Social Benefits of Vocational Education and Training for Individuals: Concepts, Contexts and Empirical Results

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Executive Summary

This is the final report for the project entitled 'The social benefits of vocational education and training for individuals in a European context'. The project, funded by CEDEFOP, formally started in December 2008 and had a duration of 14 months. The project is a collaboration between the Institute of Education in London and the Institut Arbeit und Qualifikation an der Universität Duisburg Essen in Germany. Other participating institutions in the project were the University of Aix-en-Provence in France, the University of East London and the University of Sussex in the UK.

The project has three aims. The first is to review different theoretical approaches that explain the reasons why a learning experience can be beneficial for individuals, their families and communities and to apply these theoretical principles to the particular case of Vocational Education and Training (VET). Overall, the project finds that there are important aspects from the theoretical frameworks discussed –economic, identity and social capital and the ecological model– that are helpful in understanding why a positive learning experience may lead to the generation of outcomes beyond income and employment. Firstly, there are immediate changes in individuals' personal and social circumstances that are the result of the learning experience. Individuals engaged in learning acquire skills and knowledge and improve their capabilities, which could, in principle, enable a more efficient decision making with respect to different aspects of their lives (i.e. their health, their family, engagement in community and social participation). Secondly, in the learning context individuals form new social groups, modify previous ones, and form relationships with teachers, tutors, mentors, other students/co-learners and employers. These networks can increase individuals' sense of belonging, identity and they may also enhance access to institutions. Thirdly, a positive learning experience could have the potential to tackle structural inequalities. A learning experience which develops the capacity of individuals to find out what needs to be done and how to do it and which fosters habits of self-direction has the potential to generate social benefits even within a system characterised by high levels of social and economic inequalities.

Moving from the general concept of 'learning' to the specific case of VET, the report highlights the following features that a positive VET experience should have if it is to generate social benefits: the content of learning, impact on skills and competencies, access to networks, recognition of achievement, links to institutions, and potential for mobility in the labour market. Some of these features are generic and may be shared by individuals learning in other educational contexts. However, we rely on information that relates almost exclusively to the case of VET while discussing the evidence to support each feature.

The content of learning refers to what is taught in VET. Learning practical skills exclusively may increase individuals' confidence and self-esteem which could improve health. However, learning civic and social skills in addition to practical skills could have additional impacts on individuals' civil and social engagement. Therefore, what is taught in VET may lead to improvements on individuals' psychosocial skills as long as the VET provision is not strictly geared towards the 'know how' or 'the skills to do their job'. The VET learning experience should improve individuals' competencies, which involves the ability to meet complex demands and the habits of self-direction. In addition, in a VET setting, individuals have the opportunity to learn from other learners, make new social groups and possibly modify previous ones. There are interactions between teachers and learners which are extremely important for the transmission of knowledge and improvement in psychosocial factors such as attitudes, motivations and values, which could lead to wider social outcomes for learners. Important also for the case of VET is the relationship between learners and masters or employers, as a VET learning experience can take place in the workplace.

Upon completion of formal VET, successful learners receive a degree or diploma which is valued in the labour market. The value of the degree has been explained in terms of signalling to employers of the potential skills and abilities acquired through the VET experience. In several countries, however, the VET qualification has been perceived and valued as a 'second best' option, and this has implications for learners' participation, engagement, and future ambitions. A positive VET experience should enable individuals to have mobility in the labour market, both in terms of promotions within the field of specialisation and also a job change due to the transferability of skills. It is our premise that a positive VET experience should enable this mobility if it promotes individuals' self esteem, confidence, and habits of self-direction which are becoming extremely valuable skills in the labour market. Finally, we also investigate the possibilities that VET begets further learning as well as smooth transitions into the labour market. These issues are connected to the national educational context in terms of the stratification of VET and general education and labour market regulations.

Henceforth, the second aim of the project is to locate VET within national contexts of educational provision and its relationship with the economy. The main features of VET are embedded within national systems, in particular educational systems. Systems of VET differ in the ways in which learning is provided, the monetary and non-monetary value attached to a qualification, the links with other educational institutions and with the labour market. All these are important features that could enable a positive VET learning experience to result in benefits beyond income. So, while in some cases VET can foster the development of these social benefits in other cases they can be inhibited. In addition, national systems can complement the economic and social return to VET or they may diminish these returns. Although it is not possible to empirically identify how the different elements of a VET experience relate to the realisation of social benefits we should be able to demonstrate whether the social benefits of VET are context specific. In doing so, we may be able to determine whether these contexts have the desirable characteristics for the realisation of the social benefits.

The third aim is to empirically test the social benefits of VET in a European context. To do so, we draw on data from the European Community Household Panel (ECHP) and obtain indicators of individuals' health, civic participation and well-being. We also obtain indicators for the highest educational qualifications achieved and more importantly we isolate episodes of initial VET and continuing VET to investigate how these relates to the different social outcomes. Our analyses are performed using a lifecourse perspective, meaning that we differentiate between different stages of individuals' working careers when investigating the possible benefits of VET. Our analyses are also performed by systems of VET. The aim of these analyses is to investigate whether the realisation of the social benefits is linked to national systems of VET. If this is the case, we may be able to draw general conclusions about the features of VET that yield social benefits.

Our results show evidence that IVET is associated with positive changes in health outcomes, such as self-rated health and lack of chronic health conditions, with membership to organisations and with satisfaction with job or main activity for individuals across Europe. Interestingly, some of these associations are only found for individuals living in Finland and Sweden. Having in mind that the IVET system of Sweden and Finland is characterised as egalitarian school-based system, this supports the hypothesis that an integrated school system offering options for personal enhancement through equal treatment of vocational and general education as well as access to higher education affects individual well-being on the whole. One implication of this finding is that a general level of social welfare is an important mediating factor for the realisation of the health benefits of IVET. In other words, there are complementarities between institutional factors at the macro level, in this case a strong welfare state, and the formation of social benefits for individuals at the micro level.

We also find that IVET is associated with increased membership to voluntary organisations and with increased satisfaction with job or main activity. These results are obtained for individuals living in two particular systems of IVET, Germany, Denmark, Luxembourg and Austria and in Italy, Greece, Spain and Portugal. One reason why we may find a positive relationship between membership to voluntary organisations and IVET may be that participation in civil society is rewarded in these systems and not in others. Hence, through participation in IVET individuals may find incentives to join voluntary organisations. Again, our results suggest strong links and complementarities between institutional factors and social benefits for individuals.

Reasons for a positive correlation of satisfaction with job or main activity and IVET may be different between the two groups of countries: Traditionally in Southern European countries youth unemployment and NEET rate is rather high. Therefore, those who do not want, or are not able to, follow the route of general education but are integrated in the labour market via IVET might derive satisfaction by comparing their situation with those who are neither in employment nor in education. A positive correlation between satisfaction and IVET in countries where apprenticeships are widespread might derive from the multiple legal frameworks that regulates the quality of training, safety and labour provisions for apprentices as well as salaries. In general, the increase of satisfaction with job or main activity could be attributed to the fact that IVET is a political affair.

Lack of statistical association between IVET and social outcomes is also an important result. When undertaking our analysis by systems of VET, we do not find evidence of an association between IVET and social outcomes for individuals living in UK or Ireland and for only one outcome (satisfaction with job or main activity) for individuals living in Netherlands, Belgium or France. For the UK a possible explanation is the low transparency of the VET system affiliated with certificates with only minor value for getting access to the labour market. The continental school-based system of VET in the Netherlands, Belgium and France might not be associated with social outcomes for individuals because of the strong meritocratic orientation of VET leading to a ‘secondary’ status of those who attend training. Hence, marketised or credentialised systems of VET are likely to fail in generating benefits for individuals that are beyond that of employment and income.

For the case of CVET, most of the associations between CVET and social outcomes are found for individuals in their early careers, aged 26 to 45, who had working experience prior to 1994. As for the case of IVET, we find that individuals in their early careers undertaking CVET had positive changes in self-rated health, lack of chronic health conditions, higher rate of membership to voluntary organisations and more satisfaction with job or main activity over time. This result is mainly supported by individuals living in Finland or Sweden. This is not a surprising outcome since Finland is well known for its political effort to improve training and working conditions at the workplace. Requirements to meet the challenges of an ageing workforce are broadly discussed in Finland leading to programmes that aim to increase participation in training, to improve safety and

work protection and to reward competencies of older workers. Thus, Scandinavian countries could be seen as countries with a holistic approach to improve working conditions in order to keep the ability to work at a high level over the lifecourse of individuals. This system is more likely to enable individuals to generate social benefits from CVET.

Taken all our results together, we conclude that there are important complementarities between the institutional arrangements of IVET, and to some extent CVET, and the realisation of social benefits of individuals. Strong welfare states complement the realisation of health benefits of IVET for individuals. Systems that reward civic participation see more voluntarism in organisations linked to IVET. In policy terms, it is worth investing in IVET in systems that have the capacity to complement this investment. Where institutions are not in place, then there is a need for policy coherence across sectors in order to raise the effectiveness, efficiency and sustainability of the efforts made in IVET to promote social outcomes for individuals. IVET itself cannot generate social outcomes without challenging economic and social inequalities at the macro level, stigma and disadvantage attached to the value of IVET. Tackling these issues may ensure a net positive impact of VET for individuals.

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Introduction

A large number of empirical studies have shown that education, measured as years of schooling or highest qualifications achieved, is strongly related to life expectancy, mortality, obesity, depression, smoking, saving, voting, political interest, trust, volunteering, donating and crime (Haveman and Wolfe, 1984; Grossman, 2006; Feinstein, et al. 2006; OECD, 2007a; Cutler and Lleras-Muney, 2009). The 2009 edition of *Education at a Glance* (OECD, 2009) presents the relationship between education and three social outcomes – *self-assessed health, political interest and interpersonal trust* – for 20 OECD countries, and suggests a strong correlation whereby higher levels of education are associated with better outcomes.

Moreover, there is also a growing number of studies that have established causal relationships between education and various social outcomes. For example, Holmlund, Lindahl and Plug (2006) review a number of empirical studies on the impact of parental education on children's cognitive development. Their review shows a genuine causal effect of parental education on their children's cognitive development as measured by test scores that is independent of genetic inheritance. Many of the studies reviewed by Holmlund et al. found that the size of the effect of parental education is modest, with differences by parental gender and social class. From a review on empirical studies on the impact of education on health, Grossman (2005) concluded that there are a number of studies showing that education has a causal effect on health outcomes, but less is known about the mechanisms for educational effects on health.

This body of evidence, however, has tended to focus on the role of education measured as years of schooling or highest qualifications achieved. Typically, studies using these measurements of education do not differentiate between qualifications achieved as a result of general education, vocational education or a combination of both. Studies using years of education or highest qualifications as measures of education largely ignore the possible contribution of learning at different stages of the lifecourse since these constructs do not take into account when the educational qualification was achieved. Although some work has started to emerge on the association between learning in adulthood and social outcomes (Kaestner and Corman, 1995; Rosenzweig and Wolpin, 1994; Heydon and Reilly, 2007; Sabates and Duckworth, 2009), or between achievement of vocational qualifications and social outcomes (Bynner and Egerton, 2001; Hammond and Feinstein, 2006), the role and importance of vocational education and training (VET) remain relatively unexplored.

This report has three aims. The first is to review different theoretical approaches that explain the reasons why a learning experience can be beneficial for individuals, their families and the communities where they live and to apply the principles from these theories to the particular case of VET. The way in which VET should be theorised in terms of micro-social outcomes must be interdisciplinary. Unlike the case of the economic returns to VET, where human capital models predominate, the nature of the social benefits means that we must call upon both psychological and sociological theories. Moreover, the benefits of VET are not simply in terms of 'assets' (perhaps various forms of capital) that individuals acquire through the life course. VET, like other forms of education, is associated with changes in perspective, individuation and agency. The conceptual framework which we propose in this report is therefore not only interdisciplinary but also aims to situate individuals within the social context in which decisions concerning learning and life outcomes are taken. So whilst the report focuses on social benefits for individuals it is necessary to refer to these always as contextualised by meso-level theories (in particular we focus upon social capital) and the institutional structures in which decisions are taken.

The second aim is to locate VET within national contexts of educational provision. Systems of VET differ in the ways in which learning is provided, the monetary and non-monetary value attached to a qualification, the links with other educational institutions and with the labour market. All these are important features that could enable a positive VET learning experience to result in benefits beyond income or employment. So, while in some cases VET can foster the development of social benefits in other cases they can be inhibited. Although it is not possible to empirically identify how the different elements of a VET experience relate to the realisation of social benefits we should be able to demonstrate whether the social benefits of VET are context specific. In doing so, we may be able to determine whether these contexts have the desirable characteristics for the realisation of the social benefits.

The third aim is to empirically test the social benefits of VET in a European context. To do so, we draw on data from the European Community Household Panel (ECHP) and obtain indicators of individuals' health, civic participation and well-being. We also obtain indicators for the highest educational qualifications achieved and more importantly we isolate episodes of initial VET and continuing VET to investigate how these relates to the different social outcomes. Our analyses are performed using a lifecourse perspective, meaning that we differentiate between different stages of individuals' working careers when investigating the possible benefits of VET. Our analyses are also performed by systems of VET, meaning that we estimate the models for systems of VET separately. The aim of these analyses is to investigate whether the realisation of the social benefits is linked to national systems of VET. If this is the case, we may be able to draw general conclusions about the features of VET that yield social benefits.

This report is organised as follows. Section 1 provides definitions for VET and for 'social benefits' and Section 2 describes different theoretical frameworks for educational benefits. Section 3 contains the key features of a positive VET experience which may yield social benefits for individuals. Section 4 locates VET within national educational systems and provides a heuristic classification of VET systems that can be used empirically. Section 5 describes the methodology and Section 6 provides a summary of the results from the empirical models. We provide conclusions and recommendations in Section 7.

1. Definitions

The first section of this report offers definitions about the key concepts under investigation. These concepts are 'vocational education and training' and 'social benefits'. The social benefits may be 'final' or 'realisable' benefits, that is those which accrue tangible (if not necessarily immediate) benefits to the individual. These benefits might include, for example, improved health and quality of life. Some benefits, though, are not immediately realisable but may be thought of as being assets which individuals might draw on in future events. These benefits might be resilience or self esteem. This chapter clarifies these issues.

1.1. Definition of VET

Traditionally, VET has been defined according to its aims, which are directly linked to the labour market. UNESCO and the ILO, for example, define VET as "means of preparing for occupational fields and for effective participation in the world of work" (Unevoc 2006, p. 1). OECD (2008, p. 20) in the report "Education at a Glance 2008" defines vocational education in a similar way: "Vocational education prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification". CEDEFOP also stresses the connection of VET with the labour market: "VET aims to equip people with knowledge, know-how, skills and/or competencies required on the labour market".

The above definitions, however, could also apply to general education, in particular at tertiary level, which also equips individuals for the labour market. For this reason, Bosch and Charest (2010) add additional features to the definition of VET. One typical feature of VET – and initial training in particular – not shared with higher education is the earlier specialisation in an occupational field (below bachelor degree). Another feature is that, in general, the status of VET not only in the education system but also in the labour market is lower compared to higher education, although status differs a lot across countries due to differences in the structure, content and institutional embedment of VET systems. In countries where VET is well regarded, participation in VET can lead to further progression, a high likelihood of entering into the labour market, opportunities for promotion, and competitive remuneration. In other countries, the institutional embedding of VET leads mainly to semi-skilled jobs with low potential for development. In the US, for example, initial VET is seen to prepare individuals for occupations that "typically require an educational level that is less than a bachelor's degree" (Bailey and Berg, 2009, p. 271).

Definitions of VET not only demarcate between general and vocational education, or the status of VET in whole national education systems, they also highlight different forms of VET. Two forms of VET can be distinguished. Initial VET (IVET) which is defined as being formal, taking place in the education and training systems and is passed through before entering the working life. Continuing VET (CVET) comprises all training activities after entry into working life and can be formal, non-formal or informal. Formal CVET has an educational purpose, is structured in terms of its objectives, time and learning support and it leads to a certification. Non-formal CVET also has an educational purpose and structure, but does not lead to a certification. Finally, informal CVET can have an educational intention but it is unstructured and does not lead to a certification (CEDEFOP, 2008).

Different forms and levels of VET are also reflected in statistical concepts. For instance the International Standard Classification of Education (ISCED) distinguishes six educational levels with elements of VET in the lower (level II), upper secondary level (level III), the post-secondary non-tertiary education level (level IV), and the first stage of tertiary education (level V). Due to

differences of VET systems across countries one main concern of a statistical framework for internationally comparable education statistics is to develop a methodology to translate national educational programmes into an internationally comparable set of categories for levels and fields of education. This is done in the OECD Handbook for Internationally Comparative Education Statistics (2004) with ISCED based profiles of educational systems in all OECD countries. Many datasets use ISCED as a basic concept for measuring and evaluating the situation of education and qualification in and across countries. For instance the European Labour Force Survey (EUROSTAT 2009) uses ISCED in order to classify the level and field of completed and current education with ISCO concept for the classification of occupations. This is also followed by the European Community Household Panel, the dataset that is used for the empirical research of this report.

In summary, VET has been classified according to its aims, which are directly linked to the labour market. ISCED might serve as a salient example here since it classifies VET by its labour market orientation. This definition, however, makes it somewhat difficult to differentiate between VET and general education since both forms of education contain elements that are important for the labour market and others that are more general for citizenship and social life. It is unlikely that any social survey contains sufficient information about the content of learning in order to differentiate between aspects of learning related to the labour market and those that provide more general skills and competencies.

For this reason, this project takes a rather practical approach in order to investigate the possible benefits of VET beyond the labour market. We focus on the links between VET and social outcomes across Europe and in five different systems of VET within Europe.[1] In addition, and in accordance with concepts provided by CEDEFOP, we differentiate between IVET and CVET, and whenever possible formal from non-formal or informal, duration of the course and financing sources. The specific construction of indicators for these variables will depend on information contained in the ECHP, which is explored in Section 5.

1.2. Definition of non-economic benefits of VET

The idea that education produces benefits for individuals that are over and above their labour market productivity is not new. Early philosophers, such as Aristotle and Plato, suggested that education was central to the fulfilment of individuals and for the society in which they live (see Barnes, 1982; Hare, 1989). For them, individuals and their societies were able to flourish only through a process of lifelong learning. Their focus was not on monetary returns, but on the moral development of the individual and the well-being of society. In recent times, through the widespread dissemination of human capital theory, education has been regarded as an investment with economic value. For human capital theorists, education is instrumental, and even necessary, to improve the production capacity of individuals and with this achieve economic growth (Schultz, 1961). In endogenous growth theories (e.g. McMahon, 1998) human capital also has an impact on growth through other non-market outcomes.

