BEYOND 4.0

# Education and Training in Inclusive Welfare States

## D6.2_Working paper on needed upskilling schemes

Version 3.0

2022/04/27

Olli Kangas & Esa Karonen, with Michael Kohlgrüber, Clara Behrend, Mathias Cuypers & Adrian Götting

beyond4.0.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 8222296 — The contents of this publication are the sole responsibility of the project Consortium and do not necessarily reflect the opinion of the European Union.

# Document Summary

| | |
|---|---|
| **Document type:** | *Deliverable 6.2* |
| **Title:** | *Education and Training in Inclusive Welfare States* |
| **Author/s:** | *Olli Kangas & Esa Karonen, with support of Michael Kohlgrüber, Clara Behrend, Mathias Cuypers & Adrian Götting* |
| **Reviewer/s:** | *Chris Warhurst, Steven Dhondt and Peter Oeij* |
| **Date:** | 22-04-2022 |
| **Document status:** | *Revised working paper* |


## Document description

This working paper analyses opportunities for inclusiveness in the context of the digital transformation. There are fears that digitalisation will create new cleavages in societies, and there will be gaps in skills needed in digital working life. Older workers and immigrants, in particular, are in a vulnerable position. The theoretical approaches of social investment and combined capabilities stress the needs for upskilling. These are identified to develop digital and non-digital skills to cope with the challenges of the digital transformation. We show that it is not enough to develop individual capabilities. To really improve inclusiveness, combined capabilities are needed, which take into account institutional arrangements and corresponding public services.



## BEYOND4.0 partners

University of Turku, Department of Social Sciences, Finland

Technische Universität Dortmund, Sozialforschungsstelle Dortmund (sfs) (TUDO), Germany



www.beyond4-0.eu

# Content

# Figures



# Tables

# Abbreviations

Cedefop: European Centre for the Development of Vocational Training

CVET: Continuing vocational education and training

DESI: Digital Economy and Society Index

Eurostat: European statistics

GDP: Gross Domestic Product

ICT: Information and communications technology

IVET: Education and training in vocational studies

OECD: Organisation for Economic Co-operation and Development

PCSE: Prais-Winsten regression, correlated panels corrected standard errors

Pre-VET: Education before vocational education and training

SEM: Structural Equation Modeling

TSCS: Time-series Cross-section analysis

# Executive Summary

This working paper analyses the mechanisms that contribute to human capital building and the enhancing of skills for the constantly changing labour market in the context of digital transformation. There is an abundance of doom-day prophesies on the end of employment in the digital economy. However, those prophecies are very premature. New digital technologies can support the inclusion of disadvantaged groups to obtain employment. Outcomes are not natural law-likely determined by technological processes, but public policies adopted to harness these processes are essential. Our theoretical starting points are the social investment paradigm and the capability theories. We examine the relationships between social investments, lifelong learning, human capital formation, and employment among the total adult population, elderly labour force and immigrants. Previous studies indicate that welfare states geared toward services are more "woman-friendly" than the traditional income transfer-heavy welfare state. Therefore, we analysed whether relationships between social investments, participation in lifelong learning and labour market outcomes are different for men and women. Our qualitative inspections and multivariate analyses showed that social investments contribute to human capital formation and digital skills, as does lifelong learning. Thus, social investment policies in general and lifelong learning, in particular, are important components of upskilling schemes to valorise the opportunities for digital transformation for an inclusive society. Human capital and digital skills, in turn, contribute to employment. Positive effects are stronger among women than men. Our main conclusion is that inclusive policies consisting of social investments and lifelong learning can significantly mitigate the possible detrimental labour market effects caused by changes due to digitalisation. The verdict on immigrants was inconclusive. More targeted measures are needed to increase immigrants' inclusion in the labour market. New digital technologies create new possibilities to support the inclusion of disadvantaged persons to take part in labour.

The working paper ends with policy recommendations that reflect a need for a social investment approach and a need for combined instead of individual capabilities. We found that the formerly assumed approach to improving inclusiveness in the digital transformation (upskilling schemes) was too focused on individual capabilities. Instead, we see people's high involvement in lifelong learning *combined* with a high level of spending on versatile public services as needed for inclusive labour markets. This means that individuals must have proper internal capabilities, such as skills, knowledge, ability to use digital devices, and propensity to constantly learn new skills. Simultaneously, educational institutions, the labour market, and society at large must guarantee people access to the widest possible set of combined capabilities.

# 1. Introduction

The advancement of technology and digitalisation of society have profound ramifications for our everyday lives, how we communicate with other people, interact with public and authorities or various private actors and how we work and learn new skills (see for example OECD, 2020 & 2021). In the wake of accelerating digital development, people must master future skills required for digitalised environments, be it education, employment or social life (Lau & Yuen, 2014). In future societies, digital literacy will strongly affect individual social positions and life courses (Avni & Rotem, 2016; van Deursen & van Dijk, 2016). Due to never-ending social stratification, digitalisation leads to differences between socioeconomic groups, genders, age groups, immigrants, and natives (Kaarakainen, 2019: 18). Thus, the concept of digital human capital comprises various aspects of reading texts, interpreting the images, sounds, and symbols transmitted by digital platforms, and the ability to interact socially, produce content, and participate in digital life (e.g., European Commission, 2022).

The central question is what those institutional arrangements are that would universally facilitate inclusiveness in society in general and in the digital labour market in particular. One fruitful avenue for studying the issue of inclusiveness is to utilise the concept of social investment (Kvist, 2014; Kvist et al., 2012; Morel et al., 2012; Hemerijck, 2013; 2015; and 2017). Instead of seeing the welfare state as a compensatory machine that merely compensates for the occurrence of social risks by more or less lavish monetary transfers, the investment paradigm emphasises the role of welfare institutions in preventing the risks of materialising and supporting people's coping capacities. The focus has shifted from compensations to investments, prevention, and building human capital in the Senian and Nussbaumian sense. Consequently, the role of versatile public services (benefits in kind) was found to be more important in capacity building and combating social exclusion (see, for example, Nygård et al., 2019) than the relative role of income transfers.

Education is one of the most crucial social institutions for capacity building and enhancing human capital. It is also the most important path to the labour market and employment. In this working paper, we are interested in how such capacity building is possible for the demands of a rapidly changing working life, whether digitalisation or other causal factors. Technological changes interact with other factors to shape the skills needed for inclusion in the labour market (for a more extensive discussion on different aspects of skills, see Buchanan et al., 2017). The concept of lifelong learning was introduced in the 1960s. The concept pertains to different skill and competency development forms over the lifecycle. Lifelong education means continuous education from school to the working life and education and training when employed (Lengrand, 1975). Lifelong learning helps individuals accumulate the skills needed to successfully engage with the labour market in a rapidly changing society (OECD, 2021).

Technological changes are challenging for vulnerable groups in particular. In this working paper, we scrutinise how well European welfare states have included two vulnerable groups — older people in the age bracket 55 to 64 years[1] and immigrants in the labour market. Analyses are done

[1] The official EU classification of older workers is 50-64. Due to the availability of data, we use the age range 55 to 64 years.

separately for males and females[2]. In addition, we examine how spending on public services and participation in lifelong learning correlate with labour market outcomes in these specific groups. Lifelong learning pertains to "all learning activities undertaken throughout life with the aim of improving knowledge, skills and competences, within personal, civic, social or employment-related perspectives" (Eurostat, 2020). We are interested in the extent to which social investment policies and lifelong learning contribute to upskilling digital competencies and inclusion in the labour market of the two vulnerable groups.

