaluate the effects of the policy with the use of an econometric model. Since a high number of empirical questions, especially in economics, depends on causal effects of programs or policies, then in the last two decades much research has been done on the econometric and statistical analysis of the effects of economic policy programs (Imbens et al., 2009).

The central point studied in the recent literature (Heckman<sup>4</sup> et al., 2000; Rubin, 2006; Heckman & Vytlacil, 2006; Morgan & Winship, 2007; Angrist & Pischke, 2008;) regards the evaluation of the effects originated by the exposure of a population to a policy program on some outcome. In economic studies, the population - set of units - is a group of economic agents such as individuals,

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<sup>4</sup> From this author please see also preceding literature: Heckman & Robb, 1985; Heckman & Hotz, 1989; Heckman et al., 1997.

households, markets, firms, counties, states or countries, whereas the policy programme can be job search assistance programs, educational programs, etc. (Imbens et al., 2009).

A critical feature involved in the evaluation is that generally each unit can be exposed to one or more different levels of the programme: an individual may enroll or not in a training program, or may receive or not a voucher, or be subject to a particular regulation or not, etc. (Imbens et al., 2009). Taking into account all the critical circumstances, the central object of an econometric analysis of this kind is a comparison of two outcomes for the same unit when exposed, and when not, to the programme (Imbens et al., 2009).

Following this *modus operandi*, the econometric model used in this research aims to compare the value of the main macro-variables (employment, unemployment, added value, households' disposable income) in two different scenarios: the benchmark where all the lifelong training policies have been adopted and the alternative, which does not include any policies.

The comparison has been generated using the GREM-VE (GRETA Regional Economic Model Veneto) econometric model that, after the estimation and/or measurement of the direct effects of the policies, allowed to simulate the paths of the main macro-variables in the alternative scenario. Whereas, being the proposed analysis an *ex-post* one, the benchmark scenario represents the status-quo, hence has been described by the observed and forecasted paths of the same variables. The result, in terms of effectiveness, of the lifelong learning policies on the macro-indicators of the regional economy is calculated as the difference between the two outputs.

The GREM-VE model has previously been used to evaluate the anti-crisis measures in the Operative Regional Programme ESF 2007-2013 and to define the regional future perspectives in the Veneto region (Regione del Veneto, 2009). Moreover, the GREM-VE and its satellite model, that predict the value of provincial economic variables, have been used to define the economic strategical aspects for future policies in the strategical infrastructural plan of the Veneto region (Regione del Veneto, 2006). They have been also used to evaluate the activities of the *Ente Bilaterale Artigianato Veneto* (Pastore et al., 2014).

The GREM-VE is a structural model, which consists of a high number of behavioural dynamic equations and identities describing the whole regional economic system. It is based on annual frequency data and it is focused on the regional labour market dynamics - of the Veneto (VE) region in this case - allowing medium-long term analysis.

The equations in the model can be divided into six groups:

1. National accounts (GDP, national expenditures, gross fixed capital formation, import and exports, reserves);
2. Disposable household's income;
3. Disaggregated added value for the agricultural sector, fishery, industry, construction, and services;
4. Import and export;
5. Prices of demand and supply;
6. Labour market. This last group is sub-divided into other four groups of equations:
  - a. Wages and salaries (disaggregated per each sector of activities);
  - b. Productivity and total labour units (disaggregated per each sector of activities);
  - c. Employees labour units (disaggregated per each sector);
  - d. Labour force, employed and unemployed from the continuous monitoring of labour forces.

The analysis purpose is to estimate/simulate the economic impacts of the European Social Fund's lifelong learning in the period from 2014 to 2023, in order to allow the model to explain all the multiplicative effects of the policies, in the long term.

In the "observed period", 2014-2016, the benchmark scenario is represented by the ISTAT<sup>5</sup> regional data, whereas for the "unobserved period", 2017-2023, by the nowcasts (2017-2018) and forecasts obtained from the GREM-Model. The model is estimated on the basis of the EUROSTAT<sup>6</sup>, IMF<sup>7</sup>, and OECD<sup>8</sup> international databases and on ISTAT national and regional data, available on 30<sup>th</sup> October 2018. For the period 2017-2023, regional nowcasts and forecasts are obtained making the hypothesis on the international and national scenario, in particular, those formulated in IMF (2018) have been assumed.