Apart from the economic value of education, social scientists started to observe that individuals with higher levels of education live longer, are healthier, commit less crime, and are more actively engaged in society than individuals with lower levels of education (Haveman and Wolfe, 1984, Grossman, 2005). More educated parents have children who are healthier and more academically able than children of less educated parents. Although these associations do not imply causality, the

[1] We acknowledge that VET-systems are different across countries and even across industries within countries, but this is beyond the scope of this research.

idea that education is perhaps a key causal mechanism for the generation of these benefits began to emerge in the empirical literature (Haveman and Wolfe, 1984).

One of the first classifications of the benefits of education was provided by Haveman and Wolfe (1984). They differentiated between benefits of education for which there is a market to value its return from those where there is no market. For example, the increase of individuals' productivity that may result from education can be valued in the labour market by wages whereas the decrease in pain from ill-health that may result from education cannot be valued in the market. Haveman and Wolfe also differentiated between benefits of education that are exclusive for the individual, those that produce externalities and those that are public goods. There are certain benefits that can have the characteristics of being both exclusive for the individual and can generate externalities. For example, the health benefit of education can be classified as exclusive with externalities. It is exclusive as it benefits directly the individual and it can generate externalities as it can reduce the risk of contagious diseases for other people. The impact of education on crime reduction has public good characteristics, since crime reduction is beneficial for all members of society and its benefit is nonexclusive.

A recent elaboration of the benefits of education was provided by McMahon (2009). In line with Haveman and Wolfe, McMahon categorised the benefits of education into direct and indirect and subdivided these into marketed and non-marketed. He also distinguished individual benefits from social benefits, which he referred to as externalities. Higher productivity is an example of a direct marketed benefit, while better own-health is an example of a direct benefit, partly non-marketed. The increase in cognitive ability for children due to improved education for their parents is an indirect non-marketed benefit, whereas education externalities are the public benefits of education that spill over to benefit others in society, including future generations. In this sense, increased democratisation and better functioning institutions resulting from educational investment are considered public goods (McMahon, 2009).

An alternative, but complementary, approach was provided by Schuller et al. (2002). They proposed to classify the benefits of learning along three main dimensions in terms of three sets of capital, namely human capital, identity capital and social capital. Human capital refers to the knowledge and skills individuals gain through education in order to enhance their productivity in the labour market and also to function better in various other aspects of their lives. Identity capital refers to tangible assets such as qualifications, and intangible assets such as self-esteem and self-efficacy. Finally, social capital refers broadly to networks, norms and close relationships with others in society and with institutions, including aspects of bonding, bridging and linking social capital. This approach therefore extends the analysis beyond human capital considerations. The advantage of this approach is that benefits of education can be situated as being formed by a mixture of capitals.

With these classifications in mind, it is important to highlight what we mean by the 'social benefits' of VET for individuals. The term 'social benefits' is linked to non-marketised (non-economic or non-monetary) benefits. Non-marketed implies that the benefits of education do not have a wage return linked (hence the term non-monetary or non-economic). Social benefits do not exclusively refer to benefits for society. While in some sense this is true, for example, in the case of reduced crime or increased civic participation, other social benefits of education are indirect and impact on individuals, households, communities and society. This is the case of improved health that is the result of investment in education. Improved health is a direct benefit for the individual, but it could have important social benefits such as reducing the cost of national health care provision.

These definitions are particularly important when undertaking the empirical research on the social benefits of VET. Our empirical model is based on data collected in several European countries, the

European Community Household Panel (ECHP). These data contain information on individuals' life circumstances, including health and health behaviours as well as social and civic engagement. From the data, we select non-marketed or non-monetary outcomes, both private and social. These variables are defined in Section 5.

2. Theoretical approaches

A number of theoretical frameworks, from different disciplines, have been put forward in order to explain how education impacts on non-economic outcomes. Advocates of each explanation tend to work within specific academic disciplines or traditions such as public health, economics, psychology or sociology. All of these disciplines offer important insights. Sometimes there is clear compatibility between the different traditions but it is not always obvious whether these different approaches are competing or complementary. For example, in the approaches discussed by Haverman and Wolfe (1984) and Schuller et al (2002) human capital is a salient concept. To some extent the different theoretical approaches that will be reviewed here exist in isolation. But, in general, they focus on similar issues. Sometimes they use very different methodologies, axioms and assumptions, and in some cases even different terminologies so that the similarities between them are obscured. For example, in economic models the term 'allocative efficiency' refers to how education makes individuals' more able to choose different goods and services and how these enable individuals to achieve social benefits. In psychological models 'allocative efficiency' is explained in terms of different channels or moderators of educational effects.

In this section, we draw on theories from sociology, economics and psychology to explain the social benefits that emerge from a positive learning experience. In doing so, we extract from these theories the main principles that are needed for a learning experience to result in private and social outcomes. We do not distinguish between learning that is the result of VET from any other kind of education. This section uses learning as a general concept and discusses the reasons why this learning enables individuals to be healthier or more active in society. In Section 3, we extract from this general concept the main features that a positive VET experience must have in order to generate social benefits.

2.1. Identity and social capital

From sociological approaches we extract the concepts of identity and agency and consider whether these can be impacted through learning experience. Furthermore, we also focus on the role of social capital and structural inequalities that prevent individuals from achieving their potential through learning.

In its broadest sense, *identity capital* refers to tangible assets such as qualifications, and intangible assets such as self-esteem and self-efficacy that help to determine how a person defines him/herself (Côté and Levine, 2002). As James Côté expressed it (Côté, 2005, p. 225):

> "Identity capital represents attributes associated with sets of psychosocial skills, largely cognitive in nature, that appear to be necessary for people to intelligently strategise and make decisions affecting their life courses (i.e., to individualise)"

A positive learning experience can be hypothesised to affect individuals' identity capital by improving self-esteem and self-efficacy and thus impacting on the overall psychological well-being and the potential of individuals to achieve livelihoods. Learning can also offer individuals the potential to develop a professional identity, which enables individuals to take control of their work as it provides them with a sense of autonomy that ultimately improves their psychological well-being (Deutschmann, 2005). Learning also leads to tangible assets such as qualifications which can be realised in the labour market.

Emirbayer and Mische (1998) define the concept of *agency* a as a temporal embedded process of social engagement in which past habits and routines are contextualised and future possibilities

envisaged with the contingencies of the present situation. For Bandura (2001) agency refers to the capacity of individuals to act independently and to make their own choices. Evans (2002, 2007) suggests that the study of human agency empirically lies in comparing the ways people report and contextualise their present situation, their past experiences and their future possibilities. Evans suggests that these different dimensions of agency can be identified empirically using 12 indicators: sociability and confidence, fulfilled work life, fulfilled of personal life, believe that opportunities are open to all, believe that your own weaknesses matter, believe in planning not in chance or randomness, believe ability not rewarded, active career seeking, unlikely to move, politically active, helping/people career oriented, and negative view of future.[2]

Mirowski and Ross (2005) assert that learning can enhance a sense of personal control, which directly impacts on individuals' agency, and thus enables an individual to live a healthier, happier, and more fulfilled life. A positive learning experience encourages and helps individuals to assemble a set of habits and ways that are not necessarily related except as effective means toward health (Mirowsky & Ross, 1998). In other words, learning acts as a root cause of good health because it gives people the resources to control and shape their own lives in ways that protect and foster health, regardless of the kinds of health risks faced in their time and place (Mirowski and Ross, 2005).

The emphasis on *social capital* emerged from a new frontier in sociological analysis based around the work of Putnam (Putnam, 1999) and Coleman (Coleman, 1988), and refers to networks, norms and close relationships with other members of society. The most basic form of social capital is *bonding* social capital, which coalesces around a single, shared identity, and tends to reinforce the confidence and homogeneity of a particular group. *Bridging* social capital refers to horizontal social networks that extend beyond homogenous entities. This form of social capital involves cross-cutting networks amongst people of various ethnic, cultural, and socio-demographic backgrounds. *Linking* social capital is characterised by connections with individuals and institutions with power and authority. This is theorised in terms of vertical rather than horizontal networks within the social hierarchy. Through interactions with other learners and teachers a learning experience can impact upon individuals' social networks, hence reinforcing bonding and bridging social capital. Similarly, learning can enable individuals to have access to institutions, not only those in the labour market, but also government services, NGOs and civil societies.

2.2. Economic framework

Most economic models focus on the direct impacts of learning on economic and non-economic outcomes, and the choices made by individuals to maximise the impact of learning on these outcomes. Recent economic models have their theoretical basis in human capital theory (Schultz, 1961; Becker, 1965). Human capital refers to the knowledge and skills an individual gains through learning in order to enhance their productivity in the labour market and to function better in various other aspects of their lives. Learning contributes to the formation and accumulation of human capital.

There are two main channels through which learning may impact on non-economic outcomes. Firstly, it may improve the effectiveness of the production of these outcomes. For example, Grossman (1972) developed a model to explain how learning makes individuals more productive in producing good health.[3] In his model, health is both a consumption and investment good. It is a consumption good since it is valued by consumers; it is a direct source of utility. It is also desired as investment since good health enhances individuals' earning capacities. Since learning improves

[2] There are positive and negative factors in the agency scale measured by Evans. This is a requirement of a Likert scale.
[3] Grossman uses the term education, rather than learning.

efficiency in producing health, this reduces the relative price of health, making health a 'cheaper' good for individuals with higher levels of education to consume. Therefore, the demand for health and investments in health improve after a positive learning experience.

Secondly, learning may change the nature of production decisions, giving more weight to inputs that maximise the generation of non-economic outcomes (or alternatively, as suggested by Rosenzweig and Schultz, 1982 and Deaton, 2002, individuals choose a different bundle of inputs in the production process). For example, when parents decide to invest in activities which enhance their children's academic achievement, those parents with higher levels of education are more likely to choose developmental enhancing activities for their children (for example going to the library) which may not be chosen by parents with lower levels of education. Also, parents with more education may chose to read to their children more often than parents with low levels of education. So, this allocative efficiency, focusing on inputs that are impacted upon learning to generate social benefits, is the second channel for educational effects.

Regardless of the efficiency gain of education or better allocation of inputs, the strength of economic models is that they make explicit the substitutions involved in decision-making to produce the desired outcomes. For example, money spent on books and computers for children cannot simultaneously be spent on holidays and restaurant meals for parents. Similarly, time spent in the labour market earning income to buy consumer goods cannot be spent on leisure activities and so on. The decisions about the relative allocation of time and resources depend on the value individuals place on the different outputs obtained by them. In economic models learning is a key factor that affects the relative value that individuals place on time and resources during the decision-making process. For this reason learning is theorised to impact on social outcomes.

Although the economic framework makes no implicit mention of VET, it treats education as a broad concept and therefore hypotheses generated from these models can be tested for VET. A testable hypothesis may be, for example, that VET enables individuals to have a better allocation of resources which will maximise their health outcomes.

2.3. Ecological framework

Bronfenbrenner's ecological model (1979, 1986) underpins two frameworks developed by the Centre for Research on the Wider Benefits of Learning for conceptualising how a learning experience can impact on non-economic outcomes (Feinstein, Duckworth and Sabates, 2008; Feinstein, et al. 2006).[4] The ecological model is based on interactions between individuals, located in particular contexts, in which dynamic processes support, sustain or hinder successful outcomes. For example, one particular context is the place where the learning experience takes place. This context is characterised by material resources, like books and computers, and non-material resources, like the knowledge that practitioners have on the topic (*characteristics of context*). In this context there are interactions between learners and teachers (*proximal processes*). Learners and teachers come from different backgrounds which may impact on the ways resources are utilised and interactions are developed (*distal factors*).

In the ecological model, *proximal processes* are the primary mechanism for producing positive outcomes, for instance school attainment, behavioural development, happiness. Examples of proximal process variables in the context of the family described in Feinstein, Duckworth and Sabates (2008) include aspects of parent-child relationships such as warmth and affection, the use of discipline, control and punishment, as well as the educational content and structure of language

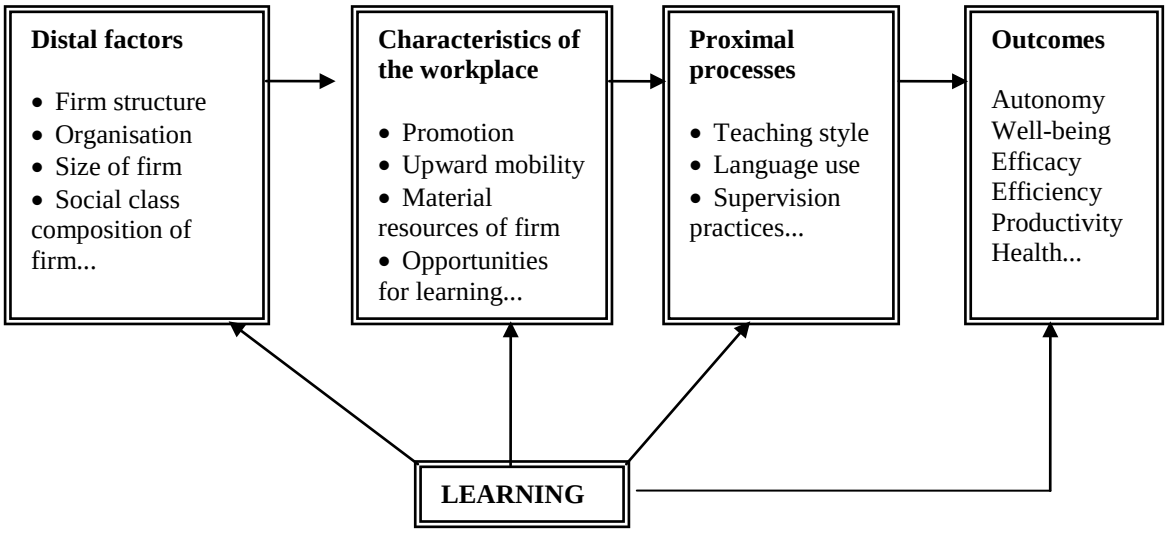
[4] This section also addresses the pedagogical content of VET.

used in the home. Examples of proximal processes in VET may be the use of language, disposition of teachers with learners, teaching methods, but these will be explained later in Section 3.

Proximal processes change and adapt over the lifecourse and are constrained and influenced by the characteristics of both the immediate context, for example the family, school, or work. Context can be defined in the ecological model as the location and/or institutional grouping within which particular sets of processes occur, the workplace being a particularly important context for learning. Proximal processes are also influenced by more distant social, economic and demographic environments, which in the ecological model are called distal factors. The achievement of qualifications through VET and participation in unaccredited VET are examples of distal factors, but they also include social class, income and family structure, among others. In the ecological model, distal factors cannot impact upon outcomes unless they are mediated or channelled through the resources available in the context and the use of these resources for the achievement of outcomes.

Let us exemplify this model by using the case of an individual who receives on-the-job training, a form of non-formal CVET. Box 1 sets the ecological model. Within the workplace, distal factors refer to the structure of the firm, its organisation, its social class composition, among others. These factors cannot directly affect outcomes, such as autonomy, higher productivity or better health. Distal factors must impact on outcomes through their impact on the characteristics of the workplace, for example possibilities for promotion and upward mobility or the material resources of the firm, which then impact on the proximal processes within the workplace, which are mainly characterised by the interactions between individuals within the firm. Learning can impact upon individual's outcomes in the workplace, for instance sense of autonomy, through possible changes on distal factors, characteristics of the workplace and most importantly through its interactions with supervisors and managers.[5]

Box 1: Conceptual model for the influences of learning on outcomes in the workplace



Source: Adapted from Feinstein, Duckworth and Sabates (2008)

[5] This framework could be modelled empirically with detailed micro data using statistical techniques such as structural equation models.

2.4. Summary

Overall, there are important aspects from all theoretical frameworks discussed above that are helpful in understanding why a learning experience may lead to the generation of outcomes beyond income and employment. Firstly, there are immediate changes as a result of the learning experience. Individuals engaged in learning acquire skills and knowledge and improve their capabilities, which could, in principle, enable a more efficient decision-making process with respect to different aspects of their lives (their health, their family, engagement in community and social participation). Secondly, individuals in a learning context, which could be an educational institution or the workplace, form new social groups, modify previous social networks, and form relationships with teachers or tutors, masters or employers. These networks can increase individuals' bonding and bridging social capital.

Thirdly, a positive learning experience could have the potential to tackle structural inequalities. *Structure* refers to factors such as social class, ethnicity, gender and religion which influence the opportunities that individuals have. Structural inequalities are produced by social norms, policies or practices that tolerate or promote the unfair distribution of and access to power, wealth and social resources (CSDH, 2008). In this sense, a learning experience which develops the capacity of individuals to find out what needs to be done and how to do it and which fosters habits of self-direction has the potential to generate non-economic benefits even within a system characterised by high levels of social and economic inequalities (Mirowski and Ross, 2005).

3. Main features of learning through VET

The theoretical frameworks reviewed in Section 2 provide important insights for the reasons why a positive learning experience could result in benefits beyond income or employment. In this section we focus explicitly on the learning experience which results from VET. The VET learning experience has the following features: the content of learning, impact on skills and competencies, relationships with other individuals, recognition of achievement, links to institutions and the potential for mobility in the labour market. Some of these features are generic and may be shared by individuals learning in other educational contexts. However, in the description of each of these features given below, we rely on information and evidence that relates almost exclusively to VET.[6]

3.1. Content of learning

In order to explore whether VET can impact on social outcomes for individuals it is important to investigate first the content of VET. In order to do this, we need to focus exclusively on formal IVET. Non-formal and informal CVET are characterised by a very wide range of providers, with different programmes, ethos and modes of delivery (Feinstein and Sabates, 2008). Hence, it is not possible to provide a description of the content of learning for each of these programmes; it will be too broad. Focusing on formal IVET enables us to look at the content of learning using information provided at national level.[7]

In general, we found that most formal IVET programmes provide a set of skills that do not focus exclusively on the technical aspect of the profession, but also on other skills that are more general and useful for daily life activities. There are also national differences in terms of the outcomes that IVET may aim at, for example social integration as an outcome of IVET may be the focus of some programmes but not in others. In England, for example, the government piloted the inclusion of functional skills in English, Mathematics and Information and Communication Technology (ICT) into a new diploma for 14 to 19 year olds, which aims to provide both theoretical study and practical experience (DCSF, 2009). In France, accredited VET comprises seven core skills: proficiency in French, knowledge of a foreign language, maths and science, ICT, humanities, social and civic skills, and independence and initiative. VET in France also includes both *savoir-être* (attitudes and behaviour) as well as *savoir-faire* (professional skills), although the first is not necessary for acquiring certification (Speake, 2007). In Scotland, individuals engaged in VET have to pass an employability skills training in order to achieve certification (Speake, 2007).