The remainder of this working paper is structured as follows. The following section in this introductory chapter provides an overview of our general theoretical starting points (*Philosophical debate*). Chapter 2 specifies our research questions i.e. what those institutional arrangements might be that would promote inclusiveness in digitalised society in general and in the labour market in particular. The chapter also describes data and methods used. Chapter 3 discusses education as a prerequisite for inclusion in digital society. In the penultimate chapter (Chapter 4), we present our main findings on connections between social investment policies, lifelong learning, digital human capacity building, and employment. This section is based on bivariate cross-sectional scatterplots and tables summarising results from our regression models. In this chapter, we also present a heuristic model of the possible relationships between social investments, lifelong learning, digital human capacity building, and inclusion in the labour market. In the final chapter (5), we summarise our central findings and make policy recommendations.

## Philosophical debate

In his second-last book *Political Liberalism* (1996), John Rawls stated that individuals must have powers and capabilities, "primary goods" to take responsibility for their decisions. This idea was further developed by Sen (1995, 1992, 1999, 2009) and Nussbaum (2011; see also 2019). As a "friendly critique" against Rawls, they argue that it is not that important what resources people have, but what they can do and be. The corollary of their capability approach is that people must be able to make rational and well-informed choices in their lives. A prerequisite for this is that people have a set of capabilities and resources, which they may or may not exercise in their actions. Thus, the focus is on how Rawls' primary goods could be transformed into a good life, not on the set of primary goods.

Following the Senian and Nussbaumian line of reasoning, we can also speak about poverty in agency (see Korpi, 2000). Poverty in agency pertains to situations where people do not have the resources or possibilities to be efficient actors in their own lives or in the society in which they live. The poverty of agency may be related to individual factors (a person may have an insufficient level of education or skills, e.g., lack of digital skills in a society where most services are digitalised) or it may be related to social structures that exclude individuals or groups of people from using their capabilities fully.

[2] We left one specific vulnerable group, i.e., people with disabilities, out of this analysis for space considerations and sufficient data availability.

The central idea in democratic societies is that all voices must be heard, and people must have their say in how things are done and participate in their society. In her *Creating Capabilities*, Martha Nussbaum (2011), following Aristotelian (1976) ideas, argues that the baseline for evaluating social justice and inclusion is to ask, what the opportunities available are for each person, that is, what each member of the society is able to do and be. Thus, people must have the capabilities to master their own lives and participate customarily in society at all levels. Nussbaum separated two different forms of poverty of agency: the agency that is linked to the individual's own capabilities (internal capability) and the agency that is related to social and political institutions and everyday practices, including employment, education, consumption, and political participation.

However, internal capabilities are not innate. They are obtained through the multifaceted interactions between social background, educational system, labour market, and other social processes and institutional arrangements. A society may be good at producing internal capabilities but may not offer channels to use those capabilities fully. For example, there may be an excellent universal educational system, but the educational skills obtained cannot be used because the segregated labour market excludes some groups of skilled people. Thus, their internal capacities are not enough. The same goes for upskilling one's capabilities. As such, upskilling pertains to an individual process to improve one's capabilities. However, societal practices and institutional hindrances may prevent even people with a high level of capabilities from fully participating and utilising their skills. Such thwarting practices may be related to gender, ethnicity, numerous other factors, and multifaceted interactions (Korpi, 2000).

Combined capabilities require both internal capabilities and institutional arrangements. There may be societies that have universally open institutions (e.g., the labour market), but they do not invest in generating internal capabilities (e.g., through education). Thus, both internal capabilities and enabling societal institutions and practices are necessary to achieve combined capability.

According to Nussbaum, it is the ultimate task of the government to create social institutions where people can use their capabilities and actively support skill-building. The latter task mostly falls in the domain of education as early childhood, basic, secondary, vocational, or university-level education. In a rapidly changing world, this means the continuous acquisition of new skills and lifelong learning. It is important to remember that employers also provide opportunities for lifelong learning in many countries and have upskilling schemes to mitigate the mismatch between the skills demand of companies and provided skills of the VET system and the labour market.

## 2. Research questions, data and methods

Following the capability building and social investment paradigms, our first research hypothesis is that countries that provide extensive in-kind services to their residents display higher employment rates than those that rely more on traditional compensatory forms of public policies. We expect that a high level of in-kind spending leads to a more inclusive labour market for the two specific groups we are interested in. Thus, spending on public services enhances the combined capacity.

Our second hypothesis is that countries with high lifelong learning participation rates display higher employment rates for immigrants and older people. Our argument is that these forms of

capacity-enhancing social investments counterbalance the possible detrimental effects of rapid changes in the labour market. In sum, the labour market may change significantly. However, the outcomes are not nature law-likely determined by technological processes, but public policies adopted to harness these processes are of utmost importance (for example, Warhurst et al., 2019). In general, the educational system and lifelong learning, in particular, create and accumulate internal capacities.

Based on the previous theoretical points of departure, our first research question is linked to the Nussbaumian question — how to enhance combined capacities? Our second question is related to internal capacity, and the third question looks at the relationships between human capacity and employment. Thus, the three main research questions are as follows:

- R1: To what extent, if any, do investments in services enhance human capacity building?
- R2: To what extent, if any, does lifelong learning enhance human capacity building?
- R3: To what extent, if any, does the human capacity building contribute to employment, that is, the inclusive labour market?

We seek answers to these research questions from among the age bracket of 25 to 64 years. This inspection is used as a control analysis that offers a benchmark for subsequent analyses on connections between four variables (social investments, lifelong learning, human capital, and employment) among older workers 55 to 64 years of age, among all immigrants, and among immigrants coming from outside the European Union. Our working hypothesis is that it is more difficult for non-EU immigrants to find employment than it is for EU immigrants (see, for example, OECD, 2018). We also separately scrutinised whether gender-based differences exist.

Our main data were derived from Eurostat country-level databases. In addition to the European Union member states, the data cover Iceland, Norway and Switzerland. These countries were also included in the analyses. The period covered in these country-level data is from 2010 to 2020 (or sometimes from 2011 to 2019). The unit of analysis was the country. Data for employment rates are derived from Eurostat (2022a) "Employment rates by sex, age and citizenship (%)" and data for lifelong learning are from Eurostat (2022b) "Participation rate in education and training by sex, age and citizenship". The latter variable indicates the percentage of people who participated in education and training during the last four weeks by gender, age, and citizenship. Both datasets refer to the period from 2011 to 2020. Eurostat data are at the aggregate state level and do not allow access to individual data.

Regarding human capital formation in relation to the digital society, we utilise the Digital Economic and Society Index (DESI) composed by the European Commission. The human capital dimension of the DESI has two sub-dimensions covering "internet user skills" and "advanced skills and development." The former draws on the European Commission's Digital Skills Indicator, which is calculated based on the number and complexity of activities involving the use of digital devices and the internet. The latter includes indicators on ICT specialists and ICT graduates (European Commission, 2020, 2019, 2018).

Public social spending is perhaps the most frequently used indicator of the extension of welfare state commitments (e.g., Castles, 2004; Kangas and Palme, 2007). Following the social investment

paradigm, we use in-kind spending, i.e. spending on public services (% of Gross Domestic Product, GDP), as a proxy for a social investment welfare state. Annual data on in-kind benefits are from the Eurostat database SPR_EXP_FTO (Eurostat, 2022c).

We "pool" our cross-sections to run pooled time-series cross-section (TSCS) analyses based on repeated observations on fixed units (in our case, countries). In total, we had 474 units (countries). The number of units can vary depending on the availability of country-specific data for different years. There are several methods to run TSCS analyses. We utilised the Stata contemporary correlations Prais-Winsten regression, correlated panels corrected standard errors (PCSEs) for fitting linear TSCS models. The regression model can be expressed as follows:

$$Y_{it} = x_{it}\beta + €_{it} ;$$

where

- *i* = 1……m is the number of units - countries
- *t* = 1….Ti within the unit of the observation i
- €I pertains to the disturbance that may be autocorrelated along t or contemporaneously correlated across *i* (Stata, 2003).