The direct effects of the European Social Fund's lifelong learning, used to shock the GREM-VE model and obtain the paths of the macro-variables in the alternative scenario, have been measured and/or estimated using the data available at the 31 December 2017 offered by the Cabina di Regia of Veneto region and the Regional OPs.

## **The Microeconomic approach**

The microeconomic approach aims to investigate the effects of the lifelong learning policies on the regional enterprises business performances, focusing on the benefits registered by each beneficiary of the activities proposed during the learning period.

The use of a survey in descriptive or explanatory research and its features are discussed in many research methods texts (Saunders et al., 2009; Bell, 2005; Oppenheim, 2000; Fink, 2003b), moreover literature includes also specific indications and tailored design methods about how they should be constructed to identify and describe the variability in different phenomena (Gill&Johnson, 2002). The survey is one of the most widely used data collection techniques since each respondent is asked to respond to the same questions, it provides an effective way of collecting responses from a large sample prior to quantitative analysis (Saunders et al., 2009). In order to collect this information, an *ad hoc* questionnaire has been drawn up and approved by the EFS authority. The data gathered include suggestions to understand how beneficiaries perceived and evaluated the concrete benefit derived from the learning activities.

The structure of the survey used for the case study's research presents three different parts according to the three types of data variables that could be collected through questionnaires (Dillman, 2007):

Part I – General Information. The variables are classified as *attributes*. They contain data about the respondents' characteristics, which means things a respondent possesses, rather than things a respondent does (Dillman, 2007). They are used mainly to check that, by investigating a sample, the data collected are representative of the total population (Saunders et al., 2009). Attributes include characteristics such as age, gender, place, education, occupation, etc.

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<sup>5</sup> <http://dati.istat.it/>.

<sup>6</sup> <https://ec.europa.eu/eurostat/data/database>.

<sup>7</sup> <https://www.imf.org/en/Data>.

<sup>8</sup> <https://stats.oecd.org/>.

Part II – Activities. The *behavioural variables* set out in the second part contain data on what people (or their organizations) did in the past, do now or will do in the future (Dillman, 2007). In the study case, behavioural variables are referred to the activities carried out during the lifelong learning practical courses attended by the respondents.

Part III – Results. The *opinion variables* collected in this last part record how respondents feel about something or what they think or believe is true or false (Dillman, 2007). In the study case, the opinion variables are the most important output since they express the resulted impacts of the lifelong learning policies on the organizations where they have been applied.

Regarding the type of chosen questions, the survey includes a combination of open and closed questions questionnaire, as typically happens (Saunders et al., 2009). Closed questions, or forced-choice questions (deVaus, 2002), provide a fixed number of alternative answers from which the respondent has to choose. This type of question is usually both easier to answer, as they do not require writing, and easier to compare since they have been predetermined (Saunders et al., 2009). One of the main benefits of the survey techniques lies in the easy interpretation of the responses, without this benefit the overall advantage given by this technique would be marginal (Foddy, 1994; Robson, 2002). Open questions allow respondents to give answers in their own way (Fink, 2003a) and are useful to collect final possible recommendations.

Other than benefits, it is useful to highlight also the most common type of errors derived from the use of these techniques. Typically, there are three kinds of errors:

- The first one is related to the formulation of the sample, unavoidably there are differences between the actual population and the sample, so the last one must be of a certain necessary size to be representative of the population;
- The second type of error is related to the possible fact that not all the respondents accounted in the sample size will answer the questions;
- The third error includes all the distortions in the procedures of carrying out the investigation, like the ones due to the structure (unclear questions) or to the behaviour of the respondent (low attention level in filling the answers) (Visser et al., 2009).

The survey has been carefully structured to reduce as much as possible the comprehension errors. Having considered the timing and sample size of the case study, the survey has been spread to the respondents in the form of computer-assisted web interviewing (CAWI). Adopting this web-based approach observes netiquette, which means that respondents can remain anonymous and, of equal importance, are unable to modify the questionnaire (Witmer et al., 1999). Internet-mediated surveys are usually conducted via email or via website (Hewson et al., 2003), the email method has been used in the case study, since the authors have been given the possibility by Regione Veneto to access the email addresses database of those who attended the lifelong learning activities. Moreover, the questionnaires have been accompanied by an informal (not institutional) covering letter<sup>9</sup>, which explains the purpose of the survey.

