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Promoting the Relevance of Higher Education

Main Report

Education, Youth, Sport and Culture

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Directorate-General for Education, Youth, Sport and Culture
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Contact: Nadia Manzoni

E-mail: nadia.manzoni@ec.europa.eu

European Commission
B-1049 Brussels

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Promoting the Relevance of Higher Education

Main Report

prepared by:

Hans Vossensteyn
Renze Kolster
Frans Kaiser
Jon File

Jeroen Huisman
Marco Seeber
Martina Vukasovic

Kai Muehleck
Christoph Gwosc

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Our senior advisors

Professor Kate Purcell
Warwick Institute for Employment Research, University of Warwick, UK

Professor Ivan Svetlik
Rector of the University of Ljubljana, Slovenia
Former President of the Higher Education Council

Professor Frans van Vught
Honorary Professor, CHEPS
Former Rector and President of the University of Twente
Chairman of the Dutch Committee for the Review of Higher Education and Research

Our case study researchers

Prof. em. Paul Axelrod, York University, Canada (Ontario)

Dr. Aleš Vlk, Tertiary Education and Research Institute (Czech Republic)

Dr Martina Vukasovic and prof. Jeroen Huisman, CHEGG (Denmark)

Emmanuel Boudard, La Rochelle Consult (France)

Dr Kai Muehleck and Christoph Gwosć, DZHW (Germany)

Leon Cremonini MA, CHEPS (Ireland)

Renze Kolster M.Phil. and prof. Hans Vossensteyn, CHEPS (the Netherlands)

Dr Marco Seeber, CHEGG (Spain)

Our respondents

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Abbreviations

ABP	Admissions Post Bac
AD	Associate Degree
CALOHEE	Comparing Achievements in Learning Outcomes in Higher Education in Europe
CHEGG	Centre for Higher Education Governance Ghent
CHEPS	Center for Higher Education Policy Studies
COMUE	Communautés inter-académique d'universités et d'établissements
DG-EAC	Directorate General Education and Culture
DZHW	Deutsches Zentrum für Hochschul- und Wissenschaftsforschung
ESS	European Social Survey
EU	European Union
EU-LFS	European Union Labour Force Survey
EU-SILC	European Union Statistics on Income and Living Conditions
ICT	Information and Communication Technologies
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
HE	Higher Education
HEA	Higher Education Authority
HEI	Higher Education Institution
KLIM	Key Indicators of the Labour Market
KOAB	Kooperationsprojekt Absolventenstudien
KPI	Key Performance Indicator
MESR	Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation
MinOCW	Ministerie van Onderwijs, Cultuur en Wetenschappen
MOOC	Massive Open Online Course
OECD	Organisation for Economic Cooperation and Development
PETITE	Pôles Étudiants Pour l'innovation, le Transfert et l'Entrepreneuriat
PIAAC	Programme for the International Assessment of Adult Competencies
STEM	Science, Technology, Engineering and Medicine
StraNES	Stratégie Nationale d'Enseignement Supérieur
UAS	Universities of Applied Sciences
WVS	World Values Survey

Executive Summary

The objective and structure of the study

Europe's knowledge economies need high-level skills, the capacity to innovate and to support democratic societies. In this perspective, the main objective of this study is to provide a comprehensive analysis of the relevance of higher education and how this is promoted in various countries in Europe and beyond. The evidence, conclusions and recommendations are intended to support EU Member States in developing and improving policies that promote the relevance of higher education: for students; for graduates; for employers; and for society. On the basis of a review of relevant literature, policy documents and databases, consultation with national experts and eight in-depth country case studies (Canada [Ontario], the Czech Republic, Denmark, France, Germany, Ireland, the Netherlands and Spain) that included interviews with many national stakeholders, this study seeks to answer the following questions:

- How is the relevance of higher education defined in different member states?
- Which policy levers do member states use to promote higher education relevance?
- Which national policies concerning higher education relevance appear to be effective and good practice examples?
- Which indicators are informative in assessing higher education relevance at system level?
- How can an analytic and diagnostic tool be designed and developed that can provide a systematic assessment of the relevance of higher education systems?

Key findings

Higher education is relevant when it contributes to personal development, sustainable employment and active citizenship

Relevance is understood differently by different stakeholders in higher education. These understandings can refer to the competencies of individual students as well as to their collective outcomes for society. To analyse national policies concerning higher education relevance, and indicators to measure this relevance, we adopted the three main objectives of higher education formulated by the Council of Europe (2007): personal development, sustainable employment and active citizenship.

Personal development relates to individual growth at the psychological, cognitive, social and moral levels. In terms of **sustainable employment**, higher education provides students with the skills to secure and sustain suitable employment. **Active citizenship** encompasses the development of (inter)cultural skills, a sense of citizenship, and political literacy and participation. In addition, higher education relevance relates to different **"users"** of higher education: students, graduates, employers and society.

Countries differ in the priorities they give to the three higher education relevance dimensions and the different higher education user groups. **Sustainable employment** receives the most explicit attention, primarily as a result of the increasing emphasis on the contribution of higher education to the knowledge economy and because it is arguably easier to measure than personal development and active citizenship. The latter two dimensions are addressed more implicitly in most countries as they are assumed to be embedded in higher education practice. Compared to most other studies, this report broadens the concept of relevance beyond employability.

Countries utilise a variety of policies to address higher education relevance

The eight case study countries promote higher education relevance using a wealth of policy levers, categorised for the purposes of this study into one of the following four groups: regulation, funding, organisation and information policies.

Personal development

Personal development is more often addressed implicitly than explicitly. Explicit levers include the integration of personal development in the learning outcomes of degree programmes (**regulation**), financial support for under-represented student groups to secure equal access (**funding**), supporting students' mental health (**organisation**), and through student satisfaction and engagement surveys (**information**).

Sustainable employment

Sustainable employment receives strong policy attention in most countries, particularly through the "hard" policy levers of regulation and funding. **Laws and regulations** in several countries include a link between the number of study places and labour market needs, or define explicit labour market functions and learning outcomes for specific higher education sectors. Quality assurance and accreditation regulations often explicitly refer to sustainable employment criteria. Typical **funding** policies to promote sustainable employment include:

- Performance funding (rewarding graduation and employment outcomes)
- Scholarships and loans to stimulate graduation and particular professional fields
- Strategic investment programmes guided by quality and employability criteria.

Sustainable employment is often promoted by **organisation** policies such as the establishment of career guidance centres; integrating employers' representatives in programme advisory bodies and accreditation processes; offering new types of degrees or programmes; and regulated access for specific target groups. Finally, **information** policies address employability by means of student, graduate and employer surveys. In addition, platforms to inform students' study choices increasingly include employment information.

Active citizenship

Overall, the active citizenship dimension of higher education is primarily supported through regulation and funding. **Regulations** for active citizenship often include:

- The obligation to educate students for active citizenship
- The facilitation of student participation in higher education governance
- The stimulation of flexible curricula that enable students to engage in civic activity.

Active citizenship is promoted by **funding policies** that:

- Aim to expand access by providing financial support to students from poor socio-economic backgrounds
- Funding, recognising and awarding credits for involvement in student organisations

The only **organisational policy** used to promote active citizenship is the Irish "Campus Engage" initiative, which stimulates students to volunteer with local organisations as an extra-curricular activity. Finally, **information policies** include student surveys that measure how students are integrated into civic activities and how this affects their social values.

Insight into the impact and effectiveness of HE relevance policies is limited

Overall, there is limited knowledge about the effectiveness of policies used to promote the relevance of higher education in the eight case study countries. In most countries, the efficacy of policy levers is neither systematically evaluated nor monitored. If evaluations take place, they often focus on implementation rather than on outcomes. However, the limited evidence available (endorsed in stakeholder interviews) demonstrates that:

- Labour market information allows students to make better educational choices (Spain)
- Extra funding can increase the attractiveness of STEM disciplines for female students (Germany)
- Organising part-time studies for the unemployed increases their employability (Ireland)
- The introduction of associate degree programmes and excellence education tracks show positive effects for all three relevance dimensions (Netherlands)

- A comprehensive policy approach to promote employability in various ways creates strong awareness and relevant activities (France)

More evaluations are needed to obtain enhanced insights into the effectiveness of policy levers and the reasons behind their success or failure. Based on the evidence available we can conclude that:

- Policy instruments need to be designed for their specific national contexts
- The level at which policies need to be developed (national or institutional) has to carefully considered
- Policy effectiveness improves when relevant stakeholders are involved in policy design and implementation processes

Higher education relevance is assessed by many different indicators across Europe, however, the information gathered is scattered and its value not realised by most stakeholders

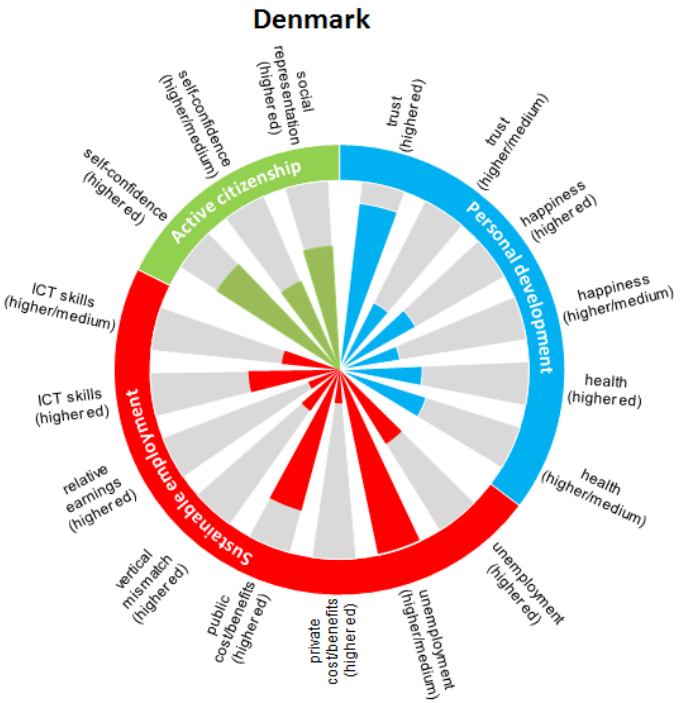
There are **many readily available indicators** that offer insights into the relevance of higher education. Our main conclusions on the available data are:

- Although various indicators exist for each of the dimensions of relevance, most indicators suffer from a lack of periodicity and/or limited geographical coverage which prevents longitudinal and international analysis
- Despite a variety of indicators that address sustainable employment, in most countries these do not cover key aspects such as labour market transitions, graduate careers, skills mismatches or graduate and employer views
- While various aspects of personal development are measured in several countries – including happiness, perceived health, trust in others and motivation - there is limited awareness among stakeholders of such indicators
- Indicators in general provide an impression of the overall performance of a system rather than evidence of causal relationships between higher education and its societal outcomes and impact.

An analytic and diagnostic tool can be used to monitor national performance in higher education relevance and to stimulate transparency and policy debate

We have developed an analytic and diagnostic tool in the form of 'country score cards' that provide per country a 1-page overview of the state of the art regarding the relevance of higher education. The 'country score cards' present:

- The main system characteristics (first time entry, attainment, and educational expenditure)
- The main national policy levers (regulations, funding, organisation and information) that are utilised
- A selection of valid and comparable indicators per relevance dimension



Regardless of the limitations of using monitoring indicators – such as limited scope and availability of robust, reliable time series data, and difficulties of causality – the insights gained from the selected indicators

imply positive effects of higher education in many countries. Skills levels and private and social returns are positively related to higher education and seem to be good measures of relevance.

The indicators of the 'country score cards' are presented in a '**wheel chart**'. These can guide the actions of higher education decision-makers. Indicators for personal development include the level of trust in other people, happiness and perceptions of health. The indicators for sustainable employment are unemployment, private and public returns, relative earnings, vertical mismatch, and the distribution of ICT skills. The indicators selected for active citizenship are efficacy in political participation and social background.

Recommendations

Based on the outcomes of this study we present a number of recommendations for national and EU policy-makers to promote the relevance of higher education.

Governments should develop more explicit policy designs to boost relevance

Though most policy makers and stakeholders across the eight case study countries agree that the relevance of higher education is related to the dimensions of personal development, sustainable employment and active citizenship, most countries give explicit policy attention to sustainable employment, while aspects of personal development and active citizenship are often addressed implicitly. Relevance policies can be made more explicit in the following ways:

- National policy mixes should target a proper balance between the three dimensions of higher education relevance;
- Governments should be clear and explicit in defining and communicating the specific relevance dimensions, aspects, goals and targets that they regard as important, including the reasons for these priorities;
- National policy levers need to be explicit about the expected roles of different stakeholders.

The eight case studies point at several examples of instruments that "work". These can guide national governments in developing their own policy instruments:

Sustainable employment

- Provide extra funding for study programmes that address labour market shortages;
- Undertake graduate and employer surveys to monitor the graduate labour market;
- Involve labour market representatives in advisory committees and the quality assurance of education programmes;
- Organise/improve career orientation and guidance.

Personal development

- Provide targeted funding for under-represented groups;
- Integrate personal development explicitly in programme learning outcomes;
- Measure levels of personal development in student (evaluation) surveys.

Active citizenship

- Allow credit to be awarded for extra-curricular activities and prior learning (non-formal learning);
- Measure levels of active citizenship in student (evaluation) surveys.

Stimulate the collection of evidence on the effectiveness of higher education relevance policies, and monitor, share and adopt successful policy practices

To improve the limited attention for policy evaluation and monitoring, the European Commission and national governments should take the following actions:

- To initiate more systematic national and international comparative empirical research on the impact and effectiveness of higher education relevance policies;
- To link the higher education relevance agenda to other higher education policy areas, for example, modernisation, quality assurance and internationalisation;
- Use good practice examples to inspire national practices, e.g.:
  - Mandatory evaluations of national policies (Denmark and the Netherlands);
  - The use of indicators addressing all three relevance dimensions (Germany: adequate employment of graduates, satisfaction of graduates and employers);
  - Share objective and experience-based information about study programmes at a central study portal (Studiekeuze 123 in the Netherlands).

Governments as well as the European Commission should stimulate the collection of more robust data on the relevance of higher education

It is desirable to organise coordinated action across national borders to build up a more solid knowledge base derived from commonly defined relevance indicators.

- National governments should systematically collect information on the indicators of HE relevance using internationally shared definitions and should monitor outcomes;
- Interaction between decision makers, practitioners and data providers at European and national levels could improve the quality and awareness of available data;
- The European Commission and national governments should invest more effort in international studies that enhance the international knowledge base on the dimensions of HE relevance. Initiatives such as the recent recommendation of the European Council on tracking graduates, including the European pilot graduate survey (EUROGRADUATE), are promising steps in this direction;
- The analytic and diagnostic tool designed and developed within this project is a useful starting point for the systematic monitoring of relevance indicators and can serve as an input for a qualitative policy debate on higher education relevance;
- Linked to the analytic and diagnostic tool, national governments should be encouraged to utilize existing indicators on the personal development and active citizenship dimensions, such the level of trust in other people, level of happiness, self-confidence for political participation, and levels of social representation;
- The European Commission and member states should supplement statistical indicators with in-depth analyses to improve the understanding of the relationship between higher education and its outcomes.

A feasible approach to develop an explicit policy approach to all three dimensions of relevance is for national governments to gradually adopt various elements of these recommendations, while carefully integrating them into their specific contexts.

1 Introduction

1.1 Objective and structure of this study

The main objective of this study is to provide a comprehensive analysis of the relevance of higher education and how this is promoted in various countries in Europe and beyond. The study provides evidence, conclusions and recommendations to support EU Member States in developing and improving policies that promote the relevance of higher education for students/graduates, employers and society at large.

In order to meet this objective, we first developed an analytical framework that distinguishes three dimensions of relevance and three important (groups of) stakeholders. This analytical framework is explained in Section 1.2. In Section 1.3, we explain the research methodology of the project. The framework and methods are subsequently used to address the following questions:

- Which policy levers are available and used by public authorities to support the relevance of higher education for societal needs? (Chapter 2)
- What conclusions and recommendations can be drawn about the advantages, disadvantages, applicability and limitations of these different policy levers? (Chapter 2)
- Which indicators can be found in the literature and in practice that can be used to assess the relevance of higher education teaching and learning activities for societal needs? (Chapter 3)
- How can the relevance of higher education systems be captured in an analytic and diagnostic tool that provides a snapshot performance analysis? (Chapter 4)
- What overall conclusions and recommendations can be drawn from the project? (Chapter 5)

1.2 Analytical Framework

1.2.1 Conceptualising relevance of higher education

Based on an extensive literature review that confirmed our expectation that relevance is a multidimensional concept, we decided to conceptualise the relevance of higher education along two dimensions: (1) for what is higher education relevant (objectives of higher education), and (2) to whom higher education is relevant ("users" of higher education). Using work undertaken by the Council of Europe (2007), the analytical framework of this study distinguishes three dimensions of the teaching and learning function of higher education:

- Personal development
- Sustainable employment
- Active citizenship

These three dimensions are the result of a wide consultation by the Council with a variety of stakeholders and reflect the purposes of higher education that can be found in academic literature (Castells, 2001; Clark, 1983; Marginson, 2011; Trow, 1975). At the same time they reflect the contemporary policy discourses on relevance.

Personal development relates to a process of change and transformation at a psychological, social, cognitive and moral level. Accordingly, higher education contributes to the development of personal development skills that are primarily useful for personal growth. More specifically, personal growth relates to attitudes towards oneself, perception of oneself, trust in others, values and well-being.

Sustainable employment can be regarded as an outcome of higher education as higher education is generally understood to provide students with the appropriate skills with which they can find and retain employment. Key terms associated with this task are, *inter alia*, basic skills, foundation skills, transferable skills, technical and vocational skills, 21st century skills, and lifelong learning. The latter is particularly important for employees to anticipate changing skills demands in domestic and international labour markets.

Active citizenship comprises a number of skills, attitudes and values that help individuals to contribute to societal development. Firstly, this includes the development of intercultural skills, cultural literacy and instilling the values of tolerance, multiculturalism and diversity as well as a sense of global citizenship. Secondly, preparation for active citizenship in democratic societies also includes the development of political literacy, increasing the interest and motivation for political participation (voting, involvement in political parties or activism in non-governmental organisations) and providing opportunities for volunteering and service learning.

The distinction between personal development, sustainable employment and active citizenship serves to organise the analysis, including explorations of the linkages between the different dimensions (e.g. promoting personal development may also positively affect the employability and active citizenship of graduates). Moreover, a number of aspects that are rather prominent in policy discourse concerning higher education – knowledge society, regional development, innovation or entrepreneurship – cut across these three dimensions. For example, a knowledge society implies a knowledge economy which is closely related to sustainable employment. But knowledge and education also contribute to personal development and to inclusive and stable democratic societies (i.e. active citizenship). It should be stressed that in this report, **a higher education system is considered relevant if it is organised in such a way that it contributes to all three dimensions of relevance**.

The three dimensions can be linked to three higher education stakeholder groups. First, the direct users of higher education: students and graduates. Second, by using their skills and knowledge, graduates make higher education relevant to employers of highly educated labour. Third, graduates also contribute to society at large which benefits from highly educated citizens in a variety of ways.

Thus, the concept of relevance comprises (1) three distinct dimensions – personal development, sustainable employment and active citizenship and (2) three distinct stakeholder groups identified for the purpose of this study – students/graduates, employers and society. As such, the concept of relevance is related to the concept of quality of higher education, but for the purposes of this study it is considered as distinct. While relevance concerns the identification and focus on the purposes of higher education, quality concerns the extent to which a higher education system, institution or programme addresses such purposes.

Through the literature review (see Annex 2) we identified aspects connected to the three dimensions of the teaching and learning function of higher education and in relation to the three groups of stakeholders.

The outputs/outcomes of higher education provide insight into the performance and relevance of the higher education system for those involved (including policy makers). Table 1.1 shows the aspects of these outcomes and outputs that are related to the relevance of higher education.

Table 1.1: The grid with aspects of outcomes and outputs of higher education relevance

Stakeholders Dimensions of HE	Students/Graduates	Employers	Society
Personal development	▪ Attitudes towards self and perception of self (sense of identity, self-respect, self-worth, self-efficacy) ▪ Trust in others, cooperative spirit ▪ Values (ethical standards) ▪ Motivation ▪ Health/well-being ▪ Happiness ▪ Student/graduate satisfaction with personal development & related HE aspects	▪ Responsible employees ▪ Cooperative spirit in company, good teamwork ▪ Motivated employees ▪ Healthy employees	▪ Level of trust in society ▪ Level of happiness ▪ Level of health
Sustainable employment	▪ Qualifications ▪ Knowledge ▪ Basic skills ▪ Transferable skills (communication skills, creativity, critical thinking etc.) ▪ Technical & professional skills ▪ Competencies ▪ Cultural capital (cultural literacy, aesthetic appreciation, etc.) ▪ Social capital ▪ Social prestige (associated with degree, knowledge, etc.) ▪ Successful transition to labour market ▪ Adequacy of employment ▪ Earnings ▪ Career opportunities ▪ Long-term job security ▪ Job satisfaction ▪ Social prestige (associated with job) ▪ Student/graduate satisfaction with sustainable employment & related HE aspects	▪ Employees able to flexibly adapt to changing tasks and challenges ▪ Creative employees ▪ Low staff turnover ▪ Sufficient supply of highly educated employees ▪ Diversity and good mix of qualifications, skills and competencies ▪ Employers' satisfaction with skills & competences ▪ Employees' productivity	▪ Economic productivity ▪ Extent of employment/ unemployment ▪ Impact of HE on public revenues ▪ Impact of HE on social security system ▪ Impact of sustainable employment on families, friends, associations, neighbourhoods ▪ Highly educated workforce ▪ Innovation capacity of economy ▪ Knowledge-based economy ▪ Impact of HE on growth ▪ External effects of skills and competencies on families, friends, associations, neighbourhoods
Active citizenship	▪ Democratic values ▪ Tolerance, intercultural skills & values ▪ Political literacy, civic skills and (sense of) ability to have influence ▪ Social participation & inclusion (e.g. participation in associations, unions, or social & community project volunteering) ▪ Political participation (e.g. campaigning, protesting, voting, running for political functions) ▪ Lower risk of becoming a criminal and/or becoming a victim of crime, ▪ Student/graduate satisfaction with active citizenship & related HE aspects ▪ Social dimension of HE	▪ Employee participation ▪ Corporate Social Responsibility	▪ Strong civil societies, lively communities ▪ Strong & lively democracies ▪ External effects of democratic values, civic skills etc. on families, friends, associations, neighbourhoods ▪ Less crime ▪ Social dimension of HE

1.2.2 Categorising policy levers

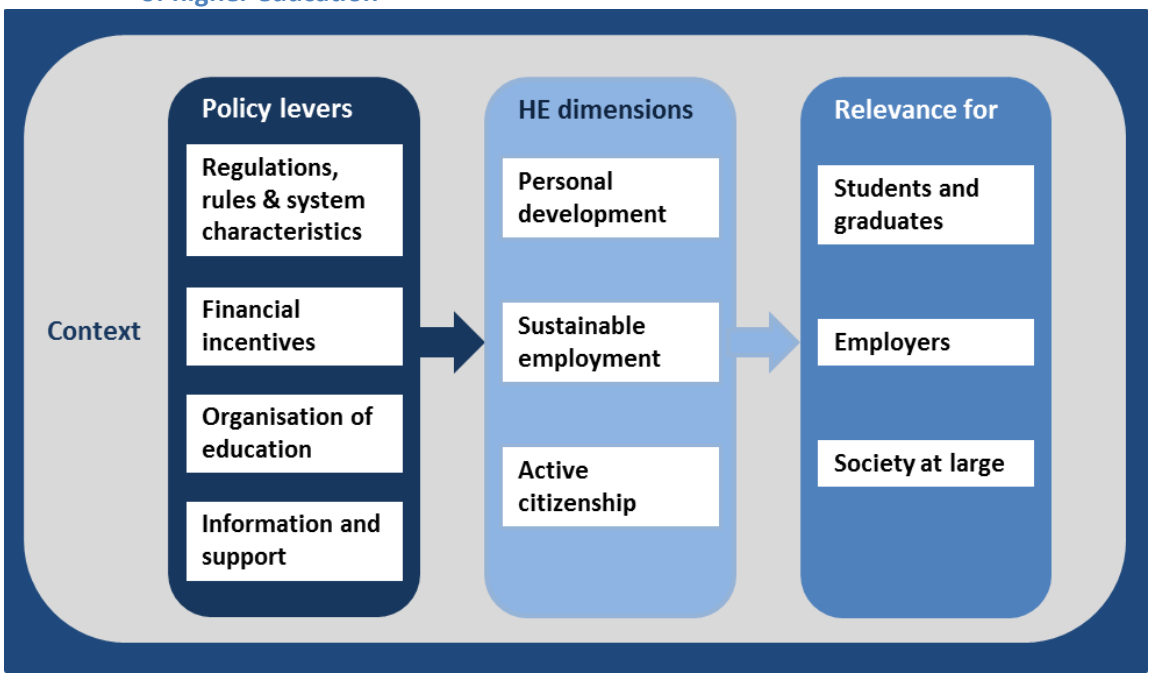
To organise and structure the analysis of the variety of policy levers impacting on the three dimensions of higher education relevance – personal development, sustainable employment, and active citizenship – in relation to the three stakeholder groups – students/graduates, employers and society, we distinguish between different types of policy instruments. Based on the typologies of Hood and Margetts (2007) and Van Vught and De Boer (2015), four categories of instruments are distinguished: regulation, funding, organisation and information. These instruments differ in their capacity to affect behaviour. Regulation and funding are generally understood as "hard" or "strong" tools and organisation and information as "weak(er)" tools.