We also run a Structural equation modelling (SEM) to show possible connections to hypothetical causal loops between investments, lifelong learning, DESI human capital, and employment. The SEM will be utilised only for the total population, whereas the TSCS models are applied to data for immigrants and older people.

## 3. Education is a prerequisite for inclusion

Following the social investment paradigm, preparedness for working life and acquisition of digital skills should begin in schools where basic competencies for further learning are obtained. This is a task for basic education ("Pre-VET" in Figure 1). However, countries have substantial variations in how this demanding task is accomplished. Typically, in OECD countries, compulsory education begins at the age of 6 and ends between the age bracket of 14-18 years. With regard to basic education, enrolment rates are universal or near-universal in all richer OECD countries.

Universal enrolment in education is a necessary but not an absolute condition for inclusive education (Schleicher, 2020: 4). In all societies, pupils' skills and educational attainment depend on their parents' background. It appears that Nordic countries and Canada are more open than most other countries. The intergenerational income correlation between parents and their children in Nordic countries and Canada varies from .15 to .20, whereas countries like Italy, the UK, the US, and China display significantly higher inter-generational correlations (see, for example, Österbacka, 2004; Telhaugh et al., 2006; Björklund & Jäntti, 2011; Corak, 2013; OECD, 2018).

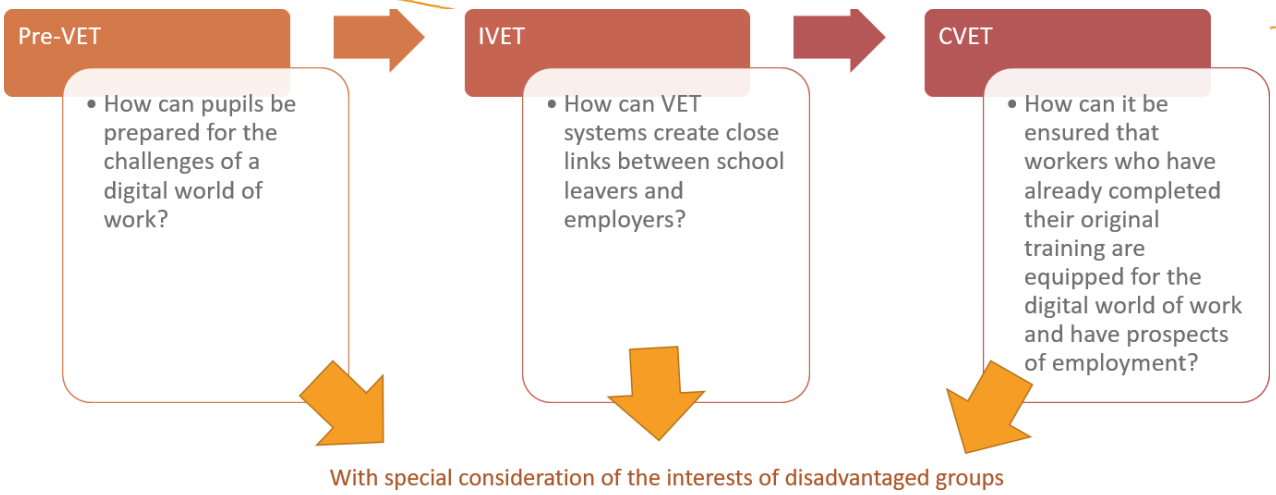
The OECD (2018) study shows that in most countries, there is a lack of mobility at the bottom and top of the social ladder. "Sticky floors" prevent upward mobility for children coming from disadvantaged family backgrounds, and "glass ceilings" prevent promotions at the top. The lack of social mobility has economic, societal, and political consequences. Therefore, it is important to note that public investments in human capital are meant to serve socio-philosophical principles of justice and improve economic performance. In the digital economy, more than ever before, a nation's economic success is dependent on its human capital and innovations.

After compulsory education, young people have to make choices that have a long-lasting impact on their lives, not only on their levels of income but also on their health, social position, satisfaction with life, and longevity. Early dropout from education and basic education has several repercussions. The employment levels of such young people, and consequently their incomes, lag behind those who have continued to the secondary level, not to speak about the tertiary level of education. In Europe, employment rates are 80% to 90% among those with tertiary education, 70% to 80% among those with upper secondary level diplomas, and around 60% for those who have completed lower secondary education. With regard to those who have only basic education, there is a huge variation among European countries. The range is from lower than 20% (in the Slovak Republic and Slovenia) to higher than 50% employment rates in Portugal, Luxembourg, the Netherlands, and Latvia (OECD, 2021). Furthermore, according to a Finnish study, boys with only basic education have a significantly higher probability of committing crimes than those who continue their studies (Seuri et al., 2018; Huttunen et al., 2019). The Finnish study is an excellent example of the importance of the transition from Pre-VET schools to IVET education (Figure 1).

In the second "IVET-phase", taking place after the basic education, the challenge is to provide requisite skills to the school leaver, corresponding to the requirements of the employer (Figure 1). The IVET vocational education should try to anticipate future needs of working life and prepare school leavers with adequate skills and qualifications to meet those needs. This task is similar to shooting a constantly moving target. Furthermore, acquired skills can soon become obsolete in a rapidly changing working life. Therefore, there must be options for constant lifelong learning to achieve the combined capabilities. Therefore, continuing vocational education, training, and learning in employment (CVET) is essential for future working life.

In the inclusive welfare state and inclusive labour markets, there should be support systems for bridging transitions from one educational form to another (Akkerman & Bakker, 2012; Cattane et al., 2021). In these transitions, the special needs of disadvantaged groups, in particular, must be carefully taken into consideration, as described in Figure 1.

Figure 1: A schematic presentation of preparedness for changes in working life (Kohlgrüber et al., 2021).




# 4. Lifelong learning

Formal education is a necessary but not sufficient condition for meeting the skill demands of the digital society. The question is how to ensure that employees who have completed their formal education are properly equipped for changes in digital working life. Lifelong learning is seen as a solution to help enterprises cope and, on the other hand, to help individuals accumulate their skills to successfully engage with the labour market in a rapidly changing society (OECD, 2021). At the individual level, lifelong learning means engagement in different skill and competency development forms over the lifecycle. The upskilling digital competencies include Pre-VET, IVET and CVET (Figure 1).

Opening wider channels to general (theoretical) and vocational training (practical VET) education at the upper secondary level increases the inclusiveness of the education systems for those who want to continue to the tertiary level and for those who want to enter the labour market more rapidly. The educational path chosen must not be a dead end. Youngsters, who take the vocational route as their first choice, should later be able to continue upper secondary and tertiary education. Doors must be open. The philosophy of vocational education and training should be that they offer specific qualifications for specific occupations and provide general qualifications that provide a basis for further studies. This is the case in many European countries, where CVET is an essential part of lifelong learning to upgrade skills, as modelled in Figure 1. CVET is a continuous skills guarantee (Cedefop, 2020; OECD, 2021).

