eurostat
Statistical books

Smarter, greener, more inclusive?

Indicators to support the Europe 2020 strategy

2013 edition

eurostat
EUROPEAN COMMISSION

eurostat
Statistical books

Smarter, greener, more inclusive?

Indicators to support the Europe 2020 strategy

2013 edition

eurostat
EUROPEAN COMMISSION

Europe Direct is a service to help you find answers to your questions about the European Union.

Freephone number (*):
00 800 6 7 8 9 10 11

(*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you).

More information on the European Union is available on the Internet (http://europa.eu).

Cataloguing data can be found at the end of this publication.

Luxembourg: Publications Office of the European Union, 2013

ISBN 978-92-79-31156-7
doi: 10.2785/11619
Cat. No: KS-02-13-238-EN-C

Theme: General and regional statistics
Collection: Statistical books

Printed in Luxembourg

PRINTED ON ELEMENTAL CHLORINE-FREE BLEACHED PAPER (ECF)

Foreword

Eurostat — the statistical office of the EU — has the role of informing the public about important developments in the EU and within important European policy frameworks. In this overall context, Eurostat is introducing a new type of flagship publication that provides statistical analyses related to important European Commission policy frameworks or significant economic, social or environmental phenomena.

Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy is the first of these new flagship publications. It focuses on statistics related to the Europe 2020 strategy. It presents the long-term trends as described by the headline indicators of the strategy together with other relevant statistical data which enable a better understanding of the driving forces behind the headline indicators. The publication is based on data produced by the European Statistical System (ESS) and disseminated by Eurostat, thus ensuring that the quality standards of official European statistics are met.

Impartial and objective statistical information is essential for evidence-based political decision-making and forms the basis of Eurostat's role in the context of the Europe 2020 strategy. This role is to provide statistical and methodological support in the process of developing and choosing the relevant indicators to support the strategy, to produce and supply statistical data, and ensure its high quality standards.

Walter Radermacher
Director-General, Eurostat
Chief Statistician of the European Union

Acknowledgements

Editor-in-chief

Iliyana Savova (Eurostat, Unit C4 — Key indicators for European policies)

Editors

Markus Hametner, Asya Dimitrova, Andreas Endl (RIMAS, WU Vienna), Juliane Fliedner, Stephanie Schwab (INFRAS), Katharina Umpfenbach, Krista Timeus Cerezo (Ecologic Institute)

Co-editors

Viktoria Bolla, Aleš Čapek, Dorothea Jung, Vittorio Perduca, Mariana Popova, Mario Giuseppe Varrenti (Eurostat, Unit C4 — Key indicators for European policies), Carolyn Avery (ENDS, Haymarket Media Group Ltd)

Production

Production co-ordinator: Carolyn Avery (ENDS, Haymarket Media Group Ltd)
Infographics: Leonard Dickinson, Carolyn Avery (ENDS, Haymarket Media Group Ltd)
Art direction: Kevin Hilton

Steering group

The preparation of this publication was overseen by a Steering Group comprising the following members: John Allen, Philippe Bautier, Marleen de Smedt, Mariana Kotzeva, Fabienne Montaigne, Jukka Piirto (Eurostat)

Expert advisors

Marta Beck-Domzalska, David Biddle, Bernard Félix, Isabelle Fiasse, Arturo de la Fuente Nuño, Sabine Gagel, Hannah Kiiver, Denis Leythienne, Branka Meštrović, Reni Petkova, Herve Rennie, Veijo Ritola, Anna Rybkowska, Heidi Seybert, Marek Sturc, Genevieve Villette, Albrecht Wirthmann (Eurostat), Catherine Kesy (KRD-Services Sarl)

Data coverage and direct links to Eurostat's database

The data presented in this publication were extracted during July 2013.

An online data code available under each table/figure can be used to directly access the most recent data on Eurostat's website, at:

http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database

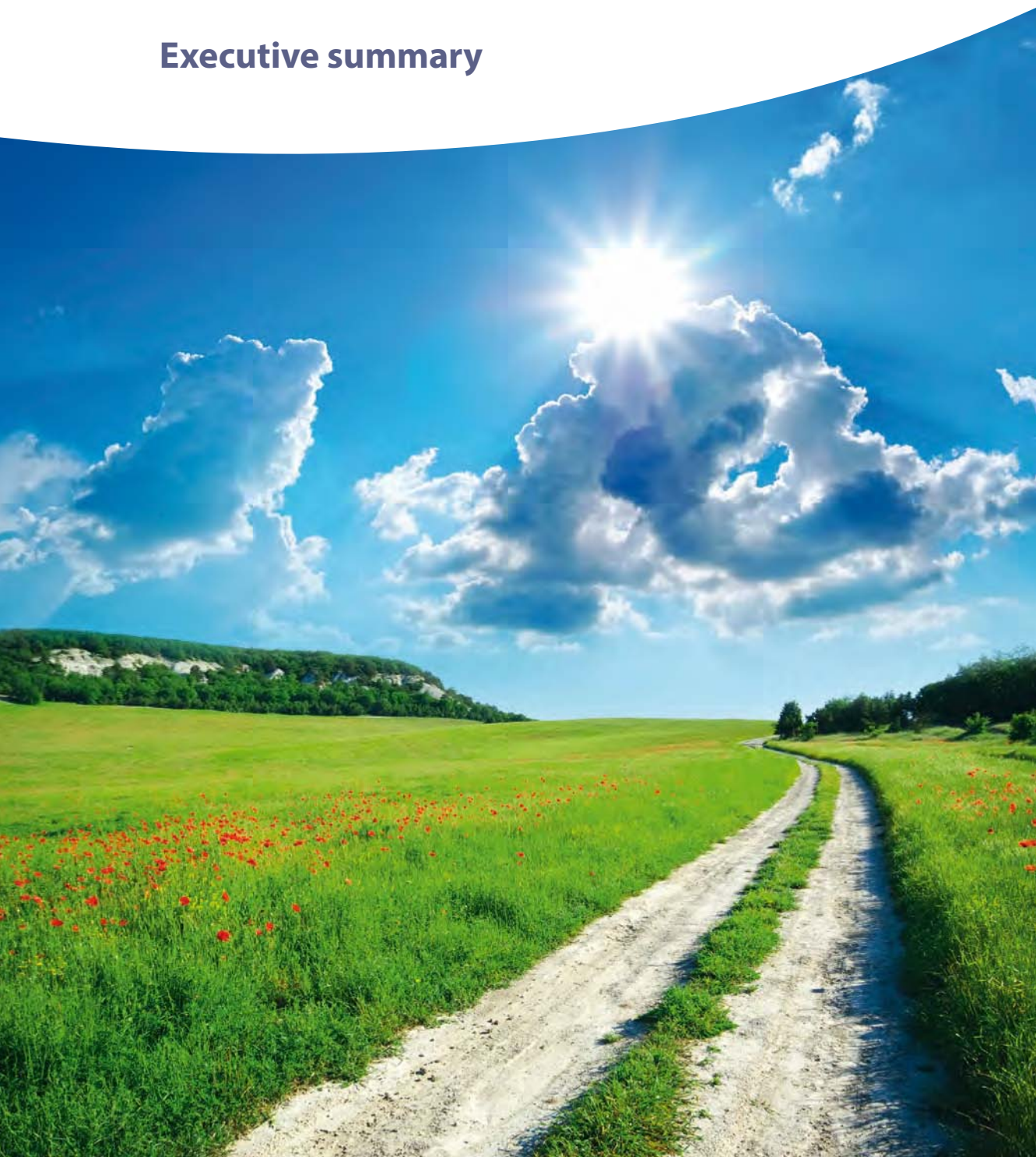
For more information please consult

Eurostat
Bâtiment Joseph Bech
5, rue Alphonse Weicker
2721 Luxembourg
http://ec.europa.eu/eurostat
E-mail: estat-user-support@ec.europa.eu

Disclaimer

Contents

Executive summary



Overview of trends in the Europe 2020 headline indicators

A set of eight headline indicators and three sub-indicators has been developed to back up the monitoring of the Europe 2020 strategy's objectives. An analysis of the developments in these indicators since 2005 shows a diverse picture.

Employment rate

Between 2005 and 2008 the employment rate of people aged 20 to 64 years increased, peaking at 70.3 % in 2008. This growth was visible throughout different groups in the labour force (men, women, older and younger people, high- and low-skilled workers and migrants). The trend was reversed in 2009 when the economic crisis fully hit the European labour market, bringing the employment rate down to its 2006 level of 69.0 %. During the next three years the employment rate came to a standstill at 68.5 % without recording any progress towards the Europe 2020 target of 75 %. Over the period 2005 to 2012 the employment rate of women grew faster than those of men, resulting in a closing of the gender employment gap.

The economic crisis revealed some of the most vulnerable groups (young people, non-EU nationals, low-skilled workers) that need to be addressed in view of the Europe 2020 strategy's 'inclusive growth' priority. Women, especially those aged 55 to 64 years, and older workers in general still have considerably lower employment rates than other groups in the labour force. This puts these groups in the spotlight for making progress towards the overall EU employment target.

Additionally, long-term changes in the demographic structure of the EU population add to the necessity of increasing employment rates. Despite a growing population, low fertility rates combined with a continuous rise in life expectancy are predicted to lead to a shrinking EU labour force. Increases in the employment rate are therefore necessary to compensate for the expected decline in the working-age population by 3.5 million people by 2020.

Gross domestic expenditure on research and development (R&D)

Between 2005 and 2007 gross domestic expenditure on R&D remained relatively stable at about 1.8 %. The indicator started increasing with the onset of the economic crisis — a trend reflecting an EU-wide approach of stimulating economic growth by boosting public R&D expenditure. Between 2009 and 2011 R&D expenditure stabilised at about 2 % of gross domestic product (GDP). This has put the EU off track towards its Europe 2020 target of raising combined public and private R&D expenditure to 3 % of GDP.

R&D expenditure is a means to a competitive and successful knowledge-based economy. It is enhanced by other important factors such as tertiary education and high-tech patent applications. The EU has increased its output of tertiary graduates in science and technology (almost 50 % between 2000 and 2011) and the share of female graduates, improving gender equality. In this regard the EU is making progress towards tackling the demographic challenge ahead and, furthermore, becoming better prepared for increased future R&D investment.

Compared with international competitors such as the United States, Japan, China and South Korea, the EU still has to catch up and reduce the gap with regard to overall R&D intensity.

Greenhouse gas emissions, share of renewable energy in gross final energy consumption, and energy efficiency

In the period 2005 to 2007 greenhouse gas emissions remained almost constant, but started declining in 2008, mainly as a result of the sudden slowdown in economic activity in that period. The strongest drop occurred between 2007 and 2011, when emissions fell by almost 10 % due to the economic crisis

Table 0.1: Europe 2020 headline indicators, EU-27

Topic	Headline indicator	2005	2006	2007	2008	2009	2010	2011	2012	Target
Employment	Employment rate age group 20–64, total (% of population)	68.0	69.0	69.9	70.3	69.0	68.5	68.6	68.5	75.0
	Employment rate age group 20–64, females (% of population)	60.0	61.1	62.1	62.8	62.3	62.1	62.3	62.4	:
	Employment rate age group 20–64, males (% of population)	76.0	76.9	77.8	77.9	75.8	75.1	75.0	74.6	:
R&D	Gross domestic expenditure on R&D (1) (% of GDP)	1.82	1.84	1.84	1.92	2.01	2.00	2.03	:	3.00
Climate change and energy	Greenhouse gas emissions (2) (Index 1990 = 100)	93.2	93.1	92.2	90.3	83.7	85.7	83.0	:	80.0
	Share of renewable energy in gross final energy consumption (%)	8.5	9.0	9.7	10.4	11.6	12.5	13.0	:	20.0
	Primary energy consumption (Million tonnes of oil equivalent)	1 703	1 706	1 684	1 682	1 592	1 645	1 583	:	1 474
Education	Early leavers from education and training, total (3) (% of population aged 18–24)	15.8	15.5	15.0	14.8	14.3	14.0	13.5	12.8	< 10.0
	Early leavers from education and training, females (3) (% of population aged 18–24)	13.8	13.4	12.9	12.8	12.4	12.1	11.6	11.0	:
	Early leavers from education and training, males (3) (% of population aged 18–24)	17.8	17.5	17.0	16.8	16.2	15.9	15.3	14.5	:
	Tertiary educational attainment, total (% of population aged 30–34)	28.0	28.9	30.0	31.0	32.2	33.5	34.6	35.8	≥ 40.0
	Tertiary educational attainment, females (% of population aged 30–34)	30.0	31.5	32.8	34.2	35.6	37.1	38.5	40.0	:
	Tertiary educational attainment, males (% of population aged 30–34)	26.0	26.3	27.2	27.9	28.8	29.9	30.8	31.6	:
Poverty and social exclusion	People at risk of poverty or social exclusion (4)(5) (million people)	123.9	122.7	119.3	115.7	113.8	116.2	119.8	:	95.7 (6)
	People at risk of poverty or social exclusion (4)(5) (% of population)	25.6	25.2	24.4	23.6	23.1	23.5	24.2	:	:
	People living in households with very low work intensity (4) (% of population)	10.3	10.5	9.6	9.0	9.0	10.0	10.2	:	:
	People at risk of poverty after social transfers (7) (% of population)	16.4	16.5	16.5	16.4	16.3	16.4	16.9	:	:
	Severely materially deprived people (8) (% of population)	10.7	9.8	9.1	8.4	8.1	8.3	8.8	:	:

(1) Data for 2008–2011 are estimates.
(2) Total emissions, including international aviation, but excluding emissions from land use, land use change, and forestry (LULUCF).
(3) Data for 2012 are provisional.
(4) Data for 2005 and 2006 are estimates.
(5) The indicator 'People at risk of poverty or social exclusion' corresponds to the sum of persons who are: at risk of poverty or severely materially deprived or living in households with very low work intensity. Persons are only counted once even if they are present in several sub-indicators.
(6) The overall EU target is to lift at least 20 million people out of the risk of poverty and exclusion by 2020. Due to the structure of the survey on which most of the key social data is based (i.e. EU Statistics on Income and Living Conditions), a large part of the main social indicators available in 2010, when the Europe 2020 strategy was adopted, referred to 2008 as the most recent year of data available. This is the reason why monitoring of progress towards the Europe 2020 strategy's poverty target takes 2008 as a baseline year.
(7) Data for 2005, 2006 and 2007 are estimates.
(8) Data for 2005, 2006 and 2009 are estimates.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

and the slow economic recovery which dramatically reduced industrial activity, transport volumes and energy demand. The mild winter of 2010/11 further pushed down energy demand and emissions. By 2011, the EU as a whole cut man-made emissions of greenhouse gases by 17 % compared to 1990 levels, three percentage points away from the headline target of – 20 % to be reached by 2020. The largest reductions were achieved in the manufacturing and energy industries sectors, while emissions from domestic transport as well as aviation and maritime transport increased.

The share of renewable energy in gross final energy consumption has increased substantially in the EU, from 8.5 % in 2005 to 13 % in 2011. Biomass contributes more than two-thirds of all gross inland energy consumption of renewable energy, but thanks to effective support schemes and dramatic cost reductions, the share of wind and solar energy has increased the fastest. Despite this positive trend, further progress is needed to ensure the Europe 2020 target of 20 % is realised.

Between 2005 and 2011 primary energy consumption in the EU declined, reaching a decade low of 1.58 million tonnes in 2011. Thus, in 2011 the EU consumed roughly as much primary energy as it did in 1990 and 7 % less than in 2005. Benchmarked against the Europe 2020 headline target of improving energy efficiency by 20 % by 2020, the EU has already achieved 70 % of the envisaged savings of 368 Mtoe nine years before the target year. It is important to note that this achievement is only partly due to efficiency improvements. The original projections, made in 2007, which underlie the efficiency target assumed that GDP would grow steadily after 2007. Because GDP growth is one of the key drivers of energy consumption, the low economic performance in the EU partly explains the observed reduction.

Early leavers from education and training and tertiary educational attainment

Early leavers from education and training, measured as the share of 18 to 24 year olds with at most lower secondary education and not in further education and training, has fallen continuously in the EU since 2005, for both men and women. The fall from 15.8 % in 2005 to 12.8 % in 2012 represents considerable progress towards the headline target of reducing early leavers from education and training to less than 10 % by 2020. Nevertheless demographic trends might render the Europe 2020 target unfeasible if efforts to keep people in education are not stepped up.

Young men are more likely to leave education and training with at most lower secondary education than women. While in 2012 women were already close to the overall EU target, at 11.0 %, the rate was much higher for men, at 14.5 %.

Improvements have also been visible in the second Europe 2020 headline indicator. Between 2005 and 2012, the share of 30 to 34 year olds having completed tertiary educational attainment grew continuously from 28.0 % to 35.8 %. Growth was considerably faster for women, who in 2012 had already met the Europe 2020 target. In contrast, only 31.6 % of men had completed tertiary education. Assuming that the EU maintains this trend, the headline target of ensuring at least 40 % of 30 to 34 year olds have completed tertiary education by 2020 is within reach.

Forecasts concerning the skills required by the labour market until 2020 underline the importance of higher education. Between 2010 and 2020, some 18 million jobs requiring a medium or high-level qualification are expected to be created, while low-qualified jobs will decline by about 10 million.

People at risk of poverty or social exclusion

The number of people at risk of poverty or social exclusion in the EU steadily decreased in the period 2005 to 2009, reaching a low of about 114 million in 2009. As the economic crisis took hold of financial and labour markets in that year, the number started growing again. Despite the cushioning role of automatic stabilisers and other discretionary policies adopted across the EU, the number of people at risk of poverty or social exclusion climbed

to almost 120 million in 2011. This means that almost every fourth person in the EU was at risk of poverty or social exclusion in 2011. This deterioration was mostly driven by people living in material deprivation.

The year 2009 marked a turning point in the development of two of the three dimensions covered by the headline indicator, namely severely materially deprived people and people living in households with very low work intensity. The two indicators decreased considerably until 2009, but started to increase from then on. On the other hand, the sub-indicator — people at risk of poverty after social transfers — remained relatively stable until 2010, but increased in the next year.

Monetary poverty is the most widespread form of poverty in the EU. The number of people at risk of poverty after social transfers in 2011 was 83.4 million or 16.9 % of the total EU-27 population. 43.4 million people or 8.8 % of the population were living in severe material deprivation. This was followed by 38.5 million people living in households with very low work intensity, making up 10.2 % of the population aged 0 to 59.

When looking at all three dimensions of poverty, the most vulnerable are: young people, single parents, families with many children, people with low educational attainment, and migrants. Almost 30 % of young people aged 18 to 24 and 27 % of children aged less than 18 were at risk of poverty or social exclusion in 2011. Moreover, one out of five children and young people aged 18 to 24 years were subject to material poverty.

The aim of the European Commission is to reduce the number of people at risk of poverty or social exclusion by 20 million by 2020 compared with the level in 2008 ([1]). In 2011 the EU was about 24 million away from the target. Without adequate policy measures to rapidly reverse this escalating poverty trend, the EU risks moving away from the Europe 2020 headline target on poverty.

Notes

([1]) Due to the structure of the survey on which most of the key social data is based (European Union Statistics on Income and Living Conditions), a large part of the main social indicators available in 2010, when the Europe 2020 Strategy was adopted, referred to 2008 as the most recent year of data available. This is the reason why monitoring of progress towards Europe 2020 headline targets takes 2008 as a baseline year (see European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Social Europe — Current challenges and the way forward. Annual Report of the Social Protection Committee (2012)*, Luxembourg: Publications Office of the European Union, 2013, p. 12).

Introduction

About this publication

Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy is a new publication of Eurostat. The purpose of this publication is to provide statistical support for the Europe 2020 strategy and to back-up the monitoring of its headline targets. The publication presents official statistics produced by the European Statistical System (ESS) and disseminated by Eurostat. Impartial and objective statistical information is essential for evidence-based political decision-making and defines Eurostat's role in the context of the Europe 2020 strategy. This role is to provide statistical and methodological support in the process of developing and choosing the relevant indicators to support the strategy, to produce and supply statistical data, and ensure its high quality standards.

The analysis in the publication is based on the Europe 2020 headline indicators chosen to monitor the strategy's targets. Other indicators focusing on specific subgroups of society or on related issues that show underlying trends are also used to deepen the analysis and present a broader picture. The data used stem mainly from official ESS sources such as the EU Labour Force Survey (EU LFS) or the EU Statistics on Income and Living Conditions (EU SILC) as well as from administrative sources.

More detailed information on many of the indicators analysed in this publication can be found in Eurostat's Monitoring Report of the EU Sustainable Development Strategy (the 2013 edition will be published in December 2013). The monitoring report, based on the EU set of sustainable development indicators (about 100 indicators), provides an objective, statistical picture of progress towards the goals and objectives of the EU Sustainable Development Strategy. It is published every two years.

The analysis in *Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy* looks into past trends, generally since 2000 or 2005, up to the most recent year for which data are available (2011 or 2012). Its purpose is not to predict whether the Europe 2020 targets will be reached, but to investigate the reasons behind the changes observed in the headline indicators. The publication includes references to analyses published by the European Commission on the future efforts required to meet the targets.

Data on EU-27 aggregates, individual Member States and where available on the European Free Trade Association (EFTA) and candidate countries, Croatia, the United States and Japan are presented. Taking into account that Croatia joined the EU on 1 July 2013, it is included in the country-level data used to complement the analysis whenever the differences in performance between Member States are of interest. This is particularly the case for the headline indicators. The EU-28 aggregates are not analysed, as at the time of writing data were not available for the majority of the indicators.

As described in the next section, the EU-wide targets have been translated into national targets by most Member States. In a few cases, maps presenting the different performances of Europe's regions and their progress towards the national Europe 2020 targets are included, even though the targets only apply on a national level.

The publication is structured around the five Europe 2020 targets. Each is analysed in a dedicated

thematic chapter. Data on the headline indicators and information on the Europe 2020 strategy are available on a dedicated section of Eurostat's website: Europe 2020 indicators.

This introductory section presents the Europe 2020 strategy and the economic context in which it is embedded. An executive summary outlines the main statistical trends observed in the indicators. The five thematic chapters are followed by a 'country profiles' section. This describes how each Member State is progressing in relation to its national Europe 2020 targets. It also summarises existing and planned actions and measures for reaching the national Europe 2020 targets.

The Europe 2020 strategy

The Europe 2020 strategy, adopted by the European Council on 17 June 2010 ([1]), is the EU's agenda for growth and jobs for the current decade. It emphasises smart, sustainable and inclusive growth as a way to overcome the structural weaknesses in Europe's economy, improve its competitiveness and productivity and underpin a sustainable social market economy.

The Europe 2020 strategy is the successor to the Lisbon strategy. The latter was launched in March 2000 in response to the mounting economic and demographic challenges for Europe at the dawn of the twenty-first century. The Lisbon strategy emerged as a commitment to increasing European competitiveness through a knowledge-based society, technological capacity and innovation.

Three key priorities

The Europe 2020 strategy puts forward three mutually reinforcing priorities to make Europe a smarter, more sustainable and more inclusive place to live:

- It envisions the transition to smart growth through the development of an economy based on knowledge, research and innovation.

Figure 0.1: The Europe 2020 strategy's key priorities, EU overall headline targets and flagship initiatives

	Targets	Flagship initiatives
Smart Growth	— 3 % of GDP to be invested in the research and development (R&D) sector. — Reduce the rates of early school leaving to below 10 %, and at least 40 % of 30 to 34 year olds to have completed tertiary or equivalent education.	— Innovation Union — Youth on the move — A digital agenda for Europe
Sustainable Growth	— Reduce greenhouse gas emissions by 20 % compared to 1990 levels. — Increase the share of renewables in final energy consumption to 20 %. — 20 % increase in energy efficiency.	— Resource efficient Europe — An industrial policy for the globalisation era
Inclusive Growth	— 75 % of 20 to 64 year old men and women to be employed. — Reduce poverty by lifting at least 20 million people out of the risk of poverty and social exclusion.	— An agenda for new skills and jobs — European platform against poverty and social exclusion

- The sustainable growth objective relates to the promotion of more resource efficient, greener and competitive markets.
- The inclusive growth priority encompasses policies aimed at fostering job creation and poverty reduction.

In a rapidly changing world, these priorities are deemed essential for making the European economy fit for the future and for delivering higher employment, productivity and social cohesion ([2]). Under the three priority areas the EU adopted five ambitious headline targets on employment, research and development (R&D) and innovation, climate change and energy, education, and poverty and social exclusion. The targets are monitored using a set of eight headline indicators (including three sub-indicators relating to the multidimensional concept of poverty and social exclusion).

Each indicator falls within one of the three thematic priorities, as shown in Figure 0.1:

- The smart growth objective is covered by the indicators on innovation (gross domestic expenditure on R&D) and education (early leavers from education and training and tertiary educational attainment).
- The sustainable growth pillar is monitored by three indicators on climate change and energy (greenhouse gas emissions, share of renewable energy in gross final energy consumption and primary energy consumption).
- Inclusive growth is measured against the poverty or social exclusion headline indicator (combining three sub-indicators on monetary poverty, material deprivation and living in a household with very low work intensity) and employment rate.

For a detailed overview of the indicators see Table 0.1 in the executive summary. The strategy objectives and targets are further supported by thematic flagship initiatives, as shown in Figure 0.1.

Five headline targets

The headline targets related to the strategy's key objectives at the EU level, as defined in the Council Conclusions, are:

- 75 % of men and women aged 20 to 64 years to be employed.
- 3 % of GDP to be invested in the research and development (R&D) sector.
- Climate change and energy targets:
  - » Reduce greenhouse gas emissions by 20 % compared to 1990 levels.
  - » Increase the share of renewables in final energy consumption to 20 %.
  - » 20% increase in energy efficiency.
- Reduce the rates of early school leaving to below 10 %, and at least 40 % of 30 to 34 year olds to have completed tertiary or equivalent education.
- Reduce poverty by lifting at least 20 million people out of the risk of poverty or social exclusion.

These targets were initially defined in the Commission communication 'Europe 2020 — A strategy for smart, sustainable and inclusive growth' published on 3 March 2010 ([1]). On 17 June 2010 they were adopted by a European Council decision ([3]), although with certain amendments. Therefore, the exact formulation of the targets differs slightly in these two documents. For example, while in the Commission's document the definition of the poverty target encompasses only people at risk of monetary poverty, in the Council Conclusions the target is defined in reference to people who are at risk of poverty or social exclusion according to three indicators: at risk of monetary poverty, material deprivation and/or living in households with very low work intensity.

The five headline targets are strongly interlinked, as shown in Figure 0.2. Higher educational levels help employability and progress in increasing the employment rate helps to reduce poverty. A greater capacity for research and development as well as innovation across all sectors of the economy, combined with increased resource efficiency,

will improve competitiveness and foster job creation. Investing in cleaner, low-carbon technologies will help the environment, contribute to the fight against climate change and create new business and employment opportunities ([4]).

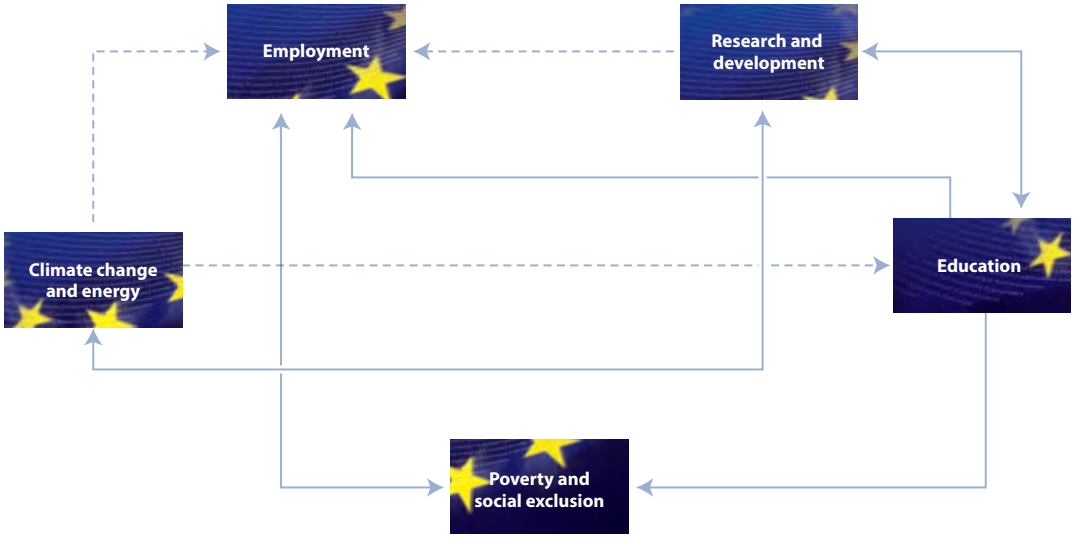
The EU headline targets have been translated into national targets. These reflect each Member State's situation and the level of ambition they are able to reach as part of the EU-wide effort for implementing the Europe 2020 strategy. For example, while the EU is committed to increasing employment to 75 %, the national employment targets adopted by Member States vary from 62.9 % in Malta to 80 % in Denmark, the Netherlands and Sweden. According to a European Commission analysis, if all Member States were to exactly achieve their national targets 'the EU as a whole would fall short of the 75 % target by 1.0–1.3 percentage points' ([5]). An aggregation of the national poverty and social exclusion targets is not possible because Member States have the freedom to set their national targets on the basis of the most appropriate indicators, taking into account their circumstances and priorities ([6]).

The level of ambition embodied in the national Europe 2020 commitments varies substantially among Member States. Whereas some face considerable challenges in reaching their 2020 objectives, others are set to achieve their national targets even without policy changes. Given their national objectives and forthcoming demographic changes, Malta and Germany, for instance, will reach their employment targets even against a negative employment growth rate. On the other hand, countries such as Bulgaria, Greece, Hungary, Ireland, Italy and Portugal, are at such a large distance from their national targets that achieving their 2020 commitments under current circumstances does not seem plausible ([5]).

Seven flagship initiatives

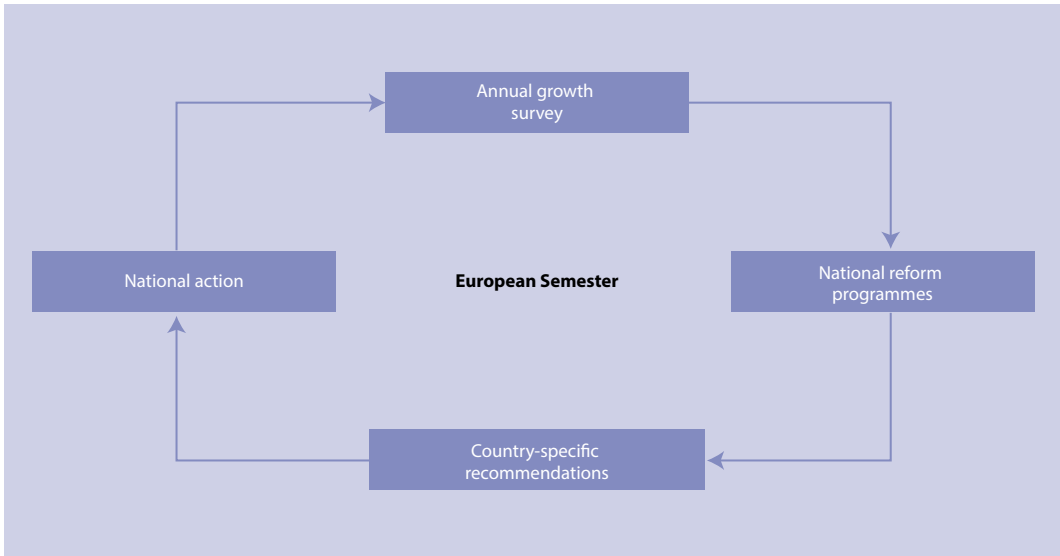
In addition to the five headline targets, the strategy identifies seven policy areas that will serve as engines for growth and jobs and hence catalyse the procedure under each priority theme. These are put forward through the following seven flagship initiatives:

Figure 0.2: Europe 2020 strategy headline targets and their interlinkages



- **'Innovation Union'** aims to create a more conducive environment for innovation by improving conditions and access to finance for research and development. Facilitating the transformation of innovative ideas into products and services is seen as the key to creating more jobs, building a greener economy, improving quality of life and maintaining the EU's competitiveness on the global market.
- **'Youth on the move'** is concerned with improving the performance and international attractiveness of Europe's higher education institutions; to raise the overall quality of the education and training in the EU and assisting the integration of young people into the labour market. This aim is to be achieved through EU-funded study, learning and training programmes as well as through the development of platforms to assist young people in their search for employment across the EU.
- **'A digital agenda for Europe'** aims to advance high-speed broadband coverage and internet structure, as well as the uptake of information and communication technologies across the EU.
- **'A resource efficient Europe'** aims to facilitate the transition to a resource-efficient and low-carbon economy. This is to be achieved through support for increased use of renewable energy, development of green technologies, promotion of energy efficiency, modernisation of the transport, industrial and agricultural systems, preservation of biodiversity and regional development. The Resource Efficiency Scoreboard, comprising about 30 indicators, is disseminated via a dedicated section on Eurostat's website.
- **'An industrial policy for the globalisation era'** supports the development of a strong, diversified and resource-efficient industrial base, which is able to boost growth and jobs in Europe and successfully compete on the global market. It also sets out a strategy for promoting a favourable business environment by facilitating access to credit and internationalisation of small- and medium-sized enterprises (SMEs).
- **'An agenda for new skills and jobs'** aims to advance reforms, which would improve flexibility and security in the labour market ('flexicurity'); create conditions for modernising labour

Figure 0.3 The European Semester



markets and enhance job quality and working conditions. Furthermore, it endorses policies aimed at empowering people, through the acquisition of new skills, through the promotion of better labour supply and demand matching and raise labour productivity.

- **'European platform against poverty and social exclusion'** sets out actions for combating poverty and social exclusion by improving access to work, basic services, education and social support for the marginalised part of the population.

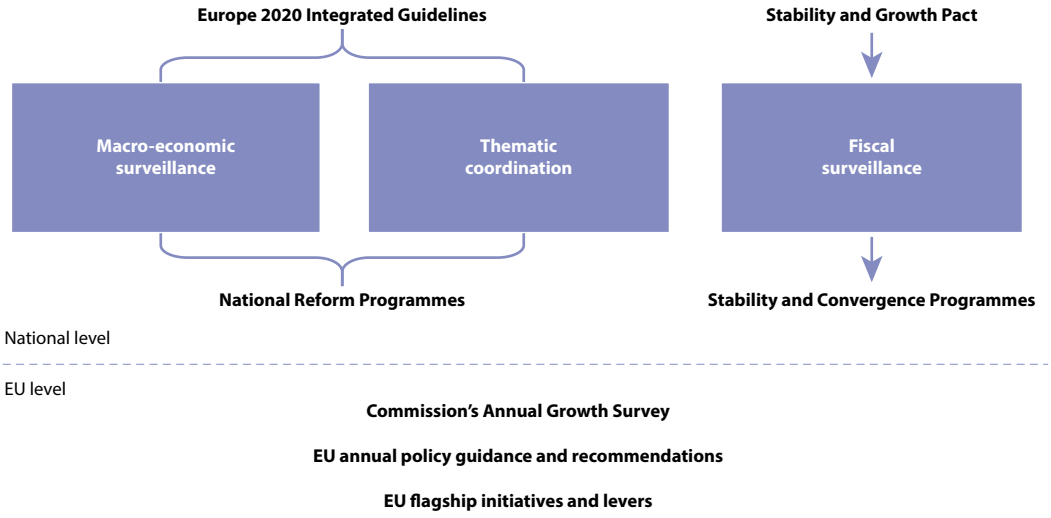
The headline targets and the flagship initiatives briefly defined above are described in more detail in the thematic chapters of this publication.

The European Semester: annual cycle of policy coordination

The success of the Europe 2020 strategy cruicially depends on Member States coordinating their efforts. To ensure this, the European Commission has set up an annual cycle of EU-level policy coordination known as the European Semester. Its main purpose is to strengthen economic policy coordination and ensure the coherence of the budgetary and economic policies of Member States with the Stability and Growth Pact (SGP) and the Europe 2020 strategy.

The Annual Growth Survey (AGS), normally adopted by the Commission towards the end of the year, marks the start of the European Semester. It sets out overall economic, budgetary and social priorities at EU and national level, which are to guide Member States. Based on the AGS, each Member State has to develop plans for National Reform Programmes (NRPs) and Stability Convergence Programmes (SCPs). This period of integrated country surveillance starts before the first half of each year, when national economic and budgetary policies have still not been finalised. The aim is to detect inconsistencies and emerging imbalances and issue early warnings and recommendations in due course ([7]). The NRPs and SCPs are submitted to the European Commission for assessment in April. At the end of June/July, country-specific recommendations are formally endorsed by the Council. These recommendations provide a

Figure 0.4: Integrated country surveillance



timeframe for Member States to respond accordingly and implement the policy advice.

Other policy tools for growth and jobs

To ensure progress towards the Europe 2020 goals a broad range of existing EU policies and instruments are being harnessed, including the single market, the EU budget and external policy tools. Central to tackling the weaknesses revealed by the crisis and to achieving the Europe 2020 objectives of growth and competitiveness is the promotion of enhanced economic governance. The two important elements in this respect are the Macroeconomic Imbalance Procedure (MIP) and the Excessive Deficit Procedure (EDP) based on the Stability and Growth Pact.

The MIP is intended to monitor the build-up of persistent macroeconomic imbalances and serve as an early warning system. A MIP scoreboard of 11 indicators provides information for the identification of external and internal macroeconomic imbalances. Internal imbalances refer to public sector indebtedness, financial and asset market developments and other general trends such as private sector credit flows and unemployment. External imbalances are related to current account developments and trends in real effective exchange rates, share of world exports and nominal unit labour costs ([8]).

The EDP is a part of the corrective arm of the SGP. Its main purpose is to enforce compliance with budgetary discipline and ensure Member States take corrective actions in a timely and durable manner. The EDP operationalises limits on the budget deficit and public debt on the basis of the following thresholds enshrined in the Treaty: government deficit within 3% of GDP and gross debt not exceeding 60% of GDP without diminishing at a satisfactory pace. The procedure under the EDP starts when a Member State has either breached or is at risk of breaching one of the two thresholds, with special consideration sometimes also given to other factors. Within a period of six months (or three for serious breaches) countries placed in EDP need to take actions and implement recommendations to correct their excessive deficit levels. Member States that fail to do so within the predefined timeframe or deliver insufficient progress, become subject to certain sanctions and receive revised recommendations with an extended timeline.

Notes

([1]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010; European Council conclusions, 17 June 2010, EUCO 13/10, Brussels, 2010.

([2]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM (2010)2020 final (p. 8).

([3]) European Council conclusions, 17 June 2010, EUCO 13/10, Brussels, 2010.

([4]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010 (p. 11).

([5]) European Commission, *Europe 2020 targets: employment rate* (accessed 23 July 2013).

([6]) Some countries have set targets for other indicators than the overall people at-risk-of-poverty or social exclusion rate; see http://ec.europa.eu/europe2020/pdf/targets_en.pdf.

([7]) European Commission, *The European Union Explained: Europe 2020: Europe's Growth Strategy*, 2012 (p. 6).

([8]) European Commission, Eurostat, *Macroeconomic Imbalances Procedure Scoreboard Headline Indicators*, 2012, (p. 2).

Europe 2020 in a broader policy perspective

Policy framework for sustainable development

Sustainable development is a fundamental and overarching objective of the European Union, enshrined in its treaties since 1997. The concept aims to continuously improve the quality of life and well-being for present and future generations, by linking economic development, protection of the environment and social justice. The renewed EU Sustainable Development Strategy from 2006 ([1]) describes how the EU will more effectively meet the challenges of sustainable development. The overall aim is to continually improve the quality of life of citizens through sustainable communities that manage and use resources efficiently and tap the ecological and social innovation potential of the economy, thus ensuring prosperity, environmental protection and social cohesion.

Unsustainable patterns of economic development, currently prevailing in society, have significant impacts on our lives. These include both socioeconomic and natural phenomena such as economic crises, intensified inequalities, climate change, depletion of natural resources and environmental degradation. The recent economic crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. Meanwhile, in a fast moving world, long-term challenges, such as globalisation, pressure on resources and an ageing population, are intensifying.

The Europe 2020 strategy has been adopted as the EU's answer to these challenges, building on the EU Sustainable Development Strategy, by focusing on the practical implementation of the EU's overarching policy agenda for sustainable development. Due to their complexity and global scope, the above-mentioned challenges require a coherent and comprehensive response from the international community. In this respect, the United Nationals Conference on Sustainable Development held in Rio de Janeiro in June 2012 (also known as 'Rio+20') has played an important role in shaping a common global vision of an 'economically, socially and environmentally sustainable future for the planet and for present and future generations' ([2]). The conference was a 20-year follow-up of the 1992 United Nations Conference on Environment and Development (the Earth Summit), which promoted the concept of sustainable development. Rio+20 recognised the transition to sustainable patterns of consumption and production, the protection of the natural resource base and poverty eradication as key requirements for achieving sustainable development.

Rio+20 also started a process for establishing universal sustainable development goals (SDGs) and agreed on a set of actions for mainstreaming the development and later realisation of these objectives. In its communication 'A decent life for all: ending poverty and giving the world a sustainable future' ([3]), the EU shows commitment to actively engage in the processes and work towards the implementation of the objectives agreed. The document proposes principles for an overarching framework that provides a coherent and comprehensive response to the universal challenges of poverty eradication and sustainable development in its three dimensions, with the ultimate goal of ensuring a decent life for all by 2030 ([4]).

'Statistics' is one of the areas listed in the communication for which actions are taken that contribute to the implementation of Rio+20. This highlights the importance of official statistics for evidence-based political decision making. As such, the communication calls for the further development of indicators on GDP and beyond in the EU (see next section), as well as further improve measurement of progress and ensure comparability on an international level.

Going beyond GDP

For many years, GDP — originally designed as a measure of macro-economic performance and market activity — has been used to assess a society's overall well-being. The political consensus for using GDP as the only measure for societal progress has been declining over the past few years.

Most prominently, new approaches to measuring progress have been proposed in the report of the Stiglitz-Sen-Fitoussi Commission ([5]), in the European Commission's communication 'GDP and beyond' ([6]) and in the report of the ESS's Sponsorship Group 'Measuring Progress, Well-being and Sustainable Development' ([7]).

In August 2009, the European Commission published the communication 'GDP and beyond — Measuring progress in a changing world' which aims to improve indicators to better reflect policy and societal concerns. It seeks to improve, adjust and complement GDP with indicators that monitor social and environmental progress and to report more accurately on distribution and inequalities. It identifies five key actions for the short to medium term (see Box 0.1).

The Europe 2020 strategy with its objectives of smart, sustainable and inclusive growth is an implementation at the policy level of the ideas of the GDP and beyond initiative.

In September 2009, the Stiglitz-Sen-Fitoussi commission published its report on the 'Measurement of Economic Performance and Social Progress' ([8]) with 12 recommendations on how to better measure economic performance, societal well-being and sustainability (see Box 0.2, p. 24).

In November 2011 the ESS Committee adopted the report by the ESS Sponsorship Group on 'Measuring Progress Well-being and Sustainable Development'. This report translates the recommendations from the Stiglitz-Sen-Fitoussi Commission report and the European Commission's Communication 'GDP and beyond' into a plan for concrete actions for the ESS for better use of and improving existing statistics with a view to providing the most appropriate indicators. The report identifies about 50 concrete actions for improving and developing European statistics over the coming years. The ESS Committee has decided to work further on the following priority areas:

1. Strengthening the household perspective and distributional aspects of income, consumption and wealth.
2. Multidimensional measures of quality of life.
3. Environmental sustainability.

The actions are an integral part of the European Statistical Programme ([9]) and they are gradually being implemented, resulting in new sets of indicators (e.g. 'quality of life' ([10])), in refining and specifying existing indicators (e.g. household adjusted disposable income per capita) and in extending national accounts to integrate environmental, social and economic accounting ([11]).

In August 2013, DG Environment published a Commission staff working document ([12]) summarising the results obtained in the context of the 'GDP and beyond' communication and its five key actions (see Box 0.1).

Box 0.1: 'GDP and beyond' key actions for the short to medium term

1. Complement GDP with environmental and social indicators (environmental index and quality of life and well-being).
2. Provide near real-time information for decision-making.
3. Report more accurately on distribution and inequalities.
4. Develop a European sustainable development scoreboard (including thresholds for environmental sustainability).
5. Extend national accounts to environmental and social issues.

Box 0.2: 12 recommendations from the Stiglitz-Sen-Fitoussi commission

1. When evaluating material well-being, look at income and consumption rather than production.

2. Emphasise the household perspective.

3. Consider income and consumption jointly with wealth.

4. Give more prominence to the distribution of income, consumption and wealth.

5. Broaden income measures to non-market activities.

6. Quality of life depends on people's objective conditions and capabilities. Steps should be taken to improve measures of people's health, education, personal activities and environmental conditions. In particular, substantial effort should be devoted to developing and implementing robust, reliable measures of social connections, political voice, and insecurity that can be shown to predict life satisfaction.

7. Quality-of-life indicators in all the dimensions covered should assess inequalities in a comprehensive way.

8. Surveys should be designed to assess the links between various quality-of-life domains for each person, and this information should be used when designing policies in various fields.

9. Statistical offices should provide the information needed to aggregate across quality-of-life dimensions, allowing the construction of different indexes.

10. Measures of both objective and subjective well-being provide key information about people's quality of life. Statistical offices should incorporate questions to capture people's life evaluations, hedonic experiences and priorities in their own survey.

11. Sustainability assessment requires a well-identified dashboard of indicators. The distinctive feature of the components of this dashboard should be that they are interpretable as variations of some underlying 'stocks'. A monetary index of sustainability has its place in such a dashboard but, under the current state of the art, it should remain essentially focused on economic aspects of sustainability.

12. The environmental aspects of sustainability deserve a separate follow-up based on a well-chosen set of physical indicators. In particular there is a need for a clear indicator of our proximity to dangerous levels of environmental damage (such as associated with climate change or the depletion of fishing stocks).

Notes

(1) European Council, *Review of the EU Sustainable Development Strategy (EU SDS) — Renewed Strategy*, 10117/06, Brussels, 2006.

(2) European Commission, *A decent life for all: ending poverty and giving the world a sustainable future*, COM(2013) 92 final, Brussels, 2013 (p. 6).

(3) European Commission, *A decent life for all: ending poverty and giving the world a sustainable future*, COM(2013) 92 final, Brussels, 2013.

(4) European Commission, *A decent life for all: ending poverty and giving the world a sustainable future*, COM(2013) 92 final, Brussels, 2013 (p. 2).

(5) French president Nicolas Sarkozy in 2008 set up a high level Commission on the Measurement of Economic Performance and Social Progress chaired by Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi in order 'to identify the limits of GDP as an indicator of economic performance and social progress' and 'to consider additional information required for the production of a more relevant picture'.

(6) European Commission, *GDP and beyond — Measuring progress in a changing world*, COM(2009) 433 final, Brussels, 2009.

(7) Final report of the 'Sponsorship Group on Measuring Progress, Well-being and Sustainable Development' adopted by the European Statistical System Committee in November 2011.

(8) Stiglitz, J.E., Sen, A., Fitoussi, J.-P., *Report by the Commission on the Measurement of Economic Performance and Social Progress*, 2009.

(9) Regulation (EU) No 99/2013 of the European Parliament and of the Council of 15 January 2013 on the European Statistical Programme 2013–17, Official Journal of the European Union 2013.

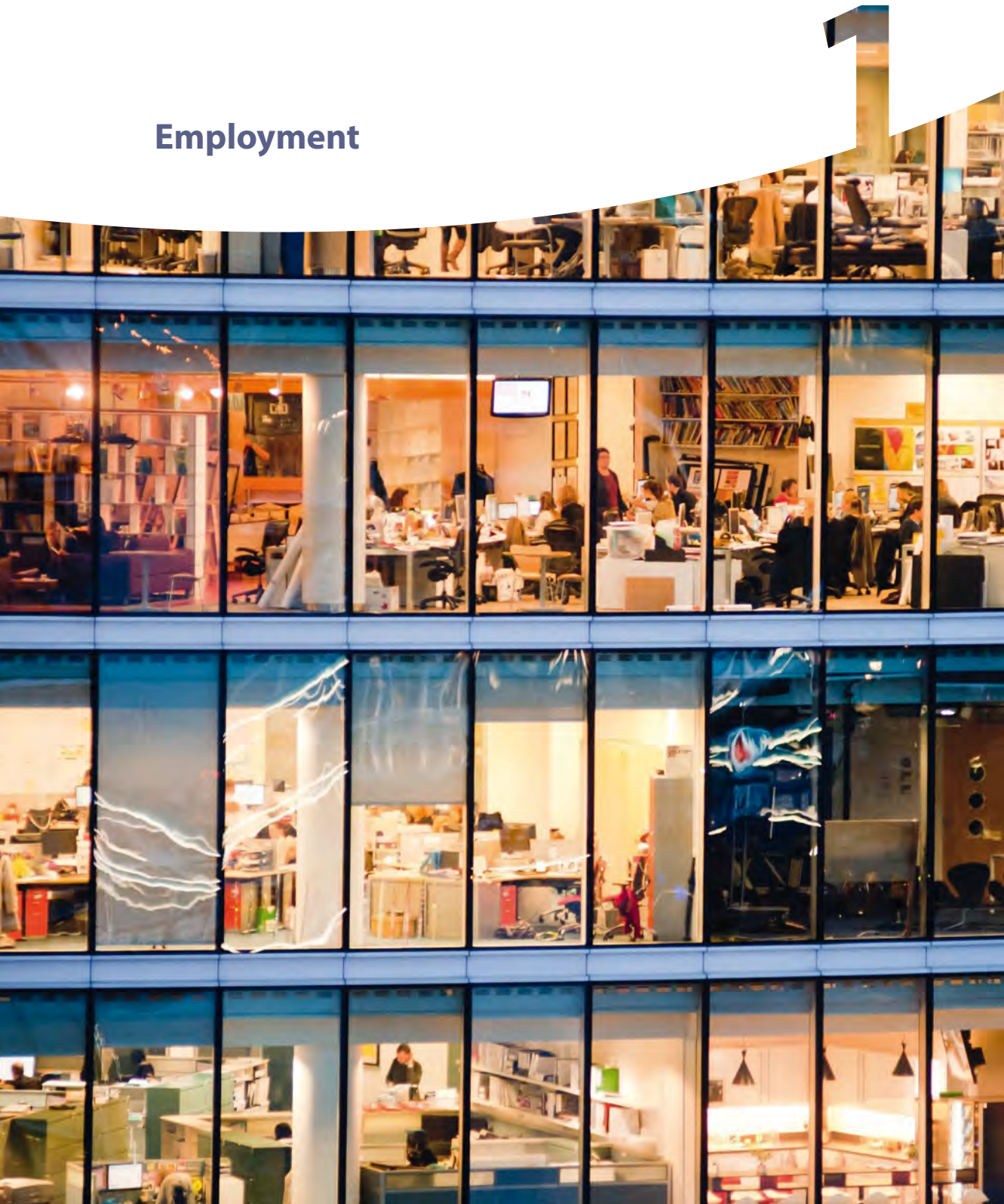
(10) See http://epp.eurostat.ec.europa.eu/portal/page/portal/quality_life/introduction.

(11) See http://epp.eurostat.ec.europa.eu/portal/page/portal/environmental_accounts/introduction.

(12) European Commission, *Commission staff working document 'Progress on 'GDP and beyond' actions'*, Volume 1 of 2, SWD(2013) 303 final, Brussels, 2013.

1

Employment



Employment — why does it matter?

Employment and other labour market-related issues are at the heart of the social and political debate in the EU. Paid employment is crucial for ensuring sufficient living standards and it provides the necessary base for people to achieve their personal goals and aspirations. Moreover, employment contributes to economic performance, quality of life and social inclusion, making it one of the cornerstones of socioeconomic development and well-being.

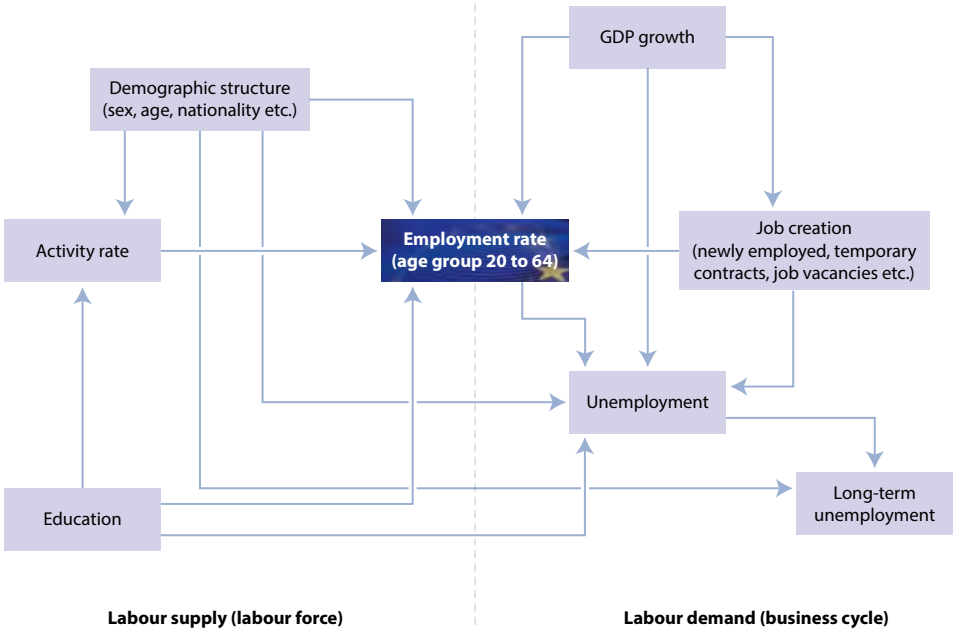
The EU's workforce is shrinking as a result of demographic changes. A smaller number of workers are thus supporting a growing number of dependent people. This is putting at risk the sustainability of Europe's social model, welfare systems, economic growth and public finances. In addition, steady gains in economic growth and job creation over the past decade have been wiped out by the recent economic crisis, exposing structural weaknesses in the EU's economy. At the same time, global challenges are intensifying and competition from developed and emerging economies such as China or India is increasing ([2]).

To face the challenges of an ageing population and rising global competition, the EU needs to make full use of its labour potential. The Europe 2020 strategy, through its 'inclusive growth' priority, has

Europe 2020 strategy target on employment

The Europe 2020 strategy sets out a target of 'aiming to raise to 75 % the employment rate for women and men aged 20 to 64, including through the greater participation of young people, older workers and low-skilled workers and the better integration of legal migrants', to be achieved by 2020 ([1]).

Figure 1.1: Indicators presented in the chapter and their links to the headline indicator on the employment target



placed a strong emphasis on job creation. One of its five headline targets addresses employment, with the aim of raising the employment rate of 20 to 64 year olds to 75 % by 2020. This goal is supported by the so-called 'Employment Package' ([3]), which seeks to create more and better jobs throughout the EU.

The chapter analyses the headline indicator 'Employment rate — age group 20 to 64', chosen to monitor the employment target. Contextual indicators are used to present a broader picture, looking into the drivers behind the changes in the headline indicator. These include indicators from both the supply and demand side of the labour market, as shown in Figure 1.1.

Concerning labour supply, the analysis investigates the structure of the EU's labour force and its long-term influence on employment in relation to the strategy's main target groups: women, young, older and low-skilled people and migrants. These groups are considered important because of their rather low employment rates. Boosting employment within them would hypothetically bring the biggest gains with respect to increasing the overall employment rate ([4]).

The analysis then shifts to short-term, demand-oriented factors related to the cyclical development of the economy (as expressed through GDP growth) such as job vacancies, and how this influences job creation, temporary employment and unemployment.

The EU's employment target is closely interlinked with the other strategy goals on research and development (R&D) (see p. 49), climate change and energy (see p. 73), education (see p. 93) and poverty and social exclusion (see p. 125). Progress towards one target therefore also depends on how the other targets are addressed. Better educational levels help employability and higher employment rates in turn help reduce poverty. Moreover, greater R&D capacity, together with increased resource efficiency, will improve competitiveness and contribute to job creation. The same is true for investing in energy efficiency measures and boosting renewable energies ([5]).

Box 1.1: What is meant by 'labour force', 'activity', 'employment' and 'unemployment'?

The term '**labour force**' refers to the economically active population. This is the total number of employed and unemployed persons. People are classified as employed, unemployed and economically inactive according to the definitions of the International Labour Organisation (ILO) ([6]). On an EU level the two main sources for this data are the **EU Labour Force Survey (EU LFS)** ([7]) and National Accounts ([8]).

The LFS is a large sample survey among private households, excluding the population living in institutional households (such as workers' homes or prisons). Respondents are classified as employed, unemployed or economically inactive based on information collected through the survey questionnaire, which mainly relates to their actual activity during a particular reference week. The EU LFS data refer to the resident population and therefore the results relate to the country of residence of persons in employment, rather than to the country of work. This difference may be significant in countries with large cross-border flows.

According to the definitions:

- The economically **active population**, as already mentioned, is the sum of employed and unemployed persons. **Inactive persons** are those who, during the reference week, were neither employed nor unemployed.
  - » The **activity rate** is the share of the population that is economically active.
  - » Economic activity is measured only for persons aged 15 years or older, because this is the earliest that a person can leave full-time compulsory education in the EU ([9]). Many Member States have also made 15 the minimum employment age ([10]).

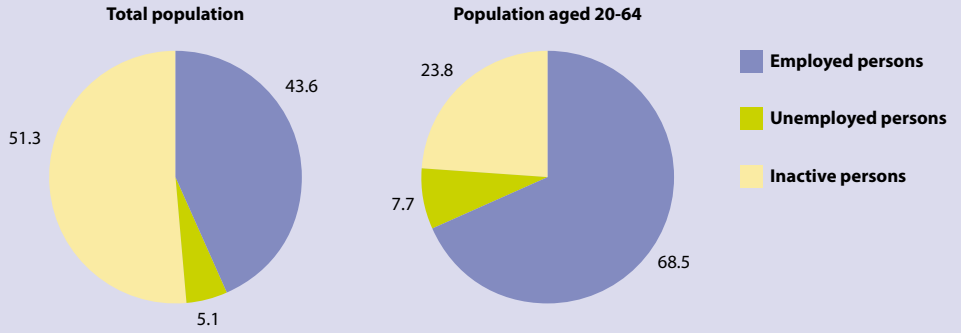
- **Persons in employment** are those who, during the reference week, did any work for pay or profit, or were not working but had a job from which they were temporarily absent. 'Work' means any work for pay or profit during the reference week, even for as little as one hour. Pay includes cash payments or payment in kind (payment in goods or services rather than money), whether payment was received in the week the work was done or not. Anyone who receives a wage for on-the-job training that involves the production of goods or services is considered as being in employment. Self-employed and family workers are also included.
  - » Employment rates represent employed persons, as a percentage of the same age population; they are frequently broken down by sex and different age groups.
  - » For the employment rates, data most often refer to persons aged 15 to 64. But in the course of setting the Europe 2020 strategy's employment target, the lower age limit has been raised to 20 years. One reason was to ensure compatibility with the strategy's headline targets on education (see chapter on 'Education' on page 93), in particular the one for tertiary education ([11]). The upper age limit for the employment rate is usually set to 64 years, taking into account statutory retirement ages across Europe ([12]). However, the possibility of raising the upper age limit for the employment rate is under discussion ([13]).
- **Unemployed persons** comprise persons aged 15 to 74 who were:

  (1) without work during the reference week, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment;

  (2) available to start work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week;

  (3) actively seeking work, i.e. had taken specific steps in the four-week period ending with the reference week to seek paid employment or self-employment or who found a job to start within a period of at most three months.
  - » The **unemployment rate** is the number of unemployed persons as a percentage of the labour force (the total number of people employed and unemployed);
  - » The **youth unemployment rate** is the unemployment rate of people aged 15 to 24;

Figure 1.2: Population by age and labour status, EU-27, 2012
(%)



Source: Eurostat (online data code: lfsa_pganws)

» The **long-term unemployment rate** is the number of persons unemployed for 12 months or longer as a percentage of the labour force.

» To take into account persons that would like to (or have to) work after the age of 64 but are unable to find a job, the upper age limit for the unemployment rate is usually set to 74 years of age. As a result, the observed age group for unemployed persons is 15 to 74 years.

Figure 1.2 shows the distribution of employed, unemployed and inactive persons for the total population ([14]) and for the population aged 20 to 64 years. The latter shows the working-age population addressed by the Europe 2020 strategy's employment target.

In 2012, less than half of the total LFS population of 495 million people ([14]) was economically active. The 254 million inactive people include children and retired people. For labour market analyses, the focus is therefore put on persons aged 20 to 64. In 2012, more than three-quarters of people aged 20 to 64 (303 million people) were economically active, 208 million people (68.5 % of the population age group 20 to 64) were employed and 23 million were unemployed (7.7 % of the same age group, equalling a share of 10.1 % of the economically active population 20 to 64 years old). 'Only' 72 million people aged 20 to 64 were economically inactive, compared with 254 million people from the total population.

Based on these data, the following indicators are usually calculated for analysing labour market trends:

- **Activity rate**: in 2012, 48.7 % of the total population or 76.2 % of the population aged 20 to 64 years were active on the labour market.
- **Employment rate**: in 2012, 43.6 % of the total population or 68.5 % of the population aged 20 to 64 years were employed.
- **Unemployment rate**: in 2012, the unemployment rate was slightly above 10 % for both the total and the population aged 20 to 64.

Crisis brings rise in EU employment rate to a halt

The headline indicator 'Employment rate — age group 20 to 64' shows the share of employed 20 to 64 year olds in the total EU population. The reason for choosing this age group over the 'usual' working-age population 15 to 64 years old is explained in Box 1.1.

As indicated in Figure 1.3 (see p. 32), the EU's employment rate grew more or less steadily during the decade before the economic crisis, peaking slightly above 70 % in 2008. In 2009, however, the crisis hit the labour market, knocking the employment rate back to 69.0 % — the 2006 level. Employment in the EU continued to fall in 2010 to 68.5 %, where it has remained since. As a result, in 2012 the EU was 6.5 percentage points below the target value of 75 %.

North–South divide in employment rates across the EU

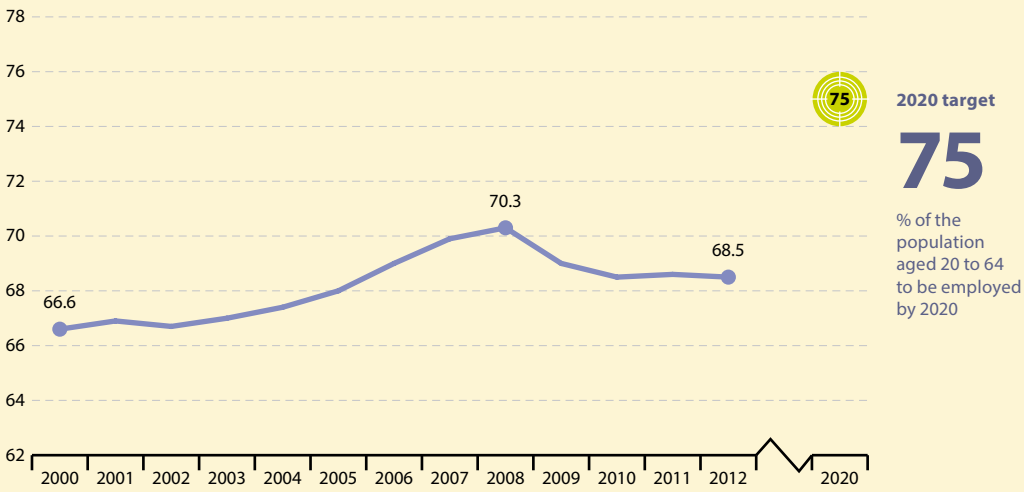
To reflect different national circumstances, the common EU target has been translated into national targets ([15]). These range from 62.9 % for Malta to 80.0 % for Denmark, the Netherlands and Sweden. In 2012, Malta was the only country to have already met its national target. Of the remaining Member States, Germany and Sweden were closest, at 0.3 and 0.6 percentage points below their national targets respectively. Greece and Spain were the most distant at 14.7 percentage points below.

Employment rates among EU Member States ranged from 55 % to almost 80 % in 2012. Northern

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 1.3: Employment rate age group 20 to 64, EU-27, 2000–2012
(%)



Source: Eurostat (online data code: t2020_10)

and Central Europe had the highest rates, in particular Sweden, the Netherlands, Germany, Denmark and Austria. All of these countries exceeded the 75 % EU target. Countries at the lower end of the scale were Greece, Spain, Italy and Hungary. Rates in the European Free Trade Association (EFTA) countries Iceland, Norway and Switzerland tended to be higher than in the EU, while figures were lower in acceding countries. Employment rates in Japan and the United States were on the same level as the 'best performing' EU Member States, and above the EU-27 aggregate.

Over the past seven years, employment has fallen in more than half of the EU countries. In 2012, employment rates in 13 Member States were below 2005 levels. The strongest falls were in Greece (– 9.3 percentage points), Ireland (– 8.9 percentage points) and Spain (– 7.9 percentage points). In the remaining 14 Member States, rates have risen since 2005, with the strongest growth in Germany (7.3 percentage points), Poland (6.4 percentage points) and Malta (5.2 percentage points).

The variations in the employment rate across different Member States, depicted in Figure 1.4, are also reflected in the maps of cross-country regional distribution of employment. As shown in Map 1.1 (see p. 34), countries with the highest employment rates, namely Sweden, the Netherlands, Germany, Denmark and Austria, were more likely to be comprised of regions with high employment rates. On the other hand, Southern and Eastern European countries with generally low employment rates tend to have more regions with average, low and very low employment intensity. This is particularly the case for the southern parts of Spain, Italy, Greece and Croatia, with employment rates below 60 %.

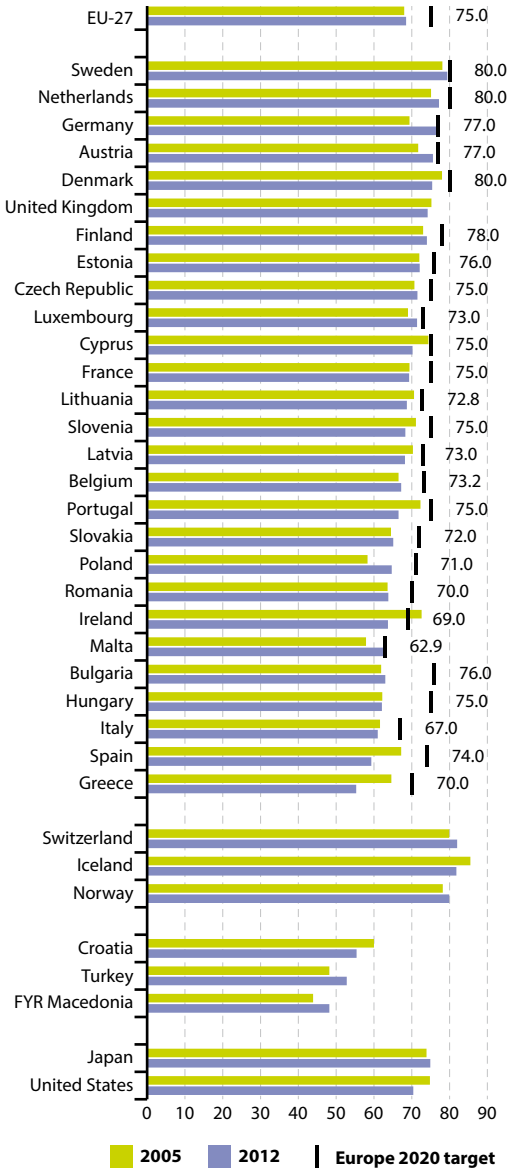
In 2012 Italy, Spain and France showed the biggest within-country dispersion of employment rates, with a factor of 1.5 to 1.8. This means that the worst performing regions in these countries had employment rates about 1.5 to 1.8 times lower than the best performing regions. In contrast, Denmark, the Netherlands, Austria, Portugal and

Sweden were among the most 'equal' countries, with almost no disparities in employment rates across their regions.

Map 1.2 shows the distance of regions (at NUTS 2 level) to the respective national Europe 2020 targets (see p. 35). In accordance with employment dispersion across regions, the distance to the national employment targets shows considerable geographical variation within countries. It is not surprising that the regions with the lowest employment rates at the same time show the largest distance from their respective national targets. Almost all regions in Austria, Southern Germany and to a large extent North-Western Germany, the Southern parts of Sweden and the capital region in Poland have already exceeded or are on the way to reaching the national employment targets. However, most of the regions in Spain, Greece, Hungary, Bulgaria and South Italy still remain at a considerable distance from their Europe 2020 national commitments.

In addition to national targets for the overall employment rate, some Member States have also set education and subsidiary targets for specific labour market groups. These include women, older workers, non-EU citizens, young people and persons who are not in employment, education or training.