Before using the surveys, it has been successfully pilot tested.

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<sup>9</sup> Research by Dillman (2007) and others has shown that the messages contained in a self-administered questionnaire's covering letter will affect the response rate.

### 3. The case study

The case study is the Veneto Region ESF Operational Programme 2014-2020.

Veneto Region is situated in the Northeast of Italy, with a population of approximately 4.9 million people (about 8% of the total Italian population) and a surface area of about 18,400 km<sup>2</sup> (about 6% of the overall Italian territory). Even if its economy is based on SMEs (small and medium enterprises) spread throughout the territory, the region hosts internationally recognised clusters such as the eyewear industry and precision mechanics (Unione Camere Veneto, 2016). SMEs with a high work intensity tend to be concentrated in the plain and coexist with a myriad of small farms. Actually, and despite the economy of Veneto being based on industry and tourism, there is a notable tradition of agricultural production.

In contrast to the trends of previous decades, in recent years, Italy's population growth seems to be slowing, which is reflected in the Veneto region (a decrease of 0.41%, about 20,067 individuals, from 2015 to 2017). In fact, since 2015, the number of Italian permanent residents in Veneto has reduced for the first time in 60 years. The breakdown of the evolution of its population by age confirms the progressive change in the structure of its population, which is increasingly concentrated in the highest age groups.

This area has been affected by the social-economic repercussions due to the crisis in 2008, that destabilized both the Italian productive system and the job market. As it is well-known, developed and emerging countries registered a weak recovery of the economy in 2016, that consolidated along the same year and in the first half of 2017 (ISTAT, 2017a). In Italy, the economic recovery arrived some trimesters later than the average and it has been mainly supported by the internal demand. The recovery trend has been registered also in the job market: the employment rate in the first semester of 2017 reached the pre-crisis level of 2008 (ISTAT, 2017b).

Looking at the region of Veneto: the productivity of the industrial sector started to slowly increase in 2014, especially in the machinery sectors; exports of goods also grew, following the global demand and the rising of consumers (ISTAT, 2017a). Moreover, the employment rate recovered (+2.1%), particularly under the push of a greater number of fixed-term contracts (ISTAT, 2017a).

In this context, the productivity of the Venetian companies, which is mainly supported by the small and medium enterprises, had to face the market structural modifications due to globalization, technological progress, modernization, requiring higher and more specialized skills (Banca d'Italia, 2018). Consequently, investments in human resources have become necessary. The realization of politics focused on the theme of lifelong learning aims to adapt the existing competencies to the new processes as well as to develop new skills, to increase the efficiency, especially for those workers whose abilities risk to become outdated in the near future. Moreover, a higher skilled workforce attracts more investments, producing positive effects on a local scale (Ministero del Lavoro, 2016).

Following these premises, the Veneto region, in the planning period that goes from 2014 to 2020, has announced the realization of policies aimed to support the regional enterprises and the competitiveness of the entire regional economy. These policies are focused on helping concretely the enterprises in the realization of learning activities to improve and upgrade the skills of their workforce, providing an answer to the training needs.

## 4. Results

The results are presented in the following order: econometric model's output; the survey's output.

The objects of the analysis are the beneficiaries of the lifelong learning activities financed by the ESF programme, which database period goes from 2015 to the 12.31.2017, the total investment amount is about 102 millions of which 25 devoted to lifelong learning projects.

### Econometric model: output.

The EFS programme goes from 2014-2020, the analysis considers the period that goes from 2015-2023 to let the policies show their effects.

For the application of the econometric model, the largest direct effects imputed as inputs regard the total work units (Table 1).