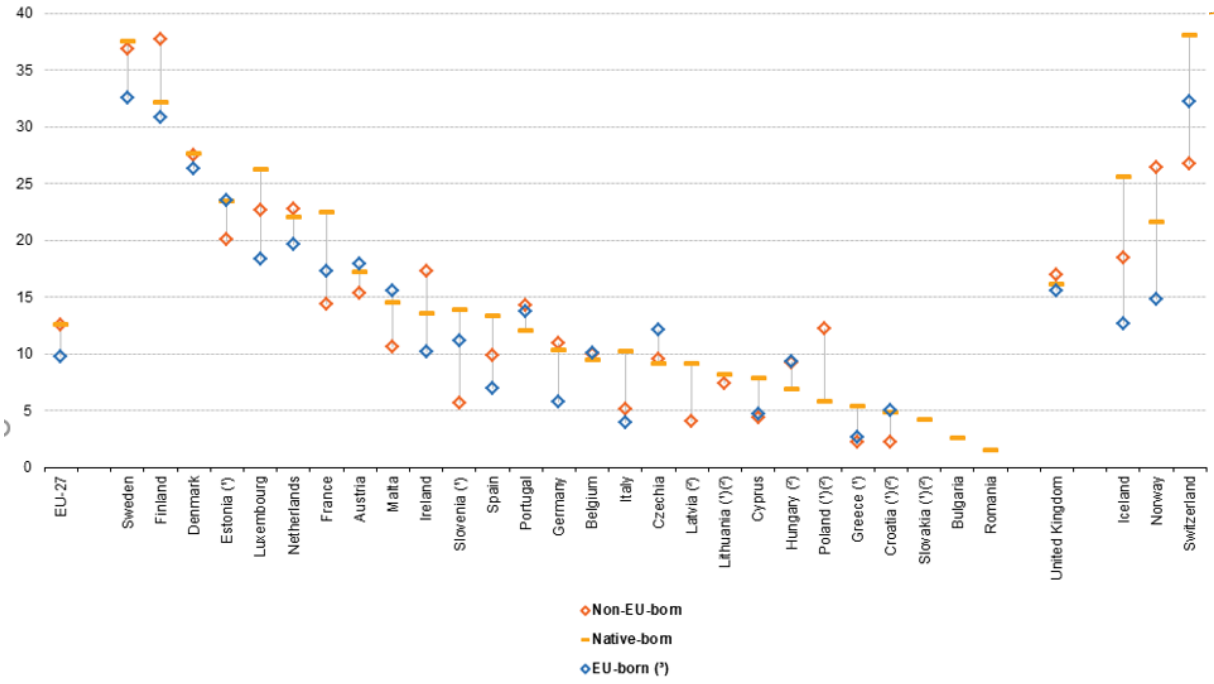
An essential part of inclusion via lifelong learning takes place at the workplace, and there must be strong commitments from the employer (see, for example, see Lundahl, 1997 and Karlsson et al., 2018). Company-based continuous education and training programs contribute to corporate human resources that are necessary for the company to act in rapidly changing environments (Field & Canning, 2014). In the EU, employers' share of all non-formal learning activities is about 70%,

but there is a cross-national variation from the low share (about 35% in Greece) to the high Bulgarian rate (93%). Regarding the share of enterprises that provide continuous learning to improve the skills of their employees, the variation is from the low share (about 5% of enterprises) in Bulgaria and Romania to the high share in Finland (about 40%), Belgium, Sweden, Norway, and Denmark (about 30%) (Eurostat, 2021a).

In 2020, the share of people aged 25 to 64 in the EU who had participated in education or training (either provided by their employer or other actors) in the last four weeks was about 10%. However, there are substantial differences between European nations in terms of the magnitude of their involvement and that of those who participate in adult education. In 2019, the involvement rate in the age bracket of 25 to 34 years was 18% for the 28 EU member states, whereas it was less than 10% among those older than 45 years (Eurostat, 2021a). In addition, the female participation rate (12%) is somewhat higher than the male participation (10%).

Figure 2 depicts the country-specific participation rates by country of birth. The three countries where adult education is most widely used, Sweden, Finland, and Switzerland, offer three interesting examples. The three patterns, with some modifications, can be found in the rest of the countries. There are no differences between native-born and non-EU-born people in Sweden, whereas the EU-born is lagging behind. In Finland, adult education is most frequent among non-EU-born people, while native-born and EU-born people tend to have lower participation rates. Switzerland, in turn, displays the third pattern where the utilisation of adult education is the widest among natives, followed by the EU-born population, whereas the lowest participation rates are among those who are non-EU-born. There are no differences between native-born people and immigrants in Denmark and the UK. More detailed scatterplots are presented in subsequent sections.

Figure 2: The share of *the* population in the age bracket 25 to 64 years that take part in adult education by country of birth *(Eurostat, 2021b)*




## Social investments, lifelong learning and accumulation of human capital

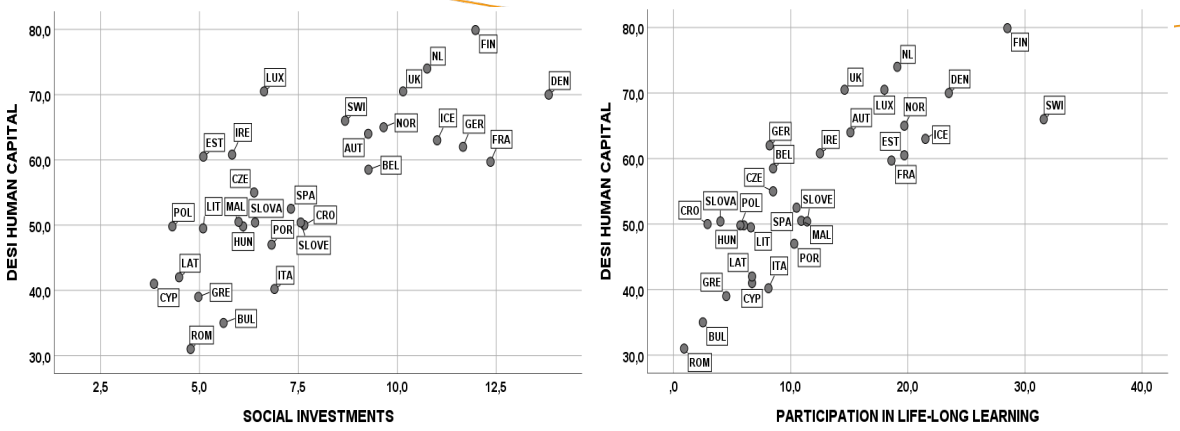
The central argument in the social investment paradigm is that welfare state services enhance and maintain human capital "stock" throughout the life course, help people to adapt themselves in contemporary labour market transitions, and upkeep minimum-income universal safety nets as social protection and stabilising economic fluctuations (Hemerijck, 2018). Thus, the overarching aim of the paradigm is that public services are positively linked to human capital formation.

The left-hand panel in Figure 3 provides a schematic representation of the links between social investments and the degree of the DESI human capital index among the total population in the age bracket of 25 to 64 years. This correlation was strong and significant (r =.74**[3]).

In turn, the right-hand panel shows the association between participation in lifelong learning activities and the level of human capital. Moreover, the correlation was strong and significant (r =.82**). There is also a significant correlation (r =.70**) between social investments and lifelong participation rates, indicating that the same countries tend to display high levels of social investments and relatively high involvement in adult education and training, connected to higher education levels of human capital.

[3] Statistical significance: ***p < 0.001, **p < 0.01, *p < 0.05.