Figure 1.4: Employment rate age group 20 to 64, by country, 2005 and 2012 (*)
(%)

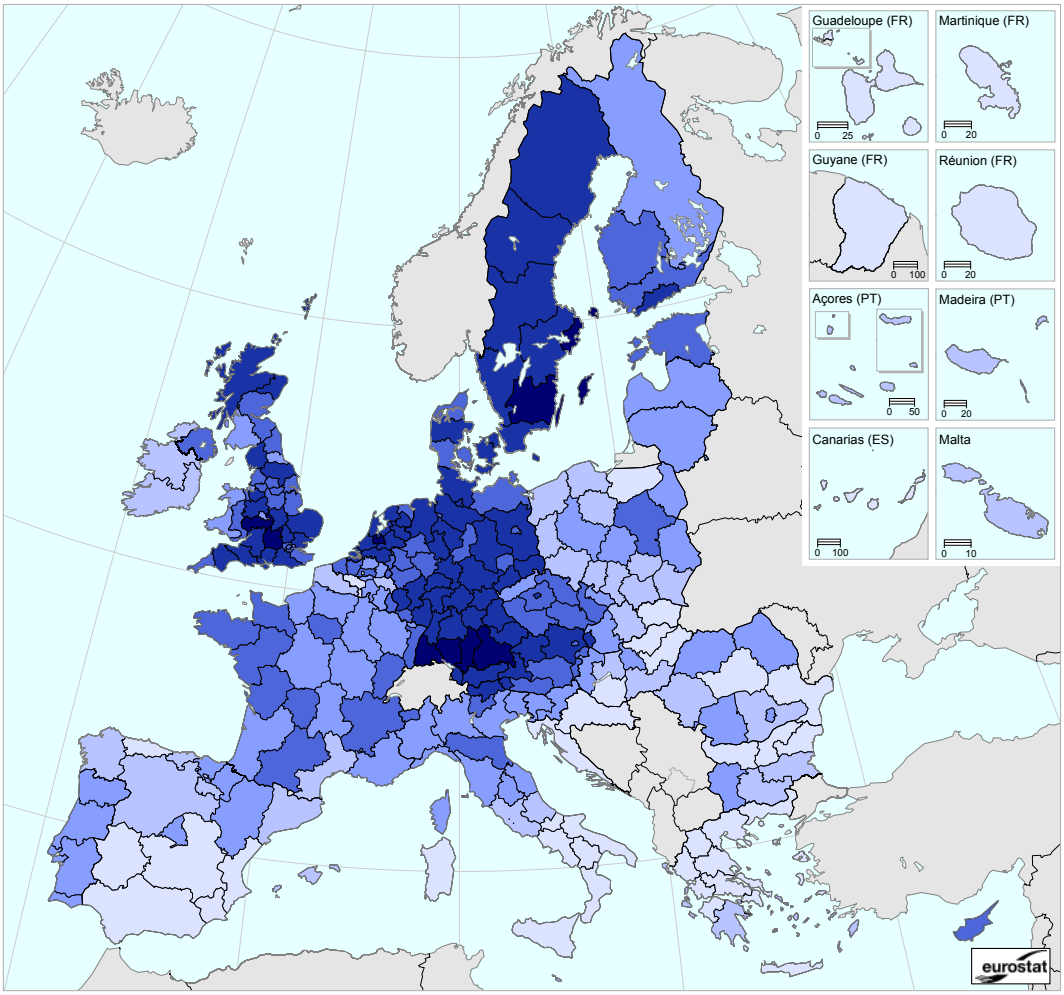


(*) 2006 data (instead of 2005) for MK and TR; 2011 data (instead of 2012) for JP and US; break in series for BG (2011), CZ (2012), IE (2009), CY (2009), LV (2011), LT (2011), NL (2010), PL (2012), PT (2011), SK (2011) and CH (2010).

Europe 2020 national targets: IE: 69–71 %; IT: 67–69 %; CY: 75–77 %; AT: 77–78 %; SE: 'well over 80 %'; UK: no national target.

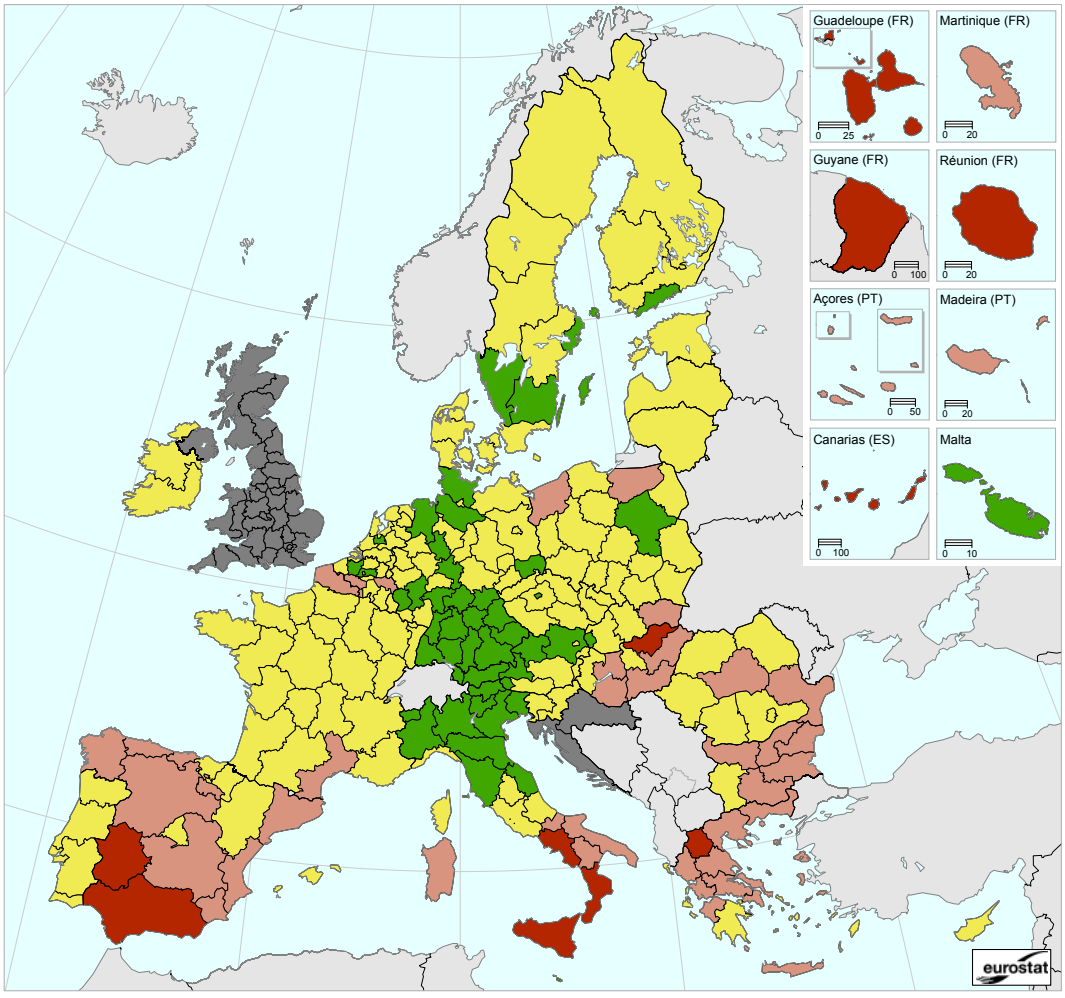
Source: Eurostat (online data code: t2020_10)

Map 1.1: Employment rate, by NUTS 2 regions, 2012
(% of population aged 20 to 64)



Source: Eurostat (online data code: lfst_r_lfe2emprt)

Map 1.2: Distance to Europe 2020 national targets (*), for the indicator: Employment rate, by NUTS 2 regions, 2012
(% of the population aged 20 to 64)



Overall EU target: 75 %
Distance to the overall EU target: 6.5 pp

(*) Europe 2020 national targets: Austria 77–78 %, Cyprus: 75–77 %, Ireland 69–71 %, Italy: 67–69 %, Sweden: well over 80 %, United Kingdom: no target

Source: Eurostat (online data code: lfst_r_lfe2emprt)

How long-term labour supply factors influence the employment rate

Employment rates are a result of labour supply and demand: workers supply labour to businesses and businesses demand labour from workers, both in exchange for wages. Consumers play an important role in businesses' labour needs through their demand for products and services, which in turn is influenced by the cyclical development of the economy (see p. 43). Labour supply is characterised by the number of people available to the labour market (determined by demographic structure) and the skills they offer (approximated by education). However, the demographic structure of the economically active population and its education levels are two important factors that are hard to influence in the short term.

The EU's labour force is shrinking because of population ageing

The EU is confronted with a growing, but ageing, population. This is driven by low fertility rates, continuous rises in life expectancy and retirement of the baby boomer generation born immediately after World War II. This ageing, already apparent in many Member States, means older people will make up a much greater share of the total population in the coming decades, while the share of the population aged 20 to 64 years will fall (see Figure 1.5). This in turn means that despite a growing population, the EU labour force is shrinking, increasing the burden on workers to provide for the social expenditure needed by an ageing population ([16]).

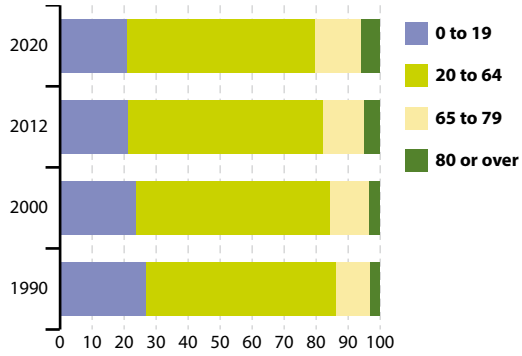
Over the past two decades, the total EU population grew from 470 million in 1990 to 504 million in 2012 ([17]). Growth was mainly driven by a 10.0 % increase in the population aged 20 to 64 years and a 38.9 % rise in older persons aged 65 and above. In contrast, the number of 0 to 19 year olds fell by 15.5 %.

While according to the most recent projections ([18]) the number of older persons is expected to grow rapidly, particularly in the age group 80 years or over, the population aged 20 to 64 years will start shrinking in the next few years as more baby boomers enter their 60s and retire. As a result, the population aged 20 to 64 years is expected to gradually decline from 61.1 % in 2012 to 59.2 % in 2020, a reduction of 3.5 million people. At the same time, the number of older persons aged 65 or over will grow by 14 million, reaching 20.2 % of the total population in 2020.

Figure 1.6 shows how the baby boomer generation has moved up the age pyramid since 1990. This generation is the result of high fertility rates in several European countries over a 20 to 30 year period up to the mid-1960s. Baby boomers continue to comprise a significant part of the working population; however, the first of these large cohorts are now reaching retirement age.

As a result of these demographic changes the old-age dependency ratio has increased from 23.1 % in 1990 to 29.1 % in 2012. This ratio shows the share of the population aged 65 and above compared with the population of 20 to 64 year olds. This means

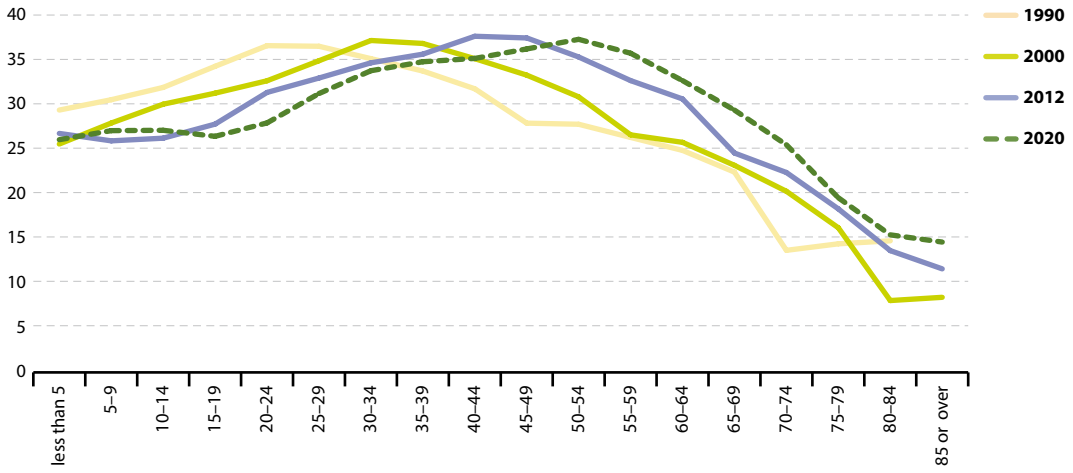
Figure 1.5: Population age structure, by major age groups, EU-27, 1990, 2000, 2012 and 2020 (*) (%)



(*) 1990–2012: observed populations as of 1 January; 2020: projections based on EUROPOP2010 convergence scenario.

Source: Eurostat (online data codes: demo_pjangroup and proj_10c2150p)

Figure 1.6: Demographic profile of EU-27 population, 1990, 2000, 2012, 2020 (*)
(million persons)



(*) 1990–2012: observed populations (1990: age group 80–84 means '80 or above'); 2020: projections based on EUROPOP2010 convergence scenario.

Source: Eurostat (online data code: demo_pjangroup and proj_10c2150p)

that while there were 4.3 persons of working age for every dependent person over 65 in the EU in 1990, this number fell to 3.4 persons by 2012. By 2020, the old-age dependency ratio is projected to increase to 34.1 %, meaning fewer than three persons of working age for every dependent person over 65 ([18]). These trends underline the importance of maximising the use of the EU's labour potential by raising the employment rate for men and women over the coming year. To meet labour market needs in a sustainable way, efforts are needed to help people stay in work for longer. Attention in particular needs to be given to women, older workers and young people. With regard to young people, it is important to help them find work as soon as they leave education, and ensure they remain employed.

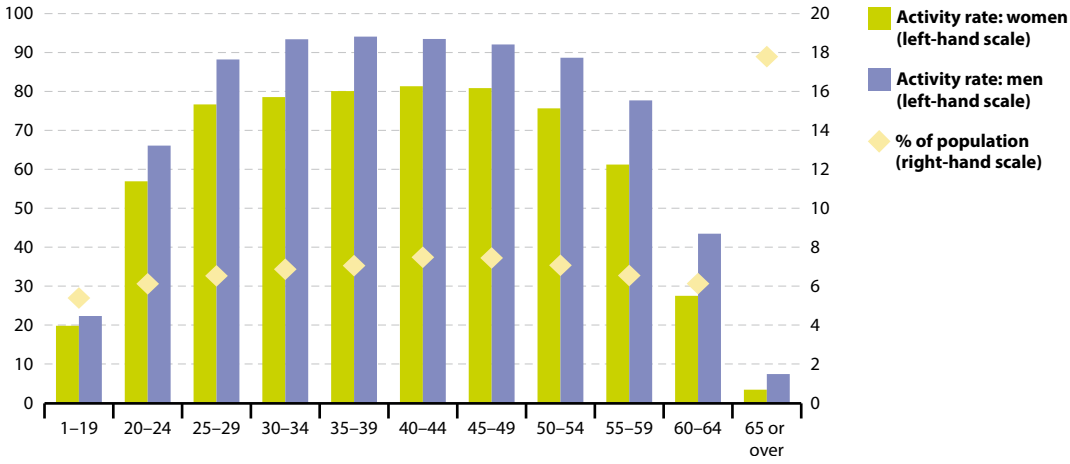
Low activity rates of women and older workers result in low employment rates

Not all people are economically active, as shown in Figure 1.2. This also concerns part of the population aged 20 to 64 years. Figure 1.7 shows the differences in activity rates between the sexes and across age groups. It compares these with the share of the respective age group (men and women together) in the total population.

Activity rates in the EU are consistently higher for men than for women and are generally highest for people aged 30 to 49. The main reason why men and women around 20 years of age do not seek employment is because they are participating in education or training. In 2012, this was the case for about 90 % of the inactive population aged 15 to 24. On the other hand, people aged 50 or over slowly start dropping out of the labour market because of poor health or retirement. The low activity rates of 15 to 19 year olds due to participation in education or training support the decision to raise the lower age limit for the strategy's employment target from 15 to 20 years of age.

Employment rates of women and older workers have risen more or less continuously over the past decade. Between 2000 and 2012, the employment rate of 55 to 64 year olds rose by 12 percentage points. Growth was even more pronounced for women, at 14.4 percentage points. These increases have contributed to an overall growth in the EU employment rate. Due to the demographic changes facing the EU, older workers are working more.

Figure 1.7: Population and activity rates, by five-year age group, EU-27, 2012
left-hand scale: activity rates (%);
right-hand scale: share of age group in total population (%)

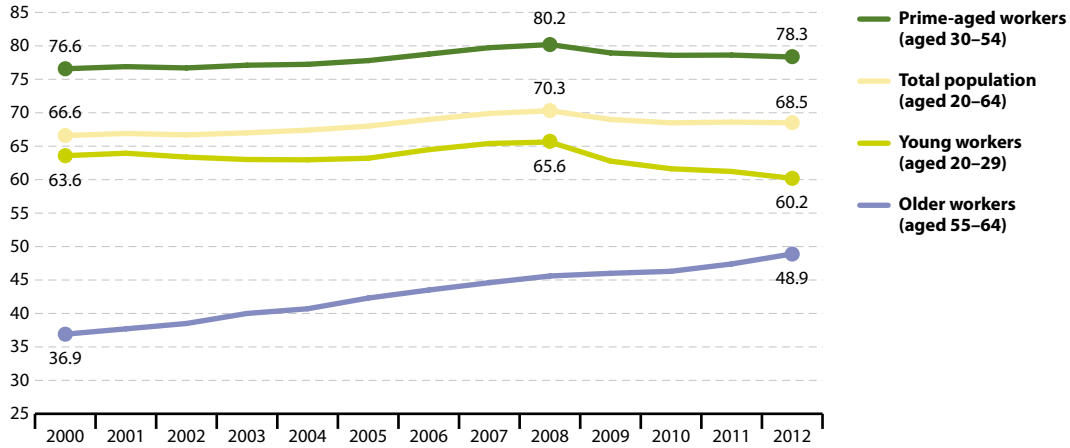


Source: Eurostat (online data code: lfsa_pganws)

As baby boomers with high activity and employment rates move up the age pyramid, they eventually enter the 55 to 64 age group, pushing up the employment levels of older workers.

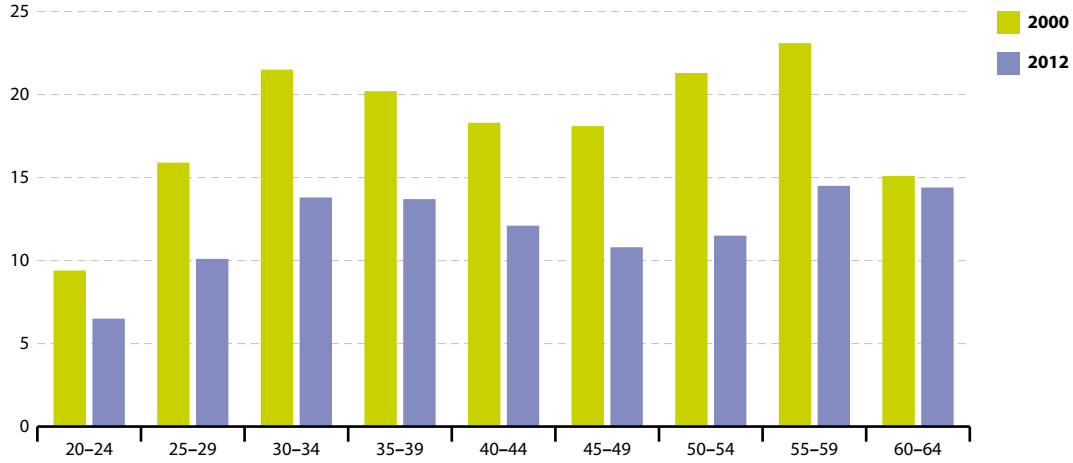
This development is also apparent in the increase in the duration of working life. This is measured as the number of years a person aged 15 is expected to be active in the labour market. Over the past decade, the duration of working life in the EU has risen by 1.8 years, from 32.9 years in 2000 to 34.7 years in 2011. The increase was higher for women (+2.7 years) than for men (+1 year). However, in

Figure 1.8: Employment rate, by age group, EU-27, 2000–2012
(%)



Source: Eurostat (online data codes: lfsa_pganws and tsdde100)

Figure 1.9: Gender employment gap, by age group, EU-27, 2000 and 2012
(difference between employment rates of men and women, in percentage points (*))



(*) A positive value indicates a higher employment rate for men than for women.

Source: Eurostat (online data code: lfsa_ergan)

2011 men could still expect to stay in work much longer (37.4 years) than women (31.9 years).

This reaffirms the focus Europe 2020 puts on 55 to 64 year old women to boost progress towards raising the overall employment rate. Extending the working life for men and women — and by doing so increasing the employment rate of older workers — is generally considered 'the most productive and promising answer to the demographic challenge of structural longevity' ([19]). 'A longer working life will both support the sustainability and the adequacy of pensions, as well as bring growth and general welfare gains for an economy. Higher employment rates among older workers are also a precondition for the EU's ability to reach the 2020 target, just as adequate pension systems are a precondition for the achievement of the poverty reduction target' ([20]) (see also the 'Poverty and social exclusion' chapter on p. 125).

Parenthood lowers employment rates of women

Parenthood is one of the main factors underlying gender activity and employment gaps. Because women are more often involved in childcare, parenthood is more likely to have an impact on their employment rates than on those for men, especially when care services are lacking or are too expensive.

Indeed, the lower activity rates for women aged 25 to 49 years compared with men (see Figure 1.7) are a result of women staying at home for childcare (37.8 % in 2012) and other family or personal responsibilities such as marriage, pregnancy or long vacation (17.2 % in 2012) ([21]). In contrast, the main reasons why 25 to 49 year old men did not seek employment in 2012 were illness or disability (35.9 %) and participation in education or training (21.4 %).

The longer women are out of the labour market or are unemployed, notably due to care duties, the more difficult it will be for them to find a job in the long term. The gender employment gap, showing the difference in employment rates of men and women, is highest for 30 to 39 year olds and for the older cohort, as shown in Figure 1.9.

European employment policies are addressing the specific situation of women to help raise their activity and employment rates in line with the headline target (see Box 1.2, p. 40).

Older workers are most likely to remain long-term unemployed

Long-term unemployment describes people aged 15 or over who have been unemployed for longer than a year. These people usually find it harder to obtain a job than those unemployed for shorter periods, so they face a higher risk of social exclusion. Data on long-term unemployment are presented in the chapter 'Poverty and social exclusion' on p. 125.

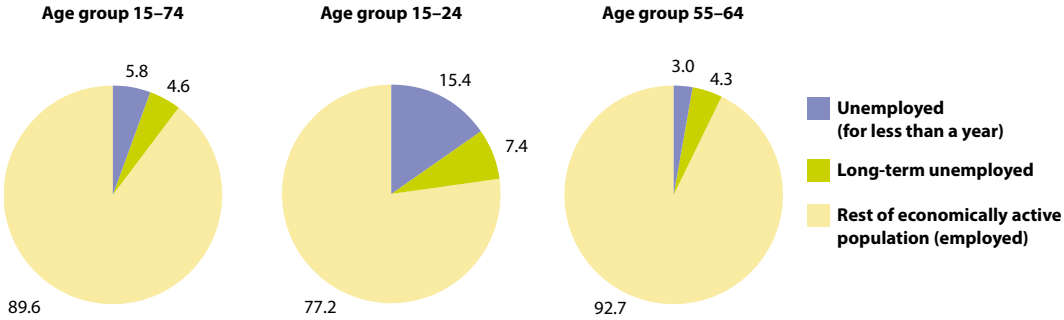
Here, the focus is put on the difficulties unemployed people face in escaping their situation. Figure 1.10 shows the unemployed and long-term unemployed as a proportion of the economically active population for different age groups.

Unemployed older workers find it harder to escape unemployment ([24]). More than half of those unemployed in this age group were long-term unemployed in 2012.

Migrants — a way to balance the ageing population structure

Economic migration is increasingly acquiring strategic importance for the EU in dealing with a shrinking labour force and expected skills

Figure 1.10: Share of unemployed and long-term unemployed in the economically active population, by age group, EU-27, 2012
(%)



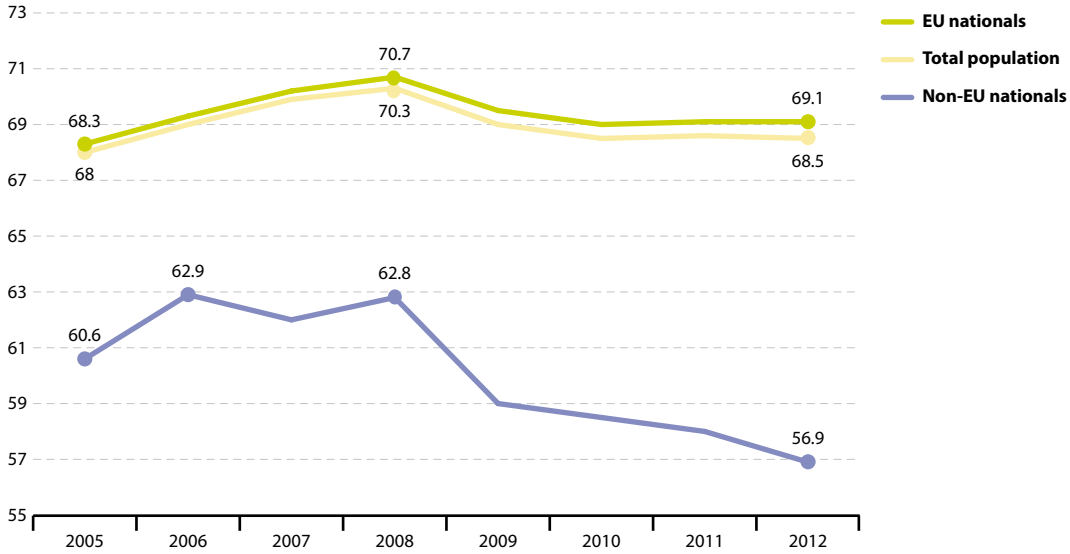
Source: Eurostat (online data codes: lfsa_upgal and lfsa_urgaed)

Box 1.2: Employment policies specifically targeting the situation of women

One of the priorities of the flagship initiative 'An Agenda for new skills and jobs' is to create new momentum for flexicurity policies aimed at modernising labour markets and promoting work through new forms of flexibility and security. Under the flexibility component, 'Flexible and reliable contractual arrangements', the flagship initiative calls for 'putting greater weight on internal flexibility in times of economic downturn': 'Flexibility also allows men and women to combine work and care commitments, enhancing in particular the contribution of women to the formal economy and to growth, through paid work outside the home.' ([22])

The security component is addressed by the EU employment package 'Towards a job-rich recovery' under its objective of restoring the dynamics of labour markets. This calls for 'security in employment transitions', such as the transition from maternity leave to employment: 'the integration of women in the labour market [deserves particular attention], by providing equal pay, adequate childcare, eliminating all discrimination and tax-benefit disincentives that discourage female participation, and optimising the duration of maternity and parental leave.' ([23])

Figure 1.11: Employment rate, age group 20 to 64, by nationality, EU-27, 2005–2012
(%)



Source: Eurostat (online data code: lfsa_ergan)

shortages. Without net migration, the working-age population is estimated to shrink by 12 % in 2030 and by 33 % in 2060 compared with 2009 levels ([25]).

In 2012, non-EU citizens accounted for 4.0 % of the total LFS population ([14]). Their share in the labour force was even higher, at 4.5 %. However, migrant workers do not only often occupy low-skilled, low-quality jobs, they also show considerably lower employment rates than EU citizens, as shown in Figure 1.11.

In 2012, the employment rate of non-EU nationals aged 20 to 64 was 11.6 percentage points below the total employment rate and 12.2 percentage points below that of EU nationals.

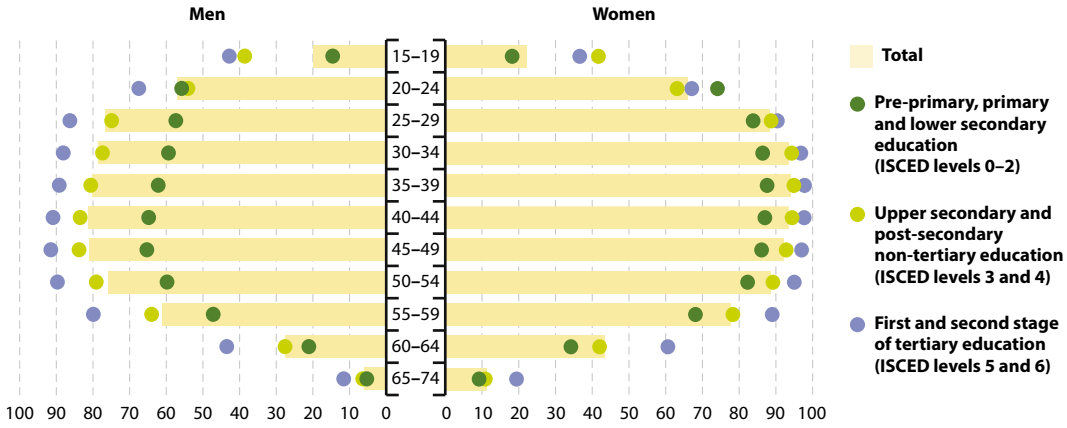
Better educational attainment increases employability

Educational attainment levels are another important factor for explaining the variation in activity and employment rates between different groups in the labour force. Figure 1.12 shows that activity rates are generally higher for higher educated

Box 1.3: Employment policies addressing migration

'In the longer term, and especially in view of the EU's demographic development, economic immigration by third-country nationals is a key consideration for the EU labour market' ([26]). The EU employment package 'Towards a job-rich recovery' specifically addresses the relevance of migration for tackling expected skills shortages: 'With labour needs in the most dynamic economic sectors set to rise significantly between now and 2020, while those in low-skills activities are set to decline further, there is a strong likelihood of deficits occurring in qualified job-specific skills'.

Figure 1.12: Activity rates by sex, age group and highest level of education attained, EU-27, 2012 (%)



Source: Eurostat (online data code: lfsa_argaed)

people. In 2012, almost all 30 to 49 year old men with upper secondary or tertiary education were economically active.

There is a persistent gap in activity rates for 25 to 64 year olds between the lowest (pre-primary, primary or lower secondary education) and the two higher educational levels (upper secondary or tertiary education). This gap is particularly large for women. In 2012, activity rates for women with at most lower secondary education were about 30 percentage points below those who had attained tertiary education.

Employment rates are generally higher for people with better education levels. In 2012, people who had completed tertiary education had a significantly higher employment rate than the EU average, at 81.9 %. In contrast, just slightly more than half (52.2 %) of those with at most primary or lower secondary education were employed. The rate for workers with upper secondary or post-secondary non-tertiary education was in between these levels, at 69.7 %, slightly above the EU average. These findings underline the importance of education not only for people's participation in the labour market, but also for their employability.

Increasing educational attainment and equipping people with skills for the knowledge society are therefore major concerns for European employment policies addressing the Europe 2020 headline targets on both employment and education (see Box 1.4 and the 'Education' chapter on p. 93).

As with employment, a clear link exists between unemployment and education: unemployment rates are generally lower for people with better education levels. In 2012, unemployment among those aged 15 to 74 with tertiary education was 6.1 %. This was significantly lower than the EU average of 10.4 %. In contrast, it was considerably higher for those with at most lower secondary education, at 18.2 %.

Young people who have completed only lower secondary education (early leavers from education and training; see the 'Education' chapter on p. 93) bear the highest risk of unemployment. Their unemployment rate reached more than 30 % in 2012.

In the context of the Europe 2020 strategy, it is important that young people maximise their professional working lives by engaging in employment as soon as possible and staying employed.

Box 1.4: Employment policies and education

'Improving the matching process between labour supply and demand by adapting educational and training systems to produce the skills required on the labour market is a key priority of the Europe 2020 strategy's flagship initiative 'An Agenda for new skills and jobs'. It proposes a bundle of measures aimed at strengthening the EU's capacity to anticipate and match labour market and skill needs. These include labour market observatories bringing together labour market actors and education and training providers, measures enhancing geographical mobility throughout the EU, and actions towards better integration of migrants and better recognition of their skills and qualifications ([27]).

Investing in skills is also a priority of the EU employment package 'Towards a job-rich recovery'. Under its objective of restoring the dynamics of labour markets, the European Commission calls for a better monitoring of skills needs and 'a close cooperation between the worlds of education and work' ([28]).

It also addresses youth employment, calling for 'security in employment transitions', such as the transition of young people from education to work. It also reaffirms the EU's commitment to tackle the dramatic levels of youth unemployment, 'by mobilising available EU funding' and by supporting the transition to work 'through youth guarantees, activation measures targeting young people, the quality of traineeships, and youth mobility' ([29]).

The Europe 2020 flagship initiative 'Youth on the Move' emphasises that 'youth unemployment is unacceptably high' in the EU, and that 'to reach the 75 % employment target for the population aged 20 to 64 years, the transition of young people to the labour market needs to be radically improved'. To this end, the flagship initiative focuses on four main lines of action including life-long learning activities, tackling early school leaving, promoting tertiary education and improving learning mobility. Additionally, the flagship initiative calls for urgently improving the employment situation of young people, by taking actions towards facilitating the transition from school to work and reducing labour market segmentation ([30]).

Labour demand

How does the cyclical development of the economy influence employment and unemployment?

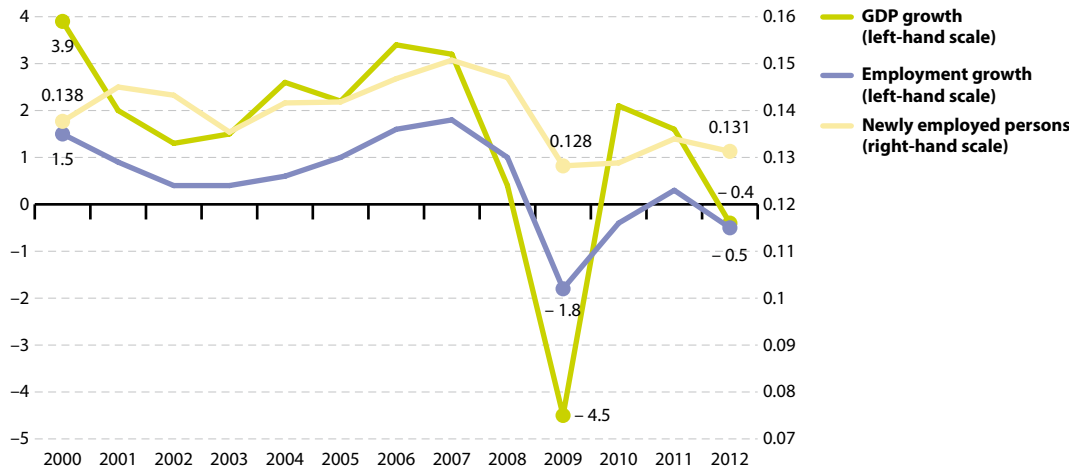
Employment (and unemployment) rates are closely linked to the business cycle. Usually this is expressed in terms of GDP growth, which can be seen as a measure of an economy's dynamism and its capacity to create new jobs. This relationship is illustrated by Figure 1.13 (see p. 44). It shows similar patterns for GDP growth, employment growth and the share of newly employed people in total employment (people who started their job within the past 12 months).

The situation observable in 2010 and 2011, with GDP growth picking up but employment recovery more or less stalled, can be described as 'jobless growth'. This means growth in GDP corresponding mostly to an increase in productivity and hours worked, leaving little room for employment growth ([31]). As the result of another GDP contraction following the slight recovery in 2010 and 2011, the number of employed people fell again in 2012.

The link between GDP growth and employment growth is also reflected in the share of newly employed people as a share of total employment, which in 2009 dropped to the lowest level of the decade. It has since risen slightly, but has remained below pre-crisis levels.

The overall favourable trend observable since 2000 in relation to employment and unemployment has been reversed by the economic crisis, with

Figure 1.13: GDP growth, employment growth and newly employed persons, EU-27, 2000–2012
left-hand scale: GDP growth and employment growth (percentage change over previous period);
right-hand scale: newly employed persons (share of persons aged 20 to 64 whose job started within the past 12 months in total employment)



Source: Eurostat (online data codes: lfsi_grt_a and nama_gdp_k)

unemployment rates rising to above pre-crisis levels by 2012.

The crisis had a bigger impact on sectors dominated by male workers, such as construction and manufacturing, which led to men accounting for more than 80 % of the decline in employment between 2008 and 2010 in the EU ([32]).

Recessions tend to hit younger workers especially hard. Since the onset of the crisis in 2008, the employment rate of young people aged 20 to 29 has dropped by 5.4 percentage points. This reflects their generally weaker 'attachment' to the labour market. They are more likely to be in non-permanent contracts (see the analysis on 'temporary contracts' below) and are more vulnerable to applications of 'last-in, first-out' redundancy policies ([33]). In contrast, employment among older workers aged 55 to 64, in particular women, has grown continuously since 2000, by 12 percentage points by 2012.

Looking at educational attainment, employment rates for all three subgroups have generally followed the overall EU trend before and after the crisis. Workers with the lowest education levels, however, were hardest hit, experiencing a 4.9 percentage points fall between 2007 and 2012. Similarly, migrants were especially affected by the crisis, being among the first to lose their jobs. Since 2008, the share of non-EU nationals aged 20 to 64 in work has fallen by 5.9 percentage points. In comparison, employment of EU nationals of the same age has fallen by only 1.6 percentage points.

Temporary contracts as adjustment variable for companies during crises

Fluctuations in the number of jobs in the EU since the crisis have been driven mainly by part-time work and temporary (short-term) contracts. In particular temporary contracts proved to be a major adjustment variable for companies. These have been the most reactive segment of the labour market since the crisis first broke out ([34]).

The proportion of the EU labour force working on a fixed-term contract has risen steadily since 2001.

Temporary employment in the EU was most widespread among young workers, with 42.1 % of 15 to 24 year olds working on a time-limited contract in 2012. The rate of temporary employment was much lower for 20 to 64 year olds at 12.8 % and for older workers aged 55 to 64 at 6.6 % in the same year.

However, it also needs to be considered that some workers prefer fixed-term contracts over permanent ones. Involuntary temporary employment therefore provides a better insight into the overuse of fixed-term contracts.

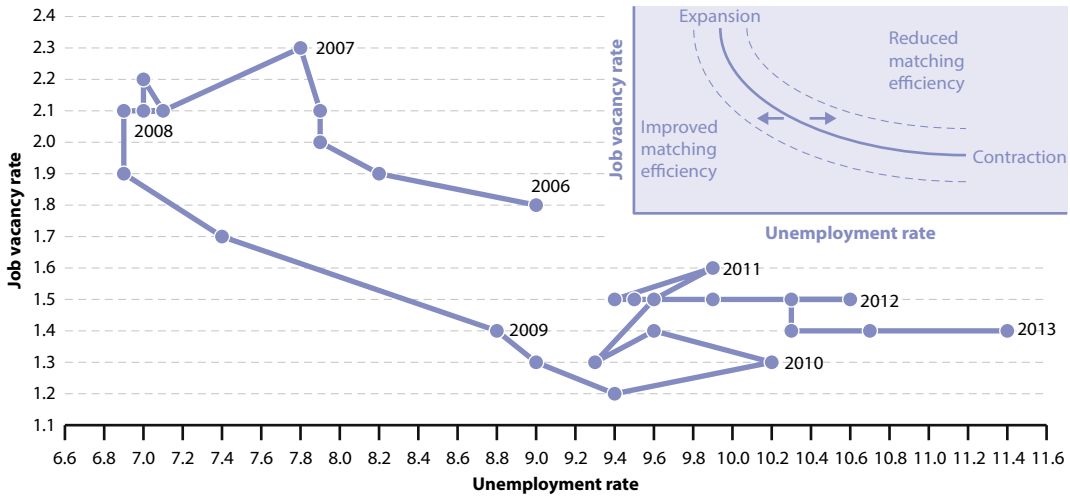
In 2012, 8.3 % of employed 20 to 64 year olds were involuntarily working on temporary contracts. Despite some fluctuations, the overall trend since 2001 indicates growing use of involuntary fixed-term contracts. This development can be seen in the light of recent labour market policies implemented across the EU. These aim to replace traditional job protection with measures enhancing the employability of labour market outsiders while easing hiring and lay-off procedures ([35]).

The increase in temporary contracts and other non-standard forms of employment, in particular for newly created jobs, is a signal for increasing fluidity in the labour market. This is making it easier for firms to adapt labour input to new forms of production and work organisation ([36]).

Job vacancies as an indicator of unmet labour demand

Job vacancy statistics provide an insight into the demand side of the labour market, in particular on unmet labour demand. A job vacancy is defined as a paid post that is newly created, unoccupied or about to become vacant, for which the employer is taking active steps and is prepared to take further steps to find a suitable candidate from outside the enterprise concerned, and which the employer intends to fill either immediately or within a specific period of time. A vacant post that is only open to internal candidates is not treated as a 'job vacancy'.

Figure 1.14: Beveridge curve, EU-27, 2006–2013 (*)
(%)



(*) Data points with years (as caption) refer to the first quarter of the year; job vacancy data from 2006 to 2008 cover NACE Rev. 1.1 sections A to O; data from 2009 onwards cover NACE Rev. 2 sections B to S; all job vacancy data are provisional.

Source: Eurostat (online data codes: jvs_q_nace2, jvs_q_nace1 and une_rt_q)

Quarterly job vacancy statistics are used for business cycle analysis and assessing mismatches on labour markets. Of particular interest is the relationship between vacancies and unemployment, the so-called Beveridge curve. The curve reflects the negative relationship between vacancies and unemployment. During economic contractions, there are few vacancies and high unemployment while during expansions there are more vacancies and the unemployment rate is low.

Structural changes in the economy can generate shifts in the Beveridge curve. Concurrent increases in the vacancy and unemployment rates can be identified at times of uneven growth across regions or industries when the matching efficiency between labour supply and demand decreases. Concurrent decreases can be observed when the matching efficiency of the labour market improves. This could be, for example, due to a better flow of information on job vacancies thanks to the internet. The empirical analysis of the curve can be challenging as both movements along the curve and shifts might be taking place at the same time with different intensities.

Data for the period 2008 to 2009 show a movement along the Beveridge curve, mirroring the impacts of the economic crisis on job vacancies and unemployment. Since 2010, however, movements of the Beveridge curve itself point to a possibly substantial deterioration in the matching process: unemployment is growing, while the job vacancy rate remains stable. This indicates that unemployment has become more structural over the past two years ([37]).

EU policies in the area of job vacancies aim to improve the functioning of the labour market by trying to more closely match supply and demand (see Box 1.4, p. 43).

Conclusions and outlook towards 2020

Between 2000 and 2008, the EU employment rate for the age group 20 to 64 rose by 3.7 percentage points, from 66.6 % in 2000 to 70.3 % in 2008. This growth was visible throughout different groups in the labour force, such as men, women, older and younger people, high- and low-skilled workers as well as migrants. Starting from rather low employment levels of 36.9 % in 2000, employment growth was most pronounced for older workers aged 55 to 64 years. Similarly, employment rates for women grew faster than for men, reducing the gender employment gap.

Mirroring these trends, unemployment rates declined over the period 2000 to 2008, with 7.0 % of economically active 15 to 74 year olds unemployed in 2008. However, despite a considerable fall by 2.7 percentage points between 2000 and 2008, young people aged 15 to 24 still had unemployment rates twice as high as the overall unemployment rate.

As a result of the EU economy contracting by 4.5 % in 2009 due to the economic crisis, employment levels fell and unemployment in turn rose up to 2012. The reduction in employment rates over recent years has most affected young people aged 15 to 24, workers with low education levels and non-EU nationals.

The youth unemployment rate increased to 22.8 % in 2012 and, more recently, has continued to reach new highs in 2013. Similarly, unemployment levels of low-skilled people have increased by 7.6 percentage points since 2007, reaching 18.2 % in 2012. Low-educated young people are clearly the worst off, with their unemployment rate climbing to 30.3 % in 2012, which is more than 10 percentage points higher than in 2007.

Temporary contracts are one reason why young people are more vulnerable to economic disruptions. Fluctuations in EU job numbers since the crisis have been mainly driven by part-time work and fixed-term contracts. In 2012 about 42 % of 15 to 24 year olds worked on time-limited contracts, although 15.4 % of those would actually prefer to

work on a permanent contract. Additionally, data on job vacancies point to a possible deterioration in the job matching process, with unemployment increasing while job vacancies remain stable.

The economic crisis thus highlighted some of the most vulnerable groups (young people, migrants, low-skilled) that need to be addressed in view of the Europe 2020 strategy's 'inclusive growth' priority. Additionally, women, especially those aged 55 to 64 years, and older workers in general still have considerably lower employment rates than other groups in the labour force. This puts these labour market groups in the spotlight for making progress towards the overall EU and national employment targets ([4]).

Additionally, long-term changes in the demographic structure of the EU population add to the necessity of increasing the EU's employment rate. Despite a growing population, low fertility rates combined with continuous rises in life expectancy are predicted to lead to a shrinking EU labour force. Increases in the employment rate are therefore necessary to compensate for the expected decline in the working-age population by 3.5 million people by 2020.

Efforts needed to meet the Europe 2020 target on employment

Overall, in 2012 the EU was 6.5 percentage points below its target value of 75 %, to be met by 2020. As only marginal increases are expected for 2013 and 2014, reaching the Europe 2020 target will require considerable effort. An extra 17.6 million people will need to enter employment, taking into account the expected working-age population in 2020. Four groups can be expected to deliver the biggest hypothetical gains with respect to increasing the overall employment rate, taking into account their respective share in the population and their current employment and unemployment levels: prime-age women, women aged 55 to 64, the low-skilled generally and, to a lesser extent, prime-age and older men ([4]).

Notes

([1]) European Council conclusions 17 June 2010, EUCO 13/10, Brussels, 2010.

([2]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010 (p. 5, 7, 17), European Commission, An Agenda for new skills and jobs: A European contribution towards full employment, COM(2010) 682 final, Strasbourg, 2010 (p. 2) and European Commission, Europe 2020 targets: employment rate target (accessed 22 July 2013).

([3]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012.

([4]) European Commission, *Europe 2020 targets: employment rate target* (accessed 22 July 2013).

([5]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010 (p. 11).

([6]) For more information see the ILO website: http://www.ilo.org/global/lang--en/index.htm.

([7]) For more information on the EU LFS, see: http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_lfs/introduction.

([8]) For more information see: http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/introduction.

([9]) João Medeiros & Paul Minty, *Analytical support in the setting of EU employment rate targets for 2020*, Working Paper 1/2012, Brussels: European Commission (Directorate-General for Employment, Social Affairs & Inclusion), 2012 (p. 58).

([10]) European Commission (Directorate-General for Justice), *Age and Employment*, Luxembourg: Publications Office of the European Union, 2011 (p. 50).

([11]) João Medeiros & Paul Minty, *Analytical support in the setting of EU employment rate targets for 2020*, Working Paper 1/2012, Brussels: European Commission (Directorate-General for Employment, Social Affairs & Inclusion), 2012 (p. 12).

([12]) European Commission (Directorate-General for Economic and Financial Affairs), *The 2012 Ageing Report: Economic and budgetary projections for the EU27 Member States* (2010–2060), 2012 (p. 99).

([13]) João Medeiros & Paul Minty, *Analytical support in the setting of EU employment rate targets for 2020*, Working Paper 1/2012, Brussels: European Commission (Directorate-General for Employment, Social Affairs & Inclusion), 2012 (p. 15).

([14]) The target population of the EU LFS are resident persons living in private households, excluding the population living in institutional households (such as workers' homes or prisons).

([15]) See http://ec.europa.eu/europe2020/pdf/targets_en.pdf.

([16]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion & Eurostat), *Demography Report 2010 — Older, more numerous and diverse Europeans*, Luxembourg: Publications Office of the European Union, 2011 (p. 59).

([17]) Please note that the total population figures presented here differ from the population concept used in the EU LFS, which only covers resident persons living in private households, excluding the population living in institutional households (such as workers' homes or prisons). The data are based on Eurostat data tables demo_pjangroup and proj_10c2150p.

([18]) EUROPOP 2010 convergence scenario; see http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_projections.

([19]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 57).

([20]) See footnote 19 above; the Europe 2020 headline target concerning the reduction of the number of people at risk of poverty or social exclusion is described in the corresponding chapter 'Poverty and social exclusion' on page 125.

([21]) Eurostat, *EU Labour Force Survey – explanatory notes*, Luxembourg, 2011 (p. 80).

([22]) European Commission, *An agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg, 2010 (p. 5).

([23]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 10).

([24]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 124).

([25]) European Commission, *An Agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg, 2010 (p. 9).

([26]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 18).

([27]) European Commission, *An Agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg, 2010 (p. 8).

([28]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 13).

([29]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 10).

([30]) European Commission, *Youth on the move: An initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union*, COM(2010) 477 final, Brussels, 2010 (p. 3).

([31]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 19).

([32]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2011*, Luxembourg: Publications Office of the European Union, 2012 (p. 47).

([33]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2011*, Luxembourg: Publications Office of the European Union, 2012 (p. 48).

([34]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 31).

([35]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 54).

([36]) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 10).

([37]) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 29).

2

Research and development

Research and development — why do they matter?

Research, development and innovation are key policy components of the Europe 2020 strategy. By fostering an increase in the number of innovative products and services on the market, they contribute to the strategy's smart growth objective, create jobs and address societal challenges. By paving the way towards increased industrial competitiveness, labour productivity and the efficient use of resources, they are also at the heart of sustainable growth. In particular the 'Innovation Union' flagship initiative aims to create favourable framework conditions for EU researchers and entrepreneurs.

R&D contributes to a well-functioning, knowledge-based economy by fostering knowledge and know-how that translate into new ideas for products, procedures and services. An innovative society helps companies grow and maintain their competitive advantage, resulting in economic growth and more jobs. The well-being of the EU population also depends on scientific and technical solutions to global societal challenges such as climate change and clean energy, security, and active and healthy ageing.

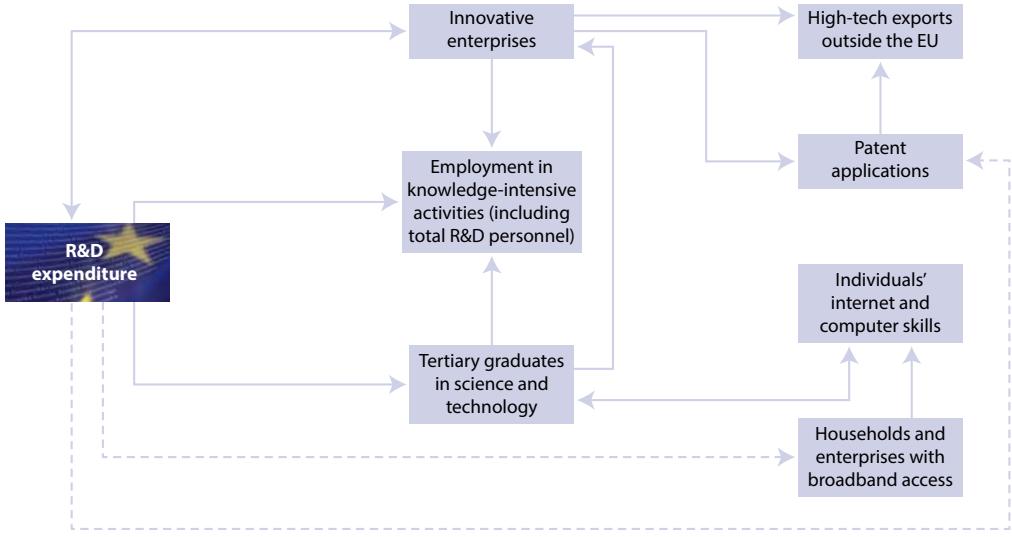
Europe 2020 strategy target on R&D

The Europe 2020 strategy sets the target of 'improving the conditions for research and development, in particular with the aim of increasing combined public and private investment levels for R&D to 3 % of GDP' by 2020 ([1]).

Competitiveness and jobs and the EU societal challenges are mutually reinforcing: fast-growing innovative companies create new, high added-value jobs while developing new products and services in response to the needs of society.

The analysis in this chapter is based on the headline indicator 'Gross domestic expenditure on R&D', monitoring the strategy's research and development target. Contextual indicators are used to present a broader picture, looking into

Figure 2.1: Indicators presented in this chapter and their links to the headline indicator



potential drivers behind the changes observed in the headline indicator and the impacts of the EU's expenditure on its R&D and innovation activities.

The analysis first sheds light on fundamental enabling factors that drive innovation and, as a result, are the first link in the innovation chain, including issues such as public and private R&D investment or tertiary educational attainment. The analysis then highlights the EU's performance concerning business frontrunners, their innovative capacity and technological output addressing the end of the innovation chain towards commercialisation and the relevance for societal challenges. This is followed by a look at the bigger R&D picture, by comparing the EU's performance to global competitors.

The EU's R&D intensity target has a mutually beneficial relationship with the strategy's tertiary educational attainment and employment targets (see chapters on employment on p. 27 and education on p. 93). On the one hand, human skills development feeds the development of academic knowledge and innovative products. On the other hand, increased investment in R&D provides new jobs in business and academia, increasing demand for scientists and researchers in the labour market. Moreover, increased investment in education and skills development, as well as an increase in the output of tertiary education graduates, improves the skills base of the EU labour force and, therefore, its employability.

A competitive and innovative knowledge-based economy is strongly dependent on its human capital. R&D investment and the Europe 2020 target on tertiary education are closely interlinked. Mutual benefits between the strategy's targets on R&D and on climate change and energy exist when taking into account the future potential of innovative new products and processes tackling those societal challenges (see the chapter on climate change and energy on p. 73).

How much is the EU investing in research and development?

The headline indicator 'gross domestic expenditure on R&D' shows the proportion of GDP dedicated to research and development ([2]). It is also referred to as 'R&D intensity' and reflects the extent of research and innovation activities undertaken in a given country in terms of resources input.

Figure 2.2 shows a relatively stable trend in gross domestic expenditure on R&D of slightly over 1.8 % of gross domestic product (GDP) for the period 2000 to 2007. At the onset of the economic crisis, R&D intensity increased to slightly more than 2 % in 2009 and has remained at that level since then.

Box 2.1: Total R&D expenditure combines public and private funding

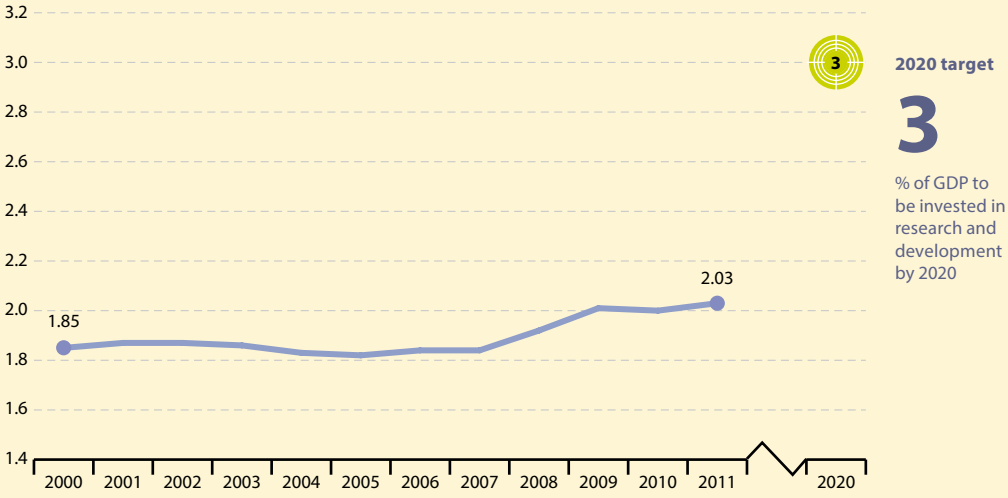
Private R&D expenditure is the main component of total R&D expenditure in the more advanced knowledge economies. Its level reflects the attractiveness of the national research and innovation system for business investments and the structure of the economy. Private R&D funding is strongly concentrated in a few research-intensive sectors categorised as High-Tech and Medium-High-Tech Manufacturing and High-Tech Knowledge Intensive Services.

Public R&D funding shows the commitment of a government to promoting research, development and innovation activities both directly and through the leverage effect on business R&D expenditure. In some countries, structural funds have become a significant (and the main) source of public R&D funding (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia).

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 2.2: Gross domestic expenditure on R&D (R&D intensity), EU-27, 2000–2011 (*) (% of GDP)



(*) Data for 2000–2002 and 2008–2011 are estimates.

Source: Eurostat (online data code: t2020_20)

The reasons for this increase include, on the one hand, GDP falling more rapidly than overall R&D expenditure ([3]) (see Box 2.2) and, on the other hand, the actions taken by individual EU Member States to step up public R&D investment. In 2009 a majority of the Member States sustained nominal growth in public R&D expenditure to counter the impacts of the crisis on private investment ([4]).

The EU boosts public sector R&D expenditure in times of crisis

Expenditure on R&D is split into four institutional sectors: government, business enterprise, higher education and the private non-profit sector. Since 2000, expenditure has grown across all sectors in absolute terms at the European level (see Figure 2.3). The two sectors with the highest expenditure on R&D in Europe have been the business enterprise sector, which made up 62 % (EUR 160 billion), and the higher education sector, which made up 24 % of total R&D expenditure in 2011. In the period from 2000 to 2011 expenditure by these two sectors grew by 45 % and 73 % respectively. The only exception to this increasing trend occurred in 2009 when business sector expenditure dropped by 3.5 % compared to 2008.

The government sector also plays an important role, especially in terms of long-term stability in R&D expenditure. This proves to be important in times of crisis when other sectors set new expenditure priorities. In 2011, the sector accounted for 13 % of total expenditure in R&D in 2011. Between 2000 and 2011 its R&D expenditure grew by 39 %.

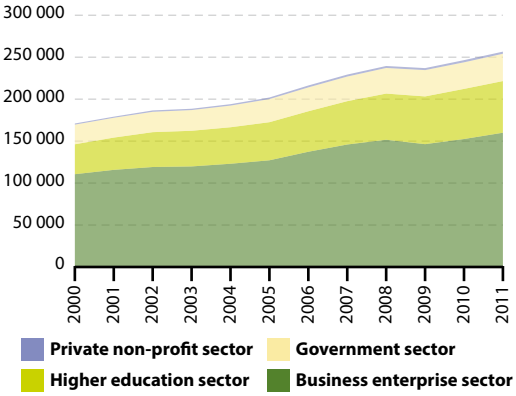
When the financial and economic crisis hit Europe in 2008, EU Member States boosted public R&D expenditure to stimulate economic growth and encourage private R&D investment. Government sector R&D expenditure grew by 2.7 % between

Box 2.2: The role of anti-cyclic public R&D investment policy

Investment spending (private or public), in general, typically follows cyclical and volatile patterns with regard to GDP growth. During the economic crisis when GDP growth slowed down companies faced tough market conditions. They had difficulties accessing financial resources because banks had decreased supply. On the other hand, countries struggling to lower their debt experienced a decrease in demand for financial funding. Consequently, the crisis caused a decrease in both supply and demand for financial resources intended for investment in general, including in R&D.

On the contrary, growth in public or government-financed R&D investment usually experiences counter or anti-cyclical trends. During the economic crisis in 2008–2009, the European Commission and EU Member States took concerted action to increase public R&D investment, not just to stimulate economic growth but also to encourage private R&D investment.

Figure 2.3: Gross domestic expenditure on R&D, by sectors of performance, EU-27, 2000–2011 (*)
(million EUR)



(*) Data for 2000–2002 and 2008–2011 are estimates.

Source: Eurostat (online data code: rd_e_gerdtot)

2008 and 2009, and it continued to grow in the following years.

In comparison, R&D expenditure of the business sector declined by 3.5 % over the same period. This drop was much less than the effect of the crisis on companies' net sales and profits ([5]). During an economic crisis businesses usually decrease their R&D expenditure (see Box 2.2). However, R&D spending actually started to increase again with growth rates of 4.2 % and 4.9 % in 2010 and 2011 respectively, indicating that increased public R&D expenditure encouraged further private R&D expenditure.

Member States stepping up spending on R&D

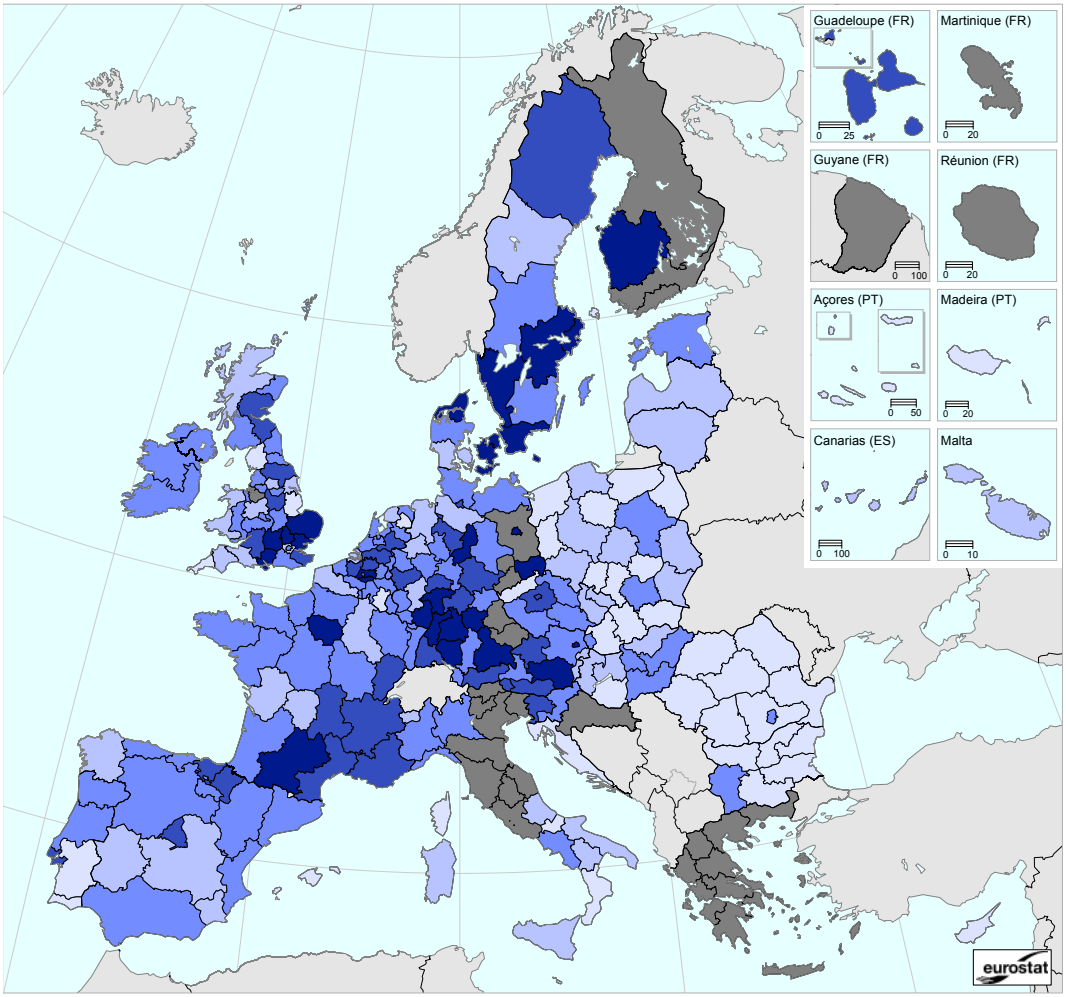
Figure 2.4 shows a rather heterogeneous picture of EU Member States' R&D expenditure as a percentage of GDP. Overall, in 2011 R&D expenditure varied from 0.5 % to 3.8 % across the EU. Northern European countries such as Finland and Sweden generally shared a pattern of high expenditure; however, except for Denmark, none have yet achieved their national targets. Countries with lower R&D expenditure levels were mostly in Eastern and Southern Europe, for instance Romania, Cyprus and Bulgaria.

The financial crisis and its adverse impact on the growth of GDP in the following years, combined with an increase in nominal government spending on R&D, led to a widespread increase in R&D intensity across Europe. Nevertheless, the analysis showed that the European Commission and individual Member States put investment in R&D high on the agenda for combating the crisis.

One out of ten EU regions shows substantially high R&D intensity

As indicated in Map 2.1, 30 of the EU's NUTS 2 regions had R&D intensity above 3.00 % in 2010. As such, they exceeded the 3.00 % target set by the Barcelona Council in 2002 and maintained within the Europe 2020 strategy. Among these 30 regions, 10 were in Germany, five in the United Kingdom, four in Sweden, three in Denmark and two each

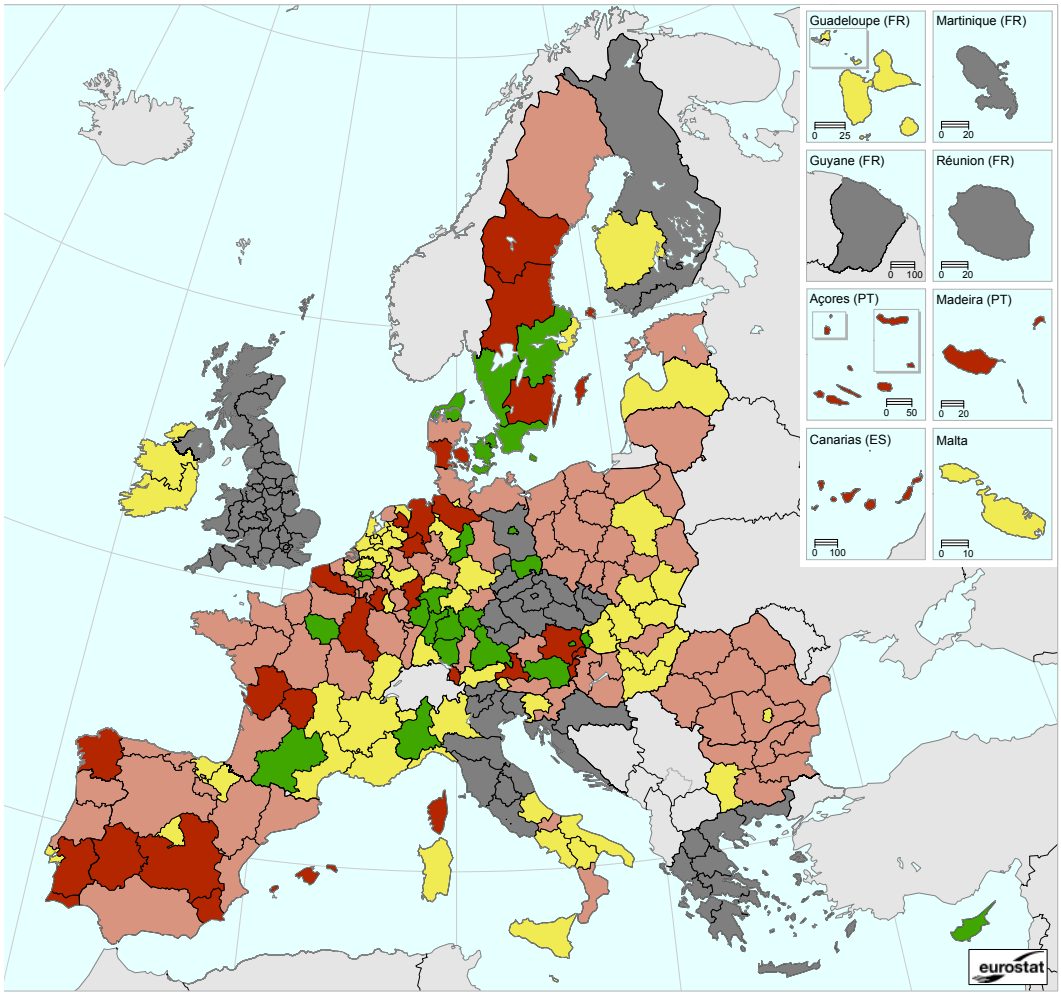
Map 2.1: Gross domestic expenditure on R&D, by NUTS 2 regions, 2010 (*)
(% of GDP)



(*) Belgium, Croatia, Denmark, Germany, France, the Netherlands, Austria, Sweden, the United Kingdom and Iceland, 2009 data; EU-27, Ireland, Luxembourg, the Netherlands and the United Kingdom, estimated data.

Source: Eurostat (online data code: rd_e_gerdreg)

Map 2.2: Distance to Europe 2020 national targets (*), for the indicator: Gross domestic expenditure on R&D, by NUTS 2 regions, 2010
(% of GDP)



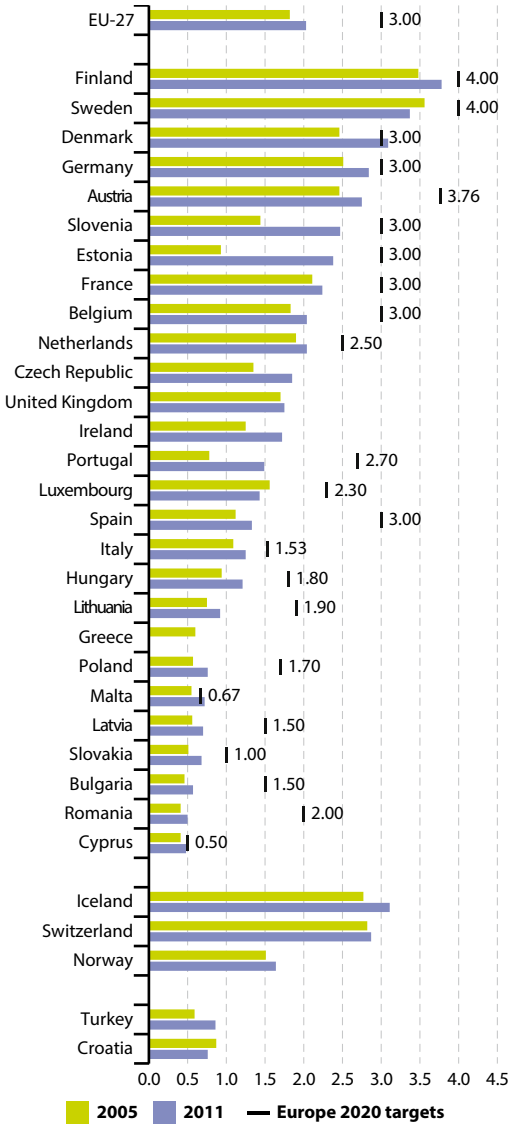
Overall EU target: 3 %.

Distance to the overall EU target: 1.00 pp

(*) Europe 2020 national targets: the Czech Republic: 1 % (public sector only), Ireland: approximately 2 % (2.5 % of GNP), Luxembourg: 2.3–2.6 %, Portugal: 2.7–3.3 %.

Source: Eurostat (online data code: rd_e_gerdreg)

Figure 2.4 Gross domestic expenditure on R&D (R&D intensity), by country, 2005 and 2011 (*) (% of GDP)



(*) 2004 data (instead of 2005) and 2008 data (instead of 2011) for CH; 2009 data (instead of 2011) for IS; 2007 data (instead of 2011) for EL; Estimated data for AT (2005) and for EU-27, SE, DK, DE, AT, IE and LU (2011); Provisional data for BE, BG, DK, EE, IE, IT, CY, LV, LT, LU, MT, NL, AT, PT, SI, SE, UK and NO (2011); Break in series for DK (2007), FR (2010), NL (2011), PT (2008), SI (2008 and 2011), SE (2005, 2011).

National targets: CZ: 1% (public sector only), EL: to be revised, IE: approx 2% (2.5% of GNP), LU: 2.3-2.6%, PT: 2.7-3.3%, UK: no target.

Source: Eurostat (online data code: t2020_20)

in Belgium, France, Austria and Finland. Together these 30 regions accounted for 38.4 % of all R & D expenditure in the EU-27 in 2010.