**Table 1 - Veneto - Total work units in the two different scenarios (thousand) and exogenous variation**

| Year | Application of EFS lifelong learning policies (Benchmark scenario) | No EFS lifelong learning policies applied (Alternative scenario) |           |        |
|------|--|--|-----------|--------|
|      | Levels (A)   | Levels (B)   | C = B - A | Var. % |
| 2015 | 2 040.5  | 2 040.5  | 0.00      | 0.000  |
| 2016 | 2 070.2  | 2 070.0  | -0.21     | -0.010 |
| 2017 | 2 095.9  | 2 095.4  | -0.48     | -0.023 |
| 2018 | 2 110.9  | 2 109.5  | -1.42     | -0.067 |
| 2019 | 2 123.7  | 2 121.5  | -2.11     | -0.099 |
| 2020 | 2 137.7  | 2 135.6  | -2.11     | -0.099 |
| 2021 | 2 152.5  | 2 150.4  | -2.11     | -0.098 |
| 2022 | 2 168.5  | 2 166.3  | -2.11     | -0.097 |
| 2023 | 2 185.1  | 2 183.0  | -2.11     | -0.097 |

Source: GRETA elaborations on ISTAT dataset and Veneto's Monitoring Tank

The last column on the right shows the percentage variation of the total work units between the two scenarios. These results highlight the role of lifelong learning in terms of the percentage of workers directly involved in the learning activities compared to the regional total workers.

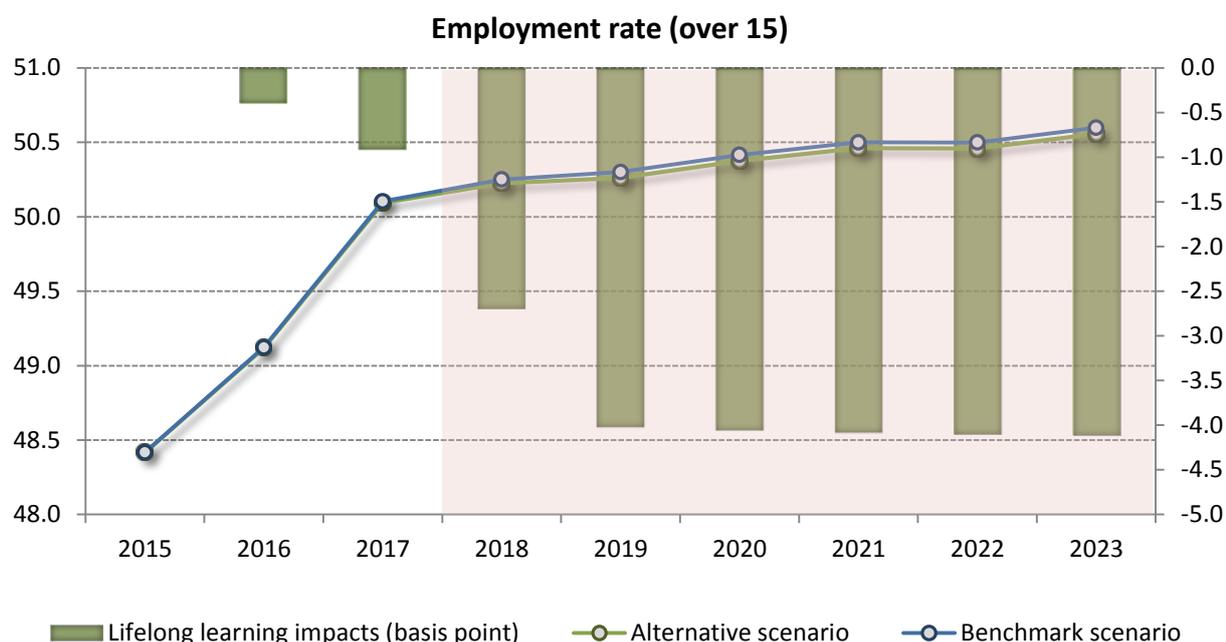
In particular, if the lifelong learning activities had not been implemented (alternative scenario), the esteemed negative variation of the total work units would have been in a range between -0.01% in 2016 to a minimum of -0.1% from 2019 on. Indeed, the lifelong policies contributed and can contribute in the near future to improve the total work units in the regional territory.

Looking at the work productivity, it is worth mentioning that the possible rise in productivity originated from the increased *know-how* of human capital, thanks to lifelong policies, could bring important multiplicative effects in coming years that will contribute to developing the economy.