*Figure 3: Social investments (% of GDP), lifelong learning and human capital in Europe (2019 or the closest year).*

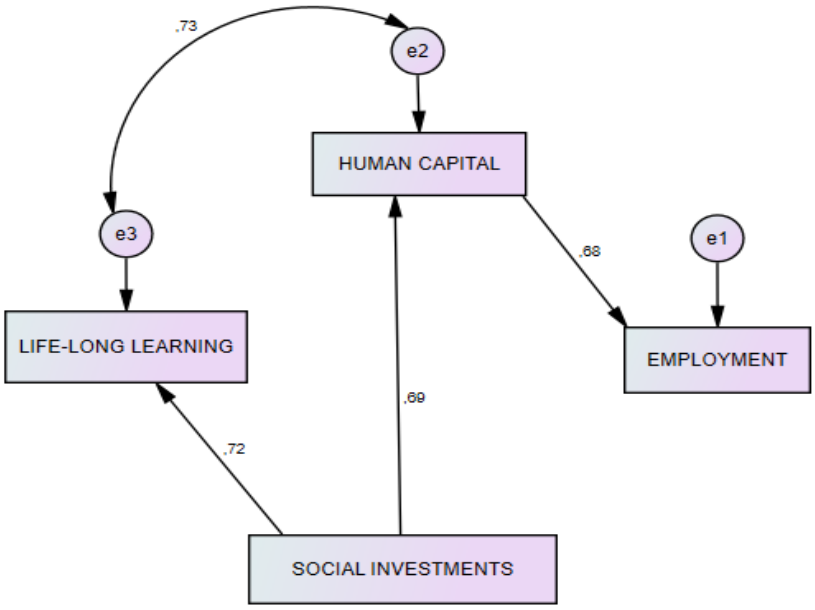



Needless to say, the aim of lifelong learning and social investment is to improve people's employability. Thus, we can expect that if the endeavours are effective, they will contribute to higher levels of employment. Figure 4, which is based on a SEM, visualises the possible causal loops between the variables. Arrows represent hypothetical causal loops, and the numbers pertain to standardised regression coefficients (all significant). In principle, we could draw direct arrows from lifelong learning and social investments to the employment rate. However, arrows are mutually exclusive due to strong multi-collinearity, and we only include indirect "effects“.

There is a strong link between social investments and life-long learning (standardised regression coefficient β =.72***). Furthermore, as expected, social investments are significantly associated with the level of human capital (β =.69***). Human capital, in turn, enhances employment.

In Figure 4, an arrow is drawn from life-long learning to human capital formation. However, often the relationship works in the opposite direction. Those with higher human capital tend to participate more in continuous education than those with lower human capital stocks (for example: Burdett and Smith, 2002; Kyndt et al., 2011; Knipprath and De Rick, 2015). In the EU, there is a gap of 28% in the participation rates in lifelong learning between those with tertiary education and those with lower educational attainments (OECD, 2021). Thus, those with higher skill levels are the most prone to be involved in lifelong learning, and there is an accumulation of advantages.

*Figure 4: A heuristic model on the relationships between social investments, lifelong learning, human capital formation and employment in Europe among the population in the age bracket 25 to 64.*




Based on the analyses focusing on the total working-age population, interim answers to our research questions were affirmative. Unfortunately, we cannot break down the DESI human capital index by age or citizenship status. Therefore, our following analyses of employment rates among older people and immigrants do not include the human capital dimension.

## Social investments, lifelong learning among the older labour force

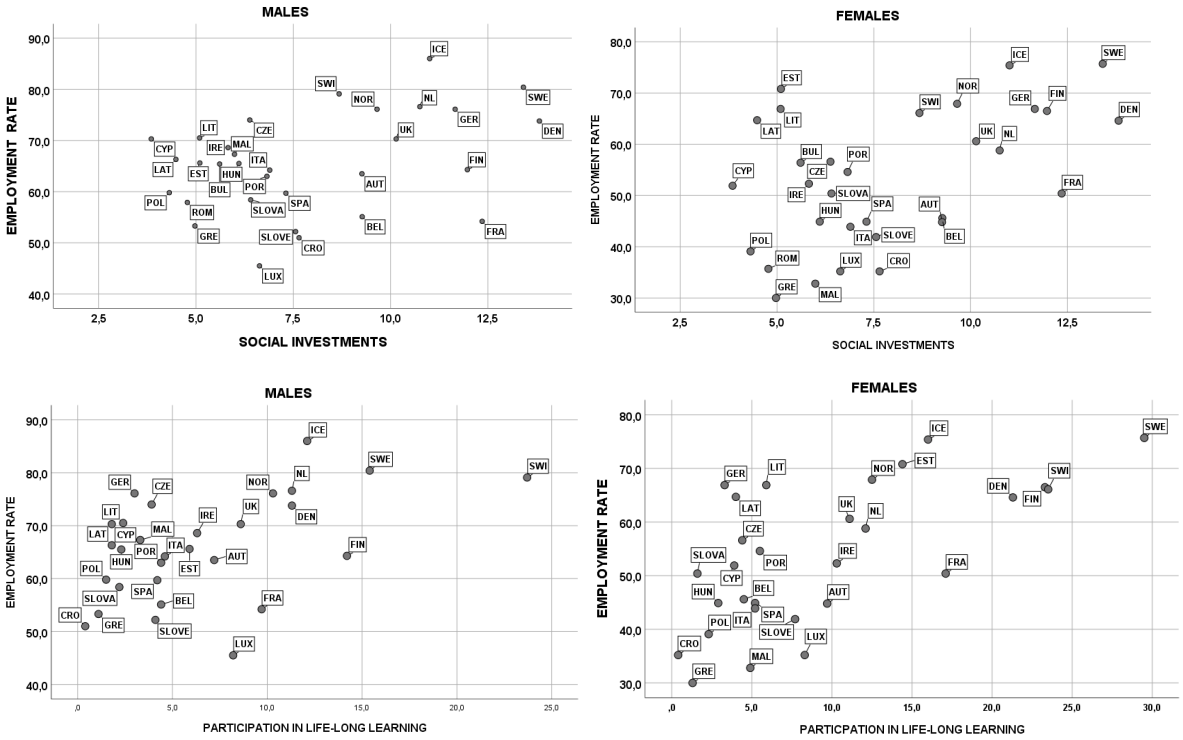
According to the social investment paradigm, public social and healthcare services aim to maintain health, physical and psychological wellbeing and contribute to human capital formation. A social investment welfare state enhances the combined capabilities. Furthermore, lifelong learning, i.e. CVET, is the key to providing older adults with capabilities required in the digital mode of working life. Various policies under the term 'active ageing' aim to enable the elderly to make use of their resources and skills in the labour market and society generally. Combining active ageing policies with labour markets contributes to fewer early exits and better health status among the elderly, reducing the need and costs of social care and healthcare. Thus, in countries with a greying population, inclusive policies also contribute to the sustainability of the welfare state (see Figure 5).

Social services help reconcile family and working life. In particular, services help women enter the labour market, and it is argued that welfare states geared toward services are more "woman-friendly" than the traditional income transfer-heavy welfare states (Hernes, 1987; Lewis, 1992; Leira, 2002; Ellingsæter and Leira, 2006; Ferrarini, 2006; Prince Cooke, 2011; Daly, 2021). Therefore, it is worth seeing if the relationships between social investments differ for the male and fe-

male elderly labour forces (see the upper panels in Figure 5). Correlations between social investments and employment rates are strong for both genders, but, in line with arguments about women's friendliness, the correlation is stronger for females (r =.48**) than for males (r =.37*).

In fact, there is a similar pattern with regard to participation in lifelong learning among those who are 55 to 64 years old and their employment rates (lower panel in Figure 5). The correlations for women were .64** and .49** for men. Thus, there are stronger associations between lifelong learning and employment than between social investment and employment rates.

*Figure 5: Social investments, lifelong learning and employment among men and women in the age bracket 55 to 64 years (2019 or the closest year).*




To obtain a more reliable view of the relationships between employment and social investments and participation in lifelong learning, we ran TSCS regressions. The data covers the period from 2011 to 2019. The results presented in Table 1 are in line with cross-sectional inspections. The coefficients for both lifelong learning and spending on social investments are positive and statistically significant among females, whereas the association is somewhat weaker among males. Overall, the inspection supports the wider social investment approach and the more specific idea of the importance of continuous learning.