In other countries, such as Sweden and Finland, vocational education is integrated into upper secondary school curricula, with very few apprenticeships in existence (Lindberg, 2003). Hence VET provides a set of skills or competences similar to the ones provided in general education. The dual system which exists in Austria, Denmark, Germany, the Netherlands and Switzerland combines the acquisition of professional competences through training in companies, with a curriculum consisting of vocational and general education in vocational training colleges

[6] A recent study by Kelly and Price (2009) found the following features of VET in the USA. VET is a choice, so it increases the engagement with school and work activities and it enhance individuals' ability and motivation. Second, VET is a career track, so it is linked with employment opportunities. Thirdly, it contains an element of experimental learning in the classroom, which enhances team activities, negotiation and leadership skills. VET is also based on multidimensional performance assessment, which allows some students, who were not academic able, to receive higher assessments on their vocational skills. Finally, the teacher-pupil is a mentoring relationship. We cover all these features in Section 3 of this report.

[7] There are a number of publications which cover the characteristics of vocational educational systems in various European countries, their structure and organisation as well as recent reforms (see for example CEDEFOP, 2008a, 2009; Eurydice, 2008). While some of these publications report on the curricula of different European countries, the content of learning is not discussed in any detail and for this reason we do not use them here.

(CEDEFOP, 2008b). Brockmann et al (2008) compare the VET systems in England, Germany and the Netherlands, and find that the English system concentrates on a narrow set of skills, without a focus on personal development or a more general education to increase students' employability. In contrast, the German and Dutch systems are knowledge-based and designed to develop multi-dimensional competencies, from theory to practice, from civic education to personal development. The German and Dutch systems aim at equipping students for lifelong careers (Brockmann, Clarke, & Winch, 2008).

3.2. Skills, knowledge and competencies from VET experience

The second main feature of VET deals with the ways in which the content of the learning experience impacts upon individuals' skills and capabilities. In other words, we focus here on whether the skills, knowledge and competencies learnt in VET may be translated into economic and non-economic outcomes. Much of the literature focuses on labour market outcomes, either rates of return or employment prospects, and very little has been done in terms of social benefits (Preston and Green, 2008).

From interviews with vocational learners in the UK, Tennant et al. (2005) found that upper secondary level learning and certification was directly linked to learners' confidence, workplace skills and personal development. Indirect or secondary impacts were attitudes to further learning, improved employability and an awareness of the utility of qualifications for career progression. Unwin, et al. (2004) also found that formal VET was associated with increase in learners confidence. In France, the vocational baccalauréat has been found to increase the self-esteem, confidence and desire in education in those who had previously felt failed by the education system (Gendron, 2005).

In Germany, VET has been linked to the development of a professional identity (Deutschmann, 2005). Professional identity enables to take control of the work life but also to working conditions on the workplace due to the autonomy and problem solving competencies gained from VET. Sauer (2005) and Streeck (1989) point out that the forming of professional identity is more likely to occur the earlier VET takes place and the more VET is recognised by the social and institutional environment. Ehrke (2009) developed a five scaled ladder of social progression in vocational training with the novice at the first step and the expert at the fifth step, who is characterised by possessing a productive concept of personality and life. In a survey conducted by the German Federal Institute for Vocational Education and Training in a questionnaire with 12 items on economic and non-economic benefits of CVET the most affirmative item was personal advancement (Beicht, Krekel & Walden 2006, p. 137). A different study by the German Ministry of Education found that 80% of individuals generally agreed that CVET helped them to manage their daily life situations (BMBF, 2006). This confirms that individuals regard non-economic benefits as even more relevant than economic benefits like higher income or better employment opportunities.

Research into the impact of learning on health and social capital found that learners on vocational courses showed a reduced consumption of alcohol, reduced authoritarian attitudes and an increased race tolerance. Learners on work-based courses had, on the other hand, an increased likelihood of alcohol intake. However learners on work-based courses also had increased life-satisfaction, more tolerance towards race, higher levels of civic participation and did more exercise. Feinstein, et al. (2003) found that their results were mediated by gender, since there was a negative association between vocational learning and reductions in life satisfaction found only for men. Similarly, learners on vocational courses, who previously held low levels of qualifications, were less likely to be depressed (Feinstein, et al. 2003).

Some evidence exists into the social and cultural benefits of VET. Over 50% of apprentices in the Leonardo da Vinci programme, who undertook placements abroad, experienced high or very high benefits in terms of interpersonal skills, adaptability and willingness to take on new tasks. However, it is impossible to determine whether the benefits were from the vocational experience itself, or the international element of the experience (WSF Economic and Social Research, 2007). Meeting people and forming supportive relationships are outcomes of VET identified in qualitative studies (e.g. Hammond, 2004), an evaluation of a mentoring programme on a health education course for people aged 55 and over living in the Netherlands (Kocken and Voorham, 1998), and a national survey in Germany where 83% of all respondents fully or generally agree that (continuing) training is a way to get in contact with people (BMBF 2006, p. 287).

3.3. Relationships between learners and between learners and teachers, mentors, masters or employers.

"Vocational teaching is characterized more by socialization than by qualification, i.e. ... it is more a question of transmitting dispositions and attitudes than of giving the knowledge and skills required for specific tasks" (Frykholm & Nitzler, 1993, p. 434 in Colley et al., 2003).

Our third main feature relates to the formation of social networks, both between learners and between learners and teachers, mentors, masters and employers. The quote above makes it explicit that some of the benefits of VET are based on socialisation, through the transmission of attitudes and behaviours. However, this transmission of dispositions and attitudes is not always rewarded in VET. Students who do not fit with the dominant social group can be marginalised to the extent of self-exclusion from the VET programme. In a nursery nurse training programme, for example, bonding occurred between the upper working class students leading to isolation of the lower working class students, who then left the programme. The tutors encouraged this bonding, in conjunction with a process of learners identifying with the necessary characteristics needed for the type of work for which they were training (Colley, et al. 2003).

Different occupations will have different identities associated with them. Colley, et al. (2003) gave as opposing examples the male logical atmosphere of engineering and the female caring ambience of nursery nursing. They pointed out that learners are not necessarily predisposed to the 'vocational habitus' of their chosen industry, but have to adapt (as in the nursery nursing example above) in order to succeed. Of course, different types of VET will encourage social capital in different ways. Learners on day-release from their employers tend to have capital from their work, with attendance at college seen as a necessary part of their progression, but not as highly valued by learners as their work-based practice (Colley, et al. 2003).

Hyland (2003), as well as Preston and Green (2008), see vocational learning as having two purposes for the state (rather than the learner): increasing economic competitiveness and increasing social inclusion and cohesion. However, the pursuit of economic capital through the state often occurs to the detriment of social inclusion and cohesion. Hyland (2003) believes it is important to strike a balance between developing social and economic capital in VET. The social gain from VET depends on the learners' existing networks and access to institutions. In communities with strong family structures and high engagement with voluntary organizations (for example Northern Ireland) there are low levels of participation in formal CVET. One possible explanation may be that strong community links lessens the need for formal qualifications for entry into the labour market. In contrast, in these communities, there are high levels of participation in non-formal and informal CVET (Schuller & Field, 1998). We can see here the interplay between micro and macro level benefits of VET, whereby individuals could achieve positive benefits from the VET experience

(formation of networks and more civic participation) and these can produce benefits for society (higher levels of social cohesion as well as reduced crime).

The relationship between learners and mentors is also important. There are different types of mentoring, for example industrial mentoring in schools through business-education partnerships, community mentoring aimed to support young people from ethnic minorities, or mentoring as an intervention responding to issues of social exclusion. Evidence from Colley (2003) has shown that mentoring learners is important as mentors usually represent positive role models for success and offer support and advice for young people in training. In some cases, the relationship between learners and mentors can change people's attitudes, values and beliefs, both for the learner and the mentor (Majors, et al. 2000).

The acquisition of social networks may differ depending on the place of learning. In some countries the workplace is an important context for learning. A survey conducted among 271 German apprentices in commercial occupations measured the relation between motivation to learn and the degree of integration of apprentices into the corporate expert culture. Results showed significant effects of feeling integrated into the community of practice at the workplace, the degree of self-efficacy and the motivation to learn (Müller 2009). The achievement of these three outcomes for learners was mediated by the relationship with their masters or employers (Müller, 2009). In other words, masters or employers can help learners to achieve these outcomes not only by demonstrating learners how to do their job, but also by supporting them to reflect and become independent with respect to their ability to define and solve problems (Collins, Brown and Newman, 1989).

3.4. Recognition of achievement

It is no secret that in a number of European countries vocational qualifications have tended to be perceived as taking second place to academic qualifications, resulting in both policy makers and researchers being exercised by the question of how to increase the 'parity of esteem' between the two strands of qualifications. This is the fourth main feature for the VET experience to generate social outcomes for individuals.

The European Union has made increasing the attractiveness of VET and its parity of esteem with general education part of its VET agenda, while the academic community has shown greater interest in the concept in some European countries than others, for example more so in England than in France (Lasonen & Manning, 2001). The recent launch of the vocational baccalauréat in France indicates an acknowledgement of the lack of parity of esteem. Before its introduction, the vocational track (the Certificat d'Aptitude Professionelle, CAP, or Brevet d'Etudes Professionnelles, BEP) were perceived as the track of relegation and exclusion (Gendron, 2005). A comparative analysis by CEDEFOP of IVET in the European context also refers to the efforts that various European Governments are making in order to address this idea of VET as "second best". However, the study also points out that some countries, such as Austria and Sweden, already have a larger uptake of vocational than general courses (80 and 54%) compared with the somewhat lower uptake in Portugal (8%) and Denmark (36%) (CEDEFOP, undated).

Research in the UK has shown that students taking vocational qualifications (GNVQ) were awarded more points used for entry into higher education than General Certificate of Education (GCE). Students in vocational courses were also awarded more points than their peers taking traditional A-level examinations, which are more directly linked to university progression in the UK. This has led to an undervaluing of vocational qualifications. Interestingly, students taking vocational qualifications have been perceived as being less likely to progress to higher education because the value of their qualifications is lower. Research, however, has not supported such claim (Vickers & Bekhradnia, 2007). There are no differences between the aspirations of students with vocational

qualifications and those with academic qualifications when prior ability is taken into account. Of course the proportion of students from an academic route who aspire to university is higher than the proportion of students from a vocational route. This may be due to the fact that lower ability students tend to choose to study for vocational qualifications, which is bound to reflect on the status of this route in comparison with those who chose to study for academic qualifications.

Nowhere is the debate more alive however, than in the views of the young people engaged in vocational training. In a report on young people's perspectives on education, training and employment in England, many of the young people on Modern Apprenticeships (a training scheme for 16-25 year olds launched in 1994 in the UK) talked about their teachers wanting them to stay on at school and take academic qualifications at upper secondary level (A-levels) rather than learn a trade. One apprentice illustrated how their different educational career options were presented to them: "it's like a big hour talk on A-levels, and then it's like 'you could go to college', half an hour on college, or you could go to a job, full stop" (Unwin & Wellington, 2001). Apprentices seemed to be aware of the fact they were bridging the academic/vocational divide by both learning a trade and continuing at college after the apprenticeship, and generally felt better prepared for the labour market than their peers who had gone to college or university but left without any skills (Unwin & Wellington, 2001).

Finally, there are structural issues affecting the recognition of formal IVET and formal CVET, which need to be addressed to ensure a greater recognition compared with academic qualifications. In the UK, university admissions tutors still focus on qualifications acquired through general education (Edward, Weedon, & Riddell, 2008). Up until recent years the university entry system did not include vocational qualifications when considering candidates' prior qualifications for their proposed course of study which further served to devalue them (Connor and Little, 2005). In addition, returns to vocational qualifications in some countries are still lower than the returns to their equivalent academic qualifications. In terms of labour market structural issues, research has shown small returns to low level of vocational qualifications compared with no qualifications in England and Scotland (Blundell, Dearden and Meghir, 1996; Feinstein, Galindo-Rueda and Vignoles, 2004; Booth, Francesconi and Zoega, 2003).

3.5. Possibilities for educational progression

The fifth main feature of VET is the possibilities for educational progression, not only within the vocational route but also accreditation and progression within general education. To this end, Green (1995) compares the VET systems of France and England. In France, although they have three strands to their system – Baccalauréat (Bac), BEP and CAP – all strands have general education in common which facilitates transfers between study routes. Curricula for all three strands are centrally designed, enabling standardisation and movement between strands. For this reason Green suggested that in England fewer than half of 16 year olds attain five good GCSEs compared with France where three-quarters attain the comparable *Brevet* (Green, 1995). Nonetheless, Méhaut (2010) still suggests that there is dominance of general education in France, which is attributed to the 'meritocratic' convention of the French education system and which leads to a 'secondary' status of IVET.

Hatt and Baxter (2003) showed that vocational learning in England left students less prepared for progression into higher education than students coming from academic routes. This failure was due to the lack of preparation in their previous educational experience for the crossover into the academic route, so learners fell behind while acquiring the requisite skills for a different system of assessment. Furthermore, they found that the number of students moving from vocational to academic routes was small. They concluded that the skills that the vocational students learn need to be recognised in the higher education system to enable progression (Hatt & Baxter, 2003). These

results coincide with Rainbirds' (2010) statement of a ongoing polarisation of the English education and training system although there has been a continual process of change in the role of the state with a range of policy initiatives designed to engage employers in training (Rainbird 2010: 265).

On the other hand, Young (1993) reports on the case of Finland and Sweden, two egalitarian societies, and the reforms made to their vocational systems in the 1990s. The changes concerned integrating more academic education into the vocational courses to enhance progression to university from either strand. In Germany, a vocational certificate opens up career tracks to middle management. After a certain period of work experience, usually five years, all vocational qualifications can be supplemented by promotional training that equips participants for advancement to the grades of master craftsman, technician or, in service occupations, business administrator. These vocational career tracks remained separated from higher education. A major progress was made with regard to the permeability of vocational and general education in 2009. Learners who completed an apprenticeship in the dual system and acquired a degree as a master craftsman, technician or business administrator had access to higher education. Transitions from pre-vocational to vocational training in the dual system is also a concern since about 40% of school graduates entering the differentiated VET system do not get a chance to enter the dual system of vocational training with an apprenticeship at firm level because of a lack of apprenticeship training positions (Autorengruppe Bildungsbericht, 2008).[8]

Finally, the possibilities for educational progression should not only be related to the achievement of qualifications as part of continuing full-time education or early transitions, they should also be available during the lifecourse of individuals. De Coulon and Vignoles (2008) found that adults in the UK who had acquired a vocational qualification at upper secondary level (NVQ2) were more likely to go on to further learning, particularly accredited, than those not taking an NVQ2 qualification. Sixty percent of those with a vocational qualification went onto further accredited learning, while just over twenty percent who had not achieved a vocational qualification in the same period, went on to accredited learning. Further analysis by the authors showed that adults who undertook NVQ2 in the first period of learning (between 1996 and 2000) were 40 percentage points more likely to undertake further accredited learning in the second period (between 2000 and 2004). Sabates, Feinstein and Skaliotis (2007) found that educational experiences and training predicted progression in education during adulthood in Britain. Using data from the British cohort studies, the authors found that cohort members who were enrolled in training between the ages of 16 and 23 had a seven percentage points' higher probability to achieve level 2 by age 33. Taking a course leading to a qualification increased progression by 3.2 percentage points. Similarly, being enrolled in courses not leading to qualifications increased the likelihood to achieve level 2 by six percentage points. In addition, continuing learning between 23 and 33 was associated with progression to level 2 by age 42. The authors found that each additional training episode, lasting three or more days, taken between 23 and 33 improved the likelihood to achieve level 2 by one percentage point by the age of 42.

3.6. Does VET lead to labour market mobility?

The sixth main feature for VET to lead to social benefits is the possibility of vertical and horizontal mobility in the labour market, that is, enhancing learners' opportunities to advance within their current position or to move to another industry. Recent studies have shown that individuals with higher levels of education have more control over their work, with a sense of agency and autonomy, that results in increased self-esteem and overall physical and psychological well-being (Field, 2009). It is our premise that there is a dual relationship between these factors and the possibilities

[8] Euler & Severing (2006) with their concept of a modularisation of the dual system of vocational training set off a controversial debate about the future of the German model of vocation training.

of vertical and horizontal mobility in the labour market for individuals engaged in VET. Hence, we see in this section an interaction between the individual benefits of VET for individuals (e.g. agency, self-esteem, autonomy, overall physical and psychological well-being) and the benefits of VET for firms and industries (e.g. more engaged workforce, mobility based on performance).

The German vocational training system, with subsequent promotional training, produces workers who are better equipped for middle management positions than university graduates. A number of comparative studies of German, British and American companies can be adduced as evidence in support of this argument. According to these studies, the standard form of work organisation in Germany, with its high shares of skilled workers and middle managers recruited from the shop floor, has proved to be more efficient than a more hierarchical form of work organisation with polarised qualification structures (Prais and Wagner 1983; Wagner and Finegold 1997). Bosch and Kalina (2007) showed that the income distribution of workers with a vocational qualification has a second peak above the average income bracket (5000 to 5099 € gross income per month in 2003) which reflects successful careers into middle management. At the same time the German system of VET is often be seen as operating on social selection by screening applicants according to their level of education and gender. This might be associated with the fact that decisions on vertical mobility most notably take place at firm level with employers taking the final decision on careers at firm level. These processes, however, tend to reproduce social and gender inequalities.

According to Heinz, et al (1998) the apprenticeship system also provides mobility opportunities that depend on the specific training occupations, with more opportunities for career development among bank employees, but fewer opportunities for car mechanics, hairdressers, and industrial mechanics. As stated by Heinz, et al (1998, p. 99) "moving along a certain occupational pathway results from an interplay between the structural opportunities and constraints of occupational contexts, on the one hand, and the young workers' aspirations and orientations, on the other". As exemplified by the research, one female worker had the opportunity to undertake formal CVET and move upwards in her employment, but it was not until she accepted this offer that personal barriers to training were lifted and possibilities for upwards mobility realised.