To measure the effects of the policies on work productivity (calculate as the ratio of the value added on the total work units), first of all, it is necessary to isolate the number of subjects that took part in the courses each year. This percentage, with respect to the total workers, allows calculating the

increase in productivity (as the added value per each employee after the participation to the lifelong learning activities). The productivity's variation is calculated as the difference between the alternative and the benchmark scenario, however, some hypothesis about the improved work performance of beneficiaries is required. According to the literature (Treyz e Treyz, 2002), it has been assumed that the productivity of 20% of beneficiaries increases by 5% after the learning activities. Given this hypothesis and that the interventions, until the end of 2017, involved about 10 500 workers, the direct estimated effects, as ratios on the whole regional productivity, are positive even if small.

**Figure 1 - Employment rate (over 15) in the two different scenarios (% - left scale) and impacts respect to the benchmark scenario (basis point – right scale)**



Source: GRETA elaborations on ISTAT dataset and Veneto's Monitoring Tank

The GREM-VE model made it possible to measure the impacts on some indicators of economic development, specifically: employment, disposable income, and added value. With regard to the two latter indicators, negligible impacts were observed, as expected given the amount of financial resources handled by the projects for lifelong learning projects. However, observing the impacts on the employment rate, it could grow from 1 to 4 basis points in the period 2017–2023 (Figure 1). Considering the numbers of directly involved beneficiaries and the dimension of investment, these results seem to be acceptable.

### Survey: output

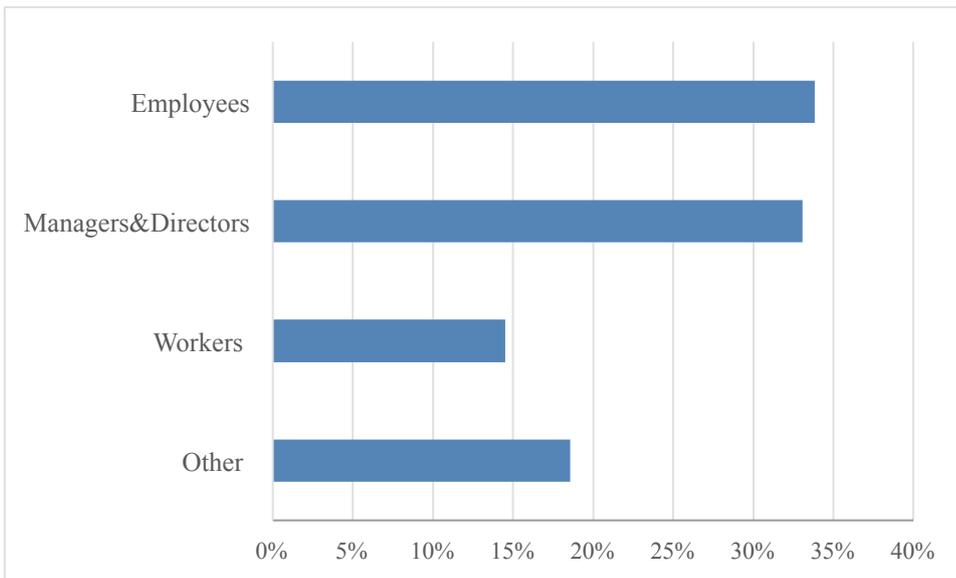
The total number of respondents has been 406, representing 6.1% of the total beneficiaries. The provinces where the higher percentages of answers have been registered are Padua, Vicenza, and Venice, and the 57% of the enterprises are micro level businesses (with less than 10 employees), consistently with the whole population of beneficiaries and with the structure of the Venetian companies.

The main aspects of interest investigated through the survey are: the professional profiles of the participants, the learning methodologies used during the activities, the effectiveness of the activities and the resulting improved functions within the enterprises.

Employees and Managers&Directors are the figures that enjoyed the most the benefits of learning activities (Figure 2), followed by workers.