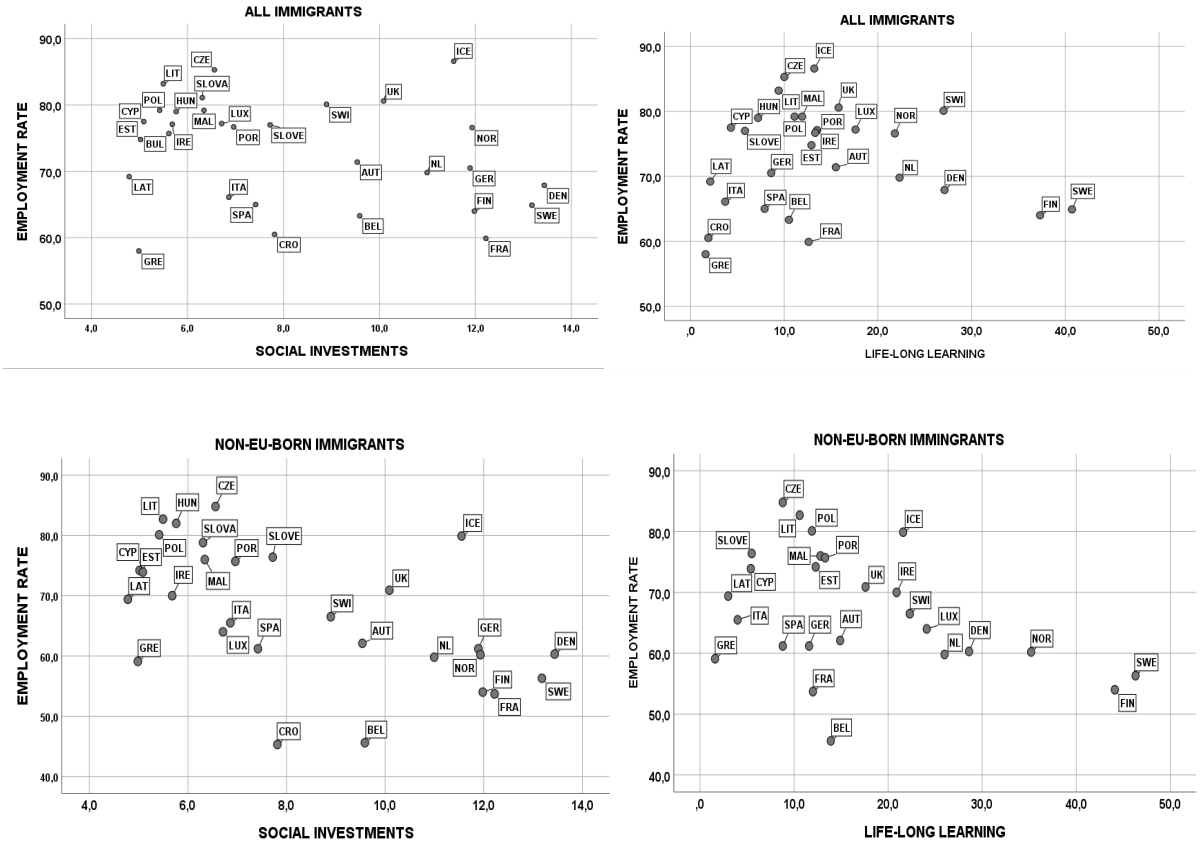
*Table 1: TSCS regressions on employment rates among people aged 55 to 64 years of age.*

| | All | | Males | | Females | |
|---|---|---|---|---|---|---|
| | Coefficient | Sig. | Coefficient | Sig. | Coefficient | Sig. |
| Constant | 38.947 | .000 | 49.700 | .000 | 26.313 | .000 |
| L-L L | .757 | .000 | .619 | .000 | .926 | .000 |
| SI | .649 | .010 | .349 | .099 | 1.335 | .000 |
| L-LL = Life-long learning; SI = Social investments; Sig. = significance | | | | | | |

# Lifelong learning, social investments and immigrant employment

The employment rates of immigrants lag behind those of the native-born population. In 2020, the overall EU-27 employment rate was 74%, whereas it was 68% for the foreign-born population. The averages perhaps conceal more than they reveal. First, much depends on the origin and gender of immigrants. The foreign-born population is not a homogenous group, and the employment rate for the EU-born people is at the same level as for natives, while immigrants coming from non-EU countries have significantly lower employment rates (64%). This is not a complete story. Whereas EU-born immigrant men have somewhat higher employment rates than native-born males, non-EU immigrants have lower employment rates in general and women in particular.

*Figure 6: Social investments, lifelong learning among immigrants by origin (2019 or the closest year).*




Second, as Figure 6 shows, there are substantial differences between the Member States. In Figure 6, we only present scatterplots for all immigrants and non-EU-born immigrants for space considerations without breaking down the data by gender in these immigrant categories. The patterns for males and females are the same as those presented for the two aggregate groups in Figure 6. Gender-separated results are presented in Table 2.

In welfare comparisons, Nordic countries usually perform comparatively well (see Figures 3 and 5). However, the differences in employment rates between native-born and non-EU-born immigrants tend to be large in the Northern Hemisphere (with the exception of Iceland). While the EU-27 av-

erage difference is 9.5 per cent, it is as high as 19.9% in Sweden, 17.1% in Denmark, 16.0% in Finland and 15.3% in Norway. Thus, the Nordic countries do well in integrating women into the labour market but do not do well for immigrants coming from outside the EU. Interestingly, the heavy Nordic investments in services and lifelong learning seem to work well among the native population. However, when it comes to immigrants, the results are not that good. Other countries and welfare regimes perform better. There are several possible explanations for immigrant integration problems in the Nordic cluster. Immigration regulations and the composition of immigrants may be one part of the explanation. We also need to take into consideration of possibilities to transfer skills from one country to another (Helbling et al., 2020). Furthermore, there may be lingual barriers, and those barriers are more severe in some countries than in some other countries (for example, Finland vs UK).

Our results from the TSCS regressions significantly differ from the results obtained from the analyses of the total population (Figures 3 and 4) and the elderly labour force (Table 1). Among immigrants, all coefficients for social investments are negative, whereas the coefficients for lifelong learning are sometimes significant and positive (as in the case of all immigrants), or they are sometimes negative and significant (as in the case of non-EU males). Therefore, the results were inconclusive. More research is needed to detach why some social investment policies and lifelong learning practices are (in)effective in migrant integration.

*Table 2: TSCS regressions on employment rates, social investments and lifelong learning by the origin of immigrants.*

| All immigrants | All | | Males | | Females | |
|---|---|---|---|---|---|---|
| | Coefficient | Sig. | Coefficient | Sig. | Coefficient | Sig. |
| Constant | 76.562 | .000 | 82.043 | .000 | 67.333 | .000 |
| L-L L | .357 | .000 | -.113 | .083 | .080 | .399 |
| SI | -1.482 | .000 | -.452 | .032 | -.939 | .002 |
| | | | | | | |
| Non-EU immigrants | | | | | | |
| Constant | 78.090 | .000 | 85.799 | .000 | 66.144 | .000 |
| L-L L | -.056 | .405 | -.188 | .003 | -.024 | .775 |
| SI | -.156 | .000 | -1.166 | .000 | -1.578 | .004 |

L-LL = Lifelong learning; SI = Social investments; Sig. = significance

## 5. Conclusions and recommendations

This working paper is about mechanisms and upskilling schemes that contribute to human capital building to valorise the opportunities of digital transformation for an inclusive society and inclusive labour market. We explored welfare state and labour market-related upskilling schemes aimed at including disadvantaged people in employment. Our theoretical starting points were anchored in Sen and Nussbaum's social investment paradigm and capability theories. Our working hypothesis was that a social investment welfare state enhances what Nussbaum calls combined

capabilities. The concept of combined capacity pertains to an inclusive society that forms a supportive platform for individuals to use their internal capabilities and the individual skills they have accumulated.