Remarkably, nine of the regions where R&D intensity was over 3.00 % were located in the Nordic Member States. The three Danish and four Swedish regions with R&D intensity above 3.00 % collectively contributed 6.5 % to total R&D expenditure in the EU-27 in 2009 while the two Finnish regions contributed 1.2 % in 2010.

Those EU Member States with relatively low levels of national R & D intensity tended to display a narrow range of values for R&D intensity across their regions. This was particularly true for Romania, Bulgaria, Greece, Slovakia and Ireland. In half of the 20 EU Member States for which data are available (Bulgaria, Denmark, Spain, Hungary, Austria, Poland, Portugal, Romania, Slovenia and Slovakia), the capital city region recorded the highest level of R&D intensity.

Map 2.2 highlights the distance of regions (at NUTS 2 level) to the respective national Europe 2020 targets in 2010. The cross-country regional performance in terms of R&D intensity shows a quite different picture compared with the distance to the national target. Essentially, EU Member States with a high number of regions scoring above EU average R&D intensity only had a few regions that achieved their respective national targets. This might be a result of the different level of ambition reflected in the national R&D intensity targets, which determines the difficulty of reaching these goals.

Policy cornerstones helping Member States to create a well-functioning R&D system

Research and development are needed to help tackle the EU's employment, education, competitiveness and future societal challenges such as climate change and clean energy. To meet these challenges, the EU proposes a set of important policy cornerstones to help Member States create well performing national research systems ([6]):

- Placement of innovation at the heart of government policy design.
- Adequate and predictable public investment to provide a stable, long-term and appropriate environment for research and innovation, which in turn stimulates private sector investment.
- Adoption of a broad-based definition for innovation going beyond technological research and its applications such as non-technological, user-driven and social innovation.
- Strong focus on the development of human resources.
- Appropriate framework for stimulating growth of innovative enterprises.
- Public sector interventions through innovation-friendly public procurement mechanisms.

How the EU strengthens its human capital and knowledge base

Current skill mismatches are a threat to Europe's innovation capacity at a time of increasing technological needs (also see chapters on Employment on p. 27 and Education on p. 93). In particular there is a shortage of human resources such as scientists and engineers.

Knowledge and skills are crucial for gaining new scientific and technological expertise and for building the economy's capacity to absorb and use this knowledge (see Box 2.3). R&D expenditure covers a substantial part of expenditure on skills and education and, therefore, constitutes a vital enabling factor for human capital. In this regard, the EU will need to train and employ at least one million new researchers compared with 2008 levels if it is to reach the R&D target of 3 % ([7]).

The number of science graduates in the EU is increasing

Making good progress towards the Europe 2020 strategy's R&D target requires fundamental changes in the economy and the educational and labour market system. To fully absorb the increases in R&D budgets, the output and excellence of Europe's tertiary education system needs to be stepped up. This means providing the capacity to make use of the increased spending on R&D.

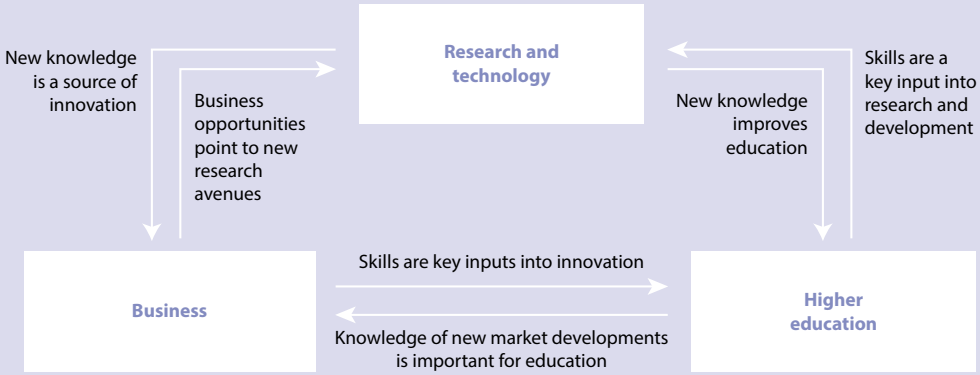
Empowering women in tertiary education and enhancing their employment opportunities in the R&D sector is an important issue for the EU. However, gender equality heavily relies on a multitude of factors such as the combined effects of R&D innovation systems, the importance of science to the national economy, the features of the labour market and equality policies in place.

An ever increasing number of the EU population are graduating from tertiary education in science and technology. Figure 2.5 shows how this trend has developed over the past decade. Between 2000 and 2011, the number of tertiary graduates in science and technology grew by almost 70 %, from 10 graduates per 1 000 inhabitants in 2000 to almost 14 graduates per 1 000 inhabitants in 2011.

This trend varies considerably across EU Member States (see Figure 2.5). In 2011, the number of science and technology graduates ranged from about 23 per 1 000 inhabitants in Lithuania to 6 per 1 000 inhabitants in Malta (Luxembourg being an exception with only 3 per 1 000 inhabitants). This gap has serious implications for labour mobility and the notion of a barrier-free labour market in the EU (see Box 2.4). All countries except Ireland have increased tertiary education graduations since 2000. Between 2000 and 2011 Slovakia, the Czech Republic and Romania practically tripled graduate rates. Poland, Austria, Germany, Portugal, Italy,

Box 2.3: The knowledge triangle: education facilitates research and innovation

Education is the ultimate means to building up human capital and is strongly linked to the concepts of research and innovation. These three concepts, which are central drivers of a knowledge-based society, form the so-called knowledge triangle ([8]). This concept couples education, academic research and knowledge production, and innovation, and highlights the mutual benefits from strong inter-linkages among the three. To realise a cohesive European Research Area (ERA), education, research and innovation need to develop strong links with each other.



Box 2.4: Researchers' mobility is intrinsic to the development of a dynamic, knowledge-based Europe

The promotion of the so-called 'Fifth Freedom' ([10]), that is the free movement of knowledge, contributes to an internal knowledge market in Europe, where researchers, science and technologies can circulate freely. This optimises knowledge spill-overs and increases employment opportunities for researchers. A framework for enhanced mobility of students and researchers, as proposed by the flagship initiative 'Innovation Union' ([11]) and the 'European Research Area' ([12]), is crucial in this respect.

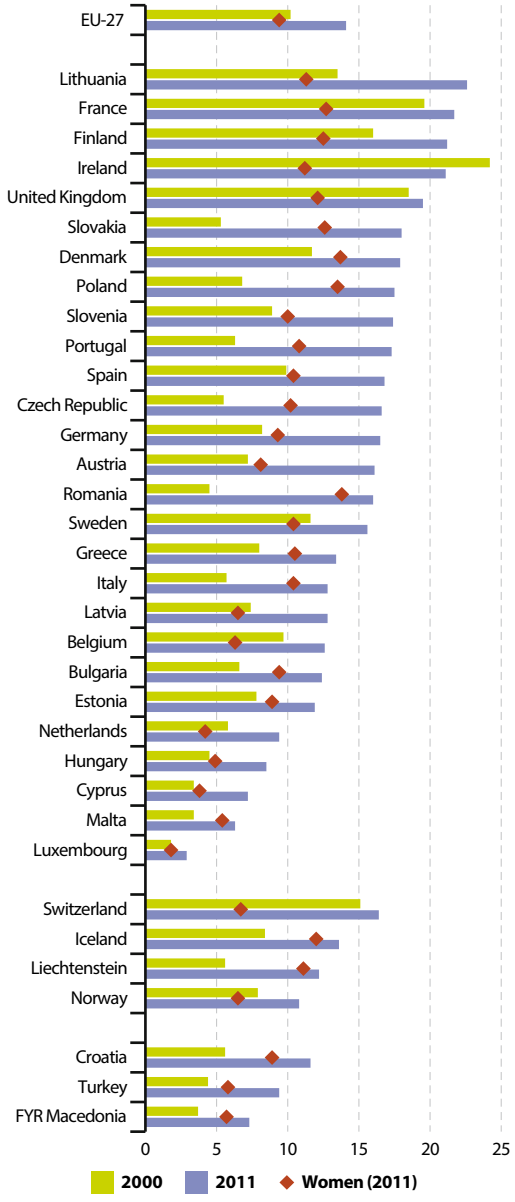
Lithuania, Cyprus and Malta more than doubled their rates.

Remarkably, between 2000 and 2011 the share of female graduates grew slightly faster than the overall growth in science and technology graduates. This trend could in the future help address the current underrepresentation of women in science and research careers and PhD positions. It could also mean the trend of men outnumbering women in employment of researchers (men accounting for 67 %), PhD students (51 %) and graduates (54 %) might be reversed ([9]). In Lithuania, Romania, Italy and Malta women already made up more than 80 % of total graduates in 2011.

What is the EU's performance with regard to employment?

As outlined earlier, Europe is making progress in terms of its academic tertiary education output.

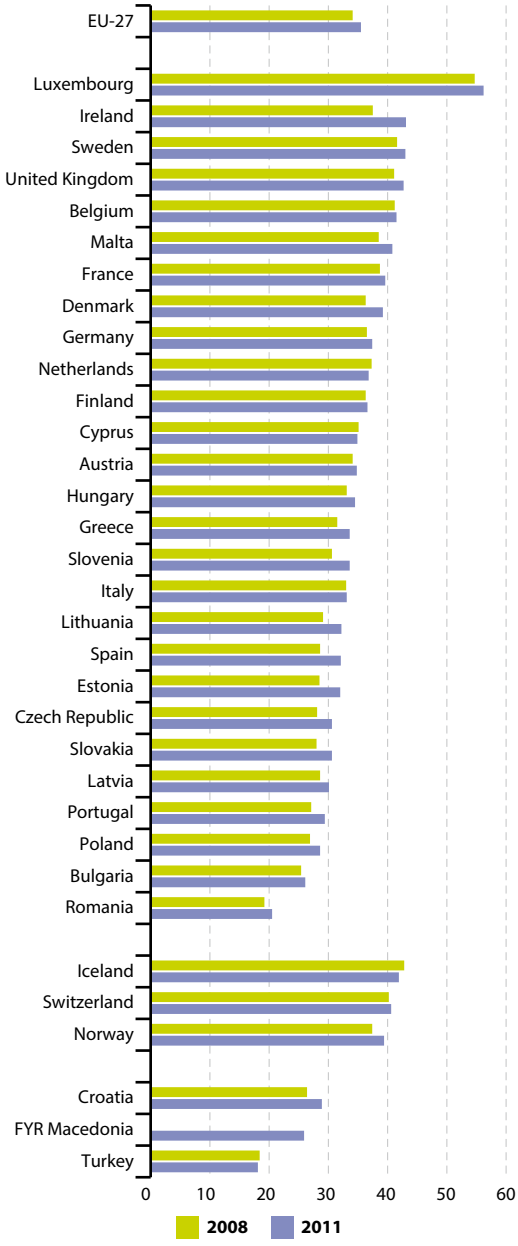
Figure 2.5 Tertiary graduates in science and technology, by country, 2000 and 2011 (*)
(Graduates per 1 000 inhabitants, 20 to 29 years old)



(*) 2002 data (instead of 2000) for CH; 2010 data (instead of 2011) for HR, FR and IS; 2003 data (instead of 2000) for LI; 2004 data (instead of 2000) for EL; EU-27 data for 2000-2004 are estimates; Female tertiary graduates: 2010 data (instead of 2011) for FR, HR and IS

Source: Eurostat (online data code: tps00188)

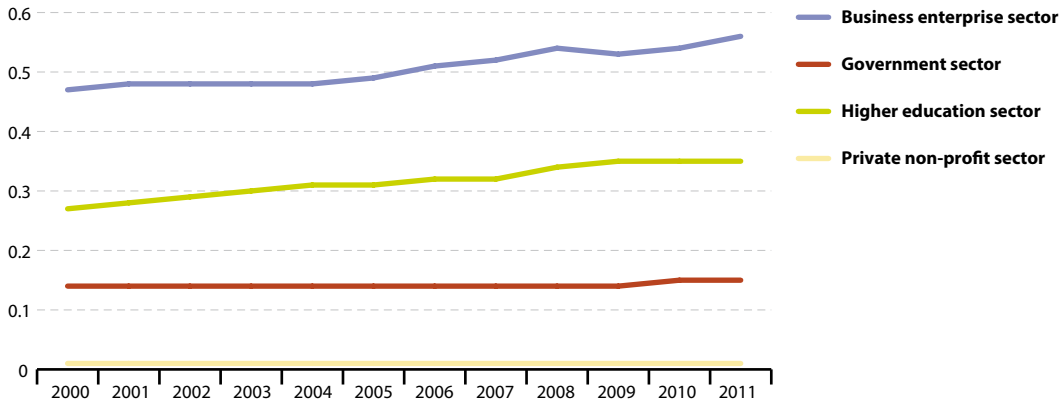
Figure 2.6: Employment in knowledge-intensive activities, by country, 2008 and 2011 (*)
(% of total employment)



(*) No 2008 data for MK; 2009 data (instead of 2008) for TR.

Source: Eurostat (online data code: htec_kia_emp2)

Figure 2.7: Total R&D personnel by sectors of performance, EU-27, 2000–2011 (*)
(full-time equivalents, % of the labour force)



(*) 2000–2004 and 2008–2011 data are estimates; data for 'Private non-profit sector' are estimates (whole time series).

Source: Eurostat (online data code: rd_p_perslf)

Taken together, a sufficiently high number of researchers and excellence in skills and performance are key factors for the creation and implementation of novel ideas in a knowledge- and research-intensive economy.

In the EU-27, the number of people employed in knowledge-intensive activities as a share of total employment increased slightly from 34.1 % in 2008 to 35.5 % in 2011. However, the picture across Members States is rather mixed, as shown in Figure 2.6. While in 2011 Romania (20.5 %), Bulgaria (26.1 %) and Poland (28.6 %) showed the lowest percentages, Luxembourg (56.2 %), Ireland (43.1 %) and Sweden (43.0 %) had the highest rates.

As a general trend, between 2008 and 2011, employment in knowledge-intensive activities increased in almost all EU Member States, demonstrating that the EU is moving towards a more knowledge-based economy. Countries making substantial progress were Ireland (5.6 percentage points), followed by Spain, Estonia, Lithuania and Slovenia, all experiencing a period of continuous expansion of employment in knowledge-intensive activities of 3.0 to 3.5 percentage points. There were falls in the Netherlands (– 0.5 percentage points) and Cyprus (– 0.2 percentage points).

At the EU level, total R&D personnel (in head count) constituted 1.68 % of total employment in 2009. This translates into about 2.5 million people in full-time equivalent positions working in R&D.

As shown in Figure 2.7, R&D personnel as percentage of the labour force increased in three of the institutional sectors between 2000 and 2011; however, the rate of growth was quite different between the sectors. The business enterprise sector grew by 0.09 percentage points between 2000 and 2011, followed by the higher education sector which grew by 0.08 percentage points over the same period. The government sector increased by only 0.01 percentage points. The private non-profit sector remained stable at 0.01 % over that period.

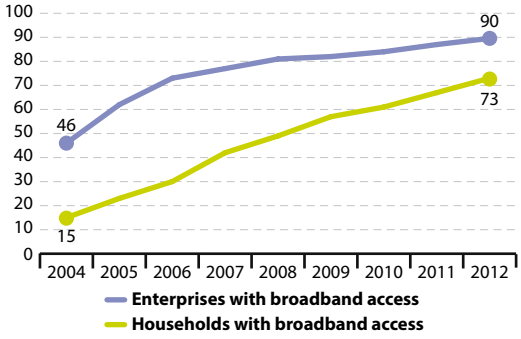
ICT connectivity and digital skills are central to a knowledge-based economy

Information and communications technology (ICT) skills and knowledge are essential for the development of an effective research and innovation system. In that sense, they are an important part of the skills base necessary in today's interactive and connected world.

Box 2.5: Policies fostering ICT connectivity and digital skills

A series of high-level Europe 2020 initiatives address the two issues of investment in connectivity and ICT skills. Connectivity, on the one hand, is addressed by the flagship initiative 'Digital Agenda for Europe' ([14]) that contributes to the smart growth priority to boost citizens and businesses' access to broadband. ICT skills, on the other hand, are targeted by another flagship initiative, the 'Agenda for new skills and jobs'. It facilitates the inclusive growth priority, supporting the improvement of e-skill levels in the labour force and the creation of jobs through an enhanced set of skills and in the ICT sector overall.

Figure 2.8: Households and enterprises with broadband access, EU-27, 2004–2012 (*)
(% of households and % of enterprises)



(*) Enterprises with broadband access refers to enterprises with at least 10 persons employed in the given NACE sectors; Break in series in 2009 (NACE Rev 2 since 2009).

Source: Eurostat (online data codes: tin00089 and tin00090)

Furthermore, ICT development and usage skills are a new driver for employment and R&D in Europe. The ICT sector, including information industries, accounts for 6 % of GDP and is responsible for a fifth of business R&D spending. Moreover, it is one of Europe's fastest growing sectors ([13]). A number of EU policy strategies under the Europe 2020 strategy umbrella tackle the issue of ICT connectivity and skills at the business and citizen levels (see Box 2.5).

A large part of the EU population is, however, affected by a growing digital literacy deficit. The exclusion of many people from the digital knowledge-based society and economy is holding back the large multiplier effect of ICT take-up in fostering innovations and, consequently, productivity growth. These skills do not only improve employability, they also enhance societal learning, creativity, emancipation and empowerment.

Broadband access for businesses and for households increased substantially

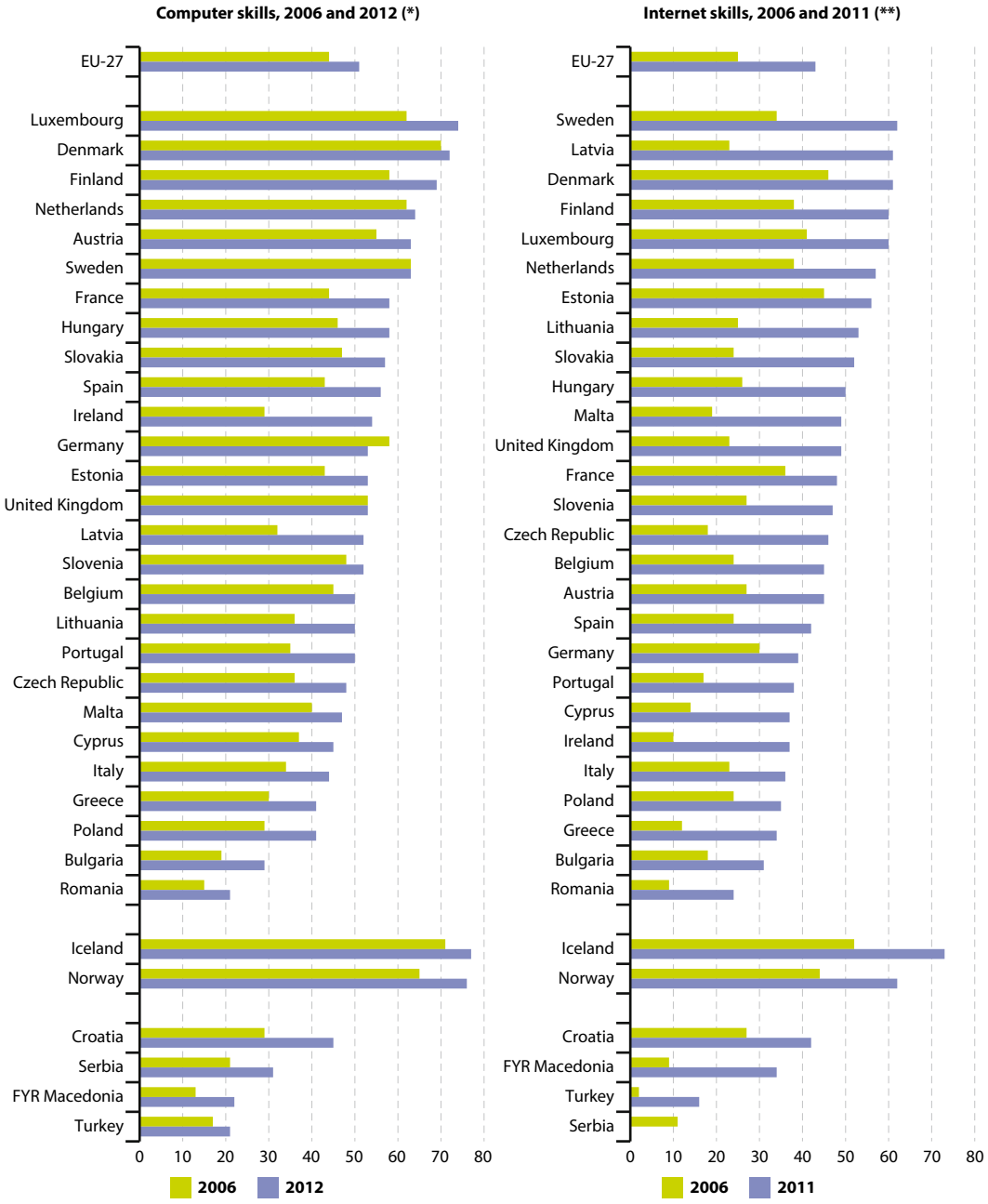
Availability of infrastructure is one of the foundations for diffusing the digital and knowledge-based economy into the very corners of society. Therefore, increased broadband access for private and business usage is an important enabling factor.

In line with the most recent developments in the global internet and increased network coverage as well as affordability, the share of broadband access of European households and enterprises increased tremendously over the period 2004 to 2012. Enterprises' access to broadband connections almost doubled (from 46 % to 90 %), while the share of households enjoying access to the broadband infrastructure increased nearly fivefold (from 15 % to 73 %).

This pattern of growing access to ICT infrastructure is also reflected at Member State level. Between 2004 and 2012 the share of households and enterprises with broadband access increased in all Member States. In 2012, Denmark, Germany, the Netherlands, Finland, Sweden and the United Kingdom showed the highest shares of household connectivity of above 80 %. Countries with lower access rates, but with the highest growth rates in Europe, were mainly Eastern and Southern European countries. Starting from almost no household broadband connectivity in 2004, Greece and Cyprus increased the share of households with access to broadband by 30 times or more by 2012.

Compared with household connectivity, differences in enterprises' broadband access in 2012 were less pronounced, especially in Eastern and

Figure 2.9: Individuals with at least a medium level of computer and internet skills, by country
(% of the total number of individuals aged 16 to 74)



(*) 2007 data (instead of 2006) for HR, RS and TR; 2009 data (instead of 2012) for MK, RS and TR.
(**) 2007 data (instead of 2006) for FR, HR and TR; only 2007 data for RS; 2010 data (instead of 2011) for MK and TR.

Source: Eurostat (online data codes: tsdsc460 and tsdsc470)

Southern Europe. In 2012 enterprises' access varied from 98 % in Finland to 63 % in Romania. By 2012 Spain, Cyprus and Lithuania had achieved remarkable progress towards access rates of about 95 %.

Increase in the EU population's digital skills

Between 2006 and 2012 the share of individuals with at least a medium level of basic computer skills ([15]) in the EU grew slightly from 44 % to 51 % (see left-hand graph in Figure 2.9). In 2012 the share of individuals with at least a medium level of basic computer skills in the EU countries ranged between 74 % and 21 %. High shares of such levels of computer skills could be found in Luxembourg, Denmark and Finland.

As for computer skills, internet skills are equally important for a society's digital knowledge base. The trend observed in Figure 2.9 (right-hand graph) shows that between 2006 and 2011 the share of individuals with at least a medium level of internet skills ([16]) increased substantially, from 25 % to 43 % at the EU level. This favourable trend is mirrored in the development in EU Member States: all succeeded in improving their populations' internet skills between 2006 and 2011.

The increases in internet skills across the EU in general reflect the developments in terms of connectivity (see Figure 2.8). Thus it is not surprising that many Member States such as the Czech Republic, Greece, Ireland, Cyprus, Latvia, Malta and Romania increased the share of people having advanced internet skills by more than 2.5 times.

How are businesses achieving technology-based innovation and getting good ideas to the market?

A dynamic business environment is fundamental for the promotion and diffusion of innovations. In this regard, the challenge is to utilise R&D via entrepreneurship and creativity to trigger innovation and economic competitiveness and, consequently, achieve job creation. Therefore, measures targeting knowledge diffusion and absorption, for example, through the creation of technology markets and licensing schemes, are equally important as investment in the knowledge generation (see Box 2.6). Accordingly, the higher the uptake and use of ideas from R&D, the more likely those innovative players will invest in future knowledge generation in the form of increased private R&D expenditure.

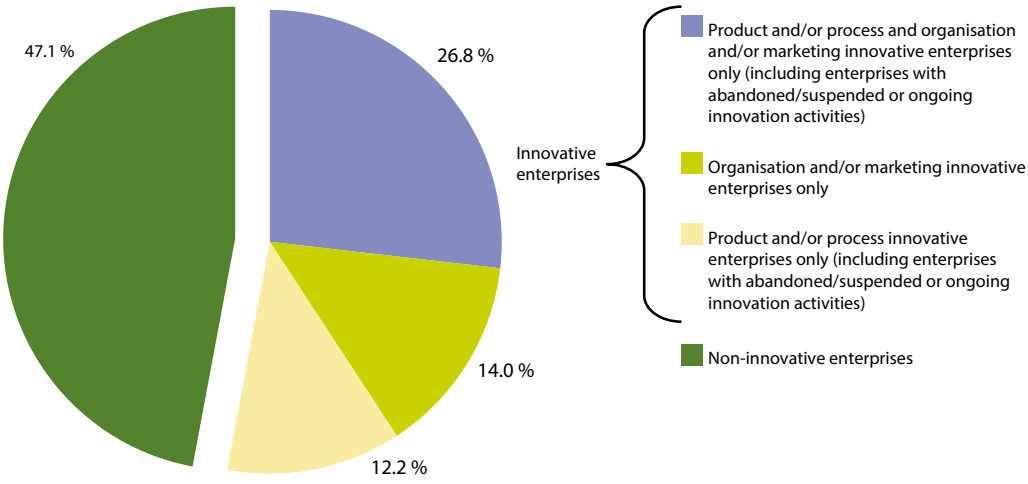
Box 2.6: Relationships between R&D, innovation and patents

The classical rationale for filing patents is that it encourages companies to produce the innovation. According to literature ([17]) a company's propensity towards patents is influenced by three factors: R&D efforts, strategic considerations and the competitive environment. One of the trade-offs for filing patent applications is the limited ex-post diffusion in society by excluding other parties from using the invention, unless permitted by the patent holder ([18]).

Since the 1990s, a trend of increased propensity to patent without a corresponding growth in R&D expenditure has been experienced in the United States as well as EU Member States. This trend reflects an increase in R&D productivity.

Next to patent development, the extent to which patents — reservoirs of potential innovations — are actually used for economic and societal purposes remains of major importance. Therefore, the tendency for higher propensity to patent for reasons other than increasing productivity and innovation (for example, guaranteeing protection from rivals), bearing risks that patents are not used, have largely been alleviated by means of licensing. ([18]).

Figure 2.10: Enterprises by type of innovation, 2010
(% of the total number of enterprises)



Source: Eurostat (online data code: inn_cis7_type)

Box 2.7: The relevance of research and innovation for societal progress

Research enlarges the scientific and technological knowledge required to tackle societal problems or simply to satisfy intellectual curiosity. Innovation creates value by introducing new products, processes, services and ways of doing things. The two concepts are intertwined, with scientific and technological research providing knowledge inputs for innovation.

Innovation is a rather broad concept that encompasses the capacity of a company, economy or society to adapt to changing environments and circumstances in different ways. It comprises a variety of aspects ([19]):

- **Product, process and service innovation**: the introduction of new products, processes and services
- **Organisational innovation**: changes in the way business or manufacturing processes are organised.
- **User-driven innovation**: innovation that draws heavily on knowledge inputs from customers and markets.
- **Open innovation**: changes in the way companies and other organisations access and exploit knowledge to innovate.
- **Social innovation**: innovations in the way society organises itself, especially the different ways that the public sector serves the needs of society at large.

All of these innovation types have socioeconomic impacts, for example, research and innovation have a strong relationship with technical change, knowledge capabilities or the productivity of companies. More specifically, a positive relationship exists between innovation and socioeconomic performance. For example, regions with high levels of innovation are more likely to have higher levels of development (in GDP), labour productivity and employment rates, and (to a lesser extent) lower energy usage ([20]).

The addition of the third concept of education forms the notion of the knowledge triangle: education, research and innovation. These three concepts benefit from their strong interlinkages (see Box 2.3).

Furthermore, innovative players also facilitate a more dynamic system. In many cases they contribute to the necessary structural and technological change to adapt to new circumstances and challenges. An example of this is the depletion of fossil fuels and the consequent transition towards more renewable energy sources.

Significant progress in achieving knowledge diffusion and absorption is measured through growth in innovative firms, the number of patent applications, the export of high-tech products, and the number of patents related to societal challenges such as climate change.

More than half of EU enterprises contribute towards innovation activity

With regard to innovativeness, more than half of the EU's enterprises reported innovation activity in 2010 (see Figure 2.10). Member States considered as innovation leaders, with a share of innovative enterprises being substantially above the EU average of 53 %, are Germany (79 %) and Luxembourg (68 %).

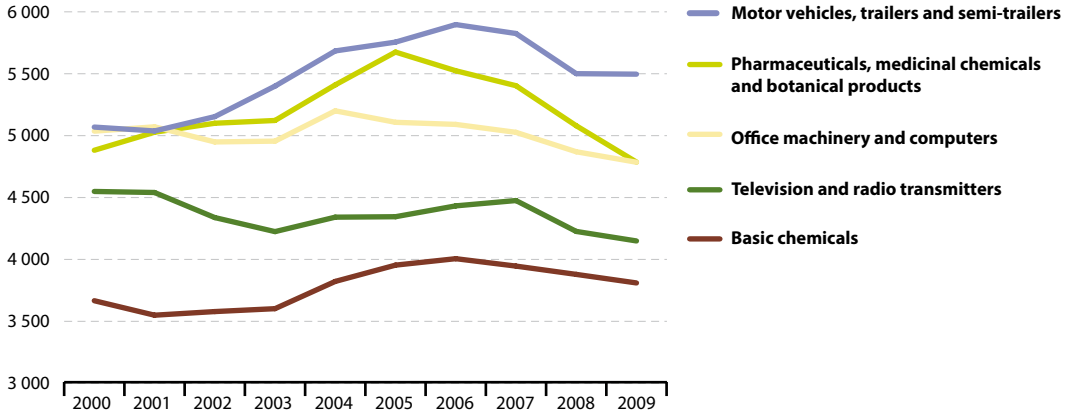
Innovative companies can be distinguished depending on the type of innovation they are following. Figure 2.10 shows how companies diversify their business strategy leading to different innovation types such as product and/or process as well as organisational and/or marketing innovation.

How are EU sectors performing with regard to new patent applications?

A higher scientific output in the public sector is positively related to a higher business sector R&D investment and innovation. The more cutting-edge knowledge has been produced, the more likely it is that such knowledge should spill over into new products and services and hence private R&D activities. In this regard, patents provide a valuable measure of the exploitation of research results and of inventiveness of countries, regions and firms (see Box 2.6).

Over the period 2000 to 2007, patent applications in the EU manufacturing sector increased almost continuously until the global economic and financial crisis began to be felt in 2008. After having peaked in 2006, EU patent applications fell by more than 4 % from 2007 to 2009. This is also reflected in the total number of patent applications at EU level which declined by more than 6 % between 2007 and 2011.

Figure 2.11: Patent applications to the European Patent Office (EPO) in the manufacturing sector by priority year at the national level, by sector of economic activity, EU-27, 2000–2009
(Number)



Source: Eurostat (online data code: pat_ep_nnac)

Taking a more detailed view of the manufacturing sector, the trend at EU level is to a large extent mirrored in the individual sectors as outlined in Figure 2.11 ([21]). Among the five selected subsectors, which constitute a major part of Europe's manufacturing sector, the pharmaceuticals sector has been hit the hardest: patent applications dropped by more than 11.4 % between 2007 and 2009, followed by the television and radio transmitters sector (– 7.3 %). All remaining sectors — basic chemicals, office machinery and computers, and motor vehicles, trailers and semi-trailers — have been hit to a lesser degree (varying between – 3.4 % and – 5.6 %).

As indicated in Figure 2.12 the magnitude of the financial crisis's impact on various manufacturing sectors' patent applications varied substantially between 2007 and 2009. Patent applications dropped most in chemical manufacturing, subsector 'pesticides and other agro-chemical products' (– 12.0 %) and in the food production sector, subsector 'food products and beverages' (– 11.3 %).

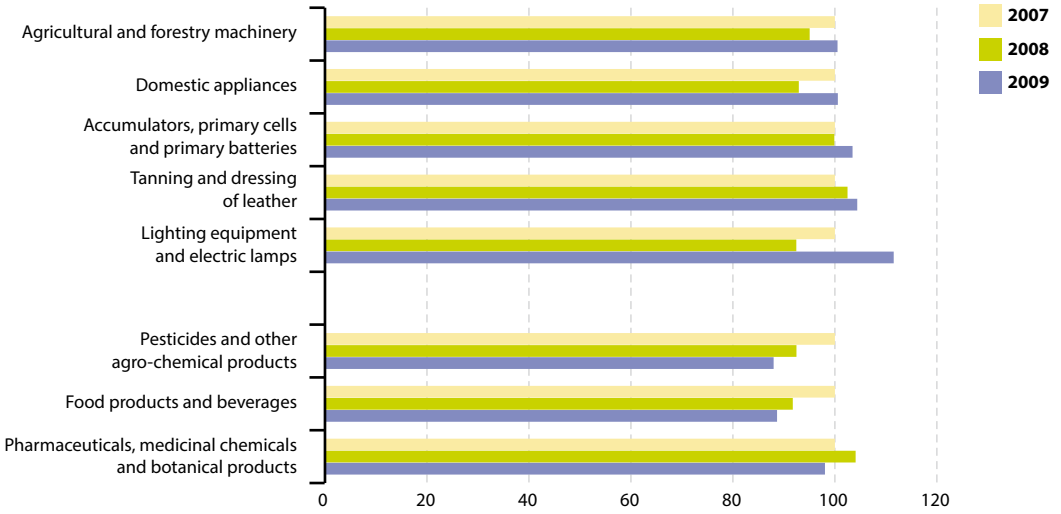
Other manufacturing sectors which have been more robust include 'tanning and dressing of leather' and the 'accumulators, primary cells and primary batteries' sectors with stable or even increasing levels during the crisis.

Technological solutions addressing climate change

The EU targets its investment strategies towards innovation-oriented sectors that help address some of society's most pressing challenges. Essentially, research and innovation in combination with market development measures can help provide the necessary structural and technological solutions to societal challenges, such as climate change, a healthy ageing or security of material supply. Accordingly, targeted sectors also represent future areas of potential economic growth and jobs.

In this regard the European Commission initiated a series of 'innovation partnerships' under the umbrella of the flagship initiative 'Innovation

Figure 2.12: Patent applications to the EPO in the manufacturing sector by priority year at the national level, by sector of economic activity, EU-27, 2007, 2008 and 2009
(Index 2007 = 100)



Source: Eurostat (online data code: pat_ep_nnac)

Union' by fostering the development and deployment of the technologies needed to meet the challenges identified.

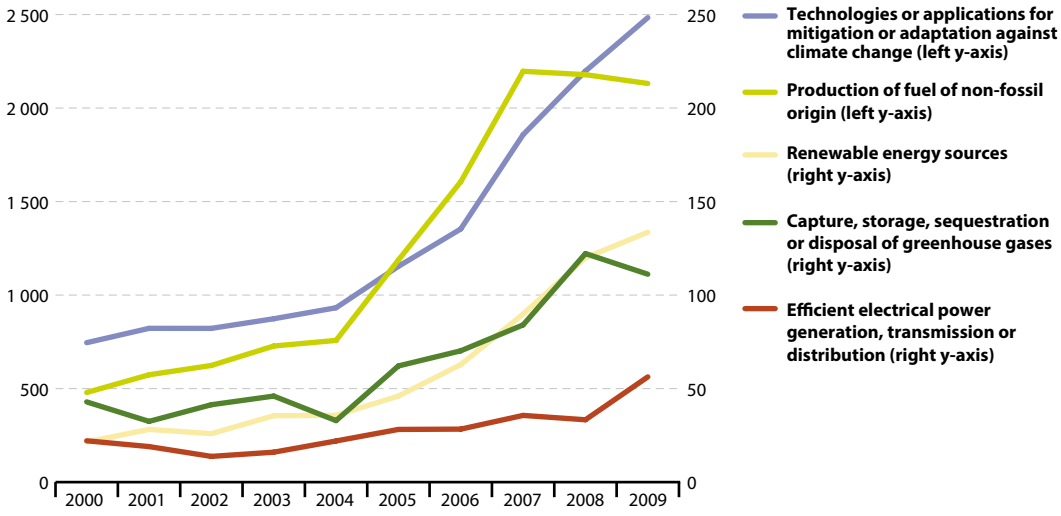
The patent market addressing climate change has been equally hit by the crisis

During the past decade Europe's progress in addressing societal challenges through patenting has been focused on climate change mitigation and adaptation ([22]). Figure 2.13 shows Europe's efforts towards tackling the global challenge of climate change in terms of patent applications in the area of mitigation or adaptation against climate change. Like conventional manufacturing patent applications, the market for patent applications targeting climate change adaptation and mitigation did not escape the turmoil in European markets created by the financial and economic crisis.

Since 2000, Europe's patent market for climate change mitigation and adaptation experienced an almost continuous increase until the crisis hit in 2008. This led to a sharp drop in patent applications of 10 %. While more than 95 % of the market is dominated by patent applications from the 'energy generation, transmission or distribution' sector, the newer 'capture, storage, sequestration or disposal of greenhouse gases' sector, which only accounts for about 4 %, was strongly affected by the crisis. Patent applications in this sector dropped by nearly one third in 2009.

While most of the sectors (renewable energy, carbon capture and storage and non-fossil fuel) have experienced a fall in the number of patent applications, remarkably the area of efficient electrical power generation, transmission or distribution has experienced virtually uninterrupted growth since 2003. Particularly during the time the crisis hit the market in 2009, patent applications peaked reflecting a growth rate of more than 60 %. During this period the most important driver for a technological push (echoing the expansion of patent applications) towards more efficient, secure and clean energy generation was the geopolitical situation in many oil-exporting countries worldwide and the oil crisis during 2003 and 2008.

Figure 2.13: Patent applications of technologies or applications for mitigation or adaptation against climate change, EU-27, 2000–2009
(Number)



Source: Eurostat (online data code: pat_ep_nrg)

Is the EU a competitive global player in R&D?

Investment in R&D remains crucial for maintaining a competitive advantage over other world innovation leaders with regard to high-quality science and innovative products. Compared with other global players such as the US, Japan and South Korea, the EU's performance in terms of business R&D expenditure, patent applications and tertiary education is lagging behind ([23]).

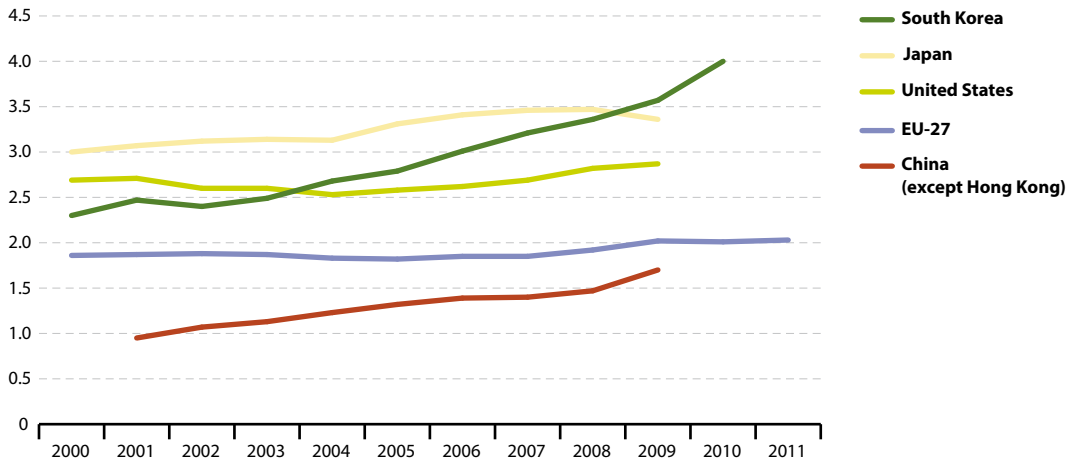
During the period 2000 to 2011, EU-27 R&D intensity remained relatively stable at around 2 % of GDP. On the contrary, other world competitors experienced moderate growth in R&D intensity (0.16 percentage points) over the period 2001 to 2009 (see Figure 2.14). Substantial progress in terms of R&D intensity could be observed in South Korea (2000 to 2010) and China (2001 to 2009), with increases of 1.7 and 0.75 percentage points respectively. On the other hand, the United States (0.18 percentage points) and Japan (0.36 percentage points) went through a more moderate period of R&D intensity growth between 2000 and 2009.

Furthermore, the United States, Japan and South Korea are not only outperforming the EU in overall R&D intensity, but also in terms of business enterprise R&D intensity. While the EU only marks a share of about 60 % of its R&D intensity originating from the business enterprise sector, other countries such as Japan and South Korea register more than 75 % of R&D intensity from the business enterprise sector.

Which sectors are frontrunners in R&D output in the international market?

Beyond turning research results into tangible applications, innovative businesses compete globally to sell their high-tech products on the world market. By bringing good ideas to the market, businesses contribute to innovation-related trade, for example, in manufactured goods, for the benefit of an economy's balance of trade. Even though only 13 % of the EU's small and medium enterprises (SMEs)

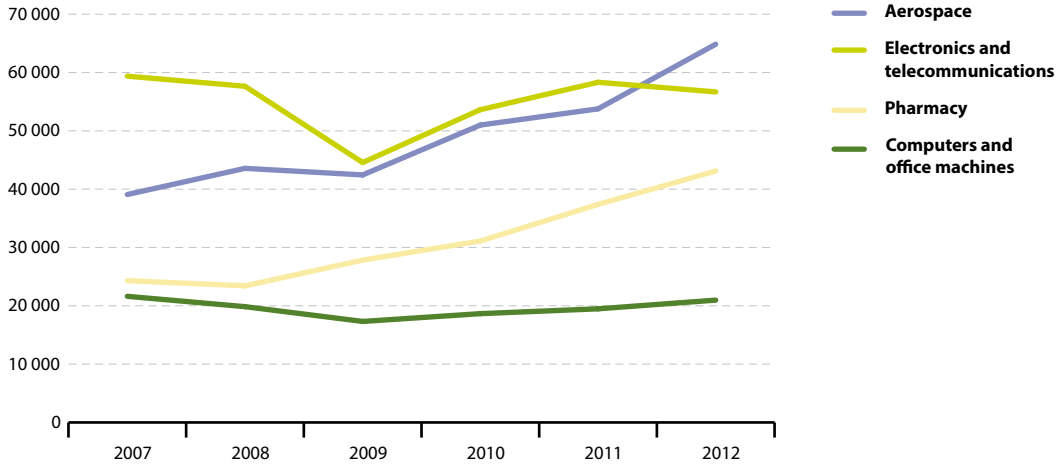
Figure 2.14: International comparison of gross domestic expenditure on R&D (R&D intensity), 2000–2011 (*)
(% of GDP)



(*) EU-27 data for 2000–2003 and 2008–2011 are estimates; break in series in 2007 for South Korea; break in series in 2008 for Japan.

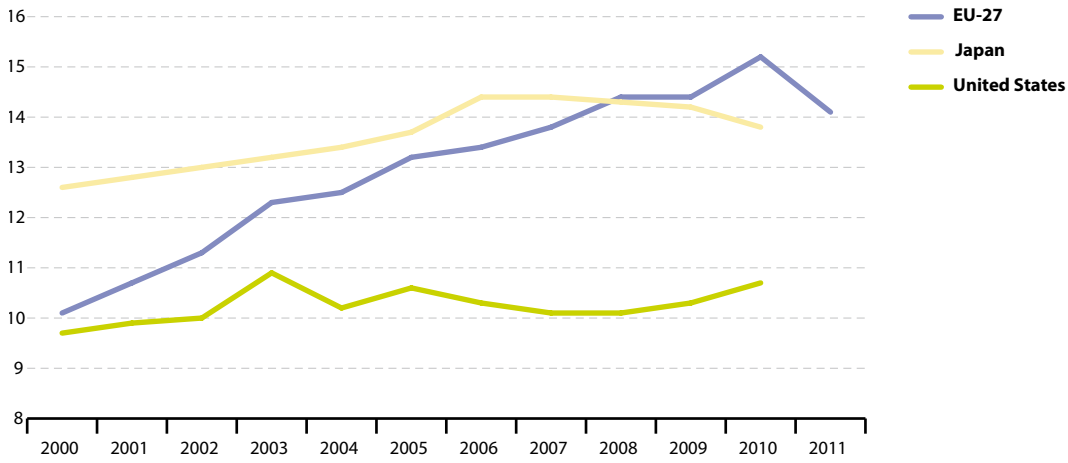
Source: Eurostat (online data code: rd_e_gerdtot)

Figure 2.15: High-tech trade exports outside of EU-27, by high-tech group of products, EU-27, 2007–2012
(million EUR)



Source: Eurostat (online data code: htec_trd_group4)

Figure 2.16: International comparison of tertiary graduates in science and technology, 2000–2011 (*)
(per 1 000 of population aged 20 to 29)



(*) Data for 2000 to 2004 are Eurostat estimates.

Source: Eurostat (online data code: tps00188)

are active in markets outside the EU, evidence suggests that internationally active SMEs show greater employment growth than non-exporters ([24]).

As a result of the economic crisis, total EU high-tech exports to outside the EU fell during 2008 and 2009. However, after the sharp drop in 2009 high-tech exports quickly recovered and continuously increased by more than 40 % by 2012. Similar development trends can be observed at the individual sector level. Since the recovery from the impacts of the economic crisis, the aerospace and pharmacy sectors, with growth rates of more than 50 % between 2009 and 2012, have been the main drivers behind high-tech exports by the EU.

The EU's international performance with regard to human capital

Since 2000, Europe's international position in terms of tertiary education graduates has improved almost continuously compared to the United States and Japan. A rising number of tertiary education graduates is fundamental with regard to the two challenges. On the one hand, the EU target of raising R&D intensity to 3 % will require it to substantially invest in future human capital to absorb these investments and, on the other hand, taking provisions to tackle the upcoming demographic challenge of an increasing number of elderly and a decreasing number of young people.

Since 2008 the EU has outperformed Japan with regard to tertiary graduates. However, between 2010 and 2011 tertiary graduation rates significantly dropped by more than 7 %, from 15.2 to 14.1 per 1 000 population.

Conclusions and outlook towards 2020

The EU followed a relatively stable trend of 1.8 % in gross domestic expenditure on R&D as a percentage of GDP (R&D intensity) between 2000 and 2007. In the two following years, R&D intensity grew to about 2 % of GDP and remained at that level until 2011. This was due to the combined effect of the crisis and its adverse impact on GDP growth and an increase in nominal government spending on R&D for combating the long-term impacts of the crisis. At the global level, the EU is catching up in terms of R&D expenditure and output compared with the United States, Japan, South Korea and China.

Digital literacy, measured in computer and internet skills, contributes to employability, societal learning, creativity, emancipation and empowerment.

While the share of individuals in the EU having at least medium computer skills increased only slightly from 44 % to 51 % between 2006 and 2012, for internet skills it increased substantially from 25 % to 43 % between 2006 and 2011. Overall these trends have been partly facilitated by some far-reaching developments in terms of connectivity.

In general, the EU has increased its output of tertiary graduates in science and technology by almost 50 % between 2000 and 2011. Particularly, the share of female graduates grew slightly faster than the overall growth in science and technology graduates potentially impacting on future employment gender equality. In this regard the EU is making progress towards tackling the demographic challenge ahead and, furthermore, preparing for increased future R&D investment.

As a general trend, between 2008 and 2011, employment in knowledge-intensive activities increased in almost all EU Member States demonstrating that the EU is moving towards a more knowledge-based economy.

The EU's technological output in the form of patents in the manufacturing sector experienced an

almost continuous increase until the impact of the global economic and financial crisis began to be felt in 2008. EU patent applications having peaked in 2006 decreased by more than 4 % during the crisis (2007 to 2009). A more detailed view of the manufacturing sector reveals that the trend at the EU level is to a large extent reflected in the development of the individual sectors. Moreover, the market addressing technological solutions for climate change has been equally hit by the crisis. Since 2000, Europe's patent market for climate change mitigation and adaptation experienced an almost continuous increase until the crisis hit in 2009. This led to a sharp drop in patent applications. This might not only affect Europe's position on the world market but additionally compromise its ability to respond to the ever-increasing problems of climate change and security of energy supply.

Efforts needed to meet the Europe 2020 target on R&D

Based on extrapolation of the R&D intensity of individual EU Member States the EU would fall short of its 3 % target by 0.2 % to 0.3 %, representing a total sum of EUR 24 to 35 billion with respect to the EU's 2009 GDP ([25]). There is a clear need to improve the conditions for private R&D investments in the EU and many of the measures proposed in the Europe 2020 strategy account for this.

Besides context-specific factors influencing R&D investment, some main causes of policy failure include insufficient or inadequate public funding of the science base and higher education system or inefficient public incentives to stimulate business R&D. Furthermore, a poor match between supply (e.g. investment in R&D) and demand-side measures (i.e. policies stimulating demand for innovative products and solutions) as well as bottlenecks restricting the growth of firms in innovative sectors are among the factors impeding successful R&D policy ([26]).

Despite the strong effect of the economic crisis on companies' net sales and profits on a global scale, investment in R&D by the business enterprise sector in Europe recovered quite quickly, demonstrating comparatively high growth rates in 2010 and 2011. Nevertheless, compared to its international competitors, the United States, Japan and South Korea, the EU still has to catch up and reduce the gap with regard to overall R&D intensity.

The Europe 2020 strategy tries to overcome the economic crisis and its impacts by addressing the shortcomings of the European growth model and creating the conditions for a different type of growth through more effective investments in education, research and innovation.

Among these the flagship initiative 'Innovation Union' is one of the most prominent. It places renewed emphasis on using public sector intervention to stimulate the private sector and to remove bottlenecks to enable the conversion of Europe's scientific expertise into marketable products and services. More specifically the flagship initiative addresses issues such as removing obstacles for companies to innovate, commercialisation, development and deployment of technologies into society, public procurement, international cooperation in research and development, as well as reducing fragmentation and duplication of research efforts. Furthermore it refocuses research and development on the challenges facing our society, such as climate change, resource efficiency and demographic change.

The European Research Area (ERA) is designed to overcome barriers thought to have hindered European research efforts, for example, by addressing geographical, institutional, disciplinary and sectoral boundaries. In this regard it creates attractive conditions for carrying out research and investing in R&D intensive sectors and fosters Europe-wide scientific competition, together with the appropriate level of cooperation and coordination.

Horizon 2020 ([27]) is the financial instrument implementing 'Innovation Union' in the EU. It focuses on turning scientific breakthroughs into innovative goods and services that have the potential to tackle societal challenges such as resource efficiency, active ageing as well as climate change and to secure Europe's global competitiveness.

Notes

(1) European Council conclusions 17 June 2010, EUCO 13/10, Brussels, 2010.

(2) 'Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications'; (Frascati Manual, 2002 edition, § 63).

(3) European Commission, *Innovation Union Competitiveness Report 2011*. Belgium, 2011 (p. 64).

(4) European Commission, *Innovation Union Competitiveness Report 2011*. Belgium, 2011 (p. 65).

(5) European Commission, *Monitoring industrial research: The 2010 EU industrial R&D investment scoreboard*. Luxemburg, 2010 (p. 19).

(6) European Commission, *Commission staff working document — A rationale for action accompanying the Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161 final Brussels, 2010 (p. 74, 75).

(7) European Commission, *Commission staff working document — A rationale for action accompanying the Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161 final Brussels, 2010 (p. 86).

(8) European Institute of Innovation and Technology, *Catalysing innovation in the knowledge triangle: practices from the EIT knowledge and innovation communities*, 2012 (p. 8).

(9) European Commission, *She figures 2012 — Gender in Research and Innovation*. Luxemburg, 2012 (p. 5).

(10) The need for a 'Fifth Freedom' relating to research was first raised by Commissioner Potočnik in a speech in April 2007; see http://europa.eu/rapid/press-release_SPEECH-07-257_en.htm.

(11) European Commission, *Commission staff working document — A rationale for action accompanying the Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161 final Brussels, 2010 (p. 39–40).

(12) European Commission, *A Reinforced European Research Area Partnership for Excellence and Growth*. COM(2012) 392 final, Brussels, 2012 (p. 10).

(13) European Commission, *Digital Agenda: Broadband and E-Communications* (accessed 04.09.2013).

(14) European Commission, *A Digital Agenda for Europe*, COM(2010)245 final, Brussels, 2010.

(15) The data refer to individuals having either a medium or a high level of computer skills. A high level of basic computer skills refers to individuals who were able to carry out 5 or 6 of 6 computer-related items, whereas a medium level of basic computer skills refers to individuals who have carried out 3 or 4 of the following 6 computer-related items: copy or move a file or folder; use copy and paste tools to duplicate or move information within a document; use basis arithmetic formula (add, substract, multiply, divide) in a spreadsheet; compress files; connect and install new devices, e.g. a printer or a modem; write a computer program using a specialised programming language.

(16) The data refer to individuals having either a medium or a high level of internet skills. A high level of basic internet skills refers to individuals who were able to carry out 5 or 6 of 6 internet-related items, whereas a medium level of basic internet skills refers to individuals who have carried out 3 or 4 of the following 6 internet-related items: use a search engine to find information; send an e-mail with attached files; post messages to chatrooms, newsgroups or any online discussion forum; use the Internet to make telephone calls; use peer-to-peer file sharing for exchanging movies, music etc.; create a web page.

(17) Harhoff, D., Hall, B.H., von Graevenitz, G., Hoisl, K., Wagner, S., Gambardella, A. and Giuri, P., *The strategic use of patents and its implications for enterprise and competition policies*, Final Report to DG Enterprise, JULY 8, 2007 (p. 7).

(18) Gambardella, A., Giuri, P. and Mariani, M., *Study on evaluating the knowledge economy: what are patents actually worth? The value of patents for today's economy and society*. Project ETD/2004/IM/E3/77 for DG Internal Market, 2006 (p. 28, 31).

(19) European Commission, *Commission staff working document — A rationale for action accompanying the Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161 final Brussels, 2010 (p. 6).

(20) European Commission, 2013. *Innovation Union Scoreboard 2013*. Belgium, 2013 (p. 64).

(21) The selection of sectors is based on the most active ones in terms of patent applications.

(22) European Commission, 2011. *Innovation Union Competitiveness Report 2011*. Belgium, 2011 (p. 415).

(23) European Commission, 2013. *Innovation Union Scoreboard 2013*. Belgium, 2013 (p. 7).

(24) European Commission, *Commission staff working document — A rationale for action accompanying the Europe 2020 Flagship Initiative Innovation Union*. SEC(2010) 1161 final Brussels, 2010 (p. 73).

(25) European Commission, 2011. *Innovation Union Competitiveness Report 2011*. Belgium, 2011 (p. 57).

(26) European Commission, *Europe 2020 flagship initiative Innovation Union*, SEC(2020)1161, Annex 1: Self assessment tool, 2010 (p. 32).

(27) http://ec.europa.eu/research/horizon2020/index_en.cfm.

3

Climate change and energy

Climate change and energy — why do they matter?

By changing weather patterns, redrawing coastlines and degrading natural ecosystems, unchecked climate change threatens to erode the foundations on which modern society is built. To avoid dangerous levels of warming, the EU has committed to limiting the mean global temperature rise to 2 °C above pre-industrial levels. This objective was endorsed by the international community in 2009 ([1]). To contribute to this global goal, the EU has pledged to continually reduce the amount of greenhouse gases (GHGs) it emits. The Europe 2020 strategy has renewed this commitment, aiming to turn the EU into an economy in which production and consumption processes emit little or no carbon dioxide (CO_2) emissions — a so-called 'low carbon' economy. Among all greenhouse gases, emissions of CO_2 are the most important.

The transition towards a low-carbon economy is not only a strategy to prevent catastrophic climate change. Climate and energy policies contribute to the Europe 2020 strategy's core objective of enabling sustainable growth. A push for renewable energies and energy efficiency, the main levers for reducing emissions, can spur innovation and create jobs. According to the 2012 'Employment package', implementing energy efficiency measures could create or retain two million jobs by 2020. The potential from development of the renewable energy sector is estimated at three million jobs by this date ([2]). In the race to master new technologies such as smart grids, energy storage or electric vehicles, it is key to create demand for ever-better green products, boosting innovation and export strength in this growing global market. At the same time, more efficient energy use boosts the competitiveness of EU businesses by lowering production costs.

A low-carbon economy also generates wider socio-economic benefits. It improves the current account balance by replacing a share of the EU's fossil fuel imports with domestic resources. Climate and energy policies help reduce air pollution and the health risks it poses. This lowers health costs and increases well-being, particularly in cities. Many measures to reduce GHG emissions, particularly energy savings, also lower the use of other resources such as metals and minerals. In return, many resource efficiency measures reduce emissions. Thus, there is a great potential for synergies with the Europe 2020 strategy's goal of making the EU more resource-efficient ([3]). One of the strategy's flagship initiatives is 'A resource-efficient Europe'. It aims to create a framework for policies to support the shift towards a resource-efficient and low-carbon economy. To ensure the statistical support for the strategy Eurostat disseminates on its website ([4]) a 'Resource Efficiency Scoreboard'. The Scoreboard comprises about 30 indicators tracking the progress towards a resource efficient Europe.

The Europe 2020 strategy's three climate and energy targets are interrelated and mutually support each other. Energy used for electricity generation, heating and cooling, and transport is responsible for the lion's share of the EU's greenhouse gas emis-

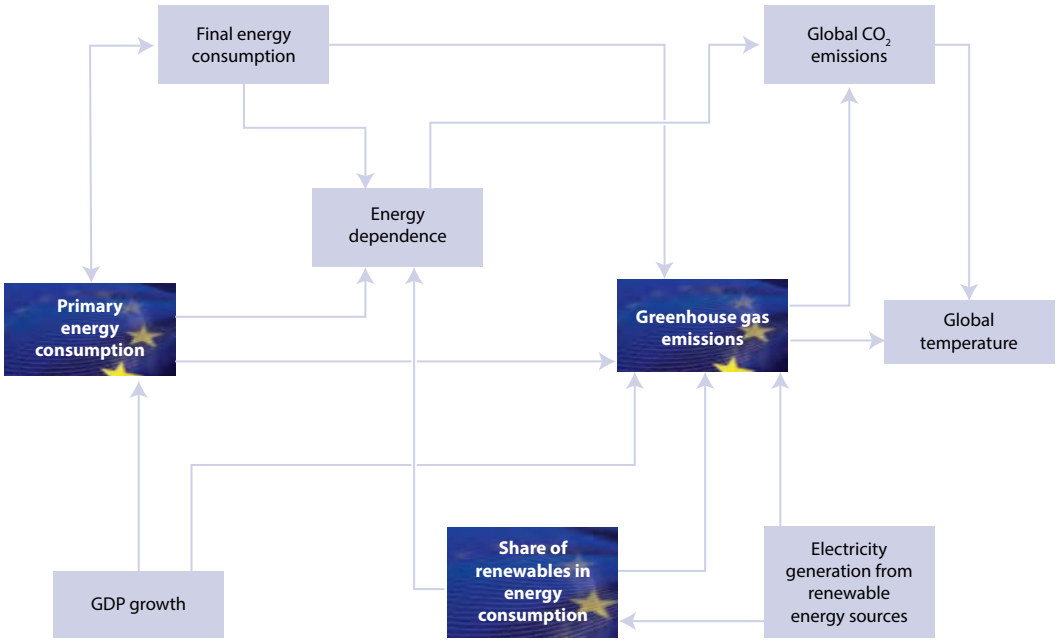
Europe 2020 strategy targets on climate change and energy

The Europe 2020 strategy sets three objectives for climate and energy policy, to be reached by 2020:

- reducing GHG emissions by 20 % compared to 1990 levels;
- increasing the share of renewables in final energy consumption to 20 %; and
- moving towards a 20 % increase in energy efficiency.

These targets are also known as the '20-20-20' targets. Additionally, the strategy points out that 'the EU is committed to taking a decision to move to a 30 % reduction by 2020 compared to 1990 levels. The offer is conditional on other developed countries committing themselves to comparable reductions and developing countries contributing adequately' ([5]).

Figure 3.1: Indicators presented in the chapter and their links to the headline indicators on the climate and energy targets



sions. Therefore, reducing energy use and switching to low-carbon, renewable energy sources are the major levers for cutting emissions. Moreover, a decrease in final energy consumption makes it easier to reach the renewable energy target.

The analysis presented here is based on the three headline indicators that have been chosen to monitor each of the climate and energy targets:

1. GHG emissions
2. Share of renewable energy in gross final energy consumption
3. Primary energy consumption

Contextual indicators are used to present a broader picture, looking into the drivers behind the changes in the headline indicators. Changes in EU GHG emissions will be analysed in relation to the underlying sectoral trends. EU trends will then be compared with information on the global trend in GHG emissions and its impact on global mean temperature and the climate system. The analysis will then turn to the two most important measures for cutting EU emissions, namely energy supplied from renewable sources and energy efficiency. For both fields, progress at the EU and Member State levels will be assessed with a special focus on the wider socioeconomic effects of the emerging green economy.

The EU's '20-20-20' targets are interlinked with the other Europe 2020 goals, in particular those for research and development (R&D) (see p. 49) and employment (see p. 27). A greater capacity for R&D as well as innovation across all sectors of the economy, combined with increased resource efficiency will improve competitiveness and foster job creation ([6]).

EU's GHG emissions are approaching the 2020 target

As a central objective of the Europe 2020 strategy, the EU as a whole aims to reduce GHG emissions (including emissions from international aviation) by 20 % compared to 1990 levels. The Effort Sharing Decision ([7]) establishes binding annual GHG emissions targets for Member States for emissions from sectors not included in the EU Emissions Trading System (EU ETS). By 2020, the national targets will collectively deliver a reduction of around 10 % in total EU emissions from the non-EU ETS sectors and a 21 % reduction in emissions for the sectors covered by the EU ETS (both compared to 2005 levels). This will accomplish the overall emission reduction goal of a 20 % cut below 1990 levels by 2020.

The EU ETS sets a single EU-wide cap for more than 11 000 power stations and industrial plants, as well as the aviation industry. It allows these economic actors to trade emission allowances among themselves. The cap shrinks each year so as to reach the 21 % target in 2020.

Member States' targets for the non-EU ETS sectors (such as transport, buildings, agriculture and waste) vary between a 20 % reduction to a 20 % increase in emissions, reflecting differences in starting points and wealth ([8]). In addition to these overarching instruments, the EU has set an array of policy instruments to address emissions from certain sectors and activities. The most important ones are listed in Box 3.1.

By 2011, the EU as a whole had cut man-made GHG emissions by 17 % compared to their 1990 levels, as shown in Figure 3.2. This is equal to an absolute reduction of 958 million tonnes of CO_2 equivalents. If emissions from international aviation are excluded, the reduction is 18.4 %, as reported by the European Environment Agency ([16]). A large portion of this reduction occurred during the 1990s. Between 1990 and 1994 there was a large drop of 7.3 %, mostly due to structural changes (such as a shift from heavy manufacturing industries to more service-based economies), modernisation in industries and change from coal to gas. Emissions began to rise again in 1995, but this trend was reversed in 1998. Between 1998 and 2007 emissions stabilised at levels of 91 % to 93 %. This was mostly a result of

Box 3.1 Key policy instruments to reduce GHG emissions

The EU has adopted a number of instruments to complement the EU Emissions Trading System (EU ETS) and the Effort Sharing Decision (ESD). The most relevant, given the energy sector's importance as a major source of emissions, are those underlying the renewable energy and energy efficiency targets.

The Renewable Energy Directive ([9]) sets a framework for promoting energy from renewable sources. It establishes mandatory national targets, detailed planning and regular monitoring requirements, and rules on simplifying administrative procedures. Within this framework, Member States have leeway to develop their own support schemes for renewable technologies.

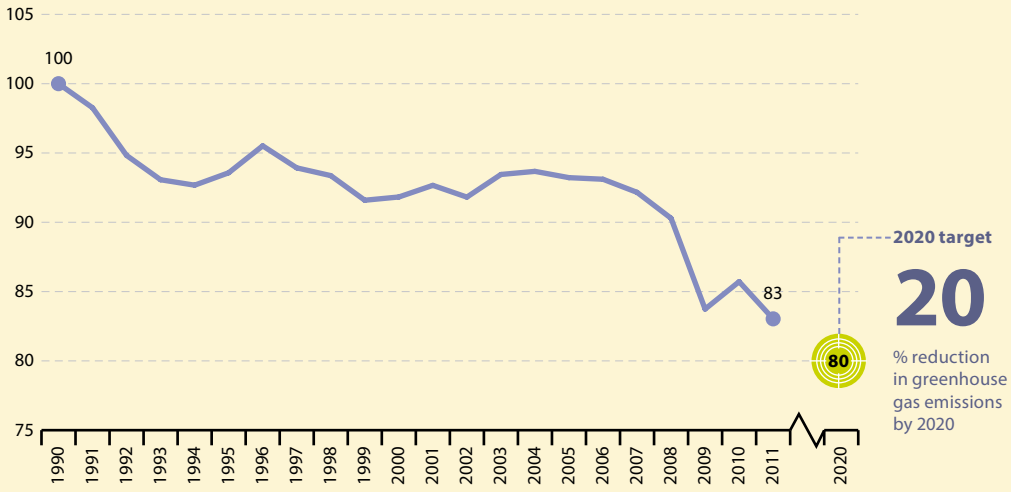
The 2012 Energy Efficiency Directive (EED) ([10]) creates an overarching framework for efficiency improvement in the Member States to ensure that the energy efficiency EU headline target is met. It is complemented by sector-specific instruments such as the Energy Performance of Buildings Directive ([11]) setting standards on insulation in newly built buildings, the Ecodesign Directive ([12]) defining performance standards for energy-using products and the Energy Taxation Directive ([13]) which sets minimum rates for energy products.

To increase energy efficiency in the transport sector, the EU has set mandatory emissions reduction targets for new passenger cars ([14]). The fleet standards go down to an average of 95 grams of CO_2 per kilometre by 2020. Similarly, the Vans Regulation ([15]) limits CO_2 emissions from new vans to a fleet average of 175 grams of CO_2 per kilometre by 2017.

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 3.2: Greenhouse gas emissions, EU-27, 1990–2011 (*)
(Index 1990 = 100)



(*) Total emissions, including international aviation, but excluding emissions from land use, land use change and forestry (LULUCF). The EEA reports a reduction of 18.4 % in 2011 compared to 1990 level because it focuses on domestic emissions only and thus does not include emissions from international aviation.

Source: European Environment Agency, Eurostat (online data code: t2020_30)

an increase in primary energy consumption (PEC) being offset by an increase in the share of fuels with lower carbon content (in particular renewable energy sources). Significant reductions were also made in the waste sector through use of better treatment processes with a lower carbon footprint and in agriculture due to a decline in livestock numbers and nitrogenous fertiliser use ([17]).

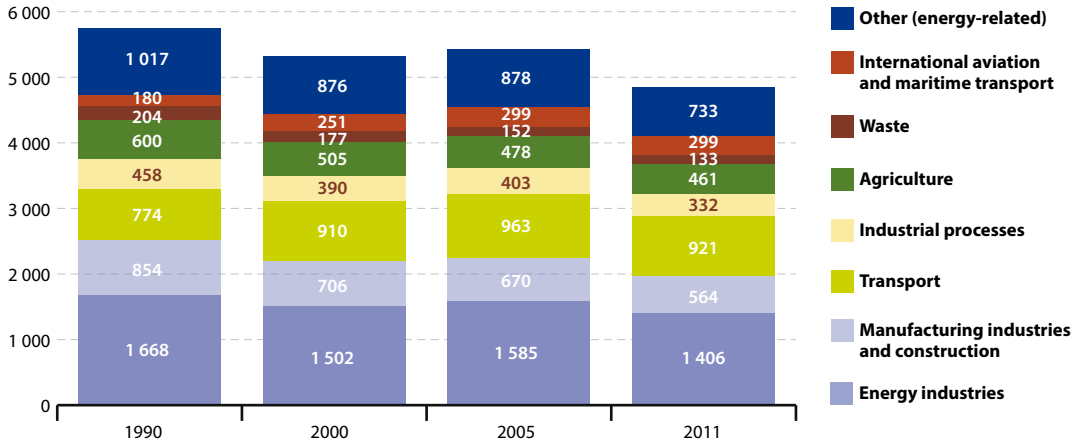
The economic crisis, which began in 2008, led to an overall economic slowdown and a resulting fall in GHG emissions. A sharp drop of 7.3 % in 2009 was followed by a rebound in 2010. In 2011, however, the downward trend continued, with GHG emissions falling by 3.1 % compared to 2010 levels despite a growth in GDP of 1.7 %. The reduction was the result of lower demand for heating due to a mild winter, lower electricity consumption, particularly in France and the UK, reduced road transport and lower cement production ([18]).

All sectors except transport have lowered emissions since 1990

Except transport, all sectors helped to reduce the EU's overall emissions between 1990 and 2011 (see Figure 3.3). In absolute terms, manufacturing industries and construction achieved the largest reduction of almost 290 million tonnes of CO_2 equivalent during that period. The second largest reduction of 262 million tonnes of CO_2 equivalent was achieved in the energy industries, the sector responsible for the largest share of total emissions.

By contrast, transport emissions were 19 % above 1990 levels in 2011. The sector accounted for 20 % of total EU emissions in 2011, making it the second largest source after the energy industries. The continual upward trend in transport emissions appears to have been broken. After peaking in 2007, emissions fell by 6 % over the following four years.

Figure 3.3: Greenhouse gas emissions by sector, EU-27, 1990, 2000, 2005 and 2011
(Million tonnes of CO_2 equivalent)



Source: European Environment Agency, Eurostat (online data code: tsdcc210)

Both the increase between 1990 and 2007 as well as the recent decline might be linked to corresponding changes in the volume of passenger and freight transport ([19]). Causes for the shrinking transport volumes since 2007 ([20]) may include the economic downturn and a hike in fuel prices. Notwithstanding this positive trend, energy efficiency and increasing the share of renewable energy remain crucial to limiting the transport sector's GHG emissions, particularly when economic growth picks up again.