A German study by Heise & Meyer (2004) cites research on the relative advantages of different types of job training for promotion and job mobility. Pannenberg (1995) found that two-seven days or a week to a month's further training on the job increased upward job mobility significantly. Shorter training programmes affected in-company mobility and longer ones inter-company mobility. Off-the-job training for 6 to 12 months improved the chances of employment, whereas longer term training resulted in remaining unemployed. Bosch (2009) states that occupational training of unemployed have a considerable positive effect on their perspectives for labour market integration. Fitzenberger and Prey (1999) showed training on-the-job increased job stability, and Schaeper, et al. (2000) found that initial training directly affected successful career development, with educational background having an indirect effect.

In the UK, Booth and Francesconi (1999) used the British Household Panel Survey (BHPS) to investigate the gendered nature of job mobility in the UK, and found that while highest qualification had no significant effect on promotion, a vocational qualification did have a significant effect, but only for men (Booth & Francesconi, 1999). Tennant and O'Connor (2005) found positive impacts on businesses in terms of staff recruitment and retention as well as performance for learners with vocational qualifications. Dronkers (1993) showed that within the Dutch educational system, vocational education gives graduates better opportunities on the labour market than general education, although this varies by the discipline studied. His findings are based on the amount of time school leavers remain unemployed before they find their first job. General education, however, provides a wider range of life-chances than vocational education. So there is a danger that students

are attracted to general education in the belief that it will help them achieve the highest range of life chances (Dronkers, 1993).[9]

3.7. Summary

This section reviewed the main features that a VET experience should have so that individuals may see benefits that are beyond income and employment. Among these features we examined the content of learning, in other words, what is taught in VET contexts, and whether the learning experience that results from VET has the potential to increase individuals' knowledge and skills, social networks, peers, teachers and employers, and their psychosocial assets, for example self-esteem, autonomy, and confidence. Formal VET experiences result in the achievement of certificates or qualifications, which have an intrinsic value in the labour market. When such a qualification has been devalued or thought as 'second best' option, the potential for VET to generate social benefits may be jeopardised. Similarly, possibilities for further learning and training opportunities which may be opened as the result of VET, as well as mobility and flexibility in the labour market, are two other important features for the generation of social benefits.

Most of these features have an overarching theme, which is how VET is embedded within national systems, both social and economic. The integration of VET and general education, tracking of pupils by capabilities, the institutional possibilities for easing school-to-work transitions, links with the labour market and the political climate are all features of VET within the national context. This is an important aspect of VET that is developed in greater detail in Section 4.

[9] Apart from these studies, we found very little European literature on VET and vertical or horizontal mobility.

4. Differences in national context for VET

Research on national economic systems (e.g. Hall/Soskice 2001) or national systems of innovation (e.g. Lundvall 1992) highlight the importance of national systems and institutions within systems. Systems of education are influenced by national institutions as well (Müller/Gangl 2003). On a macro level, educational systems shape skill and knowledge formation of a society but may also have an effect on agency, identity or social capital of individuals. In the context of analyses of the relation between VET and social benefits, this chapter presents some basic typologies of national systems of VET and patterns of stratification within education and training systems. Finally we present a heuristic typology of VET in the 15 countries covered in the data set of the EHCP which motivates our empirical analysis.

4.1. Typologies for VET systems

Typologies of VET systems aim to highlight commonalities and differences between VET systems within national models of education and training. Like other institutional arrangements, national systems of VET are the result of historical processes, in which national specific constellations of social actors pursue their interests (Ashton and Green, 1996; Thelen, 2004; Bosch & Charest, 2010). This implies that national systems are dynamic processes that change over time. Most typologies tend to be static and do not reflect changes in the systems or changes in the constellation of social actors. Nevertheless, they are important for improving our understanding of how VET is conceptualised, planned and delivered in different countries. There are several typologies of VET systems. In this section we present a selection of typologies that relate to general characteristics of the regulation of IVET.

One typology of VET systems is offered by Rubery and Grimshaw (Table 1). They differentiate national systems of vocational training with regard to the type of labour market model and the form of regulation of VET. The type of labour market model has two oppositional characteristics: Occupational and internal labour markets. As a precondition for the existence of occupational labour markets (OLM) the authors state the existence of vocational training systems with high enrolment rates and nationally wide standardized and recognised occupational skills. A typical feature of OLM is the provision of training to develop a broad set of skills and competencies for a specific occupation. Internal labour markets (ILM) are characterised by company specific (formal or informal) training programmes, with skills and competencies developed specifically to the needs of the company and building upon general education. With regard to the form of regulation the three characteristics market-led, consensus-led or state-led refer to the main actors and places where regulation of the system takes place.

Table 1: Typology of national systems of VET by Rubery & Grimshaw

Labour market model				
	Occupational labour market (OLM)		Germany	
	Features of both OLM and ILM	UK US		
	Internal labour market (ILM)		Japan	France
		Market-led	Consensus-led	State-led
		Form of regulation		

(Source: Rubery/Grimshaw 2003, p. 112)

Preston and Green (2008) offer a similar classification. Referring to the typology of Greinert (2004) who distinguishes three historical models of VET, Preston and Green find three basic forms of regulation: Societal (e.g. Germany), Market (e.g. England) and State (e.g. France). Preston and Green acknowledge that not all European countries fit neatly into one of the categories, with particular distinctions to be made in the Nordic context, and with adaptations of the French system in southern European countries, for example Portugal.

Rubery and Grimshaw (2003) assess the performance of countries' training systems with some of the aspects being relevant for effects of VET on non-economic benefits. Rubery and Grimshaw state that in market-led systems, the absence of *coordinated strategies of vocational training* makes the training situation hard to assess and sets considerable disincentives to offer or attend VET. This results in low or uneven levels of training. In consensus-led systems, however, occupational skills tend to be recognized in the labour market and this can impact upon individuals'self- esteem and social networks. National systems which are dominated by internal labour markets more often tend to offer *opportunities for internal advancement* and create incentives for further firm-specific qualification. Therefore, vertical mobility is likely to be the focus of systems based on ILM. In occupational labour markets, mobility patterns are more likely to involve inter-firm transfers, that is horizontal mobility, but does not necessarily exclude vertical mobility if procedures for internal advancement, based on broad occupations, are provided.

Another aspect for assessment of national systems of VET is the *pattern and duration of school-to-work transitions*. According to Rubery and Grimshaw (2003) school-to-work transition in countries with a market-led form of regulation is generally short. At the same time it is associated with a high degree of uncertainty concerning quality and quantity of training provision and characterised by frequent job changes and recurrent periods of unemployment. In contrast, in countries with a consensus-led form of regulation, transition to paid employment takes longer due to a fixed duration of vocational training, mostly in form of an apprenticeship, with a minimum of two years. The school to work transition is more structured and it offers easier access to the labour market.

Regarding *adaptability to change within a national system*, Rubery and Grimshaw (2003) argue that the ability of firms to adapt to change tend to be stronger in market-led systems, as decentralized decision-making allows companies to react independently and smoothly to a changing environment. In consensus-led systems, negotiations and bargaining procedures may slow down processes of change. At the same time, the involvement of social actors and the state in the modernisation, and even creation of new occupations, might be an advantage with regard to the dissemination of

modernised VET curricula in the labour market (Bosch, 2008). A comparative study on the introduction of apprentices into the IT industry in the UK and Germany showed that in Germany certificates from apprenticeships were recognised by IT companies – presumably because employer associations, unions and the state spread information about the newly created occupations and offered assistance to companies in the implementation of new occupations. In the UK, certificates from VET in the IT sector never achieved wide acceptance in the industry, so companies were more likely to employ graduates from universities with general degrees and offer training while on the job (Steedman,Wagner & Foreman, 2003).

The typology by Iversen and Stephens (2008) refers to the "varieties of capitalism" since it distinguishes between Liberal Market Economies (LMEs) and Coordinated Market Economies (CMEs).[10] The motive for creating the typology is to summarise groups of countries with similar political profiles of human capital formation. Iversen and Stephens state that support for vocational education is rather high within CME countries with a Social Democratic orientation while lower within CME countries with a Christian Democratic orientation as well as in LME countries (see Table 2).

Table 2: Expected policy profiles of different worlds of human capital formation

	Coordinated Market Economies and Proportional Representation		Liberal Market Economies and Majoritarian Representation
	Social Democratic	Christian Democratic	Liberal
Day care or preschool	High	Low	Low (but substantial private provision)
Primary and secondary	High	Medium	Medium
Higher education	High	Medium	Medium (but substantial private component)
Active labor market policy	High	Low	Low
Vocational education	High	High	Low

(Source: Iversen/Stephens 2008, p. 614)

Iversen and Stephens make some statements about skill structures in the different groups of countries. In LMEs, the rather low support of public education, results in a highly divergent skill and wage structure. The middle and upper middle class privately invest in general education to increase their labour market flexibility. Those at the bottom third of the ability distribution have few opportunities to acquire valuable skills and also have few incentives for social advancement by investments in education.

In CMEs with a strong Social Democratic party, high public spending on all levels of education results in a much more compressed skill structure compared to LME. In these countries, workers are encouraged to acquire a solid basic education (general skills) as well as deep industry-specific skills. At the same time, these countries allow labour market flexibility through inter-company

[10] Approach based on Hall & Soskice (2001).

mobility and extensive spending on retraining and public employment. In CMEs with a strong Christian Democratic party the VET system offers opportunities for skill acquisition that are missing in the LME. High employment protection facilitates investment in company-specific as well as industry-specific skills. However, opportunities for skill acquisition of low- and semiskilled workers are widely absent in these countries.

Winterton (2007) presents a typology of VET systems distinguishing the mode of regulation, market-led or state-led, and focus of skill formation, workplace or school (see Table 3). Winterton states that state-regulated VET with a school focus does guarantee an adequate volume of training but is not necessarily well adapted to labour market needs. State-regulated systems with a workplace focus are widely seen as the "gold standard" of IVET. In market-regulated VET systems with a school focus, the absence of a binding legislative framework and of obligations on employers to provide training leads to an ineffective VET system. In countries with a market-regulated VET system with a workplace focus, market regulation creates uneven training provision, periodic skill shortages and poaching of skilled labour. The workplace focus makes employers to provide short-term adaptive CVET to support flexibility, even if this rarely results in a portable qualification.

Table 3: Typology of VET systems by Winterton

Focus	Mode of regulation	
	Market-led	State-led
Workplace	IE, NL, UK	AT, DE, DK
School	IT	BE, FI, FR, IS, NO, PT, ES, SE

(Source: Winterton 2007, p. 284)

In sum, educational systems, and in particular VET systems, are diverse across Europe. Typologies stress constitutive features and distinctions between national VET systems and do not deal directly with the relation between VET systems and social benefits. Therefore we now turn to different pathways of educational progression, strands and tracks of academic and vocational routes that exist within countries. As it was shown in Section 3, one of the main features of VET is the opportunities for educational progression, which are linked to national educational systems.

4.2. Stratification within VET systems

With regard to the research question of our project– the influence of VET on social benefits – a concept of Shavit/Müller (1998) seems to be useful in order to get more insight into different pillars of education and training systems within countries (see also Shavit/Müller, 2000; Müller, 2005). Shavit and Müller (1998) showed that beside *occupational specificity*[11] the degree of *stratification* within education and training systems – referring to the extent and form of tracking in educational systems with clearly distinct forms of learning and training – has significant effects on the positions and opportunities for enhancement for individuals.

First of all, a distinction can be made between two strands of education. In most European countries on the level of upper secondary education two routes of education can be pursued. Upper secondary education can take the form of general programmes or pre-vocational/vocational programmes

[11] The degree of occupational specificity relates to the extent to which training emphasizes broad occupational competencies for a range of different activities rather than job specific or general competencies (Shavit/Müller 1998)

(Table 4). Within the latter category it can further be differentiated between school based and an alternating model with a combination of school and work based training.

Table 4: Population that has attained upper secondary education and upper secondary enrolment rates by orientation of programmes (2005)

	*Upper secondary enrolment rates**		
	General	*Vocational programmes*	
	programmes	*All programmes*	*Of which: combined school and work based*
OECD Average	50.3	51.7	16.2
EU Average	44.1	56.2	16.3
Austria	21.5	78.5	32.7
Belgium	30.4	69.6	3.3
Denmark	52.1	47.9	47.7
Finland	36.1	63.9	10.5
France	43.6	56.4	11.3
Germany	39.7	60.3	45.0
Greece	64.0	36.0	a
Ireland	65.7	34.3	3.8
Italy	38.5	61.5	a
Luxembourg	36.6	63.4	13.6
Netherlands	31.8	68.2	20.0
Portugal	69	31.0	m
Spain	57.4	42.6	2.8
Sweden	46.4	53.5	a
UK	27.8	72.2	m

Source: OECD (2007), Table C1.1. *Note:* *Percentage of upper secondary graduates in the population at the typical age of graduation by programme orientation. m = missing; a = not applicable

Some countries show a high proportion of general programmes (e.g. Portugal, Spain, Greece) while in other countries vocational programmes with apprenticeship systems denote high enrolment rates (e.g. Denmark, Germany, Austria). Moodie (2008) proposed that a high proportion of general programmes is an indication for *generalist systems* while differentiated systems with different pillars within the system is an indication of *tracked systems*.

Some literature points to the relationship between the *degree of stratification and the likelihood of educational progression*. In other words the question is whether a higher degree of stratification automatically leads to a detracted access to higher education in particular for those engaged in IVET. Lasonen and Manning (2001) provide a scheme on strategies to enhance the links between academic and vocational routes prevailing in different countries:

- Vocational enhancement:
  - Promoting access to higher education through VET (Austria, Denmark, Germany)
  - Enhance VET starting from traditions of low status (Greece, Spain)
  - Transition process from VET developed under planned economy to market economy (Estonia, Hungary)
- Mutual enrichment of general education and VET (Finland and Norway)
- Linking VET with general education (England and France)

- Unification of VET and general education (Sweden and Scotland)

These categories do not reflect the relative strengths and weaknesses of the different countries, nor the amount of variation between countries with similar strategies. For example, Austria, Hungary, Germany and the Netherlands are found to have stronger VET programmes than those which exist in Greece, Spain, Portugal, England and Estonia. But Lasonen and Manning (2001) point out that flexible access to higher education differs between countries with Austria and the Netherlands creating a number of paths for progression from VET to higher education, followed by Germany and Hungary. Lasonen and Manning state that this difference is reflected in the proportion of students enrolling in VET programmes compared with general education programmes (Table 4)

Germany is an example with a clear dominance of the dual system of vocational training. Access to higher education is given within the VET system via legal regulation that promotes training for further career advancement within the field of occupation. Germany is also an example of a national tracked system of education. As early as secondary education, students are tracked into three different strands according to their capabilities. The degree of stratification is even deepened when it comes to a divide on the level of upper secondary education between those who follow the apprenticeship route and those who continue in general education programmes.

4.3. A heuristic typology of VET systems

For the purpose of analyzing the social benefits of VET empirically, we introduce a heuristic typology that comprises the 15 countries covered by ECHP dataset, forming five groups of countries calling them system 1 to 5 (see Table 5). The most dominant features of VET systems have been taken as a criterion for the grouping of countries.

Table 5: A heuristic typology of VET systems covering 15 countries in ECHP dataset

Type of VET system	*Countries*	*System*
Apprenticeship-based	Austria, Germany, Denmark, Luxembourg	system 1
Continental School-based	Netherlands, Belgium, France	system 2
Market-led	UK, Ireland	system 3
General Education	Greece, Spain, Portugal, Italy	system 4
Egalitarian School-based	Finland, Sweden	system 5

Apprenticeship-based system: A common feature of Austria, Germany, Denmark and Luxembourg is that vocational education and training is widespread in terms of enrolment rates and takes place in the framework of an apprenticeship system. In these countries, apprenticeship systems are characterised by an alternating structure of places of learning. Theoretical aspects within the occupational field and general contents are imparted in school while practical skills and competencies are provided at the workplace. Occupational profiles, compulsory examinations and certified degrees are regulated in a tripartist system with the state, the unions and employers' associations as central actors. Within this system, occupational profiles are regularly monitored with an option to modernize occupations in order to link occupations to the needs of industries. Vocational degrees are highly recognized as a signal for employees as well as for employers on the labour market and are a means to keep skill mismatch low. Except for the case of Denmark, their VET systems are highly stratified. Closeness to the labour market provides custom-made qualifications but increases the distance between general and vocational programmes.

Continental school-based system: VET systems in France, Belgium and the Netherlands represent a continental version of a school-based system. It is a school-based system with a high degree of national standardization and central coordination due to the strong meritocratic orientation expressing a deeply rooted ideal of academic education. In these countries there is a pronounced hierarchy of qualification levels, with lower reputation for formal VET. In addition, the incidence of vocational education and training at the workplace is low.

Market led system: VET systems can be characterized as market-led in the UK and Ireland. Although most IVET is provided by the state (as in other countries) there is less regulation and state intervention than in other countries. For example, the bodies which supply IVET qualifications are independent entities subject to state regulation rather than part of the central government. IVET is also employer-led with involvement of employers, rather than other social partners, at all levels. The state is seldomly involved in the provision of CVET and generally does not provide subsidies for its provision by employers or a regulatory framework for training at this level.

System of general education: In Southern European countries (Greece, Spain, Italy and Portugal) general education is the prevailing strand in the system of education. In the absence of institutions that shape and enhance VET systems, students acquire general knowledge and abilities in schools. If VET takes place, it is usually in form of on the job training at the workplace. These countries are economically poorer than the rest of the countries in the dataset (low GDP per capita) and usually have low levels of participation in VET.

Egalitarian school-based system: In Finland and Sweden, the VET-system is embedded in a national system of education that strives for equal opportunities for all citizens with regard to access to education. Therefore, in order to avoid negative consequences of early tracking and abolish dead ends, these countries have created an integrated school system with general and vocational tracks in the same school. After completion of school-based vocational tracks, students have opportunities to attend general courses to acquire certificates that provide access to tertiary education. However, the low degree of stratification leads to a low usability of VET certificates on the labour market. Youth unemployment among graduates from VET programmes tends to be high.