According to the social investment paradigm, which was our second theoretical starting point, the accumulation of capabilities begins in childhood. Thus, universal basic education (pre-VET) should prepare all pupils to meet the challenges of the digital world and working life. In basic education, digitalisation is a great possibility but also a challenge. Digital technology in teaching gives limitless possibilities to tailor teaching according to pupils' individual needs. The danger is that teaching will be too individualised. Digital teaching applications are based on an individualised vision of learning: each pupil/student is responsible for their learning and must bear the consequences of the achievements. Thus, this form of education offers internal capabilities and tends to neglect combined capabilities. This problem pertains to all kinds of education. Therefore, European societies should take more steps toward the social investment welfare state and create institutions where people have the possibility to accumulate their capabilities and can effectively use their skills. Thus, as regards Pre-VET and IVET education, our policy recommendations are as follows:

- In basic education, students should get adequate basic ICT skills, but they should also be more oriented towards problem-solving skills to utilise information and communication technologies properly.
- Long-term monitoring of the digitalisation process in schools from the perspectives of students and teachers is required. The main scope of the monitoring should be the skills achieved and the access to upskilling one’s digital knowledge and competencies.
- Special attention and support should be given to students coming from disadvantaged backgrounds and students with special needs to continue their studies at the secondary level (IVET).
- There should not be dead-ends in the educational system. For example, vocational education should be tailored to fit the present-day working life, but it should also give sufficient competence for further studies to cope with the digitalised working life.

We assumed that continuous learning and training - whether IVET or CVET - are prerequisites for maintaining the skills needed in the labour market. We expected that a high level of spending on versatile public services and people's high involvement in lifelong learning would lead to an inclusive labour market.

We had three more specific research questions: 1) Do investments in services enhance digital human capacity building? 2) Does lifelong learning enhance human capacity building? 3) Do capacity building and upskilling people’s competencies contribute to inclusion in society in general and in employment in particular?

We started our empirical analyses by examining the relationships between social investments, lifelong learning, human capital formation, and employment among the total adult population. Our cross-sectional inspections and Pooled Cross-Sectional Time-Series analyses provide strong affirmative answers to our three research questions. As expected, our results show that social investments contribute to human capital formation, as does lifelong learning. Human capital contributes

to employment possibilities. This pattern is the same among older workers. These employees greatly benefit from inclusive policies. The positive effect was stronger among women than men. The results were congruent with the ideas of a "women-friendly" welfare state.

Following this line of reasoning, we expected that an inclusive welfare state offering social investments and a wide array of possibilities for lifelong learning would also display high employment levels for the elderly labour force and immigrants. As stated, our hypothesis was fortified by analyses of the elderly labour force. Different forms of human capital building policies counterbalance the possible detrimental effects of rapid changes in the labour market. Therefore, our main argument is that there may be significant changes due to digitalisation, but the outcomes are not deterministic and they are not solely caused by technological processes. The adoption of human capital enhancing policies in general and upskilling in particular can significantly mitigate the detrimental employment effects of changes and increased skill demands in the labour process. As regards lifelong learning in digital societies, we conclude that:

- Possibilities for continuous acquisition of new digital skills and participation in lifelong learning should be strengthened, and everybody should have opportunities to upgrade their digital competence.
- Successful lifelong learning demands cooperation between public sector education providers, companies and social partners.
- A precondition for successful lifelong learning is to combine general competencies achieved in the Pre-VET and IVET education with more specialised skills (achieved in CVET education) needed for new tasks in digital working life.
- There is an accumulation of advantages: those with higher skill levels are the most prone to be involved in lifelong learning.
- More specifically, there is a need also to enhance low-skilled employees to utilise possibilities for lifelong learning.

Whereas countries with extensive lifelong learning and upskilling options displayed high employment rates among their total labour force and among elderly employees, the conclusions about the labour market inclusion of immigrants were somewhat different. Our analyses showed that those countries (e.g., Sweden) and welfare regimes (i.e. Nordic) that are usually applauded for their high employment and low poverty rates do not perform that well if we turn our focus from the total population to more marginal groups in society as immigrants often are. There may be several reasons for this surprising finding. One possible reason may be that universal Nordic policies that are effective among the native population are not that effective among immigrants. Thus, more targeted and tailored programs that consider immigrants' specific skill needs are necessary. Another explanation is related to the composition of immigrants. There may be systematic differences between immigrants from different countries. Furthermore, there may be various lingual reasons. For example, initial knowledge of the English language significantly reduces barriers to employment in Anglophone countries compared to other countries.

To fortify economic sustainability of the welfare state, employment rates must be high among the native population and among males, females, immigrants, and other people who often have weak

connections to labour markets and are too often excluded from paid labour. Therefore, it is necessary to strengthen policies that enhance the inclusion of groups that often suffer most from labour market exclusion:

- More emphasis should be given to creating policies facilitating the inclusion of vulnerable groups in the labour market.
- The universalistic Nordic welfare state combined with the high level of participation in lifelong learning works well as regards the general population, older labour force and women. However, this model is not as effective with regards to immigrants.
- Therefore, the results were inconclusive. More research is needed to detach why some social investment policies and lifelong learning practices are (in)effective in migrant integration.
- Better integration of income transfers and services is a necessary and sufficient condition for inclusion in the labour market and in society. Universal basic income is not a silver bullet that solves all the inclusion and social security problems in digitalised society.
- To improve employment possibilities, inclusion into labour markets and further activation of citizens implies the strong provision of social, health care, educational, CVET and other employment services.
- New digital technologies (for example, digital interpretation services, remote work, mobile work, and other digital employment arrangements) are capable of supporting the inclusion of disadvantaged persons to take part in labour.

In sum, to avoid poverty of action, that is, not being able to fully participate in the customary way of life in a digitalised society, individuals must have proper internal capabilities, such as skills, knowledge and ability to use digital devices, and propensity to constantly learn new skills. From that viewpoint and to provide full digital citizenship, it is important to provide all residents, children, youngsters, working-age population, older people of all genders, immigrants, and people with handicaps proper competencies, that is, to enhance their internal capacity. Simultaneously, educational institutions, labour market, and society at large must guarantee people access to the widest possible set of combined capabilities.

# References


Akkerman, S. and Bakker, A. 2012. 'Crossing boundaries between school and work during apprenticeships', *Vocations and Learning*, 5(2): 153-173.

Aristotle (1976). *The Nichomanchean Ethics*. London: Penguin Books.

Avni, E. and Rotem, A. 2016. 'Digital Competence: A Net of Literacies', in Rose, Y., Ferrara, S. & Mosharraf (eds.) *Handbook of research on technology tools for real-world skill development*. Hershey: IGI Global, 13–41. Doi: 10.4018/978-1-4666-9441-5.

Björklund, A. and Jäntti, M 2011. 'Intergenerational Income Mobility and the Role of Family Background', in Nolan, B, Salverda, W. & Smeeding, T. (eds.) *The Oxford Handbook of Economic Inequality*. Oxford: Oxford University Press.

Buchanan, J., Finegold, D., Mayhew, K. and Warhurst, C. (eds.) 2017. *The Oxford Handbook of Skills and Training*. Oxford: Oxford University Press.

Burdett, K. and Smith, E. 2002, 'The low-skilled trap', *European Economic Review*, Vol. 46, pp. 1439–1451.