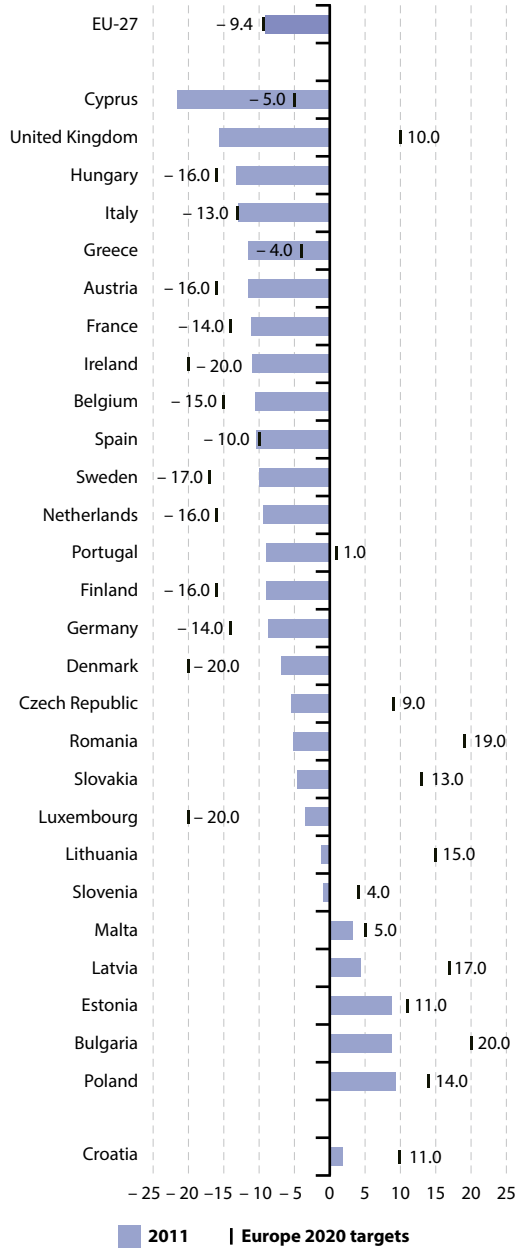
International aviation and maritime transport is the fastest growing source category. Despite a drop during the economic crisis, emissions went up by 19.3 % between 2000 and 2011. Compared to 1990, emissions from international aviation have increased by 95 % and emissions from maritime transport by 48 %. The two categories now amount to 299 million tonnes of CO_2 equivalent, 6.6 % of total emissions.

All except two countries have reduced emissions since 2005

Data for 2011 on Member States' emissions in sectors not covered by the EU ETS show 15 countries emitted less than their individual target for 2020 ([21]). Five of these countries have increased emissions between 2005 and 2011, but the increase was below their national targets for 2020. This was also the case for Croatia. The remaining 12 Member States have not yet reached their individual targets, but all of them have reduced emissions between 2005 and 2011. Luxemburg and Denmark are furthest away from reaching their target, followed by Finland and the Netherlands.

Taken together, EU-27 emissions outside the EU ETS have gone down by 9.1 % compared to 2005. Thus, the 2020 target of – 9.4 % agreed in the Effort Sharing Decision was almost reached in 2011, nine years in advance. This positive trend can be linked to lower primary energy consumption in the transport and building sectors, the two most important sources of non-ETS emissions. However, the decrease in energy demand is at least in parts a result of the continued economic depression and of mild winter temperatures. Emissions might rise again with higher economic growth. A continuation of the downward trend will thus depend on further efforts to bring about structural changes towards a low-carbon economy.

Figure 3.4: Greenhouse gas emissions in non-ETS sectors, by country, 2011 (*)
(% change since 2005)



(*) Total emissions, excluding emissions covered by the Emissions Trading System (ETS).

Source: European Commission services

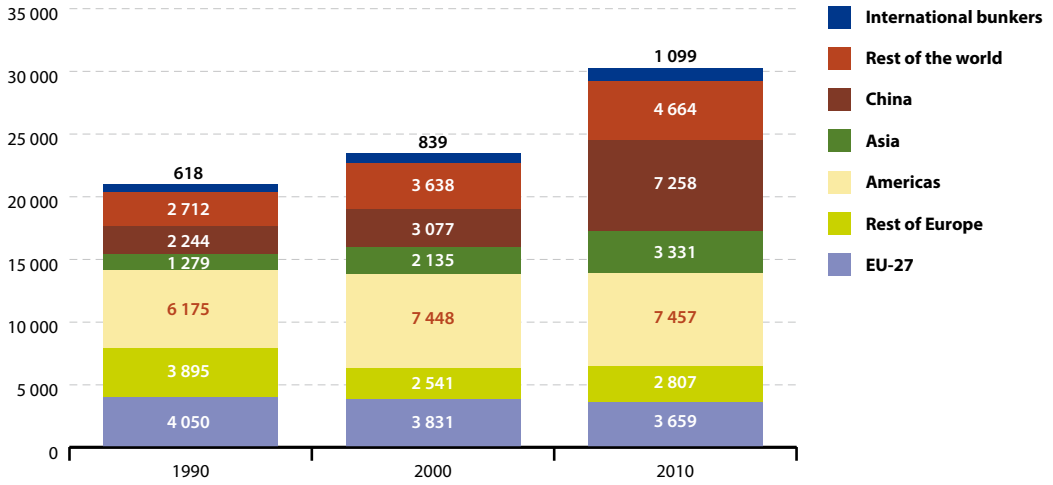
Global emissions and mean temperature continue to rise

Despite reductions in the EU, global CO_2 emissions from fuel combustion rose by 44 % between 1990 and 2010, as shown in Figure 3.5 (see p. 80). Most of the increase has taken place in emerging economies. Both in relative and in absolute terms, emission growth was strongest in China. Between 1990 and 2010, China's annual CO_2 emissions more than tripled and the country overtook the US as the world's biggest emitter. At the same time, per-capita emissions in China still remained 28 % below EU levels in 2010. Although less important in absolute terms, emissions in the rest of Asia and the rest of the world also grew significantly in relative terms between 1990 and 2010 (160 % and 72 % respectively). As a result of these trends, the EU's share of global emissions has been shrinking, from almost a fifth in 1990 to 12.1 % in 2010.

Rising emissions have increased CO_2 concentrations in the atmosphere dramatically. Although there is a time lag between the emission of GHGs and the corresponding increase in average global surface temperature, recordings already show a clear upward trend (see Figure 3.6, p. 81). Between 2001 and 2010 temperature increased by 0.88 °C compared to the first decade of the 20th century ([22]), and 2012 was the ninth warmest year since records began in 1850 ([23]). Current projections estimate that global mean temperatures could continue to rise by as much as 1.1 °C to 6.4 °C by 2100 if GHG emissions remain at current levels ([24]).

In Europe and globally, the rise in temperature has already led to observable changes in the natural systems and society. Damage costs from natural disasters have increased and are likely to rise substantially more in the future. A recent European Environment Agency (EEA) assessment shows that the negative impacts of climate change will not affect European regions equally. Climate change can increase existing vulnerabilities, for example exposure to flood risk in coastal areas or drought in the Mediterranean region ([25]). By hitting marginalised regions and poor people hardest, climate change might deepen socioeconomic imbalances in Europe (see Box 3.2, p. 80). Thereby, it could

Figure 3.5: Global CO_2 emissions from fuel combustion, 1990, 2000 and 2010
(Million tonnes of CO_2)



Source: International Energy Agency (IEA)

undermine the Europe 2000 strategy's objective of inclusive growth.

Despite the EU's shrinking share in global emissions, recent findings on the potentially catastrophic impacts of climate change confirm the ongoing importance of its climate and energy goals. Emission cuts in the EU alone cannot halt climate change, but if it can show that a low-carbon economy is feasible, and can even increase innovation and employment, it will serve as a role model to other regions. Continuous investment in advanced low-carbon technologies can also help the EU uphold technological leadership and secure export markets. A successful transformation of the energy sector, discussed in the next section, is pivotal in this respect.

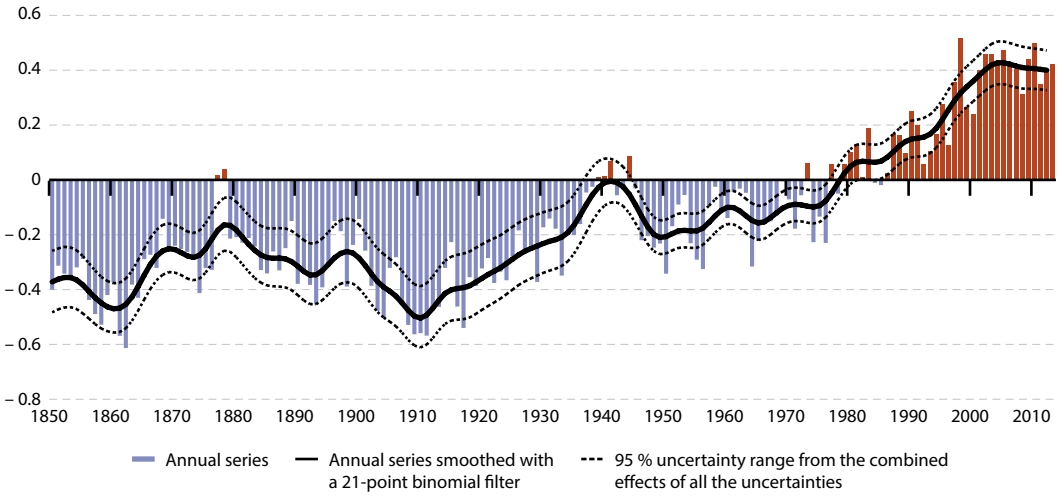
Box 3.2: The consequences of climate change

In Europe, coastal erosion and flooding due to sea-level rise, as well as more extreme weather events such as storms and heat waves, are the most important threats to humans and infrastructure. In Southern Europe, problems of water availability and more frequent droughts threaten to lower crop productivity even with a temperature rise of 1 °C to 2 °C, putting the region's agricultural sector at risk ([25]).

Climate change will also impact human and animal health. Heat-related net extra deaths in the EU are projected to reach 86 000 per year in 2071–2100 relative to 1961–1990 if global mean temperature increases by 3 °C. Disasters such as floods and storms and new diseases are likely to cause additional loss of life ([26]).

Ecosystems and biodiversity in Europe are already impacted by climate change. For example, water temperatures in lakes and rivers have increased, leading to more frequent algal blooms and forcing some species to move northwards. This can reduce fish populations, threatening the economy and livelihood of coastal communities ([27]).

Figure 3.6: Global annual mean temperature deviations, 1850–2013
(Temperature deviation in °C, compared to 1961–1990 average)



Source: Climatic Research Unit, University of East Anglia and the UK Met Office Hadley Centre

More renewable energy means fewer EU emissions

Renewable energy has been growing steadily since 2004

The second energy and climate headline target of the Europe 2020 strategy is to increase the share of renewable energy in gross final energy consumption to 20 % by 2020.

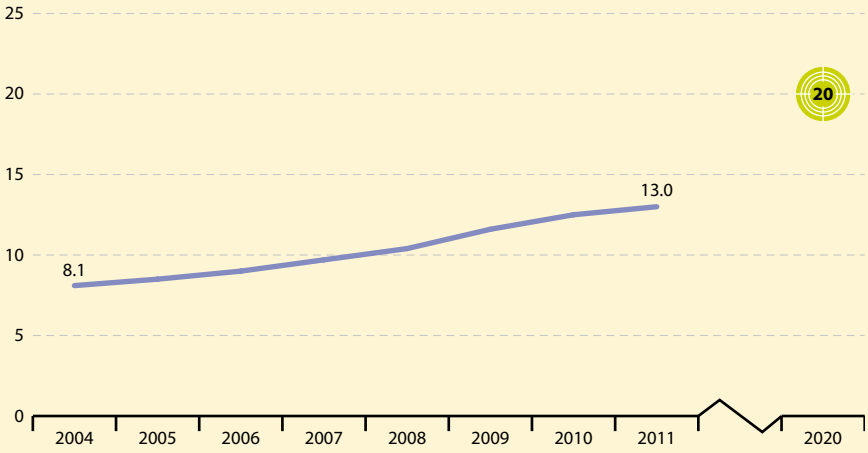
Between 2004 and 2011, the share of renewable energy increased by 60 %, reaching 13 % of gross final energy consumption in 2011 (see Figure 3.7). The two main drivers of this increase were support schemes for renewable energy technology and shrinking costs. As a result of policies such as feed-in tariffs, grants, tax credits and quota systems, installed capacity for renewable electricity and heat generation as well as the use of renewable transport fuels has grown steadily over the past decade. The EU is now the world's biggest renewable energy investor ([28]). The scaling up of global production volumes and technological advances have allowed producers to substantially cut costs per unit. Prices of photovoltaic modules experienced the biggest plunge, falling by 76 % between 2008 and 2012. Onshore wind turbines became 25 % cheaper during the same period ([29]). As a result, wind and solar installations have started to become economically viable without subsidies in areas where the weather is favourable.

The expansion of renewable energy sources reduces the EU's dependence on imported fuels and, by creating jobs, contributes to the Europe 2020 strategy's employment objective (see the 'Employment' chapter on p. 27). The share of total energy needs met by imports from non-EU countries has increased significantly over the past two decades, reaching 53.8 % in 2011 (see Figure 3.14). Fossil fuels make up the largest share. The dependence on imports exposes the European economy to high price volatility, significant costs and the risk of supply shortage. Renewable energies, most of which can be sourced domestically, reduce these risks. They also generate more of their value added within EU borders compared to imported fossil fuels.

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 3.7: Share of renewable energy in gross final energy consumption, EU-27, 2004–2011
(%)



2020 target

20

% share of renewable energy in gross final energy consumption by 2020

Source: Eurostat (online data code: t2020_31)

The share of renewable energy in gross final energy consumption in 2011 ranged from 46.8 % in Sweden to 0.4 % in Malta (see Figure 3.8). The differences stem from variations in natural resources, mostly in the potential for building hydropower plants and the availability of biomass. All Member States have increased their renewable energy share between 2005 and 2011. Eight countries have doubled their share, albeit all of them from a small base. Estonia has already met its 2020 target. In 2011 Bulgaria, Sweden and Romania were closest to reaching their national targets, followed by Lithuania, Austria and the Czech Republic. The United Kingdom and France were farthest away.

Box 3.3: Implementing the EU renewable energy target in the Member States

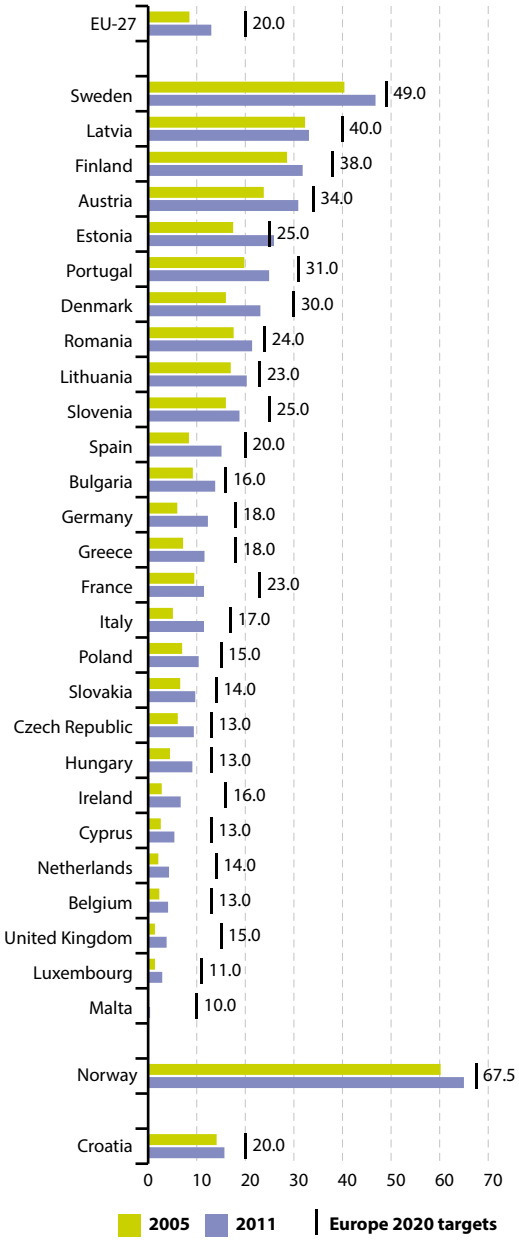
The EU's renewable energy target has been broken down into national targets that reflect differences in resource base and wealth.

To ensure the renewable energy targets are met, the Renewable Energy Directive ([9]) requires Member States to put in place support schemes and remove administrative barriers with respect to authorisation, certification and licensing of renewable energy plants.

In 2010 all Member States developed national renewable energy action plans (NREAPs), detailing how they plan to achieve their target, including interim targets and trajectories per sector and technology.

Based on this planned development they report on progress to the European Commission every two years. In addition, Member States report on their national renewable energy targets in the National Reform Programmes under the Europe 2020 strategy.

Figure 3.8: Share of renewable energy in gross final energy consumption, by country, 2005 and 2011 (*)
(%)



(*) Data for BE are provisional.

Source: Eurostat (online data code: t2020_31)

Biomass dominates renewable energy, but wind and solar are expanding fast

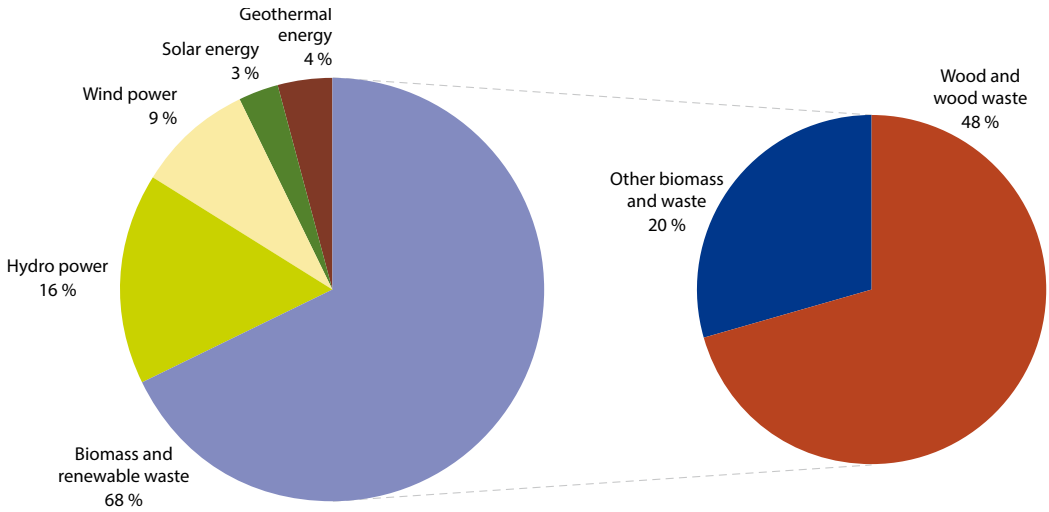
Renewable energy can be generated from a range of sources, including hydro, wind, solar and geothermal power. Biomass, the only renewable energy source contributing to all energy use sectors (electricity generation, transport and heating and cooling), remains by far the most important source in the EU. In 2011, wood, other biomass and biomass waste provided more than two thirds of all gross inland consumption of renewable energy (see Figure 3.9). At the same time, wind and solar energy are growing the fastest. In 2011, the EU generated 15 million tonnes of oil equivalent (Mtoe) from wind energy, an eightfold increase compared to 2000. In the same year, solar energy contributed a total of 6 Mtoe, 14 times as much as in 2000.

An analysis ([30]) of the EU's renewable energy sector shows that in 2011 the renewable share was highest in the electricity sector. After rapid expansion in the past decade, renewables now contribute 20.4 % of total gross electricity generation. Hydropower remains the largest source, but is declining in relative weight as solar, wind and biogas are developing rapidly (see Figure 3.10).

Renewable energy provided about 14.3 % of Europe's heating and cooling energy in 2010, up from 9.6 % in 2004. Solid biomass delivers more than 90 % of the total renewable share, followed by minor contributions from heat pumps, solar thermal and biogas ([30]).

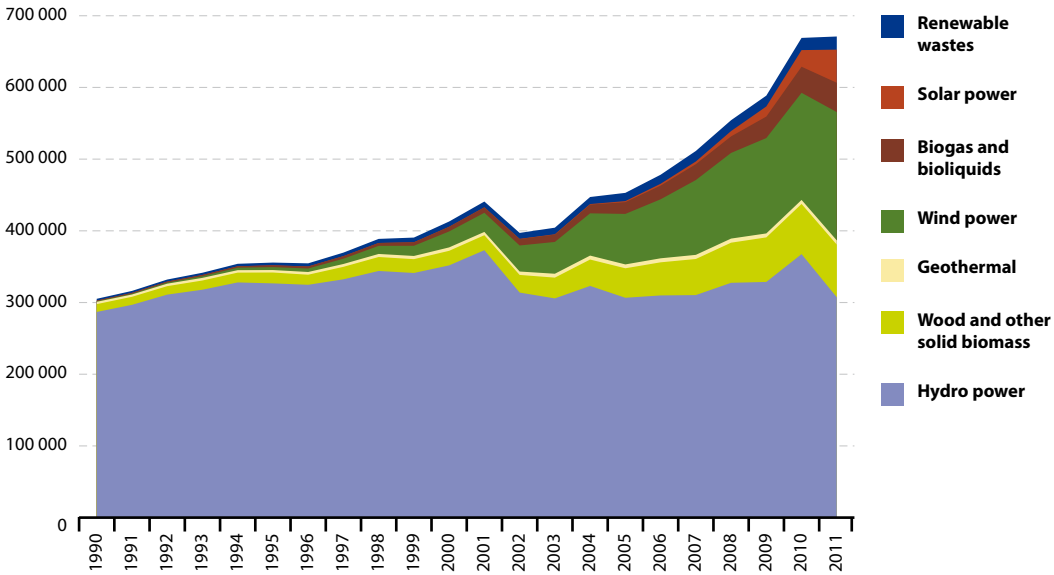
In the transport sector, the share of renewables used was 3.8 % in 2011, down from 4.8 % in 2010. The drop is due to a change in methodology. The Renewable Energy Directive sets sustainability criteria for the production of liquid biomass which make up the lion's share of renewables in transport ([31]). Starting from 2011, only those biofuels certified as sustainable according to the Renewable Energy Directive are included in the Eurostat statistics. Some Member States have not yet transposed the sustainability standards into national law. Biofuels consumed in these countries are no longer included in the indicator.

Figure 3.9: Gross inland consumption of renewable energy, by source, EU-27, 2011
(%)



Source: Eurostat (online data codes: nrg_1071a and nrg_1072a)

Figure 3.10: Gross electricity generation from renewable energy sources, EU-27, 1990–2011
(gigawatt hours)



Source: Eurostat (online data code: nrg_105a)

Even without this statistical change, data for 2010 show that 22 Member States did not achieve their interim target of increasing renewable energy's share to 5.75 % of final energy use in transport by 2010 ([32]). Additional efforts will be required to achieve the 2020 objective. The target is defined relative to the total amount of energy consumed in transport. Therefore, reducing energy needs in the transport sector for example by introducing more energy-efficient cars will also contribute to achieving it.

The EU needs to further pursue energy efficiency improvements

Delivering the same service or product using less energy is one of the most cost-effective options for reducing GHG emissions. Building refurbishment, followed by the transport and industry sectors, offer the biggest potential for improvement ([33]).

The headline target is to increase energy efficiency by 20 %. In absolute terms this means that by 2020, EU energy consumption should not exceed 1 474 Mtoe of primary energy or 1 078 Mtoe of final energy ([34]).

Primary energy consumption (PEC) includes all gross inland energy consumption except energy carriers employed for non-energy purposes (for example, petroleum not used for combustion but

Box 3.4: Measuring progress towards the EU energy efficiency target

The third Europe 2020 headline target on climate change and energy is to achieve a 20 % improvement in the EU's energy efficiency. According to the Energy Efficiency Directive (EED) ([34]), the EU efficiency target is measured as a 20 % saving compared to a hypothetical projection for EU primary energy consumption (PEC). Starting with the 2005 base year, this business-as-usual projection (carried out in 2007) expected a primary energy consumption of 1 842 Mtoe in 2020. It assumed continuous economic growth and no additional energy efficiency policies above and beyond those in place in 2005.

The envisaged 20 % saving amounts to an absolute saving of 368 Mtoe, resulting in a target value of no more than 1474 Mtoe PEC for 2020. Compared to the level of PEC in 2005, this is equivalent to a reduction of 13.5 %. For all years between 2005 and 2020, the PEC savings indicate the percentage achieved towards the target. The indicator is calculated for the EU as a whole only, and not for individual Member States (see Table 3.1).

It is important to note that the economic growth in the EU since 2008 has been much lower than the projections underlying the energy efficiency target assume. Given that growth is a key driver of energy consumption, the savings expressed in relation to the virtual projection need to be treated with caution. They do not necessarily mean that EU products and services are produced with less energy input per unit and are thus more energy-efficient; they can also result from lower production levels.

Table 3.1: Primary energy consumption, EU-27, 2005–2011 (% of savings)

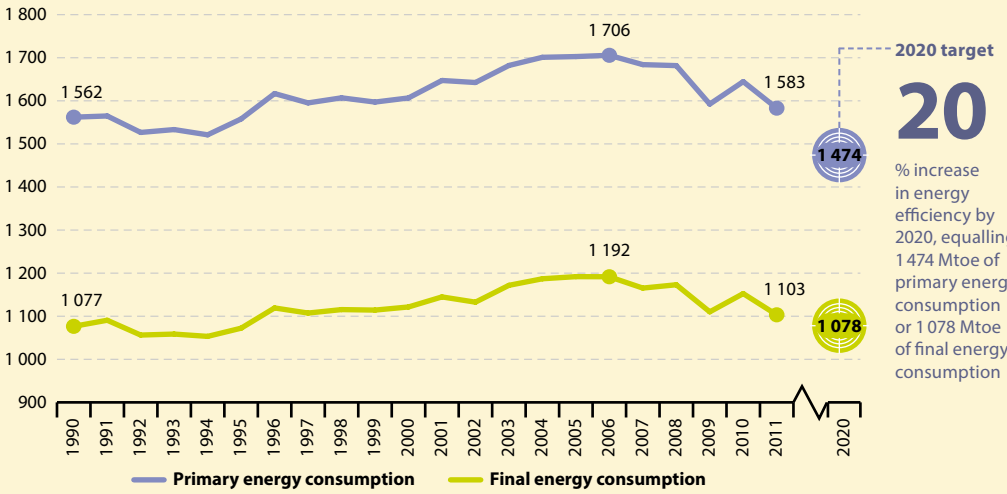
	2005	2006	2007	2008	2009	2010	2011	Target 2020
EU-27	0.00	0.35	2.03	2.66	8.01	5.69	9.53	20.00

Source: Eurostat (online data code: t2020_33)

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 3.11: Primary energy consumption and final energy consumption, EU-27, 1990–2011 (Mtoe)



Source: Eurostat (online data codes: t2020_33 and tsdpc320)

for producing plastics). By contrast, final energy consumption only comprises the energy supplied to the final consumer's door for all energy uses. The difference between primary and final energy consumption is equivalent to the energy losses during energy transformation (particularly electricity generation), transmission and distribution.

EU energy consumption has been falling since 2006, but the trend has not been continuous

As shown in Figure 3.11, PEC was relatively stable between 1990 and 1995. In 1996 it increased by about 59 Mtoe (almost 4 %), compared with the previous year. It remained almost unchanged throughout the period from 1997 to 2000, but rose again between 2001 and 2004. In 2006 PEC peaked at an annual consumption of 1 706 Mtoe. Following the economic crisis, it fell sharply (by 113 Mtoe) until 2009, reaching a level lower than in 1997. After a rebound in 2010, PEC decreased again in 2011 to 1 583 Mtoe. In 2011, the EU thus consumed roughly as much primary energy as it did in 1990 and 7 % less than in 2005. To achieve its 2020 target, the EU needs to reduce PEC by an additional 6.9 % in the nine years between 2011 and 2020.

Much of the decrease for the period from 2008 to 2010 may be attributed to the lower level of economic activity as a result of the financial and economic crisis, rather than to a structural shift in energy consumption patterns. With respect to the most recent drop of 3.7 % between 2010 and 2011, a mild winter resulting in lower heating demand also played a role ([35]). The analysis underlines the need to further pursue energy efficiency measures. Continuous effort can ensure that PEC will remain on a downward path even when economic growth accelerates again.

The trend in final energy consumption has closely followed the trend in primary energy consumption, reaching 1 103 Mtoe in 2011.

Breaking the energy efficiency target down to Member State level

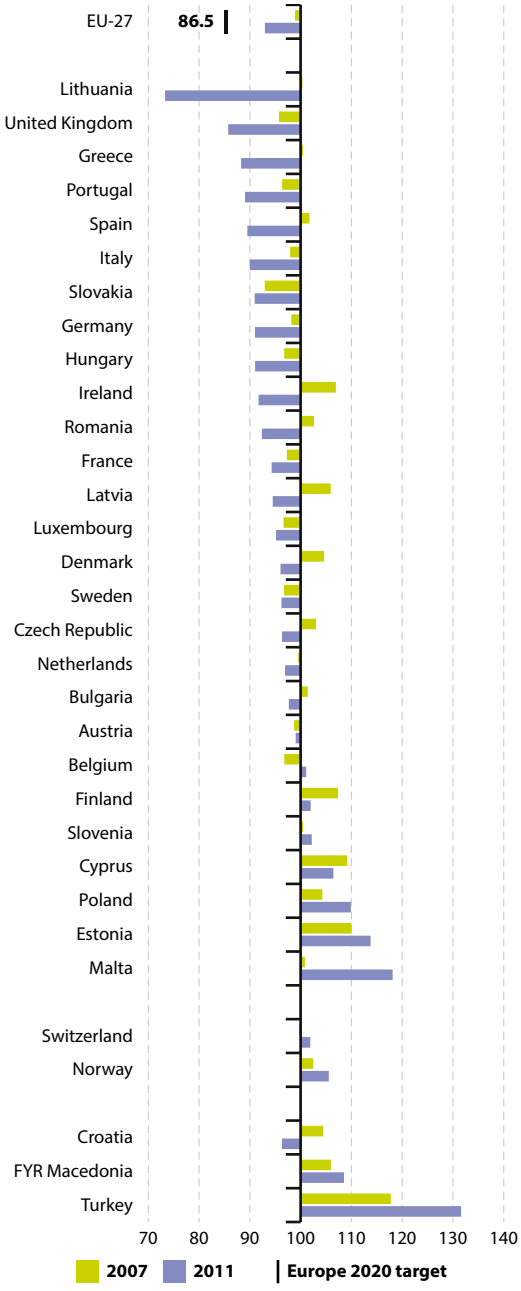
As shown in Figure 3.12, 20 Member States have reduced primary energy consumption between 2005 and 2011 by values ranging from 1 % to 27 %. A look at the data for 2007, the year before the economic crisis hit, shows that reduced economic output in addition to energy efficiency measures also helped lower consumption. In the remaining seven Member States, primary energy consumption has gone up by 1 % to 18 % since 2005, stressing the importance of additional efforts to improve energy efficiency.

Between 1990 and 2011, economic sectors developed differently with respect to final energy consumption (see Figure 3.13). The agriculture and forestry sector as well as industry have reduced final energy consumption by 27.7 % and 21.7 % respectively. By contrast, energy consumption in the services and transport sectors has gone up by about a third over the same time period. The residential sector's consumption has remained stable. These changes reflect sector-specific levels of energy efficiency improvement, but also relate to structural changes in the EU economy, par-

Box 3.5: National energy efficiency targets

The Energy Efficiency Directive requires Member States to set indicative national energy efficiency targets for 2020. These can be based on different indicators (primary or final energy consumption, or primary or final energy savings, or energy intensity). To make these targets comparable, the Directive also requires each Member State to 'translate' its target into levels of primary and final energy consumption in 2020. In addition, Member States need to explain how this has been calculated ([36]). All Member States but two have set their targets by 30 April 2013 ([35]). However, not all have expressed these targets in absolute primary and final levels in 2020, as requested. In 2013, the European Commission will assess if the individual national targets add up to the savings agreed at EU level.

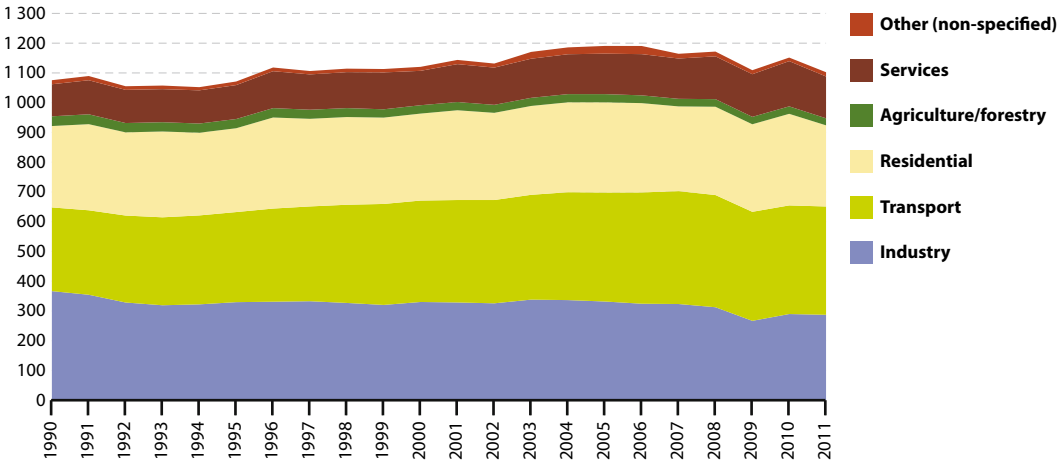
Figure 3.12: Change in primary energy consumption, by country, 2007 and 2011 (*)
(Index 2005 = 100)



(*) 2010 data (instead of 2011) for CH.

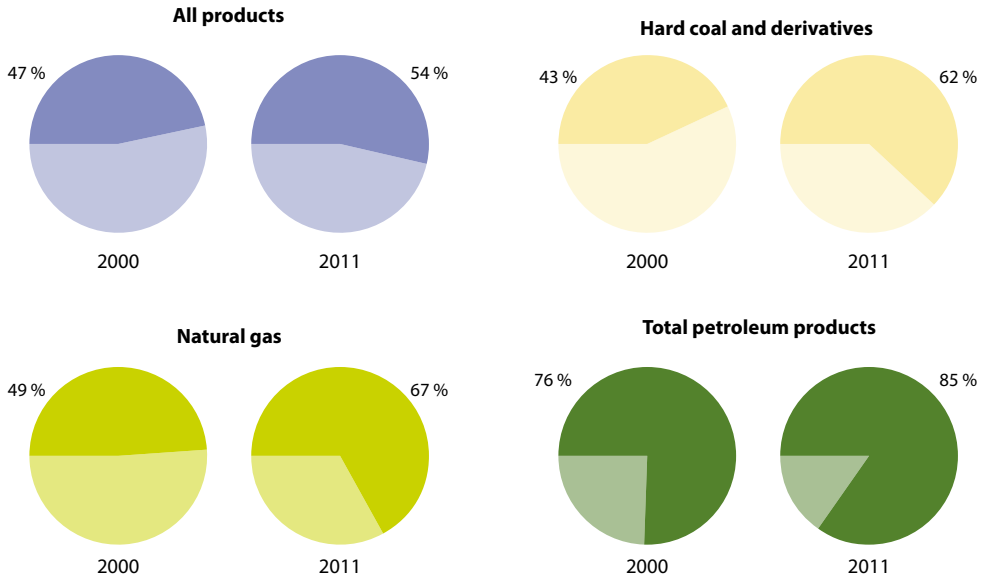
Source: Eurostat (online data code: t2020_33)

Figure 3.13: Final energy consumption, by sector, EU-27, 1990–2011
(Mtoe)



Source: Eurostat (online data code: tsdpc320)

Figure 3.14: Energy dependence, EU-27, 2000–2011 (*)
(% of imports in total energy consumption)



(*) 'All products' is not the average of the other three fuel categories shown. It also includes other energy sources, such as renewable energy or nuclear energy, parts of which are treated as domestic sources.

Source: Eurostat (online data code: tsdcc310)

ticularly a shift away from an energy-intensive industry to a service-based economy. In the case of transport, rising volumes of freight and personal transport have outweighed efficiency gains.

Despite recent reductions in energy consumption, substantial cost-efficient potentials for improvements in energy efficiency remain to be tapped. A case in point is the refurbishment of buildings which are responsible for about 40 % of final energy consumption. Other areas include transport, green procurement in the public sector, and savings along the energy supply chain from extraction to distribution.

Energy efficiency improvements can strengthen the EU's competitiveness and lower the dependence on fossil fuel imports. The EU's energy dependency, which describes the extent to which an economy relies on imports to meet its energy needs, has increased significantly over the past two decades (see Figure 3.14). It reached 53.8 % in 2011. Imports of fossil energy carriers such as petroleum, natural gas and hard coal are mostly responsible for this dependence. By contrast, most renewable energies can be sourced domestically.

Conclusions and outlook towards 2020

At first glance, the EU has made substantial progress towards achieving its energy and climate objectives. In 2011 GHG emissions were down by 17 % compared to 1990 levels, approaching the headline target of – 20 % to be reached by 2020. Primary energy consumption (PEC) fell to 1 583 Mtoe in 2011, after having grown almost continuously between 1990 and 2007. In 2011, the EU consumed 7 % less than in 2005, the base year of the energy efficiency target. To achieve the target of improving energy efficiency by 20 % by 2020, the EU has to reduce PEC by a further 6.9 % over a period of nine years.

An analysis of the driving forces behind these positive trends leads to a more cautious assessment. The strongest drop in energy consumption and GHG emissions since the early 1990s occurred between 2007 and 2011 (– 6 % and – 10 %, respectively). During this time, the economic crisis, which was followed by a slow recovery in many parts of Europe, reduced industrial production, transport volumes and energy demand. Between 2010 and 2011, a mild winter further pushed down energy demand. The most recent reductions in PEC and GHG emissions, thus, are at least in part linked to low economic performance, rather than reflecting a thorough change in how the EU produces and consumes energy.

With respect to renewable energies, progress towards a restructured low-carbon economy is clearly noticeable. Between 2004 and 2011, the share of final energy from renewable source has increased by 60 %, reaching 13 % in gross final energy consumption in 2011. Thanks to effective support schemes and dramatic cost reductions, the share of wind and solar energy has increased particularly quickly. The renewable energy industry has become a key sector for research and innovation in Europe, generating a rapidly increasing number of patents between 2000 and 2009 (see the Research and Development chapter, p. 49). In regions with favourable weather conditions and high electricity prices, solar and wind projects are becoming more and more competitive with fossil-fuel based power generation, even without subsidies.

On the global level, reductions in EU GHG emissions and energy consumption have been offset by significant increases in other parts of the world. Global CO_2 emissions from fuel combustion rose by 44 % between 1990 and 2010. The increase was particularly strong in China, which more than tripled its annual CO_2 emissions in these two decades.

Efforts needed to meet the Europe 2020 targets on climate change and energy

According to the latest projections by Member States, the EU-27 will overachieve its 2020 emission reduction target for the sectors not covered

by the EU ETS by 0.9 % ([35]). Thirteen Member States are expected to reach their targets based on existing policy measures. Some will even significantly overachieve them. Another eight could achieve their targets if they implement additional measures. The remaining six will probably not be able to reach their target even with new measures. Member States need to improve consistency in the domestic climate policy framework. Additional measures could focus on ensuring investment security for innovative green technologies and changing the tax system to give greater incentives for energy efficiency ([35]).

With respect to the renewable energy target, the European Commission's recent Progress Report ([37]) warns that more effort will be needed to sustain investment in renewable energy projects at a high level. Compared to the National Renewable Energy Action Plans prepared by Member States, projections indicate that only 50 % of total wind generation planned in 2020 might actually be produced ([38]). By contrast, projections for electricity generation from photovoltaics are above planned levels. In its progress report, the European Commission also states that fundamental changes to the support schemes in some Member States have raised the regulatory risk for investors. This has added to an already difficult financing environment. The Commission also concludes that the removal of planning and licensing administrative barriers is not occurring fast enough.

As foreseen by the Europe 2020 strategy, tapping the remaining greenhouse gas reduction potential can have significant socioeconomic and environmental benefits. This has been demonstrated in the 'Roadmap for moving to a competitive low carbon economy in 2050' ([39]). The EU can create jobs in high-technology industries; it can become a lead market in fields with high global demand and reduce energy dependence. More renewables and improved energy efficiency could save the EU between EUR 175 and 320 billion of energy import costs per year over the next 40 years ([39]). As recognised in the flagship initiative 'Innovation Union', a push for technological and policy innovation will be crucial to accomplishing this transformation.

Notes

([1]) United Nations Framework Convention on Climate Change, *Copenhagen Accord*, Copenhagen: United Nations, 2009.

([2]) European Commission, *Renewable energy: progressing towards the 2020 target*, COM (2011) 31 final, Brussels, 2011 (p. 2).

([3]) European Commission, *A resource-efficient Europe — Flagship initiative under the Europe 2020 Strategy*, COM (2011) 21, Brussels, 2011, (p. 2).

([4]) See http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators.

([5]) European Council conclusions 17 June 2010, EUCO 13/10, Brussels, 2010.

([6]) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010 (p. 11).

([7]) Council Decision 2009/406/EC on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

([8]) See http://ec.europa.eu/europe2020/pdf/targets_en.pdf.

([9]) Directive 2009/28/EC of the European Parliament and the European Council on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, 2009.

([10]) Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC [OJ L315 p.1]

([11]) Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

([12]) Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.

([13]) Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity.

([14]) Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles.

([15]) Regulation (EU) No 510/2011 of the European Parliament and of the Council of 11 May 2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO_2 emissions from light-duty vehicles.

([16]) EEA, *Annual greenhouse gas inventory 1990–2011 and inventory report 2013*. EEA Report No. 8/2013. Copenhagen 2013, (p. 6).

(17) Viktoria Bolla and Velina Pendolovska, *Driving forces behind EU-27 greenhouse gas emissions over the decade 1999–2008*, Statistics in Focus 10/2011, Luxembourg: Eurostat, 2011, (p. 2).

(18) EEA, *Annual greenhouse gas inventory 1990–2011 and inventory report 2013*. EEA Report No. 8/2013. Copenhagen 2013, (p. 9).

(19) Viktoria Bolla and Velina Pendolovska, *Driving forces behind EU-27 greenhouse gas emissions over the decade 1999–2008*, Statistics in Focus 10/2011, Luxembourg: Eurostat, 2011, (p. 5).

(20) At the time of writing of this analysis, 2011 data on GHG emissions from Member States were not available.

(21) EEA, *Greenhouse Gas Emission Trends and Projections in Europe 2012. Tracking Progress towards Kyoto and 2020 Targets*, EEA Report No. 6/2012. Copenhagen, 2012.

(22) World Meteorological Organization, *The global climate 2001–2010. A decade of climate extremes*, WMO-No. 1119, Geneva, 2013, (p. 3).

(23) World Meteorological Organization, *WMO statement on the status of the global climate in 2012*, WMO, No 1108, Geneva, 2013, (p. 6).

(24) EEA, *The European environment — state and outlook 2010: Synthesis Report*, Copenhagen, 2010.

(25) EEA, *Climate change impacts and vulnerability in 2012*, Copenhagen 2013.

(26) European Commission, Impact Assessment — Part 2 accompanying the document An EU Strategy on adaptation to climate change, SWD(2013) 132 final, (p. 37–40).

(27) European Environmental Agency, *Climate change, impacts and vulnerability in Europe, 2012*, Copenhagen 2013

(28) McCrone, Angus et al, *Global Trends in Renewable Energy Investment 2012*. Frankfurt School of Finance and Management, commissioned by UNEP's Division of Technology, Industry and Economics (DTIE) and endorsed by REN21, Frankfurt, 2012.

(29) McCrone, Angus et al, *Global Trends in Renewable Energy Investment 2012*. Frankfurt School of Finance and Management, commissioned by UNEP's Division of Technology, Industry and Economics (DTIE) and endorsed by REN21, Frankfurt, 2012, (p. 32).

(30) Ecofys et al., *Renewable energy progress and biofuels sustainability*, London, 2012, (p. 38).

(31) Marek Sturc, *Renewable Energy: Analysis of the latest data from renewable sources*. Statistics in Focus 44/2012, Eurostat: Luxembourg, 2012.

(32) European Commission, Council, the European Economic and Social Committee and the Committee of The Regions: *Renewable energy progress report*. (SWD (2013) 102 final), Brussels, 2013, (p. 4).

(33) European Commission, Energy Efficiency Plan 2011, COM (2011) 109 final, Brussels, 2011.

(34) European Commission, Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC. European Commission, Brussels, 2012, Art. 3 a).

(35) European Commission, *Europe 2020 targets: climate change and energy* (accessed 23 July 2013).

(36) European Commission, Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC. European Commission, Brussels, 2012, Art. 3

(37) European Commission, Council, the European Economic and Social Committee and the Committee of The Regions: *Renewable energy progress report*. European Commission, Brussels, 2013.

(38) European Commission, Council, the European Economic and Social Committee and the Committee of The Regions: *Renewable energy progress report*. European Commission, Brussels, 2013, (p. 5).

(39) European Commission, *A Roadmap for moving to a competitive low carbon economy in 2050*, Brussels, 2011.

4

Education

Education and training — why do they matter?

Education and training lie at the heart of the Europe 2020 strategy and are seen as key drivers for growth and jobs. The recent economic crisis along with an ageing population, through their impact on economies, labour markets and society, are two important challenges that are changing the context in which education systems operate ([1]). At the same time education and training help boost productivity, innovation and competitiveness ([2]).

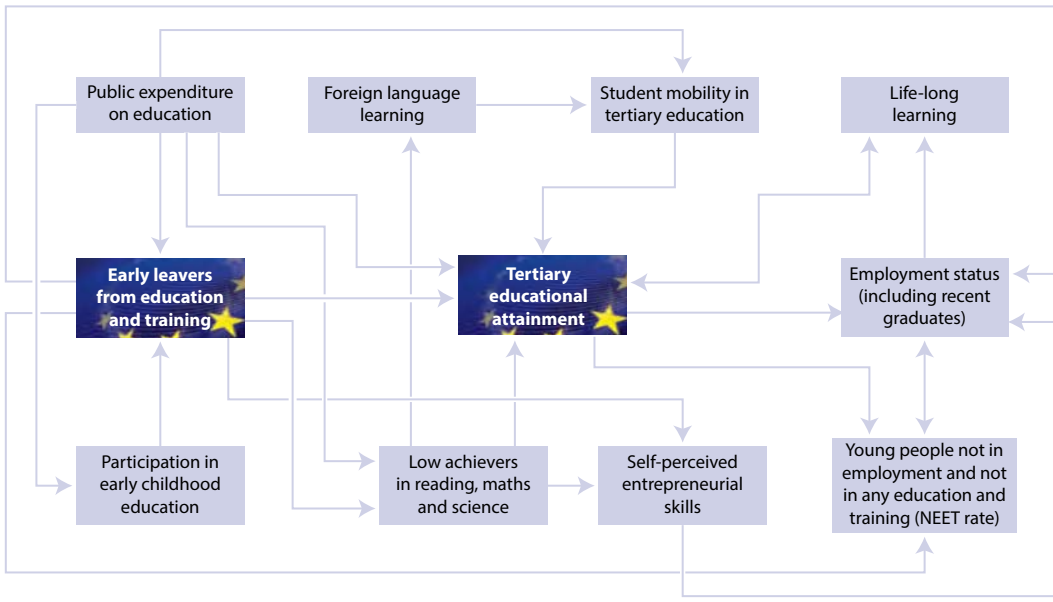
Nowadays upper secondary education is considered the minimum desirable educational attainment level for EU citizens. Young people who leave education and training prematurely lack crucial skills and run the risk of facing serious, persistent problems on the labour market and experiencing poverty and social exclusion. Early leavers from education and training who do enter the labour market are more likely to be in precarious and low-paid jobs and to draw on welfare and other social programmes. They are also less likely to be 'active citizens' or engage in life-long learning ([3]).

Europe 2020 strategy target on education

The Europe 2020 strategy has targets on 'improving education levels, in particular by aiming to reduce school drop-out rates to less than 10 % and by increasing the share of 30–34 year olds having completed tertiary or equivalent education to at least 40 %' ([5]).

In addition, tertiary education, with its links to research and innovation, provides highly skilled human capital (see the chapter 'Research and development' on p. 49). A lack of these skills presents a severe obstacle to economic growth and employment in an era of rapid technological progress, intense global competition and labour market demand for ever-increasing levels of skill. The Europe 2020 strategy, through its 'smart growth' priority, therefore aims to tackle early

Figure 4.1: Indicators presented in the chapter and their links to the headline indicators on education



Box 4.1: ET 2020 — the EU's Strategic Framework for Education and Training 2020

The two Europe 2020 targets are embedded in the broader Strategic Framework for Education and Training 2020 (ET 2020) ([6]). ET 2020 aims to foster European cooperation in education and training, providing common strategic objectives for the EU and its Member States for the period up to 2020. ET 2020 covers the areas of life-long learning and mobility; quality and efficiency of education and training; equity, social cohesion and active citizenship; creativity, innovation and entrepreneurship at all levels of education and training. To support the achievement of these objectives ET 2020 sets EU-wide benchmarks. Apart from the two Europe 2020 targets on education, there are six additional benchmarks:

- At least 95 % of children between four years old and the age for starting compulsory primary education should participate in early childhood education.
- The share of low-achieving 15 year olds in reading, mathematics and science should be less than 15 %.
- An EU average of at least 20 % of higher education graduates should have had a period of higher education-related study or training (including work placements) abroad, representing a minimum of 15 ECTS credits ([7]) or lasting a minimum of three months.
- An EU average of at least 6 % of 18 to 34 year olds with an initial vocational education and training (VET) qualification should have had an initial VET-related study or training period (including work placements) abroad lasting a minimum of two weeks, or less if documented by Europass ([8]).
- An average of at least 15 % of adults should participate in life-long learning.
- The share of employed graduates (20 to 34 year olds) having left education and training no more than three years before the reference year should be at least 82 %.

school leaving and to raise tertiary education levels ([4]).

The analysis in this chapter builds on the headline indicators chosen to monitor the strategy's education targets: 'Early leavers from education and training' and 'Tertiary educational attainment'.

Contextual indicators are used to provide a broader picture and insight into drivers behind changes in the headline indicators. Some are also used to monitor progress towards additional benchmarks set under the EU's Strategic Framework for Education and Training 2020 (ET 2020). These indicators include early childhood education, basic reading, maths and science skills and adult participation in life-long learning. The benchmarks are listed in Box 4.1.

The presentation of the headline and contextual indicators follows the typical educational pathway. It starts with early childhood education, followed by acquisition of basic skills (reading, maths and science) and foreign languages, leading to tertiary education and life-long learning in adulthood. The analysis then switches to the 'outcome' side. Here it looks at educational attainment in the EU labour force and the impacts of low levels of attainment. Last, the input into the education system, in the form of public expenditure on education, is investigated.

The EU's education targets are interlinked with the other Europe 2020 goals: higher educational levels help employability and progress in increasing the employment rate in turn helps to reduce poverty ([9]). The tertiary education target is furthermore interrelated with the research and development (R&D) and innovation target. Investments in the R&D sector will raise demand for highly skilled workers (see the 'Research and development' chapter on p. 49).

Early leaving from education and training is declining

The headline indicator 'Early leavers from education and training' shows the share of the population aged 18 to 24 with at most lower secondary education and not in further education or training. This indicator refers to people who failed and dropped out of school and those who did not fail but left education without continuing. Figure 4.2 indicates that since 2000 the share of early leavers from education and training has fallen continuously in the EU. This trend mirrors reductions in almost all EU Member States for both men and women.

Young men, migrants and ethnic minorities leave education and training earlier

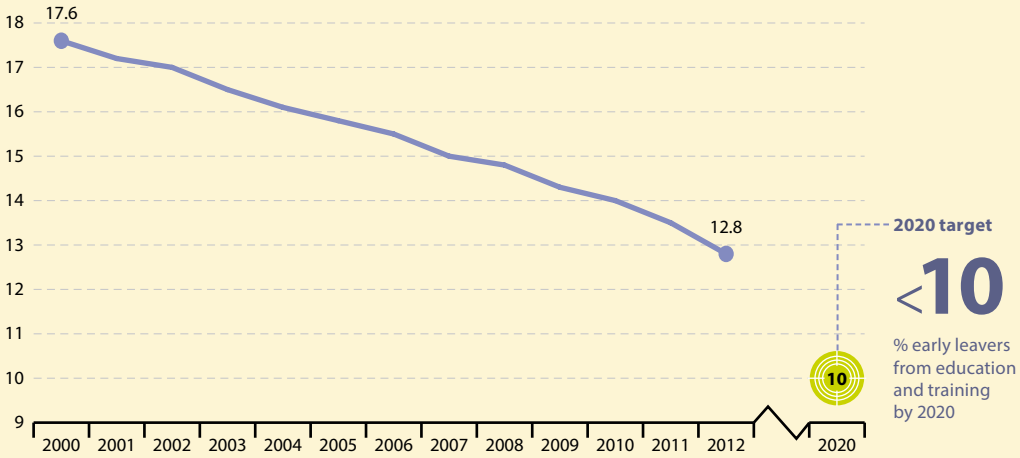
In the EU as a whole, rates of early leaving from education and training are about 30 % higher for men than for women. Since 2000, this gap has only closed slightly. Bulgaria was the only EU Member State in 2012 where men were more likely to reach upper secondary graduation. A similar situation could be observed in the candidate countries Turkey and FYR Macedonia ([10]). In all other EU Member States men were more likely to leave earlier. Gender differences were particularly strong in Cyprus, Latvia, Poland, Estonia and Luxembourg. In these countries, early leaving from education and training was twice as high (or even higher) for men than for women.

Similarly, young migrants have a higher tendency to abandon formal education prematurely. In the EU, the share of early leavers from education and training among those foreign-born is more than twice as high as for natives (25.6 % compared to 11.6 %) ([11]). Language difficulties leading to underachievement and lack of motivation are one possible reason. Lower socioeconomic status of migrants increasing the risk of social exclusion ([12])

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 4.2: Early leavers from education and training, EU-27, 2000–2012 (*)
(% of the population aged 18 to 24 with at most lower secondary education and not in further education or training)



(*) Data for 2000 and 2001 are estimates; break in series in 2003; provisional data for 2012; Europe 2020 target: under 10 %.

Source: Eurostat (online data code: t2020_40)

is another. Educational systems may also exacerbate these circumstances if they are not set up to respond to the special needs of pupils from vulnerable groups ([13]).

In a number of Member States the proportion of pupils dropping out early or even not attending school at all is especially high among ethnic minority groups, such as Roma. In 2011 more than 10 % of Roma children were not attending compulsory education in Romania, Bulgaria, France and Italy. This figure reached 35 % in Greece ([14]).

Ethnic minorities are likely to be excluded from education due to a combination of factors including parental choices, poverty, discriminatory practices, residential segregation and language barriers ([15]). In response to persistent marginalisation and social exclusion of Roma minorities, the European Commission in 2011 adopted the 'EU Framework for national Roma integration strategies up to 2020' ([16]). The framework reflects the EU's commitment to ensuring Roma inclusion in four key areas, including access to education.

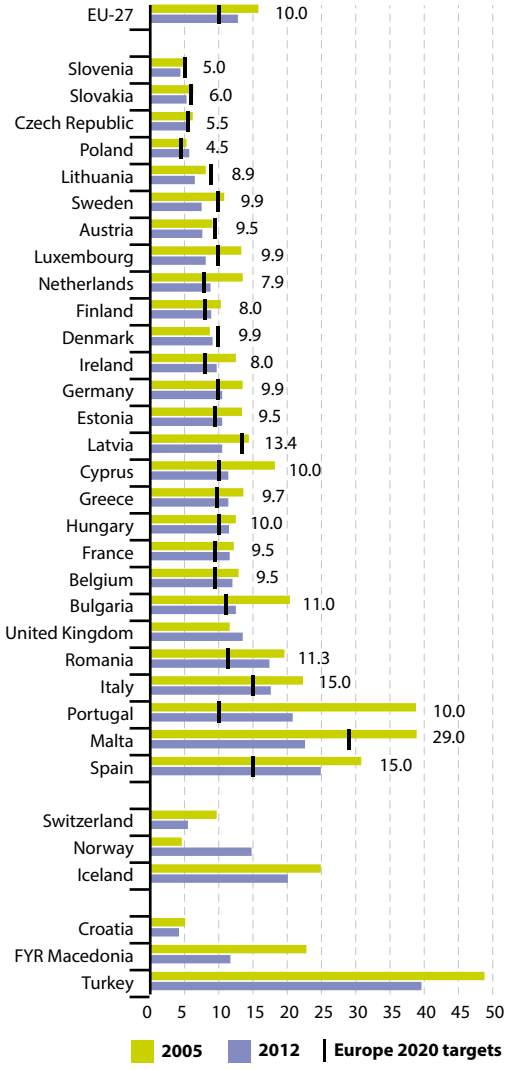
Early leaving from education and training highest in Southern Europe

Reflecting different national circumstances, the common EU target for early leavers from education and training has been translated into national targets by all Member States except the United Kingdom ([17]). National targets range from 4.5 % for Poland to 29 % for Malta. In 2012, ten countries had already achieved their targets: Austria, the Czech Republic, Denmark, Lithuania, Luxembourg, Latvia, Malta, Sweden, Slovenia and Slovakia. Portugal and Spain were the furthest away by some 10 percentage points.

In 2012 early leaving from education and training rates varied by a factor of five across EU Member States. The lowest proportion of early leavers could be observed in Slovenia, Slovakia, the Czech Republic and Poland as well as in Croatia with less than 6 %. The share was highest in Spain, Malta, Portugal, Italy and Romania, with more than 17 %.

At the same time Southern European countries experienced the strongest falls in early leaving

Figure 4.3: Early leavers from education and training, by country, 2005 and 2012 (*)
(% of the population aged 18 to 24 with at most lower secondary education and not in further education or training)

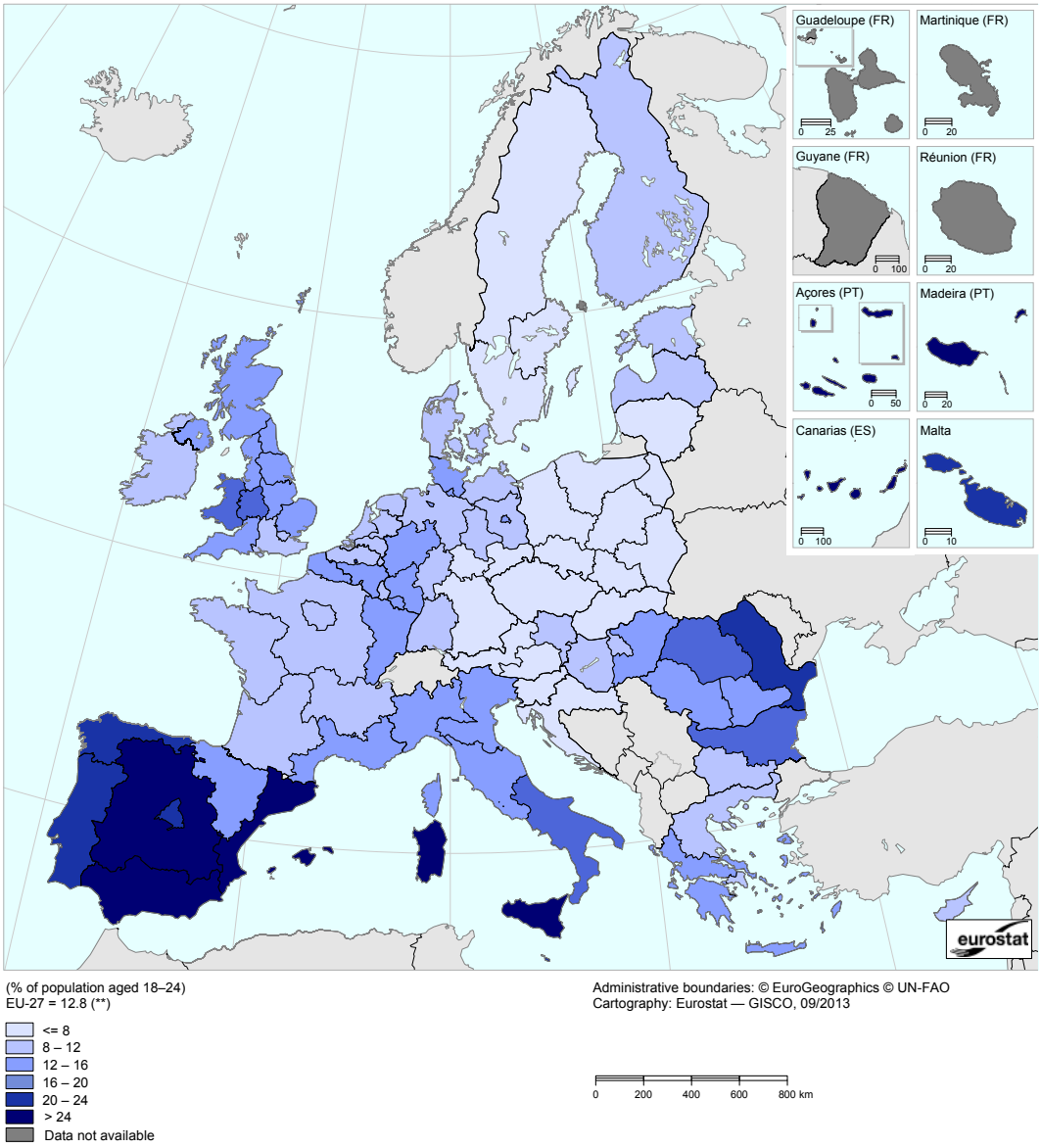


(*) Provisional data: 2012 for EU-27, DE, LU, NL, PL; 2005–2009 for MT and 2010–2011 for PL; break in series: 2005 for DE, ES and CY, 2006 for NO and SE, 2007 for DK and UK, 2009 for LU, 2010 for MT and NL, 2011 for LV; low reliability: 2005 and 2006 for HR; definition differs: 2005 for SE and 2010 for FI; 2006 data (instead of 2005) for NO, MK and TR.

Europe 2020 national targets: EU-27, DK, DE, LU, SE: under 10 %, IT: 15–16 %, LT: under 9 %, NL: under 8 %, UK: no national target.

Source: Eurostat (online data code: t2020_40)

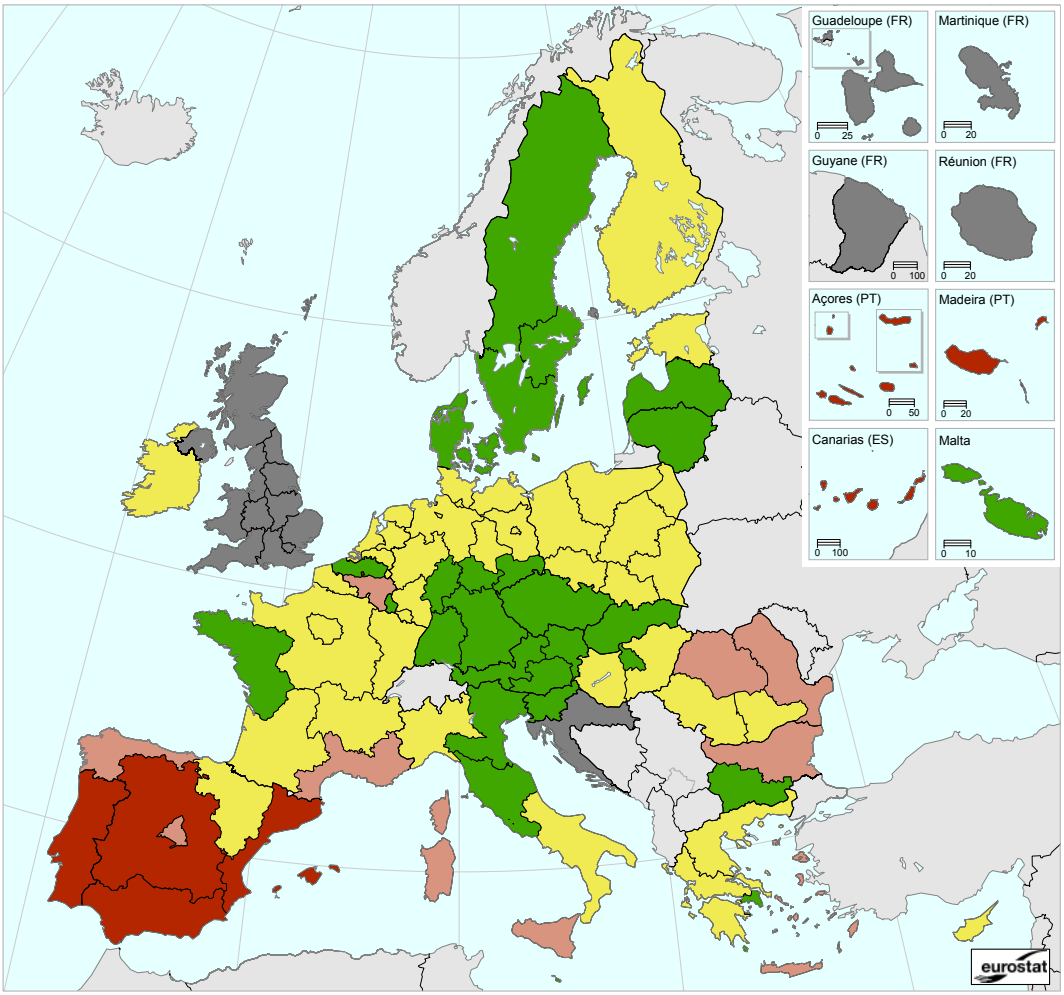
Map 4.1: Early leavers from education and training, by NUTS 1 regions, 2012 (*), (**)
(% of population aged 18 to 24)



(*) Percentage of population aged 18 to 24 with at most lower secondary education and not in further education or training.
(**) Germany, Luxembourg, the Netherlands, Poland and EU-27, provisional data.

Source: Eurostat (online data code: edat_lfse_16)

Map 4.2: Distance to Europe 2020 national targets (*), for the indicator: Early leavers from education and training, by NUTS 1 regions, 2012 (**)
(% of population aged 18 to 24)



Overall EU target: < 10 %
Distance to the overall EU target: 2.8 pp

(*) National European 2020 targets: Denmark, Germany, Luxembourg, Sweden: < 10%, Italy: 15–16%, Lithuania: < 9%, the Netherlands: < 8%.
(**) Percentage of population aged 18 to 24 with at most lower secondary education and not in further education or training.

Source: Eurostat (online data code: edat_lfse_16)

from education and training over the period 2005 to 2012, especially Portugal (–46.4 %), Malta (–41.9 %), Cyprus (–37.4 %) and the Netherlands (–34.8 %). In 2012, 21 EU Member States showed early leaving rates below the EU average of 12.8 %, and 12 were already below the overall EU target of 10 %.

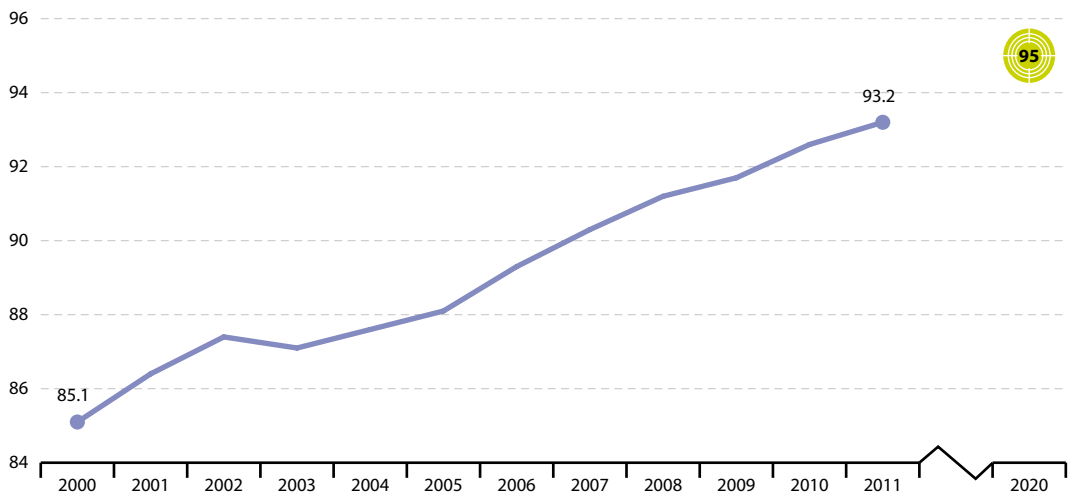
Looking at the European Free Trade Association (EFTA) and candidate countries, Switzerland was on a level with the best performing EU Member States, whereas the share of early leavers from education and training was above the EU average in Norway, Iceland and in particular in Turkey.

Divergence in the incidence of early leaving from education and training across Member States is also mirrored in the regional dispersion of the indicator (see Map 4.1). The predominance of regions with a very low share of early school leavers in some Eastern European countries such as Slovenia, Slovakia, the Czech Republic and Poland corresponds to their overall low proportion of students discontinuing education early. In stark contrast, regions in Spain and Italy stand out with their above average rates of early leavers from education and training.

In 2012, Belgium, Bulgaria and Spain showed the biggest within-country dispersion of early leaving rates, with a factor of two or above. This means that the worst performing regions in these countries had early school leaving rates that were about two times the rates of the best performing regions. In contrast, Sweden and the Netherlands were the most 'equal' countries, showing almost no difference for this indicator.

Map 4.2 shows the distance of regions (at NUTS 1 level) to the respective national Europe 2020 targets. The observed geographical variations across countries are translated into regional disparities in terms of distance to the respective national headline targets. Most notably, for Spain the large gap to the national target is common for almost all regions.

Figure 4.4: Participation in early childhood education, EU-27, 2000–2011(*)
(% of the age group between 4 years old and the starting age of compulsory education)



(*) Education and training 2020 benchmark for the EU-27: at least 95 %.

Source: Eurostat (online data code: tps00179)

Starting early

Early childhood education and care is improving

Early childhood education and care (ECEC) can bring wide-ranging social and economic benefits for individuals and for society as a whole. Quality ECEC provides an essential foundation for effective life-long learning and future educational achievements. It also helps personal development and social integration.