4.4. Summary

In this section we reviewed different typologies of VET systems, focusing on the commonalities and differences of these systems according to regulations, transitions into the labour market, opportunities for mobility within the labour market, and the adaptability of the VET system to national and supranational changes. We also reviewed the degree of stratification of VET within education and training systems, referring to the degree of tracking in educational systems, and the role of this stratification in generating opportunities for enhancement for individuals.

These different systems of VET may help to enhance or deteriorate the benefits for individuals that arise from VET experiences. Systems of VET are immersed within other national institutions and policy frameworks that mainly affect the labour demand as well as access to other institutions. For example, a national system that enables a smooth transition from VET into the labour market has a direct impact in terms of employability and indirectly complements the social benefits of VET by enabling individuals to maintain self-esteem and confidence gained through the learning experience. A strong welfare state provides the mechanisms, such as access to health services, through which the health benefits of VET may be complemented. This means, any possible benefits of VET are not counterbalanced by other institutional barriers that works against the generation of these benefits.

For this reason, we provided a heuristic typology of systems of VET which will be used in an estimation strategy geared at investigating whether the social benefits of learning are linked to

particular systems of VET. This is, in our view, one way in which we can assess complementarities between macro-level institutional factors and the social benefits of VET at the micro level.

5. Method

5.1. Data

Data for this report come from the European Community Household Panel (ECHP), a longitudinal panel survey designed to enable comparability across Member States of the EU on a number of social and economic indicators. In 1994, the first wave of data collection involved the interviewing of around 60,500 nationally representative households (approximately 130,000 adults aged 16 years and over) in the then 12 Member States[12]. Austria joined the project in 1995 and Finland in 1996. Similar data is included from the Swedish Living Conditions Survey from 1997.

For the fourth wave of the ECHP (in 1997), the original ECHP surveys stopped in Germany, Luxembourg and the United Kingdom and existing national panel surveys were then used. The last wave of the ECHP took place in 2001.

5.2. Social outcomes for individuals

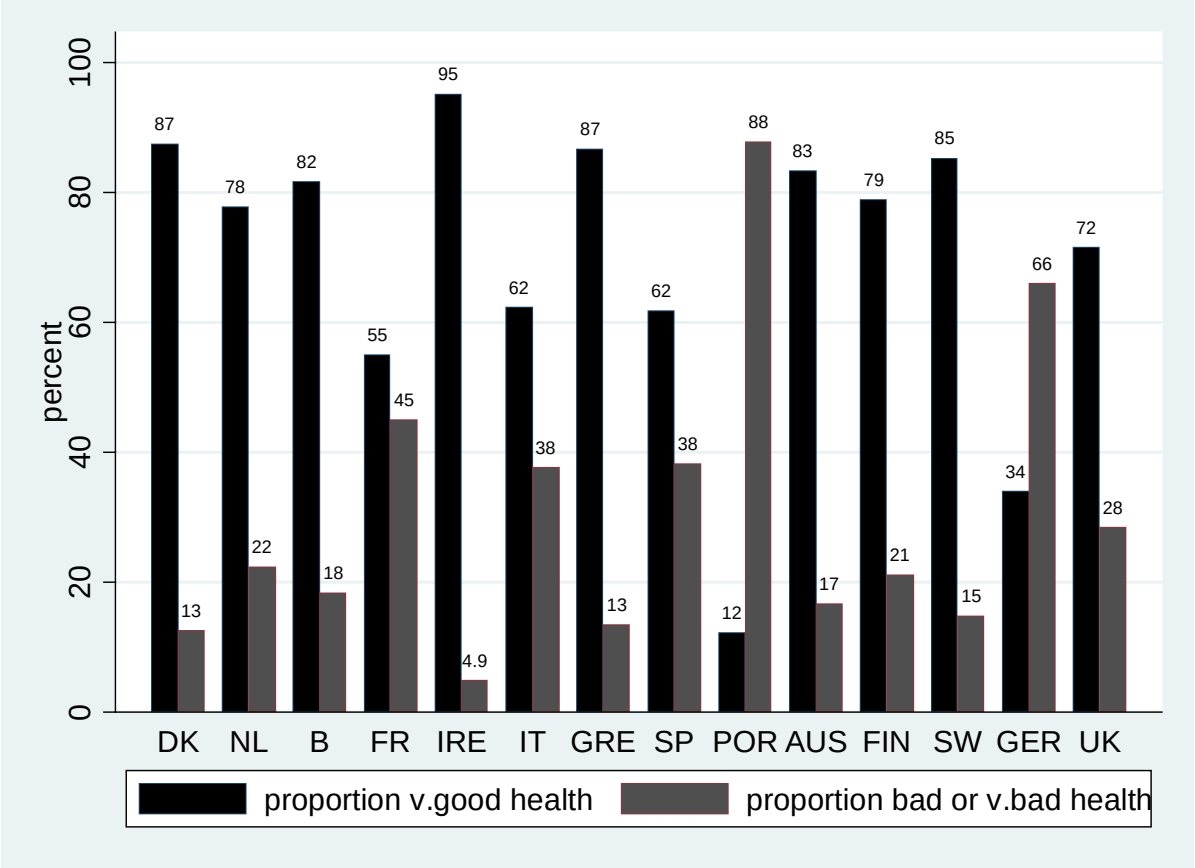
In order to quantify social outcomes, we have chosen indicators from the ECHP covering aspects of health and well-being, as well as civic participation. Two key aspects were considered when selecting these indicators. First was their comparability across countries over time. For this, we relied on the design of the ECHP which enables cross-country comparisons over time. Second was the variation of the indicators over time. In other words, we selected indicators that showed some variation over the eight years of information collected for each individual who took part in the study. For example, we expect that health could vary during this time period, however voting in an election is unlikely to show variation, unless several elections take place during the time of the interview.

In the health domain, we selected the following three indicators: self-rated health, chronic health conditions and body mass index (BMI).[13] Self-rated health was obtained from the question "how is your health in general" with 5 possible responses from very bad to very good. Figure 1 shows the proportion of individuals with very good health and with bad and very bad health by country in 2001. We can see a lot of heterogeneity in responses, from a high of 95 per cent of individuals reporting very good health in Ireland in 2001 to a low of 35 per cent in Germany. Unfortunately this information was not available for Luxembourg in 2001.

[12] Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Portugal and the UK.

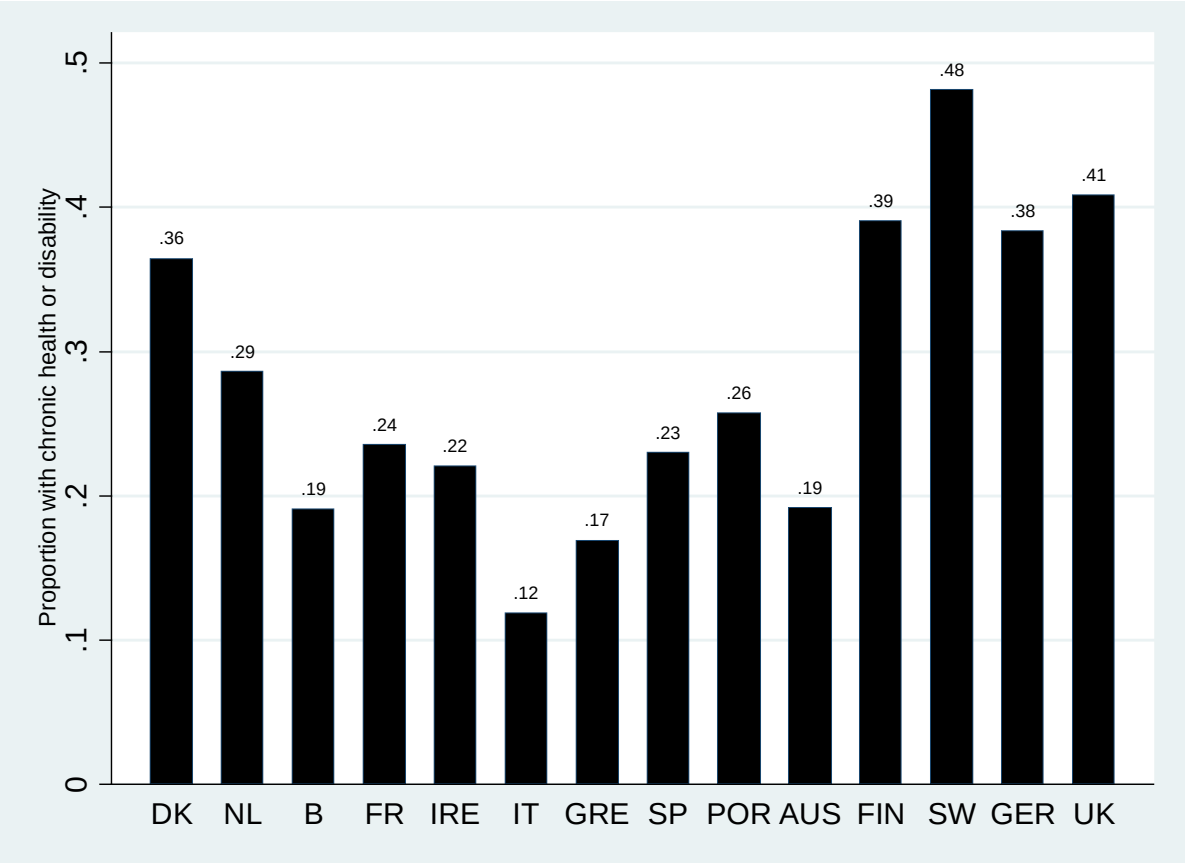
[13] ECHP contains information on smoking. However, information collected did not allow us to differentiate between current smoking habits from previous smoking habits. In this project we are mainly interested on the association between an episode of vocational education or training with a change in health or social outcomes. In this sense, it was not possible for us to construct a change in smoking habits from the information provided in the data.

Figure 1: Self-rated health in ECHP by country in 2001



For chronic health conditions we used the question "are you hampered in your daily activities by any chronic physical or mental health problem, illness or disability? This information is only collected from 1995, so there is one less year of information compared with self-rated health. Figure 2 shows the proportion of individuals who were hampered in their daily activities by any chronic physical or mental health problem, illness or disability in each of the countries in 2001. Italy shows the lowest proportion of individuals, with only 12 per cent of participants in the ECHP in 2001 reporting limiting chronic health conditions. In Sweden, 48 per cent of individuals reported limiting chronic health conditions in 2001. In order to standardise this outcome with self-rated health, we recoded this variable so that a higher value indicates absence of chronic health conditions, illnesses or disabilities.

Figure 2: Proportion of individuals who are hampered in daily activities by any chronic physical or mental health problem, illness or disability by country in 2001



Body mass index was constructed using person's weight and height, and this variable was already contained in the ECHP. Information on BMI was only available from wave 5 in 10 of the 15 countries. Countries not included were Denmark, Finland, Luxemburg, Netherlands, and UK. Table 6 shows the average BMI for the 10 countries with information. We can see little variation in BMI over the four year period, and following global trends in obesity, our data also shows increases in BMI over this period.

Table 6: BMI by year and country

	Year			
Country	1998	1999	2000	2001
Denmark	24.5	24.6	24.7	24.7
Belgium	24.6	24.7	24.7	24.8
Ireland	24.6	24.7	24.7	24.8
Italy	24.4	24.4	24.4	24.5
Greece	25.4	25.5	25.5	25.5
Spain	25.2	25.2	25.1	25.4
Portugal	25.0	25.1	25.1	25.2
Austria	24.9	24.9	25.0	25.0
Finland	25.0	25.1	25.3	25.3
Sweden		24.6	24.7	24.8

Source: ECHP.

For the domain of civic participation, we selected only one indicator: membership of civic organisations. ECHP contains information on whether the individual is a member of a club (sports or entertainment), local or neighbourhood group or a political party. Information is available in all waves in all countries, except for Luxemburg (which contains only information for the first 3 years), Austria (which does not contain information in 1994), Finland and Sweden with information missing in the first years and the UK (which does not contain information on 1998, 2000 or 2001. Table 7 shows the proportion of individuals who are members to civic organizations in all countries by year. There are large differences by countries, with higher proportion of membership in the UK and Denmark and lower participation in Southern European countries such as Greece, Italy, Portugal and, to a lesser extent, Spain.

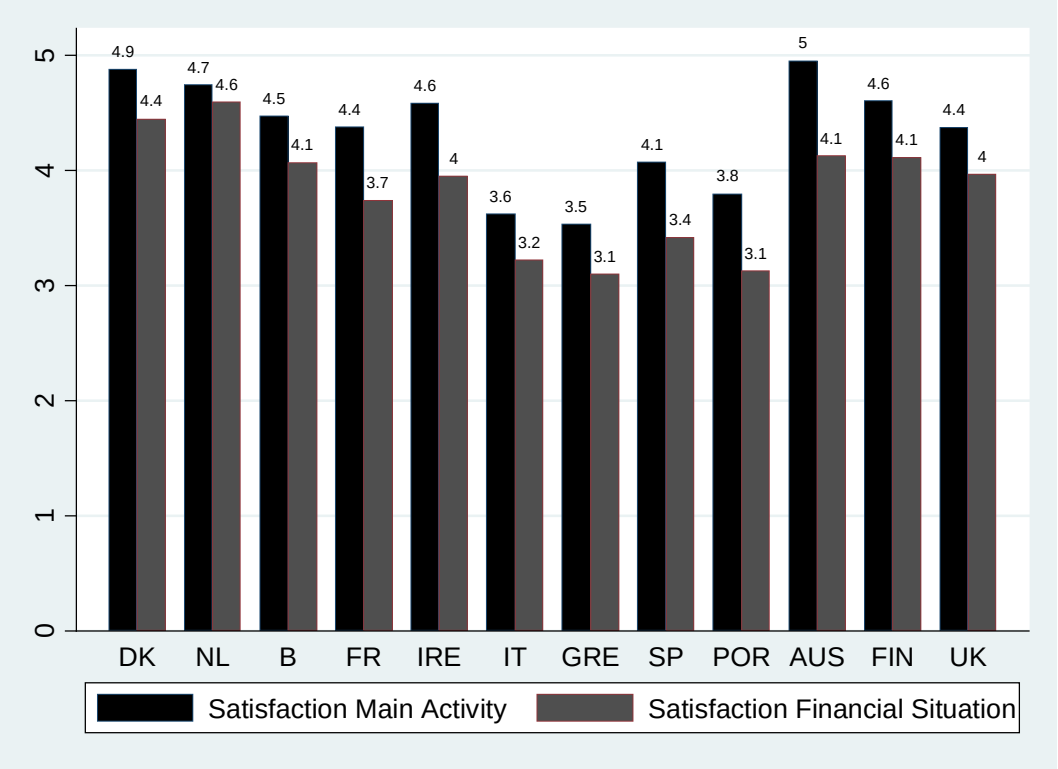
Table 7: Membership of civic organisations (proportion) by country over time

	Year							
	1994	1995	1996	1997	1998	1999	2000	2001
DK	0.57	0.59	0.60	0.60	0.63	0.65	0.64	0.65
NL	0.45	0.45	0.45	0.45	0.44	0.45	0.45	0.46
B	0.36	0.37	0.37	0.37	0.38	0.38	0.38	0.38
FR	0.28	0.26	0.27	0.28	0.28	0.27	0.29	0.29
IRE	0.43	0.45	0.45	0.44	0.45	0.46	0.47	0.48
IT	0.15	0.16	0.18	0.18	0.18	0.24	0.25	0.25
GRE	0.10	0.09	0.08	0.08	0.09	0.09	0.09	0.10
SP	0.27	0.27	0.25	0.27	0.26	0.25	0.25	0.26
POR	0.14	0.15	0.15	0.16	0.18	0.18	0.19	0.20
AUS		0.44	0.46	0.48	0.48	0.48	0.48	0.48
FIN			0.55	0.54	0.56	0.55	0.56	0.57
SW				0.67	0.65	0.66	0.68	0.82
GER	0.25	0.25	0.29	0.28	0.27	0.29		
LUX	0.39	0.40	0.41					
UK	0.60	0.60	0.61	0.58		0.56		

Source: ECHP

The final domain is well-being, for which we obtain two indicators of self-reported satisfaction, one with work or current main activity and the other for current financial situation. The rating of self-reported satisfaction used a scale of 1 to 6, where 1 was not satisfied and 6 was fully satisfied. Satisfaction with work or main activity and satisfaction with financial situation were available in all waves in all countries, except Sweden (no information), Germany and Luxemburg (information was available in waves 1 to 3 and 7 only). Figure 3 shows the average value of self-reported satisfaction with main activity and financial situation by country in 2001. Northern European countries, such as Denmark, Netherlands and Belgium) showed higher values of satisfaction with main activity and financial situation than southern European countries, such as Greece, Italy, Spain and Portugal. In all countries, individuals reported higher satisfaction with main activity than with current financial situation. This issue main reflect the wording of the question for main activity, which includes all individuals who are in paid and non-paid employment. Those individuals working in non-paid activities may report high satisfaction with current activity but low satisfaction with financial situation.

Figure 3: Average self-reported satisfaction with main activity and financial situation by country in 2001.



5.3. Educational variables

Key to this report is the categorisation of education that enables us to differentiate firstly, between academic and vocational qualifications and secondly, within vocational qualifications, whether these were obtained directly after completing compulsory education and before entering full-time employment (which is regarded as IVET) or after entering full-time employment (CVET). Following the definition of CEDEFOP, IVET can only be formal, within the education and training system, whereas CVET can be formal, non-formal or informal.[14]

ECHP contains information on the highest qualifications achieved by the individual and this was collected during the first interview. Although the documentation shows that detailed information was collected on the type of qualifications, data archived only contains a derived variable which classifies the highest educational qualifications achieved into the following four categories: (i) recognised third level education, (ii) second stage of secondary level, (iii) first stage of secondary level, and (iv) less than secondary education.[15] Unfortunately, we were unable to differentiate whether these highest qualifications were obtained from a vocational or an academic route or a combination of these. Across the whole sample of European countries in the ECHP, 51 per cent of individuals had achieved lower secondary schooling (that is at least first stage of secondary school) in 1994, 32 per cent had upper secondary schooling (second stage of secondary level) and 17 per cent had tertiary education.