Castles, F. 2004. *The Future of the Welfare State. Crisis, Myths and Crisis Realities*. Oxford: Oxford University Press.

Cattane, A., Gurtner, J.L. and Felder J. 2021. 'Digital tolls as boundary objects to support connectivity in dual vocational education: Toward a definition of design principles', in Beausaert, S., Kyndt, E. and Zitter, I. (eds.) *Developing connectivity between education and work*. London: Routledge, pp. 137-157.

Cedefop [European Centre for the Development of Vocational Training] 2020. *Empowering adults through upskilling and reskilling pathways. Volume 1: adult population with potential for upskilling and reskilling.* Luxembourg: Publications Office of the European Union.

Corak, M. 2013. Income Inequality, Equality of Opportunity, and Intergenerational Mobility. Bonn: IZA Discussion Paper No. 7520.

Daly, M. 2021. 'Family, States and Markets', in Beland, D. et al. (eds.) *The Oxford Handbook of the Welfare State*. Oxford: Oxford University Press, pp. 206-221.

Ellingsæter A., L. and Leira, A. (eds.) 2006. *Politicising Parenthood in Scandinavia*. Bristol: The Policy Press.

European Commission 2022. *European Commission Digital Strategy*. Brussels: European Commission.

Eurostat [European statistics] 2020. *11.1 % of adults participate in lifelong learning*. Luxembourg: Eurostat.

Eurostat 2021a. *Participation rate in education and training (last 4 weeks) by sex and age,* [trng_lfse_01]. Luxembourg: Eurostat.

Eurostat 2021b. *Social protection statistics - social benefits*. Luxembourg: Eurostat.

Eurostat 2022a. *Employment rates by sex, age and citizenship (%)*, [lfsa_ergan]. Luxembourg: Eurostat.

Eurostat 2022b. *Participation rate in education and training (last 4 weeks) by sex, age and citizenship* [trng_lfs_12]. Luxembourg: Eurostat.

Eurostat 2022c. *Tables by benefits - all functions*, [SPR_EXP_FTO ]. Luxembourg: Eurostat.

Ferrarini, T. 2006. *Families, States and Labour Markets – Institutions, causes and consequences of family policy in post war welfare states*. Cheltenham: Edward Elgar Publishing.

Field, J. and Canning, R. 2014. 'Lifelong learning and employers: reskilling older workers', in Harper, S. and Hamblin, K. (eds.) *International Handbook on Ageing and Public Policy*, Edgar Elgar, Cheltenham, pp. 463-73.

Helbling, M., Simon, S. and Schmid, S., D. 2020. 'Restricting immigration to foster migrant integration? A comparative study across 22 European countries', *Journal of Ethnic and Migration Studies*, 46:13, 2603-2624.

Hemerijck, A. 2013. *Changing Welfare States*, Oxford: Oxford University Press. [Google Scholar]

Hemerijck, A. 2015. 'The quiet paradigm revolution of social investment', *Social Politics: International Studies in Gender*, State & Society 22(2), 242–56. doi: 10.1093/sp/jxv009

Hemerijck, A. (ed.) 2017. *The Uses of Social Investment*. Oxford: Oxford University Press.

Hernes, H. 1987. *Welfare State and Woman Power. Essays in State Feminism*. London: Norwegian University Press.

Huttunen, K., Pekkarinen, T., Uusitalo, R. & Virtanen, H. 2019. Lost Boys: Access to Secondary Education and Crime. Bonn: IZA Discussion Paper No. 12084

Kaarakainen, M-T. 2019. *Education and Inequality in Digital Opportunities. Differences in Digital Engagement among Finnish Lower and Upper Secondary School Students*. Turku: University of Turku. Turku 2019.

Kangas, O. and Palme, J. 2007. 'Social rights and structural need explaining social spending', in Clasen, J. and Siegel, N. (eds.) *Investigating Welfare State Change The 'Dependent Variable Problem' in Comparative Analysis*. Cheltenham: Edward Elgar, pp. 106-129.

Karlsson, T., Nilsson, F. and Nilsson, A. 2018. 'Vocational Education and Industrial Relations: Sweden 1910-1975', *Nordic Journal of Educational History* 5(1), 27-50.

Knipprath, H and De Rick, K. 2015. "How Social and Human Capital Predict Participation in Lifelong Learning: A Longitudinal Data Analysis", *Adult Education Quarterly*, Vol. 65(1) pp. 50 –66.

Korpi, W. 2000. 'Faces of Inequality: Gender, Class, and Patterns of Inequalities in Different Types of Welfare States', *Social Politics: International Studies in Gender*, State & Society, 7(2), 127–191.

Kyndt, E., Govaerts, N., Dochy, F. and Baert, H. 2011. 'The Learning Intention of Low-Qualified Employees: A Key for Participation in Lifelong Learning and Continuous Training', *Vocations and Learning* 4, 211. https://doi.org/10.1007/s12186-011-9058-5

Lau, W. W. F. and Yuen, A. H. K. 2014. 'Developing and validating of a perceived ICT literacy scale for junior secondary school students: Pedagogical and educational contributions', *Computers & Education*, 78, 1–9.

Leira, A. 2002. *Working Parents and the Welfare State. Family Change and Policy Reform in Scandinavia*. Cambridge: Cambridge University Press.

Lengrand, P. 1975. *An Introduction to Lifelong Education*. Paris: UNESCO.

Lewis, J. 1992. 'Gender and the development of welfare regimes', *Journal of European Social Policy*, 2(3), 159–73.

Lundahl, L. 1997. 'A common denominator? Swedish employers, trade unions and vocational training and development', *International Journal of Training and Development*, 1(2), 91-103.

Morel, N., Palme, J. and Palier, B. (eds.) 2011. *Towards a Social Investment Welfare State? Ideas, Policies and Challenges*. Bristol: Policy Press.

Nussbaum, M. C. 2011. *Creating capabilities: The Human Development Approach*. Cambridge, London: The Belknap Press of Harvard University Press.

OECD [Organisation for Economic Co-operation and Development] 2018. *Settling In 2018 Indicators of Immigrant Integration.* Paris: OECD.

OECD 2020. *The OECD Framework for digital talent and skills in the public sector.* Paris: OECD.

OECD 2021. *Skills Outlook* 2021: Learning for Life. Paris: OECD.

Orloff, A., S. 2021. "Gender" in Beland, D. et al. (eds.) *The Oxford Handbook of the Welfare State*. Oxford: Oxford University Press, pp. 346-363.

Prince Cooke, L. 2011. *Gender-Class Equality in Political Economies*. London: Routledge.

Sen, A. 1992. *Inequality re-examined*. New York and Oxford: Clarendon Press, Oxford University Press.

Sen, A. 1999. *Development as freedom*. New York: Oxford University Press.

Sen, A. 2010. *The idea of justice*. London: Penguin Books.

Seuri, A., Uusitalo, R. and Virtanen, H. 2018. 'Pitäisikö oppivelvollisuusikää nostaa 18 vuoteen?' [Should the compulsory school age be raised to 18 years?], Helsinki: Economic Policy Council, Background paper.

Stata 2003. *Cross-sectional time-series*. Texas: Stata Corporation.

Telhaug, A., Medias, A. & Aasen, P. 2006. ´The Nordic Model in Education: Education as Part of the Political System in the Last 50 Years´ *Scandinavian Journal of Educational Research* 50(3): 245–283.

Warhurst, C. et al. 2019. 'D2.1 Guidance paper on key concepts, issues and developments: Conceptual framework guide and working paper', Leiden: Beyond 4.0.

Östebacka, E. 2004. *It Runs in the Family: empirical analyses of family background and economic status.* Åbo: Åbo Akademi University Press.