Participation in ECEC is considered a crucial factor for socialising children into formal education. This is especially important for children from more disadvantaged backgrounds. The aim is to reduce the incidence of early school leaving, addressing one of the Europe 2020 headline targets on education. Investment in pre-primary education also offers higher medium- and long-term returns and is more likely to help children from low socioeconomic status than investments at later educational stages ([18]).

ET 2020 recognises ECEC's potential for addressing social inclusion and economic challenges. It has set a benchmark to ensure that at least 95 % of children aged between four and the starting age of compulsory education participate in ECEC. As Figure 4.4 shows, participation in ECEC has risen more or less continuously in the EU since 2000. Several countries had already exceeded the ET 2020 benchmark in 2011, implying almost universal pre-school attendance.

Integrating migrants and ethnic minorities in early childhood education remains a challenge

Gender differences in early childhood education are negligible across the EU. However, children with a migrant background or from ethnic minorities are in a very disadvantaged position. For example, a recent study of 11 Member States revealed a large gap between Roma and non-Roma children attending pre-school and kindergarten in nine of the countries ([19]). The EU has since identified accessibility to early childhood education and care for children from ethnic minorities as an important priority area within the ECEC participation framework. This reflects the growing consensus at policy level that early pre-schooling has an important role to play in addressing disadvantages and reducing the risk of poverty and social exclusion ([20]).

Acquiring the relevant skills for the knowledge society

A key objective of all educational systems is to equip people with a wide range of skills and competences. This encompasses not only basic skills such as reading and mathematics, but also more transversal ones such as information and communications technology (ICT) and entrepreneurship.

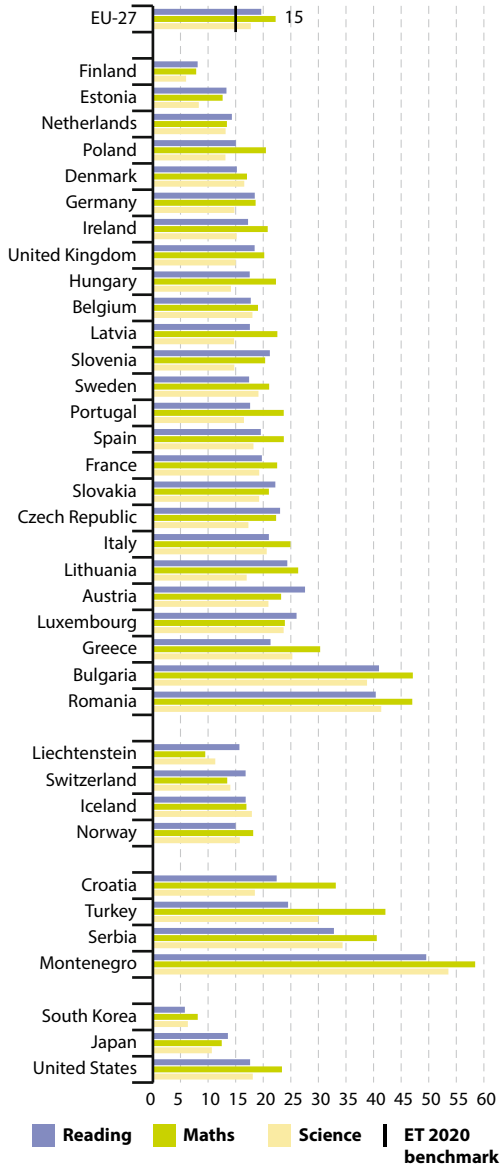
Basic skills: poor reading, maths and science affect one-fifth of EU pupils

Basic skills, whether reading simple text or performing easy calculations, provide the basis for learning, gaining specialised skills and personal development. The ET 2020 framework acknowledges the increasing importance of individual skills in the era of the knowledge-based economy. In response, it has set a target to reduce the share of 15 year olds achieving low levels of reading, mathematics and science to less than 15 % by 2020.

In 2009, about one fifth of 15 year old EU citizens showed insufficient abilities in reading, mathematics and science as measured by the OECD's PISA study ([21]). The test results were best for science, with 17.7 % low achievers, followed by reading with 19.6 % and maths with 22.2 %. Figure 4.5 shows how the overall performance in reading, mathematics and science varies significantly across countries. The share of pupils failing to acquire competences in the key subjects surpasses 38 % in Bulgaria and Romania. However, Northern Europe, in particular Finland, Estonia and the Netherlands, shows the lowest share of low achievers in reading, mathematics and science with levels below 15 %.

Compared with international competitors, the overall EU's share of low-achievers in reading,

Figure 4.5: Low achievers in reading, maths and science, by country, 2009 (*)
(share of 15-year-old pupils who are below proficiency level 2 on the PISA scales for reading, maths and science)



(*) Education and training 2020 benchmark for the EU-27: below 15 %; EU-27 data are estimates.

Source: OECD/PISA, Eurostat (online data code: tsdsc450 (table only includes data for low reading literacy))

maths and science was similar to the United States. However, it was higher than for Japan or Korea, where the shares of low-achieving pupils in 2009 were below 14 % and 9 % respectively.

Achievement in science has shown the most progress at the EU level since 2000, while progress in mathematical competences has been the slowest ([22]). For the EU as a whole, the ET 2020 benchmark implies that the share of low achievers needs to be reduced by almost a third compared with 2009 levels.

For gender, a large gap exists in reading performance. In 2009, the share of low achieving EU pupils was about twice as high among boys (25.9 %) than among girls (13.3 %). This means girls have already reached the ET 2020 framework's 15 % reading benchmark, implying effort needs to be focused on boys to equalise performance levels ([22]). Gender differences are considerably smaller in the other key subject areas. Boys slightly outperform girls in maths and girls slightly outperform boys in science.

Foreign language learning most widespread in Eastern Europe

The ability of citizens to communicate in at least two languages besides their mother tongue has been identified as a key priority area in the EU's ET 2020 framework. Work on a possible benchmark is currently under way. In all Member States except Ireland and parts of the United Kingdom (Scotland) at least one foreign language is studied as a mandatory subject in compulsory education. Most countries also provide for an optional second foreign language ([23]).

Figure 4.6 shows that in 2011 the study of a second foreign language in general upper secondary education (ISCED level 3 general) was almost universal in Luxembourg, Finland and most of the Eastern European countries. It was much less popular in English-speaking countries (United Kingdom and Ireland) and in Italy, Portugal, Greece and Spain.

In many Member States the proportion of students in general upper secondary education learning two or more foreign languages has stagnated or decreased compared with 2005 levels. The

Figure 4.6: Foreign language learning in general upper secondary education, by country, 2005 and 2011
(% of pupils at ISCED level 3 general learning two or more foreign languages (left); average number of foreign languages learned per pupil at ISCED level 3 general (right))

Source: Eurostat (online data code: educ_thfrlan)

Netherlands experienced a particularly sharp decrease in the share of pupils learning two or more foreign languages from 100 % in 2005 to below 70 % in 2011.

In terms of the average number of foreign languages studied as part of compulsory education, Luxembourg takes first place (3 languages), followed by Finland (2.7), Belgium (2.2) and Sweden (2.2). Pupils enrolled in upper secondary education in France and most Eastern European countries study on average at least two foreign languages. In contrast, students in the United Kingdom, Ireland, Portugal and Malta have language proficiency in less than one foreign language on average. Only a few countries have expanded the number of foreign languages taught in mandatory curriculums over the past six years, in particular the Czech Republic, Cyprus, Latvia, Germany and Italy.

In 2010, 93.7 % of students at ISCED level 2 were learning English as a foreign language, making it the most widely studied foreign language across the EU. This represents a substantial increase in its popularity, compared with 74.3 % a decade earlier. French, German and especially Spanish have also been steadily gaining popularity over that time ([24]).

ICT skills: enhancing digital competences

Enhancing digital competences to exploit the potential of information and communication technologies (ICT) is a key priority under the Europe 2020 strategy. Its flagship initiative 'Digital Agenda for Europe' aims to help achieve this goal. The lack of digital literacy and skills is seen as 'excluding many citizens from the digital society and economy and is holding back the large multiplier effect of ICT take-up to productivity growth' ([25]).

ICT skills are also relevant to the Europe 2020 strategy's headline indicator on R&D expenditure. An analysis of European citizen's computer and internet skills is provided in the dedicated chapter (see p. 63).

How tertiary education and life-long learning contribute to the EU's human capital

The number of tertiary graduates is growing rapidly

Raising the share of 30 to 34 year olds having completed tertiary or equivalent education to at least 40 % is the second of the two Europe 2020 education targets. It is monitored with the headline indicator tertiary educational attainment of the same age group.

Figure 4.7 shows a steady and considerable growth in the share of 30 to 34 year olds who have successfully completed university or university-like (tertiary-level) education since 2000. The 13.4 percentage point growth over the period 2000 to 2012 equals an increase of about 50 % in tertiary graduates in the EU ([26]).

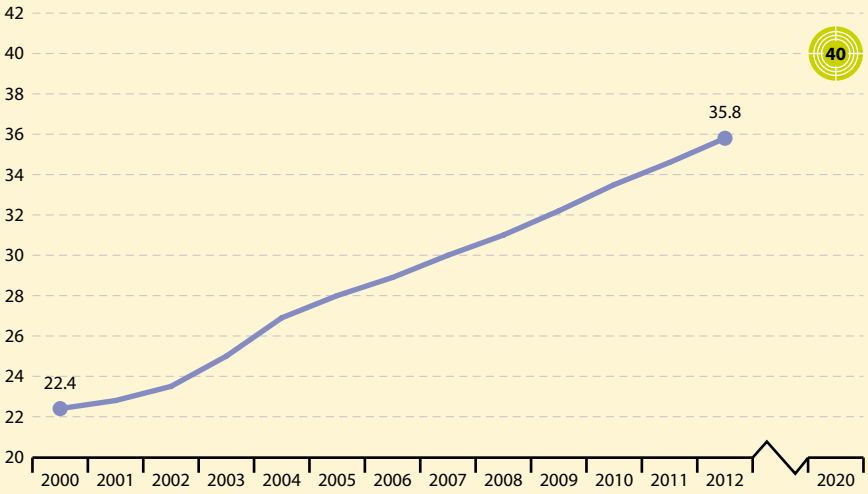
Women significantly outnumber men in tertiary educational attainment

Figure 4.8 shows a significantly growing gender gap among tertiary education graduates across the EU. While in 2000 the share of 30 to 34 year olds with tertiary educational attainment was similar for both sexes, the increase up to 2012 was almost twice as fast for women. In 2012 women outnumbered men significantly in terms of tertiary education in all Member States except Luxembourg ([27]). In fact, 15 Member States showed a gender gap of

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 4.7: Tertiary educational attainment, EU-27, 2000–2012 (*)
(% of the population aged 30 to 34 with completed tertiary education (ISCED levels 5 and 6))



2020 target

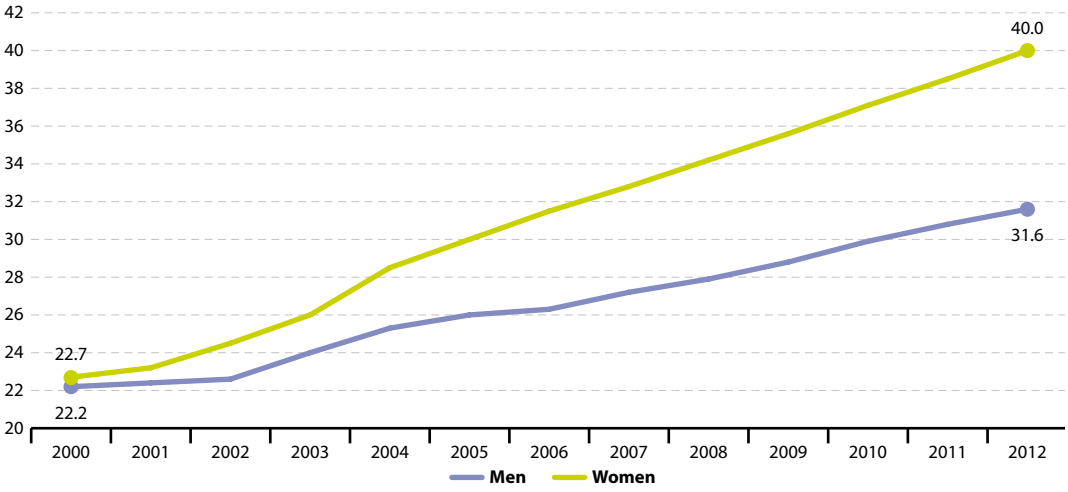
≥ 40

% of the population aged 30 to 34 with completed tertiary education by 2020

(*) Europe 2020 target: at least 40 %.

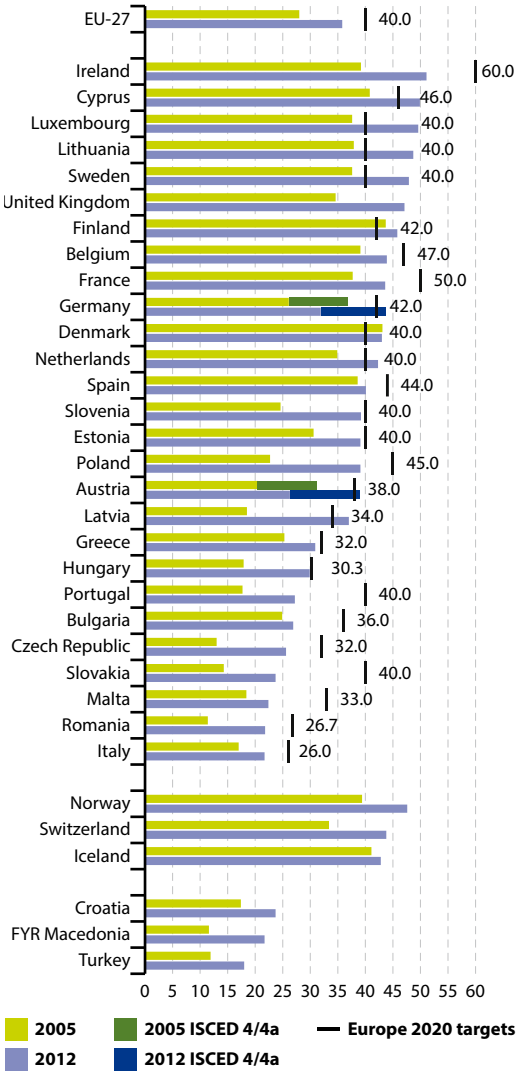
Source: Eurostat (online data code: t2020_41)

Figure 4.8: Tertiary educational attainment by sex, EU-27, 2000–2012
(% of the population aged 30 to 34 with completed tertiary education (ISCED levels 5 and 6))



Source: Eurostat (online data code: t2020_41)

Figure 4.9: Tertiary educational attainment, by country, 2005 and 2012 (*)
(% of the population aged 30 to 34 with completed tertiary education (ISCED levels 5 and 6))



(*) 2006 data (instead of 2005) for MK and TR; break in series: 2005 — DE; 2006 — NO; 2007 — DK; 2009 — LU; 2010 — NL; 2011 — LV; provisional data: 2012 for NL and PL.

Europe 2020 national targets: EU-27 target — at least 40 %, DK, NL — at least 40 %, Germany: 42 % (including ISCED 4), Italy: 26–27 %, Latvia: 34–36 %, AT — 38 % (including ISCED 4a), FI — 42 % (narrow national definition), SE — 40–45 %, UK — no national target.

Source: Eurostat (online data code: t2020_41), Statistics Austria, DESTATIS

more than 10 percentage points in 2012, and in Estonia, Latvia and Slovenia the differences were more than 20 percentage points.

Gender differences in tertiary education can also be seen in the choice of fields studied. A significantly higher proportion of men than women graduate in mathematics, science or engineering subjects. Women tend to dominate education, humanities, art and service-oriented educational fields ([28]).

Northern and Central Europe show the highest tertiary education levels

The trend in the EU as a whole mirrors increases in tertiary educational attainment levels across all EU Member States. This to some extent reflects Member States' investment in higher education to meet demand for a more skilled labour force. Moreover, the increases in attainment rates can also be ascribed to the shift to shorter degree programmes following implementation of Bologna process reforms in some Member States ([26]).

National targets for tertiary education ([29]) range from 26 % for Italy to 60 % for Ireland. Austria and Germany's targets are slightly different from the overall EU target because they include post-secondary attainment (ISCED level 4 for Germany, and ISCED level 4a for Austria). This is considered equivalent to university education in these two countries.

In 2012, ten countries had already achieved their national targets: Cyprus, Luxembourg, Lithuania, Sweden, Finland, Germany, Denmark, the Netherlands, Austria and Latvia. Hungary, Slovenia and Estonia were close at less than one percentage point from their national targets. Slovakia, Portugal and Malta were the most distant, at some 10 percentage points below their targets.

Levels of tertiary educational attainment varied by a factor of about 2.5 across Europe in 2012. Northern and Central Europe had the most graduates, with 12 countries exceeding the overall EU target of 40 %. The lowest levels could be observed in Italy, Romania, Malta, Slovakia and Croatia, which were all below 25 %.

At the same time, some Eastern European countries experienced the strongest increases in tertiary

educational attainment over the period 2005 to 2012. Changes were most pronounced in Latvia, Poland, Slovakia, Czech Republic and Hungary, with shares growing by two-thirds or more.

Looking at non-EU Europe, the EFTA countries Norway, Switzerland and Iceland were level with the best performing EU Member States in 2012. However, the candidate countries FYR Macedonia ([10]) and Turkey showed tertiary educational attainment levels similar to Southern and Eastern European Member States.

The regional differences in tertiary educational attainment across Europe shown in Map 4.3 are to a large extent in line with the general country differences (see Figure 4.9). In 2012 many regions in France, the United Kingdom, Finland and Sweden had above average tertiary educational attainment rates. On the other hand, most regions in Italy, Hungary and Romania showed a very small proportion of tertiary graduates.

Germany, Spain, Hungary and the United Kingdom showed the biggest within-country dispersion rates in tertiary educational attainment in 2012. In these countries, the best performing regions showed tertiary educational attainment levels of almost twice the rates of the worst performing regions (or even more than double in the case of Germany). In contrast, Belgium, Bulgaria and the Netherlands were the most 'equal' countries, with only slight within-country variations in tertiary educational attainment levels.

Map 4.4 shows the distance of regions to the respective national Europe 2020 targets. The cross-country regional performance in terms of tertiary education is very different when compared with the distance to the national target. Even though some regions in France, Spain, Lithuania and Ireland had a comparatively high proportion of citizens with a tertiary education, they still lag behind their national targets. This might be a result of the level of ambition reflected in the national tertiary education targets, which determines the difficulty of reaching these goals. For example, France and Ireland's national targets exceed the EU average target by 10 and 20 percentage points, respectively.

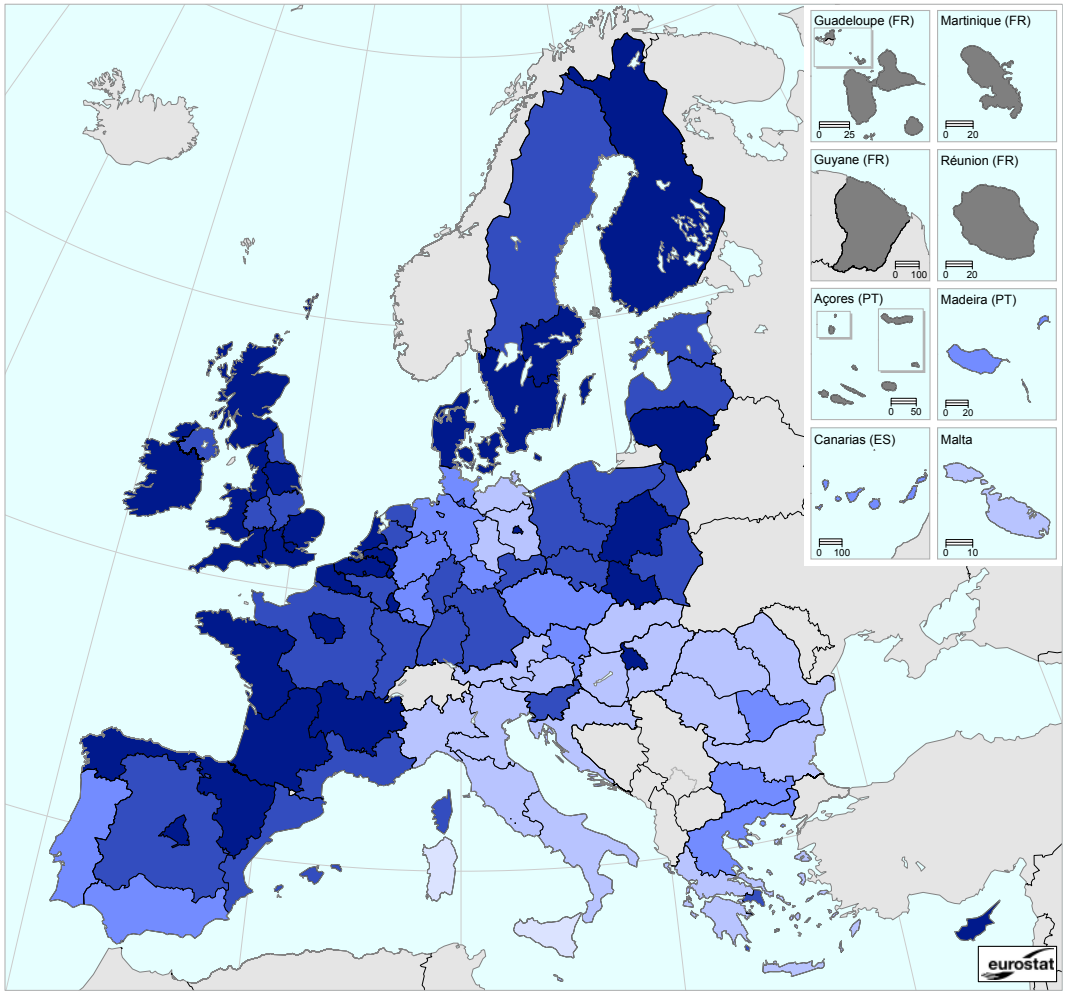
Low levels of student mobility in higher education

Apart from providing valuable academic and cultural benefits, educational mobility is considered increasingly important for improving young people's employability and access to the labour market ([30]). Increased mobility in higher education — those of students, researchers and staff — has been established as a key priority area within the framework of the Bologna Process ([31]). In 2009 European ministers responsible for higher education met to take stock of the achievements of the Bologna Process. As a result they agreed on the benchmark that 'in 2020 at least 20 % of those graduating in the European Higher Education Area should have had a study or training period abroad' ([32]). The benchmark refers to two main forms of mobility: degree mobility (undertaking a full degree programme in another country) and credit mobility (taking part of a study programme in a university abroad) ([30]).

Direct assessment of Member States' progress towards the EU mobility benchmark cannot be made because the current data on students going abroad do not provide information on graduates' degree and credit mobility. Nevertheless, statistics on student enrolment in higher education provide a useful indication of general mobility trends. In 2011 the average mobility rate for the EU was rather low, at 3.4 % and 3.3 % for incoming and outgoing students respectively. This average, however, obscures huge variations in study mobility trends across Member States. More than half of tertiary students from Cyprus, Luxembourg and Liechtenstein were enrolled in another European country in 2011 (see Figure 4.10). Limited provision of study places within their own educational system is the most likely reason for this. In contrast, 12 EU Member States showed rather low outbound mobility levels below 3 %, in particular the United Kingdom and Spain. Many Eastern European countries had a significant flow of outgoing students, but very few incoming ones.

Inbound mobility can generally be seen as a sign of the attractiveness of a country's higher education as well as its financial and institutional capacity

Map 4.3: Tertiary educational attainment (ISCED levels 5 and 6), by NUTS 1 regions, 2012 (*)
(% of population aged 30 to 34)



(% of population aged 30–34)

EU-27 = 35.8

<= 17.5
17.5 – 25.0
25.0 – 32.5
32.5 – 40.0
> 40.0
Data not available

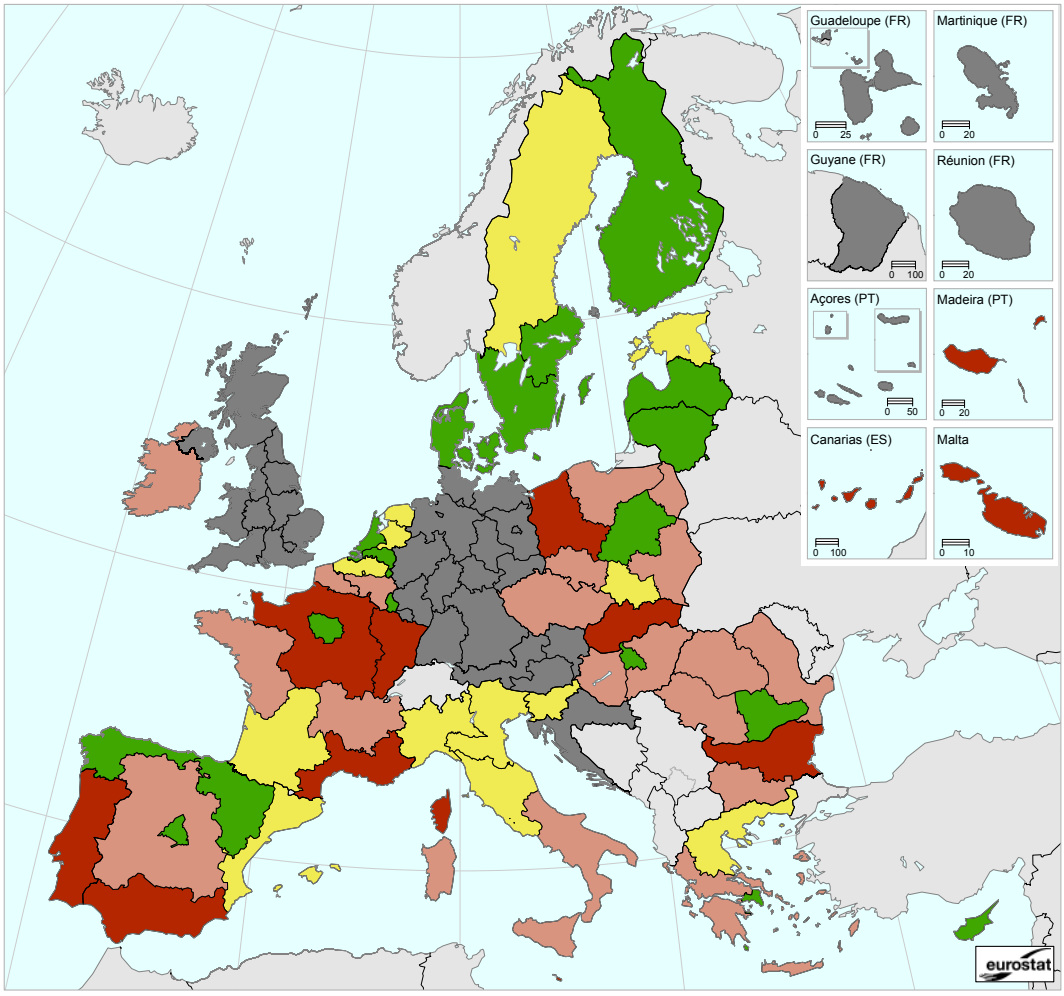
Administrative boundaries: © EuroGeographics © UN-FAO
Cartography: Eurostat — GISCO, 07/2013

0 200 400 600 800 km

(*) The Netherlands and Poland, provisional data.

Source: Eurostat (online data code: edat_lfse_12)

Map 4.4: Distance to Europe 2020 national targets (*) for the indicator: Tertiary educational attainment (ISCED levels 5 and 6), by NUTS 1 regions, 2012
(% of population aged 30 to 34)



Overall EU target: at least 40 %
Distance to the overall EU target: 4.2 pp

(*) Europe 2020 national targets: Denmark: > 40 %, Italy: 26–27 %, Latvia: 34–36 %, the Netherlands: > 40 % (45 % expected in 2020), Finland: 42 % (narrow national definition), Sweden: 40–45 %.

Source: Eurostat (online data code: edat_lfse_12)

Figure 4.10: Student mobility in tertiary education, by country, 2011
(outbound: students (ISCED 5–6) studying in another EU-27, EEA or candidate country as % of all students; inbound: inflow of students (ISCED 5–6) from EU-27, EEA and candidate countries as % of all students in the country)

Source: Eurostat (online data code: educ_thmob)

for enrolling foreign students ([33]). Outward mobility, on the other hand, might be a result of policies encouraging students to spend part of their studies abroad (credit mobility in particular) ([30]).

Learning as a life-long process

Higher education institutions are not only crucial for providing Europe with a young and highly qualified labour force, they are also vital for life-long learning.

Adult education and training covers the longest time span in the process of learning throughout a person's life. After an initial phase of education and training, continuous, life-long learning is crucial for improving and developing skills, adapting to technical developments, advancing one's career or returning to the labour market ([41]) (also see the 'Employment' chapter, p. 27). In recognition of this, life-long learning plays a crucial role in the Europe 2020 flagship initiatives 'Youth on the move' and 'An Agenda for new skills and jobs'. In addition, the European Council in 2011 adopted a resolution on a renewed European agenda for adult learning ([42]). The EU's ET 2020 framework also includes a benchmark of raising the share of adults participating in life-long learning to at least 15 %.

After growing between 2003 and 2005, the share of EU adults participating in life-long learning fell

Box 4.2: EU initiatives promoting mobility in higher education

The EU has set up a number of initiatives to promote mobility in higher education under the Lifelong Learning Programme ([34]), including Erasmus for study exchanges and placements ([35]), Erasmus Mundus for postgraduate studies ([36]), Leonardo Da Vinci for vocational education and training ([37]), Marie Curie for research fellowships ([38]) and Grundtvig for adult education ([39]). As part of the Europe 2020 strategy, the flagship initiative 'Youth on the move' ([40]) also aims to extend opportunities for learning mobility to all young people in Europe, mainly through financial support and dissemination of information.

slightly to about 9 % in 2012. As such, the EU has not made any progress towards the 15 % benchmark to be met by 2020.

This trend reflects the situation at the national level. Life-long learning has remained stable or even declined in more than half of the Member States. Only eight countries experienced a substantial increase of more than five percentage points over the period 2003 to 2012: Austria, the Czech Republic, Denmark, Estonia, Spain, Luxembourg, Portugal and Sweden. In 2012, only five EU countries from Northern Europe (Denmark, Sweden, Finland, the Netherlands and the United Kingdom) exceeded the ET 2020 benchmark. In 14 Member States participation in life-long learning was less than half of the required level of 15 %.

Women, migrants, highly educated people and employed people participate more in life-long learning

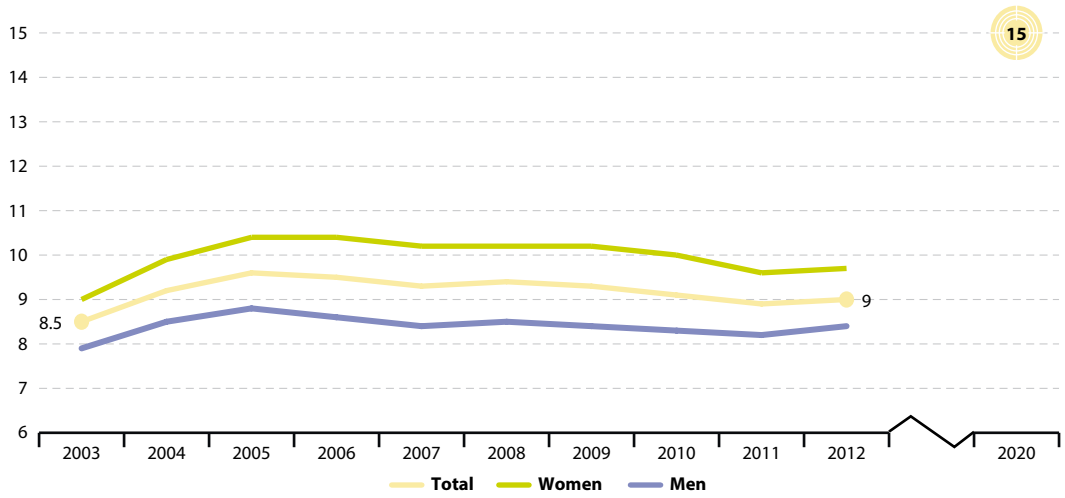
Women are more likely to participate in life-long learning than men. In 2012, the share of women engaged in life-long learning was 1.3 percentage points higher than for men (9.7 % as opposed to 8.4 %). Men, however, show a higher preference for non-formal job-related learning.

Migrants also tend to be slightly more involved in life-long learning activities (9.9 % in 2011). This may reflect participation in targeted learning activities such as language courses. It may also be linked to higher unemployment rates among migrants in some countries, resulting in a greater participation in labour market integration measures ([43]) (see 'Employment' chapter, p. 27).

There is a clear gradient of participation in life-long learning and a person's educational attainment. In 2012 people with at most lower secondary education were much less engaged in life-long learning (3.9 %) than those with upper secondary (7.7 %) or tertiary education (16.1 %).

In relation to labour status, employed people in general show a slightly higher participation rate in life-long learning. Some 9.7 % of employed 25 to 64 year olds took part in life-long learning in 2012. For unemployed people, the participation rate was

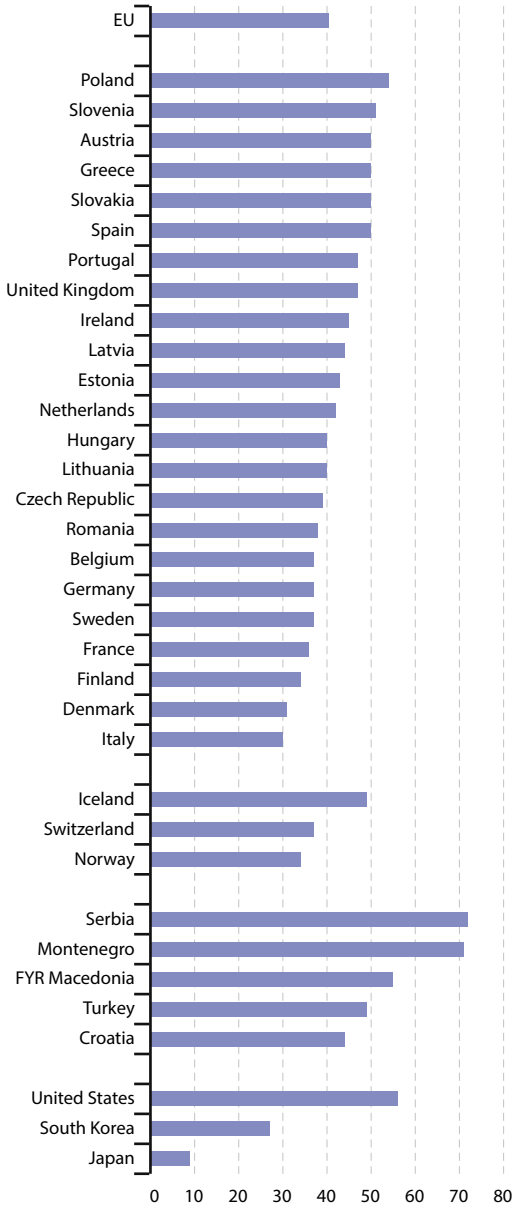
Figure 4.11: Life-long learning, EU-27, 2003–2012 (*)
(% of population aged 25 to 64) (**)



(*) Education and training 2020 benchmark for the EU-27: at least 15 %.
(**) People who did not answer to the question 'participation to education and training' are excluded from the reference population.

Source: Eurostat (online data code: tsdsc440)

Figure 4.12 Self-perceived entrepreneurial skills, by country, 2012 (*)
(% of individuals aged 18 to 64 who believe they have the required skills and knowledge to start a business)



(*) EU aggregate based on 23 countries; 2011 data for CZ, 2010 data for IS and ME, 2009 data for RS.

Source: Global Entrepreneurship Monitor (GEM)

similar to the total participation rate in life-long learning, at 9 %.

Entrepreneurial skills are crucial for the transition towards a knowledge-based society

The EU's framework for key competences identifies and defines the key abilities and knowledge a person needs to achieve employment, personal fulfilment, social inclusion and active citizenship in today's rapidly changing world ([44]). In this context, entrepreneurship competences are defined as an individual's ability to turn ideas into action. This transversal set of skills refers to creativity, innovation and risk-taking as well as general management skills needed to achieve objectives ([45]).

Enhancement of entrepreneurial skills is endorsed as a key long-term priority in the ET 2020 framework. The Europe 2020 strategy also recognises it as being crucial to the transition to a knowledge-based society. The importance of enhancing creativity, innovation and entrepreneurship through education is highlighted in three flagship initiatives: 'Youth on the move', 'An Agenda for new skills and jobs' and 'Innovation Union'.

The Global Entrepreneurship Monitor (GEM) provides a source of annual country data on the population's perceived levels of entrepreneurship skills, based on adult population surveys. The GEM project is run by a consortium of universities with special teams of experts from almost 100 participating countries ([46]). Figure 4.12 shows that in 2012 at least 50 % of the adult population in six EU Member States believed they have the skills and knowledge to start a business. Poland takes the lead with more than half of its working-age population expressing good self-perceived entrepreneurial capabilities. However, in most Nordic countries fewer adults display confidence in their competences. It should be noted that differences in attitudes might reflect not only levels of entrepreneurial education and training, but also factors such as individuals' levels of confidence or voluntary training beyond formal education ([47]).

Education levels and labour market participation

Younger people show higher educational attainment levels

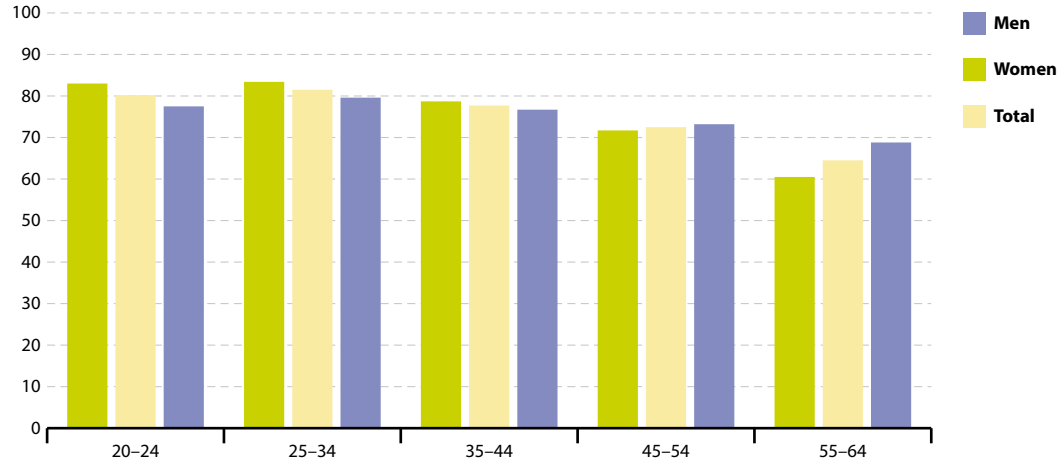
Educational attainment is the visible output of education systems. Achievement levels can have major implications for many issues touching a person's life. This is reflected in participation in life-long learning as well as in other aspects presented in the chapters in this publication, in particular 'Employment' (see p. 27) and 'Poverty and social exclusion' (see p. 125).

Upper secondary education is now considered as the minimum desirable attainment level for all European citizens leaving the education and training system (which is reflected in the Europe 2020 headline indicator on early leavers from education and training, see p. 96). Figure 4.13 shows the share of the population that has completed upper secondary or tertiary education, broken down by sex and age groups.

In 2012, more than 80 % of the 20 to 34 year olds had completed at least upper secondary education, while the share for the age group 55 to 64 was much lower, at 65 %. This difference reflects the growing demand for a higher skilled workforce in most parts of Europe over the past decades. The process of older groups steadily leaving the workforce and being replaced by a younger, higher educated generation will lead to a more skilled workforce. If labour markets do not provide adequate jobs this may result in certain levels of over-qualification and youth unemployment ([48]). For older workers aged 55 to 64, lower educational attainment levels, especially among women, highlight the importance of life-long learning to increase their employability and help meet the Europe 2020 strategy's employment target (see the 'Employment' chapter, p. 27).

Educational attainment is highest in Eastern Europe, where upper secondary education has long been the standard ([48]). Southern European countries in contrast show the lowest education levels. In 2012, less than half of the population aged 25 years or over living in Spain, Italy, Malta and Portugal had completed more than lower secondary

Figure 4.13: Persons with upper secondary or tertiary education attainment by age and sex, EU-27, 2012
(% of population)



Source: Eurostat (online data code: edat_lfse_08)

education. However, these countries have shown the strongest improvements over time, with education levels among 20 to 24 year olds being about twice as high as among those close to retirement.

Figure 4.13 also shows how women have overtaken men in educational attainment. While in the age group 45 to 64 years attainment is higher for men, the situation is turned around in the population aged 44 and younger. This trend illustrates the gender differences observed for a number of the indicators analysed in this chapter, such as early leavers from education and training, tertiary education, or participation in life-long learning.

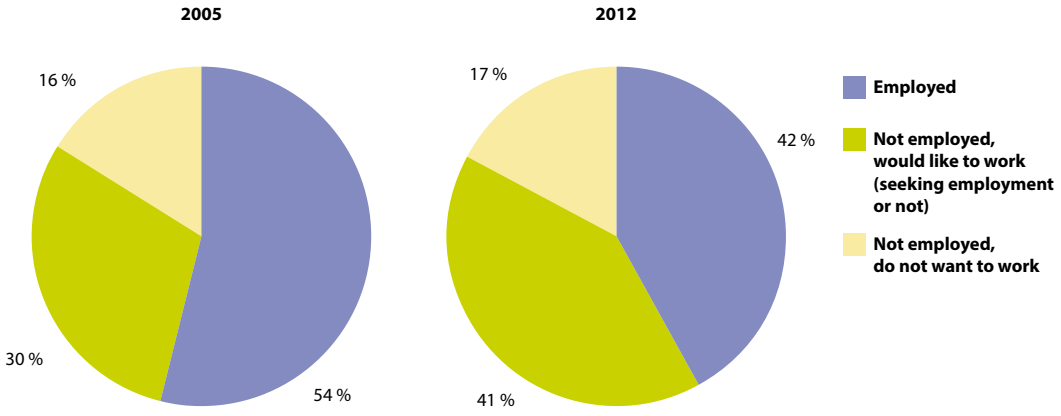
Consequences of low educational attainment

Low educational attainment — at most lower secondary education — is usually negatively linked with other socioeconomic variables. The most important of these are employment, unemployment and the risk of poverty or social exclusion. Some of these relationships are also analysed in detail in their respective chapters (see the chapters 'Employment' on p. 27 and 'Poverty and social exclusion' on p. 125).

Early leavers from education and training and low-educated young people face particularly severe problems in the labour market. As shown in Figure 4.14, about 58 % of 18 to 24 year olds with at most lower secondary education and who were not in further education or training were either unemployed or inactive in 2012. Of these, 70 % stated they would like to work. At the same time, the EU's overall youth unemployment rate (covering the age group 15 to 24 years) stood at 22.8 %. This implies that unemployment levels among early leavers from education and training are much higher than among the total population of the same age group ([11]). This is illustrated by Figure 4.15.

Compared with the overall decline in early leaving from education and training (see Figure 4.2), Figure 4.14 reveals it is becoming more difficult for early school leavers to find employment. Between 2005 and 2012, the share of 18 to 24 year old early leavers who were not employed but wanted to work grew from less than one third to more than 40 %.

Figure 4.14 Early leavers from education and training, by employment status, EU-27, 2005 and 2012 (*)
(% of the population aged 18 to 24 with at most lower secondary education and not in further education or training)



(*) 2012 data are provisional.

Source: Eurostat (online data code: edat_lfse_14)

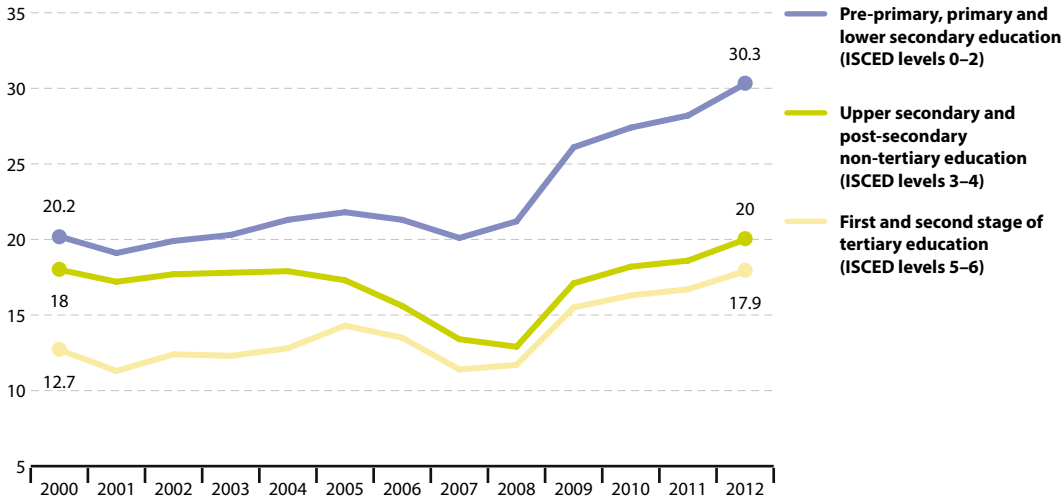
Box 4.3: Policies tackling youth unemployment

The Europe 2020 flagship initiative 'Youth on the move' emphasises that 'youth unemployment is unacceptably high' in the EU, and that 'to reach the 75 % employment target for the population aged 20 to 64 years, the transition of young people to the labour market needs to be radically improved'. To this end, the flagship initiative focuses on four main lines of action ([49]):

- Support actions for life-long learning, to develop key competences and quality learning outcomes, in line with labour market needs; this also means tackling the high level of early school leaving.
- Raise the percentage of young people participating in higher education or equivalent to keep up with competitors in the knowledge-based economy and to foster innovation.
- Improve learning mobility programmes and initiatives, to support the aspiration that by 2020 all young people in Europe should have the possibility to spend a part of their educational pathway abroad, including via workplace-based training.
- Urgently improve the employment situation of young people, by presenting a framework of policy priorities for action at national and EU level to reduce youth unemployment by facilitating the transition from school to work and reducing labour market segmentation.

Youth employment is also addressed by the EU employment package 'Towards a job-rich recovery', which reaffirms the European Commission's commitment to tackle the dramatic levels of youth unemployment, 'by mobilising available EU funding' and by supporting the transition to work 'through youth guarantees, activation measures targeting young people, the quality of traineeships, and youth mobility' ([50]).

Figure 4.15 Youth unemployment rate, by educational attainment, EU-27, 2000–2012
(% of the economically active population aged 15 to 24)



Source: Eurostat (online data code: lfsa_urgaed)

The analyses in the 'Employment' chapter (see p. 27) show that unemployment rates are higher for young people aged 15 to 24 years as well as for those with lower educational attainment. Figure 4.15 shows the breakdown of youth unemployment rates in relation to educational attainment. Young people with at most lower secondary education are clearly the most disadvantaged group, with an unemployment rate of over 30 % in 2012. Unemployment rates for the other two groups were more than 10 percentage points lower.

Low-educated 15 to 24 year olds have at the same time experienced the biggest growth in unemployment since 2000, when their unemployment rate was about 10 percentage points lower. It is interesting to note that this worsening compared with the other two subgroups has not only been caused by the recent economic crisis. Indeed, the situation of low-educated 15 to 24 year olds had already been deteriorating slightly in the period before 2007. Unemployment had fallen in particular for those with upper secondary education.

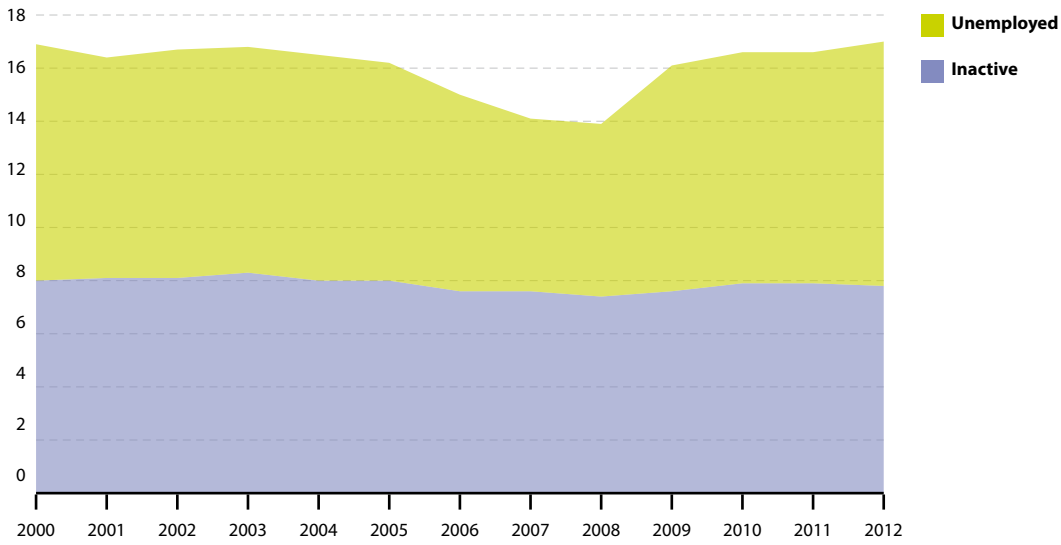
Young people neither in employment nor in education or training face a high risk of being excluded from the labour market

The rate of young people neither in employment nor in education or training (NEET) provides information on young people aged 18 to 24 years who are not in employment and not in any further education and training. Low educational attainment, together with having some kind of disability or coming from a migration background, is one of the key determinants of young people entering the NEET category ([51]).

In 2012, 17.0 % of 18 to 24 year olds were in the NEET status and thus at risk of being excluded from the labour market and depending on benefits. This represents a considerable increase since 2008, when the NEET rate stood at a low of 13.9 %.

As shown in Figure 4.16, the EU's NEET rate has been mainly influenced by changes in youth unemployment, whereas youth inactivity has remained more or less stable, at or slightly below 8 %. NEET

Figure 4.16 Young people not in employment and not in any education and training (NEET rate), EU-27, 2000–2012 (*)
(% of population aged 18 to 24)



(*) 2000 and 2001 data are estimates; break in series in 2003; 2012 data are provisional.

Source: Eurostat (online data code: edat_lfse_20)

rates are slightly higher for women than for men, although the gender gap has closed slightly since the onset of the economic crisis in 2008. In 2012, the NEET rate for 18 to 24 year old women was 17.5 %, with more than half (55.4 %) being economically inactive. At the same time, the NEET rate for men of the same age group was 16.6 %, but almost two-thirds were unemployed.

Low educational attainment negatively influences quality of life

The negative impacts of low educational attainment described here and in the chapters 'Employment' (see p. 27) and 'Poverty and social exclusion' (see p. 125) also influence other aspects of a person's perceived quality of life ([52]). Across the EU, the perception of being in good or very good health in 2011 was highest among people having completed tertiary education (81.5 %). Only slightly more than half (55 %) of the people with at most lower secondary educational attainment shared this perception. Similarly, the perception of not being limited in one's daily activities is generally higher among people with tertiary education (84.3 %). This compares with more than one-third of low-educated people perceiving at least some limitations.

Matching skills with labour market needs

The EU's ET 2020 framework acknowledges the important role of education and training in raising employability. It has set a benchmark that at least 82 % of graduates (20 to 34 year olds) should have found employment no more than three years after leaving education and training ([53]).

Figure 4.17 shows that recent graduates have been affected particularly strongly by the economic crisis. Between 2008 and 2012, employment rates among 20 to 34 year olds who had left education and training in the past three years fell by 6.3 percentage points. In comparison, the decline in the overall employment rate for 20 to 64 year olds was 'only' 1.8 percentage points over the same period.

The data in Figure 4.17 refer to graduates having left education and training with at least upper-secondary qualifications (ISCED levels 3 to 6). A disaggregation by educational attainment reveals that the fall in the employment rate has been stronger for the lower educated cohort (– 7.8 percentage points since 2008) than for those with tertiary education (– 5.4 percentage points since 2008). This is in line with the trends observed in the 'Employment' chapter (see p. 27) on the overall employment rate, and underlines the importance of educational attainment for employability.

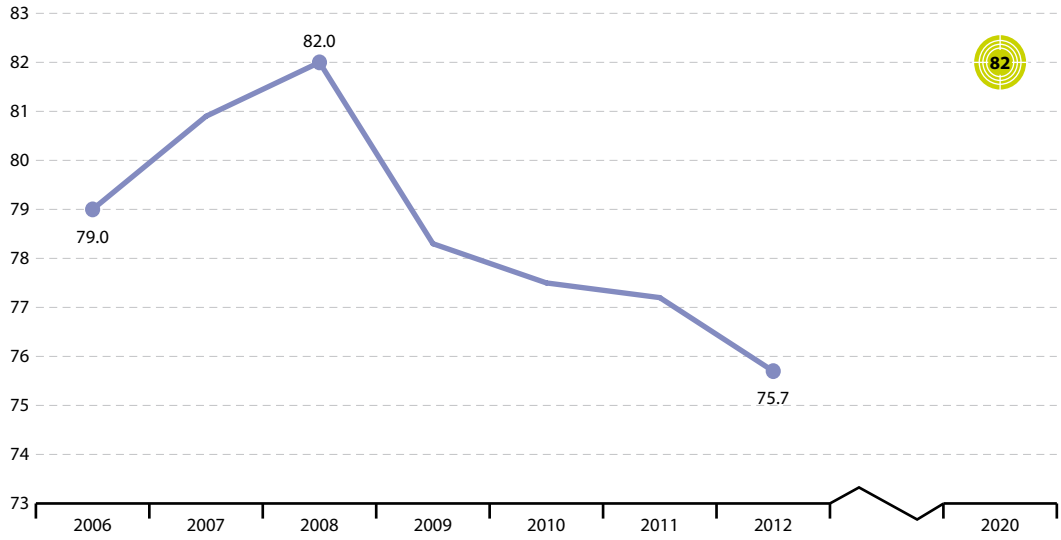
Matching educational outcomes and labour market needs is a key component of the Europe 2020 strategy (see the 'Employment' chapter, p. 27). 'Equipping people with the right skills for employment' has been identified as one of four priorities of the flagship initiative 'An Agenda for new skills and jobs'. In particular the impact of the economic crisis and the persistent high level of unemployment have increased the need to better understand where future skills shortages are likely to lie in the EU ([54]).

Most recent forecasts from the European Centre for the Development of Vocational Training (Cedefop) ([55]) indicate that between 2010 and 2020

Box 4.4: Policies tackling the transition from education to employment

The EU employment package 'Towards a job-rich recovery', under its objective of restoring the dynamics of labour markets, calls for 'security in employment transitions', such as the transition of young people from education to work: 'there is evidence to show that apprenticeships and quality traineeships can be a good means of gaining entry into the world of work, but there are also recurring examples of traineeships being misused'. The employment package also reaffirms the European Commission's commitment to tackle the dramatic levels of youth unemployment by supporting the transition to work 'through youth guarantees, activation measures targeting young people, the quality of traineeships, and youth mobility' ([50]).

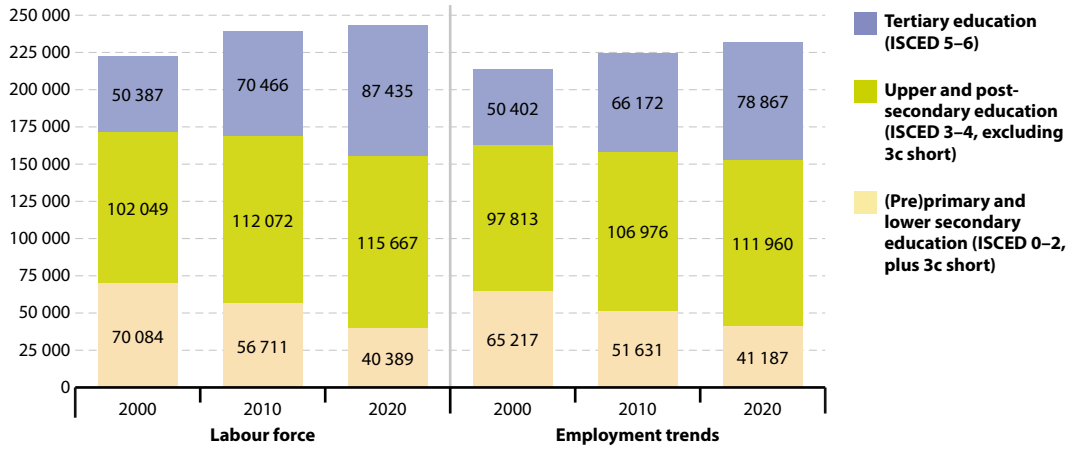
Figure 4.17: Employment rate of recent graduates, EU-27, 2003–2012 (*)
(share of employed graduates (20 to 34 years old) having left education and training in the past three years)



(*) Data refer to graduates having left education and training with at least upper-secondary qualifications (ISCED 3–6); value in 2003: 76.8 % (not shown in graph because there are no data for the following years 2004 and 2005); ET 2020 benchmark for the EU-27: at least 82 %.

Source: Eurostat (online data code: edat_lfse_24)

Figure 4.18: Labour force and employment trends by educational attainment, EU-27, 2000, 2010 and 2020
(1 000 persons)



Source: Cedefop skills forecasts 2013

some 18 million jobs requiring medium or high educational attainment will be created, while at the same time low-qualified jobs will decline by about 10 million.

Figure 4.18 contrasts these estimates with projected changes in the EU labour force. As already indicated in Figure 4.13 and the accompanying analysis, the population holding a university degree or equivalent is expected to grow by almost 25 % between 2010 and 2020. In comparison, the number of low-skilled people will fall by almost one-third.

Overall, the Cedefop forecasts show a parallel rise in skills from both the demand and the supply side until 2020. Changes in skills levels are expected to occur faster for the labour force than in employment trends. This parallel rise does not prevent potential skills mismatches, such as over-qualification gaps ([56]).

Investment in future generations: the case of public expenditure on education

Public expenditure on education as a percentage of GDP is often considered an indicator of the level of a government's commitment to developing skills and competences.

Two developments have had major impacts on the role of education and training systems: the recent economic crisis and the ageing of the population. The financial and economic crisis has had major impacts on our labour markets, economies and societies in general. The ageing of the population across most Member States also bears important implications on educational systems through its effects on the labour market and public finances ([57]).

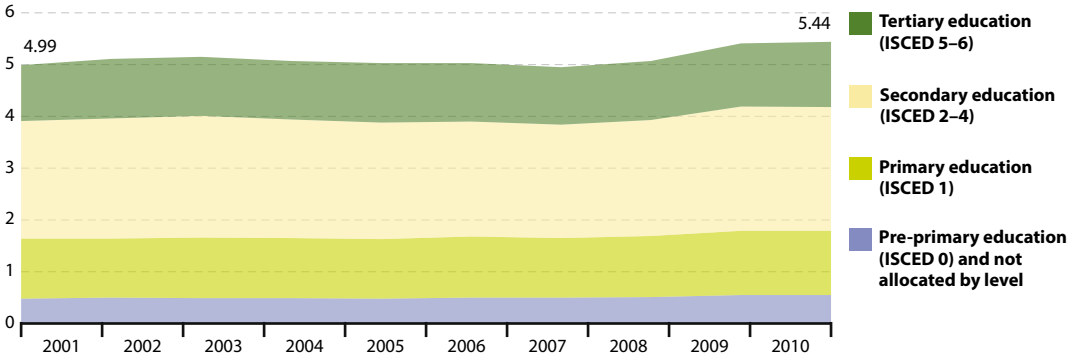
Investment in education is essential for facing both of these challenges through means of fostering economic growth and productivity, and enhancing innovation and competitiveness. While fiscal and monetary policies can counteract the adverse effects of the crisis in the short-run, educational investments are necessary policy measures for addressing the long-term impacts on unemployment. Human capital accumulation cannot only reduce the pressure on labour markets at a time of economic crisis but also compensate for the projected shrinking labour force in European economies ([58]).

As shown in Figure 4.19, public expenditure on education as a % of GDP remained relatively stable at about 5 % in the period between 2001 and 2008, but grew to about 5.4 % in 2009, where it remained in 2010. This average figure conceals considerable cross-country variations in the allocation of public resources for education, ranging from 3.5 % in Romania to 8.8 % in Denmark. In terms of allocating resources to different educational levels, investment in secondary education has remained almost double the amount invested in primary and tertiary qualifications.

Investment in education at EU level has been stable despite the economic crisis. Education systems across the EU have been affected differently by the recession, partly reflecting the extent to which the crisis has hit national economies. Although one-third of Member States have sustained their expenditure on education from 2007 onwards, a number of countries such as Italy, Hungary, Bulgaria, Greece, Latvia, Romania and Iceland have reduced their education budgets over several consecutive years ([59]).

A recent report by Eurydice (the European network for education systems and policies) shows that in 2011 six countries experienced a reduction in education budgets compared with the previous year. However, in most cases the reasons for these budget cuts have been confined to demographic trends rather than anti-crisis measures ([60]).

Figure 4.19: Public expenditure on education, EU-27, 2001–2010 (*)
(% of GDP)



(*) Data are estimates.

Source: Eurostat (online data code: educ_figdp)

Students from disadvantaged groups most affected by cutbacks on education

Economic downturns and cutbacks on education are likely to generate particularly severe impacts on students from disadvantaged backgrounds ([61]). This is because disadvantaged children often tend to be concentrated in schools with fewer resources. Furthermore, households from higher socio-economic backgrounds might have the financial resources to compensate for the reduction in support at school through private tuition, for example. Disadvantaged students have much fewer options for overcoming these obstacles.

Apart from general funding mechanisms for allocating resources across different educational levels, governments can also provide additional educational support to disadvantaged students through the award of specific programme funds. These funds can be distributed according to predefined need-based criteria, targeting for example specific geographic, social, language or other groups ([62]). The targeted support could cover a variety of programmes ranging from the provision of language classes for minority groups and improvement in student–teacher ratio to the implementation of general schemes reducing student drop-out rates. In some Member States (the Czech Republic and Ireland) crisis-led adjustments included a reduction in the number of support teachers in schools, or supplementary programmes supporting low-performing or migrant students. In contrast, against the background of austerity measures, Belgium (French and Flemish Communities) and Spain have reported an increase in their budgets for specific support programmes. The United Kingdom (England and Wales) has taken similar measures by making available new support funds for students from disadvantaged backgrounds ([63]).

Conclusions and outlook towards 2020

Early leaving from education and training has fallen continuously in the EU since 2000, for both men and women. The fall from 17.6 % in 2000 to 12.8 % in 2012 represents steady progress towards the Europe 2020 target. Young men, migrants and ethnic minorities are more likely to leave education and training with at most lower secondary education. While in 2012 women were already close to the overall EU target, at 11.0 % early school leavers, the rate was much higher for men, at 14.5 %.

Improvements have also been visible in the second Europe 2020 headline indicator. Between 2000 and 2012, the share of 30 to 34 year olds having completed tertiary educational attainment grew continuously from 22.4 % to 35.8 %. Growth was considerably faster for women, who in 2012 had already met the Europe 2020 target. In contrast, only 31.6 % of 30 to 34 year old men had completed tertiary education in the same year.

Educational attainment strongly determines successful participation in the labour market. In 2012, 58 % of 18 to 24 year old early leavers from education and training were either unemployed or inactive. Of the total population of 18 to 24 year olds, 17.0 % were neither in employment nor in any further education or training (NEET) and thus at risk of being excluded from the labour market. This is also reflected in the youth unemployment rate, which was particularly high for low-educated 15 to 24 year olds, at 30.3 %. This is more than 10 percentage points above the unemployment rates of young people with upper secondary or tertiary education.

Box 4.5: Projections up to 2020 in relation to the Europe 2020 education targets

Despite the decline of early leavers from education and training, projections up to 2020 from the EU's Joint Research Centre (JRC) suggest that the EU could fall short of its target of reducing early school leaving to less than 10 %. According to these calculations (based on data up to 2011), an additional 1.5 million individuals will have to remain in the education and training systems in order to reach the headline target by 2020, amounting to an average of about 170 000 individuals per year.

Taking into account the latest projections of demographic changes, even bigger effort is needed. As compared to 2011, an additional two million individuals will have to be kept in education and training, translating into an annual average of about 220 000 individuals. This is an extra 20 000 fewer early school leavers per year on top of the annual change that was achieved between 2000 and 2011 ([64]). This is also because the size of younger cohorts will shrink by 2020 in most Member States and across the EU, changing the relative weight of each country as measured by its population share in the total EU population ([64]).

In contrast, the JRC projections suggest that the tertiary education target is within reach 'as, by 2020, the EU will only need less than half of the progress observed in the previous decade. Therefore, if the dynamic registered in the past is to continue and assuming no severe adverse shocks, Europe should easily outperform the target' ([65]).

Notably, based on current trends, women could be expected to reach tertiary educational attainment levels above 50 %, meaning that by 2020 more than half of 30 to 34 year old women would have achieved tertiary qualification. Due to a much slower growth, men, on the other hand, would remain below the 40 % target, reaching 'only' tertiary educational levels of around 38 %. The different choices in study fields (men graduating more in mathematics, science or engineering subjects, while women dominating in education, humanities, art and service-oriented educational fields), could cause some concern in relation to labour market opportunities for men and women ([66]).

Progress in the other education indicators for which benchmarks have been set in the EU's ET 2020 framework is mixed. Participation in early childhood education and care (ECEC) has grown more or less continuously in the EU since 2000. In 2011, 93.2 % of children between the age of four and the starting age of compulsory education participated in ECEC, compared with 85.1 % in 2000. This is a considerable move towards the ET 2020 benchmark of at least 95 %.

The picture is less optimistic when it comes to basic skills such as reading, maths and science. In 2009 about one-fifth of 15 year olds showed insufficient abilities in reading, maths and science. This means that a reduction of almost a third will be necessary to reach the ET 2020 benchmark. In 2011, the average EU mobility rate taking into account only degree mobility was around 3 %, masking however huge differences across Europe and between incoming and outgoing students.

In relation to adult education, which is important because it covers the longest time span in the process of life-long learning, the share of adults participating in life-long learning has fallen slightly since 2005, to 9 % in 2012. As such, the EU has not made any progress towards the ET 2020 benchmark of raising the share of adults engaging in life-long learning activities to at least 15 % by 2020.

Finally, in relation to the important role of education and training on employability, the employment rate of recent graduates (20 to 34 year olds having left education and training in the past three years) has experienced a considerable drop since the economic and financial crisis began. It has fallen from 82 % in 2008 to less than 76 % in 2012. This trend, which shows that the targeted age group has been affected particularly strongly by the crisis, has moved the EU away from the ET 2020 benchmark of raising the employment rate of recent graduates to at least 82 % by 2020.

Forecasts concerning the skills required by the labour market until 2020 underline the importance of higher education. Between 2010 and 2020 some 18 million jobs requiring medium or high qualification are expected to be created, whereas at the same time low-qualified jobs will decline by about 10 million.

Efforts needed to meet the Europe 2020 targets on education

Knowledge about current student cohorts and the existing demographic projections allow estimations of educational trends up to 2020, which can help identify priority issues that may need particular political attention on the path towards meeting the Europe 2020 targets. For example, students who are now in their mid-20s will in 2020 fall within the scope of the Europe 2020 headline indicator on 'tertiary educational attainment', which looks at education levels of the population aged 30 to 34 years.

The flagship initiatives 'Youth on the move' and 'An Agenda for new skills and jobs' address the challenge of early leaving from education and training. In 2011, the European Council published recommendations on policies to reduce early leaving from education and training ([67]), giving guidance to Member States on the implementation of strategies and measures tackling this problem. Vocational Education and Training (VET) systems are seen as an important contribution to the employability of young people and the reduction of early leaving from education and training, by offering an interesting alternative to general education ([68]).

Additionally, the Europe 2020 strategy puts particular efforts on making sure that higher education courses develop skills profiles relevant to the world of work, both for meeting future labour demand and for ensuring the long-term attractiveness of higher education ([69]). Moreover, the European Council's Resolution on a renewed European agenda for adult learning ([42]) addresses the challenge of raising participation rates of adults in life-long learning activities.

Notes

(1) For further details on the impact of demographic ageing on the labour force see the chapter on 'Employment' on p. 27.

(2) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 10).

(3) European Commission, *Early School Leaving* (accessed 23 July 2013); European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 17).

(4) European Commission, *Early School Leaving* and European Commission, *Tertiary Education* (accessed 23 July 2013).

(5) European Council conclusions 17 June 2010, EUCO 13/10, Brussels, 2010.

(6) Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020') (2009/C 119/02), Official Journal of the European Union, 28.5.2009.

(7) ECTS is the European Credit Transfer and Accumulation System. The system allows for the transfer of learning experiences between different institutions, greater student mobility and more flexible routes to gain degrees. It also aids curriculum design and quality assurance. For further details, see http://ec.europa.eu/education/lifelong-learning-policy/ects_en.htm.

(8) Europass is a common European standard for making skills and qualifications clearly and easily understood across Europe. It includes five documents, two of which are completed by European citizens themselves (Curriculum Vitae and Language Passport) and three of which are issued by education and training authorities (Europass Mobility, Certificate Supplement, Diploma Supplement). For further details see http://europass.cedefop.europa.eu/en/about.

(9) European Commission, *Europe 2020 — A strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010 (p. 11).

(10) The former Yugoslav Republic of Macedonia, see p. 209.

(11) European Commission, *Early School Leaving* (accessed 23 July 2013).

(12) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 18); *International Organization for Migration, Foreign-born Children in Europe: An Overview from the Health Behaviour in School-Aged Children (HBSC) Study*, 2009 (p.36).

(13) Dale et al., *Early School leaving: Lessons from Research for Policy Makers*, European Commission, 2010 (p. 30).

(14) European Union Agency for Fundamental Rights & UNDP, *The Situation on Roma in 11 EU Member States*, 2012 (p. 14).

(15) Speech of Morten Kjaerum, Director of the European Union Agency for Fundamental Rights, *Exclusion and Discrimination in Education: the Case of Roma in the European Union*, 8 April 2013.

(16) European Commission, *An EU Framework for National Roma Integration Strategies* up to 2020, COM(2011) 173 final, Brussels, 2011.

(17) See http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm.

(18) European Commission, *Early Childhood Education and Care: Providing All our Children with the Best Start for the World of Tomorrow*, COM(2011) 66 final, Brussels, 2011 (p. 1 and p. 5).