- **Regulation:** The first category of policy instruments is regulations. These are intended to command and to forbid, to commend and to permit. Regulations vary by the degree of restriction they seek to place on the behaviour of higher education institutions or students. For example, authorities regulate admission to higher education, set entry requirements and allow and forbid certain higher education institutions to offer particular types of programmes. Regulations may also impact on the procedures or the substance regarding the contents of curricula in higher education (see Berdahl [1983], for a distinction between substantive and procedural autonomy). In unitary states, regulations are developed at the national level, while in federal states they may be at either federal or state level.
- **Funding:** The second category of policy instruments concerns funding. Funding enables governments to use financial sticks and carrots to influence behaviour. Authorities may, for instance, provide a bonus for every student higher education institutions are able to attract in a field with severe labour market shortages or to exempt students in these fields from paying fees or to offer students a grant. Also, governments may charge higher tuition fees to students with high employability prospects and lower tuition fees to students in 'national priority' fields such as nursing and teacher training. Other uses of funding include additional budgets for innovative teaching programmes or for excellence trajectories and performance-based funding linked to employability indicators.
- **Organisation:** The third category is organisation. Within this category fall all kinds of operational activities directly influencing higher education structures. An example would be setting up an agency to improve the match between student qualifications and the demands of the labour market (at the national level) or the establishment of student career centres in universities (organisational level). Also national or local public agencies that guide pupils in making a choice for a particular study area would fit here. Organisational aspects also have to do with the structures and procedures regarding teaching and learning. One can think of pathways to and within higher education (e.g. rules for transition between institutions and programmes), and structural characteristics such as the types of (sub-)degrees being offered, the duration of studies, the opportunities for part-time provision, and the integration of online education provision (e.g. MOOCs).
- **Information:** The fourth category of instruments concerns the provision of information. From its specific position in society, government often is 'a store of information'. Compared with other institutions, governmental agencies are often better positioned to collect data and to develop rather broad, panoramic overviews of societal conditions. Examples would be to make employability data broadly available, or to publish skills forecasts and information on the supply and quality of education. Through information and marketing campaigns, government may attract students to enrol in a discipline or field that is characterised by a significant shortage of graduates on the labour market.

1.2.3 Overall analytical framework

Using the conceptual distinction between three dimensions of relevance and the three (most important) stakeholder groups as well as the policy lever typology developed above, Figure 1.1 presents the basic model that guides the analysis: policy levers are used by governments – in their specific national contexts – to reach (a combination of) dimensions of relevance that address (a combination of) stakeholder groups.

Figure 1.1: Relationships between policy levers, dimensions and relevance for stakeholder groups of higher education



1.3 Research design

To answer the research questions of this project, different research methods have been used. These are described below.

1.3.1 Literature and indicator review

An extensive review of the higher education literature was carried out to better understand and explore the notion of the relevance of higher education. First of all, the literature review resulted in the conceptualisation and operationalisation of the "relevance" of higher education. Based on this, the analytical framework for this study was designed (see Section 1.1). Second, a review of the literature was carried out to explore the policy levers that are applied to promote the relevance of higher education in various higher education systems. Finally, a review of several, mostly international, databases was undertaken to critically assess the availability of indicators on the relevance of higher education and to select indicators that can be used to measure the three relevance dimensions of higher education (see Chapter 3). The indicators that are readily available (and sufficiently robust) were used to develop an analytic and diagnostic tool for policy makers, researchers and practitioners.

1.3.2 Selection of case studies

To study in-depth how policy levers are used and to explore their potential impact, we carried out eight country case studies in Canada (Ontario), the Czech Republic, Denmark, France, Germany, Ireland, the Netherlands and Spain. To select the eight case study

countries envisaged for this study, a two-stage approach was taken. In a first step, 17 potential case study countries were selected that appeared to be interesting on the basis of the following criteria:

- Countries with a well-documented record of past and present higher education policies;
- Countries with a relatively high number of country-specific policies related to the relevance of higher education based on our international policy literature review;
- A balance in the size and regional distribution of the European countries selected, thus representing different higher education traditions and a variety of geographic locations;
- Two non-European countries that are relatively active regarding issues relating to the relevance of higher education as demonstrated in the international policy literature.

Using these criteria, the following countries were selected: Australia, Belgium (Flanders), Canada (Ontario), the Czech Republic, Croatia, Denmark, England, Finland, France, Germany, Ireland, Italy, Latvia, the Netherlands, Norway, Slovenia and Spain.

For these 17 countries, a more systematic analysis of the respective national regulations, strategies, policies and monitoring instruments was made to provide a more targeted and transparent overview of the countries' approaches towards the relevance of higher education (see short country fiches in Annex 3). To put these analyses into context, the country fiches also provide a brief introduction to the main characteristics of the higher education systems. These country fiches were developed in close consultation with national higher education experts and researchers.

In a second step, based on the analysis of the country fiches for the 17 pre-selected countries, we developed a more specific list of criteria to select eight case study countries for a more in-depth analysis of their national policy approaches towards the relevance of higher education and their effectiveness:

- To include countries that were mentioned several times in the international policy literature review as having a relatively high number of country-specific policies connected to the relevance of higher education;
- To select countries which have already applied relevance policies for a number of years. This enables monitoring the impact and effectiveness of such policies;
- To select countries that have a well-documented record of past and present higher education policies. This allows a more thorough analysis and comprehensive insight into country-specific policies, contexts and the potential relationships between policy levers and relevance outcomes;
- To select a mix of countries in terms of their addressing all three dimensions of relevance (personal development, sustainable employment and active citizenship), but also countries that strongly address one, or two of the three dimensions.
- To seek a balance in the size and regional distribution of European countries, thus including countries with different higher education traditions and representing a variety of geographic locations.
- To include one non-European country that is active and – at first sight – successful in promoting the relevance of higher education (this was a requirement in the Tender Specifications).

Applying these criteria to the countries mentioned previously and after consulting representatives from DG-EAC, the following eight countries were selected as case studies: Canada (Ontario), the Czech Republic, Denmark, France, Germany, Ireland, the Netherlands and Spain (see Annex 1). The conclusions and recommendations presented in this report are primarily based on these eight case studies and comparisons across them.

1.3.3 Case study protocol

A case study protocol was developed to guide the case study researchers. Most cases were conducted by core-research team members. The DZHW team conducted the German case study, the CHEGG team conducted the Danish and Spanish case studies, and the CHEPS team carried out the studies on the Netherlands and Ireland. Three case studies were undertaken by external national experts: Canada (Ontario), the Czech Republic and France. The national experts drafting these case studies worked under the supervision of core-research team members.

The most important part of the case study protocol were the guidelines for conducting the case studies. The case studies were based on the following principles:

1. Secondary analysis of national policy documents (white papers, evaluation reports, strategic documents, HEI documents, research articles, etc.);
2. At least ten expert interviews;
3. Analysis of the (national) statistical indicators that are regarded as most important for the relevance of higher education.

1.3.4 Interview protocol

The method of interviews with experts is often termed 'elite interviewing' and is used especially to corroborate other (written or interviewed) sources, establish the viewpoints and opinions of stakeholders involved in a process, and to reconstruct an event or process. Such interviews are normally semi-structured, with a predetermined set of basic questions formulated in a protocol. Interview questions focused on the following major issues:

- Perceptions of what the relevance of higher education is (dimensions) and on how important it is in the system.
- Which policies explicitly addressing higher education relevance have been implemented in the areas of regulation, funding, organisation and information? Are these well designed and do they address the appropriate target audience?
- Which data and information is available and used to assess the relevance of higher education? Which data is lacking or is not of sufficient quality?
- What seem to be the effects of these policies? What policies appear to work and which ones not?
- Various stakeholders were requested to reflect on national policy levers, measurements and potential effectiveness from their organisational perspective. The main stakeholders included representatives from ministries, higher education institutions, rectors' conferences, employer organisations, student organisations, accreditation agencies and educational advisory bodies. These stakeholders were also asked to reflect on how national policies relate to their interests and whether and how national policies are translated into their own policy instruments.

1.3.5 Analytic and diagnostic tool

The diagnostic tool aims at giving a snapshot impression of a country's profile and performance regarding the main dimensions and indicators of higher education relevance, as well as an overview of a country's policies used to promote higher education relevance. For relevance policies, the diagnostic tool offers information about the scope, focus and instruments of the relevance policies applied in a country. The indicator profiles provide an impression of the country's performance with regard to the three higher education relevance dimensions: (1) personal development, (2) sustainable employment, and (3) active citizenship. Indicators have been selected that are crucial to these three dimensions and that provide comparable data across the case study countries. To select such indicators, the long list of indicators found in the literature (see Chapter 3 and Annex 2) was used as the point of departure. To develop an impression of the "contribution" of higher

education to achieving relevance in the three dimensions, the scores on the indicators for persons with higher education attainment are compared to persons with medium education. This approach offers insights into the "value added" of higher education for relevance. We acknowledge that factors other than education levels affect personal development, active citizenship, and sustainable employment. These include social background, primary and secondary education, or context conditions such as the impact of the European economic crisis on graduate employment. In this sense, (relative) scores cannot be fully attributed to higher education experience.

1.3.6 Generating conclusions and recommendations

The conclusions and recommendations of this study were derived in an iterative process from the data and information collected in this study. Within the project meetings of the core research team the main findings from the different parts of the study were discussed, such as the literature review, the database review, the consultation of national experts and the case studies. In these meetings the information was structured along the three relevance dimensions, the four types of policies as well as by country. The information was summarised in tables comparing countries, relevance dimensions and types of policy levers. This allowed the team to recognise patterns and striking examples and to identify issues to explore further. The eight in-depth case studies also explicitly explored stakeholders' perceptions of relevant policies, evidence on their effectiveness and impact as well as stakeholder reflections on "what works". By reading each other's reports, team members were better able to understand the wealth of information and to select the most prominent findings and lessons from this study. Two interim reports were used to gather feedback from DG-EAC and the Senior Advisors of this study on the quality and main outcomes of the study, on how to present these and how to translate the outcomes into conclusions and policy-relevant recommendations.

2 Policy levers for higher education relevance

2.1 Introduction

In this chapter we analyse and compare the information from the eight case studies in a search for common patterns, good practice examples and overarching conclusions. The main issues and questions addressed are:

1. What importance is given to the different relevance dimensions of higher education in the eight case study countries? (Section 2.2)
2. Which policy levers are used to stimulate the three relevance dimensions of higher education in the case study countries and what types of policy levers – regulation, funding, organisation or information – are most frequently applied? (Sections 2.3 - personal development, 2.4 - sustainable employment and 2.5 - active citizenship)
3. Are the relevance policies effective based on evidence, evaluations or stakeholder perspectives? (Section 2.6)
4. Can we discern any good practice examples in terms of types of policy levers used, successful policy implementation and monitoring practices? What overall conclusions can be drawn in terms of how national practices relate to the conceptual framework used for this study and to specific national contexts?

2.2 Importance of the relevance of higher education

Following the conceptual framework of the project, the relevance of higher education is described along two lines: (1) *which* dimensions of higher education relevance are addressed, and (2) *who* is being addressed (or benefits)?

Higher education policies in the eight higher education systems tend to cover all three relevance dimensions – although the term "relevance" is not always used within the national context (e.g. the term "relevance" does not always have a national equivalent).

Table 2.1 presents the dimensions of relevance and the beneficiaries that are particularly significant in the eight systems considered. Sustainable employment is important in all eight cases. Personal development and active citizenship are less frequently indicated as a high priority, and in some cases they are framed by interviewees and policy papers as ultimately enhancing the chances of employability. With regard to beneficiaries, students/graduates and society at large are more frequently addressed than employers. Not surprisingly, employers are regarded as a target group only on issues regarding sustainable employment.

Table 2.1: The priorities given by countries to relevance dimensions and beneficiaries

Stakeholders / Dimensions of HE	Students/Graduates	Employers	Society
Personal development	Germany, Ireland, Netherlands		Czech Republic, Ireland, Netherlands
Sustainable employment	Czech Republic, Denmark, France, Germany, Ireland, Netherlands, Spain	Czech Republic, Germany, Ireland, Netherlands, Ontario, Spain	Czech Republic, Denmark, Germany
Active citizenship	France, Germany, Netherlands		Czech Republic, France, Germany, Spain

Employability-related aspects of higher education clearly dominate policy documents and monitoring systems in the Czech Republic, Denmark, France and Ontario. Yet the understanding of employability-related aspects is not fully aligned with the concept of "sustainable employment". In these countries there is a discussion about whether the focus

should be on general transferable competences and soft skills or on directly applicable professional skills and field-specific knowledge. Danish policies focus on avoiding high unemployment as this is regarded as a major societal risk.

In most countries, the dimension of personal development appears to be important for most stakeholders. Nevertheless, it is seldom regarded as an explicit policy objective but rather a key characteristic that is implicitly addressed in higher education. In France, this implicit treatment of personal development was stressed. In the Netherlands the impact of higher education on economic development is a priority, but stakeholders also stress the benefits of personal development for sustainable employment. In Germany, federal and state level policy makers regard personal development as a crucial task of higher education. Some policy levers are directed at personal development (see below). Moreover, the role of higher education in promoting active citizenship as well as its long-term benefits for economic and regional development is emphasised by German policy makers at both the federal and state levels.

Expansion of student participation in Germany	In the German state of Lower Saxony, the government has strengthened the participatory culture within higher education institutions in the new Higher Education Act issued in 2015. The rights of students and student organisations to participate in the governance of higher education institutions have been extended in various ways: students now can submit topics to be discussed in the governing bodies of higher education institutions; they have to agree to the appointment of the Vice-President of the Department for Study, Teaching and Student Affairs; students can also be appointed as avocational Vice-Presidents, and student representatives can attend and vote (advisory) in meetings of institutional advisory bodies such as the *Hochschulrat* and *Stiftungsrat*. These changes also encourage the social commitment of students and institutions.

Compared to other countries, Ireland has rather detailed regulations concerning the functions of the different types of higher education institutions. Particularly noteworthy with respect to relevance is the required vocational/professional orientation of Institutes of Technology, though their role may change substantially with their intended “upgrading” to Universities of Technology. The focus on sustainable employment appears to have a rather short-term focus, thus risking losing sight of broader societal impact and perhaps also personal development and active citizenship.

Professional orientation of IoT in Ireland	In Ireland, the Institutes of Technology offer higher education and training programmes with a vocational orientation. The institutes have a high degree of autonomy in deciding how they link study programmes to the professional field. Yet, all institutes have developed links with employer bodies in their regions and offer career guidance to their students (Kolster & Westerheijden, 2014).

In Spain, employability is pursued particularly through the accreditation procedures and in some regions also by providing career information to prospective students.

In countries with binary higher education systems, such as Denmark, Germany and the Netherlands, the Universities of Applied Sciences have a stronger focus towards professional employability than the universities have. In France this is also very explicit with the *Grandes Écoles* and the two-year professional diploma institutions offering curricula for well-defined jobs while universities have a broader labour market preparation approach that revolves around generic transversal skills.

Many governments have issued strategic documents setting the framework for policy instruments. Table 2.2 shows in which countries national higher education policy strategies give attention to particular dimensions of relevance.

Table 2.2: Strategies related to higher education relevance dimensions

Dimensions of HE / Countries	Personal development	Sustainable employment	Active citizenship
Canada (Ontario)			
Czech Republic		X	
Denmark		X	
France		X	
Germany		X	
Ireland		X	X
Netherlands	X	X	X
Spain	X	X	X

From Table 2.2 it can be seen that – except for Ontario – all case study countries have higher education strategies that address the relevance of higher education. As indicated before, most priority is given to the sustainable development dimension. Only in Spain and the Netherlands are the personal development and active citizenship dimensions explicitly targeted in their national higher education strategies.

In France, the main aim of the national higher education strategy (StraNES) is that 50% of the relevant age group obtains a higher education qualification. Professional insertion (e.g. internships) is the second priority. This ambition builds on the 2007 "Plan Campus" and "Future Investment Plan" to modernise universities and their infrastructures and to boost the quality of teaching and research. Bachelor graduates were to become more professionally oriented to enhance employability.

The 2011 Dutch strategy for higher education highlighted the sustainable employment dimension. The subsequent 2015 Dutch strategy for higher education stresses the importance of quality in higher education, and - although the term 'relevance' is not explicitly used - the strategy is strongly linked to enhancing all three relevance dimensions, with particular attention given to personal development (*Bildung*).

In Germany there is no overarching national strategy for higher education. Arguably, this is due to the division of competences between the federal level and the level of the states, the latter being primarily responsible for (higher) education. Some of the federal strategies pay attention to sustainable employment.

Over the past decade, the Irish government has promoted the sustainable employment dimension of the relevance of higher education, both through strategies and connected policies. The economic downturn after 2007 has been mentioned as a key event triggering the focus on sustainable employment.

In Spain, the national strategic document for higher education (*Estrategia Universidad* 2015) stresses the concept of higher education as a public service. As such, the Spanish strategy appears to integrate the personal development, sustainable employment and active citizenship dimensions in the development of society.

An integrated strategic conception of the relevance of higher education in Spain	In Spain, the *Estrategia Universidad* emphasises the social dimension of the universities, which is expected to contribute to the modernisation of the society by introducing new ideas, fostering a knowledge-based critical spirit, to contribute to social cohesion, cultural and civic values, and to being an agent for economic and technological development.

2.3 Policy levers for personal development

Higher education has the potential to strongly contribute to personal development, particularly as the majority of students attend higher education at an age when they develop into independent adults and responsible actors in society. This dimension of higher education relevance can, *inter alia*, be connected to attitudes towards self and perception of self, cooperative attitudes, trust in others, motivation, happiness and health. Table 2.3 illustrates the policy levers employed to promote this dimension of relevance in the eight higher education systems.

Table 2.3: Personal development policy levers by type of policy instrument

Policy instrument type / Countries	Regulation	Funding	Organisation	Information
Canada (Ontario)	Obligatory degree level expectations and learning outcomes in terms of personal development	Special funding for (underrepresented) target populations (since 2014) to "create a space to learn for every eligible student" and "realising academic potential"	Centre for Innovation on Campus Mental Health established to share best practices for combatting mental health problems of students	HEIs participate in National Survey of Student Engagement (with some measures of students' developmental trajectories)
Czech Republic				
Denmark		Specific student loans for vulnerable groups (at the same time student support to be reformed: decrease grants, increase loans)		
France				
Germany		Quality Pact for Teaching in Higher Education Support of student mobility e.g. by the German Academic Exchange Service		Student Survey of *AG Hochschulforschung* (federal law)
Ireland	Law dictated functions of higher education institutions	Student Support		
Netherlands	Law dictated functions of higher education institutions	Performance agreements Funds available for quality initiatives through adjustments in study finance system Demand-based funding	Organisation of excellence education Associate degree	Study choice 123
Spain				

Table 2.3 shows that the Czech Republic, France and Spain do not have explicit policies that address the personal development dimension. However, this absence does not mean that the personal development dimension is not given any consideration. In fact, in France – as stated in Section 2.2 – personal development is a function inherently expected from higher education. Likewise, in Spain (and in Ireland), the conception that higher education is very important for personal development is strong among students and their families. This seems to be at odds with the official policy conception that higher education has foremost to provide economic returns.

Higher education systems that do explicitly address the personal development dimension of relevance do so using a variety of policy instruments. Three systems use **regulations** to connect higher education to personal development outcomes (Ontario, Ireland and the Netherlands). In Ontario regulations are the strongest and require universities to prescribe "degree level expectations" and "learning outcomes" for all undergraduate and graduate programmes on criteria related to aspects of personal development (e.g. autonomy and professional capacity).

Funding policies are most often used to address aspects of personal development. These include student financial support schemes, special funds for specific target groups and funds for specific initiatives. Student financial support is connected to personal development in Denmark, Germany and Ireland because it enables students to attain higher education to increase their personal development. It should be noted that this is not the only reason. In Denmark student financial support is also connected to active citizenship and in Ireland also to sustainable employment.

Ontario, Denmark, and Germany provide special funds for specific target groups. These funds are particularly aimed at enhancing access to higher education for underrepresented (Ontario) or vulnerable (Denmark) groups.

Both Germany and the Netherlands have made funds available for initiatives related to personal development. Germany established a large strategic fund to enhance institutional advice and service capacities, study conditions, the quality of teaching and retention outcomes. In the Netherlands a short/medium term fund – available through adjustments in the study finance system – is to be, *inter alia*, used to appoint 4,000 extra teachers to promote more personal and innovative education. This fund is also related to the higher education strategy debate in the Netherlands around the concept of "*Bildung*" (see example below).

Personal development in terms of "Bildung" in the Netherlands	In the Netherlands, a renewed emphasis on personal development has emerged in the policy discourse. Various stakeholders as well as the national strategic plan for higher education (MinOCW, 2015) indicate that the strong focus on employability and skills for the future labour market – 21st century skills – should be balanced with attention for academic development and the critical thinking skills of students. As such the term "Bildung" has been reintroduced into the policy debate. Various stakeholders are trying to move public policy away from neoliberal thinking in terms of efficiency, outputs and performance and revert to traditional values of educating critical, analytical and self-conscious individuals who can act as responsible citizens in a sustainable society.

Organisational policy levers used to promote personal development are observed in Ontario and in the Netherlands. In Ontario, personal development is connected to students' mental health. More specifically, the Ministry-funded Centre for Innovation on Campus Mental Health is expected to promote and share best practices in this field among stakeholders. In the Netherlands two recently introduced new types of higher education contribute to personal development. Excellence education is to challenge talented students beyond the standard curriculum. Short and professional Associate Degrees widen access to higher education and provide personal development opportunities for students that might not otherwise have attended higher education.

Personal development is stimulated by **information** provision in Ontario, the Netherlands and Germany. In Ontario, the engagement survey shows how students are integrated into their study programmes, while the Dutch National Student Survey as well as the German Student Survey of *AG Hochschulforschung* explore how satisfied students are about personal development opportunities.

This discussion on policy levers that promote personal development illustrates that there are relatively few policy levers explicitly used towards this end. However, as observed by interviewed stakeholders, the personal development dimension is often addressed implicitly, e.g. in France and Spain. An interpretation could be that governments leave the promotion of personal development for a large part to the higher education institutions and students themselves. However, when policies to address personal development are developed, they tend to be connected to a broad range of issues, such as widening participation, financial support to underrepresented student groups, (mental) health, and the types of education programmes available.

2.4 Policy levers for sustainable employment

Higher education has an important role in providing students with the appropriate skills to find and remain in employment. Sustainable employment in the literature is related to basic skills, foundation skills, transferable skills, technical and vocational skills, 21st century skills and lifelong learning. Table 2.4 shows the different policy levers the reviewed countries use to support sustainable employment.