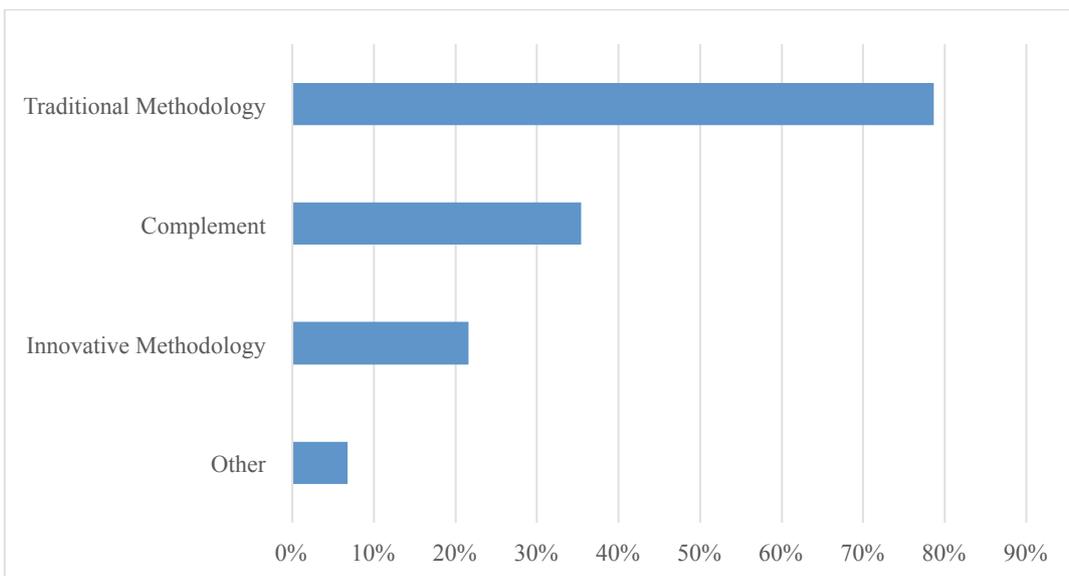
Regarding the learning methodology, the respondents were asked to indicate one or more methodologies used during the activities. It turns that the traditional one – frontal classes, lectures – has been used in almost the 80% of the cases, whereas the innovative ones – bootcamps, indoor and outdoor activities, theatres, games play - just in the 21% of the activities (Figure 3).

**Figure 2 - Professional profiles**



Source: GRETA elaborations of collected data

**Figure 3 - Learning Methodology**

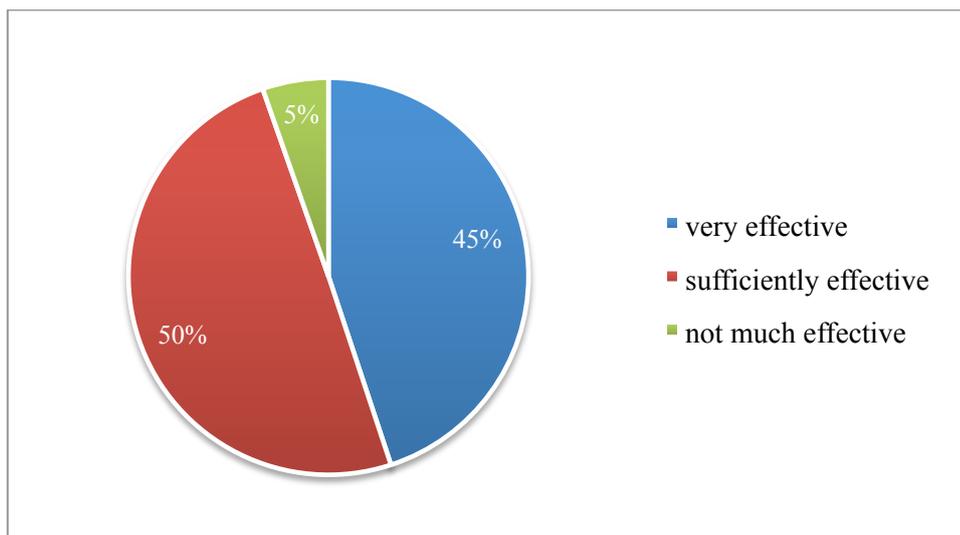


Source: GRETA elaborations of collected data

A question about the effectiveness of the lifelong learning activities has been added at the end of the survey. The aim is to evaluate the extent to which the learning activities have been perceived as useful in relation to the needs of the enterprises.

The effectiveness of the courses has been registered in the 95% of beneficiaries, in particular, the 45% considers the activities very effective (Figure 4). This data should be read as another element that highlights the enthusiasm with which these policies have been welcomed by those who were in need to upgrade their skills.