(19) European Union Agency for Fundamental Rights & UNDP, *The Situation on Roma in 11 EU Member States*, Luxembourg: Publications Office of the European Union, 2012 (p. 13).

(20) European Commission, *Early Childhood Education and Care: Providing All our Children with the Best Start for the World of Tomorrow*, COM(2011) 66 final, Brussels, 2011 (p. 4).

(21) PISA is an international study that was launched by the OECD in 1997. It aims to evaluate education systems worldwide every three years by assessing 15-year-olds' competencies in the key subjects: reading, mathematics and science. For further details see http://www.oecd.org/pisa/.

(22) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 33).

(23) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 34).

(24) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 36).

(25) European Commission, *A Digital Agenda for Europe*, COM(2010) 245 final, Brussels, 2010 (p. 6).

(26) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 23).

(27) The Luxembourgish tertiary attainment rate reflects to a large degree the highly educated population which is living and working in the country. Luxembourg has attracted a highly educated workforce which has immigrated from abroad and it therefore does not necessarily reflect the outcome of the Luxembourgish education system; see European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 24).

(28) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 24).

(29) See http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm.

(30) Eurydice (Education, Audiovisual and Culture Executive Agency), *The European Higher Education Area in 2012: Bologna Process Implementation Report*, 2012 (p. 153).

(31) The Bologna Process is an intergovernmental initiative involving the European Commission, the European Council and UNESCO-CEPES as well as representatives of higher education institutions, students, staff, employers and quality assurance agencies. It was aimed at creating a European Higher Education Area by 2010, and to promote the European system of higher education worldwide. For further details see http://ec.europa.eu/education/higher-education/bologna_en.htm.

(32) Communiqué of the Conference of European Ministers Responsible for Higher Education, *The Bologna Process 2020 — The European Higher Education Area in the new decade*, Leuven and Louvain-la-Neuve, 28–29 April 2009.

(33) Eurostat, *Key indicators on the social dimension and mobility: The Bologna Process in Higher Education in Europe*, 2009 edition, Luxembourg: Office for Official Publications of the European Communities, 2009 (p. 98).

(34) See http://ec.europa.eu/education/lifelong-learning-programme/index_en.htm.

(35) See http://ec.europa.eu/education/erasmus/students_en.htm.

(36) See http://ec.europa.eu/education/lifelong-learning-programme/erasmus_en.htm.

(37) See http://ec.europa.eu/education/lifelong-learning-programme/ldv_en.htm.

(38) See http://ec.europa.eu/research/mariecurieactions/about-mca/actions.

(39) See http://ec.europa.eu/education/grundtvig/what_en.htm.

(40) European Commission, *Youth on the Move: An initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union*, COM(2010) 477 final, Brussels, 2010.

(41) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 48).

(42) Council Resolution on a renewed European agenda for adult learning (2011/C 372/01), Official Journal of the European Union, 20.12.2011.

(43) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 49).

(44) See http://ec.europa.eu/education/lifelong-learning-policy/key_en.htm.

(45) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 39).

(46) For further details see http://www.gemconsortium.org.

(47) Alicia Coduras Martínez et al., *Global Entrepreneurship Monitor Special Report: A Global Perspective on Entrepreneurship Education and Training*, Global Entrepreneurship Research Association, 2010 (p. 30).

(48) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 54).

(49) European Commission, *Youth on the Move: An initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union*, COM(2010) 477 final, Brussels, 2010 (p. 3).

(50) European Commission, *Towards a job-rich recovery*, COM(2012) 173 final, Strasbourg, 2012 (p. 10).

(51) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2011*, Luxembourg: Publications Office of the European Union, 2012 (p. 28).

(52) Breakdowns of several 'Quality of Life' (QoL) indicators are available in a dedicated section on Quality of Life indicators on the Eurostat website: http://epp.eurostat.ec.europa.eu/portal/page/portal/quality_life/introduction.

(53) Council conclusions of 11 May 2012 on the employability of graduates from education and training (2012/C 169/04), Official Journal of the European Union, 15.6.2012.

(54) European Commission, *An Agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg, 2010 (p. 8).

(55) The Cedefop skills forecasts are available at http://www.cedefop.europa.eu/EN/about-cedefop/projects/forecasting-skill-demand-and-supply/skills-forecasts.aspx.

(56) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 57).

(57) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 7).

(58) Bilal Barakat, Johannes Holler, Klaus Prettner, and Julia Schuster, *The Impact of the Economic Crisis on Labour and Education in Europe*, Vienna Institute of Demography, 2010 (p. 12).

(59) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 11).

(60) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 12).

(61) OECD, *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, 2012 (p. 31).

(62) European Commission, *Funding of Education in Europe 2000–2012: The Impact of the Economic Crisis*, 2013 (p. 68).

(63) European Commission, *Funding of Education in Europe 2000–2012: The Impact of the Economic Crisis*, 2013 (p. 69).

(64) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 21).

(65) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 26).

(66) European Commission (Directorate-General of Education and Culture), *Education and Training Monitor 2012*, Luxembourg: Publications Office of the European Union, 2012 (p. 27).

(67) Council recommendations of 28 June 2011 on policies to reduce early school leaving (2011/C 191/01), Official Journal of the European Union, 1.7.2011.

(68) European Commission, *Youth on the Move: An initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union*, COM(2010) 477 final, Brussels, 2010 (p. 6); European Commission, Early School Leaving (accessed 23 July 2013).

(69) European Commission, *Tertiary Education* (accessed 23 July 2013).

5

Poverty and social exclusion

Poverty and social exclusion — why do they matter?

Poverty and social exclusion harm individual lives and limit the opportunities for people to achieve their full potential by affecting their health and well-being and lowering educational outcomes. This, in turn, reduces opportunities to lead a successful life and further increases the risk of poverty. Without effective educational, health, social and employment systems, the risk of poverty is passed from one generation to the next. This causes poverty to persist and hence more inequality, which can lead to long-term loss of economic productivity from whole groups of society ([1]) and hamper inclusive and sustainable economic growth.

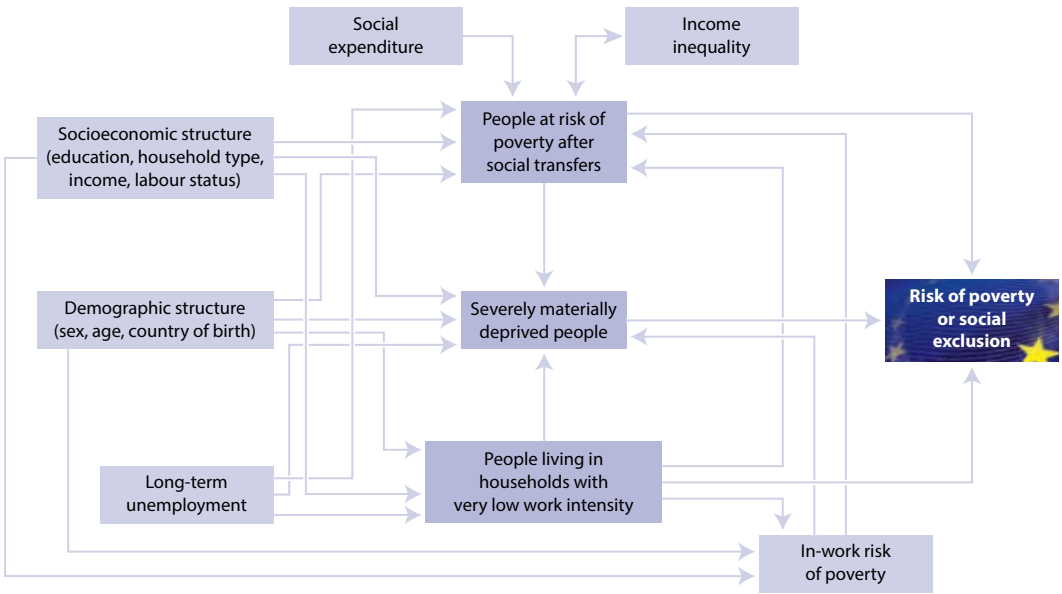
To prevent this downward spiral, the European Commission has made 'inclusive growth' one of the three priorities of the Europe 2020 strategy. It has set a target to lift at least 20 million people out of the risk of poverty and social exclusion by 2020. To underpin this objective, the European Commission has launched two flagship initiatives under the 'inclusive growth' priority: the 'Agenda for new skills and jobs' ([2]) and the 'European platform against poverty and social exclusion' ([3]).

Europe 2020 strategy target on the risk of poverty and social exclusion

The Europe 2020 strategy has set the target of 'promoting social inclusion, in particular through the reduction of poverty, by aiming to lift at least 20 million people out of the risk of poverty and exclusion' by 2020 ([4]).

The strategy's poverty target is monitored with the headline indicator 'People at risk of poverty or social exclusion'. This indicator is based on a multidimensional concept, incorporating three sub-indicators on monetary poverty ('People at

Figure 5.1: Indicators presented in the chapter and their links



risk of poverty after social transfers'), material deprivation ('Severely materially deprived people') and low work intensity ('People living in households with very low work intensity'). Due to the structure of the survey on which most of the key social data is based (EU Statistics on Income and Living Conditions (EU-SILC)), a large part of the main social indicators available in 2010 (when the Europe 2020 strategy was adopted) referred to 2008 as the most recent year of data available ([5]). This is the reason for using 2008 as a baseline year for monitoring progress.

Additional contextual indicators are used to present a broader picture and show the drivers behind the changes in the headline indicator. They break down the top-level indicator by sex, age, educational attainment level, household type, country of birth and labour status. They also help identify the groups most at risk and reveal how their vulnerability has changed over time. Some indicators refer to factors that put people at risk of poverty and social exclusion or support their emergence from this status. These include social protection expenditures and long-term unemployment, which are linked to employment indicators (see the 'Employment' chapter, p. 27).

Employment and education help people escape poverty. Thus, the EU's poverty target is interrelated with the other Europe 2020 targets. Achievement of the target to reduce the number of people at risk of poverty and social exclusion therefore also depends on successful implementation of the priorities and actions addressing the other targets.

How do poverty and social exclusion affect Europe?

The headline indicator 'People at risk of poverty or social exclusion' shows the number of people affected by at least one of three forms of poverty: monetary poverty, material deprivation or low work intensity. People can suffer from more than one dimension of poverty at once. To calculate the headline indicator people are counted only once even if they are present in more than one sub-indicator (for more details see p. 136).

As shown in Figure 5.2, the number of people at risk of poverty or social exclusion had been decreasing steadily before the economic crisis. The indicator reached its lowest level in 2009 with about 114 million people at risk of poverty or social exclusion in the EU. However, the number of affected people grew again in the following years. The serious impact of the economic crisis on Member States' financial and labour markets was the most likely cause (see the 'Employment' chapter, p. 27).

Automatic stabilisers and other discretionary measures were used to help cushion the recession's negative social effects. By 2011 almost 120 million people — about 24 % of the EU population — were at risk of poverty or social exclusion. This means almost one

Box 5.1: Measuring poverty in absolute and relative terms

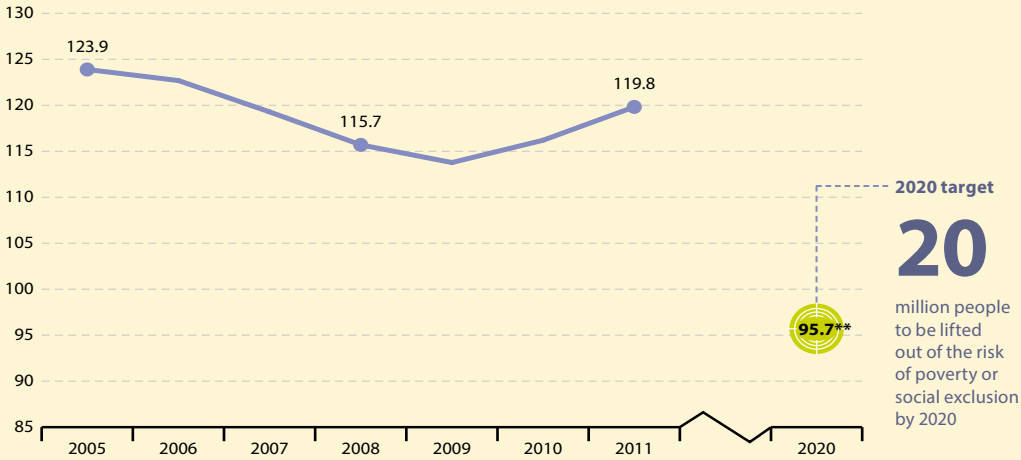
Absolute poverty refers to the deprivation of basic human necessities for survival, such as food, clean water, clothing, shelter, health care and education. The poverty line is considered the same for different countries, cultures and technological levels. For example, absolute poverty can be measured as the number of people eating less food than is needed to sustain the human body ([6]).

Relative poverty occurs when someone's standard of living and income are much worse than the general standard in the country or region where they live. They may struggle to live a normal life and to participate in ordinary economic, social and cultural activities. Relative poverty depends on the standard of living enjoyed by the majority in the country. For example, it can be measured by the number of people living below a country-specific poverty threshold. Relative poverty measures are often closely linked to inequality ([6]).

EUROPE 2020 HEADLINE INDICATOR

Europe 2020 headline indicator

Figure 5.2: People at risk of poverty or social exclusion, EU-27, 2005–2011 (*)
(Million people)



(*) Eurostat estimates — 2005 and 2006.
(**) The overall EU target is to lift at least 20 million people out of the risk of poverty and exclusion by 2020. Due to the structure of the survey on which most of the key social data is based (i.e. EU Statistics on Income and Living Conditions), a large part of the main social indicators available in 2010, when the Europe 2020 strategy was adopted, referred to 2008 as the most recent year of data available. This is the reason why monitoring of progress towards the Europe 2020 strategy's poverty target takes 2008 as a baseline year.

Source: Eurostat (online data code: t2020_50)

Box 5.2: What is social exclusion?

Social exclusion can be defined as 'a process whereby certain individuals are pushed to the edge of society and prevented from participating fully by virtue of their poverty, or lack of basic competencies and life-long learning opportunities, or as a result of discrimination. This distances them from job, income and education and training opportunities, as well as social and community networks and activities. They have little access to power and decision-making bodies and thus often feel powerless and unable to take control over the decisions affecting their day-to-day lives' ([7]).

in four people in the EU experienced at least one of the three forms of poverty or social exclusion.

The current economic situation poses a major challenge to policy makers trying to fight poverty and ensure social inclusion. The emphasis needs to shift from short-term measures to structural reforms in order to spur economic growth, promote high levels of employment (tackling in-work poverty), guarantee adequate social protection and access to quality services (such as healthcare, childcare, housing). Social policies alone cannot deliver on the Europe 2020 poverty target. This objective must be underpinned by other public policies in the economic, employment, tax and education fields ([8]).

The number of people at risk of poverty or social exclusion has increased in most Member States

To meet the overall EU target on risk of poverty and social exclusion, Member States have set their

own national targets ([9]) in their National Reform Programmes. As noted in the European Council conclusions from 17 June 2010 ([4]), Member States are free to set their own targets based on the most appropriate indicators for their circumstances and priorities. In most countries the target is expressed as an absolute number of people to be lifted out of the risk of poverty or social exclusion compared to the level in 2008. As mentioned earlier this base year is also used for the overall EU target ([5]).

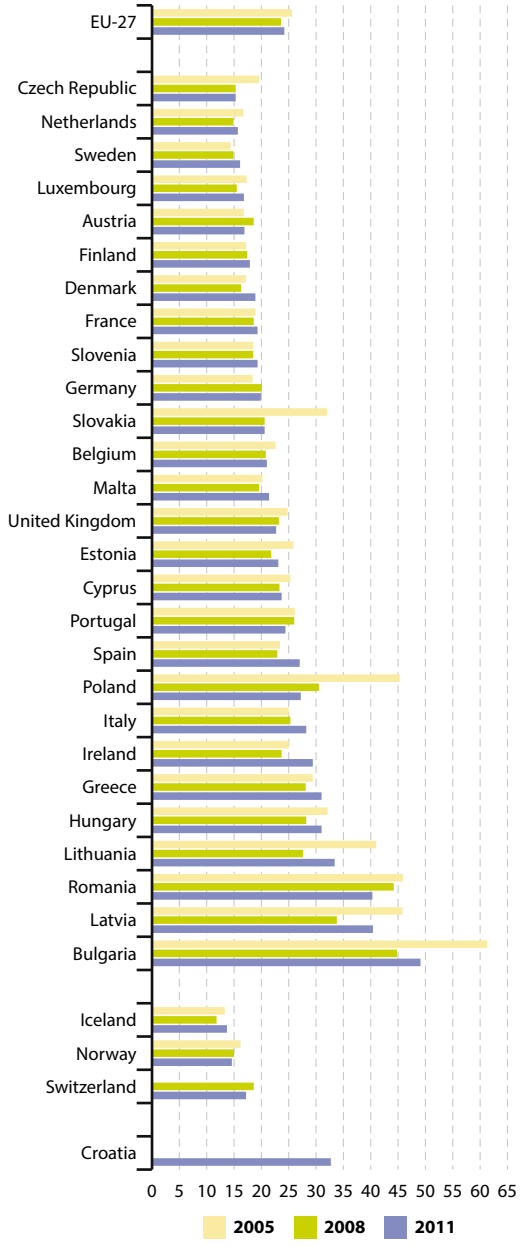
Most countries have experienced an increase in the number of people at risk of poverty or social exclusion since 2008, widening the gap to their national targets. Poverty levels have improved in only a few countries. Germany and Romania had already reached their national targets by 2011. The other Member States remain some distance from their targets. These range from more than four million people in Italy to about 14 500 people in Malta.

Overall, 24.2 % of people in the EU were at risk of poverty or social exclusion in 2011. However, this conceals considerable variations among Member States in both the level and dynamics of this indicator (see Figure 5.3). In Bulgaria almost half of the population (49.1 %) was living at risk of poverty or social exclusion in 2011. In the Czech Republic, the Netherlands and Sweden the rate was about three times lower.

In the EU as a whole, and in most Member States, the number of people at risk of poverty or social exclusion reached its lowest level in 2009 before growing again. During the time period 2005 to 2011 there were significant differences between Member States. Some countries have made clear progress in integrating their most vulnerable members into society. For example, Poland, Slovakia, the Czech Republic and Bulgaria reduced the number of people at risk of poverty or social exclusion by 20 % to 40 %. A number of countries have experienced less inclusive growth. In Ireland, Spain, Italy, Sweden and Denmark the proportion of the population at risk of poverty or social exclusion increased by 10 % to 20 %.

One reason for the disparity in poverty rates across the EU is the uneven impact of the economic crisis on Member States. Differences in the structure of

Figure 5.3: People at risk of poverty or social exclusion, by country, 2005, 2008 and 2011 (*)
(% of population)



(*) EU-27 data for 2005 are estimates; 2006 data (instead of 2005) for BG; 2007 data (instead of 2005) for RO; break in series in 2008 for BG, FR, CY, LV, PL and in 2011 for LV.

Source: Eurostat (online data code: t2020_50)

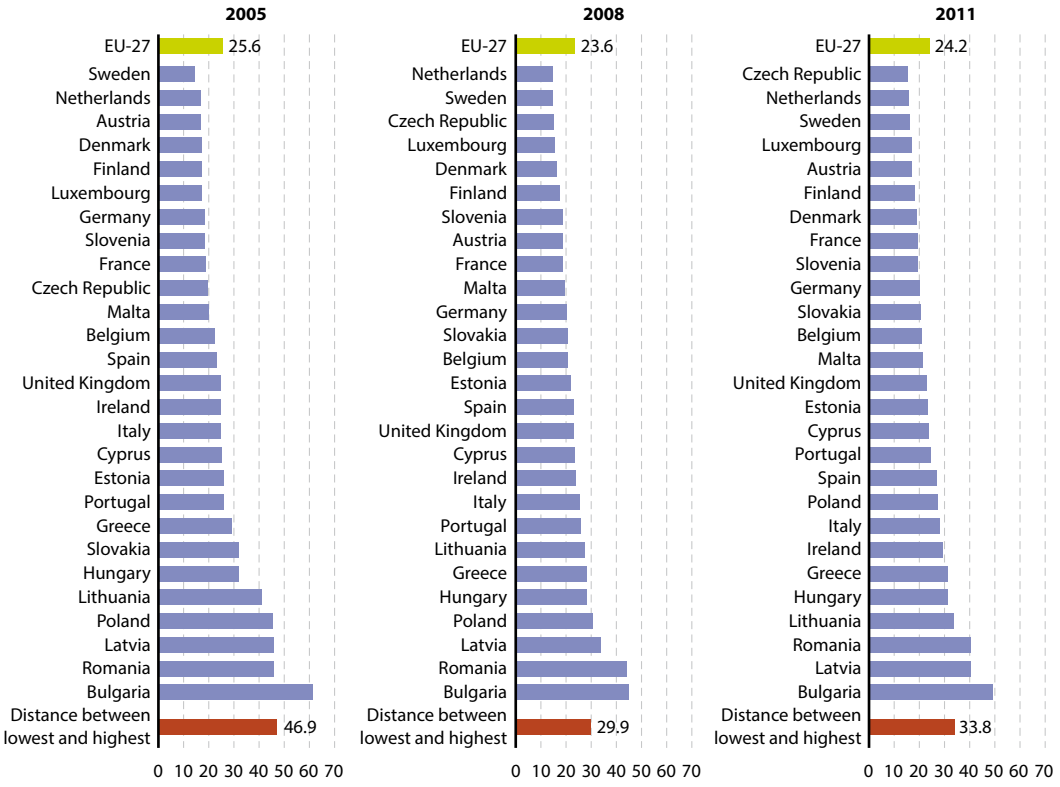
labour markets, welfare systems, the fiscal position and fiscal consolidation measures have also played a role ([10]) (see the 'Employment' chapter, p. 27).

In this respect, a link between the average risk of poverty and social exclusion at EU level and the disparities across the EU can be observed: the higher the average percentage of people at risk in the EU as a whole, the higher the distance between the lowest and the highest percentage observed across the Member States (see Figure 5.4). This growing divergence of inequality and poverty levels between Member States has raised serious concern. In particular, a persistent widening of the gap in social exclusion levels could lead to a dangerous polarisation within the EU ([8]).

Which groups are at greater risk of poverty or social exclusion?

Compared with the EU average, some groups are at a higher risk of poverty and social exclusion. The most affected are women, young people, people living in single-parent households, lower educated people and migrants. EU policies aimed at

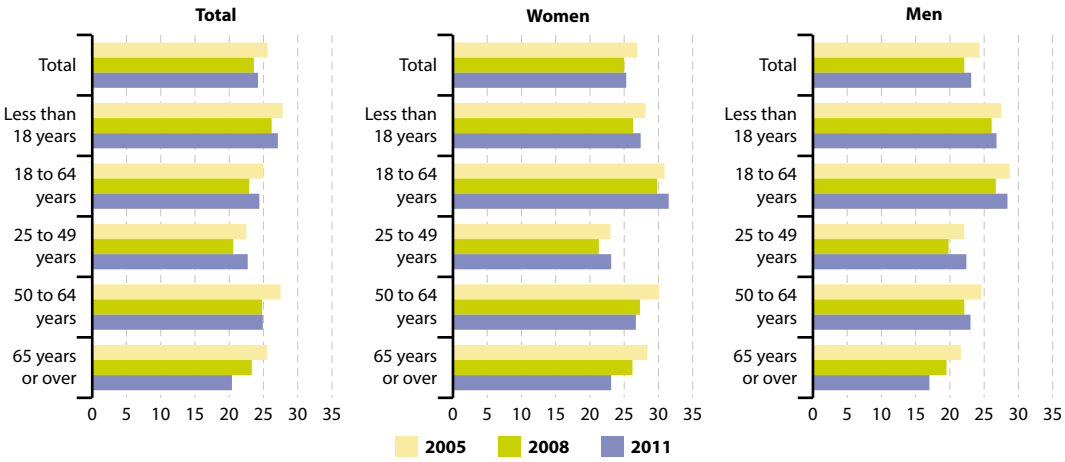
Figure 5.4: People at risk of poverty or social exclusion, 2005, 2008 and 2011, ranking of countries (*)
(% of population)



(*) EU-27 data for 2005 are estimates; 2006 data (instead of 2005) for BG; 2007 data (instead of 2005) for RO; break in series in 2008 for BG, FR, CY, LV, PL and in 2011 for LV.

Source: Eurostat (online data code: t2020_50)

Figure 5.5: People at risk of poverty or social exclusion, by sex and age group, EU-27, 2005, 2008 and 2011 (*)
(% of population)



(*) Data for 2005 are estimates.

Source: Eurostat (online data code: ilc_peps01)

reducing the number of people at risk therefore tend to focus on these groups. They call on Member States to define and implement measures to address their specific circumstances ([11]).

Women are more likely to live in poverty and social exclusion than men

In 2011, 25.3 % of women were at risk of poverty or social exclusion across the EU compared to 23.1 % of men, an EU-wide gender gap of 2.2 percentage points. Women were worse off in all countries except Estonia. The gaps were highest in Sweden, Cyprus and Slovenia at more than 3.7 percentage points. Estonia and Lithuania were the most egalitarian countries with gender gaps of less than or around 0.4 percentage points.

The disparities between women and men become more distinct when looking at individual age groups. Among men, the young aged 18 to 24 were most at risk (28.4 %) in 2011 compared with older people aged 65 or over (17.0 %). In contrast, women were more likely to be at risk in all age groups (see Figure 5.5). The risk of poverty or social exclusion was most unequal among the older groups aged 50 or over.

Young people aged 18 to 24 are more at risk

For both men and women, young people aged 18 to 24 are the most likely to be at risk of poverty or social exclusion. Almost 30 % were at risk in 2011 (28.4 % for men and 31.5 % for women). People in the age group less than 18 years were the next most at risk, at 27.1 %. Moreover, the situation for young people aged 18 to 24 has not improved compared to 2005. Although their risk of poverty or social exclusion had been falling until 2009, it climbed back in the following years to the level observed in 2005.

In contrast, older people aged 65 or over showed the lowest rates of 20.4 % (17.0 % for men and 23.1 % for women) in 2011. The rates of this group have also shown a steady decline over the period 2005 to 2010 (see Figure 5.5). As a result the age gap has widened over the past years. This indicates the burden of the financial crisis has fallen more heavily on those already belonging to the most vulnerable groups of society.

The widening of the gap between young people aged 18 to 24 and older people aged 65 or over is also observable for most Member States. Between 2008 and 2011, in almost all Member States,

except for Sweden, Poland and Germany, the gap increased, in some cases massively. In Latvia, the age gap changed by about 36 percentage points. This was due to the number of people at risk of poverty or social exclusion rising by 11 percentage points among young people and falling by 25 percentage points among the elderly (see the 'Employment' chapter, p. 27).

Single parents face the highest risk of poverty or social exclusion

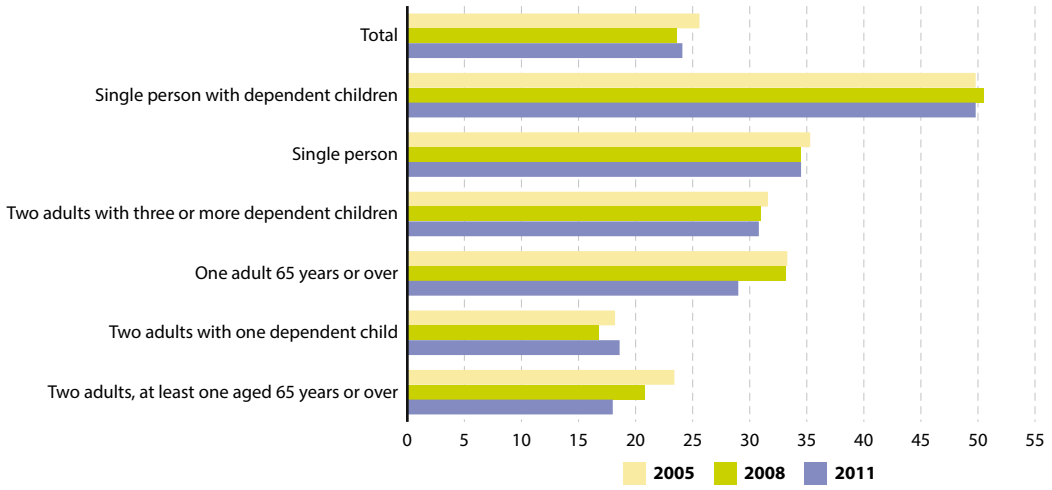
About 50 % of single people with one or more dependent children were at risk of poverty or social exclusion in 2011. This was double the average and higher than in any other household type or group analysed. Figure 5.6 shows that the situation for single parents at EU level has been stable since 2005. The group with the lowest poverty rate in 2011, and showing the most improvement since 2005, was households where at least one person was aged 65 years or over.

At the national level there were wide disparities among single parent households during the period 2005 to 2011. Between 2005 and 2008 the risk of poverty or social exclusion of single parent households decreased in most countries. Slovakia, Denmark, Poland, Estonia, Lithuania and the Netherlands experienced the biggest improvements, with decreases ranging between 18 and 10 percentage points. Changes in the at-risk rate were more diverse during 2008 to 2011. They ranged from a

Box 5.3: Education and employment policies targeting young people

The Europe 2020 strategy puts forward a flagship initiative focusing on young people. 'Youth on the move' aims to enhance the performance of education systems and help young people find work. This is to be done by raising the quality of all levels of EU education and training, promoting student and trainee mobility and improving the employment situation of young people ([12]).

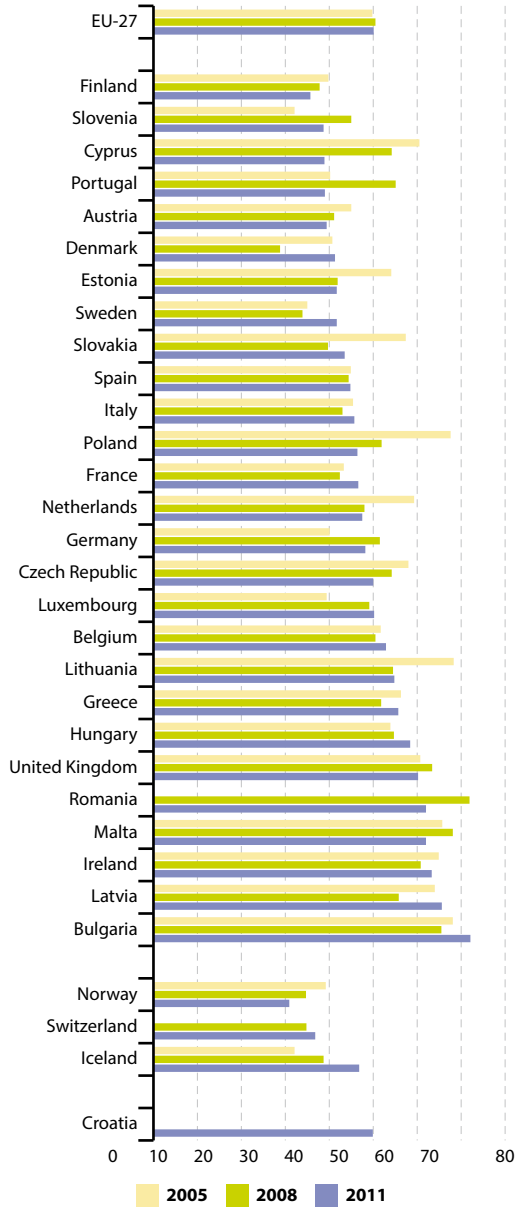
Figure 5.6: People at risk of poverty or social exclusion, by household type, EU-27, 2005, 2008 and 2011 (*)
(% of population)



(*) Data for 2005 are estimates.

Source: Eurostat (online data code: ilc_peps03)

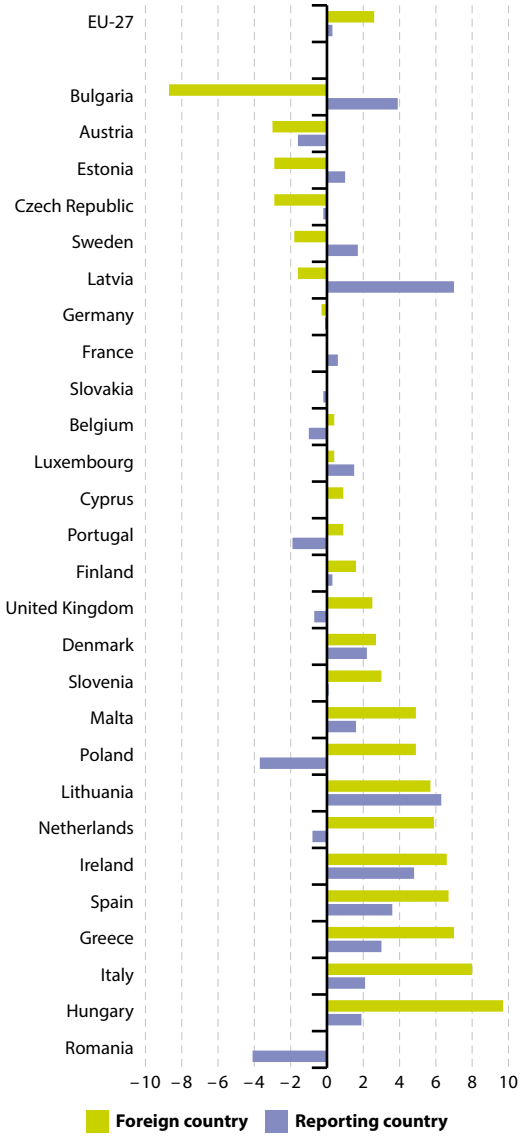
Figure 5.7: Single parents with dependent children at risk of poverty or social exclusion, EU-27, 2005, 2008 and 2011 (*)
(% of population)



(*) 2005 data for EU-27 are estimates, 2006 data for BG (instead of 2005); break in series in 2008 for FR, CY, LV, PL and in 2011 for LV.

Source: Eurostat (online data code: ilc_peps03)

Figure 5.8: Change in people at risk of poverty or social exclusion by origin, by country, 2008–2011 (*)
(percentage points)



(*) Positive values mean an increase in the number of people at risk of poverty or social exclusion, negative values mean a decrease; 'foreign country' covers people born in a different country than the one they are living in; 'reporting country' covers people born in the country in which they are living; EU-27 data for 'foreign country' are estimates; no data for RO for 'foreign country' due to the low data reliability.

Source: Eurostat (online data code: ilc_peps06)

Box 5.4: The flagship initiative 'A European platform against poverty' focusing on migrants' integration

The flagship initiative 'A European platform against poverty' incorporates policies focusing on integrating the most vulnerable groups of the population. It aims to provide innovative education, training and employment opportunities for deprived communities, fight discrimination and develop a new agenda to help migrants integrate and take full advantage of their potential. To underpin this, the initiative asks Member States to define and implement measures, addressing the specific circumstances of groups at particular risk, such as minorities and migrants ([3]).

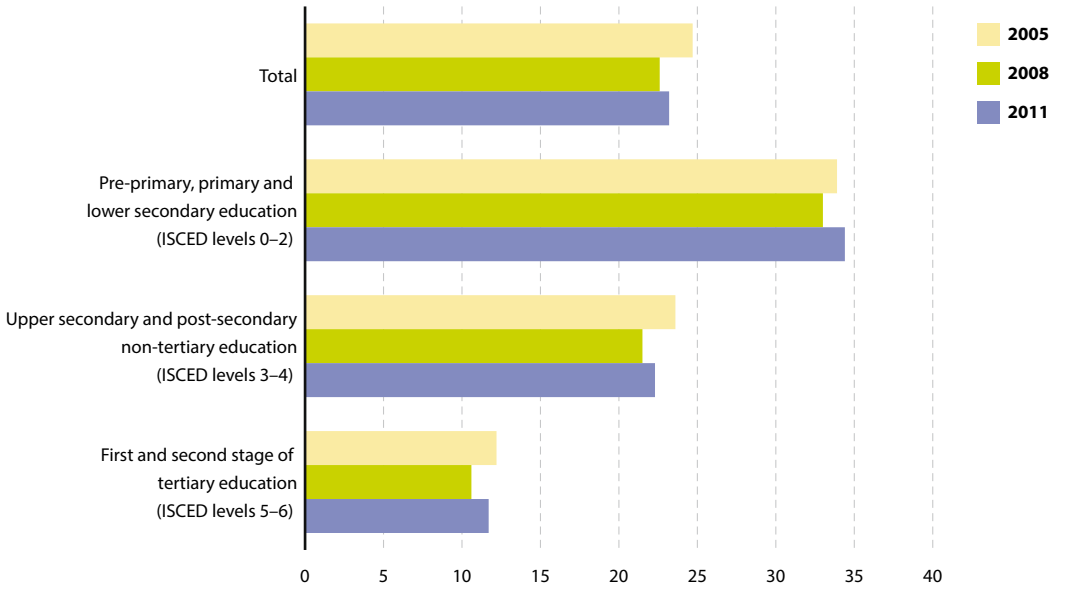
16.1 percentage point decrease in Portugal to a 12.5 percentage point increase in Denmark. The biggest increases took place in Denmark, Latvia, Sweden, Bulgaria and France, while the biggest falls were in Portugal, Cyprus, Romania, Slovenia and Malta.

In contrast, for households with two adults with at least one aged 65 or over, the at-risk rate decreased in most countries. Hence the absence of children seems to lower the risk of poverty or social exclusion.

Migrants are worse off than people living in their home countries

People living in the EU but in a different country from where they were born had a 32.6% risk of poverty or social exclusion in 2011. This is about 10 percentage points higher than for people living in their home countries. This 'origin gap' could be seen in most European countries in 2011, except

Figure 5.9: People at risk of poverty or social exclusion, by educational attainment, EU-27, 2005, 2008 and 2011 (*)
(% of population aged 18 and over)



(*) Data for 2005 are estimates.

Source: Eurostat (online data code: ilc_peps04)

Bulgaria. It was highest in Belgium, where the risk of poverty or social exclusion among migrants was 24.4 percentage points higher than for those born in the country. In 16 Member States, the risk of poverty or social exclusion among foreigners increased between 2008 and 2011 (see Figure 5.8). Hungary showed the highest increase of 9.7 percentage points. In contrast, in Bulgaria the risk decreased by 8.4 percentage points. This trend might be explained by the fact that migrants suffered the most from rising unemployment in the EU ([13]).

People with low educational attainment are three times more likely to be at risk

In 2011, 34.4 % of people with at most lower secondary educational attainment were at risk of poverty or social exclusion (see Figure 5.9). In comparison, only 11.7 % of people with tertiary education were in the same situation. This indicates that people with the lowest education levels were about three times more likely to be at risk than those with the highest education levels (also see the 'Education' chapter, p. 93).

A similar situation could be seen in Member States such as Sweden, Slovenia, the Netherlands, Luxembourg, Spain, Denmark, Hungary, Italy, Germany and Bulgaria. In these countries people with higher educational attainment were less affected by the rise in the poverty rate between 2008 and 2011. However, a better education did not necessarily protect everyone against the crisis. For example in Greece, Cyprus, Ireland and Lithuania the rate of poverty or social exclusion increased most among people with tertiary education.

The three dimensions of poverty

The 119.8 million people who were at risk of poverty or social exclusion in the EU in 2011 were affected by one or more dimensions of poverty (see Box 5.5).

As shown in Figure 5.10, monetary poverty was the most widespread form in 2011, with 83.5 million people living at risk of poverty after social transfers. This was followed by material deprivation, affecting 43.4 million people, and low work intensity, affecting 38.5 million people.

More than one-third affected by more than one dimension of poverty

About 38 million people, or almost 36 % of all people at risk of poverty or social exclusion, were affected by more than one dimension of poverty in 2011. Of these, 12.8 million people suffered from monetary poverty and material deprivation, 2.7 million were both materially deprived and living in households with very low work intensity, and 14.1 million were affected by low work intensity and monetary poverty. Another 8.0 million people were affected by all three forms (see Figure 5.10).

Divergent developments of the three forms of poverty

The three forms of poverty have developed in different ways over the past five years. Monetary poverty has not only been the most prevalent form, it has also shown the highest growth (see Figure 5.11). Since 2005 it has been increasing continuously. In contrast, the number of people living in deprived circumstances or in low-work-intensity households fell considerably over the period 2005 to 2008, by about 20 % and 12 % respectively. Growth in these two forms of poverty only started in 2009. This shows that improvements in the headline indicator between 2005 and 2009 (see Figure 5.2) can mainly be traced to the reduction in material deprivation and low work intensity. One possible reason for the divergence of monetary poverty on the one hand and material deprivation and low work intensity on the other is the different structure of the indicators (see Box 5.5).

Box 5.5: The headline indicator 'People at risk of poverty or social exclusion' combines three dimensions of poverty

Measuring poverty and social exclusion requires a multidimensional approach. Household income is a key determinant of standard of living, but other aspects preventing full participation in society such as access to labour markets and material deprivation also need to be considered. Therefore, the European Commission adopted a broad 'At-risk-of-poverty or social exclusion rate' indicator to serve the purposes of the Europe 2020 strategy. This indicator is an aggregate of three sub-indicators: (1) monetary poverty, (2) material deprivation and (3) low work intensity.

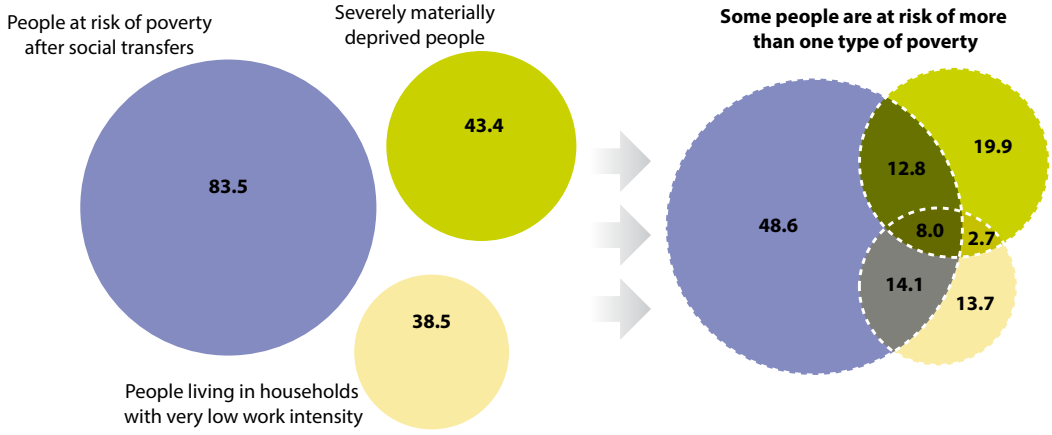
1. Monetary poverty is measured by the indicator 'People at risk of poverty after social transfers'. The indicator measures the share of persons with an equivalised disposable income below the risk-of-poverty threshold. This is set at 60% of the national median equivalised disposable income after social transfers. Social transfers are benefits provided by national or local governments, including benefits relating to education, housing, pensions or unemployment.

2. Material deprivation covers issues relating to economic strain, durables and housing and environment of the dwellings. Severely materially deprived persons have living conditions greatly constrained by a lack of resources and cannot afford at least four of the following: to pay their rent or utility bills, to keep their home warm, to pay unexpected expenses, to eat meat, fish or other protein-rich nutrition every second day, a week holiday away from home, to own a car, a colour TV or a telephone.

3. Very low work intensity describes the number of people aged 0 to 59 living in households where the adults worked less than 20% of their work potential during the past year.

Because there are intersections between these three dimensions, they cannot simply be added together to give the total number of people at risk of poverty or social exclusion. Some people are affected by two, or even all three, types of poverty. Taking the sum of each type would lead to cases being double-counted. This will become clearer when looking at the current numbers of people at risk of poverty or social exclusion (see Figure 5.10).

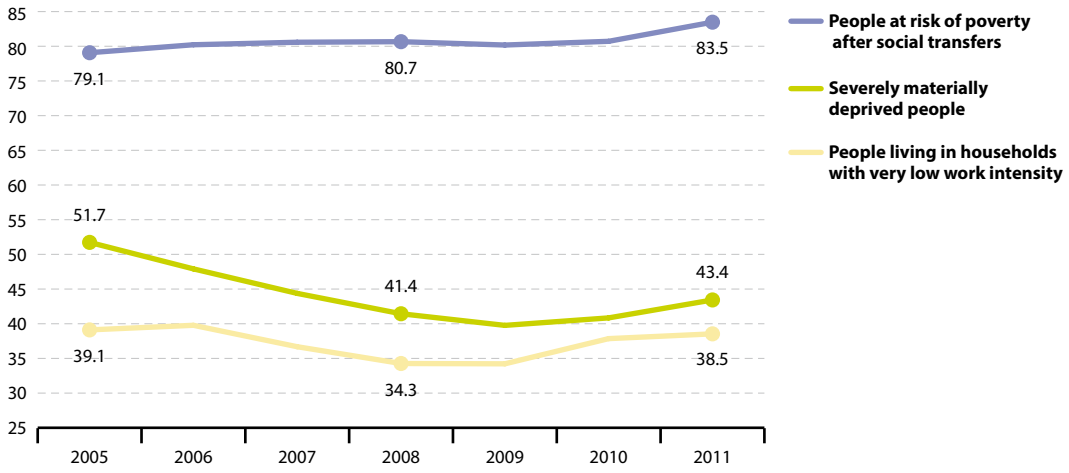
Figure 5.10 Aggregation of sub-indicators of 'People at risk of poverty or social exclusion', EU-27, 2011 (*)
(million people)



(*) People at risk of poverty or social exclusion: 119.8 million.

Source: Eurostat (online data codes: ilc_pees01, t2020_50, t2020_51, t2020_52 and t2020_53)

Figure 5.11: Sub-indicators of 'People at risk of poverty or social exclusion', EU-27, 2005–2011 (*) (million people)



(*) Data for 2005 and 2006 are estimates (all three sub-indicators); 2007 data for 'People at risk of poverty after social transfers' are estimates; 2009 data for 'Severely materially deprived people' are estimates.

Source: Eurostat (online data codes: t2020_51, t2020_52 and t2020_53)

While monetary poverty is measured in relative terms, material deprivation and low work intensity are absolute measures (see Box 5.1). The relativity of monetary poverty means the at-risk rate may remain stable or even increase even if a country's average or median disposable income increases. Absolute poverty measures, however, are expected to decrease during economic revivals.

Monetary poverty increased in over half of Member States

In 2011, 16.9 % of the EU population earned less than 60 % of their respective national median equivalised disposable income, the so-called 'poverty threshold'. This represents a slight increase compared with 2008, when the risk-of-poverty rate was 16.4 %.

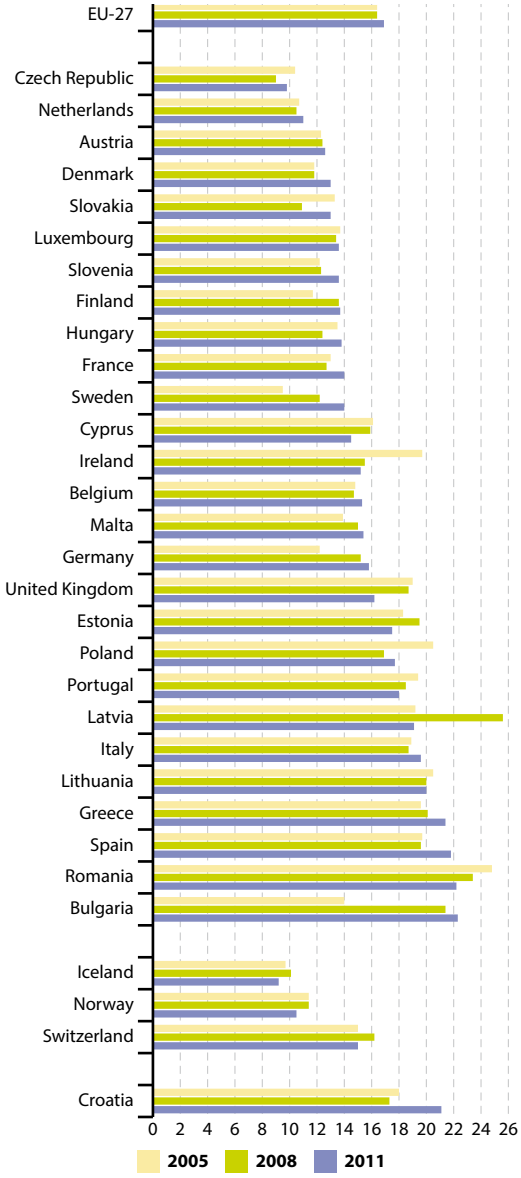
The increase did not take place in all countries (see Figure 5.12). Between 2005 and 2011 the number of people at risk of monetary poverty rose in 15 Member States and fell in the rest. In most countries this decrease took place between 2005 and 2008 and was halted or even reversed between 2008 and 2011 when the at-risk-of-poverty rate increased in most countries. The countries reporting the highest rates in 2011 were Bulgaria (22.3 %), Romania (22.2 %) and Spain (21.8 %). The best performing Member States for monetary poverty were the Czech Republic (9.8 %), the Netherlands (11.0 %) and Austria (12.6 %).

Impact of the poverty threshold

Monetary poverty is related to the disposable income after social transfers. It is reached when disposable income falls below a certain threshold. Hence, the number of people considered monetarily poor depends on the level at which the poverty threshold is set (see Table 5.1).

If the poverty threshold was set at 70 % of the national median disposable income, nearly one out of four people would be at risk of poverty. This holds for 2005, 2008 and 2011. If the threshold was set at 50 % or 40 %, then about 10 % or 5 % of the population would be at risk respectively. For poverty thresholds at 40 % and 50 %, the number

Figure 5.12: People at risk of poverty after social transfers, by country, 2005, 2008 and 2011 (*)
(% of population)



(*) EU-27 data for 2005 are estimates; 2007 data (instead of 2005) for RO and CH; break in series in 2008 for FR and CY, in 2010 for HR, and in 2011 for LV.

Source: Eurostat (online data code: t2020_52)

of people at risk of poverty slightly decreased in 2008 compared to 2005. And for all of these four thresholds the number of people at risk of poverty is higher in 2011 than in 2005 and 2008.

Single parents, large families, low educated and young people most affected

Single parenthood bears the biggest risk of monetary poverty. One out of three households in this group tended to be affected in 2011. The number of children also influences the risk, with one out of four large family households being touched. Single-wage and part-time employment may also cause monetary poverty ([14]). A lack of affordable childcare might prevent parents from fully participating in the labour market ([15]) (see 'Employment' chapter, p. 27).

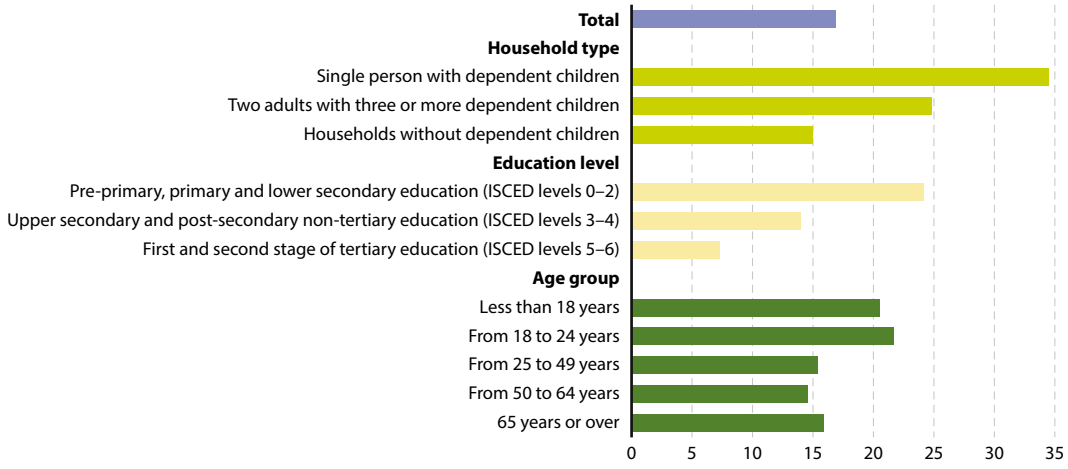
The higher risk of poverty of households with children is reflected in the fact that young people face a greater risk of living in poverty (see Figure 5.13).

Children and young people (age groups up to 24 years old) remained vulnerable groups in 2011. One out of five was at risk of poverty. Compared with 2008, the number of poor people aged 65 years or over has fallen by 3.1 percentage points but the amount of poor young people has risen. Among those aged less than 18 years and those aged 18 to 24, the number of poor people increased by 0.5 and 1.8 percentage points respectively.

The most vulnerable age groups vary between Member States. Commission analyses point to the persistent gender pay gap and the higher presence of women in precarious employment as possible reasons. While in 2011 in Romania and Spain children were most at risk and in Denmark young people (aged 18 to 24) were most at risk, in Cyprus and Bulgaria the elderly were the most at risk. The risk of suffering from monetary poverty is slightly higher for women in most Member States ([16]).

As with poverty and social exclusion, a low level of education is a major risk factor for monetary poverty. While in 2011 about 7 % of people with higher education were affected by monetary poverty, almost 25 % of people with lower education were affected. This could also be related to the

Figure 5.13: People at risk of poverty after social transfers, by age group, by household type and by educational attainment, EU-27, 2011 (*)
(%)



(*) For education the population is restricted to those aged 18 years and over.

Source: Eurostat (online data codes: ilc_li02, ilc_li03 and ilc_li07)

Table 5.1: People at risk of poverty after social transfers, by poverty threshold, EU-27, 2005, 2008 and 2011 (*)

Poverty threshold	People at risk of poverty after social transfers					
	2005		2008		2011	
	1 000 persons	% of population	1 000 persons	% of population	1 000 persons	% of population
40 %	27 099	5.6	25 470	5.2	28 238	5.7
50 %	48 590	10.1	48 029	9.8	50 876	10.3
60 %	79 070	16.4	80 661	16.4	83 472	16.9
70 %	116 881	24.2	119 110	24.3	121 215	24.5

(*) Data for 2005 are estimates.

Source: Eurostat (online data code: ilc_li02)

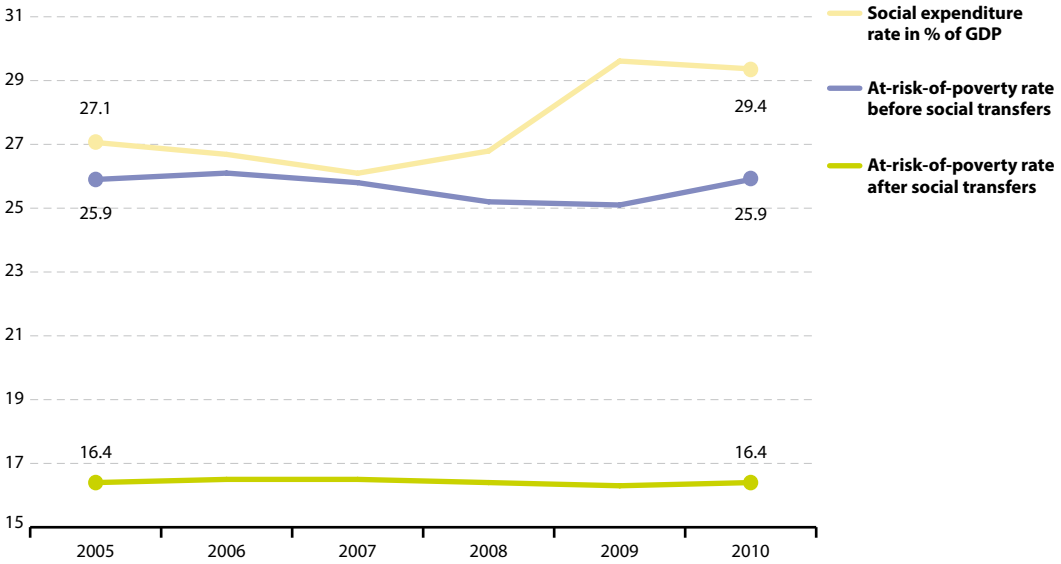
higher level of unemployment and in-work poverty among low-skilled workers (see 'Employment' chapter, p. 27).

Social expenditure helped prevent more monetary poverty

To support the needs of people at risk of poverty, governments provide social security in the form of social transfers. The effectiveness of social provision can be evaluated by comparing the at-risk-of-poverty rate before and after social transfers and considering social policy expenditures (see Figure 5.14). The amount of money spent on social assistance is a good indicator of income support expenditure ([17]).

The at-risk-of-poverty rate before social transfers had been declining slightly until 2009 before increasing to 25.9 % in 2010. However, the

Figure 5.14: Impact of social expenditure on the at-risk-of-poverty rate, EU-27, 2005–2010 (*)
(%)



(*) Eurostat estimates — At-risk-of-poverty rate after social transfers — 2005, 2006 and 2007; At-risk-of-poverty rate before social transfers — 2005 and 2006; Provisional data — social expenditure for 2009 and 2010; Pensions are excluded from social transfers.

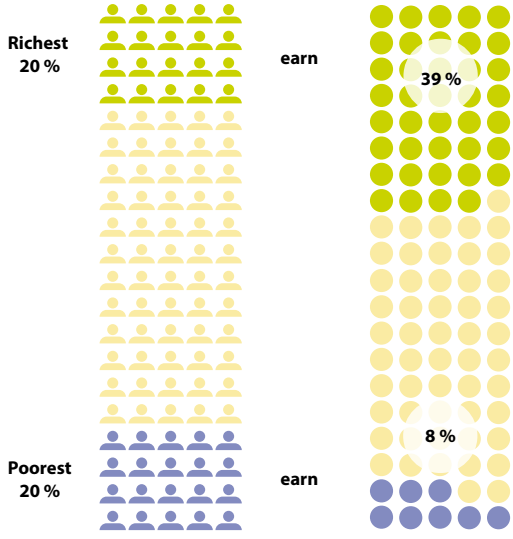
Source: Eurostat (online data codes: ilc_li02, ilc_li10, spr_exp_sum)

at-risk-of-poverty rate after social transfers has remained stable at around 16 %. To hold the latter steady, social protection expenditure in absolute terms has increased continuously since 2005. In relation to GDP social protection expenditure fell slightly until 2007 while GDP grew. The fall in GDP during the crisis of 2008 and 2009 prompted an increase in the social expenditure rate to 29.4 % in 2010. This relative increase helped to prevent more people from suffering from monetary poverty. In comparison, the social expenditure rate tended to decline during periods of economic recovery.

Inequality of income distribution remained stable

As with the number of people suffering from monetary poverty after social transfers, income inequality has also remained stable. To measure income inequality, the income quintile share ratio and the Gini coefficient ([18]) can be considered. Between 2008 and 2011, income inequality remained stable in the EU, with the richest 20 % of

Figure 5.15: Distribution of income by quintiles, EU-27, 2011
(%)



Source: Eurostat (online data code: ilc_di01)

the population earning about five times more than the poorest 20 % (see Figure 5.15).

There are considerable differences among Member States in the income quintile share ratio. In 2011 Spain, Bulgaria, Greece, Lithuania and Portugal recorded the highest inequality in income distribution. The total income of the richest 20 % in these Member States was seven times (for Spain and Bulgaria) or six times (for Greece, Lithuania and Portugal) higher than the income of the poorest 20 %. On the other hand Slovenia and the EFTA countries Norway and Iceland had income quintile share ratios below 3.5.

The Gini coefficient for the EU was 30.7 in 2011, a level similar to previous years (a coefficient of 100 expresses perfect inequality and a coefficient of 0 expresses perfect equality). Income inequality according to the Gini coefficient was again lowest in Norway, Slovenia and Sweden, with coefficients of less than 25. On the other hand, in Latvia, Bulgaria, Portugal and Spain the index exceeded the EU average by more than four percentage points, indicating relatively high income inequality in these countries.

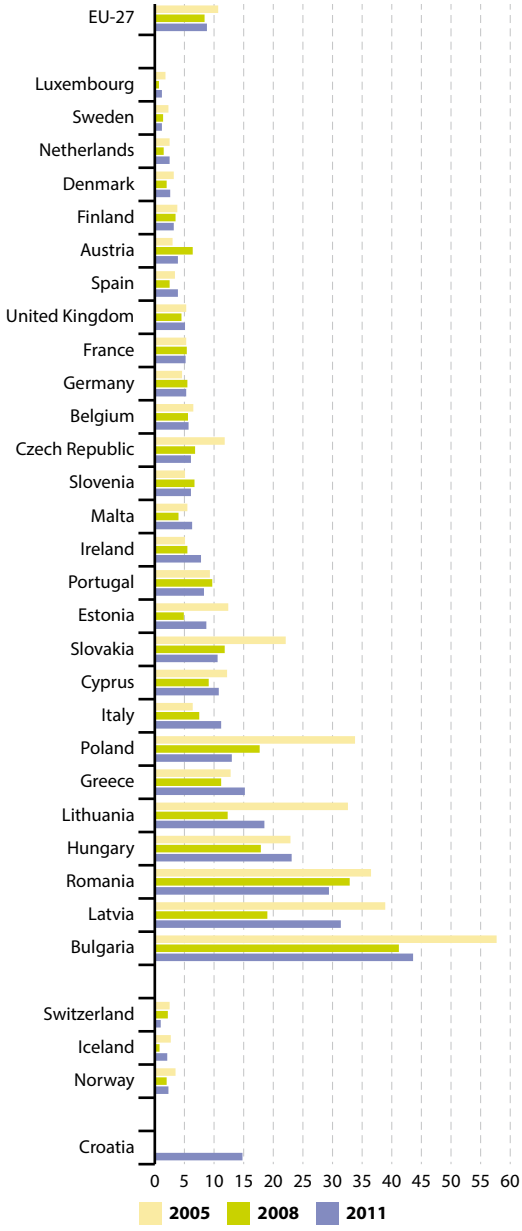
Material deprivation is the second most common form of poverty

Material deprivation covers issues relating to economic strain, durables and housing and environment of the dwellings. Severely materially deprived persons have living conditions greatly constrained by a lack of resources.

In 2011, 43.4 million people in the EU were living in conditions severely constrained by a lack of resources. This equalled 8.8 % of the total EU population or every eleventh person, making severe material deprivation the second most common form of poverty. The levels of severe material deprivation differed widely across the EU in 2011, from more than 40 % in Bulgaria to as low as 1.2 % in Luxembourg and Sweden (see Figure 5.16).

A combination of factors are likely to cause these persistent disparities between Member States. Differences in living standards, levels of development and social policies all play a part ([19]).

Figure 5.16: Severely materially deprived people, by country, 2005, 2008 and 2011 (*) (% of population)



(*) Eurostat estimates — EU-27 data for 2005, 2006 and 2009; 2006 data (instead of 2005) for BG; 2007 data (instead of 2005) for CH and RO; break in series in 2008 for CY and in 2011 for LV.

Source: Eurostat (online data code: t2020_53)

In a few Member States poor living conditions seem to be a much more serious problem than monetary poverty. For example, in Bulgaria the proportion of people living in severely deprived conditions was almost twice as high as the share living in monetary poverty. To a lesser extent, a similar situation could also be observed in Latvia, Romania and Hungary. On the other hand, in a number of countries with higher standards of living such as Sweden, Luxembourg and Denmark, monetary poverty rates appear high.

Since 2005 the number of people living in severe material deprivation has remained stable or decreased slightly in countries with initially low rates below 5% such as Sweden, Luxembourg, or the Netherlands. It has substantially fallen in countries with high rates of 30% or more such as Bulgaria, Lithuania and Romania. The only Member State where it has significantly increased is Italy.

Since 2008, the number of materially deprived people has decreased in 11 countries. The most distinct improvements took place in Austria, Poland, Portugal and Romania. In the other 16 Member States, the number of people living in severe materially deprived circumstances grew between 2008 and 2011 with the highest increases in Italy, Spain and Greece.

Women and young people more affected

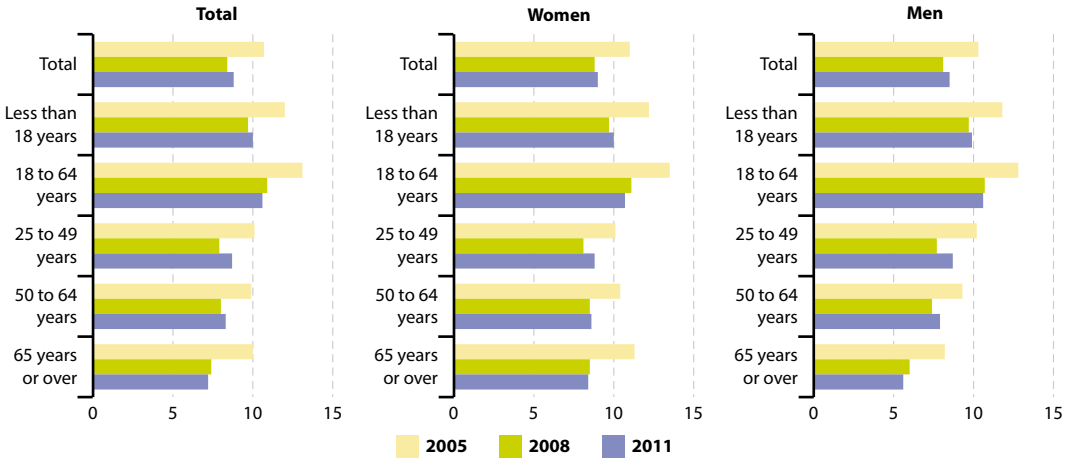
As is the case for the other indicators analysed in this chapter, women and people aged 18 to 24 were the most affected by material deprivation in 2011. Figure 5.17, illustrating the rates of materially deprived people among different age groups and by gender, shows age disparities were greater for men. Moreover men aged 65 years or over were better off than any other group in 2011.

Single parents, poorly educated and migrants were worse off

People living in single households especially with children, in large households and those who are poorly educated or foreigners were the most vulnerable to material deprivation (see Figure 5.18).

Figure 5.17: Severe material deprivation rate, by sex and age groups, EU-27, 2005, 2008 and 2011 (*)

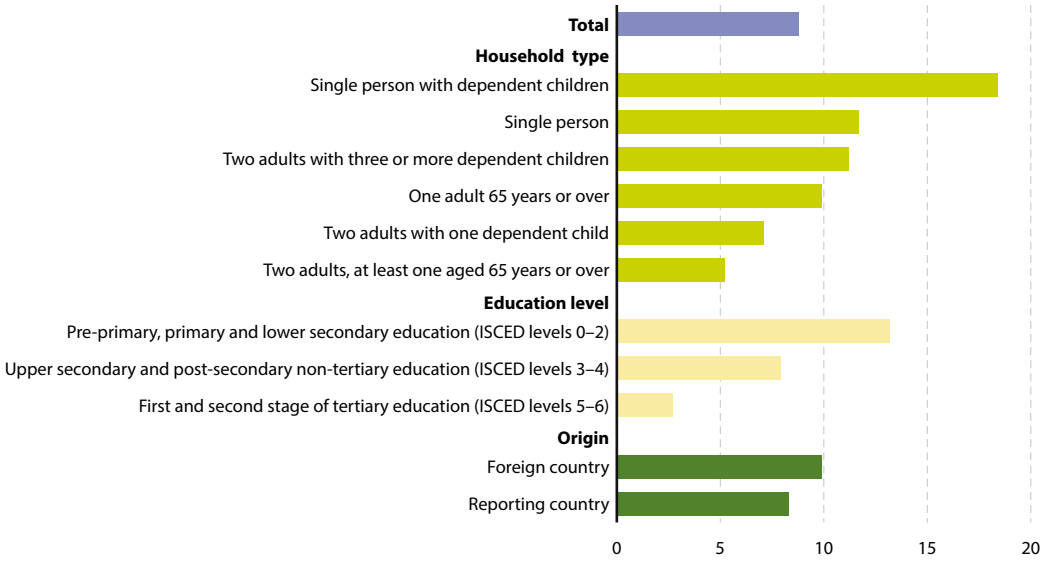
(%)



(*) Eurostat estimate — 2005.

Source: Eurostat (online data code: ilc_mddd11)

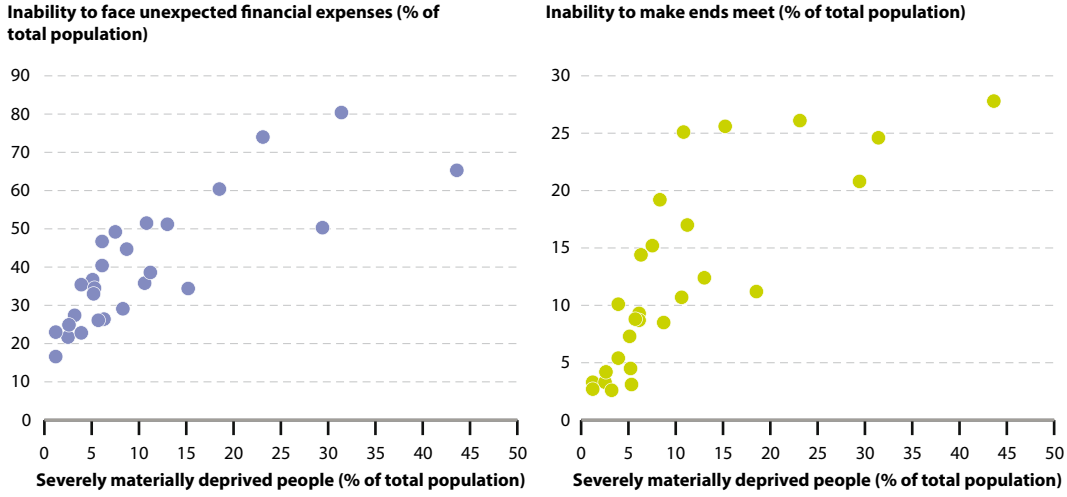
Figure 5.18: Severe material deprivation rate by household type, education level and country of birth, EU-27, 2011 (*)
(%)



(*) For education the population is restricted to those 18 years and over; data for 'foreign country' are estimates.