Table 2.4: Sustainable employment policy levers by type of policy instrument

Policy instrument type / Countries	Regulation	Funding	Organisation	Information
Canada (Ontario)	Strategic mandates to address "jobs, economic development and innovation". Control on enrolments for licensed professions Obligatory degree level expectations and learning outcomes in terms of employment Strict regulation of apprenticeship training at colleges	KPIs (e.g. graduation rates, employer satisfaction) determine a very small percentage of institutional budgets	Ontario Higher Educ. Quality Council: "light touch" monitoring performances and outcomes New university founded in 2003: "employment sensitive" University of the Ontario Institute of Technology Advisory bodies at curriculum level (with members from world of work) in college sector	Umbrella organisations of colleges and universities publish annual employment surveys of graduates HEQCO national study of performance regarding access, value to students and value to society
Czech Republic	Quality assurance overall, and inclusion of external stakeholders Accreditation standards / accreditation profile Curriculum content for licenced professions	Performance-based funding formula Funding to promote specific fields of study Operational programme OP VK (EU Social Fund) Funding connected to institutional plans	Introduction of two institutional profiles (academic and professional)	Promotion of particular fields of study
Denmark	Curricula to develop in close interaction with the labour market. Employability an important criterion for new programs Institutional accreditation (since 2013) includes attention to (quality &) relevance for the labour market Cap on enrolment based on labour market statistics since 2014 Development contracts (can) include labour market indicators.	Taximeter has for a few years included a completion bonus, stimulating HEIs to deliver their graduates "on time" to the labour market	Regional guidance centres: info on labour market situation	Student choice portal: employment rates, earnings, graduate satisfaction

Policy instrument type / Countries	Regulation	Funding	Organisation	Information
France	The HE laws (2007 & 2013) regulate: • universities to have clear missions • reduce number of bachelor & master titles/programmes • to monitor students & graduate careers • quotas professional & technical students • focus on internships • accreditation to include employability	Plan campus: excellence also w.r.t. employability PIA funds: develop skills Funding formula includes employment rate Five-years contracts (COMUE) aimed to include employability	Reduction in number of ba/ma titles Student entrepreneurs supported by Centres for Innovation, Transfer and Entrepreneurship (PEPITE) Universities to have career orientation office (Plan for Success) Recognition of other skills to stimulate flexibility and study success	Information system with APB (admission post bac) Plan for Success: career orientation info for (prospective) students & graduates Universities to present indicator data on study success and employment
Germany	Preparing students for prof. careers/self-employment (German Framework Act for HE, HE Acts of Berlin and Lower Saxony) Open access for persons with vocational HE qualifications Eased access to HE for refugees	Higher Education Pact 2020 Student support system BAföG Programme "Advancement by education: Open University" National Pact for Women in STEM professions Programme for the development of universities of applied sciences (Lower Saxony)	National Pact for Women in STEM professions Eased access for persons with vocational HE qualifications Career centres Dual study programmes (Berlin)	National Pact for Women in STEM professions Graduate Panel Study of DZHW KOAB Graduate Study Consultancy and information for holders of higher education entrance qualifications (Berlin)
Ireland	Law dictates functions of higher education institutions Quality assurance: institutions to seek regular feedback from employers, graduates, labour market representatives Course redundancy regulations (macro efficiency)	Student Support Compact Framework	Springboard initiative	Graduate destination survey (first destination) Employers' insight survey
Netherlands	Law dictates functions of higher education institutions Quality assurance overall Macro-efficiency check Recognition exceptional achievement	Performance funding and performance agreements Funds available through adjustments in study finance system	Top sector policy Organisation of excellence education Associate degree Centres of Expertise / Entrepreneurship	Study choice 123 National student satisfaction survey HBO and University Monitor National campaigns for attractiveness study fields
Spain	Quality Assurance procedure foresees that degree programmes add value in terms of professional outcomes and skills acquired. Acredita offers an accreditation label for good/exceptional performance (e.g. for employability).	Employability indicators have been used only in Catalonia.	Some regional authorities try to coordinate the supply of programmes (partly as an efficiency measure: reduce overlap, small programmes, etc.; partly in light of labour market relevance).	In some regions (e.g. Catalonia) surveys among graduates are used to inform policy decision on education provision and students' choice.

Table 2.4 clearly indicates that sustainable employment has a high priority in the eight case study countries. All countries promote sustainable employment by means of various policy levers in the domains of regulation, funding, organisation and information policies.

The **regulations** regarding sustainable employment are specifically related to:

- Enrolment to study places and quotas (Canada, Czech Republic, Denmark, France, Germany)
- Functions of sectors or higher education institutions; learning outcomes relating to sustainable employment (Canada, France, Germany, Ireland, Netherlands)
- Quality assurance and accreditation (Czech Republic, Denmark, France, Ireland, Netherlands, Spain).

Ontario aims to influence sustainable employment by a rather strict regulation of apprenticeship training at colleges. All higher education institutions are required to formulate degree level expectations and learning outcomes related to personal development and employability. Their strategic mandates have to address criteria, including jobs, innovation and economic development. There is some control on enrolments for specific programmes, which is partially related to labour market needs.

Cap on enrolment (*dimensionering*) in Denmark	In 2014 Denmark introduced a cap on enrolment (*dimensionering*) for some study programmes. The enrolment quotas in general are defined in accreditation decisions for each study programme, but based on graduate unemployment statistics, the ministry can decide to reduce the intake over three years in specific programmes which are characterized by higher than average unemployment in the past (seven years out of ten).

In binary higher education systems the UAS sector generally provides professional training while research universities offer general academic programmes. In addition, institutions in France, Ireland and the Netherlands are expected to develop more explicit strategic profiles targeting specific niches, competences or educational approaches.

Quality assurance is another type of regulation to influence sustainable employment. Often quality evaluations require study programmes or institutions to prove or check the labour market relevance of their education. In Spain and the Netherlands, the national accreditation agencies award a special accreditation label for good/exceptional performance in specific areas, in Spain amongst others for employability.

Accreditation label for exceptional performance in employability in Spain	Recently, upon the request of the Catalan government, the regional accreditation agency has launched a new *Acredita* procedure assessing programmes in terms of their efforts and results regarding employability and internationalisation. If both efforts ("enablers") and results are outstanding, the programmes receives a special label (around 10% of the programmes).

Funding policies are used in all case study countries to promote sustainable employment. Common are funding arrangements that address:

- Employment outcomes (Canada, Czech Republic, Denmark, France, Ireland, Netherlands, Spain)
- Student financial support (Germany, Ireland)
- Specific initiatives (France, Netherlands)

Graduation rates in various countries constitute part of regular performance-based funding formula, such as in Ontario, Denmark, France and the Netherlands. The French regular funding formula for universities includes indicators on retention and graduates to enhance study success and future employment. The Danish Taximeter funding system has since

2009 included a completion bonus to stimulate higher education institutions to deliver their graduates “on time” to the labour market.

More specific indicators on employment outcomes are also featured in some countries, such as the Czech Republic, France and Ontario. The Czech funding formula includes the number of employed graduates. However, because the unemployment rate of graduates is relatively low and is rather similar across universities and disciplines in the Czech Republic, this policy lever does not generate a strong incentive. In France, the large investment schemes not only aim to increase the quality of teaching but also the employability of graduates. Currently, the inclusion of employability statistics in the five-year contracts between the ministry and individual universities is being discussed. Likewise, the German Higher Education Pact 2020 – the largest joint funding programme of the federal government and states – primarily aims to secure a sufficient supply of highly educated personnel. At the same time, it supports open access to higher education, which serves the social dimension.

Large scale programmes (Pacts) to boost quality and employability in Germany	In Germany, the Higher Education Pact 2020 is a joint initiative of the federal government and the Länder governments. The programme aims to create 1.5 million additional study places in the period 2007-2023. Jointly the authorities provide 38.5 billion Euros (about 52% comes from the federal budget). The first stage of the Higher Education Pact 2020 focused on opening and expanding higher education to cater for the demand for highly skilled personnel and to stimulate the innovation capacity of Germany (BMBF, 2007). It thus is mainly directed towards sustainable employment. The third stage of the Higher Education Pact focuses on access for persons with a vocational qualification as well as to invest 10% of the budget to reduce drop-outs (BMBF, 2014). In 2008, the federal government issued a memorandum on the National Pact for Women in STEM professions with the aim to reduce the shortage of skilled workers in Germany in the fields of science, technology, engineering and mathematics by better utilising the potential of women. A concrete objective is to increase the proportion of female first-year students in science and technical subjects by 5 percent. Furthermore, the proportion of women among new hires in STEM professions has to increase to a level at least as high as among the graduates in the respective subjects. The Pact provided information, offered internships, and organised “technical boot camps” for women. This initiative can be clearly associated with sustainable employment.

Student support systems are usually connected to the social dimension of higher education but may also be connected to sustainable employment. In Germany the student support system, *inter alia*, explicitly aims to assure a highly skilled workforce. Likewise, although less explicit, stakeholders in Ireland also argue that the student support system may be connected to sustainable employment.

Organisational policy levers show quite a broad spectrum of initiatives to promote sustainable employment. We see the organisation instrument reflected in:

- Establishment of institutions and agencies. For example, the quality assurance organisation in Canada and the centres of expertise in the Netherlands.
- Advisory bodies that connect employers and higher education institutions (Canada and the Netherlands)
- Career guidance centres / advice for students (Denmark, Germany, France)
- Orientation distinctions between higher education institutions (Czech Republic)
- Additional or new types of degrees or programmes (Czech Republic, France, Germany, Netherlands)

- Access to higher education / fields of study / additional programmes for specific target groups (Germany, Ireland, Netherlands)

As the overview shows, several organisational policy levers can be highlighted. In Germany, higher education was opened for persons with vocational qualifications in 2009. A somewhat comparable policy lever is the introduction of the Associate Degree in the Netherlands and the professional bachelor in France. The Dutch associate degree (AD) aims to support persons with a vocational secondary education qualification to enter higher education after some years of professional work (lifelong learning) or who are uncertain about whether they want to take a full 4-year professional bachelor degree. In this respect the AD qualification is related to students' personal development and to sustainable employment.

Renovating degrees and titles in France

In France, the 2013 law decreased the number of titles for both bachelor and master degrees to facilitate student choice and recognition by employers. The previous number of 1400 Bachelors, 2200 professional Bachelors and 1800 Masters with 5900 specialisations have been reduced to only a few discipline-related degrees (arts, humanities, languages, management, economics, law, humanities and social sciences, science, technology and health) with 45 specialisations (previously 322), 173 professional Bachelors and 245 Masters.

Since 2013, professional bachelors are stronger focused on transversal skills such as ICT, oral and writing proficiency, language proficiency, teamwork and working methods to promote sustainable employment.

In parallel, the government has introduced a new student status for entrepreneurs who create start-up companies. They are called student entrepreneurs ("étudiant entrepreneur") and are allowed to develop an entrepreneurial project and are awarded the "student-entrepreneur" degree (D2E).

Denmark, France and Germany have established career guidance centres to support students in their education choices and labour market orientation. In Denmark, such career guidance centres are particularly organised at regional level. This organisational instrument is also used for specific target groups, such as women in STEM programmes in Germany and talented students in the Dutch excellence programmes (honours programmes and University Colleges). In France, student entrepreneurs can benefit from special facilities established by universities, called Student Centres for Innovation, Transfer and Entrepreneurship (PEPITE) of which 29 were established by the government in 2016.

The Springboard initiative in Ireland

As part of the Government's Jobs Initiative and part of the Action Plan for Education 2016-2019, the Springboard initiative was launched in 2011. The Springboard initiative provides part-time places in higher education to unemployed persons who would benefit from re-skilling or up-skilling in areas of identified skills need. The initiative provides access to higher education for specific target groups with a focus on sustainable employment.

Policies addressing **information** provision to prospective students are also widely used. In particular, the connection between funding and employment outcomes makes it necessary to collect information that can also serve other purposes. We observe convergence in the policy levers connected to information, such as:

- Data collected through graduate and employer surveys (Canada, Denmark, Germany, Ireland, Netherlands, and Spain)
- Data collected on the study performance of students (Canada)
- Information to promote certain disciplines (Czech Rep., Germany, Netherlands)

- Information feeding into student choice information (Denmark, France, Germany, Netherlands, Spain).

Data on employment outcomes is not only collected by government. The umbrella organisations of colleges and universities in Canada publishes annual employment surveys of graduates demonstrating how graduates perform on the labour market. Similar surveys are organised in the Czech Republic, Demark, Germany, Ireland, the Netherlands and some regions in Spain (e.g. Catalonia). Each country has its own approach to graduate surveys. The information collected in most cases is for purposes other than funding. For example, in Spain where employment outcomes (e.g. whether graduates found a job appropriate to the programme) are used in the evaluation of newly established study programmes. In the Czech Republic the government actively promotes particular fields of study in case of labour market shortages. The Netherlands has initiated several information campaigns to stimulate student participation in disciplines with a strong labour market demand, such as teacher training and science and engineering. In Germany, as well as several surveys among students and graduates, the National Pact for Women in STEM professions provides information for female students on their future career opportunities.

Employment data may also be used as student choice information. In Denmark, an online student choice portal provides information on graduate employment rates, earnings and graduate satisfaction. Similar information is presented on the Dutch Student Choice 123 website. The French government has set up a special information system “Admissions Post Bac” (ABP) to inform prospective students about their study choices, graduation rates, employment rates and career opportunities. The National Plan for Study Success urges universities to establish career offices while the government has also established 29 Student Centres for Innovation, Transfer and Entrepreneurship (PEPITE) to support entrepreneurial students.

In sum, sustainable employment is not only promoted by various policy levers in all case study countries, but there also appears to be a variety of levers amongst the four policy types. An example of a country utilising a fairly broad range of policy levers for a single dimension is Denmark. In Denmark, study programmes need to be developed in close interaction with the labour market, and labour market relevance is an explicit and important criterion for establishing new programmes. The institutional accreditation processes (since 2013) focus on quality and relevance of programmes for the labour market. In addition, a cap on enrolments that is based on labour market statistics was introduced in 2014. Furthermore, the development contracts with individual higher education institutions may include labour market indicators. Finally, information and indicators help students with study and career choices.

2.5 Policy levers for active citizenship

Active citizenship comprises several aspects – widening access for disadvantaged groups, promoting and stimulating participation of students in the governance of higher education and/or in voluntary work and civic society organisations. Table 2.5 provides an overview of the policy levers developed to promote this dimension.

The Czech Republic and Ontario seem not to have policy levers specifically addressing the active citizenship dimension of relevance. The Czech Republic has however a long tradition of student participation in higher education governance and the most recent higher education strategy highlights that one of the missions of higher education institutions is to *“help […] build a democratic, open, tolerant and cohesive education and cultural society”* (see Czech country report, Annex 1). Ontario allocates specific funding for students from under-represented populations but explicitly links this to their personal development and not to their role as active citizens. This obviously does not imply that higher education in the two systems discussed does not prepare students for an active role in democratic

societies, but rather that in these two systems no policy lever has been developed with an explicit aim to promote active citizenship.

Table 2.5: Active citizenship policy levers by type of policy instrument

Policy lever type / Countries	Regulation	Funding	Organisation	Information
Canada (Ontario)				
Czech Republic				
Denmark		Student loans to vulnerable groups to increase access, hence link to active citizenship		
France	Flexibility in curricula and recognition of civic service activities	Stimulation funds for student involvement in associative life	Recognition of student experience in student associations by awarding credits for it	
Germany	Preparing students for responsible behaviour in free, democratic state (German Framework Act for Higher Education, Higher Education Acts of Berlin and Lower Saxony) Strengthening participation of students in academic self-government (Amendment of Higher Education Act of Lower Saxony, 2015)			Student Survey of *AG Hochschulforschung*
Ireland	Law dictates functions of higher education institutions		Campus Engage initiative	Irish student engagement survey
Netherlands	Law dictated functions of higher education institutions			Study choice 123 Student Monitor
Spain	Students are formally involved in the university, faculty and departmental level decision-making, in the design and accreditation of study programmes			

Five countries have specific **regulations** concerning active citizenship:

- higher education legislation specifically referring to the role of higher education in educating students for active citizenship in Ireland and the Netherlands;
- strengthening participation of students in higher education governance: Germany and Spain;
- allowing flexibility of curricula so that students can also engage in civic service during their studies: France.

Curriculum changes supporting active citizenship in France	In 2015, a national plan for improving student life on campuses was presented (MESR, 2015). Several actions focus specifically on the active citizenship dimension of relevance, including (1) recognition of skills acquired through student associations or elected student governance structures, (2) flexibility when it comes to workload and examination modalities or (3) allowing for a study break for up to one year for personal or professional experiences outside of the university environment.

Funding policy levers used to promote active citizenship include:

- expanding access to higher education to students of poorer socio-economic backgrounds through student loans in Denmark and grants and loans in Germany;
- allocating funding to (all) universities to stimulate student engagement and to recognise student engagement by awarding study credits for it: France.

The only country that has explicit **organisational policy levers** concerning active citizenship is Ireland which, through its "Campus Engage" initiative, promotes engagement of students not only in regionally relevant economic activities but also in societal activities.

Campus Engage initiative in Ireland	The 'Campus Engage' initiative engages students in civic society activities. This project is run by the Irish University Association (IUA) and the Dublin Institute of Technology. Through a website students can volunteer for local organisations on a pro bono and non-curricular basis. https://www.studentvolunteer.ie/

With regards to **information policy levers**, in Germany and the Netherlands various student surveys focus on how students are integrated in student life and engagement and in what ways this benefits them regarding social values.

Overall, the active citizenship dimension of higher education is primarily supported through regulation and funding, while organisation and information policies are rare.

2.6 Policy effectiveness

Although the relevance of higher education appears to be an important topic for policy interventions in all eight case study countries and all countries have developed interesting policy initiatives to address particular relevance dimensions or aspects, there is little evidence on the effectiveness of the policy levers used. First, many policies have been initiated only recently and therefore have not been evaluated (yet). Second, policies are rarely closely monitored or evaluated, with the exceptions of in Germany and the Netherlands. Third, when policies are monitored or evaluated, the relevance dimensions as defined in this study are not the priority. Fourth, monitoring in most countries is mostly focused on sustainable employment indicators rather than indicators connected to personal development and active citizenship. Fifth, overall outcome indicators (e.g. employment five years after graduation) do not necessarily say something about the effectiveness of policy levers connected to sustainable employment, but may be the result of exogenous factors. Lastly, data retrieved through indicators may suffer from time lags (i.e. showing the "performance" of a higher education system of a decade ago) or may not yet show the full (long term) impact of a policy lever (e.g. active citizenship monitored five years after graduation, while it may take ten years to see the full impact).

The limitations described above can be connected to the limited insights into the effectiveness of policy levers in the eight case study countries. However, there are exceptions to this general observation, illustrated by the following examples.

	Good practices of studying policy effectiveness
Robust monitoring of employability (Catalonia, Spain)	Catalonia has a robust monitoring system covering the employability of students and providing information to families to influence their educational choices. Officials say that this instrument has been very effective.
Evaluation of the Springboard Initiative (Ireland)	In Ireland, a 2015 evaluation of the Springboard Initiative, which provides part-time places in higher education to unemployed people, reported that a majority of Springboard graduates do indeed find employment or become self-employed within two years of completing their course (HEA, 2015).
Most policies are evaluated (Germany)	In Germany, the majority of policies are evaluated. Often the evaluations and reports are connected to the relevance of higher education because they often assess effects on aspects of personal development or sustainable employment. A good example is the "National Pact for Women in STEM Professions". Its evaluation shows that the programme has motivated women to start studying and working in a STEM field.
Most policies are evaluated (the Netherlands)	In the Netherlands it is a legal obligation to evaluate policies within five years. As an illustration, two recent policy evaluations demonstrated direct effects in relation to relevance. The evaluation of excellence education has shown that students experience a positive influence on personal development, active citizenship and employability. Associate degrees particularly appear to have an impact on graduate employment. Other policy levers have unintended relevance effects. For example, performance-based funding triggered a debate to reintroduce more attention for personal development (Bildung).

These examples illustrate that different types of policies (can) have visible impact. However, international practice also shows that many policies are not evaluated or monitored so their effects are unknown and policy instruments are not able to be optimised. Moreover, if evaluations are carried out, then relevance dimensions are not always taken into account and often such studies do not clearly show the conditions for success or reasons for failure. However, based on the stakeholder interviews we gained some generic insights on how policy effectiveness studies could be better supported:

- governments need to carefully consider the appropriateness of policy instruments in their specific settings and also to reflect on which instruments fit best with the challenges in their systems;
- governments should consider which instruments would be best organised at the system level and which instruments could be best left to higher education institutions;
- policy effectiveness may be improved by the inclusion of all relevant stakeholders in the design and implementation processes.

2.7 Reflections and conclusions

The eight country case studies on the relevance of higher education have been analysed and compared in this chapter. The full case study reports can be found in Annex 1. The comparative analysis of the eight case studies exemplifies that countries use a variety of policy levers to maintain and improve higher education relevance. This variety confirms that relevance of higher education is a multidimensional concept: it can be stimulated through a large variety of policies.

As expected on the basis of the initial literature review, the analysis of policies in the eight case study countries, enriched by the multiple stakeholder interviews, clearly demonstrate

that countries put the strongest emphasis on sustainable employment. This stems firstly from the sheer number of policy levers explicitly addressing this relevance dimension. Secondly, policy documents and policy-makers as well as other stakeholders often indicate that personal development and active citizenship are somehow implicitly expected from higher education. As such, personal development and active citizenship are less prominently translated into policy levers.

The focus on a particular dimension is however not cast in stone. The priority given to personal development, sustainable employment or active citizenship, may change over time. A country's changing economic and social situation may partly explain the priority given to the relevance dimensions and the policy levers used at a moment in time. As the Irish, Danish and Dutch case studies show, economic challenges can trigger the priority given to sustainable employment, while in more affluent times personal development and active citizenship may receive more attention. The attention may also be dynamic in other ways. Some stakeholders indicated that – next to the three relevance dimensions defined in this study – also other dimensions can be important such as knowledge creation, autonomy, economic and socio-cultural development.

Among the policy levers applied, regulations and funding instruments – the "hard" policy levers – appear to dominate policy initiatives. In most countries, funding arrangements take into account student and/or graduate numbers, basic funds for teaching programmes, and funding of larger strategic plans for the modernisation and quality improvement of the higher education system. If an explicit relationship is made between funding policies and the relevance of higher education, then in most countries the strongest focus is on sustainable employment. Stakeholders identify funding instruments often as most suitable to pursue aspects of relevance dimensions – they support new initiatives – and regard them as more acceptable than regulations which often forbid certain actions. However, funding instruments can be of a more temporary nature. When funding stops, it is often difficult to maintain structures and staff. Policy levers in the domains of organisation and information provision – often called the "soft" policy levers – are used less frequently. Nevertheless, information policy levers are used in all case study countries, again mainly for the sustainable employment dimension.

The classification of levers into relevance dimensions or types of instruments is not always clear cut. For example, policy levers connected to regulations may also include funding elements. The Danish 'development contracts' exemplify this. Moreover, quality assurance systems are often rather specific with respect to requirements related to sustainable employment. Yet, the accreditation may also address personal development and active citizenship through learning outcomes requirements, particularly if these are explicit objectives of the study programmes or institutions. Student financial support can also be mentioned here: in Denmark and Germany this is connect to personal development, while in Ireland it is also connected to sustainable employment.

Though all countries studied apply a large number of policy levers to promote the relevance of higher education, structural monitoring and evaluation of implementation and effectiveness appears to be scarce. Only limited studies and databases are available on the impact on relevance policies and the interviews with various stakeholders in the case study countries demonstrated that the knowledge on policy effectiveness in many cases is rather generic and not founded in solid analysis. This leaves ample room for governmental action to better analyse the implementation and effectiveness of recent and current policy initiatives.

3 Indicators for higher education relevance

3.1 Introduction

This chapter presents the project's findings with respect to used and usable indicators to measure higher education relevance. The insights are based on an in-depth review of existing international indicators and the country case studies. The main issues and questions addressed are:

1. How is the relevance of higher education monitored, and what indicators are used by policy actors to this end? These questions are discussed in Section 3.2.
2. Which indicators can be found in the international literature that can be used to assess the relevance of the teaching and learning activities of higher education systems to societal needs? This question is discussed in Section 3.3.
3. What overall conclusions can be drawn from the used and usable indicators? This question is addressed in Section 3.3.

3.2 Indicators and monitoring of relevance in case study countries

As part of the country case studies we asked the interviewed policy actors to reflect on the used indicators for policy making, monitoring and public debates about higher education relevance. The overview is presented in Table 3.1.