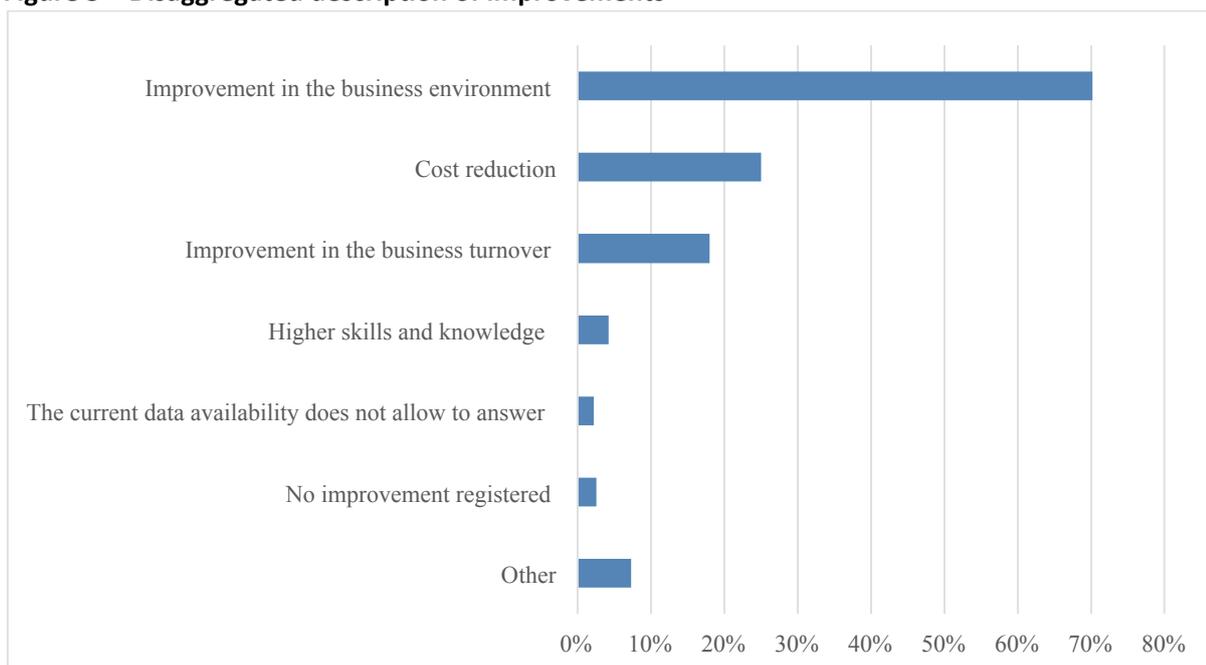
**Figure 4 - Effectiveness of learning activities**



Source: GRETA elaborations of collected data

Moreover, a disaggregated analysis has been conducted on the registered improvements in order to better picture the way in which lifelong learning courses concretely affected the business' performances (Figure 5).

**Figure 5 – Disaggregated description of improvements**



Source: GRETA elaborations of collected data

The survey's answers also show that the Marketing and communication function registered the higher benefit from the upgrade of workers' skills, followed by Production&Quality and Sales.

## **5. Conclusions**

The results confirmed the positive contribution of the lifelong learning policies on the economy. In both the macro and microeconomic approaches there is evidence of an increase in productivity. Moreover, through the disaggregated analysis of the occupation level, the econometric model showed that an increase in occupation rate is expected especially for women, despite the majority of the participants to the lifelong learning activities are men. Looking at the results of the disaggregated analysis of age groups within the occupation level, it emerged how lifelong learning is generally effective in every age groups. However, the most positive effects on the occupation rate have been registered in the older age group (55- Over 65 years old) for both genres and in the young (15-24 years old) women.

The beneficiaries enterprises express through the survey their satisfaction toward the activities carried out within the policies programme, particularly after the registration of concrete positive impacts in both the skills of their employee and the business performances.

In conclusion, the contemporary international scenario seems to introduce a new declining phase in the global economy, at the same time new modernization's trends are spreading into the market introducing new ways of doing business. This dynamic and variable situation can be faced by regional economies with adequate instruments and lifelong learning policies have demonstrated to be a useful tool to be supported.

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