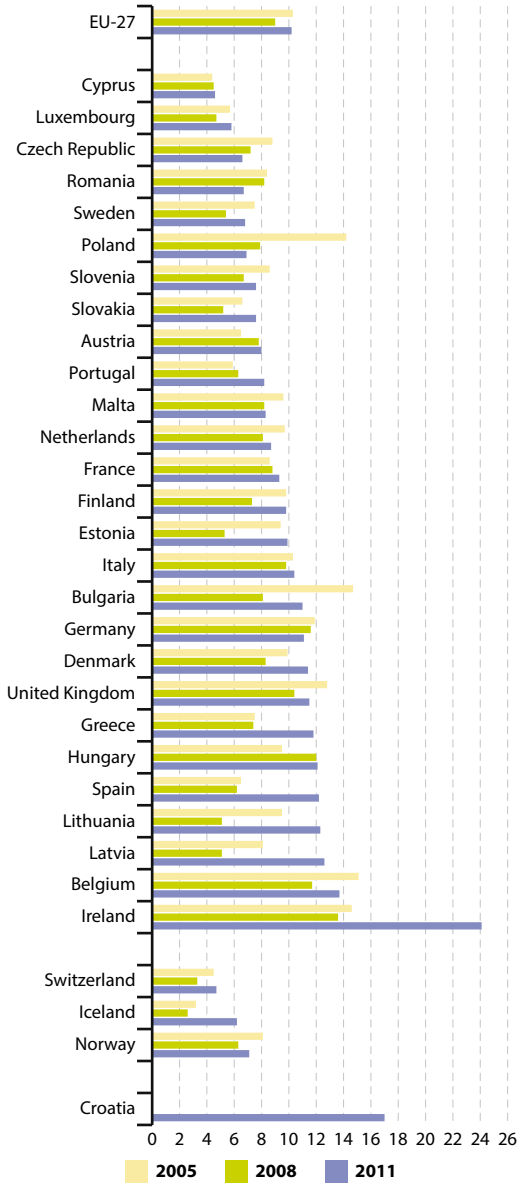
Source: Eurostat (online data codes: ilc_mddd13, ilc_mddd14 and ilc_mddd16)

Figure 5.19: Relation between severe material deprivation, inability to face unexpected financial expenses and inability to make ends meet, by country, 2011
(% of total population)



Source: Eurostat (online data codes: ilc_mdes04, ilc_mdes09 and ilc_mddd11)

Figure 5.20: People living in households with very low work intensity, by country, 2005, 2008 and 2011 (*)
(% of population aged 0 to 59)



(*) EU-27 data for 2005 are estimates; 2006 data (instead of 2005) for BG; 2007 data (instead of 2005) for RO and CH; provisional data — 2006 for BG; break in series in 2008 for BG, CY and in 2011 for LV.

Source: Eurostat (online data code: t2020_51)

Inability to face unexpected financial expenses or to make ends meet

Material deprivation can threaten a person's existence or make them fear that their existence is threatened. They may feel unable to face unexpected financial expenses or to make ends meet (the ability to pay for their usual expenses). In 2011 about 38 % of the EU population reported that their household was not able to face unexpected expenses. About 10 % declared they had great difficulties making ends meet. As shown in Figure 5.19, material deprivation is often associated with these concerns. In countries with fewer severely materially deprived people, more could afford unexpected or usual expenses. Countries with more materially deprived people were more likely to exhibit higher numbers of people unable to face unexpected expenses or make ends meet.

Lack of access to labour lowers income security

In 2011, 10.2 % (or 38.5 million) of the EU population aged 0 to 59 were living in households with very low work intensity. This means the working age members of the household worked less than 20 % of their potential during the previous year. Across Europe, this figure ranged from less than 6 % in Cyprus and Luxembourg to more than 13 % in Belgium and Ireland (see Figure 5.20). Lack of access to labour increased between 2005 and 2006 before declining between 2006 and 2008. It then remained stable for one year but started to increase again gradually in parallel with the rising unemployment levels as a result of the crisis. Between 2008 and 2011 Latvia, Lithuania, Spain and Estonia reported the highest increases in the amount of households with very low work intensity (147 %, 141 %, 97 % and 87 % respectively). The biggest improvements were observed in Romania (– 18 %) and Poland (– 13 %).

Some countries reported that the share of people living in households with very low work intensity increased by a similar amount to the decrease in the employment rate in the same period. In some cases such as Greece and Spain the increase was

even stronger. This trend indicates that a deterioration in employment rates has the biggest effect on the most vulnerable households ([20]) (see 'Employment' chapter, p. 27).

In many countries the rate of lack of access to labour does not seem to correspond to the extent of the other forms of poverty or social exclusion: material deprivation and monetary poverty. Ireland, for example, in 2011 had a high proportion of households with very low work intensity (24.1 %) despite its risk of monetary poverty (15.2 %) being below the EU average. In contrast, Bulgaria had the highest proportion of its population living at risk of monetary poverty, although its share of households with very low work intensity was only slightly above the EU average.

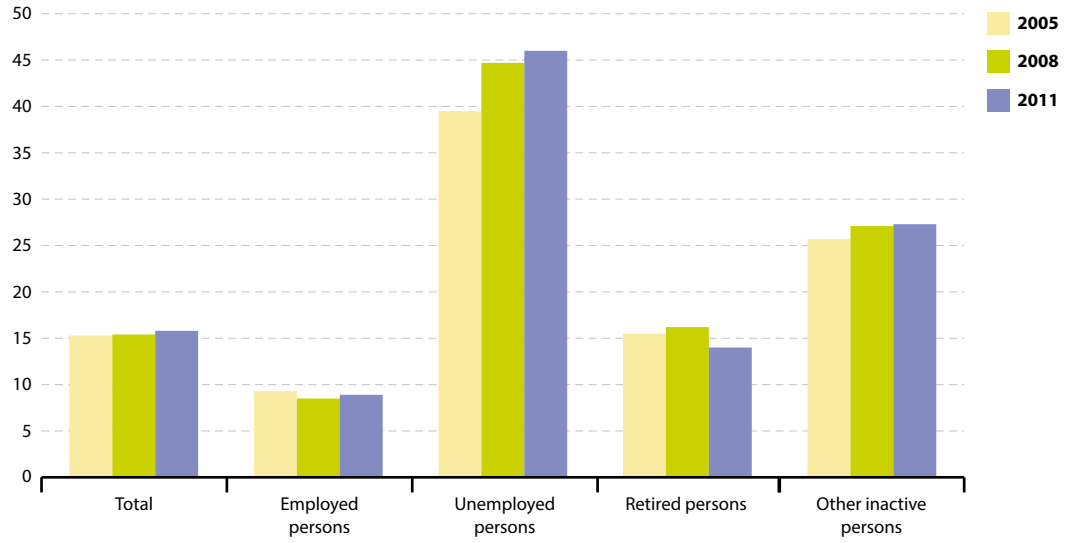
Work intensity lowest for single parents and single households

In many cases, low work intensity means low income. In 2011, one out of every three people in the lowest income quintile in the EU was living in a household with very low work intensity. This figure increases to one in two for single people and almost one in two for single parent households in this lowest income quintile.

In 2011 single parents were 2.5 times more likely to live in a household with very low work intensity than the average. However, unlike the other forms of poverty, large households with children were less likely to experience very low work intensity than single-person households. Single people were twice as likely to live in a household facing problems accessing labour than the average. The most vulnerable groups for labour exclusion were therefore single parents and single people. A quarter of single-parent households and 20 % of single households were affected by very low work intensity in 2011.

Education is one of the keys to lifting people out of poverty. People with a low level of education find it hardest to gain work. In 2011 nearly 20 % of this group were living in a household with very

Figure 5.21: At-risk-of-poverty rate, by economic activity, EU-27, 2005, 2008 and 2011 (*)
(% of population aged 18 or over)



(*) Data for 2005 are estimates.

Source: Eurostat (online data code: ilc_li04)

low work intensity. This represents an increase of 3.6 percentage points since 2008. Migrants, especially women, also face greater difficulty finding work. In 2011, 17.2% of women originating from a country outside the EU lived in households with low work intensity. With regard to gender and age groups, women aged 25 to 59 are the most vulnerable to low work intensity.

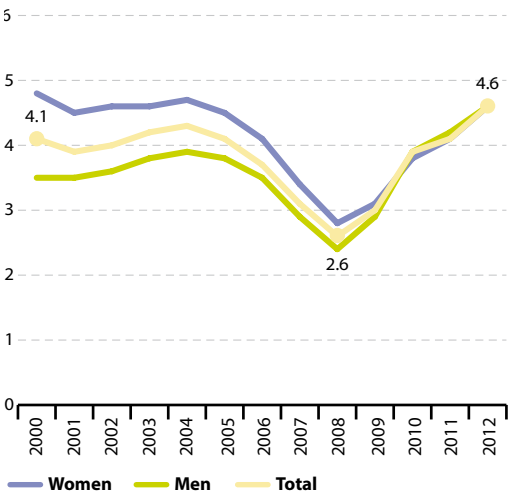
Lack of work drives monetary poverty and material deprivation

As depicted in the 'Employment' chapter (p. 27), unemployment and economic inactivity are major drivers of monetary poverty and material deprivation. Figure 5.21 illustrates the variations of the risk of monetary poverty by economic activity and the shifts between 2005, 2008 and 2011.

Being unemployed poses the highest risk of monetary poverty. In 2011 almost every second unemployed person was at risk of poverty after social transfers. Also, 27.3 % of other economically inactive people were at risk of poverty. With the exception of retired people, these risks have risen since 2008. For example, the at-risk-of-poverty rate of unemployed people increased from 44.7 % in 2008 to 46 % in 2011.

Long-term unemployed people have more difficulty finding work than those unemployed for shorter periods. As a result they face a particularly high risk of poverty and social exclusion. Figure 5.22 shows that in 2012 4.6 % of the economically active population had been unemployed for longer than a year. This is the highest level over the past decade. It also represents a considerable worsening of the situation compared with five years before, when the long-term unemployment rate had been at a low of 2.6 %. In addition, differences between men and women have disappeared. This was particularly the case during the recent rise in long-term unemployment brought on by the economic crisis.

Figure 5.22: Long-term unemployment rate, by sex, EU-27, 2000–2012
(%)



Source: Eurostat (online data code: tsdsc330)

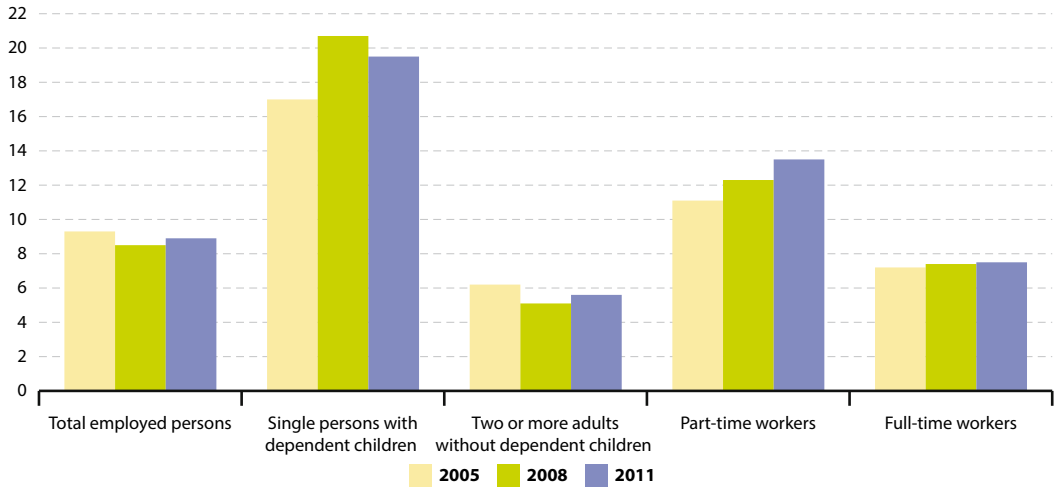
People in work can also be affected by poverty

Poverty and social exclusion do not only affect those who are economically inactive or unemployed. Some groups among those in work also face higher risks of being poor. The developments of income-related aspects of poverty and lack of access to labour are also interrelated with in-work poverty (see Figure 5.23).

Multi-person adult households without dependent children are much less at risk of in-work poverty than households with dependent children and single-person households. Those most at risk, however, are single parents. One out of five was affected in 2011. Part-time employment can also lead to this form of poverty.

In general men were more affected by in-work poverty than women (9.5 % compared with 8.3 % in 2011). The situation was the opposite for young workers aged 18 to 24 years. In this case women were more affected (12.2 % compared with 10.4 %). Of all age groups, young workers showed the highest in-work at-risk-of-poverty rates.

Figure 5.23: In-work at-risk-of-poverty rate, by household type, full-time and part-time work, EU-27, 2005, 2008 and 2011 (*)
(%)



(*) Eurostat estimates — 2005 data; 2005, 2008 and 2011 for 'Single persons with dependent children'.

Source: Eurostat (online data codes: ilc_iw01, ilc_iw02 and ilc_iw07)

Conclusions and outlook towards 2020

The European Commission has a goal to reduce the number of people at risk of poverty or social exclusion by 20 million by 2020 compared with 2008. Nevertheless, almost every fourth person in the EU was still at risk of poverty or social exclusion in 2011.

Monetary poverty is the most widespread form of poverty. The number of people at risk of poverty after social transfers in 2011 was 83.5 million or 16.9 % of the total EU-27 population. Next was material deprivation, covering 43.4 million people or 8.8 % of all EU citizens. The third dimension is low work intensity, with 38.5 million people experiencing it in 2011. This equals 10.2 % of the total population aged 0 to 59.

The year 2009 marks a turning point in the development of all three dimensions of poverty. While monetary poverty had been stable until 2009 and started to increase afterwards, the other two dimensions decreased considerably until 2009 and started to increase from then on.

Furthermore, the analysis shows that across all three dimensions of poverty, the same groups appear the most vulnerable: young people, single parents, households with many children, people with low educational attainment, and migrants.

Almost 30 % of young people aged 18 to 24 and 27.1 % of children aged less than 18 were at risk of poverty or social exclusion in 2011. Moreover, one out of five children and young people aged 18 to 24 were subject to monetary poverty.

Poverty also seemed to be much more pronounced for the less educated and migrants. About 35.0 % of adults with at most lower secondary educational attainment and 32.6 % of adults with a migrant background were in the group of high risk of poverty or social exclusion. Of all groups examined, single parents with one or more dependent children faced the greatest risk of poverty. They were the most affected by low work intensity (25.9 %), monetary poverty (34.5 %), in-work poverty

(19.4 %) and material deprivation (18.4 %). Overall, about 50 % of all single parents were at risk of poverty or social exclusion in 2011. This was double the average and higher than in any other household type or group analysed.

The development of the risk of poverty and social exclusion indicators also shows a growing gap between high-risk and low-risk groups since 2009. This suggests that the burden of the financial crisis has fallen more heavily on those who already belonged to the weakest groups.

Efforts needed to meet the Europe 2020 target on poverty and social exclusion

As the most widespread form of poverty, monetary poverty is one of the major challenges to achieving the Europe 2020 target. The proportion of people at risk of monetary poverty is closely linked to income inequality. This is not reduced by simply raising the average income. Therefore an area where action needs to be taken is social protection and improving the efficiency and effectiveness of income support ([21]).

To make progress towards the Europe 2020 poverty goal it will be particularly important to focus on groups of society that are at high risk of poverty and social inclusion.

Actions to be taken for this purpose have been outlined in the EU flagship initiatives 'Youth on the move', 'An Agenda for new skills and jobs' and 'European Platform against poverty'. Given poverty's multifaceted nature, integrated strategies are needed to effectively support those at risk of poverty, so they can fully participate in the economy. Challenges faced by the Member States can be analysed with reference to three aspects: adequate income support, inclusive labour markets and access to quality services. These are the pillars of a comprehensive strategy to fight against poverty that the European Commission has identified in its recommendation on active inclusion. Among the main tools for addressing income poverty are improving the effectiveness and efficiency of tax and benefit systems. The promotion of labour market inclusion requires not only removing entry barriers for particular marginalised groups (such as people with low skills, care responsibility, disability, migrant background or subject to other discriminatory factors), but also tackling in-work poverty. Access to quality services refers to services essential for healthy development and social inclusion such as childcare, housing, healthcare and education ([22]).

Notes

(1) European Commission, *Social trends and dynamics of poverty*, ESDE conference, Brussels, 2013.

(2) European Commission, *An Agenda for new skills and jobs: A European contribution towards full employment*, COM(2010) 682 final, Strasbourg, 2010.

(3) European Commission, *The European Platform against Poverty and Social Exclusion: A European framework for social and territorial cohesion*, COM(2010) 758 final, Brussels, 2010.

(4) European Council conclusions 17 June 2010, EUCO 13/10, Brussels, 2010.

(5) European Commission, *Social Europe — Current challenges and the way forward. Annual Report of the Social Protection Committee* (2012), Luxembourg: Publications Office of the European Union, 2013, (p. 12).

(6) European Anti-Poverty Network, *Poverty and inequality in the EU,* EAPN Explainer, 2009, (p. 5ff).

(7) European Commission (Directorate-General for Employment, Social Affairs and Inclusion), *Employment and Social Developments in Europe 2011*, Luxembourg: Publications Office of the European Union, 2012 (p. 144).

(8) European Commission, *Social Europe — Current challenges and the way forward*. Annual Report of the Social Protection Committee (2012), Luxembourg: Publications Office of the European Union, 2013, (p. 8).

(9) See http://ec.europa.eu/europe2020/pdf/targets_en.pdf.

(10) European Commission, *Social Europe — Current challenges and the way forward*. Annual Report of the Social Protection Committee (2012), Luxembourg: Publications Office of the European Union, 2013, (p. 18).

(11) European Commission, *Europe 2020 — A Strategy for smart, sustainable and inclusive growth*, COM(2010) 2020 final, Brussels, 2010.

(12) European Commission, *Youth on the Move: An initiative to unleash the potential of young people to achieve smart, sustainable and inclusive growth in the European Union*, Brussels, 2010.

(13) European Commission, *Social Europe — Current challenges and the way forward*. Annual Report of the Social Protection Committee (2012), Luxembourg: Publications Office of the European Union, 2013 (p. 17).

(14) European Commission, *The social dimension of the Europe 2020 strategy*. A report of the social protection committee, Luxembourg, 2011, (p. 21).

(15) European Commission, *The European Platform against Poverty and Social Exclusion: A European framework for social and territorial cohesion*, COM (2010) 758 final, Brussels, 2010, (p. 5).

(16) European Commission, *The social dimension of the Europe 2020 strategy*. A report of the social protection committee, Luxembourg, 2011, (p. 21).

(17) European Commission, *Europe 2020 Targets: Poverty and social exclusion*. Active inclusion strategies, (p. 4) (accessed 23 July 2013).

(18) The GINI coefficient measures the extent to which the distribution of income within a country deviates from a perfectly equal distribution. A coefficient of 0 expresses perfect equality where everyone has the same income, while a coefficient of 100 expresses full inequality where only one person has all the income.

(19) European Commission, *Social Europe — Current challenges and the way forward*. Annual Report of the Social Protection Committee (2012), Luxembourg: Publications Office of the European Union, 2013, (p. 27).

(20) European Commission, *Social Europe — Current challenges and the way forward*. Annual Report of the Social Protection Committee (2012), Luxembourg: Publications Office of the European Union, 2013, (p. 28).

(21) European Commission, *Improving the efficiency of social protection*, Lisbon, 2011, (p. 8).

(22) European Commission, *Europe 2020 Targets: Poverty and social exclusion*. Active inclusion strategies, (p. 5ff) (accessed 23 July 2013).

Country profiles

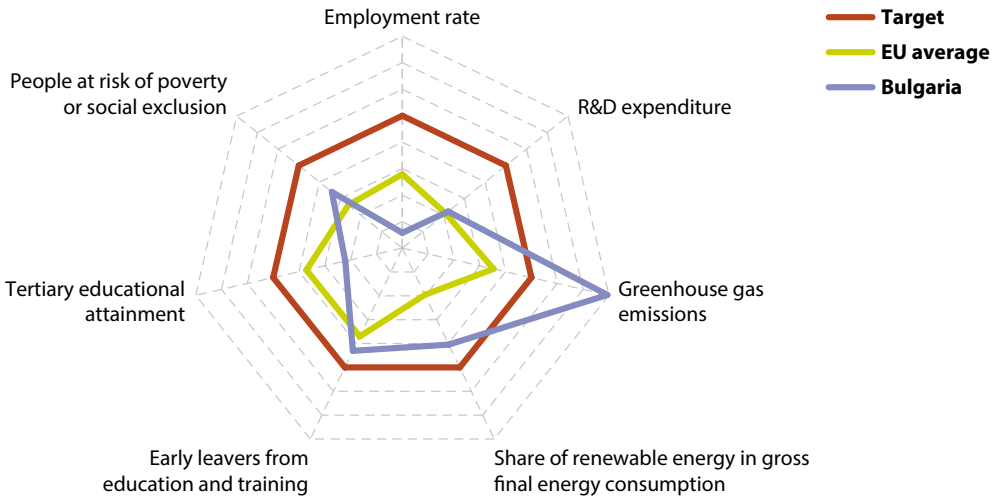
Country profiles

This section provides a detailed picture of the situation at national level in relation to the Europe 2020 headline indicators and national targets. As already mentioned in the introduction, the Member States have defined their national targets in their National Reform Programmes (NRPs), reflecting the current situation of each country.

The focus lies on summarising the state of play for each Member State in relation to its national targets. Examples of political actions at a national level, as part of the Europe 2020 strategy's governance mechanism (see the 'Introduction' chapter on p. 15 for a detailed description), complement the analysis. The NRPs outline the actions and measures planned in each country to make progress towards the national targets. They are supported by country-specific recommendations issued by the European Commission after the assessment of the national programmes. The complete NRPs and country-specific recommendations can be downloaded from the European Commission's Europe 2020 website.

The presentation of each country is supported by an illustration in the form of a radar chart. The chart shows the distance of a country to its national targets relative to the range of distances observed across all Member States and relative to the EU average. This means the closer a country is to the centre of the 'spider web' for an indicator, the further it is from the respective national target. Thus the country needs to make more effort than other Member States to meet its national target. On the other hand, the closer a country is to the outer red line of the spider web, the closer it is to its national target. Figures outside the outer red line mean the country has already met this target, thus showing the degree of 'overachievement'. The green line in the radar chart shows the aggregated EU-27 distance to the overall EU-level targets. The comparison of a country's performance with the green line reveals whether a country is performing better or worse than the EU as a whole. National targets that are not harmonised with the overall EU targets are not included. For example, this is the case for the national energy efficiency targets, because at the time of writing not all Member States had expressed their targets in absolute levels of primary and final energy consumption in 2020 as requested by the Energy Efficiency Directive.

The national targets (as defined in the NRPs) and the latest available national data for the headline indicators are presented in a separate table. Data on Europe 2020 headline indicators and related issues are disseminated by Eurostat in a dedicated section of its website.

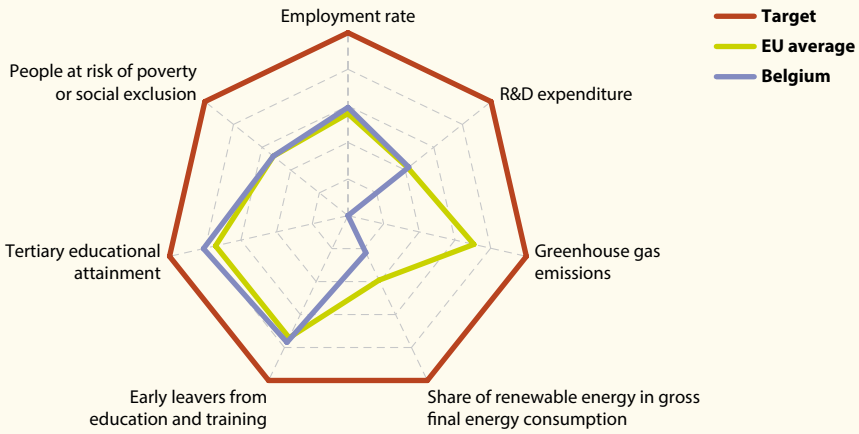


Belgium

State of play

The employment rate in Belgium has remained stagnant at about 67 % since the onset of the economic crisis in 2008. Although still at distance from its national targets, Belgium performed slightly better than the EU average in terms of reducing early leaving from education and training rates and increasing tertiary education levels and R&D intensity. The 25 % gap to its poverty target reflects recent increases in poverty rates. Despite the rapid uptake of renewable energy, from 2.3 % of gross final energy consumption in 2005 to 4.1 % in 2011, Belgium still lagged far behind its target. Furthermore, stronger progress than in the other Member States is needed if Belgium is to fulfil its GHG emissions commitments, as in 2010 Belgium was the country with the largest distance to its national target.

Figure 6.1: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.1: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	67.2	2012	73.2
Gross domestic expenditure on R&D (% of GDP)	2.04 (1)	2011	3
Greenhouse gas emissions (% change since 2005)	2	2010	– 15
Share of renewable energy in gross final energy consumption (%)	4.1 (1)	2011	13
Primary energy consumption (million tonnes of oil equivalent)	52.0	2011	:
Early leavers from education and training (% of population aged 18–24)	12	2012	9.5
Tertiary educational attainment (% of population aged 30–34)	43.9	2012	47
People at risk of poverty or social exclusion (thousands)	2 271	2011	1 814

(1) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: introduction of various reforms including traineeships, individual guidance and others, tailored especially at young job seekers, women and low-skilled workers; employment activation measures for individuals with migrant background.

R&D expenditure: Adoption of an action plan for boosting economic growth through R&D; continued fiscal support policy for R&D; support of various projects and initiatives in priority sectors: ICT, life science, environment and sustainable development; implementation of measures aimed at simplifying the institutional landscape for innovation.

GHG emissions: Establishment of a financial framework for achieving Belgium's GHG commitments through the creation of a Flemish Climate Fund; adoption of a Brussels' code for air, climate and energy (COBRACE); measures aimed at reducing emissions from transport.

Renewable energies: Adoption of an action plan for promoting renewable energy sources including quotas for green electricity certificates, framework for the development of an onshore wind energy, support for biomass and geothermal heat projects and others.

Energy efficiency: Achieving considerable reduction in energy consumption of buildings (residential, non-residential, private and public), including stricter energy consumption standards for new buildings, improved and more transparent energy certification, insulation standards and energy subsidies for existing buildings, information and awareness raising campaigns for energy savings.

Early school leaving: Launch of a new comprehensive strategy including action plans for preventing early school leaving as well as supporting students endangered of leaving compulsory education; measures related to class size in primary and secondary education; adoption of a participative approach with stakeholders to reduce repeat rates for children in early school years.

Tertiary education: Widening the participation in higher education especially for people from underrepresented groups; modernisation and reform of tertiary education; facilitating student mobility through provision of financial assistance, establishment of agreements with institutions, promotion of internships.

Poverty: Ensuring social protection without raising contributions on labour, reducing child poverty, active inclusion policy for groups furthest from the labour market, preventing inadequate housing and homelessness.

The European Commission's 2013 country-specific recommendations

Employment: Take further measures to reduce disincentives to work, enhancing interregional labour mobility and ensuring the inclusion in the labour market of individuals from migrant backgrounds.

GHG emissions: More concrete measures and a clear division of tasks between federal and regional authorities are needed to ensure that Belgium meets its targets, especially for transport and buildings.

Sustainable public finances: Adoption of additional measures and growth-enhancing structural reforms is needed in order to correct fiscal imbalances.

Other recommendations: Ensuring social security for the increasing elderly population through further pension reforms, employment support for older workers and improved efficiency of long-term care spending; reforming the wage setting system to restore competitiveness, improving competition in network industries and services; shifting away taxes from labour, simplifying the tax system and improving its efficiency.

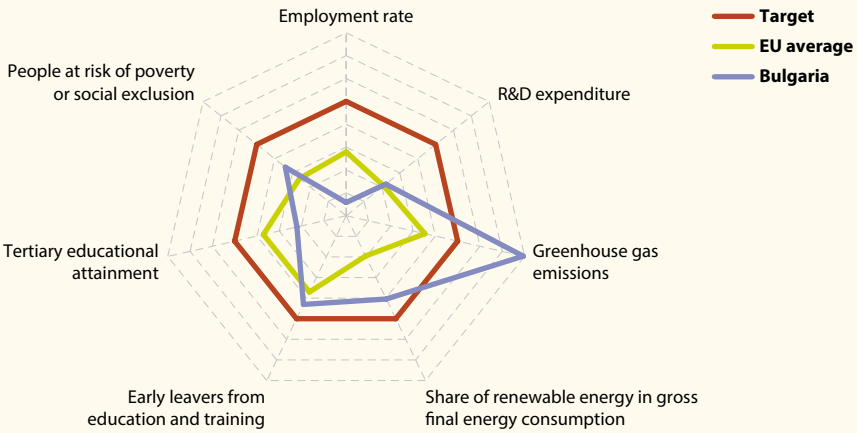
Bulgaria

State of play

Despite a 10 % growth in GHG emissions from 2005 to 2010, Bulgaria was still well below its national target, allowing emissions to increase by 20 % until 2020. The share of renewable energies was close to the target of 16 %, at 13.8 % in 2011, as was the share of early leavers from education and training in 2012.

Despite an increase in the number of people at risk of poverty or social exclusion by 2011, Bulgaria was closer to its target than the EU average. Gaps considerably larger than in most other Member States were observed for tertiary education and, in particular, employment.

Figure 6.2: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.2: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	63	2012	76
Gross domestic expenditure on R&D (% of GDP)	0.57 (1)	2011	1.5
Greenhouse gas emissions (% change sin9ce 2005)	10	2010	20
Share of renewable energy in gross final energy consumption (%)	13.8 (1)	2011	16
Primary energy consumption (million tonnes of oil equivalent)	18.8	2011	:
Early leavers from education and training (% of population aged 18–24)	12.5	2012	11
Tertiary educational attainment (% of population aged 30–34)	26.9	2012	36
People at risk of poverty or social exclusion (thousands)	3 693	2011	3 161

(1) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: An updated 'Employment Strategy' and more specific initiatives targeting e.g. young people should promote employment and reduce unemployment; additionally, various measures for improving the match between labour supply and demand have been undertaken.

R&D expenditure: Promoting R&D investments, improving access to financing and support for enterprises (in particular SMEs), improving the quality of scientific activity and modernising scientific infrastructure.

Renewable energies: A 'Law on Energy from Renewable Sources' has been adopted, and a national public information system on renewable energies will be created by 2015.

Energy efficiency: Measures are mainly outlined in the long-term 'National Energy Efficiency Strategy' that is complemented with short-term 'National Action Plans on Energy Efficiency'.

Early school leaving: Measures focused on pre-school and school education, such as compulsory pre-school education and modernisation of the education system.

Tertiary education: Measures for ensuring accessibility to higher education include increasing funding opportunities for students and ensuring the transition from secondary to higher education.

Poverty: Measures focus specifically on vulnerable social groups (such as elderly, disabled or homeless persons, and Roma) and on improving the quality of and access to healthcare services.

The European Commission's 2013 country-specific recommendations

Employment: Promotion of active labour market policies along with a well-functioning Employment Agency is necessary for tackling structural challenges in the labour market and improving the employment conditions of the young and other most vulnerable groups.

Education: Ambitious reforms should be pursued in higher education, ensuring education outcomes match labour market needs; further efforts are needed in improving access to education for children from more disadvantaged backgrounds, in particular Roma.

Energy efficiency: Modernisation of the energy system and completion of the internal energy market is needed to ensure the supply of more competitive and secure energy at low prices. Further efforts in improving energy efficiency are also needed.

Poverty and social inclusion: Ensure progress in the delivery of the National Strategies on Poverty and Roma integration; implement a review of the minimum threshold for social security contributions to ensure low-skilled labour is not at a disadvantaged position; improve accessibility to social transfers and services, particularly for children and the elderly.

Sustainable public finances: Improve tax collection and implement measures for tackling the shadow economy and reducing compliance costs.

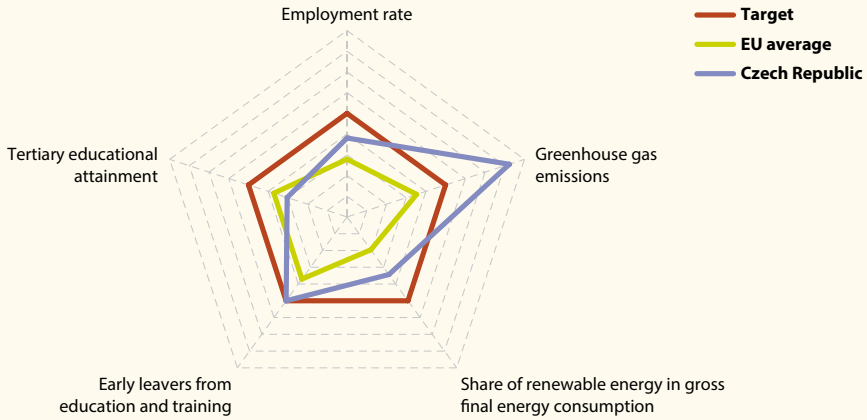
Further recommendations: Improve the business environment by reducing bureaucratic hurdles, restoring lending to SMEs, ensuring independence of the judiciary system and eliminating corruption; accelerate the efficient absorption of EU funds; increase efficiency of the healthcare system.

Czech Republic

State of play

By reducing its GHG emissions by 2 % between 2005 and 2010, the country remained well below its target. Although the employment rate stabilised at about 70.9 % after the stark drop in 2009, the country remained at some distance from its 2020 target of 75 %. The Czech Republic was closer than the EU average to its targets on renewable energies, early school leaving and poverty and social exclusion. Despite a significant increase in tertiary education from 2008 to 2012, the gap to the national target is larger than for the EU average.

Figure 6.3: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.3: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	71.5	2012	75
Gross domestic expenditure on R&D (% of GDP)	1.85	2011	1 (1)
Greenhouse gas emissions (% change since 2005)	– 2	2010	9
Share of renewable energy in gross final energy consumption (%)	9.4	2011	13
Primary energy consumption (million tonnes of oil equivalent)	40.7	2011	:
Early leavers from education and training (% of population aged 18–24)	5.5	2012	5.5
Tertiary educational attainment (% of population aged 30–34)	25.6	2012	32
People at risk of poverty or social exclusion (thousands)	1 598	2011	1 566 (2)

(1) National target refers to public sector only.

(2) National target: 'Maintaining the number of persons at risk of poverty or social exclusion at the level of 2008 (15.3 % of total population) with efforts to reduce it by 30 000'.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Increasing efficiency of employment services; supporting regionalisation of the active employment policy; supporting employment of young people through youth guarantee.

Education: Reforms in primary education including the introduction of a second foreign language; introducing general assessment of educational results of students; supporting corporate investment into education; supporting technical education.

R&D: Supporting applied research and experimental development for the needs of industries.

Poverty: Continued implementation of the system of social benefits for persons with disabilities and persons at risk of poverty; strengthening activation element of benefits; reforms for improving the system of care for children.

Energy efficiency: Plans to adopt an Energy Saving programme in buildings, which will facilitate the energy-efficient modernisation of buildings; government loans to support the repair and modernisation of buildings.

Renewable energy and climate change: Establishing stable and supporting conditions for renewable energy sources (RES) through the national Action Plan for RES-generated energy; measures to promote the use of biomass energy; preparation of a new Green Savings programme to reduce energy demand of buildings and GHG emissions.

The European Commission's 2013 country-specific recommendations

Employment: Promote employability of older workers and reduce early exit from the labour market; strengthen the efficiency of the public employment service; adopt measures aimed at shifting the burden of taxation away from labour to less growth detrimental areas; increase transparency in the tax treatment of employees and self-employed.

Education: Develop a comprehensive evaluation framework in compulsory education, step up of policies supporting low performing schools; promote accreditation and funding for higher education and increase funding for research institutions.

Energy efficiency: Further measures are needed for improving energy efficiency in buildings as well as in industry sectors.

Fiscal sustainability: Implement measures to correct the excessive fiscal deficit, promote growth-enhancing expenditure.

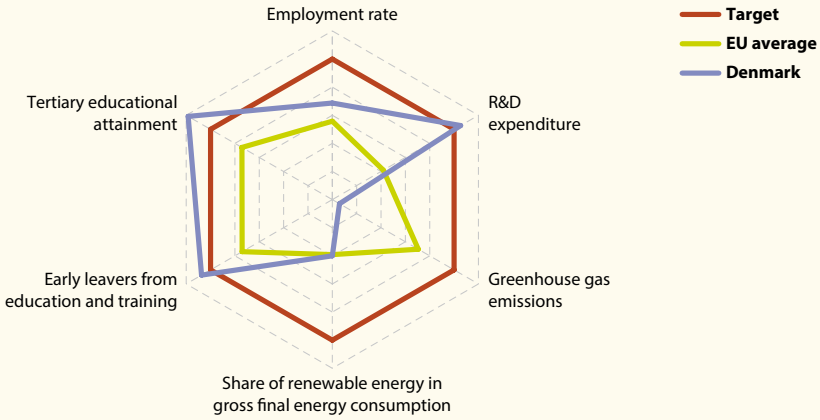
Other recommendations: Speed up the increase in the statutory retirement age; ensure concrete delivery of the anti-corruption strategy for 2013–2014.

Denmark

State of play

In 2012 Denmark exceeded both of its education targets. The percentage of early school leavers from education was 9.1 % and tertiary educational attainment was 3 percentage points above the national target. R&D expenditure (2011 data) was also ahead of the national target and above the EU average rate. The employment rate followed the European trend and fell in the years after the onset of the crisis, leaving the country some distance from its employment target. Despite the favourable developments in the areas of climate change management and renewable energies, further progress similar to or more than the EU average is needed for the country to fulfil its Europe 2020 commitments on reducing GHG

Figure 6.4: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.4: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	75.4	2012	80
Gross domestic expenditure on R&D (% of GDP)	3.09 (1)	2011	3
Greenhouse gas emissions (% change since 2005)	–4	2010	–20
Share of renewable energy in gross final energy consumption (%)	23.1	2011	30
Primary energy consumption (million tonnes of oil equivalent)	18.7	2011	:
Early leavers from education and training (% of population aged 18–24)	9.1	2012	10(2)
Tertiary educational attainment (% of population aged 30–34)	43	2012	40(3)
People living in households with very low work intensity (thousands)	480	2011	325(4)

(1) Estimated/provisional data. (2) National target: less than 10 %. (3) National target: at least 40 %.

(4) National target differs from the overall EU target on 'Risk of poverty or social exclusion' as it refers to 'People living in households with very low work intensity' only.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

emissions and increasing the share of renewable energies. The number of people living in households with very low work intensity deteriorated during the economic crisis, with Denmark among the Member States furthest away from their national poverty targets (2011 data).

Measures implemented to meet the national targets

Employment: Implemented measures aimed at increasing the supply of labour include agreement on a tax reform, a reform of the disability pension scheme and the flexi-job scheme aimed at increasing the supply of labour.

R&D expenditure: Adoption of specific targets and 27 concrete initiatives under the national innovation strategy "Denmark- a nation of solutions".

Renewable energies and climate: Setting up country-specific targets and initiatives for the period 2012-2020 under the Energy Agreement, including an increase in the energy generated from wind turbines, increasing funding for renewable energy technologies, supporting the take-up of renewable energy technologies in buildings, trade and industry; promoting the use of electricity and biomass in the transport sector.

Early school leaving: Adoption of rules ensuring better inclusion in the primary and lower secondary school; reforms aimed at improving the academic quality of primary and lower secondary education; development programme providing day care for children at a very early age.

Tertiary education: Reforming vocational education and training programmes, increasing funding for higher education programmes, strengthening education quality through the adoption of a new, comprehensive quality assurance system for higher education.

Social inclusion: Implementing a number of measures aimed at supporting some of the most disadvantaged groups of society. Some of these initiatives include the abolishment of some low benefits, introducing reforms in the disability pension scheme and the flexi-job scheme.

The European Commission's 2013 country-specific recommendations

Employment: Further measures, such as education, training and skill upgrading, are needed in order to increase the employability of people with migrant backgrounds, long-term unemployed and low-skilled workers. Addressing the shortages of apprenticeship places and the high drop-out rates in vocational training would be essential in ensuring the future supply of skilled labour.

Education: Further progress is needed in increasing the quality and cost-effectiveness of education and training systems

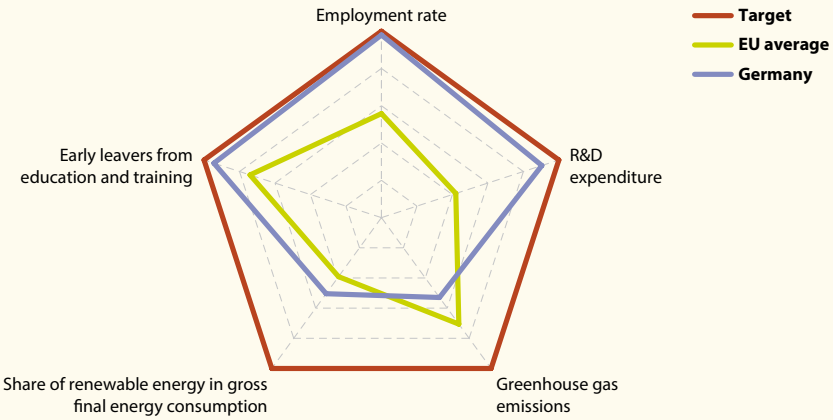
Others: Implement measures for increasing competition in the service sector, including retail and construction sectors; improve effectiveness in the provision of public services.

Germany

State of play

Long-term unemployment, which is used in Germany as the national target in the area of poverty and social exclusion, was reduced by about 580 000 people by 2012 compared with 2008, thus already exceeding the reduction target of 330 000 people to be met by 2020. As a consequence, Germany was also the second closest to its national employment target. Additionally, Germany has already met its target on tertiary educational attainment, with 43.4 % of 30 to 34 year olds having completed tertiary-level or equivalent (ISCED levels 4a, 5 or 6) education in 2012. It was furthermore close to its targets on R&D expenditure and, to a lesser extent, early school leaving. In contrast, gaps larger than in most other Member States could be observed in relation to the GHG emissions reduction target.

Figure 6.5: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.5: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	76.7	2012	77
Gross domestic expenditure on R&D (% of GDP)	2.84 (1)	2011	3
Greenhouse gas emissions (% change since 2005)	– 6	2010	– 14
Share of renewable energy in gross final energy consumption (%)	12.3	2011	18
Primary energy consumption (million tonnes of oil equivalent)	286.4	2011	:
Early leavers from education and training (% of population aged 18–24)	10.5 (2)	2012	10 (3)
Tertiary educational attainment (% of population aged 30–34)	43.4 (4)	2012	42 (4)
Long-term unemployment (thousands)	1 046	2012	1 296 (5)

(1) Estimated data. (2) Provisional data. (3) National target: less than 10 %. (4) Indicator and target refer to ISCED levels 4, 5 and 6.

(5) National target differs from the overall EU target on 'Risk of poverty or social exclusion' as it refers to long-term unemployed people.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators and lfsa_ugad), DESTATIS, European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Addressing shortages of skilled labour and providing new employment incentives within the framework of the Skilled Workers Strategy; enhancing support services for combining work with family commitments; promotion of fair participation of women in top jobs; facilitate immigration of qualified workers; measures for tackling long-term unemployment.

R&D expenditure: A number of measures under the Action plan for the High-Tech Strategy focused in the following five main areas: climate/energy, health/nutrition, communications, mobility and security; continued funding for R&D projects of individual or collaborating firms under the Central SME Innovation Programme; increased annual government aid for several large scientific research organizations, etc.

Renewable energies: Adoption of national renewable energy targets, more ambitious than the core benchmarks set by the EU.

Energy efficiency: Promoting recycling and energy efficiency for individuals and businesses under the German Resource Efficiency Programme; providing targeted support to R&D of environmentally sound and resource saving technologies.

Early school leaving: Expanding childcare services in order to provide greater educational opportunities for all children.

Tertiary education: Increased efforts in expanding available study programmes; provision of additional funding for higher education institutions.

Poverty: Assistance for lone parents, identified as a targeted group at risk of poverty; promoting social inclusion of people with disabilities, fostering the integration of people of migrant background, enhancing the participation of disadvantaged children and young people in social and cultural activities.

The European Commission's 2013 country-specific recommendations

Employment: Take measures to lower taxes and social security contributions, in particular for low-wage earners; maintain activation and integration policy measures for the unemployed; improve incentives for full-time work for women.

Education: Take steps to increase the educational achievement of individuals from migrant backgrounds.

Energy efficiency: Minimise the overall economic costs of transforming the energy system; expand national and cross-border networks and increase coordination of energy policy with neighbouring countries.

Sustainable public finances: Further measures to be taken in order to stabilise debt to GDP levels. These should include improvement in the efficiency of public spending for health and long-term care and increase in the tax revenue by broadening the VAT base and reforming the property tax base.

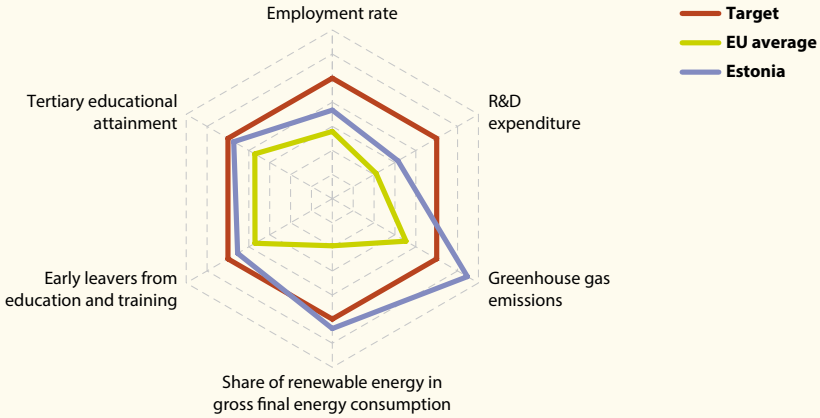
Others: Promote competition in the service sector, by removing excessive restrictions on professional services and in the construction sector; stimulate competition in the railway market and in financial services.

Estonia

State of play

Estonia exceeded both its targets on GHG emissions and renewable energies. While the GHG emissions were targeted to increase by no more than 11 % compared with the 2005 level, in 2010 an increase of only 6 % was recorded. Similarly, the share of renewable energies in 2011 amounted to 25.9 %, compared to the target of 25 %. Although progress is still needed to achieve its other Europe 2020 commitments, Estonia is closer to its targets than the EU average for employment, R&D expenditure, tertiary education and early school leaving. The share of the population at risk of poverty after social transfers has stagnated at 17.5 %, which implies further efforts are needed to reach the national target of 15 %.

Figure 6.6: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.6: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	72.1	2012	76
Gross domestic expenditure on R&D (% of GDP)	2.38 (1)	2011	3
Greenhouse gas emissions (% change since 2005)	6	2010	11
Share of renewable energy in gross final energy consumption (%)	25.9	2011	25
Primary energy consumption (million tonnes of oil equivalent)	6.1	2011	:
Early leavers from education and training (% of population aged 18–24)	10.5	2012	9.5
Tertiary educational attainment (% of population aged 30–34)	39.1	2012	40
People at risk of poverty after social transfers (thousands)	17.5	2011	15 (2)

(1) Provisional data.

(2) National target differs from the overall EU target on 'Risk of poverty or social exclusion' as it refers to 'People at risk of poverty after social transfers' only.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Introducing reforms in the social benefit system in order to improve incentives to work; reducing the workforce tax burden; increased provision of labour market and related services; increased flexibility in the allocation of disability, unemployment and parental benefits; incentives for the integration of the young and long-term unemployed in the labour market.

Education: Measures aimed at improving the quality, availability and effectiveness of education and ensuring more effective tailoring of education and training to the needs of the labour market; adoption of a new Lifelong Learning Development Plan for improving access of low-skilled workers to life-long learning; higher education funding reform with greater focus on performance in order to raise general quality of the education system.

R&D expenditure: Development of a new R&D and innovation strategy and an entrepreneurship growth strategy focusing on the business sector. The strategies aim to achieve smart global specialisation in the fields of R&D and entrepreneurship; support for the internationalisation and infrastructural development of the Estonian R&D sector.

Renewable energies: Promoting renewable energy use by implementing improvements in infrastructure and legislation.

Energy efficiency and resource efficiency: Measures to support improvement in energy efficiency, in particular in buildings and transport; additional investments in the renovation of public buildings and the modernisation of public transport, modernisation of urban lighting; adoption of a new strategic waste management plan, etc.

The European Commission's 2013 country-specific recommendations

Employment: Strengthening of active labour market policies is needed in order to tackle the high structural unemployment in the country; provide incentives to work by increasing the flexibility and targeting of social benefits; further improvements in the delivery of social services, including childcare, are also necessary.

Education, research and innovation: More emphasis should be placed on improving the link between education and training systems and the labour market; further steps should be taken in increasing the participation of low-skilled workers in lifelong learning; support the internationalisation of research and innovation systems and promote the cooperation between business, education and research institutions.

Energy efficiency: There is still considerable scope for improvement in the energy efficiency of buildings and the transport system; take further measures for strengthening environmental incentives for vehicles and waste; diversify energy sources and promote competition in the energy market by developing cross-border energy networks.

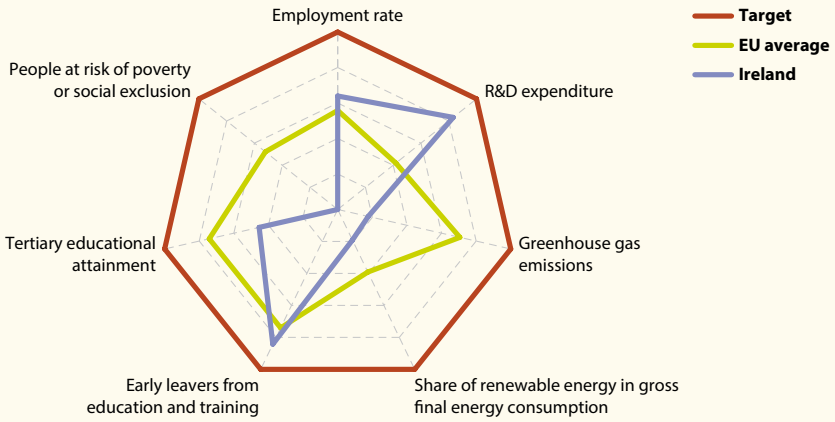
Others: Sustain the strong budgetary position while introducing the structural budget balance rule as established by the Treaty and complementing it with more binding expenditure targets; introduce reforms in local governments to improve the efficiency and quality of local public service provision.

Ireland

State of play

R&D expenditure developed favourably in the period 2008 to 2011, moving Ireland closer to the national target of spending about 2 % of GDP (2.5 % of GNP). In contrast, the employment rate deteriorated in the context of the adverse economic environment in the EU. Nevertheless, the country was still closer to its employment commitments for 2020 than the EU average. Ireland also achieved notable progress in reducing the number of early leavers from education and training, although the indicator still deviates from the target of 8 %. Similarly, the tertiary education attainment rate has gradually increased over the past four years, but has remained further away from its target than the EU average.

Figure 6.7: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.7: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	63.7	2012	69 (1)
Gross domestic expenditure on R&D (% of GDP)	1.72 (2)	2011	2 (3)
Greenhouse gas emissions (% change since 2005)	– 6	2010	– 20
Share of renewable energy in gross final energy consumption (%)	6.7	2011	16
Primary energy consumption (million tonnes of oil equivalent)	13.6	2011	:
Early leavers from education and training (% of population aged 18–24)	9.7	2012	8
Tertiary educational attainment (% of population aged 30–34)	51.1	2012	60
People at risk of poverty or social exclusion (thousands)	1 319	2011	864 (4)

(1) National target: 69–71 %. (2) Estimated/provisional data. (3) National target: approximately 2 % (2.5 % of GNP). (4) National target: reduce the number of people at risk of poverty or social exclusion by 186 000 by 2016.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Ireland lagged behind the EU average in the areas of climate change and energy, with the share of renewable energies at a 9.3 percentage point distance from the target, while for GHG emissions the gap was 14 percentage points. In 2011, Ireland was also the country furthest from its national poverty reduction target, implying that an additional 455 000 people need to be lifted out of the risk of poverty or social exclusion by 2016.

Measures implemented to meet the national targets

Employment: Pursuing the twin strategies of the Action Plan for Jobs and Pathways to Work including specific actions for supporting employment; addressing bottlenecks in the labour market; increased accesses to opportunities for up-skilling and re-skilling, especially concerning sectors most hardly hit by the recession.

R&D expenditure: Tax incentives for R&D expenditure through the introduction of the R&D tax credit scheme; publication of a new National Intellectual Property Protocol aimed at increasing industry engagement with public research; support the commercialisation of research and cross-border collaboration.

Climate change: Development of national climate policy and legislation; preparation of individual 2050 low-carbon roadmaps for the key sectors energy/built environment, transport and agriculture.

Energy efficiency: Adoption of an Action Plan for achieving energy savings across the economy in 2020; continued implementation of the Better Energy Programme delivering energy savings at targeted sectors of the economy; launch of an Energy Efficient Fund making funding available for energy efficient projects.

Early school leaving: Implementation of the national action plan Delivering Equality of Opportunity in Schools aimed at supporting children and young people from disadvantaged backgrounds throughout their educational path; continued implementation of the National Strategy for improving literacy and numeracy among children and young people.

Tertiary education: A number of measures supporting tertiary education have been pursued in the framework of the National Strategy for Higher Education to 2030; emphasis is placed on increasing the engagement of the private sector with the education system and ensuring higher education responds to enterprise needs; introduction of competitive funding schemes for higher education.

Poverty: Forthcoming revision and enhancement of the national poverty reduction targets. Ireland's social inclusion strategy is focused on three areas: ensuring adequate minimum income, pursuing active and inclusive labour market policies, and providing access to quality services.

The European Commission's 2013 country-specific recommendations

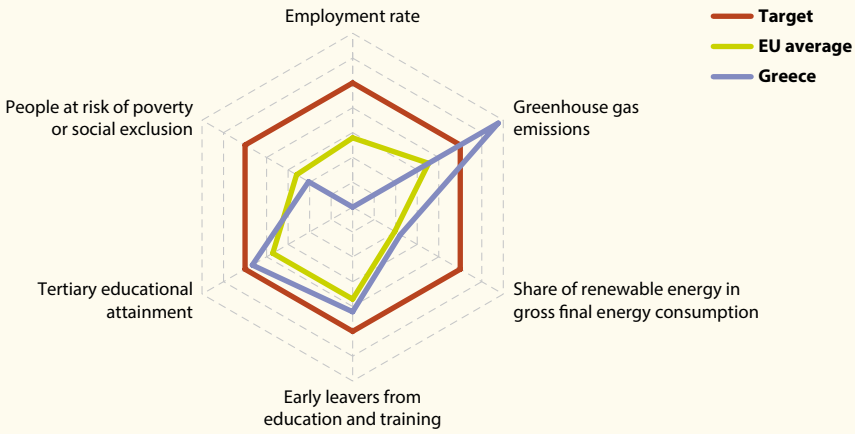
To avoid duplication with the measures adopted by the European Commission, the European Central Bank and the International Monetary Fund under the Economic Adjustment Programme, no additional recommendations for Ireland were issued in the framework of the European Semester. For more detailed information on recommendations under the Economic Adjustment Programme, see http://ec.europa.eu/economy_finance/assistance_eu_ms/ireland/index_en.htm.

Greece

State of play

Partly as a result of the economic downturn, Greece reduced its GHG emissions by more than twice its national Europe 2020 target of – 4 %. Tertiary education also developed favourably until 2012, moving the country closer to its target than the EU average. Similarly, Greece was closer to its target of reducing early school leavers than the EU average. As a result of the deterioration in the Greek labour market during the economic crisis, the employment rate was far below the national target. In 2012 the country (together with Spain) was the furthest from its employment target of all the Member States. Further efforts are needed to fulfil the national Europe 2020 commitment concerning the reduction in the

Figure 6.8: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.8: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	55.3	2012	73.2
Gross domestic expenditure on R&D (% of GDP)	:	:	: (1)
Greenhouse gas emissions (% change since 2005)	– 10	2010	– 4
Share of renewable energy in gross final energy consumption (%)	11.6	2011	18
Primary energy consumption (million tonnes of oil equivalent)	27.0	2011	:
Early leavers from education and training (% of population aged 18–24)	11.4	2012	9.7
Tertiary educational attainment (% of population aged 30–34)	30.9	2012	32
People at risk of poverty or social exclusion (thousands)	3 403	2011	2 596

(1) National target to be revised.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

number of people at risk of poverty or social exclusion. At 6.4 percentage points from its renewable energies target, Greece also shows further scope for the development of more environmentally friendly sources of energy.

Measures implemented to meet the national targets

Early school leaving: Measures for improving the provision of primary and secondary education; implementation of reforms for the in-service training of teachers; initiation of evaluation and self-evaluation reforms of schools; adoption of different support actions in primary and secondary school.

Tertiary education: Improving accountability of higher education institutions (HEIs), particularly in terms of funding and budget distribution; improvements in the funding scheme for HEIs; introduction of Institute's Council taking the responsibilities of the Ministry.

Employment: Introducing a reform in the minimum wage setting system; promoting flexibility in the labour market to improve collective bargaining, increase business competitiveness and overcome labour mobility barriers; provision of special support for former self-employed; simplification of labour legislation; measures for integrating young people and other vulnerable groups in the labour market.

Poverty and social exclusion: measures aimed at fighting the social consequences of the crisis by supporting employment and reallocating benefits to the most disadvantaged; reforming the social policy system to increase the effectiveness of social expenditure transfers.

R&D expenditure: Action plans for supporting new researchers, strengthening the national research system and promoting the optimal use of available resources; strengthening the participation of the private sector in RDI activities.

Renewable energies: Adopting support measures for the development of renewable energy technologies with high commercial maturity such as wind farms, solar photovoltaic, small hydro.

Energy efficiency: The National Action Plan for Energy Efficiency, revised in 2008 and 2011, sets out measures for improving energy efficiency in all final energy consumption sectors; energy saving measures primarily targeted towards the transport, tertiary and residential sectors.

The European Commission's 2013 country-specific recommendations

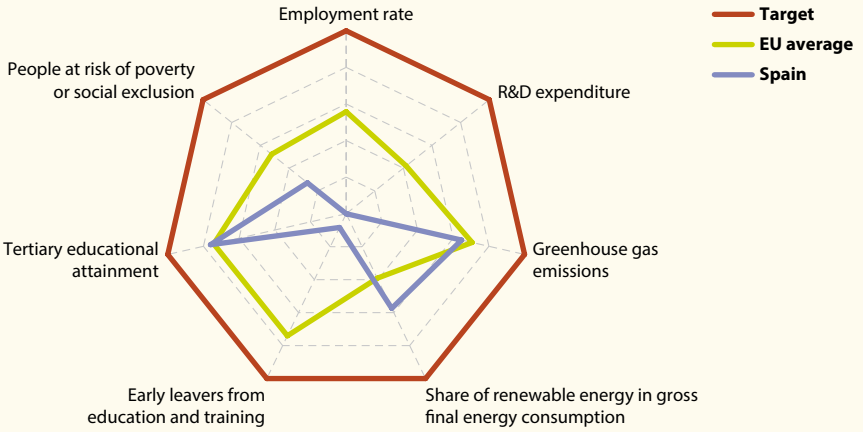
In order to avoid duplication with the measures adopted by the European Commission, The European Central Bank and the International Monetary Fund under the Economic Adjustment Programme, no additional recommendations for Greece were issued in the framework of the European Semester. For more detailed information on recommendations under the Economic Adjustment Programme, see http://ec.europa.eu/economy_finance/assistance_eu_ms/greek_loan_facility/.

Spain

State of play

Although at some distance from its renewable energies target, Spain was still ahead of the EU average in progressing towards its 2020 commitment in 2011. The country was also slightly closer than the EU as a whole to its tertiary education target in 2012. Although GHG emissions were reduced by 4 percentage points, a 6 percentage point gap remains to the target. The indicators on employment and social inclusion deteriorated after the economic downturn, leading to a larger deviation from their targets. Despite a reduction in the early school leaving rate in the past four years, further progress is still needed. Bigger efforts than in other Member States are also needed to bring R&D expenditure in line with the national target.

Figure 6.9: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.9: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	59.3	2012	74
Gross domestic expenditure on R&D (% of GDP)	1.33	2011	3
Greenhouse gas emissions (% change since 2005)	– 4	2010	– 10
Share of renewable energy in gross final energy consumption (%)	15.1	2011	20
Primary energy consumption (million tonnes of oil equivalent)	121.8	2011	:
Early leavers from education and training (% of population aged 18–24)	24.9	2012	15
Tertiary educational attainment (% of population aged 30–34)	40.1	2012	44
People at risk of poverty or social exclusion (thousands)	12 371	2011	8 940 (1)

(1) National target: reduce the number of people at risk of poverty or social exclusion by 1 400 000 to 1 500 000 people.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Establishment of new employment objectives under the Annual Employment Policy Plan 2012; development of a new system for training employed and unemployed workers; fostering employment of young workers through the launch of a dual vocational training scheme, the promotion of self-employment among the young and the provision of hiring incentives for young people with limited work experience.

R&D expenditure: More efficient and stable provision of resources for R&D activities as set out under the Spanish Science and Technology and Innovation Strategy 2013–2020; promoting business investment in R&D; achieving better coordination between the central government and autonomous regions.

Climate change: Development of a new environmental tax system, adoption of National Framework Waste Plan, legislative initiative regarding the calculation of carbon footprint.

Energy efficiency: Measures aimed at improving energy efficiency in buildings through energy efficiency certification, direct support for the acquisition of energy-efficient vehicles.

Education: Introducing education reforms including early detection of learning problems, launch of improvement programmes, increased academic time for developing core competences for academic progress, creation of a new Basic Vocational Education diploma for people who have not completed compulsory secondary education, adoption of two specific action plans to tackle early school leaving.

Poverty and social exclusion: Active inclusion programme promoting the employment of the Roma minority, former drug dependents; ensuring effective provision of social services, in particular for children and families; mechanisms for restructuring mortgage debts of heavily indebted households.

The European Commission's 2013 country-specific recommendations

Employment: Current policy reforms need to be further strengthened; modernise public employment services and increase the effectiveness of re-skilling training programmes for older and low-skilled workers.

Education: Ensuring that the education and training outcomes match the labour market needs, reducing early school leaving and enhancing life-long learning to fight the high youth unemployment rate.

Social inclusion: Effectively targeting the most marginalised though active employment policies and improving in the efficiency and effectiveness of social support.

Energy: Structural reform in the electricity sector is needed for the electricity tariff deficit to be tackled; measures should also be taken to reform the transport sector.

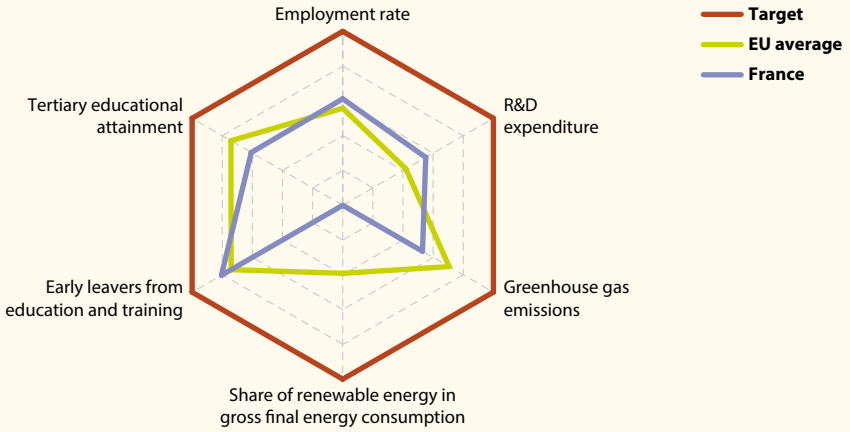
Other recommendations: Fiscal consolidation efforts to stabilise the public budgetary position; improve the efficiency of the tax system, in particular by advancing environmental taxation, reviewing corporate taxation and tackling tax fraud and evasion; enhance the business environment by removing barriers to doing business and other bottlenecks; ensure better coordination between various public administrations.

France

State of play

France was closer to its national targets than the EU average for employment, R&D expenditure and early school leaving. Poverty rates increased during the economic crisis, against the national objective of reducing the anchored at-risk-of-poverty rate by one-third over the period 2007–2012. Despite a slight increase in tertiary educational attainment rates since 2008, France was still further from its national tertiary education target than the EU average in 2012. Greater efforts than in other Member States are needed to promote uptake of renewable energies. Despite favourable developments in the past four years, scope remains to further reduce GHG emissions towards the 2020 target of by – 14 %.

Figure 6.10: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.10: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	69.3	2012	75
Gross domestic expenditure on R&D (% of GDP)	2.24	2011	3
Greenhouse gas emissions (% change since 2005)	– 6	2010	– 14
Share of renewable energy in gross final energy consumption (%)	11.5	2011	23
Primary energy consumption (million tonnes of oil equivalent)	245.4	2011	:
Early leavers from education and training (% of population aged 18–24)	11.6	2012	9.5
Tertiary educational attainment (% of population aged 30–34)	43.6	2012	50
Anchored at-risk poverty rate (%)	13.9	2011	: (1)

(1) National target: reduce the anchored at-risk-of-poverty rate by one-third for the period 2007 to 2012 or by 1 600 000 people.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicator and ilc_li22b); European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

The National Reform Programme of France is currently available only in French; for details on the measures implemented in France, see http://ec.europa.eu/europe2020/pdf/nd/nrp2013_france_fr.pdf.

The European Commission's 2013 country-specific recommendations

Employment: Speed up the full implementation of the inter-professional agreement on securing jobs; take further measures for fighting labour market segmentation, reform the unemployment benefit system to ensure better incentives to work; increase the employment rate of older workers and improve the efficiency of the public employment services.

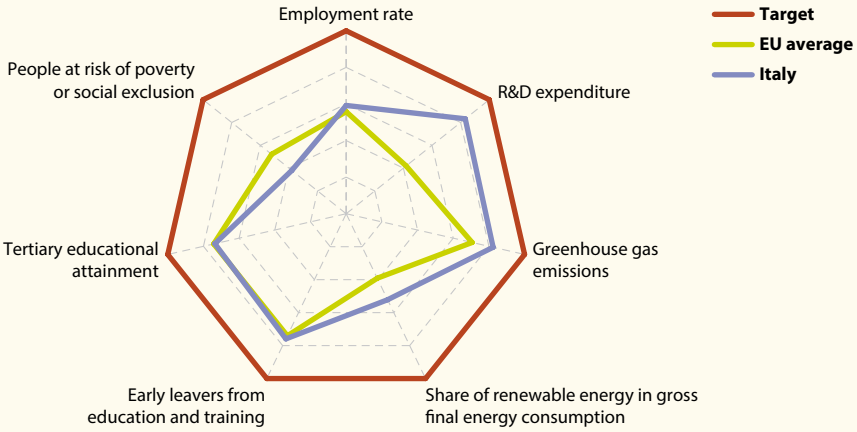
Others: Maintain strict budgetary discipline and take measures for reducing the large fiscal deficit; enhance efficiency of public expenditure; take measures for increasing competitiveness in the business market and in the services, electricity and transport sectors; promote the internationalisation of SMEs; pursue further efforts in simplifying and improving the efficiency of the tax system; implement measures for shifting away the tax burden from labour, increasing environmental taxation.

Italy

State of play

Since the onset of the recession Italy has experienced a notable rise in the number of people at risk of poverty or social exclusion in 2011, opening up a significant gap to its 2020 poverty reduction target. Although the employment rate has stabilised in the past three years, efforts greater than the EU average are needed to meet the target. Italy was closer to its national targets than the EU average in the areas of R&D, GHG emissions and renewable energies. Early school leaving and tertiary education rates have evolved in line with the country's commitments for 2020, with Italy showing a target gap close to the EU average in 2012.

Figure 6.11: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.11: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	61	2012	67 (1)
Gross domestic expenditure on R&D (% of GDP)	1.25 (2)	2011	1.53
Greenhouse gas emissions (% change since 2005)	– 10	2010	– 13
Share of renewable energy in gross final energy consumption (%)	11.5	2011	17
Primary energy consumption (million tonnes of oil equivalent)	161.9	2011	:
Early leavers from education and training (% of population aged 18–24)	17.6	2012	15 (3)
Tertiary educational attainment (% of population aged 30–34)	21.7	2012	26 (4)
People at risk of poverty or social exclusion (thousands)	17 112	2011	12 899

(1) National target: 67–69 %. (2) Provisional data. (3) National target: 15–16 %. (4) National target: 26–27 %.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

R&D expenditure: Reducing the digital divide; providing support for R&D and innovation projects through the Fund for Sustainable Growth; measures for promoting innovation in healthcare.

Education: Improving the quality and efficiency of teaching and modernising the whole educational system; valuation-based incentive mechanism in higher education; new funds for enhancing basic skills and knowledge at school and reducing drop-out rates, in particular for the most disadvantaged.

Employment: Reforming the social security system in order to increase its efficiency and equitability; facilitating the transition from education and training to work; addressing the geographical segmentation of the labour market (between Northern and Southern regions); supporting the transition of the unemployed back to work through new public services; increased safeguards for maternity and paternity leave.

GHG emissions: Re-orientation of the Kyoto Fund towards the development of 'green economy' sectors; extension of the 55 % tax credits for programmes for energy upgrading in buildings; measures for improving the infrastructure for electric vehicles and providing incentives for the uptake of low-emission vehicles; promoting sustainable mobility by increasing rail freight transport.

Renewable energies: Incentives for photovoltaic energy and non-photovoltaic electric renewables (hydro-electric, geothermal, wind, etc); energy upgrading of public buildings through new incentive measures.

Energy efficiency: Strengthening and increasing compliance of the minimum performance standards for the construction sector, the transport sector and for certain products falling under the scope of the Ecodesign Directive; extension of the tax credit for energy efficiency in buildings.

Poverty: Revision of the 'social cards' intended for preventing absolute poverty: increase in the number of recipients and the amount of social benefit provided and broadening the eligibility criteria to include non-Italian citizens; revision of the Solidarity Fund for Mortgages; supporting home ownership or renting of young couples in the framework of the national residential housing plan.

The European Commission's 2013 country-specific recommendations

Employment: Effectively implement labour market and wage-setting reforms to raise labour productivity in line with wage growth; take measures to promote labour participation of women and young people; strengthen public employment services.

Education: Implement further measures to prevent early school leaving and improve school quality.

Poverty: Improvement in the social protection system is still necessary, particularly in terms of better targeting social benefits towards the most vulnerable.