Throughout the different case studies, policy actors stress that quantitative data should always be interpreted carefully, as outcomes very much depend on local contexts and conditions (e.g. regional economic development and the number of employers in the region). In fact, policy actors in the Netherlands suggest that for a better interpretation of outcomes, quantitative data should be supplemented with qualitative insights. This is one of the lessons learned from the Dutch performance funding policy lever.

Table 3.1 highlights the strong focus of indicators on the sustainable employment dimension. Every case study country monitors graduates' transition to the labour market. Yet, some countries do this more extensively than others. For example, Germany monitors the transition, the adequacy of employment, assessment of studies regarding labour market relevance and the professional development of graduates for up to ten years after graduation. In contrast, Ireland has a more narrow focus on the short-term transition of graduates to the labour market.

The focus on sustainable employment indicators comes as no surprise. First, sustainable employment indicators are often associated with funding schemes, thus requiring measurable indicators. Second, institutions may be hesitant to measure aspects related to personal development and active citizenship (or also more in depth aspects of sustainable employment) out of concern of misinterpretation and misuse, as outcomes may be used to hold institutions accountable. Third, sustainable employment aspects appear to be more easily measured than aspects related to personal development and active citizenship. Several policy actors mention in this respect that personal development over time is very visible in students, yet hard to measure quantitatively. According to the same policy actors, there could be proxy indicators that may say something about personal development and active citizenship, such as mobility (incoming and outgoing students) as mentioned by German and Dutch experts. Active citizenship is partly measured in the Student Engagement Survey in Ireland, in the Student Survey of the German AG Hochschulforschung. The European Social Survey or the European Values Survey do provide a number of interesting indicators on personal development and active citizenship, such as social participation as mentioned in the Dutch case study. Apparently policy makers

are not always aware of existing indicators on both of these relevance dimensions, be it in national or international data sources.

Table 3.1: Indicators used relating to higher education relevance dimensions

Relevance Dimensions / Countries	Personal development	Sustainable employment	Active citizenship
Canada (Ontario)	Criteria for degree level expectations and learning outcomes	Graduation rates and employer satisfaction (as KPIs) determine a very small percentage of institutional budgets Criteria for degree level expectations and learning outcomes Employment rates (6 months and two years after graduation) by field of study	
Czech Republic		Unemployment shortly after graduation / tertiary educated population aged 25-29 (also considering the regional unemployment rate) Student careers and transitions to labour market Evaluate the cooperation with industry at their institution HE graduates working at ISCO 1-3 positions Bachelor graduates with command of at least one foreign language	
Denmark		Labour market indicators in: development contracts, (caps on) enrolment decisions, accreditation decisions – also for new programmes, and in educational choice information.	
France		Professional status, 18 months and 30 months after graduation	
Germany	mobility (incoming and outgoing students)	Transition of graduates to the labour market Adequacy of employment of HE graduates Professional development of academics Assessments of studies of HE graduates HE drop-out	
Ireland		Graduate first destination (six to nine months after graduation)	Student engagement on campus and active citizenship
Netherlands		Suitable job in specific amount of time after graduation Labour market prospects Employer satisfaction	Social participation
Spain		Employability indicators, but only recently and not coherently or in a comprehensive way.	

Having identified which indicators are used – and in which areas indicators could be useful – the next section discusses which existing indicators could potentially be used to measure the three dimensions of higher education relevance based on an international literature study.

3.3 Review of indicators measuring the relevance of higher education

This indicator review particularly addresses the question of how the relevance of higher education can be measured, visualised, and monitored. The objective is to provide an

overview of the state of the art regarding monitoring the relevance of higher education in Europe and some interesting benchmark countries. To this end, the chapter predominantly explores the availability of existing international comparative indicators that grasp the essence of the relevance of higher education in countries. Based on such an overview, one not only can identify aspects of relevance that are well-covered, but also aspects which cannot be measured satisfactorily with available statistics or that are, to the best of our knowledge, not addressed with statistical monitoring indicators so far. Such limitations can spur the debate on whether new indicators should and could be developed or existing ones improved.

The review is based on extensive research on *international data resources*. International sources already offer a broad bandwidth of indicators and international data providers such as the OECD and Eurostat make considerable efforts to collect this data and to make comparable data collected at the national level. National-level data may well offer additional indicators not covered by the present review.

The review covers a considerable number of data sources and we have strived towards retrieving indicators for all dimensions of higher education relevance set out earlier in this report. The review identifies aspects for which no or only few indicators were detected. However, despite all efforts some indicators may have been overlooked.

Tables 3.2 to 3.6 offer overviews of indicators by dimension. For easy access of information the tables in this chapter do not show all indicators that have been identified. A few exemplary indicators are presented per dimension. Exemplary indicators were chosen based on the criteria of (1) content validity, i.e. how well the indicator corresponds to the aspect, (2) up-to-date and regularly refreshed data (periodical), (3) the number of stakeholder groups an indicator is relevant to, (4) the size of the stakeholder groups an indicator is relevant to (student/graduates and society have been given priority over employers), and (5) the number of (European) countries covered. Aspects are shaded in green if an indicator is available that captures the content of the aspect well, is regularly updated, and covers the majority of EU member countries. If an indicator is available but any of the mentioned criteria is violated (low content validity, not regularly available, or covering less than half the EU countries), the aspect is shaded in orange. If no suitable indicator is available, the aspect is shaded in red.

3.3.1 Indicators on personal development

Aspects of personal development, such as self-perception, a cooperative spirit, or high ethical standards are of direct use to students and graduates, but employers and the society are likely to benefit from personality characteristics of students and graduates as well. Table 3.2 shows results for all three stakeholder groups jointly as indicators for the stakeholders overlapped to a large extent. Crosses in the table mark the stakeholder group(s) an indicator is relevant for.

For all aspects associated with the dimension of personal development at least one indicator was found. Thus the overall availability of indicators seems relatively good. Quality and suitability of indicators varies between aspects and a number of caveats should be noted.

- *Attitudes towards self and perception of self:* The indicator used as an example is part of the World Values Survey (WVS). It provides a set of self-image attributes, such as being reserved, trusting or doing a thorough job. Attributes are rated by respondents and jointly capture the aspect well. The WVS is repeated at intervals of four to six years and covers less than half of the EU countries which is the reason for categorizing it as not fully satisfactory.
- *Trust in others and cooperative spirit:* The example indicator is provided by the ESS and uses a standard instrument for measuring trust in others. The ESS offers

complementary indicators; jointly, these indicators give a good account of the aspect for students and graduates as well as the society.

- *Values (ethical standards), responsible employees:* This WVS indicator measures to what extent respondents assess actions as justifiable that are unlawful or challenge social norms (e.g. bribery, free-riding on public transport). Content validity seems satisfactory, but the number of countries is not.
- *Motivation, motivated employees:* The ESS provides an indicator on the overall intrinsic motivation for their job of economically active persons with further items on the job-related motivation being available. The indicators jointly capture the aspect of motivation of students, graduates, and employers. However, the indicator is not updated regularly.
- *Health, healthy employees:* The indicator is a self-assessment on the general level of health of the respondent on a 5-point scale. This is a relatively gross measure that may be prone to measurement error but it is very clearly related to the aspect of health and thus seems satisfactory. It could be complemented by additional indicators of the survey programme of the EU-SILC.
- *Happiness:* The ESS offers an indicator measuring the level of happiness on an 11-point scale covering the aspect well. Some complementary indicators would be available in the ESS.
- *Students' and graduates' satisfaction with personal development:* EUROSTUDENT IV asked students whether they assess their study programme as a good basis for personal development. This indicator covers the aspect well but was not repeated in subsequent rounds of EUROSTUDENT.

All in all, interesting indicators were found for all considered aspects of personal development. However, only for three aspects were indicators identified that fulfilled the criteria of good content validity, regular updates and a good coverage of EU countries.

Table 3.2: Examples of indicators on personal development

Aspect	*Example of indicator*	*Source*	*Stakeholders*			*Quality criteria*		
			Students/ graduates	*Employers*	*Society*	*Periodical*	*Comparable*	*Geographical coverage*
Attitudes towards self and perception of self (sense of identity, self-respect, self-worth, self-efficacy)	Self-perception by highest educational attainment level	World Values Survey 2016, http://www.worldvaluessurvey.org/WVSOnline.jsp	X			Yes	Yes, across countries	Generally up to 61 countries worldwide for the wave 2010-2014 (including 11 European countries)
Trust in others, cooperative spirit, cooperative spirit in company, good teamwork, & level of trust in society	Extent of trust in other people by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	X	X	X	Yes	Yes, across countries	21 mostly European countries
Values (ethical standards), responsible employees	Justifiability of different actions by highest educational attainment level	World Values Survey 2016, http://www.worldvaluessurvey.org/WVSOnline.jsp	X	X		Yes	Yes, across countries	Generally up to 61 countries worldwide for the wave 2010-2014 (including 11 European countries)
Motivation, motivated employees	"I would enjoy working in my current job even if I did not need the money" by highest level of education.	European Social Survey http://www.europeansocialsurvey.org/data/	X	X		No (only data for 5th wave, 2010)	Yes, across countries	27 mostly European countries
Health, well-being, healthy employees, level of health	Self-perceived health by sex, age and educational attainment (%)	European Commission, Eurostat 2016, EU-SILC, http://ec.europa.eu/eurostat/data/database	X	X	X	Yes	Yes, across countries	31 European countries and two EU aggregates
Happiness, level of happiness	Level of happiness by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	X		X	Yes	Yes, across countries	21 mostly European countries
Students'/graduates' satisfaction with personal development & related aspects in HE	Students' assessment of study programme as good basis for personal development	Eurostudent (2011), https://eurostudent.his.de/eiv/report/data_overview.jsp?ssid=D2E755EAAD04E01F512CDFD7A65D4030&sel_lang=&cnt_oid=1	X			No (only for period 2008-2011 available)	Yes, across countries	20 EHEA countries

3.3.2 Indicators on sustainable employment

Indicators were more group-specific for this dimension and are thus presented separately for each group.

Table 3.3 shows the indicators for the stakeholder group students and graduates.

- *Qualifications:* A large variety of indicators on qualifications of graduates are available in the Eurostat database. The indicator in table 3.3 shows the distribution of graduates of a chosen level of education across fields of study. Content validity seems satisfactory, indicators are updated regularly, and cover >30 OECD countries, mostly including all EU28 countries.
- *Basic skills:* OECD's survey of adult skills provides an indicator on literacy by educational attainment. Complementary information is available on basic skills such as numeracy or use of ICT by educational attainment. Jointly these indicators give a good account of the basic skills and related differences in educational groups; however indicators will presumably not be updated more frequently than every ten years.
- *Transferable skills:* The proficiency in problem solving in technology-rich environments is defined as "using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks" (OECD, 2013). It pictures a transferable skill needed for a large variety of occupations, however for other transferable skills, e.g. creativity or critical thinking, no indicator has been found in the international data sources considered.
- *Knowledge, technical & professional skills, competencies:* No indicators on these aspects could be identified in the international data sources considered, even though the borders between basic & transferable skills and knowledge, technical and professional skills, and competencies may not always be distinct. Projects, such as CALOHEE, strive for progress in measuring skills.
- *Cultural capital:* Eurostat offers an indicator on the cultural activities of persons (e.g. visiting cinema, theatre, concerts, cultural sites etc.). The indicator captures the aspect quite well, even though it does not measure cultural capital directly, but via activities that build on or may lead to cultural capital.
- *Social capital:* The indicator shown in Table 3.3 measures the frequency of socially meeting with friends, relatives, or colleagues. International data sources offer several indicators related to social capital but none of these indicators provides a comprehensive picture of the size and quality of the social network of students and graduates.
- *Social prestige associated with the education or the occupation of graduates:* Sociological research has developed a number of scales measuring the social prestige of occupations (e.g. Ganzeboom et al., 1992), but none of them are available in the international data sources considered.
- *Successful transition to the labour market:* The Bologna Process Implementation Report of 2015 offers an indicator on involuntary unemployment of tertiary education graduates by the number of years since graduation. While this certainly provides an interesting piece of information it does not give a very fine-grained picture of the transition process and misses the counter-part of unemployment, i.e. employment. The EU-LFS ad-hoc module of 2009 provides several complementary indicators; however, these indicators are not available regularly.
- *Adequacy of employment:* Available indicators on adequacy of employment cover the aspect of over-qualification. This measure captures vertical mismatch well, though somewhat roughly. Measures of horizontal mismatch are, to the best of our knowledge,

not regularly available in international data sources. Thus an important dimension of this aspect is not covered with current data.

- *Earnings:* Education at a glance gives a good account of the relative earnings of graduates of different educational levels. The indicator is updated, but not regularly. The OECD regularly provides a measurement of the private net financial returns of higher education as compared to other levels of education.
- *Career opportunities:* The ESS provides a subjective assessment of the career opportunities offered by the current job using a 5-point scale. While the indicator is clearly related to the aspect in question it seems questionable whether a subjective assessment alone is a very reliable indicator. Preferably, career opportunities could be measured directly by the employment history of graduates.
- *Long-term job security:* The indicator is provided by the ESS and measures job security by the status of the employment contract. A permanent contract is obviously closely related to job security. For capturing long-term job security it is limited, however, e.g. it pictures the prospects to remain in employment after (voluntary) job changes or whether persons without a permanent contract attain a permanent contract later in their career
- *Job satisfaction:* The ESS offers one indicator measuring job satisfaction on an 11-point scale. This is an overall measure capturing the aspect well, with some complementary indicators on areas of satisfaction or dissatisfaction being available
- *Student/graduate satisfaction with sustainable employment, & related aspects in HE:* To the best of our knowledge, no indicator on this aspect is available in international data sources.

All in all, only for few aspects were indicators found fulfilling all three criteria of good content validity, regular updates, and good coverage of EU countries. Lacks of information are specifically visible for the realm of skills and competencies. For labour market-related aspects short-comings are mostly related to content validity, illustrating the limitations of the – necessarily – concise scope of the EU-LFS.

Table 3.4 shows the indicators for the stakeholder group employers.

- *Employees able to flexibly adapt to changing tasks:* Table 3.4 shows an indicator measuring the proficiency in problem solving in technology-rich environments. This indicator has already been listed above as a measurement for transversal skills. Problem solving in technology-rich environments is clearly related to being flexible with regard to different tasks. At the same time it can hardly be seen as a comprehensive measure of this aspect and therefore has no satisfactory content validity.
- *Creative employees and low turnover in staff:* For these aspects no good indicators were found in the international data sources considered.
- *Diversity of and good mix of qualifications, skills, and competencies:* The distribution of graduates across education levels, programme orientation, and field of education informs on the provision of skilled labour and has already been used as an example for the aspect of “qualifications”. The indicator does not however give information on whether these qualifications are “good” in the sense that they meet the needs of the employers.
- *Sufficient supply of highly educated employees:* The indicator provides information on the labour force, differentiating by sex, age, and education. It gives an overall picture of available formal qualifications in an economy but is not suited to assess the sufficiency of supply
- *Employers’ satisfaction with skills & competencies:* The European Commission’s Flash Eurobarometer provided insights into the employers’ satisfaction with HE-graduate

skills in 2010. The indicator seems to measure the aspect quite well but the survey is not repeated regularly.

- *Employees' productivity:* The International Labour Organisation publishes regularly Key Indicators of the Labour Market (KILM). It is not known whether the KILM report provides this analysis regularly.

The choice of indicators on sustainable employment specifically relevant for employers is not satisfactory. Surveys among employers are rarely done. Information on the suitability of graduates' qualifications is therefore typically derived from data on the labour market success. Subjective assessments from the point of view of employers would be a valuable complementary source giving a more direct account.

Table 3.5 shows the indicators for the stakeholder group society.

- *Economic productivity*: The indicator for the aspect of economic productivity has already been listed for employees' productivity (Table 3.4). It is not known whether the KILM report provides this analysis regularly.
- *Extent of employment and unemployment*: The indicator chosen measures the unemployment rate, which is an important standard indicator for assessing the condition of a labour market and the economic performance of an economy. The Eurostat indicator allows differentiating by age groups, sex, and four different groups of educational attainment levels (based on ISCED 2011). Eurostat offers a wide range of further labour market indicators.
- *Impact of higher education on public revenues and social security systems*: The public provision of HE-teaching induces costs for the state, but may also contribute to public revenues (e.g. taxes). Income, employment, and unemployment also impact on the revenues and expenses of social security systems. The indicators provided by the OECD estimate the state's net financial returns of a man/woman attaining tertiary education in comparison with a man/woman attaining upper secondary or post-secondary non-tertiary education.
- *Impact of sustainable employment on families, friends, associations, neighbourhoods*: No suitable indicator has been found in international data sources.
- *Highly educated workforce*: The database of the World Bank provides an indicator on the quantity of the highly educated workforce. The indicator measures the percentage of persons with tertiary education as part of the total labour force. The indicator is closely related to the aspect, but the measurement is quite rough. The statistics available do not differentiate levels of education within the group of tertiary education or different kinds of degrees.
- *Innovation capacity of economy*: Eurostat offers a number of statistics related to the innovation capacities of economies. The indicator in Table 3.5 pictures the share of research and development personnel as percentage of the total labour force or of all employed persons. Complementary indicators are e.g. the number of patent applications or patents granted or innovation activities and expenditures in enterprises. Indicators on the innovation capacities seem to be available in good quality and quantity but it should be noted that current indicators do not directly offer insights into the relevance of higher education for innovation capacities.
- *Knowledge-based economy*: The indicator shows the share of knowledge-intense industries and services as proportion of the total creation of value. The indicator gives a direct measurement of the degree to which the economy is knowledge-based but covers only a small number of countries. It is not known if similar statistics could easily be made available for a larger set of countries.

- *Impact of higher education on growth*: Despite there being a vast literature on the correlation of higher education and economic growth, international databanks do not provide standard indicators on this aspect. However, this is not surprising as quantifying the impact of changes in a highly educated workforce on economic output requires rather complex economic modelling. The indicator presented in Table 3.5 is insightful and seems to measure the aspect quite well. It is not known whether this study is repeated periodically; less than half of the EU28 countries are covered.
- *External effects of skills and competencies on families, friends, associations, neighbourhoods*: It is difficult to determine the types, causes, and scales of such effects. International statistics do not supply any indicators on this aspect. The indicator in Table 3.5 describes positive effects that higher education graduates from developing countries have on their home communities after their return from participating in higher education abroad and can be viewed as a tentative approach to capture external effects, but is most likely not suited for industrial countries.

Compared to the stakeholder group of employers, the availability of suitable indictors on the societal level is considerably better but still not satisfactory for most aspects. Available indicators for a highly educated workforce seem to be easily improved for a better content validity. For the aspect of a knowledge-based society a suitable indicator is at hand but only for eight countries. It seems likely that equivalent information is available for further countries.

Table 3.3: Indicators on sustainable employment (user group: students and graduates)

Aspect	*Example of indicator*	*Source*	*Quality criteria*		
			Periodical	*Comparable*	*Geographical coverage*
Qualifications	Distribution of graduates at education level and programme orientation by sex and field of education	European Commission, Eurostat 2016, http://ec.europa.eu/eurostat/data/database	Yes	Yes, across countries	34 OECD countries, including 32 European countries and 26 countries of EU28
Knowledge					
Basic skills	Mean literacy proficiency by level of educational attainment	OECD 2013a, Table A3.9 (L), p. 285.	presumably	Yes, across countries	20 OECD countries, 4 OECD sub-national entities, 1 partner country
Transferable skills (communication skills, creativity, critical thinking etc.)	Proficiency in problem solving in technology-rich environments, by educational attainment	OECD 2013a, Table A3.10 (P), p. 287.	presumably	Yes, across countries	17 OECD countries and 4 sub-national entities
Technical & professional skills					
Competencies					
Cultural capital (cultural literacy, aesthetic appreciation, etc.)	Persons participating in cultural activities in the last 12 months by sex and educational attainment level	European Commission, Eurostat 2016, http://ec.europa.eu/eurostat/data/database	Yes	Yes, across countries	22 European countries
Social capital	Frequency of socially meeting with friends, relatives or colleagues by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	Yes	Yes, across countries	21 mostly European countries
Social prestige (associated with degree, knowledge, etc.)					
Successful transition to labour market	Unemployment ratio of tertiary education graduates aged 20-34, by the numbers of years since graduation	EC/EACEA/Eurydice 2015, p. 188.	Yes	Yes	34 EHEA countries
Adequacy of employment	Percentage of people aged 25-34 with tertiary education (ISCED 5-6) who are vertically mismatched (ISCO 4-9)	EC/EACEA/Eurydice 2015, p. 193.	Yes	Yes, across countries	37 EHEA countries
Earnings	Private costs & benefits of men & women attaining tertiary education	OECD 2015a, Table A7.3a, p. 147, Table A7.3b, p. 148.	Yes	Yes	Both tables: 25 OECD countries
Earnings	Relative earnings of workers, by educational attainment, age group, and gender	OECD 2015a, Table 6.1a, p. 125.	Basically yes, but not annually	Yes, across countries	32 OECD countries, 2 partner countries
Career opportunities	"Current job offers good opportunities for advancement" by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	No (only data for 2nd and 5th wave, 2004 + 2010)	Yes, across countries	25 European countries (2nd wave), 27 mostly European countries (5th wave)
Long-term job security	Employment contract with limited or unlimited duration by highest level of education.	European Social Survey http://www.europeansocialsurvey.org/data/	Yes	Yes, across countries	21 mostly European countries (7th round)
Job satisfaction	Satisfaction with main job by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	No (only data for 5th wave, 2010)	Yes, across countries	27 mostly European countries
Social prestige (associated with job)	[see social prestige associated with degree etc.]				
Student/graduate satisfaction with sustainable employment, & related aspects in HE					

Table 3.4: Indicators on sustainable employment (user group: employers)

Aspect	*Example of indicator*	*Source*	*Quality criteria*		
			Periodical	*Comparable*	*Geographical coverage*
Employees able to flexibly adapt to changing tasks and challenges	Distribution of skills and readiness to use information and communication technologies for problem solving, by educational attainment	Education at a Glance 2016: OECD Indicators, Table A1.6 (P) (Web only), http://dx.doi.org/10.1787/888933396517	Presumably only at long intervals of ~10 years	Yes, across countries	23 OECD countries and 3 sub-national entities
Creative employees					
Low turnover in staff					
Sufficient supply of highly educated employees	Labour force by sex, age and education (in 1,000)	International Labour Organization ILOSTAT Database (2016) http://www.ilo.org/ilostat/faces/help_home/data_by_subject?_adf.ctrl-state=ujhckfms7_1204&_afrLoop=14015883796839	Yes	Yes, across countries	Data for 187 Member states worldwide, additional data for sub-national entities
Diversity of and good mix of qualifications, skills, competencies needed	Distribution of graduates at education level and programme orientation by sex and field of education	European Commission, Eurostat 2016, http://ec.europa.eu/eurostat/data/database	Yes	Yes, across countries	34 OECD countries, including 32 European countries and 26 countries of EU28
Employers' satisfaction with skills & competences	Employers' satisfaction with graduate skills ("HE-graduates recruited in the last 3-5 years have the skills required to work in respondents' companies")	European Commission 2010, p. 7.	No	Yes, across countries	31 European countries
Employees' productivity	Tertiary level of educational attainment and labour productivity	ILO Key indicators of Labour Market, 9th edition, Figure 3.3, p. 14.	Unknown	Yes, across countries	74 countries

Table 3.5: Indicators on sustainable employment; user group: society

Stakeholders: Society					
Aspects	***Example of indicator***	***Source***	***Quality criteria***		
			Periodical	*Comparable*	*Geographical coverage*
Economic productivity	Tertiary level of educational attainment and labour productivity.	ILO Key indicators of Labour Market, 9th edition, Figure 3.3, p. 14.	Unknown	Yes, across countries	37 countries
Extent of employment/ unemployment	Employment rates by sex, age and educational attainment level (% of respective educational level)	European Commission, Eurostat 2016, http://ec.europa.eu/eurostat/data/database	Yes	Yes	33 European countries and various Euro area and European Union aggregates
Impact of HE on public revenues	Public costs & benefits of men & women attaining tertiary education	OECD 2015a, Table A7.4a, p. 149, Table A7.4b, p. 150.	Yes	Yes	Both tables: 25 OECD countries
Impact of HE on social security system	Public costs & benefits of men & women attaining tertiary education	OECD 2015a, Table A7.4a, p. 149, Table A7.4b, p. 150.	Yes	Yes	Both tables: 25 OECD countries
Impact of sustainable employment on families, friends, associations, neighbourhoods					
Highly educated workforce	Labour force with tertiary education (% of total)	World Bank 2016, World Development Indicators, http://databank.worldbank.org/data/reports.aspx?source=2&Topic=4	Yes	Yes	39 countries worldwide
Innovation capacity of economy	Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex	European Commission, Eurostat 2016, http://ec.europa.eu/eurostat/data/database	Yes	Yes	35 European countries, EU28, EU15, and Euro area aggregates
Knowledge-based economy	Proportion of R&D-intensive industries and knowledge-intensive services in total creation of value	Expertenkommission Forschung und Innovation 2016, p. 127	Yes	Yes	8 OECD countries shown in publication; more countries should be available
Impact of HE on growth	Contributions of higher, medium and low skills growth to output growth, in % (1982-2005)	Holland et al., 2013, p. 46 f.	Unknown (probably not)	Limited (Skill levels applied by EU KLEMS are not based on an international classification. Comparability across countries cannot be assured.)	15 countries (mostly European)
External effects of skills and competencies on families, friends, associations, neighbourhoods	Provision of community benefits through HE-graduates	Martel & Bhandari, 2016, p. 16. http://www.iie.org/Who-We-Are/News-and-Events/Press-Center/Press-Releases/2016/2016-04-26-IFP-Tracking-Study-1	Not yet (first impact study of an International Fellowships Program)	Difficult to judge (not much information on study methodology available)	22 countries covering Africa, Middle East, Asia, Russia, Latin America

3.3.3 Indicators on active citizenship

Higher education institutions are expected to prepare students for a life as active citizens in democratic societies. This could result in an understanding of how democracies work, support of democratic values, tolerance, and intercultural skills. The democratic ideal of equitable participation is also reflected in the social dimension of higher education. Indicators are presented in Table 3.6.