Aside from the highest qualifications achieved, ECHP contains information on the episodes of education and training that took place during the year previous to the interview. Education and

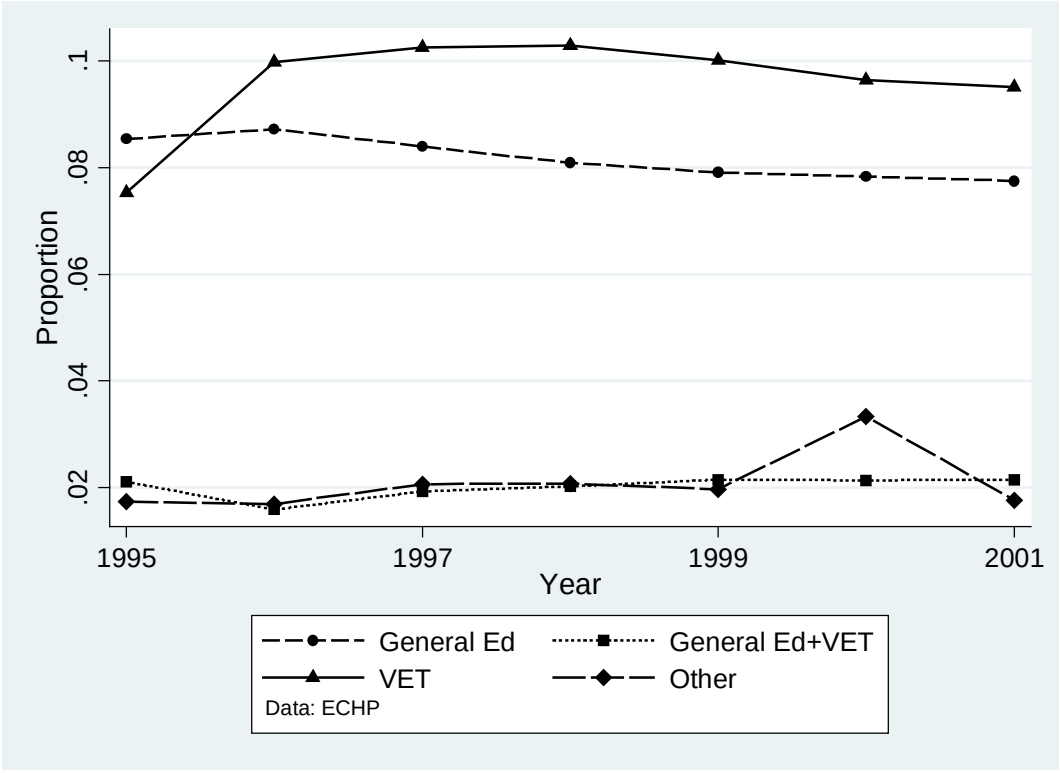
[14] Please refer to Chapter 1 for definitions.
[15] Available in all countries except for Luxembourg in wave 1.

training was classified into general education, vocational education or language courses (or other adult education courses) as well as all the combinations between these learning episodes.

For the purpose of this report, we reclassified this variable into the following five categories: (i) general education or general education and language courses, (ii) general education and VET or general education, VET and language courses, (iii) VET or VET and language courses, (iv) language courses and (v) no education or training. The aim of this classification is twofold: first, to try to isolate individuals who had undertaken VET courses alone (or in conjunction with language courses) from the rest of individuals and then to be able to measure the association of VET with social outcomes for these individuals compared with other individuals.

Figure 4 shows individuals' participation in different types of courses across Europe between 1995 and 2001. Around 10 per cent of individuals participated in VET or VET and language courses and around 8 per cent participated in general education or general education and language courses. Participation in combination of VET and general education courses and language courses was relatively small, with only around 2 per cent of individuals participating in Europe. As it will be described below, our proposed estimation method uses variations over time in the participation of individuals in VET courses and associates these with variations on social outcomes for these same individuals.

Figure 4: Participation in continuing education across Europe from 1995 to 2001.



IVET vs. CVET: In order to distinguish between episodes of IVET from those of CVET, we divided individuals according to four age groups and work experience. The first group contains young individuals, younger than 25 years during the first interview year. Our working assumption is that any period of VET reported by these young individuals will be considered IVET.[16] The proportion

[16] We acknowledge that some young people may have completed full-time education, joined the labour market and achieved a VET qualification while working before they were 25 years of age. If this is the case, this could have been considered CVET. However, our statistics showed that nearly three quarters of young people under 25 reported that they had not work experience prior to 1994.

of the ECHP sample who is under 25 years is 21 per cent (Table 8). This proportion contains individuals with and without work experience.[17]

The second group contains individuals in their early working careers, aged between 26 and 45 years old who have had work experience by 1994. The third group contains individuals in their late careers, aged 46 to 60 who have had work experience by 1994. The fourth and final group contains individuals older than 60 years of age, most of which could be considered near retirement or already retired, and who have had work experience by 1994. Our working assumption is that any period of VET reported by these young individuals will be considered CVET. In the ECHP, 44 per cent of individuals are in their early career, 17 per cent in their late careers and 12 per cent near or at retirement age (Table 8).

In addition, the ECHP contains information about the age at which individuals began their working life. For 13.8% of the sample, the response to this question was "never worked". Of these individuals, 63% did not do any episodes of training, 29% undertook general education, 2.4% general education and VET, 3.8% only VET courses and 0.7% other training, mainly language courses. Table 8 shows that around 5 per cent of the ECHP sample are over 25 years and have never worked. We classified these individuals separately since any training undertaken by these individuals is not related to their previous labour market experience, although it could be related to willingness to join the labour market in the future. We also assume that any period of training undertaken by these individuals should be considered CVET.

Table 8: Description of lifecourse stages using ECHP

Group	Description	Percentage
Youth	Young people aged 25 or younger during the first time individuals were interviewed. Contains individuals with and without work experience.	21.1
Early career	Individuals aged 26 to 45 years when they were interviewed for the first time. Only those individuals who have had work experience.	43.9
Mid to end career	Individuals aged 46 to 60 years when they were interviewed for the first time. Only those individuals who have had work experience.	16.8
Retired	Individuals over the age of 60 years when they were interviewed for the first time. Only those individuals who have had work experience.	12.4
Never worked	Individuals older than 25 years who have never worked.	5.5

Formal vs. Non-formal CVET: For each learning episode undertaken during the year prior to the interview information was collected on the type of vocational education or training. Possible responses for this variable were: Third level qualification, such as technical college; specific vocational training at a vocational school or college; specific vocational training within a system providing both work experience and a complementary instruction elsewhere; specific vocational training in a working environment; and other.[18] Using CEDEFOP (2008) definitions, the first three

[17] Unfortunately, three quarters of young people under 25 (16%) reported never worked before the interview and only 5% had worked. The latter group is too small to undertake empirical analysis. For this reason, these two groups were merged.

[18] Since this question asks about any training which took place since the previous year it is only available from wave 2 (1995) in all countries except Sweden. Further exception is Luxembourg for which there is no information available in wave 4.

options would result in a qualification, which is the main feature assigned to formal CVET. The fourth option is assumed to be non-formal within the enterprise or organisation. The last option, undertaking other type of vocational education or training, could be defined as informal, but there is not enough information about this type of training to know whether it occurred within the enterprise or outside the enterprise, whether it had educational intention on not, or whether it was structured learning or not. In addition, only 0.42% of individuals reported 'other' training. For estimation purposes, we only differentiate between formal CVET from non-formal or informal CVET.[19] Of those who reported an episode of CVET, 43% was formal, 31% non-formal or informal and 24.8% unspecified.

Duration of CVET: In addition, information was collected on duration of the VET episode. Overall duration of the course was classified into VET of less than two weeks, two to nine weeks or more than nine weeks. This information was available in all countries except in Luxembourg and Netherlands (only information in wave 8) and Sweden (no information). For estimation purposes we define 'short duration' as training with duration less than nine weeks and 'long duration' as training with duration over nine weeks. Of those individuals who reported an episode of CVET, 60% had short duration, 20% had long duration and 20% unspecified.[20]

Sources of funding for CVET: Funding sources were only collected for individuals whose employers paid for their education or training as opposed to self-financing. This information was available in all countries except for Sweden (no information), Denmark and Luxembourg (not in waves 4 to 7). This information was only available for individuals who were in employment. Of those individuals in employment, who reported episodes of CVET, 68% of them had their training paid by their employer, 16% were self-funded and a further 16% were unspecified.[21]

5.4. Confounding variables

The richness of the ECHP dataset also allows us to include socio-demographic measures and income to be able to establish whether any potential association between VET and social outcomes may be the result of these factors (in particular income). Among the variables used in the analysis we include gender (48 per cent men and 52 per cent women) and cohabitation status (67 per cent living in a couple marital and 33 per cent living alone).

Income was constructed as log real gross hourly wage (in purchasing power parity, PPP €). There is no perfect income measure. The ECHP contains information on net earnings per country with the exception of France and Finland where the measure is gross earnings. Hence, the variable used was gross monthly earnings for all countries except for Sweden and Luxembourg, where gross income was missing. For these two countries, a derived variable for total net income from work was used instead. The total number of hours worked per week in main and additional jobs was used to obtained hourly wage. Nominal hourly wage in national currency was converted to PPP € using the official PPP rates in the ECHP country file. The use of PPP rates rather than the fixed rate is in accordance to the official recommendations (see ECHP UDB manual p10). All observations with

[19] A significant proportion of individuals (24.8%) did not provide information about the type of vocational education or training. This is because information was not collected in some countries (e.g. Sweden) and not in some countries in some years (e.g. Luxembourg). Rather than dropping these cases, we keep them as an additional category for analysis. In making comparisons on the associations between type of CVET and social outcomes, it is likely that the inclusion of this variable acts more like a country and year fixed effects, hence it may have a different interpretation than being a separate category for type of CVET experience.

[20] For individuals without information on duration of CVET course, we undertook the same steps as for individuals whose type of CVET was unspecified and which we described in Footnote 19.

[21] For individuals without information on sources of funding for their CVET course, we undertook the same steps as for individuals whose type of CVET was unspecified and which we described in Footnote 19.

non-positive wages were dropped as well as the top and bottom 1% within each sex, country, and year cell (to reduce the influence of outliers). Fortunately, this affected only 1% of the sample with information on earnings (see Table 9).[22]

We used another variable dealing with the potential income effect on social outcomes. This variable is a subjective measurement of the ability of households to make ends meet with their total monthly income. This was coded in a six point scale, with lower values indicating "great difficulty" and higher values "very easily". About 10 per cent of the households found it quite difficult to make income from all sources meet their needs and a further 12 per cent found it quite difficult. On the other hand, 15 per cent of households found it easy to manage with their income but only 3 per cent found it very easy (see Table 9 for descriptive statistics of this indicator by country). We found a 0.29 correlation between this subjective measurement of income and the income variable derived from earnings.

Table 9: Descriptive statistics for gross hourly wage and households' ability to make income meet ends by country.

	Log(gross hourly wage)		Ability to meet ends	
	Mean	Std Dev	Mean	Std Dev
Germany	10.25	7.60	4.17	1.19
Denmark	12.41	5.31	4.02	1.22
Netherlands	13.54	13.60	4.24	1.20
Belgium	11.67	6.08	3.87	1.17
Luxembourg	13.05	8.26	4.26	1.16
France	9.51	6.98	3.51	1.05
UK	9.79	7.59	3.77	1.06
Ireland	10.15	7.54	3.31	1.11
Italy	9.17	5.19	3.23	1.08
Greece	6.49	4.30	2.55	1.17
Spain	8.11	5.31	3.07	1.20
Portugal	4.95	4.38	2.75	1.02
Austria	9.23	4.85	3.52	1.18
Finland	9.40	5.23	3.68	1.15
Sweden(1)	5.92	3.76	3.42*	1.16*

Source: ECHP. Notes: (1) There is no information from Sweden on the ability of households to make ends meet with their total monthly income. The reported value for Sweden is inputted using the average across all other European countries.

5.5. Estimation method

Let us approximate the effects of VET on social outcomes for individuals in Europe by the function *f*, such that:

$$S_{itc} = f(VET_{itc}, X_{itc}, Y_{ic}, \alpha_i, \lambda_t, \beta_c, \eta_{itc}) + e_{itc} \quad (1)$$

where *i* denotes individuals, *t* stands for time and *c* for country. *S* denotes social outcome, which is a function of vocational education and training (VET). *X* is a matrix of individual, demographic

[22] We would like to thank Dr Yu Zhu, from the Department of Economics, University of Kent, for providing us with the income variable.

characteristics which change across individuals, over time and by country, for example income and marital status. Y is a matrix of variables that only change across individuals and countries, but showed no fluctuations over time, for example gender, ethnicity, and prior educational qualifications. Individual time invariant fixed effects are denoted by α_i; period heterogeneity that affects all individuals in a particular year, λ_t; country specific fixed effects are captured by the parameter β_c. Time-varying individual heterogeneity in social outcomes such as changes in self-efficacy, self-esteem or aspirations are captured by the parameter η_{itc}. Measurement error is assumed random and captured by e_{itc}.

Studies using cross-sectional data (which do not contain a time dimension) or panel data (which contain a time dimension, but it is ignored in the estimation) tend to employ multivariate regression analysis to estimate the parameters of the model proposed in Equation 1. Whether the analysis is linear or non-linear depends on the nature of the outcome variable. For continuous outcome variables, the most common estimation method is linear regression, which is estimated using ordinary least squares (OLS). For dichotomous, ordered or categorical outcome variables, the most common estimation methods are non-linear and assume that the error term in Equation 1 follows a logistic distribution (logit type models) or a normal distribution (probit type models). In addition, estimation methods which ignore the panel structure of the data may include country fixed effects, by means of individual country dummy variables to estimate β_c, and may adjust for the clustering of information around individuals by relaxing the assumption of independence of observations.

Ignoring the time dimension of the data forces the estimation of parameters to make comparisons between average **levels** of social outcomes for different groups of individuals. For the particular case of VET, this estimation strategy compares social outcomes for individuals who were engaged in VET against those who were not. The inclusion of confounding variable, such as income, enables the researcher to investigate whether differences in average levels of social outcomes which were thought to be the result of VET may be due to any of these other factors. One of the main drawbacks of this approach is the fact that individuals who participate in VET may be different from those who do not. This issue is likely to bias the estimation of parameters which measure the association of VET with social outcomes.

The time dimension of the data can be used to estimate parameters that compare the average **change** in social outcomes with the average **change** in explanatory factors over time. For the particular case of VET, this method estimates whether average changes in social outcomes are associated with average changes in VET episodes for each individual. This estimation strategy only allows for the inclusion of confounding factors that change over time, for example income. The role of confounding factors in the model in changes is the same as for the model in levels. Empirically, the change model is estimated using random or fixed effects.

Fixed effects estimation absorbs the effect of time-invariant heterogeneity (α_i) with the inclusion of individual intercepts in the model. Essentially, the effect of individual time-invariant heterogeneity is cancelled out in this approach because time-invariant factors do not easily explain changes. Random effects estimation models this heterogeneity as a random disturbance. This assumes that the unobserved time-invariant heterogeneity is not related to the decision to engage in VET. For this outcome the assumption of random effects is a strong one. Mundlak (1978) proposed that the correlation between the explanatory variables and the unobserved time-invariant heterogeneity can be explicitly modelled and dealt with in the estimation. The approach is to incorporate the average value of our time-dependent variable (average levels of VET episodes over the time period) in the estimation. This takes out the bias on the estimate of VET caused by correlation of VET and unobserved time-invariant heterogeneity.

The decision of whether to use fixed or random effects is not straight-forward when dealing with non-experimental data, as in our case.[23] In this report we opted to use fixed effects whenever possible as the aim is to estimate a model in changes. In other words, we estimate whether an individual's changes in social outcomes (whether there was an improvement in health outcomes over time) is associated with episodes of VET (whether year on year individuals took VET courses). Fixed effects model necessarily uses a transformation of the variables to obtain deviations from each individual's average and to difference out any time-invariant heterogeneity (Hsiao, 2003). This estimation can only be performed for individuals who have variations in their social outcomes.

Another type of unobservable heterogeneity is cross-sectional individual-invariant factors, λ_t, which affect equally all individual observations in one period but not in others. An example of this type of heterogeneity will be the introduction of a national policy that may affect social outcomes. It is relatively straight-forward to model this heterogeneity by introducing one indicator variable for each period in the panel data. This approach is similar to the inclusion of country dummy variables to condition out for country specific fixed effects in an ordinary least squares regression.

The last type of heterogeneity that it is considered in Equation 1 is individual time-varying within country heterogeneity, η_{itc}. Examples of this type of unobservable variable are motivations, locus of control, self-esteem, aspirations, agency or self-efficacy. These are features of the individual that may contain stable elements but also elements which can be assumed to change over time. In the ECHP there are no measurements of these variables, and even if there were, we would not be able to include all the individual factors that may determine a person's health, her involvement in civic activities or her decision to undertake VET courses. Hence, we have no other option than to assume that the effect of the unobserved individual time-varying heterogeneity has the property of a random variable. Therefore, we do not model explicitly this time-varying heterogeneity but assume that it is incorporated in the error term. This remains a limitation of this study.

5.6. Estimation strategy

We use the sample of young people aged 25 years or younger in 1994 to estimate the association of IVET and social outcomes. There are two main models to be estimated. Firstly, we estimate average differences in levels of social outcomes using OLS or logit models. This is called "model in levels". Secondly, we estimate the average change in social outcomes over time using fixed effect linear regression or fixed effects logit models. This is called "model in changes".

For the model in **levels** we explore:

1. Base model: Average differences in levels of social outcomes for individuals who participated in IVET courses and those who did not across the European countries in the sample. To estimate these average differences we control for year and country effects, initial educational qualifications, and gender.
2. Base model plus income: We include the logarithm of gross hourly wage, household's ability to meet ends with monthly income and cohabitation status to the base model. This is done to investigate whether any associations between levels of social outcomes and IVET from the base model may be explained by differences in income.
3. Base model by systems: We use the classification of systems of VET described in Section 4 to investigate whether any differences in levels of social outcomes and IVET arise in a particular system.

[23] For further details about when to use fixed versus random effects see Woodridge (2002) and Hsiao (2003).

4. Base model by systems plus income: We include income to the models estimated in point 3. Again, the idea is to see whether income may be responsible for explaining any associations found between IVET and average levels social outcomes in each of the systems.

For the model in **changes** we explore:

i. Base model: Average differences in changes of social outcomes associated with changes in IVET episodes over time for individuals across the European countries in the sample. To estimate these average differences we control for year effects only, as other factors that do not change over time, such as gender, were dropped from the analysis.
ii. Base model plus income: We include the logarithm of gross hourly wage, household's ability to meet ends with monthly income and cohabitation status to the base model. This is done to investigate whether any associations between changes of social outcomes and episodes of IVET from the base model may be explained by changes in income over time.
iii. Base model by systems: Using the systems classification, we investigate whether associations between changes in social outcomes and episodes of IVET are found in a particular system.
iv. Base model by systems plus income: We include income to the models estimated in point iii.