- *Democratic values:* The WVS offers a number of items measuring the overall support for democracy and democratic institutions as well as knowledge about key elements of democracy. The WVS covers a large number of countries, but only 11 European countries.
- *Tolerance, intercultural skills and values:* The ESS asks respondents for the consequences of immigration e.g. regarding the economy or the cultural life. Further indicators measure the attitudes of respondents towards the immigration of different social groups. These indicators are clearly related to the aspect of tolerance with regard to immigrants, but can hardly be seen as an indicator of intercultural skills.
- *Political literacy, civic skills, and (sense of) ability to take influence:* Several questions related self-efficacy in politics are part of the core questionnaire of the ESS and measure, e.g. the belief to have a say in politics, whether politicians care about what people think, or whether the respondent – him or herself - finds it easy to become politically active or participate in political groups. These items cover the aspect satisfactorily.
- *Social participation, strong civil societies, and lively communities:* The ESS regularly offers four indicators measuring whether respondents participated in different kinds of social associations in the last 12 months (e.g. environment, peace, animal organisations), capturing the aspect well.
- *Political participation, strong and lively democracies:* The ESS regularly offers a set of indicators measuring whether respondents were politically active in the last 12 months in a variety of ways (e.g. contacted politicians, worked in political action group, etc.), giving a comprehensive account of the aspect of political participation.
- *Lower risk of becoming criminal or becoming a victim of crime, less crime:* The WVS provides several indicators related to this aspect, measuring whether respondents or their immediate family had become victims of crime, the perceived safety of the neighbourhood or the attitudes towards criminal acts. Jointly these indicators capture the aspect well but only a minority of EU28 countries is covered.
- *Employee participation:* Membership in trade unions is related to employee participation, but does not give a comprehensive account of the aspect.
- *Corporate social responsibility, external effects, student/graduate satisfaction with active citizenship:* To the best of our knowledge no valid indicators are available in the international data sources considered.
- *Social dimension of higher education:* EUROSTUDENT regularly provides an indicator of the social dimension of higher education, measuring to what extent the student population in European countries reflects the socioeconomic composition of the overall population. EUROSTUDENT regularly covers gender as another dimension as well. To date, there is no source regularly providing comparable information for a larger number of countries for equal participation of persons with an immigrant background.

Looking at the availability of indicators on active citizenship we find a mixed picture. For political literacy and social as well as political participation suitable indicators are regularly provided by the ESS. The WVS is a richer source of data in this regard and offers indicators on two further aspects but only for a smaller number of European countries. Monitoring

information on the social dimension of higher education is regularly provided by EUROSTUDENT. Complementary indicators on graduates can to some extent be drawn from ad-hoc modules of EU-LFS and EU-SILC. It should, however, be noted that such ad-hoc modules are not regularly available. No regular, comparable information is available on the social dimension with respect to an immigration background. The aspects of employee participation and corporate social responsibility are specifically relevant to the employers as a stakeholder group. Again a lack of suitable data needs to be acknowledged for this group. Last but not least, regular, comparable indicators on students' and graduates' satisfaction with being prepared for active citizenship in higher education are not available to our knowledge. This reflects the fact that the vast majority of indicators are provided by general or working age population surveys and that there is a lack of surveys focussing on the realm of higher education.

Table 3.6: Indicators on active citizenship

Aspects	*Example of indicator*	*Source*	*Stakeholders*			*Quality criteria*		
			Students/ graduates	Employers	Society	Periodical	Comparable	Geographical coverage
Democratic values	Appreciation of democracy by highest educational attainment level	World Values Survey 2016, http://www.worldvaluessurvey.org/WVSOnline.jsp	X		X	Yes	Yes, across countries	Generally up to 61 countries worldwide for the wave 2010-2014 (including 11 European countries)
Tolerance, intercultural skills & values	Attitudes towards the consequences of immigration for respondent's country	European Social Survey http://www.europeansocialsurvey.org/data/	X		X	Yes	Yes, across countries	21 mostly European countries (7th round)
Political literacy, civic skills and (sense of) ability to take influence	Confidence in own ability to participate in politics by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	X		X	Yes	Yes, across countries	See above
Social participation & inclusion (e.g. participation in associations, unions, or social & community projects, volunteering), strong civil societies, lively communities	Having worked voluntarily for environment/peace/animal organisations during the last 12 months by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	X		X	Yes	Yes, across countries	See above
Political participation (e.g. campaigning, protesting, voting, running for political functions), strong & lively democracies	Participation in various political actions by highest level of education	European Social Survey http://www.europeansocialsurvey.org/data/	X		X	Yes	Yes, across countries	See above
Lower risk of becoming criminal and/or becoming a victim of crime, less crime	Justifiability of criminal/illegal activities by highest educational attainment level	World Values Survey 2016, http://www.worldvaluessurvey.org/WVSOnline.jsp	X		X	Yes	Yes, across countries	Generally up to 61 countries worldwide for the wave 2010-2014 (including 11 European countries)
Employee participation	Membership in trade union or similar organisation by highest educational attainment level	European Social Survey http://www.europeansocialsurvey.org/data/	X	X		Yes	Yes, across countries	See above
Corporate Social Responsibility				X				
External effects of democratic values, civic skills etc. on families, friends, associations, neighbourhoods								
Social dimension of HE: socioeconomic background	Representation of students from high, medium and low educational backgrounds	EUROSTUDENT 2015, Figure 3.3, p. 54	X		X	Yes (operationalisation of indicator changes to some extent between repetitions)	Yes, across countries	23 EHEA countries
Social dimension of HE: immigrant background	Relative chances to obtain higher education for second-generation immigrants	Muehleck 2013, p. 30	X		X	No	Yes, across countries	12 EU countries
Student/graduate satisfaction with active citizenship & related aspects in HE			X					

3.4 Reflections and conclusions

A first conclusion is that suitable indicators were identified for all dimensions of higher education relevance and all three stakeholder groups. Similarly, for most aspects of the grid of the relevance of higher education indicators were found that are related to the indicator. However, only for 14 out of 53 considered aspects, are indicators readily available in international data sources that match all applied criteria of good content validity, regular updates and coverage of the majority of EU28 countries.

The availability of suitable indicators is slightly better for the dimension of personal development than for sustainable employment and active citizenship. However, important aspects of the first dimension are not captured satisfactorily.

3.4.1 Personal development: indicators, limitations and improvements

For the personal development dimension, the supply of data is fairly good compared to the situation for the other two dimensions. Valid indicators are regularly available for the majority of EU28 countries on three aspects: trust in others, health and overall happiness. A comparison of groups with different levels of educational attainment can indicate the relevance of higher education for these aspects, though group differences cannot be interpreted as causal effects of higher education. Data on four aspects of personal development was less satisfactory: 1) attitude towards self, 2) values, 3) motivation and 4) student/graduate satisfaction with personal development and related aspects in higher education. Indicators are available, but due to lack of periodicity or limited geographical coverage, the current supply of data is not good.

We would like to highlight the limited data on two aspects: attitudes towards self and values. A mature personality, being self-reflective and developing a moral compass are seen as important goals of higher education in several European countries. The World Values Survey offers indicators for a smaller number of European countries; the European Values Survey covers more countries but is only reported at intervals of 8-10 years. Regular comparative data allowing monitoring the majority of EU28 countries on these aspects is not available. Indicators of self-perception and ethical standards of graduates would shed more light on these personal development aspects.

3.4.2 Sustainable employment: indicators, limitations and improvements

For the sustainable employment dimension, by far the largest number of aspects and indicators has been collected. For the user group of students and graduates three aspects are covered by indicators matching all three quality criteria: qualifications of higher education graduates, cultural capital and earnings.

A lack of information is specifically visible for skills and competencies. The OECD survey of adult skills (PIAAC) provides important data of high quality for about half of all EU28 countries. The reason for not categorising this data as “satisfactory” is that it will presumably only be updated at long intervals of about ten years thus limiting its capacity for regular monitoring. Moreover, PIAAC focusses on basic and a few transversal skills. Thus it does not give a comprehensive picture on skills relevant for higher education graduates. Besides more transversal and generic skills, professional skills would be interesting. However, measuring subject-specific skills in the field of higher education comparatively poses methodological challenges not yet fully solved. Moreover, several case study countries did not participate in the last round of PIAAC.

Availability of data on most labour market aspects has been categorised as insufficient as well, often due to limited content validity. The EU-LFS regularly offers highest quality data on a large number of European countries. But its scope of variables is quite limited, because each additional question involves considerable costs as the number of respondents is very

high. This limited scope often prevents giving a detailed account of relevance aspects. EU-LFS-ad-hoc modules or alternative data sources, such as the European Social Survey, can complement this information but do (often) not provide indicators regularly. Only rough measures are available in the regular EU-LFS for the successful transition to the labour market, long-term prospects of graduates, or for adequacy of employment (e.g. horizontal mismatch is not covered).

Regular data on the satisfaction of students or graduates with how higher education prepares for sustainable employment or supports personal development is not available. Only EUROSTUDENT asks students on their preparedness for the national and international labour market, however, important aspects of sustainable employment such as having acquired different kinds of skills are not covered.

The relevance of higher education for employers is clearly less well covered by indicators. Availability of indicators on sustainable employment for this group has not been found to be satisfactory for any aspect. This hints at a specific lack of data. While information on students and graduates or the society at large can often be extracted from general population surveys or register data this is not the case for employers or companies. Surveys among employers and companies are organised rarely.

The aspects referring to the society as user group are covered relatively well with suitable indicators on four out of 10 aspects: (1) (un)employment rates, (2) the impact of higher education on public revenues, (3) impact on the social security system, and (4) the innovation capacity of the economy. Indicators on economic productivity, the knowledge-based economy or the impact on growth fall short of being satisfactory mostly because they do not fully grasp complex phenomena. Another drawback is that the effect of higher education on a certain outcome is even less clear at societal level than at the individual level as there is no equivalent to comparing groups with different levels of education. Still, valid estimates of the impact of higher education on public revenues and the social security system are regularly available. Such estimates are not available for the impact of higher education on the innovation capacity of the economy, its productivity, or growth which often presupposes complex statistical models instead of aggregate level indicators.

Capacities to monitor the relevance of higher education for sustainable employment could be enhanced in a variety of ways: for the user group of students and graduates, indicators would be specifically useful if they covered: earnings to subjects, the time between graduation and first employment, a match between subjects and occupation (horizontal mismatch), or the competences of graduates. What is more, subjective assessments of graduates on the usefulness of their studies for the labour market would add an interesting piece of information. The OECD provides an interesting indicator on the private returns to higher education but only for a few countries.

Employer surveys could provide important complementary information on higher education relevance by directly measuring the view of employers of graduates.

Information on the economic relevance of higher education for societies can be improved potentially. Though the OECD provides a good indicator on the public returns to higher education, this information is not available for several countries. Indicators on economic productivity, the knowledge-based economy or the impact of higher education on growth are not satisfactory. Available indicators mostly cannot grasp such complex phenomena or relationships as they presuppose complex statistical modelling. Nevertheless, the effect of higher education on economic growth might be a specifically helpful indicator. It summarizes a variety of effects of higher education in one indicator and is thus very telling.

3.4.3 Active citizenship: indicators, limitations and improvements

The data situation for the active citizenship dimension is also rather mixed. The ESS provides good data on three out of eleven aspects: (1) political literacy, civic skills, and sense of ability to influence politics, (2) social participation and inclusion, and (3) political

participation. But indicators on democratic values as well as tolerance and intercultural skills and values are only regularly available in international data sources for a minority of the EU28-countries (provided by the World Values Survey). Additionally, no regular data is available for measuring students' or graduates' satisfaction with higher education preparation for active citizenship.

Indicators on equitable participation in higher education have also been categorised as not fully satisfactory. We would like to hint at three shortcomings: (1) there is no source regularly providing indicators on the participation of students with an immigration background as one important group for the social dimension (only since the fifth round of EUROSTUDENT are such data are collected). (2) In international sources, there are to the best of our knowledge hardly any regular indicators shedding light on the social dimension and qualitative differences within higher education for example types of institutions (private vs. public, professional higher education vs. research universities, or Ivy League institutions vs. other institutions). (3) EUROSTUDENT focusses on the current student population, but results may be different for graduates. General or working-age population surveys could provide such information but either do not regularly cover the variables needed (e.g. the EU-LFS) or hold too few cases for reliable regular monitoring of the social dimension (e.g. the European Social Survey).

Democratic values and tolerance are often mentioned as goals of the agendas of higher education policies of European countries at national level as well as at European level (Yerevan Communiqué of the Bologna ministers). Regular comparable indicators on whether higher education graduates hold democratic values and intercultural skills could support such political goals. Relevance policies could be supported by students' and graduates' assessments of whether their studies fostered active citizenship and in which way.

Generally, there is a specific lack of (comparative) data on subjective assessments of higher education by students and graduates. Such assessments could be specifically informative for improving higher education as they capture relevance in the view of those having received higher education. Similarly, there is hardly any data systematically covering the views of employers, as another important stakeholder group, on higher education.

It should be kept in mind that our assessment of the availability and suitability of indicators on the relevance of higher education was nearly exclusively based on international data sources. Further indicators may well be available for individual countries.

Based on the above collection of indicators, we have chosen ten indicators for a diagnostic tool (see Chapter 4). These indicators are deemed to be useful for policy-makers to quickly assess some important aspects reflecting the relevance of higher education. Most of the indicators capture the content of the aspect well, are regularly updated, and cover the majority of EU member countries (i.e. they are shaded in green in the tables above). Some indicators – those on relative earnings, vertical mismatch, the distribution of skills and social representation – violate at least one of the criteria mentioned earlier (they are shaded orange in the tables above). They have been chosen due to lack of better alternatives.

4 Analytic and diagnostic tool

4.1 Introduction to the analytic and diagnostic tool

The analytic and diagnostic tool aims to give a brief overview of countries' policies on the relevance of higher education. Moreover, it shows countries' profiles based on indicators linked to the relevance of higher education. For both, relevance policies and profiles, the tools can only give a rough outline and are by no means comprehensive. For policies, the overview gives an idea of the breadth, focus, and instruments of the relevance policies of the countries and thus analyses what countries do to improve on the relevance of higher education. The key indicator profiles give a diagnosis of how countries score on certain relevance indicators. They offer an impression of the profile of higher education graduates with regard to the three dimensions of the relevance of higher education used in this study: (1) personal development, (2) sustainable employment, and (3) active citizenship. Aspects of all three dimensions are covered by suitable indicators. However, for some indicators there is room for improvement and different or complementary indicators could have been chosen.

The indicators draw on a comparison of results for persons with higher educational attainment and those with medium-level education. They are meant to describe and quantify – at least to some extent – the relevance of higher education. Differences between higher education graduates and persons without degrees can be caused by a variety of factors, in large part external to higher education, e.g. the labour market structure, the welfare state system, or other branches of education. Thus the indicators cannot provide an assessment of the higher education system as such. However, they can reveal where room for improvement exists and where the outcomes of higher education policies seem promising. In this sense they can guide the actions of higher education decision makers.

4.1.1 Limitations of the analytic and diagnostic tool

An important caveat pertains to relationships and causality. The term "relevance of higher education" suggests that higher education, at least to some extent, causes a certain desired outcome, be it at an individual or the societal level. Similarly, the aggregate level indicators presented suggest a relationship between higher education and a certain outcome, e.g. attitudes, skills, unemployment, income etc. Over the last five decades, theoretical and empirical research has indeed identified various interrelations between the level of education acquired and outcomes such as earnings, health, political participation, happiness, or economic growth (e.g. Bassanini and Scarpetta, 2001; Carstensen and Jungbauer-Gans, 2016; Enders and Bornmann, 2001; Field, 2009; Harmon et al., 2003; Holland et al., 2013; Hout, 2012; Krueger and Lindahl, 2001; Recotillet, 2007; Spangenberg et al., 2012). This evidence supports the assumption of a positive impact of higher education on several of the key indicators presented below. It must be stated, however, that aggregate level indicators are rough measures. Although they are useful for showing developments, country-differences, and group-differences, they are neither suited for proving causal relationships nor do they tell us about the size of the influence higher education may have on a certain outcome. The relationship between higher education and its potential outcomes is much more complex than aggregate level indicators can show. Therefore, it would not be advisable to deduce policies based only on the results displayed by the following indicators. Instead, context data on a national level and more in-depth analyses based on micro-level data would be necessary to get a more comprehensive picture and to arrive at potentially adequate policies.

Such context and micro-level data should include detailed information on higher education, such as educational trajectories, styles of teaching and learning, international mobility and institutional characteristics, as well as the mid- and long-term development of graduates.

To date, such information is missing in many European countries as their graduate surveys rarely track graduates for more than just the first 12-18 months after graduation (Mühleck et al., 2016). Analyses across countries are particularly promising, as they can give insights into the influence of national context conditions (e.g. structures of the higher education system and the labour market) and impact of national level policies. To date, such analyses are hardly possible due to the lack of comparative and comparable data. Drawbacks of existing comparative data and the incompatibility of national graduate studies support the call for initiating a new comparative study focussing on higher education graduates (Mühleck et al., 2016).

4.1.2 Choice and design of key indicators

Ten key indicators have been selected to give a concise overview of the relevance of higher education. For most indicators we, firstly, display either a mean value or a percentage for persons with higher education (e.g. the mean value for the level of trust in other people or the share of unemployment). Secondly, depicted on the second horizontal axis, a ratio is shown to compare persons with higher education against persons with medium-level education. This ratio is generated by dividing the value for both groups. A ratio larger than one indicates that the value for persons with higher education is larger than for their counterparts with medium-level education. If the ratio is less than one, the opposite is true. A ratio of exactly one means there is no difference in the characteristic attribute between the two groups. For most of the key indicators a European or an OECD average is offered to compare.

Personal development

Trust in others, overall happiness, and health are non-monetary returns to higher education. They are either indirectly linked to personal development, like health and happiness, or are seen as direct expressions of a mature personality, like cooperativeness and trust. It would have been desirable to further consider indicators on aspects such as attitudes towards self, perception of self, or ethical standards. Such indicators are available in the World Values Survey (WVS), but only for a limited number of European countries.

a) *Level of trust in other people*: Trust in other people is seen as one indicator of a reflective and developed personality. Higher levels of mutual trust are seen as beneficial for social cohesion and the society as a whole. Higher levels of education are assumed to go together with higher levels of interpersonal trust. The European Social Survey (ESS) offers complementary indicators covering the perceived level of cooperative spirit in society or the value of being helpful.

   - *Question*: “Using this card, generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people?”
   - *Measurement*: Mean value on 11-point scale, 0 = ”you can’t be too careful” to 10 = ”most people can be trusted”.
   - *Levels of education*: higher education: ISCED1997 5A-6; medium-level education: ISCED1997 3-4.
   - *International aggregate*: 18 EU countries.
   - *Source*: Own calculations of ESS, 7th wave (2014).

b) *Happiness*: The pursuit of happiness can be regarded as an overarching goal of human behaviour and education may serve as a helpful tool. Education may increase directly one’s benefits and the economic returns of education may enable one to consume other desired goods. Complementary indicators on satisfaction with various aspects of life are available in the ESS.

   - *Question*: “Taking all things together, how happy would you say you are?”
   - *Measurement*: Share of respondents for the three highest categories of 11-point scale, 0 = ”extremely unhappy” to 10 = “extremely happy”
   - *Levels of education*: higher education ISCED1997 5A-6; medium-level education: ISCED1997 3-4.
   - *International aggregate*: 18 EU countries.
   - *Source*: Own calculations of ESS, 7th wave (2014).

c) *Health*: Education may affect one's own health condition, by e.g. the awareness of the importance of a healthy lifestyle, ability to purchase better quality of food, or occupations with working conditions less detrimental to health. At the same time prestigious occupations may involve long working hours and time pressure. The indicator could be complemented by additional indicators of EU-SILC, e.g. on long-standing illness or health-problems.

- *Question*: Question on how a person perceives his/her health in general.
- *Measurement*: Share of respondents for the two highest categories of 5-point scale, 1 = "very bad" to 5 = "very good"
- *Levels of education*: higher education: ISCED2011 5-8, medium-level education: ISCED2011 3-4.
- *International aggregate*: 28 EU countries.
- *Source*: Own calculations of European Commission, Eurostat Database (2016).

Sustainable employment

A variety of indicators are available related to sustainable employment. Still, availability of information is far from satisfactory in several respects (see chapter 3).

d) *Unemployment*: The indicator chosen measures the unemployment rate, which is an important standard indicator for assessing the condition of a labour market and economic performance.

- *Measurement*: Share of unemployed in % for persons aged 25-54.
- *Levels of education*: higher education: ISCED2011 5-8, medium-level education: ISCED2011 3-4.
- *International aggregate*: 28 EU countries.
- *Source*: European Commission, Eurostat Database (2016).

e) *Relative earnings*: Earnings are an important economic return to higher education.

- *Measurement*: Relative earnings of full-time full-year employees aged 25-64 years. Income of employees with upper secondary education = 100. An index value of 1.9, for instance, means that the wage level of employees with tertiary education is 90 % higher than that of their peers with upper secondary education.
- *Levels of education*: tertiary education, upper secondary education.
- *International aggregate*: 22 EU countries.
- *Source*: OECD, Education at a Glance 2016, OECD indicators.

f) *Vertical mismatch*: This indicator looks at over-qualification rates of higher education graduates and may provide insights into current inefficiencies in the coordination of the higher education system and the labour market.

- *Measurement*: Share of people aged 25-34 with tertiary education with occupations not traditionally regarded as requiring a tertiary qualification (occupations with International Standard Classification of Occupations (ISCO) levels 4-9).
- *Levels of education*: higher education: ISCED1997 5-6.
- *International aggregate*: EHEA.
- *Source*: Source: European Commission/EACEA/Eurydice, 2015, The European Higher Education Area in 2015: Bologna Process Implementation Report, Luxembourg, p. 193.

g) *Returns: private costs and benefits of higher education*: A 'simple' but comprehensive way of looking at the monetary advantage of tertiary education is by calculating net financial returns across the graduate's work life. Private net returns can be used by potential students as a criterion for the decision whether to study in higher education. The indicator is available for both sexes; women were chosen for this report as they represent the majority of higher education graduates.

- *Measurement*: Net present value for the difference of private costs and benefits for a woman attaining tertiary education as compared with a woman attaining upper secondary/post-secondary non-tertiary education in US-$ (PPP) over the entire life span.
- *Levels of education*: tertiary education, upper secondary/post-secondary non-tertiary education.
- *International aggregate*: 22 EU countries.
- *Source*: Source: OECD, Education at a Glance 2016, OECD indicators.

Returns: public costs and benefits of higher education: Public net returns to higher education can be used by the state as decision support when reflecting upon public

investment in human capital. The indicator is available for both sexes; women were chosen for this report as they represent the majority of higher education graduates.