We use the sample of individuals over 25 and information on their previous work experience to explore the association of CVET and social outcomes over the lifecourse. The following lifecourse groups were selected: (i) individuals aged 26 to 45 in 1994 with previous work experience; (ii) individuals aged 46 to 60 in 1994 with previous work experience; (iii) individuals over 60 with previous work experience; and (iv) individuals over 25 who have never worked. For each of these groups we estimated the same models in levels and models in changes which we did for the case of IVET. That is, we start with a simple model without the inclusion of income, then we add income as a key control and we do the same analysis for each of the 5 systems of VET.

After completing these analyses, we explore some further features of the CVET experience to differentiate whether any associations found between CVET and social outcome maybe the result of a formal CVET or a non-formal/informal CVET, a short or a long duration, a self-financed or employer-financed CVET. To undertake these analyses we only use the most robust methodology which uses the model in changes. Results will be presented for the pooled sample of individuals across Europe only.[24] Although we estimated these models by systems of VET, we do not present these results in this report. This is because there are countries without information on type of CVET, duration of CVET or sources of funding for CVET hence we do not have complete information on the countries that belong to a particular system. Furthermore, the subdivision of the sample (by systems, over the lifecourse) and the subdivision of the indicators (CVET subdivided into formal, non-formal, etc) make the estimation of some parameters impossible to achieve. These results can be found in our supporting Excel documents.

For sources of funding to undertake CVET, we only carry out the model for individuals in employment, hence dropping individuals not in employment and those who have not had previous work experience. This analysis is only carried out for the pooled sample of individuals across Europe. Results by systems are not presented here, but can be found in the supporting Excel documents.

[24] We do not undertake this analysis for IVET. This is because all IVET is formal and duration is longer than 9 weeks. In addition, source of funding for VET episode was asked only to those individuals who were employed. Although it is possible that some employers may pay for the initial training of individuals, by definition IVET occurs before the individual joins the labour market. Hence, IVET is funded by the person or subsidised by the state.

6. Results

We first explore results that emerged from the association between IVET and social outcomes using models in levels and in changes. These results are described across all individuals in the European countries selected in the ECHP and using the five different systems of VET. Then, we explore results that emerged from the associations between CVET and social outcomes using the models in levels and in changes. These results are described across all individuals in the sampled European countries of the ECHP over the lifecourse and also by systems of VET over the lifecourse.

Our main outputs are provided by auxiliary Excel files which contain all the results from the estimations. Tables provided in this section focus exclusively on the association between episodes of VET and social outcomes and are intended to provide a summary of all results. For more details on the estimation output please refer to the Excel files. A description of the content of the Excel files is provided in the Annex.

6.1. IVET and social outcomes

Table 10 shows results for the association between IVET and average levels of social outcomes, with and without the inclusion of controls and by systems of VET. Our results showed a positive association between an episode of IVET and all social outcomes except for satisfaction with financial situation. For the pooled set of individuals across European countries participants on the ECHP, we found that IVET is associated with better self-rated health, lower likelihood of chronic health problems, lower BMI, higher likelihood of membership to voluntary organisations, and higher satisfaction with work or main activity (even after conditioning out the impact of previous educational qualifications). When income and other controls are added into the model, our results remained unchanged, indicating that the association found between IVET and these social outcomes is not mediated by income (or the other controls).

For the model in changes, across all individuals living in the sample of European countries, we also found that the episode of IVET is associated with positive changes in social outcomes for self-rated health, lower likelihood of chronic health problems, greater likelihood of participation in voluntary activities and greater changes in satisfaction with work or main activity (see Table 11).

We did not find that changes in BMI were associated with participation in IVET over time. This indicates the possibility that the association between BMI and IVET found for the model in levels is the result of time-invariant heterogeneity which is captured by the model in changes. It could also indicate that there is little variation in BMI for this age group (younger than 26 years), hence over time we do not see that IVET is associated with changes in BMI. This latter explanation will be true if we were to find in the model that none of the factors included were associated with changes in BMI. Nonetheless, our results showed that episodes of general education and episodes of general education and IVET were associated with changes in BMI over time (see results in the attached Excel files IVET_CHANGE). Hence, we believe that the lack of association between BMI and IVET is due to unobservable time-invariant heterogeneity.

For satisfaction with financial situation we do not find that IVET is associated with greater average level of self-rated satisfaction with current financial situation across all individuals (Table 10). When income was included as a control, we found that IVET was associated with lower average levels of satisfaction with current financial situation. For the model in changes we found that participation in IVET is associated with lower satisfaction with financial situation over time (Table 11). However, this association is mediated by the inclusion of controls, hence, once income and

other controls were included in the model, the negative association between IVET and changes in satisfaction with financial situation becomes statistically insignificant.

Interestingly, we did not find that the association of IVET and social outcomes holds in all 5 systems of VET. For self-rated health, for example, individuals living in Germany, Denmark, Luxembourg, or Austria (System 1) who had an episode of IVET had higher levels of self-rated health than individuals who did not participate in IVET (Table 10). However, in this same system, we did not find that episodes of IVET were associated with changes in self-rated health over time (Table 11). Hence, it is possible that the association of IVET and self-rated health found in Table 10 is the result of time-invariant heterogeneity. The same result was found in System 2 (Netherlands, Belgium and France) and in System 4 (Italy, Greece, Spain and Portugal). In System 5 (Finland and Sweden) we found consistent evidence that IVET is associated with improvements in self-rated health over time whereas in System 3 (UK and Ireland) we found consistent evidence of the opposite, that episodes of IVET were not associated with changes in self-rated health over time.

Table 10: IVET: Summary of results for model in LEVELS, base and controls, for all ECHP countries and by systems of VET.

	Self-rated Health		Lack of chronic health problems		BMI		Civic Participation		Self-rated satisfaction			
									Main Activity		Finances	
	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control
VET Europe	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**(-)**
VET System 1	**(+)**	**(+)**	**(+)**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**(-)**
VET System 2	**(+)**	**(+)**	**n.s.**	**n.s.**	**(+)**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
VET System 3	**n.s.**	**(-)**	**n.s.**	**(-)**	**n.s.**	**n.s.**	**(+)**	**(+)**	**n.s.**	**n.s.**	**(+)**	**n.s.**
VET System 4	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
VET System 5	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**

Source: ECHP: Notes: Positive (+) refers to an association between IVET episode and the improvement in the social outcome (so for the case of BMI, this implies a reduction in BMI). Negative (-) refers to an association between IVET episode and the deterioration in the social outcome. N.S. refers to not statistically significant at 5 or 1 per cent level.
Systems of VET are defined as follows: System 1 "Germany/Denmark/Luxembourg/Austria"; System 2 "Netherlands/Belgium/France"; System 3 "UK/Ireland"; System 4 "Italy/Greece/Spain/Portugal"; System 5 "Finland/Sweden".

Table 11: IVET: Summary of results for model in CHANGES, base and controls, for all ECHP countries and by systems of VET.

	Self-rated Health		Lack of chronic health problems		BMI		Civic Participation		Self-rated satisfaction			
									Main Activity		Finances	
	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control
VET Europe	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**(-)**	**n.s.**
VET System 1	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
VET System 2	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**n.s.**	**n.s.**
VET System 3	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 4	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**(-)**	**n.s.**
VET System 5	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**	**n.s.**	**n.s.**

Source: ECHP: Notes: Positive (+) refers to an association between VET episode and the improvement in the social outcome (so for the case of BMI, this implies a reduction in BMI). Negative (-) refers to an association between VET episode and the deterioration in the social outcome. N.S. refers to not statistically significant at 5 or 1 per cent level.
Systems of VET are defined as follows: System 1 "Germany/Denmark/Luxembourg/Austria"; System 2 "Netherlands/Belgium/France"; System 3 "UK/Ireland"; System 4 "Italy/Greece/Spain/Portugal"; System 5 "Finland/Sweden".

Focusing on the results using the change model (Table 11), a clear pattern of results by systems of VET is the lack of association between episodes of IVET and changes in social outcomes over time in System 3 (UK and Ireland) and to some extent in System 2 (Netherlands, Belgium and France).[25] Similarly, another clear pattern is the positive association between episodes of IVET and changes in social outcomes over time in System 5 (Finland and Sweden).[26] For individuals residing in System 1 (Germany, Denmark, Luxembourg, and Austria) or System 4 (Italy, Greece, Spain and Portugal), there is consistent evidence of the association between episodes of IVET and positive changes in membership to voluntary organisations and higher satisfaction with work or main activity over time.

6.2. CVET and social outcomes

Table 12 and Table 13 present results on the association between CVET and social outcomes over the lifecourse. Across the sample of European countries in the ECHP we found that individuals with previous work experience in their early career (aged 26 to 45) who had an episode of CVET had higher average level in most social outcomes when compared with similar individuals who did not have an episode of CVET (Table 12).[27] For all outcomes except for BMI and satisfaction with financial situation, CVET for these individuals is associated with positive changes in social outcomes over time (Table 13).

For individuals in their mid to late career and for retired individuals, an episode of CVET is also associated with higher average levels of self-rated health, lower likelihood of chronic health problems and higher likelihood of participation in voluntary organisations (Table 12). However, in Table 13 we found that an episode of CVET is associated with changes in membership to civic organisations and satisfaction with employment or main activities over time for individuals in their mid to late career only. In the model in changes we did not find that episodes of CVET were associated with social outcomes for retired individuals or those who have not work experience prior to 1994 (Table 13).

Turning to our results by systems of VET, there is some evidence that CVET is associated with positive outcomes, in levels, in some systems but not in others and only for some individuals over the lifecourse (Table 12). For example, we found some evidence of a positive association between CVET and self-rated health, lack of chronic health, civic participation and satisfaction with employment or main activity in System 1 (Germany, Denmark, Luxembourg and Austria) and in System 5 (Finland and Sweden). For System 3 (UK and Ireland) most evidence point to the lack of association between CVET and average levels of social outcomes and, in just a few cases, to a negative association between CVET and social outcomes for some individuals when income and other controls are included in the analysis.[28] For Systems 2 (Netherlands, Belgium and France) and 4 (Italy, Greece, Spain and Portugal) there is some evidence of an association between CVET and civic participation and self-rated health; but this is just found at specific stages of the lifecourse.

[25] We only found evidence of the association between episodes of IVET and higher satisfaction with work or main activity over time for individuals living in System 2.

[26] We did not find evidence that episodes of IVET were associated with changes in satisfaction with employment or main activity or with changes in satisfaction with current financial situation in System 5 using the 5 per cent or lower cut off point for statistical significance. We found, however, this association to be statistically significant at 10 per cent level. One should bear in mind that we do not have information on satisfaction with main activity or current financial situation in Sweden. Hence, for these outcomes, statistical significance is harder to achieve.

[27] The only outcome where this result does not hold is satisfaction with financial situation.

[28] This result is found for individuals in their early career in System 3 for self-rated health, lack of chronic health conditions, satisfaction with work or main activity and satisfaction with current financial situation.

Table 12: CVET: Summary of results for model in LEVELS, base and controls, for all ECHP countries and by systems of VET.

Sample	Lifecourse Group	Self-rated Health		Lack of chronic health problems		BMI		Civic Participation		Self-rated satisfaction			
										Main Activity		Finances	
		Base	Control	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control
VET Europe	Early career	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	n.s.
	Mid/late career	(+)	(+)	(+)	(+)	n.s.	n.s.	(+)	(+)	(+)	n.s.	(+)	n.s.
	Retired	(+)	(+)	(+)	(+)	n.s.	n.s.	(+)	(+)	(+)	(+)	n.s.	n.s.
	Never work	(+)	(+)	n.s.	n.s.	n.s.	n.s.	(+)	(+)	(-)	(-)	n.s.	n.s.
VET System 1	Early career	(+)	(+)	(+)		(+)	n.s.	(+)	(+)	(+)	(+)	(+)	n.s.
	Mid/late career	(+)	(+)	(+)	(+)	n.s.	n.s.	(+)	(+)	(+)	(+)	(+)	n.s.
	Retired	(+)	(+)	(+)	(+)	n.s.	n.s.	(+)	(+)	(+)	(+)	(+)	n.s.
	Never work	(+)	(+)			n.s.	n.s.	(-)	(-)			n.s.	n.s.
VET System 2	Early career	(+)	(+)	(+)	n.s.	n.s.	n.s.	(+)	(+)	n.s.	n.s.	n.s.	n.s.
	Mid/late career	(+)	(+)	(+)	n.s.	n.s.	n.s.	(+)	(+)	n.s.	n.s.	n.s.	n.s.
	Retired	(+)	(+)	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	(+)	n.s.	n.s.	n.s.
	Never work	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
VET System 3	Early career	(+)	(-)	n.s.	(-)	n.s.	n.s.	(+)	(+)	n.s.	(-)	(+)	(-)
	Mid/late career	(+)	n.s.	n.s.	n.s.	n.s.	n.s.	(+)	(+)	n.s.	(-)	(+)	(-)
	Retired	(+)	(+)	n.s.	n.s.	n.s.	n.s.	(+)	(+)	(+)	n.s.	n.s.	n.s.
	Never work	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
VET System 4	Early career	(+)	n.s.	(+)	(-)	n.s.	n.s.	(+)	(+)	(+)	(+)	(+)	n.s.
	Mid/late career	(+)	n.s.	n.s.	n.s.	n.s.	n.s.	(+)	(+)	(+)	(+)	(+)	n.s.
	Retired	(+)	(+)	n.s.	n.s.	n.s.	n.s.	(+)	n.s.	(+)	(+)	n.s.	n.s.
	Never work	(+)	(+)	n.s.	n.s.	n.s.	n.s.	(+)	(+)	n.s.	n.s.	n.s.	n.s.
VET System 5	Early career	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	n.s.
	Mid/late career	(+)	(+)	(+)	(+)	(+)	n.s.	(+)	(+)	(+)	n.s.	(+)	n.s.
	Retired	(+)	(+)	(+)	n.s.	n.s.	n.s.	(+)	(+)	n.s.	n.s.	n.s.	n.s.
	Never work	(+)	(+)	(+)	n.s.	n.s.	n.s.	n.s.	n.s.	(-)	n.s.	(-)	n.s.

Source: ECHP: Notes: Positive (+) refers to an association between CVET episode and the improvement in the social outcome (so for the case of BMI, this implies a reduction in BMI). Negative (-) refers to an association between CVET episode and the deterioration in the social outcome. N.S. refers to not statistically significant at 5 or 1 per cent level. Blank refers to the inability to estimate the parameter for such group due to small sample.

Systems of VET are defined as follows: System 1 "Germany/Denmark/Luxembourg/Austria"; System 2 "Netherlands/Belgium/France"; System 3 "UK/Ireland"; System 4 "Italy/Greece/Spain/Portugal"; System 5 "Finland/Sweden".

Lifecourse groups are defined as follows: "Early career" for individuals aged 26 to 45 in 1994 with previous work experience; "Mid/late career" for individuals aged 46 to 60 in 1994 with previous work experience; "Retired" for individuals over 60 with previous work experience; and "Never work" for individuals over 25 who have never worked.

Table 13: CVET: Summary of results for model in CHANGES, base and controls, for all ECHP countries and by systems of VET.

Sample	Lifecourse Group	Self-rated Health		Lack of chronic health problems		BMI		Civic Participation		Self-rated satisfaction			
										Main Activity		Finances	
		Base	Control	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control
VET Europe	Early career	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 1	Early career	**n.s.**	**n.s.**	**(-)**	**(-)**	**n.s.**	**n.s.**	**(+)**	**(+)**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**			**n.s.**	**n.s.**			**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 2	Early career	**(+)**	**(+)**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 3	Early career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 4	Early career	**n.s.**	**n.s.**	**(-)**	**(-)**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
VET System 5	Early career	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**(+)**	**n.s.**	**n.s.**
	Mid/late career	**(+)**	**(+)**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**

Source: ECHP: Notes: Positive (+) refers to an association between CVET episode and the improvement in the social outcome (so for the case of BMI, this implies a reduction in BMI). Negative (-) refers to an association between CVET episode and the deterioration in the social outcome. N.S. refers to not statistically significant at 5 or 1 per cent level. Blank refers to the inability to estimate the parameter for such group due to small sample.

Systems of VET are defined as follows: System 1 "Germany/Denmark/Luxembourg/Austria"; System 2 "Netherlands/Belgium/France"; System 3 "UK/Ireland"; System 4 "Italy/Greece/Spain/Portugal"; System 5 "Finland/Sweden".

Lifecourse groups are defined as follows: "Early career" for individuals aged 26 to 45 in 1994 with previous work experience; "Mid/late career" for individuals aged 46 to 60 in 1994 with previous work experience; "Retired" for individuals over 60 with previous work experience; and "Never work" for individuals over 25 who have never worked.

However, when reviewing the evidence for the association between CVET and changes in social outcomes over time, results are somehow different. Apart from individuals in their early careers in System 5 (Finland and Sweden) and to some extent in System 4 (Italy, Greece, Spain and Portugal), we do not find that episodes of CVET are associated with changes in social outcomes across the rest of the systems of VET (Table 13). For individuals in their early career in Finland and Sweden, an episode of CVET is associated with improvements on self-rated health, lower likelihood of chronic health problems, reductions in BMI, higher participation in voluntary organisations and higher satisfaction with work or main activity over time. For individuals in their early career in Italy, Greece, Spain and Portugal, an episode of CVET is associated with higher participation in voluntary organisations and higher satisfaction with work or main activity over time (this result was found for individuals in their mid to late career as well). In Systems 1 and 2 we found some isolated cases where CVET is associated with positive changes in social outcomes and this was only found for individuals in their early career.

6.3. Features of CVET and social outcomes

Table 14 shows the results on whether different features of the CVET episode were associated with changes in social outcomes over time across all European countries in the sample. We did not find any evidence for an association between type of CVET experience and social outcomes for individuals in their mid to late career and those who have not had work experience prior to 1994. For most social outcomes (all outcomes except for satisfaction with main activity), we did not find evidence that type of CVET experience was associated with social outcomes for retired individuals. For the case of satisfaction with main activity, we found that episodes of formal CVET courses were associated with positive changes in satisfaction with work or main activity for individuals over 60 years of age.