- *Measurement*: Net value public costs and benefits for a woman attaining tertiary education as compared with a woman attaining upper secondary/post-secondary non-tertiary education in US-$ (PPP) over the entire life span.
- *Levels of education*: tertiary education, upper secondary/post-secondary non-tertiary education.
- *International aggregate*: 22 EU countries.
- *Source*: OECD, Education at a Glance 2016, OECD indicators.

h) *Distribution of skills to use ICT*: The indicator measures a transferable skill needed for a large variety of occupations.

- *Measurement*: Proficiency in problem solving and the use of information and communication technologies (ICT). Share of persons classified as having "good ICT and problem-solving skills" (highest of 5 categories) based on skills tests.
- *Levels of education*: higher education: ISCED2011 5-8, medium-level education: ISCED2011 3-4.
- *International aggregate*: 17 EU countries and 3 EU subnational entities.
- *Source*: OECD, Education at a Glance 2016, OECD Indicators.

Active citizenship

The ESS regularly provides a number of indicators measuring political participation or indicators closely related to political participation which can be compared across groups with different levels of educational attainment. For the diagnostic tool, we have chosen self-confidence for political participation, which is a well-established instrument for measuring political self-efficacy. Other subjective aspects of active citizenship, such as democratic values or intercultural tolerance are only available in certain waves of the ESS, but not regularly. The World Values Survey (WVS) holds further indicators, but only for less than half of the EU countries.

i) *Self-confidence for political participation*: Higher education is assumed to capacitate graduates with skills that are beneficial for an active participation in democracies.

- *Question*: "And using this card, how confident are you in your own ability to participate in politics?"
- *Measurement*: Mean value on 11-point scale, 0 = " not at all confident" to 10 = "completely confident"
- *Levels of education*: higher education: ISCED1997 5A-6, medium-level education: ISCED1997 3-4.
- *International aggregate*: 18 EU countries.
- *Source*: Own calculations of ESS, 7th wave (2014).

j) *Social representation*: Equal participation of social groups means that the social composition of the student body reflects the social composition of the overall populace. We have placed this aspect within the dimension of active citizenship; however, it has the capacity to boost the relevance of higher education in all three dimensions, as a broader share of the population benefits from higher education.

- *Measurement*: Index value relating the share of students whose fathers have attained higher education to the share of males aged 40-59 years with higher education in the total population. An index value of 1 indicates that there are exactly as many students from a certain educational background as expected based on the distribution of educational attainment in the male population. Values over 1 indicate overrepresentation of the group, values below 1 underrepresentation.
- *Levels of education*: higher education.
- *International aggregate*: 24 European countries.
- *Source*: EUROSTUDENT V 2012-2015 Synopsis of indicators, 2015, Social and Economic Conditions of Student Life in Europe, Bielefeld, p. 54.

Most of the indicators of the three dimensions stem from internationally renowned sources such as the OECD, Eurostat or the ESS. Due to the various measures of quality assurance (e.g. with respect to sampling methods and the number of respondents), the quality of the data is generally quite good. The data are internationally comparable and have a good geographical coverage with up to 28 EU countries. Most of the indicators are regularly available, i.e. they are being updated either at two-year intervals (e.g. ESS) or some of them even on an annual basis. However, there are also indicators, e.g. the skills measurements, which are supposed to be updated only in long intervals. For other aspects, such as the impact of sustainable employment on the creativity of employees, low turnover

in staff, specific effect of higher education on economic growth or innovation suitable indicators are either not available at all or not on a regular basis. These are severe limitations for monitoring capacities and it is recommended to take actions for improving the regular supply of data (see conclusions and recommendations).

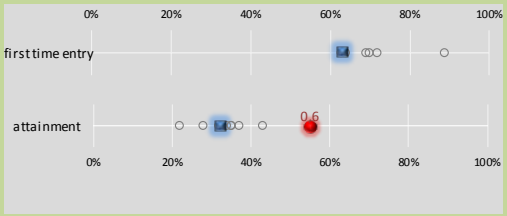
4.2 Country score cards

The country score cards (i.e. the analytic and diagnostic tool) for the eight case study countries Canada (Ontario), the Czech Republic, France, Denmark, Germany, Ireland, the Netherlands and Spain are presented below. Conclusions from the diagnostic tool are presented at the end of this chapter.

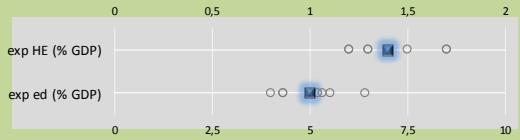
European Commission

Canada-Ontario

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ○ *Binary system*
- ✓ ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes	R	R	
Quality assurance & accreditation			
Regulated study places and quotas		R/O	
Functions of sectors of HEIs			
Stimulated student engagement			
Relevance indicators in funding formula			
Large strategic budgets			
Short/medium term funds for special initiatives			
Student financial support incentives			
Special funds for specific target groups	F		

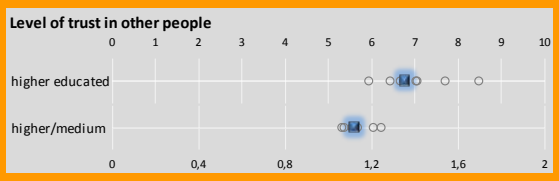
	PD	SE	AC
Development / Performance agreements		F	
Student counselling & career guidance (centres)	O		
Additional/new types of degrees / programmes			
Centres of Expertise or Innovation (regional)			
Access for specific target groups			
Student satisfaction / engagement surveys / monitors	I		
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes			
Student choice portal (central website)			

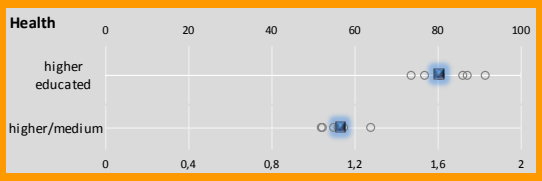
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

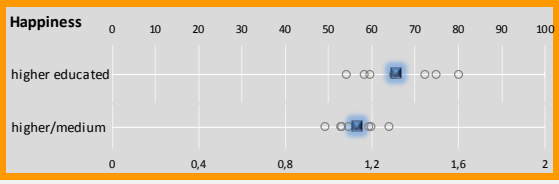
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

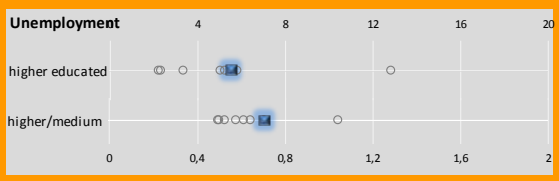
Personal development

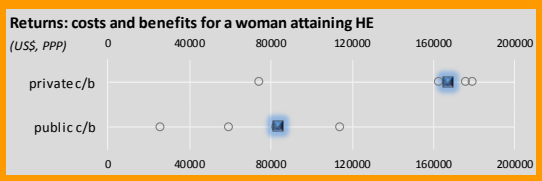


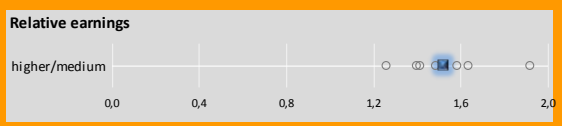


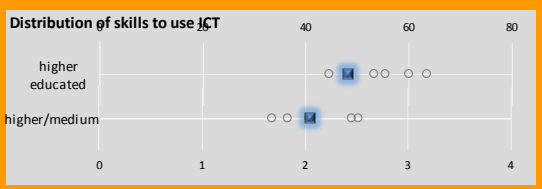


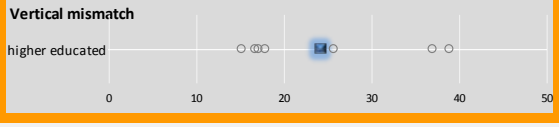
Sustainable employment



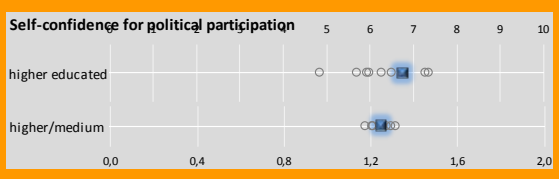


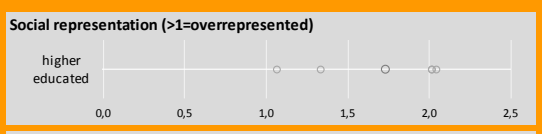






Active citizenship

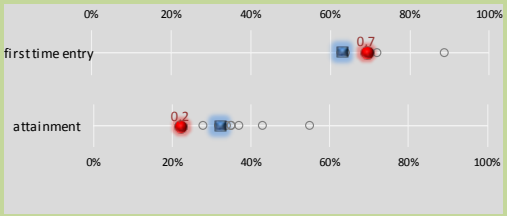




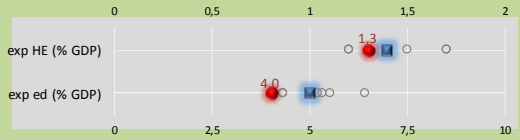
- Data for Canada-Ontario
- EU/OECD average
- ○ Data for other participating countries

Czech Republic

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ✓ ○ *Binary system*
- ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	
Quality assurance & accreditation		R	
Regulated study places and quotas		R	
Functions of sectors of HEIs			
Stimulated student engagement			
Relevance indicators in funding formula		F	
Large strategic budgets			
Short/medium term funds for special initiatives		F	
Student financial support incentives			
Special funds for specific target groups			

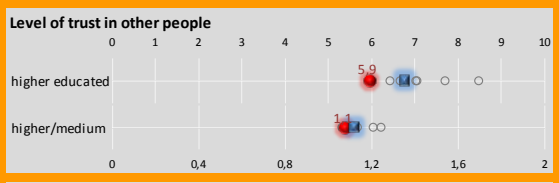
	PD	SE	AC
Development / Performance agreements			
Student counselling & career guidance (centres)			
Additional/new types of degrees / programmes		O	
Centres of Expertise or Innovation (regional)			
Access for specific target groups			
Student satisfaction / engagement surveys / monitors			
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes		I	
Student choice portal (central website)			

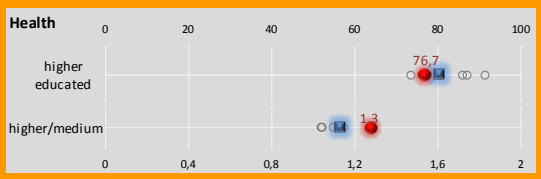
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

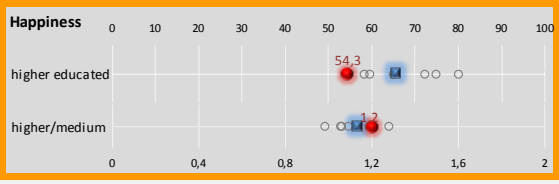
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

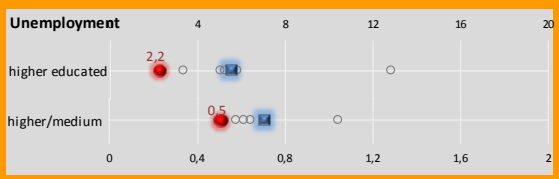
Personal development

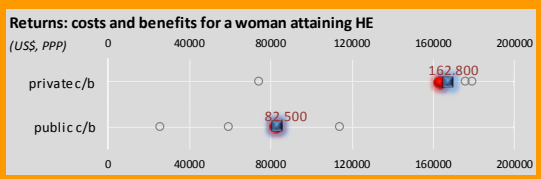


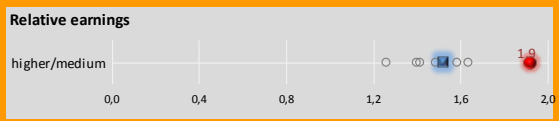


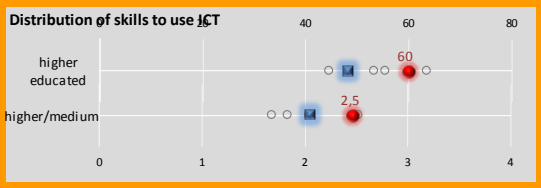


Sustainable employment

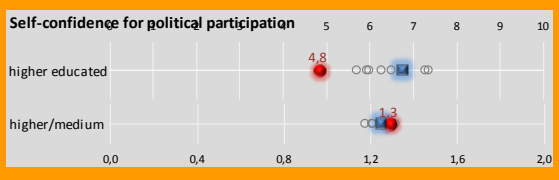


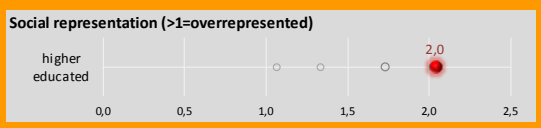






Active citizenship



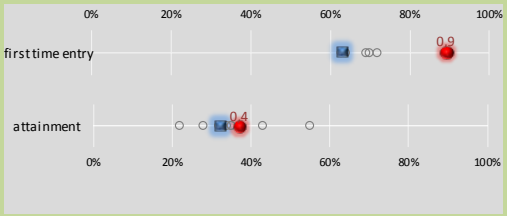


Data for Czech Republic
EU/OECD average
Data for other participating countries

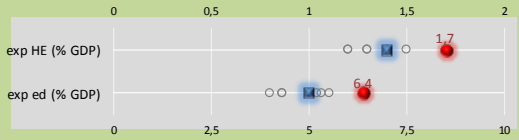
European Commission

Denmark

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ○ *Binary system*
- ✓ ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	
Quality assurance & accreditation		R	
Regulated study places and quotas		R	
Functions of sectors of HEIs			
Stimulated student engagement			
Relevance indicators in funding formula		F	
Large strategic budgets			
Short/medium term funds for special initiatives			
Student financial support incentives	F		F
Special funds for specific target groups	F		F

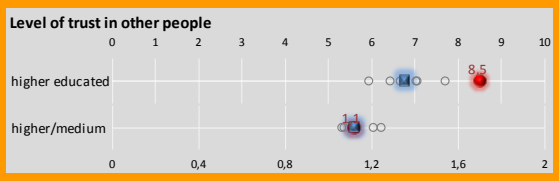
	PD	SE	AC
Development / Performance agreements		R/F	
Student counselling & career guidance (centres)		O	
Additional/new types of degrees / programmes			
Centres of Expertise or Innovation (regional)			
Access for specific target groups			
Student satisfaction / engagement surveys / monitors			
Graduate / employer surveys			
Promotion of particular disciplines/programmes			
Student choice portal (central website)		I	

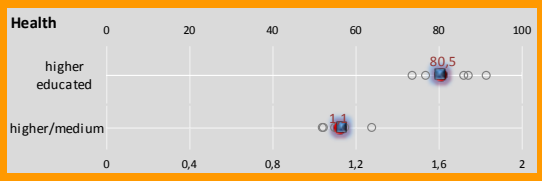
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

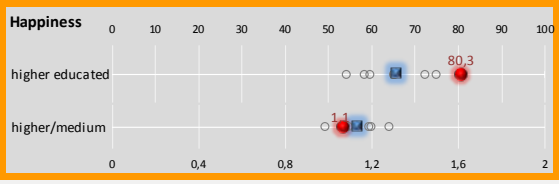
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

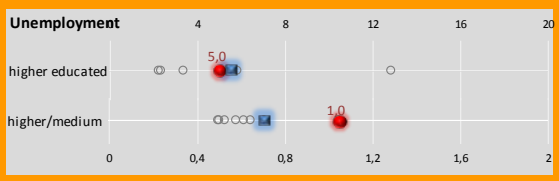
Personal development

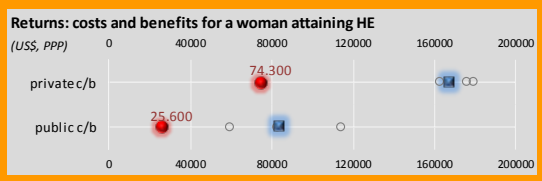


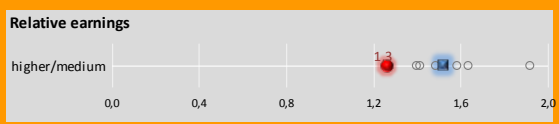


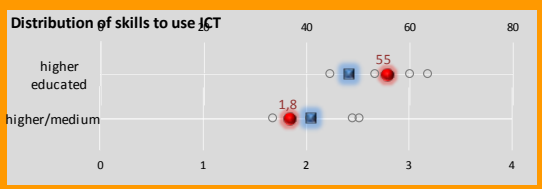


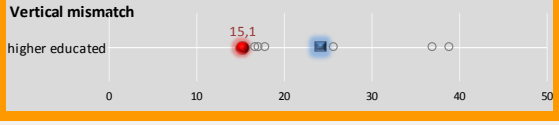
Sustainable employment



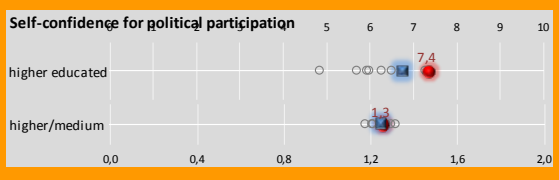


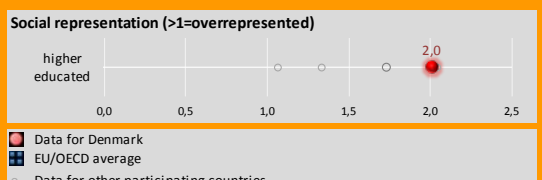






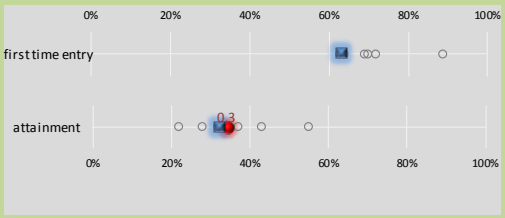
Active citizenship



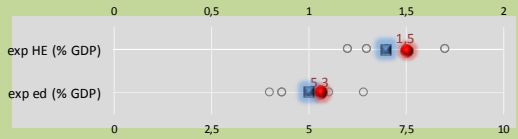


France

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ○ *Binary system*
- ☑ ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	
Quality assurance & accreditation		R	
Regulated study places and quotas		R	
Functions of sectors of HEIs		R	
Stimulated student engagement			R/F/O
Relevance indicators in funding formula		F	
Large strategic budgets		F	
Short/medium term funds for special initiatives			
Student financial support incentives			
Special funds for specific target groups			

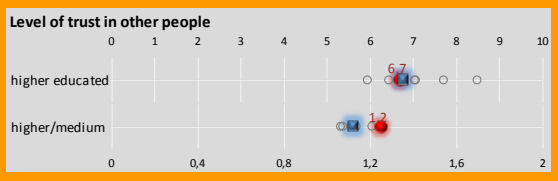
	PD	SE	AC
Development / Performance agreements		F	
Student counselling & career guidance (centres)		O	
Additional/new types of degrees / programmes		O	
Centres of Expertise or Innovation (regional)		O	
Access for specific target groups			
Student satisfaction / engagement surveys / monitors			
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes			
Student choice portal (central website)		I	

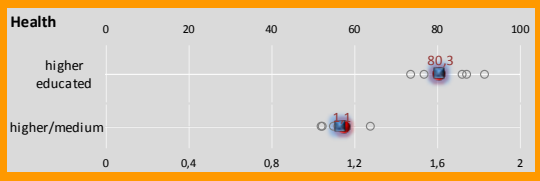
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

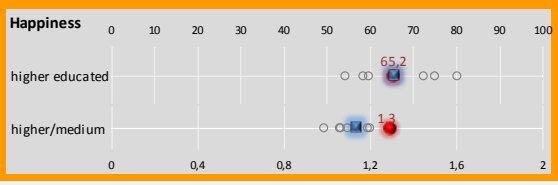
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

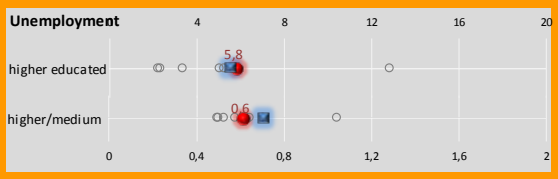
Personal development

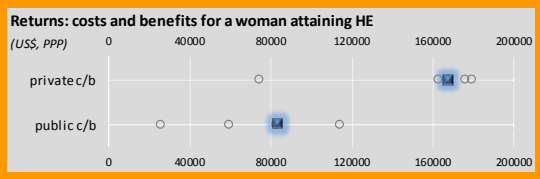


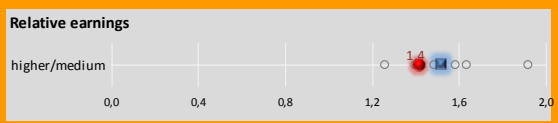


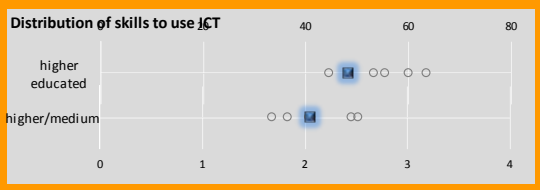


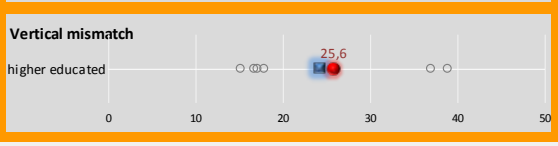
Sustainable employment



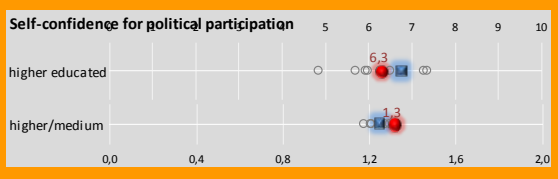


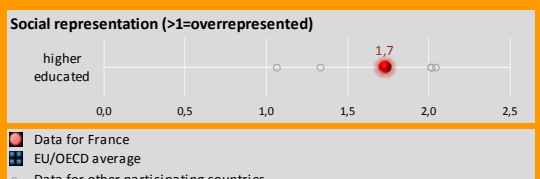






Active citizenship

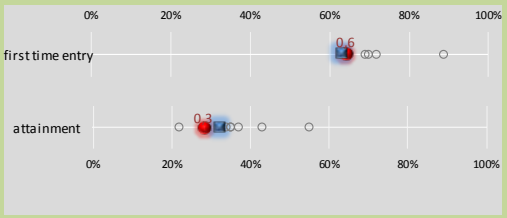




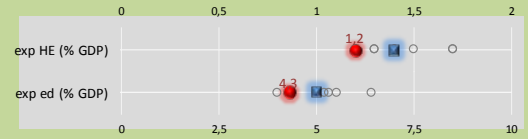
European Commission

Germany

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ○ *Binary system*
- ☑ ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	R
Quality assurance & accreditation			
Regulated study places and quotas		R/O	
Functions of sectors of HEIs			
Stimulated student engagement			R
Relevance indicators in funding formula			
Large strategic budgets	F	F	
Short/medium term funds for special initiatives		F	
Student financial support incentives	F		
Special funds for specific target groups		F	

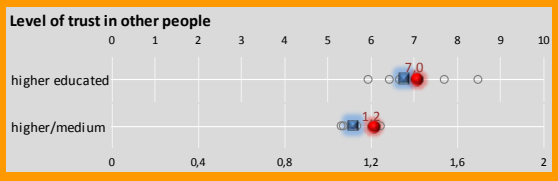
	PD	SE	AC
Development / Performance agreements		F	
Student counselling & career guidance (centres)		O	
Additional/new types of degrees / programmes			
Centres of Expertise or Innovation (regional)			
Access for specific target groups		O	
Student satisfaction / engagement surveys / monitors	I		I
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes		O/I	
Student choice portal (central website)			

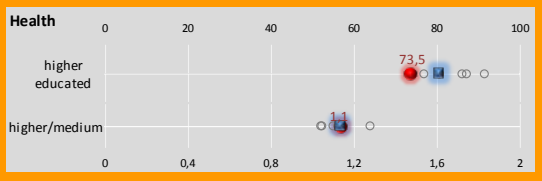
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

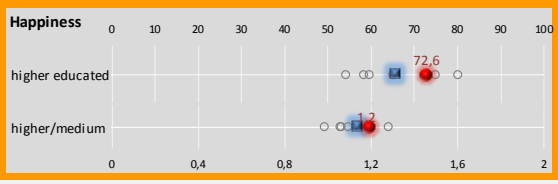
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

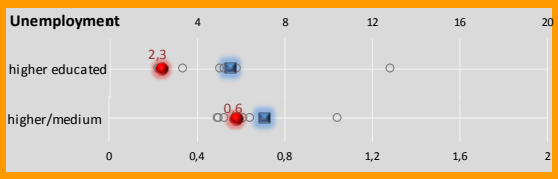
Personal development

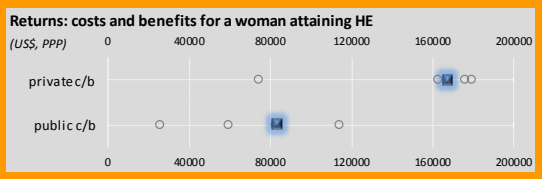


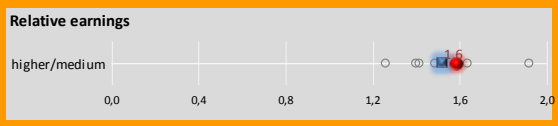


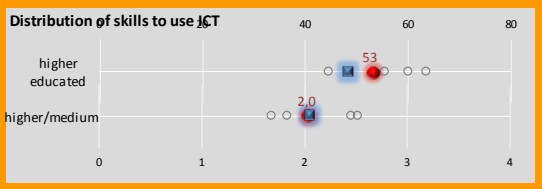


Sustainable employment

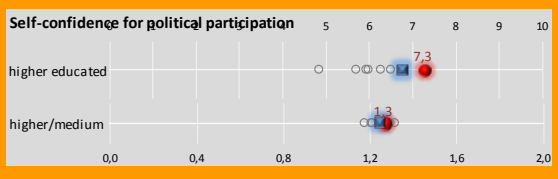


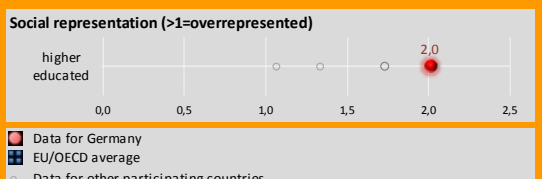






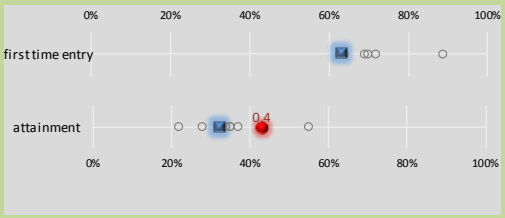
Active citizenship



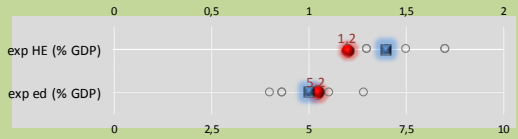


Ireland

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ✓ ○ *Binary system*
- ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	
Quality assurance & accreditation		R	
Regulated study places and quotas			
Functions of sectors of HEIs	R	R	R
Stimulated student engagement			O
Relevance indicators in funding formula		F	
Large strategic budgets			
Short/medium term funds for special initiatives		O	
Student financial support incentives	F	F	
Special funds for specific target groups		F	

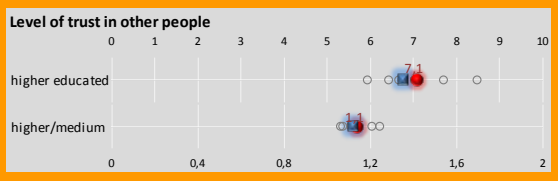
	PD	SE	AC
Development / Performance agreements		F	
Student counselling & career guidance (centres)			
Additional/new types of degrees / programmes			
Centres of Expertise or Innovation (regional)			
Access for specific target groups		O	
Student satisfaction / engagement surveys / monitors		I/R	I/R
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes			
Student choice portal (central website)			

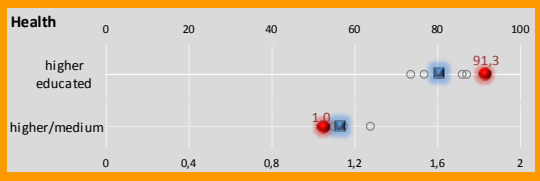
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

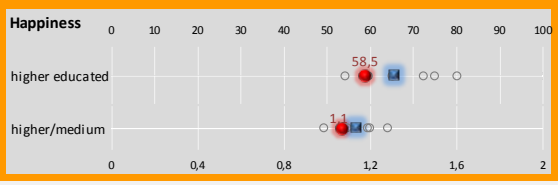
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

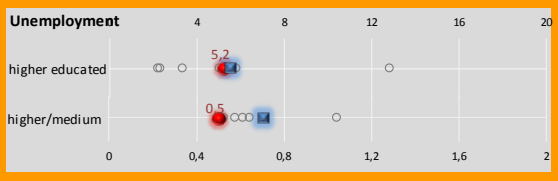
Personal development

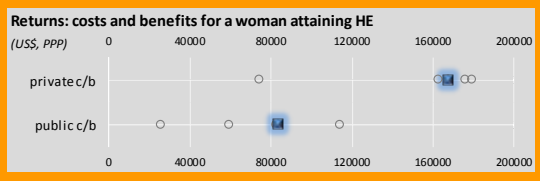


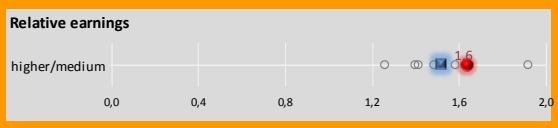


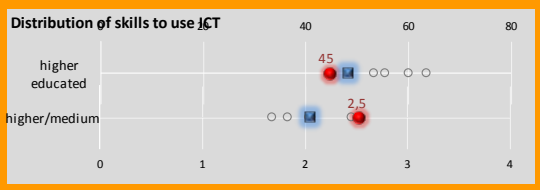


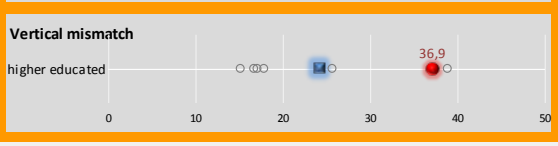
Sustainable employment



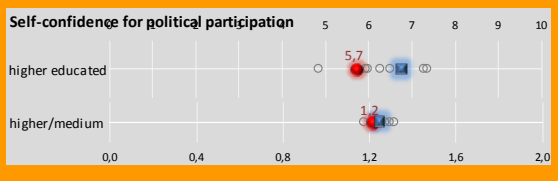


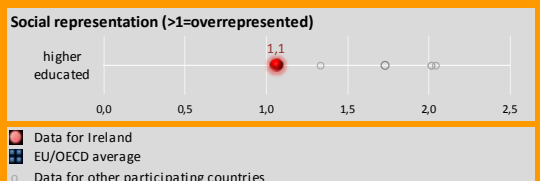






Active citizenship

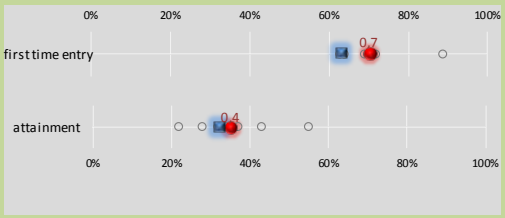




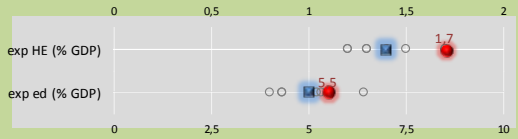
European Commission

Netherlands

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ✓ ○ *Binary system*
- ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes	R	R	R
Quality assurance & accreditation		R	
Regulated study places and quotas		R	
Functions of sectors of HEIs		R	
Stimulated student engagement			
Relevance indicators in funding formula		F	
Large strategic budgets			
Short/medium term funds for special initiatives	F	F	
Student financial support incentives			
Special funds for specific target groups			

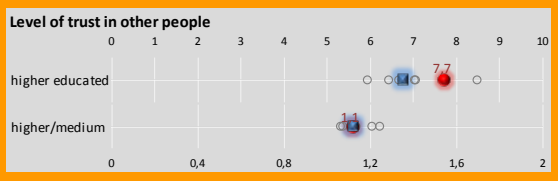
	PD	SE	AC
Development / Performance agreements	F	F	
Student counselling & career guidance (centres)			
Additional/new types of degrees / programmes	O	O	
Centres of Expertise or Innovation (regional)		O	
Access for specific target groups			
Student satisfaction / engagement surveys / monitors		I	I
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes		I	
Student choice portal (central website)	I	I	I

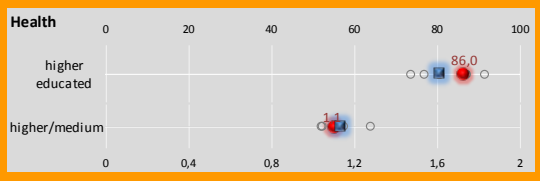
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

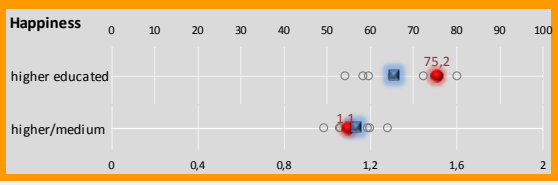
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

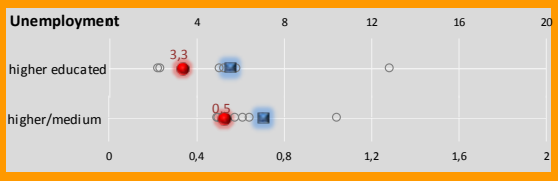
Personal development

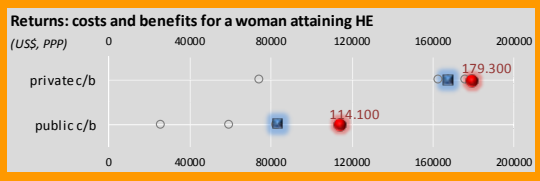


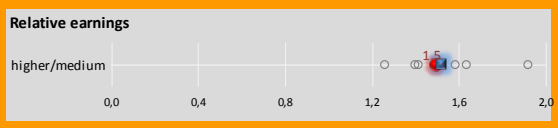


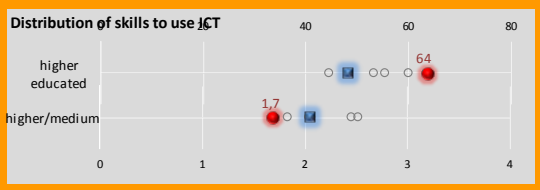


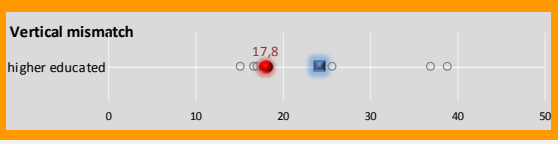
Sustainable employment



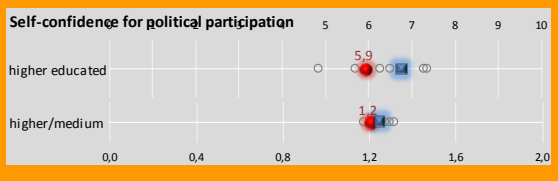


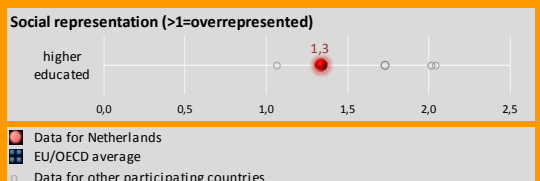






Active citizenship

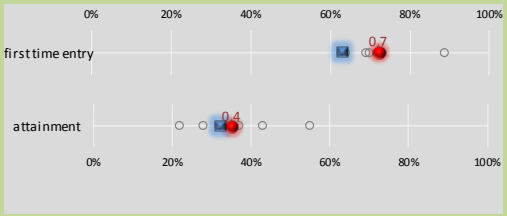




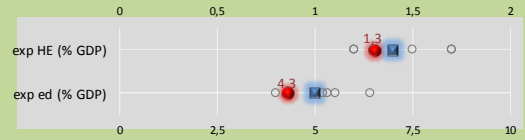
European Commission

Spain

Main system characteristics



source: OECD (2016) Education at a Glance



Providers: structural diversity

- ○ *Unitary system*
- ○ *Binary system*
- ✓ ○ *Multi-sector system*

Main policy levers

	PD	SE	AC
Regulated learning outcomes		R	
Quality assurance & accreditation		R	
Regulated study places and quotas			
Functions of sectors of HEIs			
Stimulated student engagement			R
Relevance indicators in funding formula			
Large strategic budgets			
Short/medium term funds for special initiatives			
Student financial support incentives			
Special funds for specific target groups			

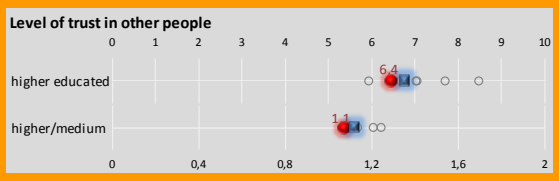
	PD	SE	AC
Development / Performance agreements			
Student counselling & career guidance (centres)			
Additional/new types of degrees / programmes			
Centres of Expertise or Innovation (regional)			
Access for specific target groups			
Student satisfaction / engagement surveys / monitors			
Graduate / employer surveys		I	
Promotion of particular disciplines/programmes			
Student choice portal (central website)			

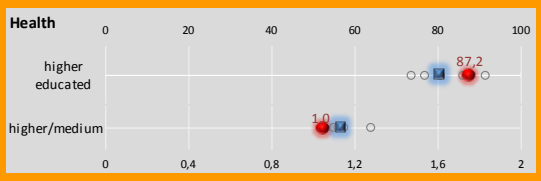
PD = Personal development, SE = Sustainable employment, AC = Active citizenship

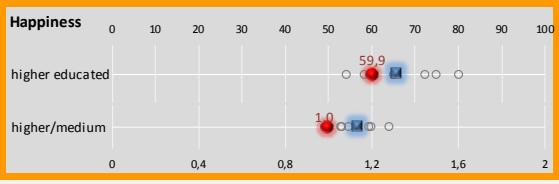
R = Regulation, F = Funding, O = Organisation, I = Information

Key indicators

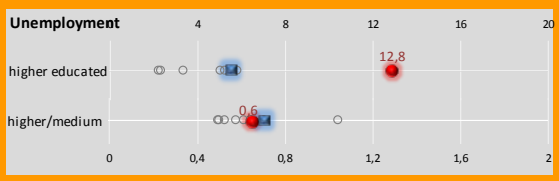
Personal development

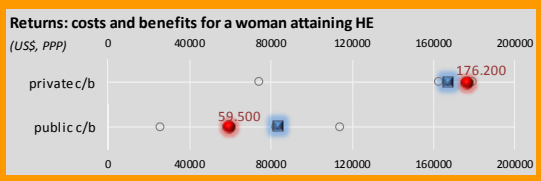


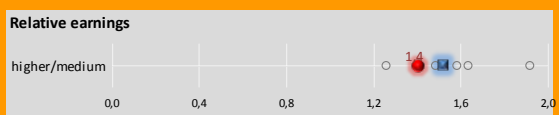


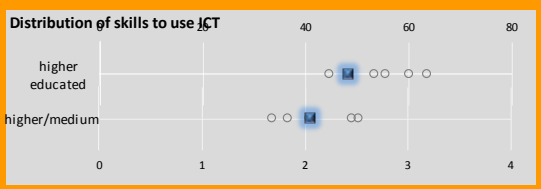


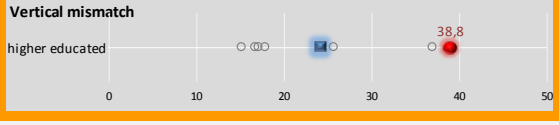
Sustainable employment



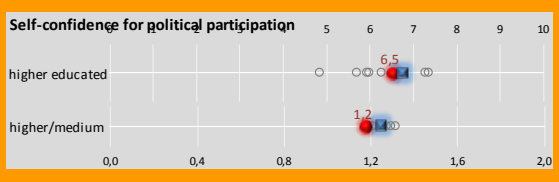


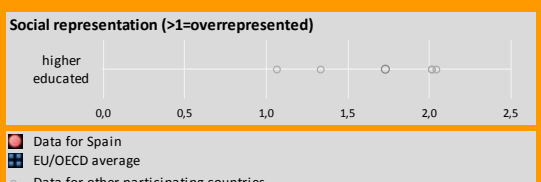






Active citizenship





4.2.1 Introduction to the wheel charts

The wheel charts display the relative scores on the relevance indicators of the case study countries at a glance (excluding Canada – Ontario). As such the charts convey the national 'relevance profiles'. They show on which indicators the country scores well or less well compared to the other case study countries. The charts can be used to compare countries with each other. Using the example of Denmark, a guideline for interpretation is provided below. All wheel charts are presented on the next page.

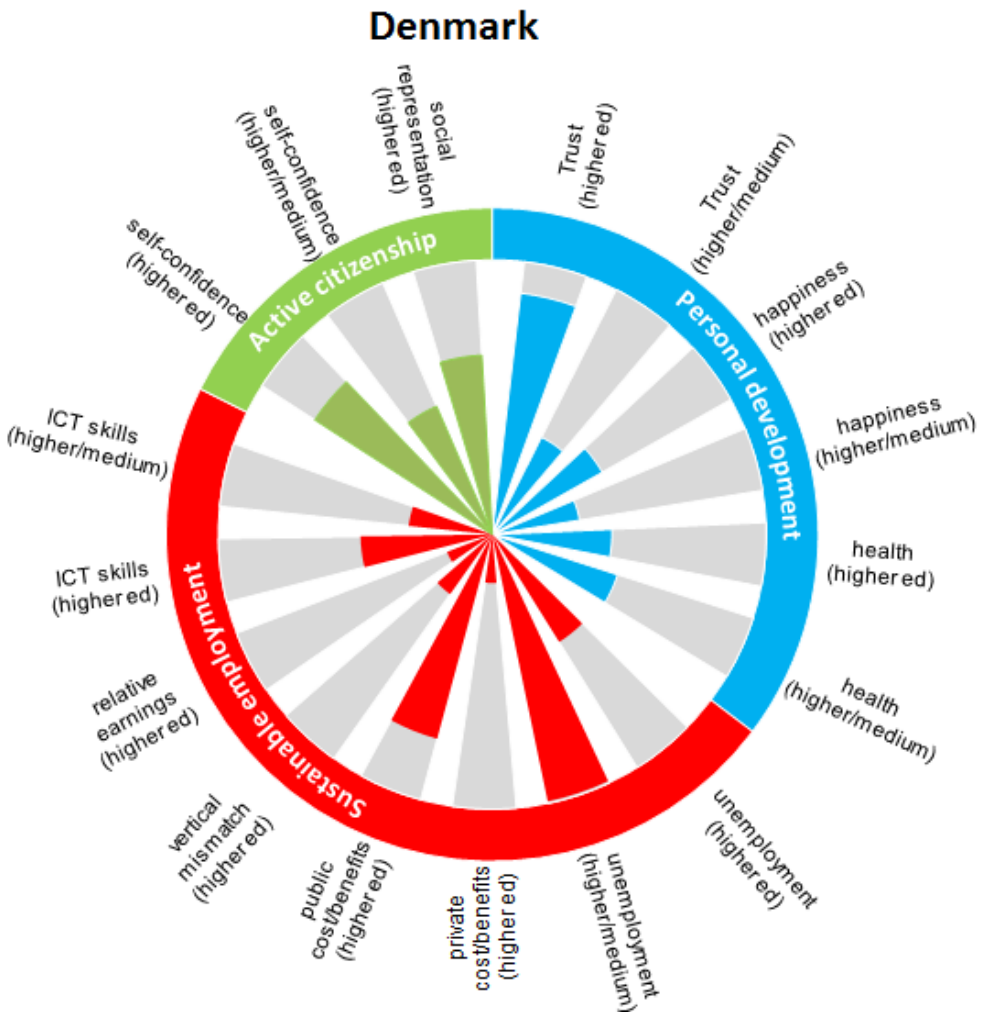
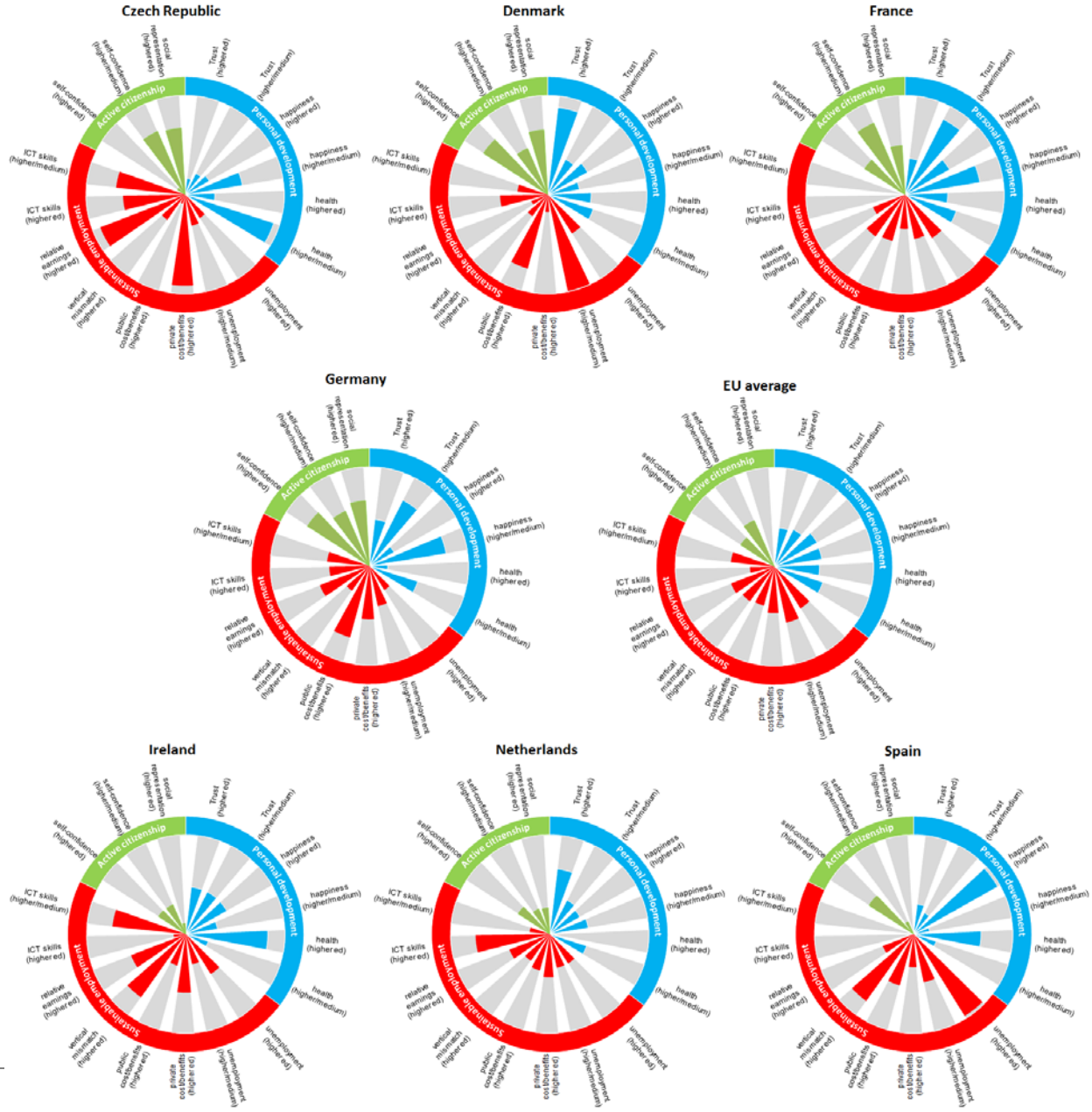


Figure 4.1: Wheel chart of Denmark's scores on relevance indicators as compared to the other case study countries

The length of the rays represent the standardised scores on the indicators. A long ray means that the country scores higher than average. A short ray means that the score is below the average. Looking by way of example at the trust indicator (the long blue ray), we can see that the level of trust in other people among Danish highly educated is – as compared to the other six case study countries – relatively high. However, looking at the difference in trust between the highly and medium educated populations (the second, short, ray), Denmark scores relatively low. This means that the difference between the highly and medium educated populations in terms of trust is higher in other countries. This could be interpreted as higher education having a comparatively weak effect as compared to other countries.