Any significant statistical association between type of CVET experience and social outcomes was found for individuals in their early career. Even after the inclusion of controls, individuals in their early careers who undertook a formal episode of CVET showed positive changes in self-rated health and positive changes in civic participation over time. Similarly, individuals in their early careers who undertook non-formal or informal CVET showed positive changes in civic participation and higher satisfaction with work or main activity over time.

For duration of CVET episode, most statistical evidence was found for individuals in their early careers and some evidence for individuals in their mid to late careers. For the former group of individuals, short duration CVET courses were associated with positive changes in self-rated health, lower BMI, higher likelihood of civic participation and more satisfaction with main activity over time. For the latter group of individuals, short duration of CVET was also associated with higher likelihood of civic participation and positive changes in their satisfaction with main activity over time.

Evidence on the association between long courses, that is courses lasting over 9 weeks, and social outcomes is scarce and somehow mixed. While long duration CVET courses were found to be positively associated with civic participation for individuals in their early careers, it was negatively associated with satisfaction with financial situation for the same group of individuals. This result shows the possibility that financial remuneration for a long duration CVET course is perhaps not as high as expected by individuals. Nevertheless, the long duration CVET experience may have enabled individuals to join voluntary organisations and hence increase their civic engagement in society.

Table 14: Features of CVET: Summary of results for model in CHANGES, base and controls, for all ECHP countries.

Sample: Europe	Lifecourse Group	Self-rated Health		Lack of chronic health problems		BMI		Civic Participation		Self-rated satisfaction			
										Main Activity		Finances	
		Base	Control	Base	Control	Base	Control	Base	Control	Base	Control	Base	Control
Type CVET: Formal (F), Non-formal/Informal (I)													
	Early career	**F.I.(+)**	**F.(+)**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**F.I.(+)**	**F.I.(+)**	**I.(+)**	**I.(+)**	**n.s.**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**I.(+)**	**n.s.**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**F.(+)**	**F.(+)**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
Duration CVET: Short courses (S), Long courses (L)													
Short (S) Long (L)	Early career	**S.(+)**	**S.(+)**	**n.s.**	**n.s.**	**S.(+)**	**S.(+)**	**S.L.(+)**	**S.L.(+)**	**S.(+)**	**S.(+)**	**L.(-)**	**L.(-)**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**S.(+)**	**S.(+)**	**S.(+)**	**S.(+)**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
	Never work	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**
Sources of Funding CVET: Employer paid (E), Own funds (O)													
	Early career	**E.(+)**	**E.(+)**	**E.(-)**	**E.(-)**	**n.s.**	**n.s.**	**E.O.(+)**	**E.O.(+)**	**E.(+)**	**E.(+)**	**E.(+)**	**n.s.**
	Mid/late career	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**E.(+)**	**E.(+)**	**E.(+)**	**E.(+)**	**n.s.**	**n.s.**
	Retired	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**	**n.s.**

Source: ECHP: Notes: Letters refer to type of CVET, formal (F), non-formal/informal (I); duration of CVET, short (S) and long (L); sources of funding for CVET, employer paid (E), self-financed or own funding (O). Positive (+) refers to an association between feature of CVET episode and the improvement in the social outcome (so for the case of BMI, this implies a reduction in BMI). Negative (-) refers to an association between feature of CVET episode and the deterioration in the social outcome. N.S. refers to not statistically significant at 5 or 1 per cent level. Blank refers to the inability to estimate the parameter for such group due to small sample.
Lifecourse groups are defined as follows: "Early career" for individuals aged 26 to 45 in 1994 with previous work experience; "Mid/late career" for individuals aged 46 to 60 in 1994 with previous work experience; "Retired" for individuals over 60 with previous work experience; and "Never work" for individuals over 25 who have never worked.
For sources of funding we only used individuals who were in employment at the time of the survey.

With respect to sources of funding, for individuals who were employed and in their early career episodes of CVET funded by their employer were positive associated with improvements in self-rated health, higher likelihood of civic engagement and higher levels of satisfaction with employment. However, for this group, we also found that episodes of CVET funded by employers were associated with more chronic health problems over time. For individuals in their mid to late career who were employed, episodes of CVET funded by their employer were positively associated with civic participation and higher levels of satisfaction with job over time.

Evidence on the association between episodes of CVET funded by the individuals and social outcomes was only found for those in their early career and only for civic participation. For individuals over 60, who were in employment, we did not find evidence that episodes of CVET funded by employers or self-financed were associated with changes in social outcomes.

7. Conclusions

In recent years, there has been a commitment from European governments to address both the economic and non-economic needs of their citizens. Governments have been looking beyond the traditional economic measures of success – such as per capita income, or rate of employment – and focusing also on non-economic aspects of well-being and societal progress – such as health, civic engagement, political interest, crime, family dynamics, intergenerational transmission of success, and even happiness. In light of this policy change, educational research has moved from a traditional economics of education approach towards investigating whether education may promote well-being for individuals and society.

This study investigated the role that VET may have on the realisation of social outcomes for individuals in the European context. In doing so, we started the project with a discussion of the definition of terms, VET and social outcomes and then reviewed three main theoretical frameworks in the literature that explains why education, or more broadly a learning experience, can be beneficial for individuals in terms of their own health, family and social well-being. Major progress has been made in the area of social benefits of learning on the theoretical front. These efforts have been made by researchers working across diverse disciplines. The challenge for this project was to locate and exploit the concepts in order to generate a clear understanding of the main features of a learning experience should contain if it is to lead to the formation of social benefits and how these relate to the specific case of VET.

We extracted the following main features that an episode of VET should have if it is to yield social benefits for individuals. First, we considered not only skills and capital formation but also aspects relating to agency, self-esteem and more broadly psychosocial factors that are important for the realisation of the social benefits. This is because the social benefits for individuals are not only economic in nature but are also psychological and social. In addition, learners cannot be divorced from their institutional contexts. For this reason, relationship between learners and tutors, the value of a VET degree or diploma in the labour market, and possibilities for progression in education after participating in vocational education are also relevant for the well-being of individuals.

However, it is impossible to extract from empirical data each element of a vocational learning experience that could be important for the realisation of social benefits. This is in part due to the lack of available data and also due to the lack of properly designed studies to carry out this research. Nevertheless, there are differences in the ways in which countries develop and deliver vocational education; some have strong links with the labour market and with other educational institutions while others do not. We used these differences to provide a heuristic typology of systems of vocational education and training that can be used in our empirical work.

Our empirical work used data from the ECHP. From the data we selected six indicators of social outcomes: three in the health domain, one in the civic domain and two in the well-being domain. We also classified individuals according to their highest qualifications achieved by 1994 and recorded all episodes of VET between 1994 and 2001. One key aspect of our estimation strategy was to differentiate between episodes of IVET from CVET. Since IVET is considered to be formal, taking place in the education and training systems and is passed through before entering the working life, we assumed the VET experience of all individuals under the age of 25 was initial training. All individuals older than 25 who reported an episode of VET was considered to be CVET. We also differentiate three different stages of the lifecourse to see whether any association between CVET and social outcomes were likely to occur at specific stages in life.

Our results showed evidence that IVET is associated with positive changes in health outcomes, such as self-rated health and lack of chronic health conditions, with membership to organisations and

with satisfaction with job or main activity for individuals across Europe. Interestingly, some of these associations were only found for individuals living in Finland and Sweden. Having in mind that the VET system of Sweden and Finland was characterised as egalitarian school-based system this supports the hypothesis that an integrated school system by offering options for personal enhancement through equal treatment of vocational and general education as well as access to higher education affects the individual well-being on the whole. One implication of this finding is that a general level of social welfare in an important mediating factor for the realisation of the health benefits of IVET. In other words, there are complementarities between institutional factors at the macro level, in this case a strong welfare state, and the formation of social benefits for individuals at the micro level.

We also found that IVET was associated with increase membership to voluntary organisations and with increase satisfaction with job or main activity. These results were obtained for individuals living in two particular systems of VET, Germany, Denmark, Luxembourg and Austria and in Italy, Greece, Spain and Portugal. One reason why we may find a positive relationship between membership to voluntary organisations and IVET may be that participation in civil society is rewarded in these systems and not in others. Hence, through participation in IVET individuals may find incentives to join voluntary organisations. Reasons for a positive correlation of satisfaction with job or main activity and IVET might be different between the two groups of countries: Traditionally in Southern European countries youth unemployment and NEET rate is rather high. Therefore, those who do not want or aren't able (because of capabilities or for financial reasons) to follow the route of general education but are integrated in the labour market via IVET might derive satisfaction from IVET by comparing their situation with those who are neither in employment nor in education. A positive correlation between satisfaction and IVET in countries where apprenticeships are widely spread might derive from the multiple legal frameworks that regulates the quality of training, safety and labour provisions for apprentices as well as salaries. Hence, the regulatory framework for the integration of young people into the labour market could be seen as a mediator for micro-social benefits.

Lack of statistical association between IVET and social outcomes is also an important result. When undertaking our analysis by systems of VET, we did not find evidence of an association between IVET and social outcomes for individuals living in UK or Ireland and for only one outcome (satisfaction with job or main activity) for individuals living in Netherlands, Belgium or France. For the UK a possible explanation is the low transparency of the VET system affiliated with certificates with only minor value for getting access to the labour market. The continental school-based system of VET in the Netherlands, Belgium and France might not be associated with social outcomes for individuals because of the strong meritocratic orientation of VET leading to a 'secondary' status of those who attend training in IVET. Hence, marketised or credentialised systems of VET are likely to fail in generating benefits for individuals that are beyond that of employment and income.

For the case of CVET, most of the associations between CVET and social outcomes were found for individuals in their early careers, aged 26 to 45, who had working experience prior to 1994. As for the case of IVET, we found that individuals in their early careers undertaking CVET had positive changes in self-rated health, lack of chronic health conditions, higher rate of membership to organisations and more satisfaction with job or main activity over time. This result is mainly supported by individuals living in Finland or Sweden. A possible explanation is the egalitarian work organization in Scandinavian countries with low social distance, flat hierarchies and low income differentiation. Having this in mind one could state that pay offs of CVET to social outcomes depend on the existence of a work organisation that enables individuals to bring in competencies gained from CVET. In addition, Finland in particular is well known for its political effort to improve training and working conditions at the workplace. In particular requirements to meet the challenges of an ageing workforce are broadly discussed in Finland leading to programmes that aim

to increase participation in training, to improve safety and work protection and to reward competencies of older workers. Thus, Scandinavian countries could be seen as countries with a holistic approach to improve working conditions in order to keep the ability to work at a high level over the lifecourse of individuals thereby affecting social outcomes for individuals positively.

For two social outcomes, membership to voluntary organisations and satisfaction with job or main activity, we found some evidence to suggest that individuals living in Italy, Greece, Spain or Portugal, who enrolled in CVET may have positive changes to these outcomes. This, however, was found for individuals with working experience during their working careers. For the rest of the systems of VET there is sporadic evidence that CVET is associated with changes in outcomes for a particular group over the lifecourse. In just a couple of occasions, we found that CVET experience was actually associated with a decrease in well-being. Therefore, we are unsure whether these associations represent a genuine effect.

Taken all our results together, there are important complementarities between the institutional arrangements of IVET and the realisation of social benefits of individuals. Strong welfare states complement the realisation of health benefits of IVET for individuals. Systems that reward civic participation see more voluntarism in organisations linked to IVET. In policy terms, it is worth investing in IVET in systems that have the capacity to complement this investment. Where institutions are not in place, then there is a need for policy coherence across sectors in order to raise the effectiveness, efficiency and sustainability of the efforts made in IVET to promote social outcomes for individuals. IVET itself cannot generate social outcomes without challenging economic and social inequalities at the macro level, stigma and disadvantage attached to the value of IVET. Tackling these issues may ensure a net positive impact of IVET for individuals.

Annex: Regression outputs in Microsoft Excel

This appendix provides a description of the excel files attached to the report and contains all the results explored in the project. There are 7 files in total:

i. IVET_LEVEL_Jan2010
ii. CVET_LEVEL_Jan2010

iii. IVET_CHANGE_Jan2010
iv. CVET_CHANGE_Jan2010

v. CVET_formal_CHANGE_Jan2010
vi. CVET_duration_CHANGE_Jan2010
vii. CVET_funding_CHANGE_Jan2010

We use the sample of young people aged between 16 and 25 in 1994 to estimate the association of IVET and social outcomes (documents with names starting with IVET_*). And we use the sample of people over 25 years of age to explore the association of CVET and social outcomes over the lifecourse, dividing the sample into four lifecourse groups: 'early career' individuals (aged between 26 and 45 in 1994 with work experience), 'mid-career' (aged between 46 and 60 in 1994 with work experience), retired (60 years of age or older in 1994 with work experience) and those who never worked (documents starting with CVET_*). For each of these groups we estimated the same models in levels and models in changes which we did for the case of IVET. That is, we start with a simple model without the inclusion of income, then we add income as a key control and we do the same analysis for each of the 5 systems of VET.

There are two main types of models estimated, which are called 'level' or 'change' in the documents. We used OLS or logit models, depending on the outcome variable, to estimate average differences in levels of social outcomes. These are models in levels and are presented in documents named 'LEVELS'. The second type of models we used are fixed effect linear regression or fixed effects logit models, depending on the outcome variable, to estimate the average change in social outcomes over time. These are called models in changes and are presented in documents named 'CHANGE'.

Below are detailed descriptions of each set of models.

For the model in **levels** we explore:

a) Base model: Average differences in levels of social outcomes for individuals who participated in IVET courses and those who did not across the European countries in the sample. To estimate these average differences we control for year and country effects, initial educational qualifications, and gender (IVET_LEVEL_Jan2010). We repeat the analyses for CVET (CVET_LEVEL_Jan2010).
b) Base model plus controls (including income): We include the logarithm of gross hourly wage, household's ability to meet ends with monthly income and cohabitation status to the base model. This is done to investigate whether any associations between levels of social outcomes and IVET from the base model may be explained by differences in income (IVET_LEVEL_Jan2010). We repeat the analyses for CVET (CVET_LEVEL_Jan2010).
c) Base model by systems: We use the classification of systems of VET described in Section 4 to investigate whether any differences in levels of social outcomes and IVET arise in a

particular system (IVET_LEVEL_Jan2010). We repeat the analyses for CVET (CVET_LEVEL_Jan2010).

d) Base model by systems plus controls (including income): We include income to the models estimated in point 3. Again, the idea is to see whether income may be responsible for explaining any associations found between IVET and average levels social outcomes in each of the systems (IVET_LEVEL_Jan2010). We repeat the analyses for CVET (CVET_LEVEL_Jan2010).

For the model in **changes** we explore:

i. Base model: Average differences in changes of social outcomes associated with changes in IVET episodes over time for individuals across the European countries in the sample. To estimate these average differences we control for year effects only, as other factors that do not change over time such as gender, are dropped from the analysis (IVET_CHANGE_Jan2010). We repeat the analyses for CVET (CVET_CHANGE_Jan2010).

ii. Base model plus controls (including income): We include the logarithm of gross hourly wage, household's ability to meet ends with monthly income and cohabitation status to the base model. This is done to investigate whether any associations between changes of social outcomes and episodes of IVET from the base model may be explained by changes in income over time (IVET_CHANGE_Jan2010). We repeat the analyses for CVET (CVET_CHANGE_Jan2010).

iii. Base model by systems: Using the systems classification, we investigate whether associations between changes in social outcomes and episodes of IVET are found in a particular system (IVET_CHANGE_Jan2010). We repeat the analyses for CVET (CVET_CHANGE_Jan2010).

iv. Base model by systems plus controls (including income): We include income to the models explained in point j) to investigate whether association between changes in social outcomes and episodes of IVET found in a particular system may be explained by changes in income over time (IVET_CHANGE_Jan2010). We repeat the analyses for CVET (CVET_CHANGE_Jan2010).

v. Base model including the *type* of VET acquired (formal or informal) as independent variable. Since the initial VET (IVET) can only take a form of a formal education, here we investigate association between changes in social outcomes and type of CVET. Additionally, we estimate the same models for each system (CVET_formal_CHANGE_Jan2010).

vi. Base model including the *type* of VET acquired (formal or informal) as independent variable plus controls (including income). We include income to the models explained in point l) to investigate whether association between changes in social outcomes and type of CVET may be explained by changes in income over time. Additionally, we estimate the same models for each system (CVET_formal_CHANGE_Jan2010).

vii. Base model including the *duration* of VET acquired (short or long) as independent variable. Since initial VET (IVET) can only be of a long duration, here we investigate association between changes in social outcomes and type of CVET. Additionally, we estimate the same models for each system (CVET_formal_CHANGE_Jan2010).

viii. Base model including the *duration* of VET acquired (short or long) as independent variable plus controls (including income). We include income to the models explained in point n) to investigate whether association between changes in social outcomes and duration of CVET may be explained by changes in income over time. Additionally, we estimate the same models for each system (CVET_formal_CHANGE_Jan2010).

ix. Base model including the type of *funding* used to pay for VET (paid by employer or self-paid) as independent variable. Since the information on sources of funding was collected

from individuals who had been in employment, we investigate association between changes in social outcomes and funding type of CVET for lifecourse groups excluding individuals who had never worked. Additionally, we estimate the same models for each system (CVET_funding_CHANGE_Jan2010).

x. Base model including type of *funding* used to pay for VET (paid by employer or self-paid) as independent variable plus controls (including income). We include income to the models explained in point p) to investigate whether association between changes in social outcomes and type of funding of CVET may be explained by changes in income over time. Additionally, we estimate the same models for each system (CVET_funding_CHANGE_Jan2010).

List of abbreviations

BEP	Brevet d'Etudes Professionnelles (France)
CAP	Certificat d'Aptitude Professionelle (France)
CSDH	Commission Social Determinants of Health
CVET	Continuing Vocational Education and Training
DCSF	Department for Children, Schools and Families (UK)
ECHP	European Community Household Panel
EU	European Union
ILO	International Labor Organisation
ISCED	International Standard Classification of Education
GCE	General Certificate of Education (UK)
GCSE	General Certificate of Secondary Education (UK)
HNC	Higher National Certificate (UK)
HND	Higher National Diploma (UK)
IVET	Initial Vocational Education and Training
LLN	Literacy, Language and Numeracy
NGO	Non Government Organisation
NVQ	National Vocational Qualification (UK)
OECD	Organisation for Economic Co-operation and Development
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VET	Vocational Education and Training

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