Czech Republic
Denmark
France
Germany
EU average
Ireland
Netherlands
Spain
Active citizenship
Personal development
Sustainable employment
Trust (higher ed)
Trust (higher/medium)
happiness (higher ed)
happiness (higher/medium)
health (higher ed)
health (higher/medium)
unemployment (higher ed)
unemployment (higher/medium)
private costs/benefits (higher ed)
public costs/benefits (higher ed)
vertical mismatch (higher ed)
relative earnings (higher ed)
ICT skills (higher ed)
ICT skills (higher/medium)
self-confidence (higher ed)
self-confidence (higher/medium)
social representation (higher ed)

4.3 Conclusions based on the analytic and diagnostic tool

In summary, the insights gained by applying the selected indicators show the positive effects of higher education in many areas and countries. For all three dimensions the results underscored the relevance of higher education by suggesting relationships between tertiary educational attainment and a wide range of positive outcomes, such as health, skills, earnings, or political participation. However, the use of such indicators has its caveats. Most rely on bivariate relationships between two variables (often: tertiary educational attainment and a proposed outcome). While the results often support the expected correlation between the two, the differences between educational groups are not tested for statistical significance. Moreover, it must be kept in mind that the exact size of the effect of higher education cannot be identified, let alone that causal relationships can be proven:

- The actual relationship could have the reverse direction (e.g. higher happiness levels encouraging a person to pursue more education, or facilitating this);
- The pattern could be the result of a more indirect causal chain (e.g. higher education leading to higher income leading to better healthcare provision, rather than higher education leading directly to better health);
- The outcome of interest can be (additionally/instead) influenced by other individual or system-level variables, which are not taken into account (e.g. economic strength of a country).

Additionally, the indicators themselves may be influenced by restrictions with regard to their validity and reliability. Bearing these qualifications in mind, the diagnostic tool shows that persons with higher education score considerably better on all indicators than persons with medium-level education.

Regarding personal development, persons with tertiary education report higher levels of trust in other people in all countries. In France and Germany, the mean value of trust in other people among higher educated exceeds the level of trust of persons with secondary education by more than 20%. In all other countries the difference is about 10%. Compared to their peers with upper secondary education, tertiary-educated persons also indicate better levels of health in all countries, with the largest difference in the Czech Republic. Additionally, self-reported happiness levels tend to be higher among persons with tertiary degrees for all countries except Spain. Again, differences are relatively large in the Czech Republic, France and Germany.

With regard to sustainable employment, five indicators are considered. Overall they show positive relationships between tertiary education, individual skills, and labour-market related outcomes. With the exception of Denmark, the risk of being unemployed is considerably lower for persons with higher education in all countries. Denmark's focus on sustainable employment of graduates may be a political reaction to this. For three countries, the unemployment rate of tertiary educated is about half of the size of the unemployment rate of persons with medium education (Czech Republic, Ireland, and the Netherlands). In all countries, higher educated persons earn more than persons with medium-level education. The difference is the smallest in Denmark (earnings about 30% higher) and the largest for the Czech Republic (earnings nearly twice as high).

Private and public net benefits of higher education as compared to upper secondary education are positive in all countries. Returns vary considerably across countries. Private returns are (in descending order) especially high for: the Netherlands, Spain, and the Czech Republic. In Denmark, private returns are relatively low. Public returns are the highest in the Netherlands and the Czech Republic and somewhat lower in Spain and Denmark. No data was available for Germany, France, and Ireland. The indicators on returns suggest that investments in higher education are expected to pay off financially in

all countries from a private as well as from a public perspective. Persons with higher education are more likely to have good ICT problem solving skills. The proportion with good skills is about twice as high as among persons with upper secondary education in the countries that have participated in the first round of the OECD survey of adult skills. Ireland and the Czech Republic reported relatively large differences and Germany an average difference. For the Netherlands, differences in skills levels are somewhat below average. No data was available for France and Spain.

A certain proportion of higher educated are vertically mismatched in all countries, there are, however, major differences. A group of four countries show a relatively small share of overqualified persons with a tertiary degree, ranging between 15-18%: Denmark, Germany, the Czech Republic and the Netherlands. In contrast France (26%), Ireland (37%), and Spain (39%) report much higher mismatch levels.

Regarding active citizenship, tertiary-educated persons are more confident regarding their own ability to exert an influence on their countries' politics than persons with medium-level education. Countries do not differ a lot in the size of this difference. In contrast, the representation of social groups within higher education varies across countries. The higher education systems of Germany, the Czech Republic, Denmark, and France are relatively selective, while the systems of the Netherlands and Ireland are more inclusive (no data on Spain).

Though a comparative analysis of seven countries is limited, the indicators suggest some tentative patterns and relationships. Denmark is an example of a country with relatively little advantages for higher educated persons across all indicators. Differences between educational groups are comparatively small on indicators on personal development and even more so regarding indicators on sustainable employment. The earnings advantage of the higher educated is smallest across all countries and unemployment levels do not differ at all. Does this mean that higher education is of little relevance in Denmark? This question hints at the limitations of the analysis. Indicators on Denmark show high levels of social cohesion (highest overall levels of social trust, happiness, and self-confidence in political participation). Private (74,300€) and public (25,600€) returns of women with a higher education degree are comparatively small but far from negligible. The proportion of higher educated with good ICT skills is nearly twice as large compared to persons with upper-secondary education. Moreover, Denmark reported the smallest proportion of overqualified higher educated persons, suggesting a good match with the labour market, which is interesting given the strong political emphasis on employability in Denmark. Denmark has a relatively large proportion of persons with higher education and is known for its relatively strong welfare state. Both aspects have the potential to mitigate differences between educational groups, which is typically seen as another desirable political goal.

Spain reported small and near to negligible differences between educational groups in the indicators on personal development, while at the same time having relatively low overall levels of social trust and happiness. Economic advantages of higher educated are larger than in Denmark but still comparatively small. Spain has the largest proportion of overqualified persons with a higher education degree which may be one explanatory factor. Also the share of unemployed persons with a tertiary degree is largest among all countries, reflecting overall economic difficulties. At the same time and somewhat contradictorily, private net returns on higher education are comparatively high. Public returns are small compared to other countries but still considerable (59,500€). In this regard, further investments in higher education could be expected to pay off. At the same time, levels of vertical mismatch and unemployment among higher education graduates are already quite high. More information on horizontal mismatch could be advantageous. The scope and number of policy levers targeting the relevance of higher education is relatively small, suggesting room for more policy action.

The Netherlands and Ireland report relatively small differences in the aspects of personal development and active citizenship but medium to large differences in the indicators on sustainable employment. Another commonality between both countries is the low level of social selectivity: persons with and without higher education do not differ a lot with regard to their social background. Family socialisation is very likely to impact on trust, happiness, health behaviour and political attitudes. Ireland is an example of an Anglo-Saxon welfare state with an emphasis on equality of chances (e.g. by access to education) and little redistribution. Thus differences in levels of education translate into economic differences, such as relative earnings or levels of unemployment. In the Netherlands, economic differences between educational groups are medium to high as compared to the other case study countries. Public and private returns to higher education are the highest in the Netherlands suggesting a strong economic relevance of higher education. This is also in line with the relatively small level of vertical mismatch reported for the Netherlands. In contrast, Ireland shows the second-highest proportion of overqualified persons with a tertiary degree, reflecting economic difficulties and crowding-out effects at the expense of groups with lower levels of education. As a reaction, Ireland has put more policy focus on employability. Overall, both countries show a broad set of policy levers.

Germany, France, and the Czech Republic are countries with medium to large differences between educational groups across all three relevance dimensions. All three countries have relatively medium to small proportions of persons with a higher education degree and higher education systems that are comparatively socially selective. Thus, differences between educational groups may reflect both the relevance of higher education regarding beneficial outcomes as well as social selection in the student in-take (i.e. differences independent from higher education). Descriptive indicators do not allow for disentangling both factors. Besides these commonalities, the three countries differ in a variety of aspects. Economic advantages of the higher educated are only moderate in France. The potential benefits of higher education may well be impaired by the high level of over-qualification. In the Czech Republic, economic advantages are more pronounced with the highest difference in earnings across all countries. Public and private returns on higher education are comparatively high in this country as well. This suggests a relatively high degree of economic relevance. For Germany, private economic benefits regarding employment and earnings are moderate as compared to other countries. Data on public and private returns was available neither for Germany nor for France.

In summary, the insights gained by applying the selected indicators imply positive effects of higher education in many areas and countries. Skills levels and returns to higher education are positively related to higher education and seem to be good measures of relevance. However, the scope of available indicators on skills of higher education graduates is still very limited. Generally, the analysis underscores that the use of monitoring indicators has its limitations. Whether higher education leads to positive outcomes as well as the degree of differences between educational groups depends on a large variety of factors and context conditions, such as the overall size of the higher education system, social selectivity in access to higher education, the labour market, the welfare state, or the overall economic situation. Identifying the net effect of higher education clearly asks for more complex analyses than are possible by using descriptive indicators.

5 Conclusions and recommendations

Higher education provides valuable public and private benefits for various stakeholders in higher education and the wider society. As such, the relevance of higher education is an important area of interest for policy makers, students, graduates, employers and researchers. The main objective of the current study is to provide a comprehensive analysis of the relevance of higher education and how this is promoted in various countries in Europe and beyond. The study includes:

- a thorough literature review to define and explore the concept of "the relevance of higher education";
- a mapping of national policies explicitly addressing higher education relevance;
- eight in-depth country case studies (Canada [Ontario], the Czech Republic, Denmark, France, Germany, Ireland, the Netherlands and Spain) exploring policy documents and stakeholder perspectives on higher education relevance;
- an overview of indicators on the relevance of higher education in international data sources; and
- an analytic and diagnostic tool with a concise set of indicators that provides a snapshot critical performance analysis for policy makers.

This chapter summarises the main conclusions of this study (Section 5.1) and presents policy recommendations on promoting the relevance of higher education (Section 5.2).

5.1 Conclusions

5.1.1 The concept and importance of relevance

A first conclusion is that the relevance of higher education is a broad and multi-dimensional concept. As such, the definitions of the relevance of higher education differ widely across countries and public authorities pay different levels of attention to relevance and emphasise different aspects. This makes international comparisons a challenging endeavour, further complicated by differences between higher education systems in terms of national contexts, structures and traditions.

Based on an elaborate literature review (see Annex 2 and 3), we defined the relevance of higher education in terms of its three main objectives as presented by the Council of Europe (2007): 1) personal development; 2) sustainable employment; and 3) active citizenship. Regarding the conceptualisation and importance given to the relevance of higher education, we arrive at the following key observations.

1) The literature review revealed that many aspects of higher education can be linked to "relevance". The distinction between three dimensions – personal development, active citizenship and sustainable employment – proved to be helpful in uncovering a rich literature on these themes and a long list of factors that possibly affect the relevance of higher education. Moreover, in the literature, policy documents and country case studies, other dimensions are seen as important to relevance, e.g. knowledge creation, personal autonomy, economic development and socio-cultural development. The distinction between the relevance dimensions may not always be clear-cut: various aspects of dimensions may overlap or interrelate.
2) Sustainable employment is the dominant dimension of higher education relevance in a majority of European countries. The following factors contribute to this. Firstly, sustainable employment fits very well the contemporary narrative of the "usefulness" of higher education for the knowledge economy and the instrumental neo-liberal perspective on higher education. Secondly, the aftermath of the economic crisis

triggered attention for (un)employment levels, mismatches between supply and demand and youth employment. Finally, from a pragmatic perspective, sustainable employment is considered to be better and more easily measurable than personal development and active citizenship.

3) The relative importance of the dimensions of relevance appears to be dynamic over time, with some aspects of relevance gaining importance and others becoming less prominent. For example in the Czech Republic and Ireland sustainable employment receives growing attention, while in the Netherlands personal development (*Bildung*) is gradually being put on an equal par with employability.

5.1.2 What kind of policies do governments have in place?

The review of policy literature and the eight in-depth case studies have identified a wealth of policy levers explicitly (or implicitly) designed to promote the relevance of higher education. These instruments have been categorised under the following types: regulation, funding, organisation and information. We analysed the policy instruments for each of the relevance dimensions: personal development, sustainable employment and active citizenship. The analyses focused on common patterns among and differences between countries and on finding interesting or good practices.

Personal development

Personal development is often addressed implicitly, e.g. in France and Spain. In some countries governments have a specific take on personal development as they stimulate personal development by integrating it in the learning outcomes of degree programmes. More common policies relate to widening participation through financial support for underrepresented students to secure equal access and personal development. Grants and scholarships in Germany and Ireland as well as loans in Denmark are envisaged to facilitate students in achieving personal development goals. Personal development can also be achieved through offering support for students with mental health problems, such as in Ontario (through the instrument of organisation).

In Ontario, Germany, and the Netherlands, satisfaction and engagement surveys are in place to monitor how students experience the personal development function of higher education. In the Netherlands, the concept of "*Bildung*" is being reintegrated into the policy debate after a long dominance of a performance and employability orientation.

Sustainable employment

Sustainable employment appears to be the dominant relevance dimension for higher education in most countries studied. This is reflected in the intensity and wide spread of policy instruments. The "hard" policy levers of regulation and funding are dominant.

Regarding **regulations**, typical sustainable employment policies include:

- Regulating enrolments, including the determination of quotas (Canada, Czech Republic, Denmark, France, Germany)
- Setting specific roles for higher education sectors, often in terms of learning outcomes (Canada, France, Germany, Ireland, Netherlands)
- Making employability part of quality assurance and assessment arrangements, e.g. in accreditation procedures (Czech Republic, Denmark, France, Ireland, Netherlands, Spain).

Funding policies to promote sustainable employment include:

- Performance based-funding, including graduation/employment outcomes (Spain, Canada, Czech Republic, Denmark, France, Germany, Ireland, Netherlands)
- Study finance for students (Germany, Ireland)
- Specific funding initiatives (France, Germany, Netherlands), such as large investment programmes to improve higher education quality.

Sustainable employment is also promoted by various **organisational policy levers**:

- Integrating employer representatives in advisory bodies, accreditation processes, and centres of expertise (Canada, Germany, Netherlands)
- Setting up career guidance centres / organising advisory services for students (Denmark, Germany, France)
- Additional or new types of degrees or programmes (Czech Republic, France, Germany, Netherlands)
- Organising access to higher education / fields of study / additional programmes for specific target groups (Germany, Ireland, Netherlands).

Policies addressing the **information** provision to prospective students include:

- Data collected through student, graduate and employer surveys (Canada, Denmark, Germany, Ireland, Netherlands, and Spain)
- Employment data feeding into student choice information or to promote certain disciplines (Czech Republic, Denmark, France, Germany, Netherlands, Spain).

Active citizenship

Not all countries have explicit policy levers addressing the active citizenship dimension of relevance (e.g. these are lacking in the Czech Republic and Ontario). Overall, the active citizenship dimension of higher education is primarily supported through regulation and funding, while organisation and information levers are rather rare.

Regulations concerning active citizenship often include: 1) legislation that specifies that students need to be educated for active citizenship (Ireland, Germany, and the Netherlands); 2) strengthening participation of students in higher education governance (Germany and Spain); 3) allowing flexible curricula to enable students to engage in civic service activities (France).

Funding policy levers used to promote active citizenship include: 1) expanding access to higher education to students of poorer socio-economic backgrounds through the study finance system (Denmark and Germany); 2) funding, recognising and awarding credits for active involvement in student organisations (France).

The only **organisational policy lever** used to promote active citizenship activities is the Irish "Campus Engage" initiative, which invites students to volunteer with local organisations on a pro bono basis for extra-curricular activities.

Finally, **information policies** used concern student surveys that focus on how students are integrated in student life and engagement and how that benefits their social values (Germany, Netherlands).

5.1.3 Effectiveness of explicit relevance policies

Overall, there is no comprehensive knowledge on the effectiveness of the policy levers in the eight case study countries. There are several explanations for this observation. First, many policy levers have been implemented recently. Second, policies are rarely closely monitored or evaluated. Third, evaluations do not necessarily reflect on relevance dimensions. Fourth, monitoring on personal development and active citizenship is limited. Fifth, the overall impact of policy levers may be affected by various factors outside the scope of the policy lever. Lastly, evaluative data may have a time lag, thus not showing the result of the policy lever or its full (long term) impact.

However, the available insights into effectiveness of policy levers illustrate that different policy instruments can have an impact. For example, evaluations show that: (1) labour market information allows students to make better educational choices (Spain), (2) a funding initiative can increase the attractiveness of the STEM disciplines for female

students (Germany), (3) offering part-time places in higher education to unemployed people has an effect on their sustainable employment (Ireland), and (4) “excellence education” and the introduction of associate degrees show a positive impact on sustainable employment (Netherlands).

The above mentioned factors indicate that more evaluations are needed to gain better insights into the effectiveness of policy levers, as well as into the conditions for success/failure. In relation to this, we can only report on rather generic insights gained through the interviews with stakeholders: (1) governments need to carefully consider the appropriateness of policy instruments in their specific settings and also reflect on which mix of instruments best fits with the pertinent challenges in their systems, (2) governments need to consider which instruments would be best organised at the system level (e.g. through regulation and funding) and which instrument should better be left to higher education institutions themselves, and (3) effectiveness may be improved by the inclusion of all relevant stakeholders in the design and implementation processes.

5.1.4 Data and indicators of relevance

Based on the review of several international data sources, an inventory was made of (potential) indicators of relevance. It shows that there are many available indicators and data offering insights into the relevance of higher education. Chapter 3 and Annex 2 provide substantial lists of indicators for various aspects of higher education relevance dimensions. These indicators have been assessed on their content validity (i.e. how well they measure an aspect of a higher education relevance dimension), refresh period (i.e. are they regularly updated), and country coverage (i.e. do they cover the majority of the EU28-countries). Only for a minority of relevance aspects an indicator matching all three criteria was found. In many cases indicators only provide rough measures, are available for only a few countries, or are not regularly updated.

Our main conclusions on the supply of data on the relevance of higher education are:

- For the personal development dimension, the supply of data is fairly good when compared to the other dimensions of relevance. Data on aspects such as 1) attitude towards self, 2) values, and 3) motivation are basically available, but due to lack of periodicity or limited geographical coverage, the current supply of data is not satisfactory.
- For the sustainable employment dimension, plenty of indicators are available but often content validity is not satisfactory. For the successful transition to the labour market, mid- and long-term careers of graduates, or for adequacy of employment only rough measures are regularly available.
- A lack of information was specifically visible for skills and competencies.
- Data on aspects such as political literacy, social participation and political participation are regularly available in international data sources. Indicators on democratic values, tolerance, intercultural skills and values are only regularly available for a minority of the EU28-countries.
- Many stakeholders have stated that personal development and active citizenship is very hard or impossible to measure. While data availability is far from satisfactory, it might be that stakeholders are not fully aware of the information already available in international data sources such as the ESS.
- Data on the subjective views of stakeholder groups on the relevance of higher education is scarce. No regular and comparable data are available for measuring graduates’ satisfaction with higher education regarding their personal development or for preparing them for the labour market or active citizenship.
- Besides some examples of surveys amongst employers, there is hardly any data collected that systematically covers the views of employers as another important stakeholder group on higher education.

This study focusses on aggregate level indicators, as this is a type of data prevalently used by decision makers and practitioners. It should be kept in mind that most indicators have limits on what they can tell about the relevance of higher education. They indicate a certain statistical fact but are typically not suitable for expressing the complex relationship between higher education and a certain outcome. The indicators predominantly presented in this report draw on a comparison of results for persons with higher educational attainment and those with medium-level education. Such indicators cannot prove a causal relationship or quantify the exact size of the influence higher education has on a certain outcome.

Still, indicators can provide important information on the relevance of higher education. This study has provided a concise set of indicators that can be used for measuring the relevance of higher education in an international comparative way. These have been used to develop a diagnostic tool to monitor and give a snapshot of the performance of higher education systems in terms of their relevance to society (see Chapter 4). Against the backdrop of the above mentioned caveats, it is clear that such a monitoring tool does not give a comprehensive assessment of the higher education system as, *inter alia*, important context conditions cannot be systematically considered.

Suggested indicators for **personal development**:

- Level of trust in other people (ESS)
- Happiness (ESS)
- Health (EU-SILC)

Suggested indicators for **sustainable employment**:

- Unemployment (Eurostat)
- Relative earnings (OECD, Education at a Glance)
- Vertical mismatch (EC data)
- Returns (OECD data)
- Distribution of skills to use ICT (OECD data)

Suggested indicators for **active citizenship**:

- Self-confidence for political participation (ESS)
- Social representation (EUROSTUDENT)

In addition, this study identified a number of indicators that would be an interesting and valuable asset to use when the international community is interested in promoting, monitoring and measuring the relevance of higher education (see Chapter 3).

5.2 Recommendations

Based on the outcomes of this study we present a number of recommendations for national and EU policy-makers to promote the relevance of higher education.

Governments should develop more explicit policy designs to boost relevance

Though most policy makers and stakeholders across the eight case study countries agree that the relevance of higher education is related to the dimensions of personal development, sustainable employment and active citizenship, most countries give explicit policy attention to sustainable employment, while aspects of personal development and active citizenship are often addressed implicitly. Relevance policies can be made more explicit in the following ways:

- National policy mixes should target a proper balance between the three dimensions of higher education relevance;

- Governments should be clear and explicit in defining and communicating the specific relevance dimensions, aspects, goals and targets that they regard as important, including the reasons for these priorities;
- National policy levers need to be explicit about the expected roles of different stakeholders.

The eight case studies point at several examples of instruments that "work". These can guide national governments in developing their own policy instruments:

Sustainable employment

- Provide extra funding for study programmes that address labour market shortages;
- Undertake graduate and employer surveys to monitor the graduate labour market;
- Involve labour market representatives in advisory committees and the quality assurance of education programmes;
- Organise/improve career orientation and guidance.

Personal development

- Provide targeted funding for under-represented groups;
- Integrate personal development explicitly in programme learning outcomes;
- Measure levels of personal development in student (evaluation) surveys.

Active citizenship

- Allow credit to be awarded for extra-curricular activities and prior learning (non-formal learning);
- Measure levels of active citizenship in student (evaluation) surveys.

Stimulate the collection of evidence on the effectiveness of higher education relevance policies, and monitor, share and adopt successful policy practices

To improve the limited attention for policy evaluation and monitoring, the European Commission and national governments should take the following actions:

- To initiate more systematic national and international comparative empirical research on the impact and effectiveness of higher education relevance policies;
- To link the higher education relevance agenda to other higher education policy areas, for example, modernisation, quality assurance and internationalisation;
- Use good practice examples to inspire national practices, e.g.:
  - Mandatory evaluations of national policies (Denmark and the Netherlands);
  - The use of indicators addressing all three relevance dimensions (Germany: adequate employment of graduates, satisfaction of graduates and employers);
  - Share objective and experience-based information about study programmes at a central study portal (Studiekeuze 123 in the Netherlands).

Governments as well as the European Commission should stimulate the collection of more robust data on the relevance of higher education

It is desirable to organise coordinated action across national borders to build up a more solid knowledge base derived from commonly defined relevance indicators.

- National governments should systematically collect information on the indicators of HE relevance using internationally shared definitions and should monitor outcomes;
- Interaction between decision makers, practitioners and data providers at European and national levels could improve the quality and awareness of available data;
- The European Commission and national governments should invest more effort in international studies that enhance the international knowledge base on the dimensions of HE relevance. Initiatives such as the recent recommendation of the European Council on tracking graduates, including the European pilot graduate survey (EUROGRADUATE), are promising steps in this direction;

- The analytic and diagnostic tool designed and developed within this project is a useful starting point for the systematic monitoring of relevance indicators and can serve as an input for a qualitative policy debate on higher education relevance;
- Linked to the analytic and diagnostic tool, national governments should be encouraged to utilize existing indicators on the personal development and active citizenship dimensions, such the level of trust in other people, level of happiness, self-confidence for political participation, and levels of social representation;
- The European Commission and member states should supplement statistical indicators with in-depth analyses to improve the understanding of the relationship between higher education and its outcomes.

A feasible approach to develop an explicit policy approach to all three dimensions of relevance is for national governments to gradually adopt various elements of these recommendations, while carefully integrating them into their specific contexts.

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