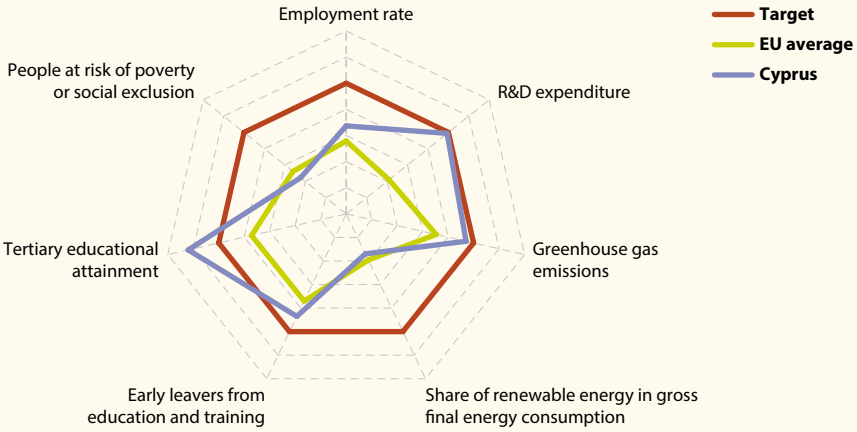
Other recommendations: Continue fiscal consolidation efforts; strengthen the administrative capacity by reforming the judicial system, improve the management of EU funds and simplify the regulatory environment for businesses; increase the efficiency of the banking sector; take measures for fighting tax evasion and shifting away the tax burden from labour towards consumption, property and the environment; encourage further competition in public services and network industries.

Cyprus

State of play

With almost half of the 30 to 34 year olds having completed tertiary education in 2012, Cyprus exceeded its target of increasing tertiary education levels to at least 46 %. The country was also the closest to reaching its R&D expenditure target, with a gap of only 0.02 percentage points. The indicators GHG emissions and early leavers from education and training have also moved towards the Europe 2020 targets, although further progress is still necessary for these targets to be reached. Developments in the areas of social inclusion and renewable energy have been much less favourable. The country is still some distance from its target of reducing the number of people at risk of poverty or social exclusion; with

Figure 6.12: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.12: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	70.2	2012	75 (1)
Gross domestic expenditure on R&D (% of GDP)	0.84 (2)	2011	0.5
Greenhouse gas emissions (% change since 2005)	– 4	2010	– 5
Share of renewable energy in gross final energy consumption (%)	5.4	2011	13
Primary energy consumption (million tonnes of oil equivalent)	2.6	2011	:
Early leavers from education and training (% of population aged 18–24)	11.4	2012	10
Tertiary educational attainment (% of population aged 30–34)	49.9	2012	46
People at risk of poverty or social exclusion (thousands)	199	2011	154

(1) National target: 75–77 %. (2) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

the gap being considerably higher than for the EU average. As a result of the crisis, the employment rate dropped from 76.5 % in 2008 to 70.2 % in 2012, well below the national target but still ahead of the EU average. Although the share of renewable energy in Cyprus has increased from 2.6 % in 2005 to 5.4 % in 2011, there is still scope for improvement to achieve the national target of 13 %.

Measures implemented to meet the national targets

Employment: Promotion of different measures aimed at creating jobs including a Scheme for Job Placement and Training of Tertiary Education Graduates, subsidies for business for hiring young unemployed, providing incentives to employers for hiring long-term unemployed and the young, promotion of flexible work arrangement, enhancement of women and youth entrepreneurship and others.

Early school leaving: Implementation of action plans for the early identification of learning difficulties, special programmes for the integration of students from migrant backgrounds, promotion of programmes for vocational education.

Tertiary education: Increasing the compatibility between technical vocational education, training and the needs of the labour market, advancing expansion and modernisation of the higher education system, promoting student mobility.

R&D expenditure: Measures aimed at increasing cooperation between Universities, research centres and private industries, preparation of a Smart Specialisation Strategy for Research and Innovation.

Energy efficiency: Licencing of offshore hydrocarbon exploration activities with the potential to radically change the energy sector profile.

Renewable energy: Measures for offering 50 % subsidies on the cost of installing photovoltaic systems by households based on specific financial and social criteria, acceleration in the implementation of installation projects for photovoltaic parks.

Reduction in GHG emissions: Measures aimed at modernising and improving the efficiency of the transport system.

The European Commission's 2013 country-specific recommendations

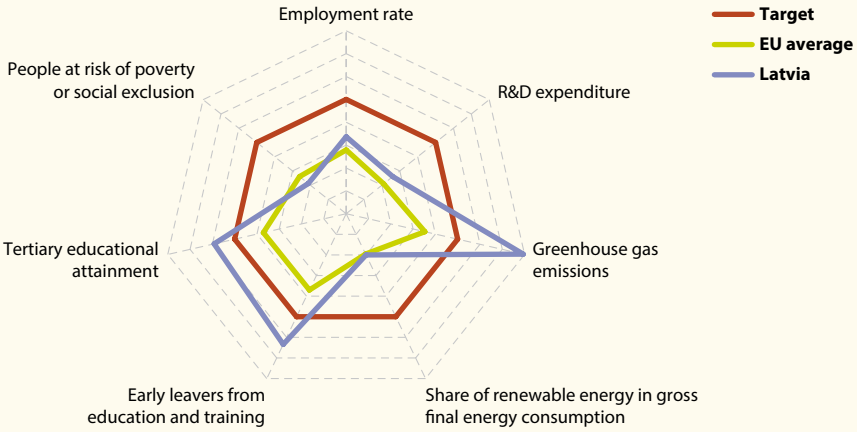
To avoid duplication with the measures adopted by the European Commission, the European Central Bank and the International Monetary Fund under the Economic Adjustment Programme, no additional recommendations for Cyprus were issued in the framework of the European Semester. For more detailed information on recommendations under the Economic Adjustment Programme.

Latvia

State of play

In 2012 Latvia showed significant progress towards both of its education targets. By increasing the tertiary education rate by 10 percentage points and reducing the number of early school leavers by 5 percentage points in the period 2008 to 2012, Latvia managed to exceed these two Europe 2020 benchmarks in advance. Despite the 7 % rise in GHG emissions between 2005 and 2010, the country is still within the limits of its 2020 target of increasing emissions by no more than 17 %. In 2012 the employment rate stabilised after a period of deterioration in the years 2008 to 2011, and the distance to the national target was shorter than the EU average. Although in 2012 the trend of increasing

Figure 6.13: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.13: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	68.2	2012	73
Gross domestic expenditure on R&D (% of GDP)	0.7 (1)	2011	1.5
Greenhouse gas emissions (% change since 2005)	7	2010	17
Share of renewable energy in gross final energy consumption (%)	33.1	2011	40
Primary energy consumption (million tonnes of oil equivalent)	4.1	2011	:
Early leavers from education and training (% of population aged 18–24)	10.5	2012	13.4
Tertiary educational attainment (% of population aged 30–34)	37	2012	34 (2)
People at risk of poverty or social exclusion (thousands)	829	2011	636

(1) Provisional data. (2) National target: 34–36 %.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

poverty and social exclusion was halted, Latvia still remained at a greater distance from its target than the EU average. Further progress in the uptake of renewable energies and increasing R&D expenditure are needed for the gaps to these targets to be closed.

Measures implemented to meet the national targets

Employment: Measures and support mechanism related to improvement in the training programmes for the unemployed, reduction in youth unemployment, efficient transition of the long-term unemployed to the labour market; promotion of self-employment and entrepreneurship.

Early school leaving: Policies aimed at increasing the access to primary and secondary education; introduction of modern teaching methods; enhancement and structural reform of vocational education.

R&D: Improving the quality, efficiency and international competitiveness of R&D; promoting cooperation between scientists and entrepreneurs; supporting the development of innovative enterprises.

Tertiary education: Modernising tertiary education, improving the material-technical base of higher education institutions, increasing the access to and the quality of higher studies and promoting internationalisation.

Poverty: Reducing the tax burden of the population at risk of poverty, active labour market policy measures targeted at the most disadvantaged groups; measures for limiting discrimination and strengthening civil society participation.

Energy efficiency: Measures aimed at improving insulation of buildings; financial support for projects aimed at increasing energy efficiency of buildings; improving energy efficiency in heat energy production.

Renewable energy: Adjustments in the legal basis for supporting the uptake of renewables in energy consumption and production; allocation of financial resources to the production of renewable energy; promoting the use of biofuels in the transport sector.

GHG emissions: Measures for reducing the non-Emissions Trading System (ETS) sector emissions; supporting related research and innovation projects and information and awareness raising campaigns.

The European Commission's 2013 country-specific recommendations

Employment: Pursue further measures for tackling youth unemployment such as introducing Youth Guarantee and strengthening vocational education and training.

Poverty: Improve the coverage and adequacy of social assistance and introduce special measures for reducing child poverty.

Energy efficiency: Speed up the implementation of housing insulation projects.

Education and research: Continue the planned reforms in higher education and take further measures for modernising research institutions.

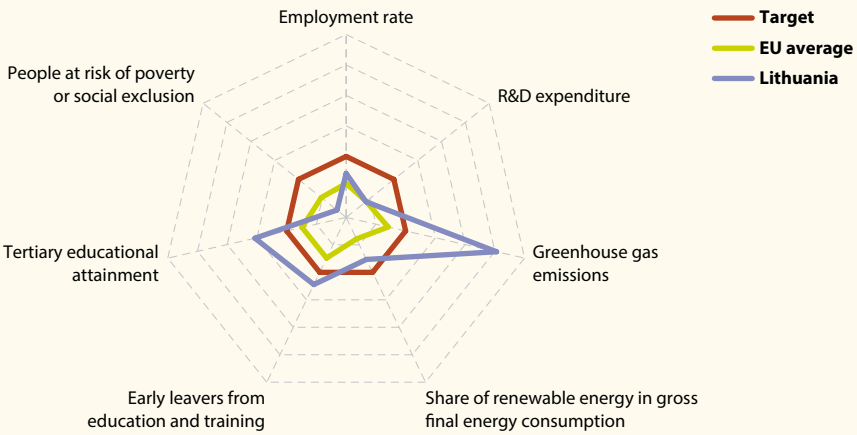
Others: Shift taxes towards property or the environment; take further measures for increasing the efficiency and quality of the judiciary.

Lithuania

State of play

In 2012 Lithuania not only exceeded its two education targets on early school leaving and tertiary education, but was also far ahead of the EU average performance. By reducing its GHG emissions by 11 % between 2005 and 2010, Lithuania was well below its target of increasing emissions by no more than 15 %. The increase in the uptake of renewable energies from 18 % in 2008 to 20.3 % in 2011 moved the country closer to the national target of 23 %. After the adverse impact of the crisis, the employment rate started to stabilise and reached 68.7 % in 2012, thus moving Lithuania closer to the national target than the EU average. The poverty indicator, however, continued deteriorating after the onset

Figure 6.14: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.14: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	68.7	2012	72.8
Gross domestic expenditure on R&D (% of GDP)	0.92 (1)	2011	1.9
Greenhouse gas emissions (% change since 2005)	– 11	2010	15
Share of renewable energy in gross final energy consumption (%)	20.3	2011	23
Primary energy consumption (million tonnes of oil equivalent)	5.8	2011	:
Early leavers from education and training (% of population aged 18–24)	6.5	2012	9 (2)
Tertiary educational attainment (% of population aged 30–34)	48.7	2012	40
People at risk of poverty or social exclusion (thousands)	1 080	2011	758

(1) Provisional data. (2) National target: less than 9 %.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

of the recession, increasing the country's gap to its 2020 poverty target. Despite the slight increase in R&D expenditure, a gap of about 1 percentage point needs to be closed for the target of 1.9 % of GDP to be reached.

Measures implemented to meet the national targets

Employment: Action plan for improving the employment of young people including strengthening active labour market policy measures; enhancing the working skills acquired at school; increasing the effectiveness of apprenticeship schemes, entrepreneurship promotion of the young.

Poverty: Increase in the amount of social benefits granted upon employment; measures for decentralising the provision of social assistance; providing additional benefits to the most vulnerable groups.

Energy efficiency: Encouraging energy efficiency of buildings, including issuance of preferential credits for renovation programmes, implementing energy efficiency programmes; granting power to regional authorities for the imposition of stricter heat consumption standards for buildings; provision of funding for the modernisation of buildings.

R&D expenditure: Implementation of projects under the High Technology Development Programme and the Industrial Biotechnology Development Programme; implementation of R&D infrastructural development projects; measures for promoting the commercialisation of some innovative products.

Education: Establishment of a non-state pre-primary institution; implementation of EU funded education projects targeting children with special needs and teaching staff; enhancing vocational guidance services and implementation of a general programme for career education.

Renewable energy and climate change: Establish legal conditions for energy resource exchange; enhance the incentive system for the use of renewable energy sources; provide funding for eco-transport infrastructure.

The European Commission's 2013 country-specific recommendations

Employment: Further pursue active labour market policies; enhance the employability of young people through the introduction of Youth Guarantee and improvement of apprenticeship schemes.

Poverty: Ensure social assistance reforms are complimented with activation measures; introduce more targeted measures for reducing poverty and social exclusion.

Energy efficiency: Further efforts are needed more reducing the energy intensity of residential buildings.

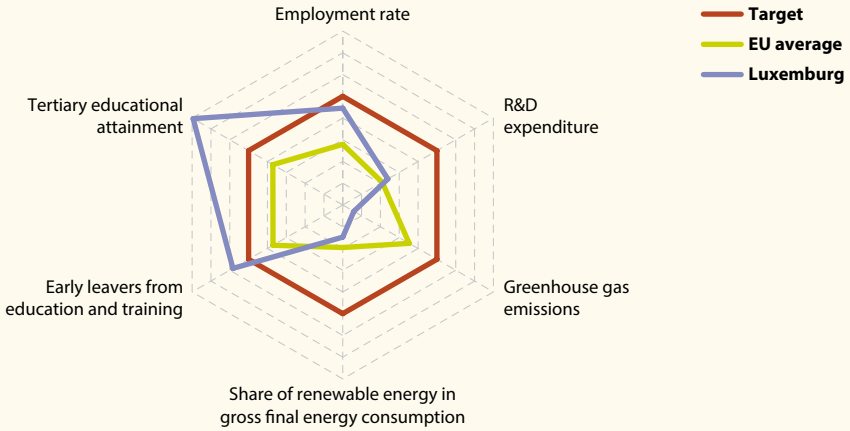
Others: Improve tax compliance; implement a comprehensive pension reform; take further steps in reforming state-owned enterprises; establish more energy infrastructural networks with neighbours.

Luxembourg

State of play

In 2012 Luxembourg was a top performer in terms of meeting national Europe 2020 targets on tertiary education; the country overachieved its tertiary education target by 9.6 percentage points. Similarly, Luxembourg exceeded its early school leaving target ahead of time, and it was closer to its employment target than the EU average. Despite being nearer its 2020 R&D expenditure target than the EU average, the gap has widened since 2009. Much bigger efforts than the EU average are needed to reduce the gaps to the targets on renewable energies and GHG emissions.

Figure 6.15: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.15: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	71.4	2012	73
Gross domestic expenditure on R&D (% of GDP)	1.43 (1)	2011	2.3 (2)
Greenhouse gas emissions (% change since 2005)	– 5	2010	– 20
Share of renewable energy in gross final energy consumption (%)	2.9	2011	11
Primary energy consumption (million tonnes of oil equivalent)	4.6	2011	:
Early leavers from education and training (% of population aged 18–24)	8.1 (3)	2012	10 (4)
Tertiary educational attainment (% of population aged 30–34)	49.6	2012	40
People at risk of poverty or social exclusion (thousands)	84	2011	:

(1) Estimated/provisional data. (2) National target: 2.3–2.6 %. (3) Provisional data. (4) National target: less than 10 %. (5) No national target.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Modernising institutional structures and improving the effectiveness of active labour market policies; enhancing the employment of young people, women, older workers and persons with specific needs.

R&D expenditure: Updating and modernisation of the National Research Fund for the public sector, establishment of new public research centres; specific measures for encouraging private research.

Climate change and renewable energies: Continued implementation of the action plan for reducing GHG emissions including measures in the areas of transportation, construction, industry, renewable energy, information and awareness raising, consulting; adoption of mechanisms for supporting biogas production installations; action plans for implementing electric mobility.

Energy efficiency: Amendment of the regulation on energy performance of buildings; issuance of regulatory measures for the production of electricity based on high efficiency cogeneration.

Education: Measures aimed at reforming secondary education system, enhancing the transition from primary to secondary education and promoting professional training; provision of financial assistance for university studies; promotion of professionally oriented training programmes.

Social inclusion: Providing socio-educational welcoming structures to children; pursuing active inclusion policy; facilitating the transition of young people from education to professional life; launch of a national strategy for fighting homelessness.

The European Commission's 2013 country-specific recommendations

Employment: Reforms in the wage setting system; step up measures for reducing youth unemployment and increasing the participation in the labour market of people with migrant background and older people.

Education: Enhance the general and vocational educational system to ensure acquired skills correspond better to labour market needs.

Climate change: Take further measures for reducing GHG emissions, particularly by raising the tax level for energy products for transport.

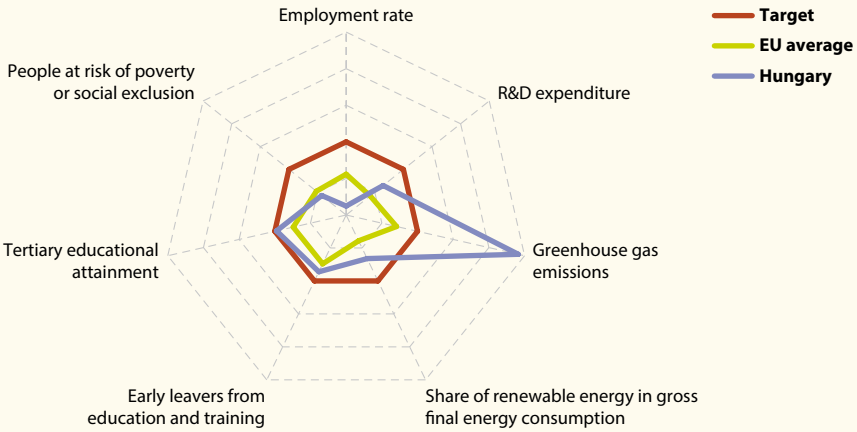
Others: Reform corporate taxation to prevent debt-bias; strengthen the efficiency and cost effectiveness of long-term care; take measures for increasing the retirement age.

Hungary

State of play

By reducing its GHG emissions by 14 % since 2005, Hungary had already exceeded its emissions target in 2010, limiting the increase in emissions to 10 % by 2020. The country was closer to its Europe 2020 benchmarks than the EU average for tertiary education, R&D expenditure and early school leaving. Poverty levels started deteriorating during the economic crisis, thus opening a 30 % gap to the country's social inclusion target. Despite the favourable increase in the employment rate from 2011 to 2012, a further increase in employment is needed for the 2020 target of 75 % to be reached. The use of renewable energy sources in the country has been increasing rapidly from 6.5 % of gross final energy consumption in 2008 to 9.1 % in 2011, but remained at some distance from the 13 % target.

Figure 6.16: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.16: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	62.1	2012	75
Gross domestic expenditure on R&D (% of GDP)	1.21	2011	1.8
Greenhouse gas emissions (% change since 2005)	– 14	2010	10
Share of renewable energy in gross final energy consumption (%)	9.1	2011	13
Primary energy consumption (million tonnes of oil equivalent)	23.3	2011	:
Early leavers from education and training (% of population aged 18–24)	11.5	2012	10
Tertiary educational attainment (% of population aged 30–34)	29.9	2012	30.3
People at risk of poverty or social exclusion (thousands)	3 051	2011	2 344

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Implementation of the Employer Benefit System-Job Protection Act aimed at boosting employment by supporting the most disadvantaged employees to enter the labour market and keep their jobs; facilitate the integration of young unemployed in the labour market; promoting labour market participation of women and enhancing the reconciliation of work and family; strengthening active labour market policies.

R&D expenditure: Developing a comprehensive RDI support scheme; drawing up a Science Policy Strategy aimed at providing basic infrastructure and financing to the academic sector; specific measures aimed at promoting R&D and innovation in agriculture, culture and healthcare.

Climate and renewable energies: Setting up action plans for the implementation of the National Energy Strategy; measures aimed at promoting environmentally friendly modes of public transport such as the financing of gas-powered vehicles; drawing up regulatory, administrative and funding measures for boosting the share of renewable energy sources.

Energy efficiency: Promoting energy efficiency and energy savings among the population and in the service and business sectors.

Early school leaving: Expanding and promoting the quality of education in early childhood; improving the academic performance of children with special educational needs; continued implementation of the Public education Bridge programme, providing special training and support for poorly performing pupils.

Tertiary education: Improving the efficiency and quality of tertiary education and promoting academic programmes more closely linked with the labour market needs; extensive state aid and funding system for increasing access to higher education; introduction of a vocational training system in higher education; support programmes for increasing the access of disadvantaged groups to higher education.

Social inclusion: Launch of local programmes for equal opportunities, enhancing regional cooperation in the public services; development of a housing strategy targeting segregated settlements; promoting the success at school of disadvantaged children.

The European Commission's 2013 country-specific recommendations

Employment: Strengthen the Public Employment Service, pursue active labour market policies and promote life-long learning.

Social inclusion: Take swift and effective measures for addressing high poverty levels, in particular among the Roma community, by implementing the National Social Inclusion Strategy.

Education: Further measures should be taken for preventing early-school leaving and enhancing the inclusiveness of the education system, in particular for children from Roma background; introduce higher education reforms for increasing tertiary attainment rates, especially for disadvantaged students.

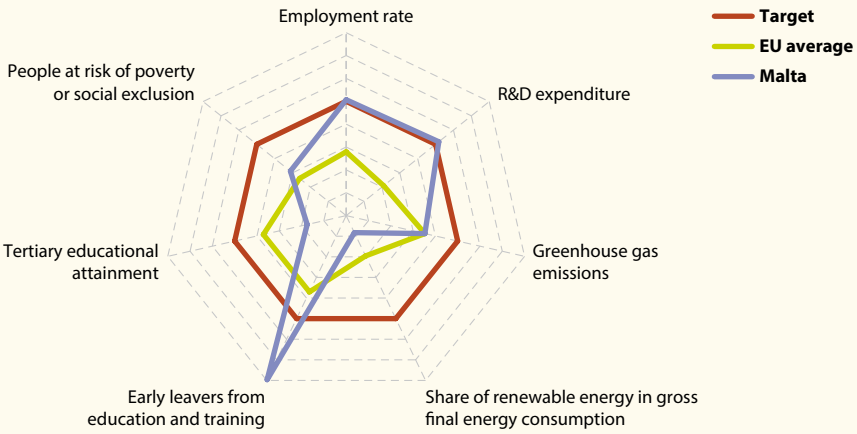
Others: Strengthen fiscal consolidation efforts; support the financial sector, strengthen financial regulation and supervision and help restore normal lending to the economy; introduce reforms in the taxation system including streamlining of corporate taxation, shifting away the tax burden on labour and improving tax compliance; reduce administrative burden for businesses; remove regulations in energy prices while supporting the most vulnerable and increase efficiency of the transport sector.

Malta

State of play

Malta has achieved the fastest progress of all Member States towards its early school leaving target. In 2012 the country already exceeded its target on reducing the number of early school leavers from education and training by 6.4 percentage points. Despite the adverse economic situation, Malta experienced a pronounced increase in its employment rate. In 2012 Malta was the only country exceeding its national target, with an employment rate of 63.1 %. In addition, in 2011 Malta exceeded its R&D benchmark, although it has to be noted that the target is set at a much lower level than the EU average. There is scope for improvement in the areas of tertiary educational attainment, renewable energies and GHG emissions

Figure 6.17: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.17: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	63.1	2012	62.9
Gross domestic expenditure on R&D (% of GDP)	0.72 (1)	2011	0.67
Greenhouse gas emissions (% change since 2005)	10	2010	5
Share of renewable energy in gross final energy consumption (%)	0.4	2011	10
Primary energy consumption (million tonnes of oil equivalent)	1.1	2011	:
Early leavers from education and training (% of population aged 18–24)	22.6	2012	29
Tertiary educational attainment (% of population aged 30–34)	22.4	2012	33
People at risk of poverty or social exclusion (thousands)	88	2011	73.44

(1) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

in order for the relevant indicators to be brought in line with the national targets. The target gap was particularly large for the share of renewable energy in gross final energy consumption (9.6 percentage points in 2012), with only three countries being farther from their national targets than Malta.

Measures implemented to meet the national targets

Employment: Addressing the shadow labour market; projects supporting the integration of disabled and other disadvantaged people in the labour market; incentives for increasing labour market participation of women and young people.

R&D expenditure: Adoption of a New National Research and Innovation Strategy; launch of a doctoral and post-doctoral scheme; establishing incentives for R&D in industry; provision of funding for addressing bottlenecks in the commercialisation of innovative ideas.

Climate change and energy: Increasing energy efficiency in transport; action plan for the implementation of large scale wind, solar, and waste to energy projects; scrappage scheme encouraging the purchase of environmentally friendly vehicles; support scheme for the installation of photovoltaic panels in households.

Education: Strengthening student services and launching other support initiatives to prevent absenteeism and school drop-outs; scheme for monitoring families with high tendency for school absenteeism; extension of vocational education subjects; new scholarship schemes in higher education.

Poverty: Fighting child poverty including the provision of training for lone parents; introducing reforms in the pension system and supplementary allowance system; incentives and support measures aimed at increasing the labour market participation rate of disabled people.

The European Commission's 2013 country-specific recommendations

Employment: Further measures are still needed for enhancing the labour market participation of women such as the provision of flexible working arrangements and the enhancement of child-care services.

Education: Take measures for increasing the labour market relevance of education.

Climate change and energy: Continued efforts are needed in promoting energy efficiency and reducing emissions from transport.

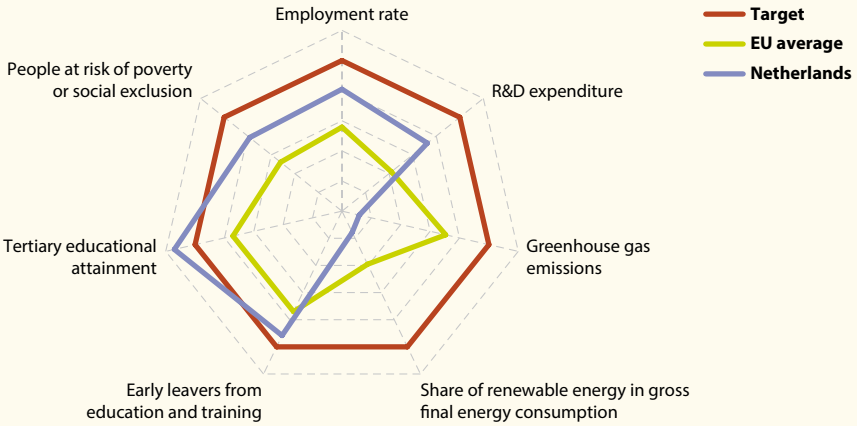
Others: Speed up the planned pension reform; link the retirement age to life expectancy; pursue a strict supervision of the banking sector to prevent the accumulation of imbalances; improve cost-effectiveness of the healthcare sector; step up reforms in the judicial system.

Netherlands

State of play

In 2012 the Netherlands already exceeded its tertiary educational attainment target. Despite the adverse impact of the economic crisis on employment and poverty rates, the country was closer to the employment and social inclusion targets than the EU average. Although remaining at some distance from the respective targets, the indicators on early school leaving and R&D expenditure have experienced favourable developments over the past few years. Efforts are needed to further reduce GHG emissions. In the area of renewable energies, in 2011 the Netherlands was among the countries farthest from their national targets.

Figure 6.18: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.18: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	77.2	2012	80
Gross domestic expenditure on R&D (% of GDP)	2.04 (1)	2011	2.5
Greenhouse gas emissions (% change since 2005)	– 1	2010	– 16
Share of renewable energy in gross final energy consumption (%)	4.3	2011	14
Primary energy consumption (million tonnes of oil equivalent)	67.4	2011	:
Early leavers from education and training (% of population aged 18–24)	8.8 (1)	2012	8 (2)
Tertiary educational attainment (% of population aged 30–34)	42.3 (1)	2012	40 (3)
People at risk of poverty or social exclusion (thousands)	2 598	2011	2 332

(1) Provisional data. (2) National target: less than 8 %. (3) National target: at least 40 %; 45 % expected in 2020.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Introducing a number of reforms aimed at increasing the mobility and broadening the participation in the labour market including simplification on the law of dismissals and strengthening activation measures.

Research and innovation: Promoting closer cooperation between academic institutes, public authorities and the private sector; encouraging private R&D spending through an Innovation Fund and tax facilities.

Energy and climate change: Continued implementation of the Local Climate Agenda and the Green Deals Programme for collaboration with social partners on GHG reduction; launch of programmes promoting environmentally friendly behaviour such as Mobility Management, Multiyear Agreements, New Driving Style and Sustainable Logistics; introduction of an energy tax on gas and electricity, duties on motor fuels; promoting investment of enterprises in energy efficient equipment through the Energy Investment Allowance scheme; measures for increasing energy efficiency of buildings.

Tertiary education: Measures for improving the performance of higher education and the quality of teaching and increasing the completion rate of students; staff action plans for introducing a loan system for new students.

Early school leaving: Comprehensive policy measures for preventing absenteeism at school; support measures for the regional approach to managing early school leaving including allocation of subsidies.

Poverty: Policy measures for promoting the access to the labour market, ensuring adequate minimum income and access to quality assistance for vulnerable groups.

The European Commission's 2013 country-specific recommendations

Employment: Further efforts for increasing the labour market participation of second wage earners, people with migrant backgrounds, disabled and older people; take steps in reforming the tax system, the employment protection legislation and the unemployment benefit scheme in order to address disincentives to work.

Poverty: Take measures for aligning rents with household income in the rental markets; strengthen targeted social housing policies.

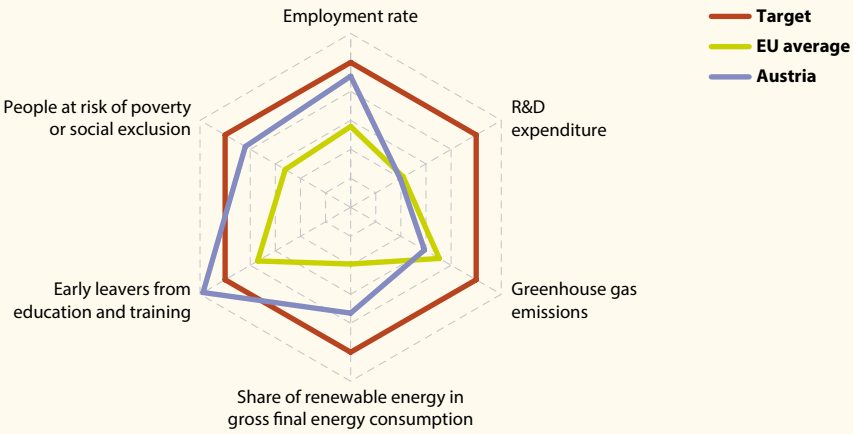
Others: Further efforts are needed for enhancing pension sustainability in view of the demographic change; measures for increasing the cost-efficiency of long-term care services; introduce reforms in the property market preventing household indebtedness; continue fiscal consolidation efforts.

Austria

State of play

In 2012, Austria had already met both its targets on education, with the proportion of early school leavers at 7.6 %, and 38.2 % of 30 to 34 year olds having completed tertiary-level, or equivalent, education. It was closer to its targets than the EU average for employment, risk of poverty or social exclusion (2011 data) and the share of renewable energies. Despite a 9 % reduction in GHG emissions since 2005, the gap to the target (– 16 % by 2020) was still larger than in most other Member States.

Figure 6.19: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.19: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	75.6	2012	77 (1)
Gross domestic expenditure on R&D (% of GDP)	2.75 (2)	2011	3.76
Greenhouse gas emissions (% change since 2005)	– 9	2010	– 16
Share of renewable energy in gross final energy consumption (%)	30.9	2011	34
Primary energy consumption (million tonnes of oil equivalent)	32.4	2011	:
Early leavers from education and training (% of population aged 18–24)	7.6	2012	9.5
Tertiary educational attainment (% of population aged 30–34)	38.2 (3)	2012	38 (3)
People at risk of poverty or social exclusion (thousands)	1 407	2011	1 297

(1) National target: 77–78 %. (2) Estimated/provisional data. (3) Indicator and target refer to ISCED levels 4a, 5 and 6.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), Statistics Austria, European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Special programmes and projects addressing specifically older workers, women, migrants and young people.

R&D expenditure: Measures include raising the budget for applied research and innovation, launching new funding and RTD initiatives, and supporting research institutions and networks.

GHG emissions: EUR 100 million of subsidies for thermal renovation of buildings.

Renewable energies: The 'Green Electricity Act 2012' entered into force in July 2012.

Energy efficiency: A bundle of measures consisting of energy management programmes, audits, counselling etc. has been put in place.

Early school leaving: Participation in OECD and EU-level work, a new measure 'Youth Coaching' provides support to students at the end of their compulsory schooling to decide on a personally suitable education or training pathway.

Tertiary education: Increasing budgets for higher education, for example through the 'Austrian Higher Education Plan' or by raising the global budget of universities.

Poverty: Measures aimed at improving employability (see employment target) are complemented with better social services, child care facilities, in particular for disadvantaged people and migrants.

The European Commission's 2013 country-specific recommendations

Employment: Take measures to reduce the gender pay gap by ensuring adequate provision of childcare and long-term care; improve the recognition of qualifications of people of migrant backgrounds; shift the tax burden away from low-income earners; align the retirement age to life-expectancy; ensure effective delivery of the reforms on early retirement and increase older workers employability.

Education: Step up reforms to improve educational outcomes, particularly for young people from migrant backgrounds; reform higher education to reduce high drop-out rates.

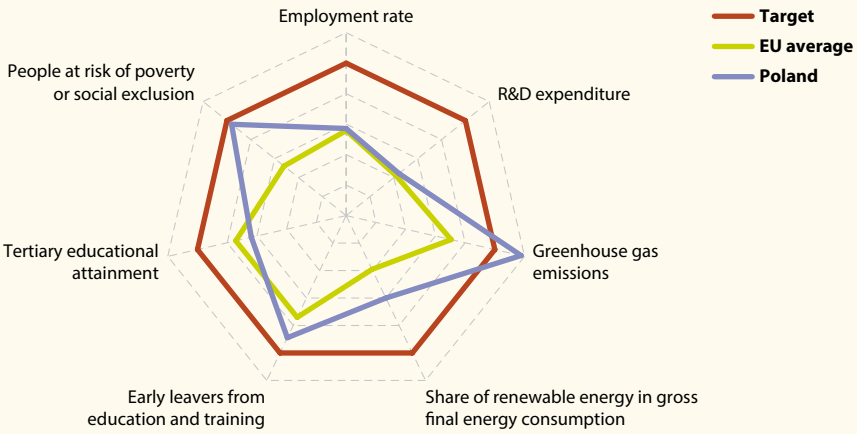
Others: Increase cost-effectiveness of the health care system while preserving high quality and equal access to services; promote competition in the service sector, in particular by reducing barriers to entry; maintain close supervision of nationalised and partly nationalised banks and accelerate their restructuring.

Poland

State of play

Despite an 11 % increase in GHG emissions between 2005 and 2010, Poland remained below its long-term target of limiting the increase in GHG emissions to 14 % by 2020. Against the backdrop of the crisis in Europe after 2008, Poland managed to reduce the number of people living at risk of poverty or social exclusion between 2008 and 2011, moving close to its national social inclusion target. The country was also closer than the EU average for the targets on employment, early school leaving, R&D expenditure and renewable energies. In contrast, it was more distant than the EU average for the tertiary education rate, with a gap of 5.9 percentage points to the national Europe 2020 commitment.

Figure 6.20: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.20: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	64.7	2012	7.1
Gross domestic expenditure on R&D (% of GDP)	0.76	2011	1.7
Greenhouse gas emissions (% change since 2005)	11	2010	14
Share of renewable energy in gross final energy consumption (%)	10.4	2011	15
Primary energy consumption (million tonnes of oil equivalent)	97.3	2011	:
Early leavers from education and training (% of population aged 18–24)	5.7 (1)	2012	4.5
Tertiary educational attainment (% of population aged 30–34)	39.1 (1)	2012	45
People at risk of poverty or social exclusion (thousands)	10 196	2011	9 991

(1) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Implementing gradual increase of the retirement age; measures aimed at increasing the labour market participation of women and older people; labour activation policies targeting the young and disabled people; taking steps for improving the training services for the unemployed; policies promoting more flexible working arrangements.

R&D: Continued efforts in the implementation of the Science Reform; launching a number of programmes in the fields of applied research and development; ensuring a comprehensive support system for financing research infrastructure and providing guarantees and bridge financing for research and innovation; measures for strengthening the link between research, innovation and industry.

Energy: Initiating the development of legal regulation supporting investment in the energy sector; action plans for implementing the Strategy for Energy security and the Environment and adopting Poland's Nuclear Energy Programme; formulating a Strategic Plan for Adaptation to Climate Change targeting sectors; supporting investment in energy efficiency; stepping up legal reforms enabling the introduction of a smart grid scheme and promoting the uptake of renewable energies.

Education: Modernising the national qualification system and increasing the labour market relevance of education; linking higher education funding with quality assessment; promoting the teaching potential at universities.

Poverty: Adoption of a National Programme against poverty and Social Exclusion; measures for increasing the employability of the most isolated from the labour market; programmes supporting families with children, parents raising disabled children and foster care systems; activation measures for addressing social exclusion of the young and the elderly.

The European Commission's 2013 country-specific recommendations

Employment: Further efforts are needed for integrating young people, women and old people in the labour market, particularly through strengthening vocational education, improving childcare services and increasing the work exit age; reform the social benefit system for farmers and the pension system for miners to promote incentives to work in other sectors.

R&D: Step up further public support measures for promoting private R&D expenditure such as tax incentives.

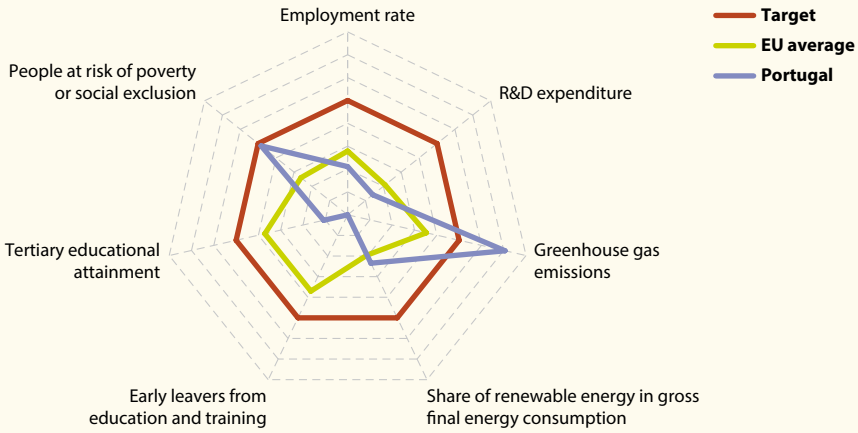
Others: Intensify efforts in further developing the rail, energy and broadband infrastructure ; ensure sustainable fiscal finances through improving the efficiency in the healthcare system and enforcing tax compliance; enhance the business environment by certain simplifying administrative procedures and reducing tax compliance costs.

Portugal

State of play

With a gap of 1.7 % in 2011, Portugal was close to its national target of reducing the number of people at risk of poverty or social exclusion. By reducing its GHG emissions by 6 % by 2010 (compared with 2005) the country was also well below its GHG emissions target. Although growth in the share of renewable energy sources in Portugal has been somewhat tentative since 2008, the country is closer to its renewable energies target than the EU average. The economic crisis had a particularly severe impact on Portugal, which is reflected in the large gap (8.5 percentage points in 2012) to the employment

Figure 6.21: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.21: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	66.5	2012	75
Gross domestic expenditure on R&D (% of GDP)	1.49 (1)	2011	2.7 (2)
Greenhouse gas emissions (% change since 2005)	–6	2010	1
Share of renewable energy in gross final energy consumption (%)	24.9	2011	31
Primary energy consumption (million tonnes of oil equivalent)	22.2	2011	:
Early leavers from education and training (% of population aged 18–24)	20.8	2012	10
Tertiary educational attainment (% of population aged 30–34)	27.2	2012	40
People at risk of poverty or social exclusion (thousands)	2 601	2011	2 557

(1) Provisional data. (2) National target: 2.7–3.3 %.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

target. Further progress towards the national education targets is needed, with Portugal being the country farthest from its early leaving from education and training target (10.8 percentage points gap in 2012) and with the second largest distance to its tertiary education target (12.8 percentage points gap).

Measures implemented to meet the national targets

The National Reform Programme of Portugal is currently available only in Portuguese; for details on the measures implemented in Portugal see http://ec.europa.eu/europe2020/pdf/nd/prgrep2013_portugal_pt.pdf

The European Commission's 2013 country-specific recommendations

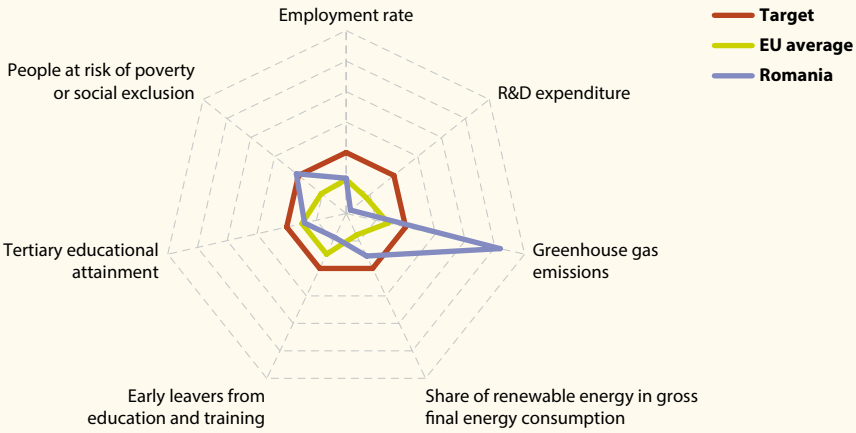
In order to avoid duplication with the measures adopted by the European Commission, The European Central Bank and the International Monetary Fund under the Economic Adjustment Programme, no additional recommendations for Portugal were issued in the framework of the European Semester. For more detailed information on recommendations under the Economic Adjustment Programme, see http://ec.europa.eu/economy_finance/assistance_eu_ms/portugal/index_en.htm

Romania

State of play

By 2010 Romania had reduced its GHG emissions by 8 % (compared with 2005), thus remaining well below its target. Romania was also one of the two Member States that already managed to reach their national poverty reduction targets in 2011. However, the country's indicators on employment, early school leaving and R&D expenditure deteriorated compared to 2008 levels, increasing the distance to the respective national targets. Although still farther from its target than the EU average, Romania achieved sizeable progress in raising the tertiary educational attainment rate by 5.8 percentage points between 2008 and 2012. The share of renewable energies moved closer to the country's commitments, with a gap of 2.6 percentage points to be closed by 2020.

Figure 6.22: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.22: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	63.8	2012	70
Gross domestic expenditure on R&D (% of GDP)	0.5	2011	2
Greenhouse gas emissions (% change since 2005)	– 8	2010	19
Share of renewable energy in gross final energy consumption (%)	21.4	2011	24
Primary energy consumption (million tonnes of oil equivalent)	33.9	2011	:
Early leavers from education and training (% of population aged 18–24)	17.4	2012	11.3
Tertiary educational attainment (% of population aged 30–34)	21.8	2012	26.7
People at risk of poverty or social exclusion (thousands)	8 630	2011	8 838

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Employment: Fighting illegal work, increasing the flexibility of employment procedures, mitigating in-work poverty by increasing the minimum gross wage, facilitating the transition of the unemployed to the labour market; increasing the employability of young people and persons living in rural areas.

R&D: Increasing the performance of RDI systems, by developing the technology and human resource base for research and enhancing the evaluation, classification and certification of public R&D institutes; establishment of the National Strategy for RDI 2014–2020; supporting private investment initiatives in R&D.

Climate change: Continued implementation of renewable energy projects and actions aimed at modernising the road transport sector; launch of a project for carbon capture and storage (CCS) and a campaign for reforestation.

Renewable energy: Progress in enhancing the delivery of the green certificates scheme; provision of financial support for renewable energies investments; measures for improving the capacity of the electricity and heat production from renewables.

Energy efficiency: implementation of a state aid support scheme for high efficiency cogeneration; financial support for the rehabilitation of centralised district heating systems and residential buildings.

Education: Implementation of social support programmes aimed at combating early school leaving; introducing reforms in preparatory class arrangements; action plans for increasing the inclusiveness and quality of education; re-launch of the National Strategy on Reducing Early School Leaving; measures aimed at increasing the relevance of higher education to the labour market needs; launching social scholarships and programmes for disadvantaged students.

Poverty: Increasing the quality of social assistance services and improving the access of the most disadvantaged groups to basic social services; special support actions targeted at children with disabilities and children from disadvantaged groups.

The European Commission's 2013 country-specific recommendations

Employment: Strengthen active labour market policies; ensure in-time implementation of the National Plan for Youth Employment; promote employability of older workers.

Poverty: Further measures for improving the effectiveness and efficiency of social benefits, in particular for children; ensure progress with the implementation of the National Roma Integration Strategy.

Education: Continue ongoing efforts in reforming the education system; ensure tertiary education matched the needs of the labour market.

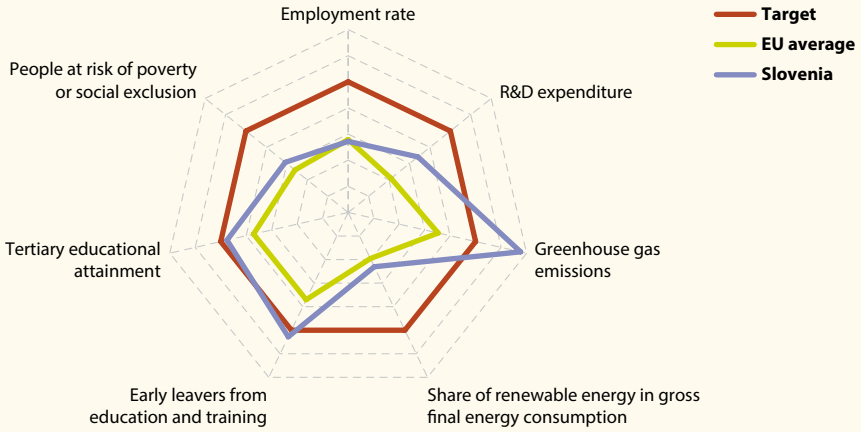
Others: Improve the efficiency and effectiveness of the health-care system; take measures for enforcing tax compliance and improving the capacity of public administration; implement reforms in the markets for energy and transport; extend broadband coverage.

Slovenia

State of play

By reducing its GHG emissions by 2 % between 2005 and 2010, Slovenia remained below its target of limiting the increase in GHG emissions to 4 % by 2020. Although the early school leaving rate underwent some fluctuations after 2008, the country managed to exceed its national target in 2012 by 0.6 percentage points. Slovenia was also closer to its national Europe 2020 benchmarks than the EU average for the targets for renewable energies, R&D expenditure, tertiary education and social inclusion. Given the adverse economic situation during the crisis, the employment rate in the country has been falling since 2008, resulting in a 6.7 percentage points gap to the national target in 2012.

Figure 6.23: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.23: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	68.3	2012	75
Gross domestic expenditure on R&D (% of GDP)	2.47 (1)	2011	3
Greenhouse gas emissions (% change since 2005)	– 2	2010	4
Share of renewable energy in gross final energy consumption (%)	18.8	2011	25
Primary energy consumption (million tonnes of oil equivalent)	7.1	2011	:
Early leavers from education and training (% of population aged 18–24)	4.4	2012	5
Tertiary educational attainment (% of population aged 30–34)	39.2	2012	40
People at risk of poverty or social exclusion (thousands)	386	2011	321

(1) Provisional data.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

R&D: Implementation of measures within the Research and Innovation Strategy 2011–2020 aimed at increasing private investment in R&D, enhancing employment and training of researchers, improving efficiency of research funds; projects for the establishment of Development Centres of the Slovenian economy at sectoral and regional level.

Early school leaving: Various early school leaving preventative measures such as study assistance, remedial classes, internal differentiation of classes, possibility for prolonged primary school education and development of individual education plan; simplifying procedures for returning to school after having discontinued one's education.

Tertiary education: Continued implementation of the Bologna process; action programmes aimed at increasing the quality and efficiency of higher education; provision of one-time regular studies at level two or three free of charge; integrating less represented groups in higher education.

Climate change and energy: Action plans for increasing forestation; measures aimed at increasing energy efficiency in the framework of the Decree on Energy Savings for end-users and the Energy Efficiency Action Plan for the period 2008–2016, including plans for the establishment of electronic register of energy performance certificates.

Employment: Adoption of new pension legislation, raising the retirement age; provision of financial incentives for the integration of youth and old people in the labour market; launch of active employment programmes targeted at young and low-skilled individuals.

Poverty: Reform in the procedure for claiming social transfers to achieve greater transparency, efficiency and fairness in the social distribution of public funds; preparation of employment activation programmes targeting inactive individuals; additional funds for school meals for students in primary and secondary education; adoption of the National Programme for Social Protection for the period 2013–2020.

The European Commission's 2013 country-specific recommendations

Employment: Ensure wage developments support external competitiveness and job creation; step up active labour market measures targeting the youth, older workers and the low-skilled; tackle the skills mismatch and segmentation on the labour market.

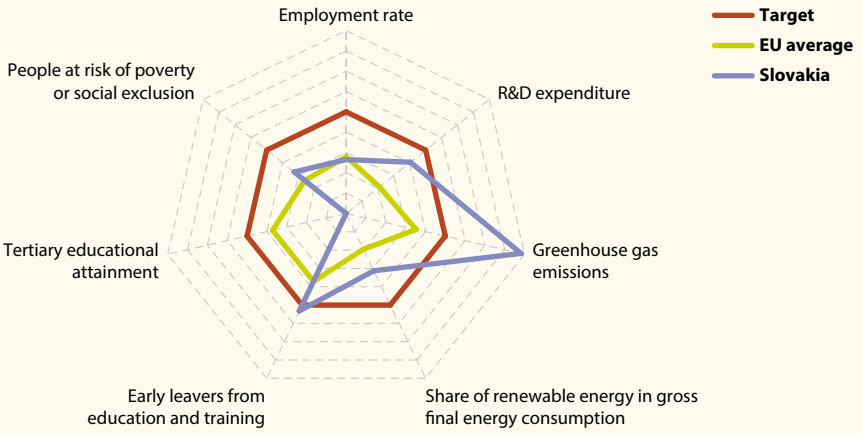
Others: Ensure cost-efficiency and financial sustainability of the pension and long-care systems; adopt a comprehensive banking sector strategy and improve the supervision of the banking sector; reform juridical proceedings to create a more enabling environment for businesses; step up measures for privatising non-core state-owned enterprises and implementing corporate restructuring of over-indebted but viable companies.

Slovakia

State of play

In 2010 GHG emissions in Slovakia were the same as in 2005 and thus well below the country's long-term commitment to limit the increase in emissions to no more than 13 % by 2020. Although in 2012 Slovakia already exceeded its early school leaving target by 0.7 percentage points, the tertiary educational attainment rate deviated substantially (by 16.3 percentage points) from its long-term target. The employment rate followed the EU trend and decreased considerably after the crisis, with the employment indicator farther (6.9 percentage points gap) from its target than the EU average. In contrast, the country was closer to its renewable energies, R&D expenditure and poverty and social inclusion targets than the EU average.

Figure 6.24: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.24: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	65.1	2012	72
Gross domestic expenditure on R&D (% of GDP)	0.68	2011	1
Greenhouse gas emissions (% change since 2005)	0	2010	13
Share of renewable energy in gross final energy consumption (%)	9.7	2011	14
Primary energy consumption (million tonnes of oil equivalent)	16	2011	:
Early leavers from education and training (% of population aged 18–24)	5.3	2012	6
Tertiary educational attainment (% of population aged 30–34)	23.7	2012	40
People at risk of poverty or social exclusion (thousands)	1 112	2011	941

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

Measures implemented to meet the national targets

Early school leaving: Reforming the funding system for schools in order to remove deficiencies, increasing the integration of disadvantaged communities in the educational system, strengthening the role, status and financial remuneration of teachers at all educational levels, improving the school quality assessment system and increasing the linkage between vocational education and practice.

Tertiary education: Reforming the funding system for higher education by introducing instruments, which discourage the retainment of non-performing students; reforming the accreditation procedure for higher education institutions.

R&D: Increasing the contribution of the private sector to science, research and innovation; strengthen Slovakia's participation in international research projects; create appropriate institutional arrangements and legal conditions enabling the transfer from knowledge to practice and improving the link between research institutions and business; preparation of the Smart Specialisation Strategy in Research, Development and Innovation in the Slovak Republic by 2020.

Employment: Reforming active labour market policies, wider provision of public employment services; programmes promoting youth employment, including a youth guarantee scheme; tackling long-term unemployment by increasing the match between the general education system and life-long learning with the labour market needs and reducing the tax burden faced by low-income employees.

Poverty: Effective targeting of social benefits and better harmonisation with active labour market policies; continued implementation of the childcare allowance programme; supporting economic and social integration and protecting marginalised communities; improving living conditions of people with disabilities; increasing availability and quality of social services; improving access to housing of risk-groups.

Climate change and energy: Support the stable and due functioning of the EU ETS scheme; various measures under the Low-carbon Development Strategy of the Slovak Republic including modernisation of the public lighting system and transport infrastructure, higher energy efficiency of buildings, improved recycling and energy recovery of waste; increasing cost-effectiveness of the financial support for renewable energy sources; reform in the provision of subsidies for coal production; establishment of a credit fund for improving energy efficiency of residential buildings.

The European Commission's 2013 country-specific recommendations

Employment: Step up measures for reducing high youth unemployment, improving public employment services, promoting activation policies for the long-term unemployed, increasing childcare facilities and reducing the tax burden of low-paid workers.

Education: Further promote work-based learning in companies, increase attractiveness of the teaching profession; develop more job-oriented bachelor programmes; improve access of marginalised communities to education.

Energy: Step up efforts to improve energy efficiency, in particular in the construction and industry sectors.

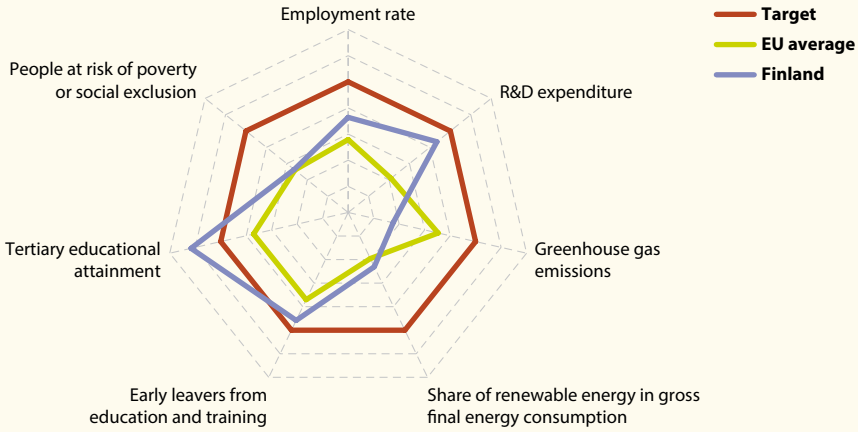
Others: Further efforts are needed for reforming the administrative system and improving the efficiency of the juridical system; take measures to fight tax evasion; improve VAT collection; continue improving the sustainability of pensions and step up a reform in the healthcare sector.

Finland

State of play

With a 45.8 % tertiary education attainment rate in 2012, Finland has already exceeded its national target of 42 %. The country was close to its targets on early school leaving and to a lesser extent social inclusion, with the deviations from the respective benchmarks being smaller than the EU average. Although the employment rate and R&D expenditure have experienced fluctuations in recent years, the two indicators were closer to their respective than the EU average in 2012 and 2011 respectively. Renewable energy sources have increased considerably in the past years; yet, in 2011, Finland remained

Figure 6.25: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.25: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	74	2012	78
Gross domestic expenditure on R&D (% of GDP)	3.78	2011	4
Greenhouse gas emissions (% change since 2005)	5	2010	– 16
Share of renewable energy in gross final energy consumption (%)	31.8	2011	38
Primary energy consumption (million tonnes of oil equivalent)	34.4	2011	:
Early leavers from education and training (% of population aged 18–24)	8.9	2012	8
Tertiary educational attainment (% of population aged 30–34)	45.8	2012	42 (1)
People at risk of poverty or social exclusion (thousands)	949	2011	760

(1) Narrow national definition.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

at some distance from its target, even though it was slightly closer than the EU average. Reductions in GHG emissions larger than in most other countries are required to bring them in line with the national target of – 16 % compared with 2005 levels.

Measures implemented to meet the national targets

Employment: Adoption of labour policy measures aimed at increasing labour force mobility, mainstreaming mobilisation of the whole labour force potential and supporting the business environment; introduction of flexible child home care allowance to facilitate the consolidation of work and family life.

R&D expenditure: New tax incentives for promoting investment in R&D in the private sector; provision of annual funding for a new research and innovation policy action programme; revision of the current university funding model and shift towards more outcome oriented financial targeting; launch of a new research infrastructure policy.

Climate and energy: Implementation of the National Energy and Climate Strategy including reducing the share of oil in overall energy consumption, adoption of clean energy, in particular in housing and transport sectors; preparation of a national climate act; adoption of measures for increasing energy efficiency.

Tertiary education: Setting up the ambitious goal of becoming the most competent nation in Europe by 2020; shortening study time and lowering the graduation age; reforming the student financial aid system; implementing a student selection reform with the aim of enhancing the ability of higher education institutions to respond more flexibly to changes in working life and society.

Early school leavers: Adoption of educational guarantee and skill programme for young adults ensuring increase in places for vocational upper secondary education and training; measures for improving the welfare of students in primary and secondary education.

Poverty: Launch of the National Development Programme for Social Welfare and Health Care; reforms for promoting employment, improving unemployment security; initiatives aimed at improving social services for older people and people from immigrant backgrounds.

The European Commission's 2013 country-specific recommendations

Employment: Address adverse demographic developments and ensure sustainability of the pension system by extending working lives; effective implementation of the proposed measures for tackling youth and long-term unemployment; implement measures for ensuring balance between wage growth and productivity

Innovation: Enhancing the innovation capacity of the business sector; ensure the investment in R&D is effectively translated into new innovative products and services

Energy: Step up diversification towards less energy intensive sectors

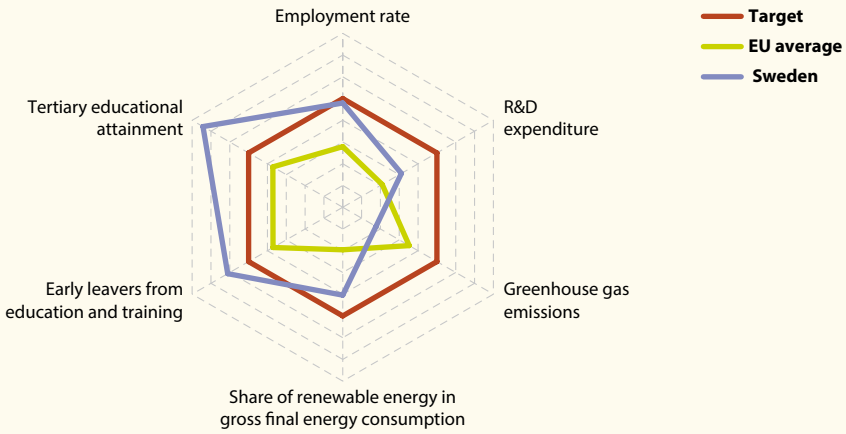
Other recommendations: Ensure public finances are in line with the expected increase in health and long-term care due to population ageing; reform the municipal structure to ensure higher productivity and cost savings in the public sector; further strengthen competition in the product and service markets.

Sweden

State of play

With 47.9 % of its 30 to 34 year old population having attained tertiary education in 2012, Sweden has already exceeded its national 2020 target by 7.9 percentage points. The country has also already surpassed its early school leaving target by 2.5 percentage points. Despite the slight deterioration in the labour market as a result of the crisis, Sweden had the highest employment rate in the EU in 2012 and was closer to its target than most other EU countries. Further progress is needed in order to

Figure 6.26: Distance to national targets and comparison with EU average (*)



(*) Most recent year for which data are available; see table below.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Table 6.26: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	79.4	2012	80 (1)
Gross domestic expenditure on R&D (% of GDP)	3.37 (2)	2011	4
Greenhouse gas emissions (% change since 2005)	– 6	2010	– 17
Share of renewable energy in gross final energy consumption (%)	46.8	2011	49
Primary energy consumption (million tonnes of oil equivalent)	47.6	2011	:
Early leavers from education and training (% of population aged 18–24)	7.5	2012	10 (3)
Tertiary educational attainment (% of population aged 30–34)	47.9	2012	40 (4)
People at risk of poverty or social exclusion (thousands)	1 538	2011	: (5)

(1) National target: well over 80 %. (2) Estimated/provisional data. (3) National target: less than 10 %. (4) National target: 40–45 %. (5) National target: Reduction of the % of women and men who are not in the labour force (except full-time students), the long-term unemployed or those on long-term sick leave to well under 14 % by 2020.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators), European Commission (Europe 2020 targets)

bring the indicators on R&D expenditure, renewable energies and GHG emissions into line with the country's 2020 targets. The gap was particularly large for GHG emissions (11 percentage points in 2010), with Sweden being further from its target than most other Member States.

Measures implemented to meet the national targets

Employment: Preventing discrimination in the labour market, in particular for Roma people, investigating possibilities for longer working life and reinforcing the development of regional skill platforms.

Education: Developing initiatives for reducing upper-secondary drop-out rates; incentives for improving the quality of work introduction measures; increasing the number of places in tertiary and vocational education and measures for strengthening the quality of educational programmes.

Poverty: Measures aimed at the effective labour market introduction of young people; social assistance reforms to encourage greater labour market participation of benefit recipients; plans for reforming the design of parental benefit; increase in housing allowance for households with children and pensioners.

R&D: Measures aimed at increasing the efficiency of the national research system, facilitating participation in transnational research cooperation, attracting prominent international researchers, promoting gender equality in research and enhancing the dissemination of research-based projects.

Climate and energy: Initiatives aimed at increasing the energy efficiency of buildings, developing a regional plan for action for climate adaptation, strengthening R&D in the area of renewable energy.

The European Commission's 2013 country-specific recommendations

Employment: Take further steps to increase labour market integration of low-skilled youth and people with migrant background; implement measures facilitating the transition from school to work by expanding opportunities for apprenticeships.

Others: Remove incentives to borrow in order to sustain the high indebtedness levels of households; implement reforms in the rent-setting system; remove bottlenecks, increase efficiency and reduce costs in the construction sector in order to increase flexibility of housing supply.

United Kingdom

State of play

The United Kingdom has not adopted specific national Europe 2020 targets apart from the already existing climate change and renewable energies commitments. Despite the deterioration in the employment rate during the crisis (2008 to 2011), the indicator increased to 74.2 % in 2012, exceeding the EU average of 68.5 %. In the period 2008 to 2012 the UK managed to increase the tertiary educational attainment rate despite the adverse economic situation in the EU. After wide fluctuations over the past years, in 2012 the indicator on early school leavers dropped from 15 % to 13.5 %. The development of the social exclusion indicator has been much more tentative, with the number of people at risk of poverty or social exclusion in 2012 remaining very close to its 2008 level. Following slight improvements in 2009 and 2010, in 2011 R&D expenditure fell to 1.75 %, reaching 2008 levels. The country recorded an 8 % reduction in GHG emissions between 2005 and 2010; further reductions of a similar amount are needed for the target of – 16 % to be achieved by 2020. With a gap of 11.2 percentage points in 2012, the UK recorded the second largest distance to its renewable energies target (after France).

Table 6.27: National Europe 2020 indicators: most recent data and targets

	Data	Year	Target
Employment rate age group 20–64 (%)	74.2	2012	: (1)
Gross domestic expenditure on R&D (% of GDP)	1.75 (2)	2011	: (1)
Greenhouse gas emissions (% change since 2005)	– 8	2010	– 16
Share of renewable energy in gross final energy consumption (%)	3.8	2011	15
Primary energy consumption (million tonnes of oil equivalent)	190.7	2011	:
Early leavers from education and training (% of population aged 18–24)	13.5	2012	: (1)
Tertiary educational attainment (% of population aged 30–34)	47.1	2012	: (1)
People at risk of poverty or social exclusion (thousands)	14 044	2011	: (3)

(1) No target in the National Reform Programme. (2) Provisional data. (3) Existing numerical targets of the 2010 Child Poverty Act.

Source: Eurostat (see dedicated web section: Europe 2020 headline indicators)

Measures implemented to meet the national targets

Employment: Adoption of measures for improving youth employment including the introduction of Youth Contract, increased provision of work experience and apprenticeships and skills development programmes.

Poverty: Welfare reforms aimed at increasing incentives to work, supporting lone parents into work, reducing child poverty and promoting social mobility, and improving the lives of troubles families.

Education: Action plans and measures aimed at increasing the participation and raising standards in education, improving the educational attainment of more disadvantaged pupils.

R&D: Implementation of measures under the Innovation and Research Strategy for Growth including continued investment in curiosity driven research in universities and strengthening the link between enterprises and research; support for business R&D through R&D tax credits.

Climate change: Adoption of sectoral plans for reducing emissions from buildings, transport, industry, electricity and agriculture, land use,

forestry and waste under the Carbon Plan; measures for reforming the electricity market under the Energy Bill; action plans for the establishment of a Carbon Price Floor and the development of Carbon Capture and Storage.

Renewable energy: Existing support measures for renewable energies include Renewable Obligation, Feed-in-Tariffs scheme, Renewable Heat Incentive, Renewable Transport Fuel obligation.

Energy efficiency: Action plans and measures under the Energy Efficiency Strategy including the Green Deal, the Electricity and Gas Order 2012 supporting improvement in energy efficiency in low-income households, the Carbon Reduction Commitment (CRC) Energy Efficiency scheme for promoting energy efficiency in public and private organisations; Climate Change Levy.

The European Commission's 2013 country-specific recommendations

Employment: Step up measures for improving the quality of vocational training and increasing the skills of young people in order to fight youth unemployment.

Poverty: Ensure the tax-benefit system provides adequate incentives to work; increase the quality and affordability of childcare services.

Others: Continue consolidation efforts, while promoting growth-enhancing expenditure; take measures for increasing the housing supply while ensuring sustainable mortgage lending; encourage bank lending to businesses; increase investments in transport and energy infrastructure, in particular renewables.

Abbreviations and acronyms

Geographical aggregates and countries

EU-28	The 28 Member States of the European Union from 1 July 2013 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK) ([1])
EU-27	The 27 Member States of the European Union from 1 January 2007 to 30 June 2013 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK)
EU-15	The 15 Member States of the European Union from 1 January 1995 to 30 April 2004 (BE, DK, DE, IE, EL, ES, FR, IT, LU, NL, AT, PT, FI, SE, UK)

Note that EU aggregates are back-calculated when enough information is available – for example, data relating to the EU-27 aggregate is presented when possible for periods before Bulgaria and Romania joined the EU in 2007 and the accession of ten new Member States in 2004, as if all 27 Member States had always been members of the EU. The label is changed if the data refer to another aggregate (EU-15).

European Union Member States

BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland

([1]) At the time of drafting this publication, the EU-28 aggregate (including Croatia since its accession on 1 July 2013) was not available. Therefore, only the EU-27 aggregate (referring to the situation in the EU before the accession of Croatia) is used for the analysis.

EL	Greece
ES	Spain
FR	France
HR	Croatia ([2])
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom

European Free Trade Association (EFTA)

IS	Iceland ([3])
LI	Liechtenstein
NO	Norway
CH	Switzerland

([2]) Croatia has joined the EU on 1 July 2013. However, as this publication refers to the situation before its accession, Croatia is listed among the EU candidate countries in the graphs.
([3]) Note that Iceland is also an EU candidate country.

EU candidate countries

ME	Montenegro
MK	The former Yugoslav Republic of Macedonia ([4])
RS	Serbia
TR	Turkey

Units of measurement

%	per cent
:	data not available
EUR	euro
GWh	gigawatt hours
kg	kilogram
km	kilometre
Mtoe	million tonnes of oil equivalent
ppm	parts per million
TWh	terawatt hours

Abbreviations

AGS	Annual Growth Survey
CCS	Carbon capture and storage
CO_2	Carbon dioxide
ECEC	Early childhood education and care
ECTS	European Credit Transfer and Accumulation System
EDP	Excessive Deficit Procedure
EEA	European Environment Agency
EED	Energy Efficiency Directive
EFTA	European Free Trade Association
ERDF	European Regional Development Fund
ESD	Effort Sharing Decision

([4]) The name of the former Yugoslav Republic of Macedonia is shown in tables as 'FYR Macedonia'. This does not prejudge in any way the definitive nomenclature for this country, which is to be agreed following the conclusion of negotiations currently taking place on this subject at the United Nations.

ESS	European Statistical System
ET 2020	'Education and Training 2020' Framework
EU	European Union
EU ETS	EU Emission Trading System
EU LFS	EU Labour Force Survey
EU SDS	EU Sustainable Development Strategy
EU SILC	EU Statistics on Income and Living Conditions
GDP	Gross Domestic Product
GEM	Global Entrepreneurship Monitor
GHG	Greenhouse gas
GNP	Gross national product
HEIs	Higher education institutions
ICT	Information and communications technology
IEA	International Energy Agency
ILO	International Labour Organisation
ISCED	International Standard Classification for Education
JRC	Joint Research Centre
LULUCF	Land use, land-use change and forestry
MIP	Macroeconomic Imbalance Procedure
NEET	Not in Education, Employment or Training
NREAP	National renewable energy action plans
NRP	National Reform Programmes
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization for Economic Co-operation and Development
PISA	Program for International Student Assessment
R&D	Research and Development
RDI	Research and Development Initiative
RTD	Research and Technological Development
SCP	Stability Convergence Programmes
SGP	Stability and Growth Pact
SME	Small and medium enterprises
UN	United Nations

UNEP	United Nations Environment Program
US	United States
VAT	Value added tax
VET	Vocational Education and Training
WMO	World Meteorological Organization

European Commission

Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy

Luxembourg: Publications Office of the European Union

2013 — 213 pp. — 17.6 x 25 cm

Theme: General and regional statistics
Collection: Statistical books

ISBN 978-92-79-31156-7
doi: 10.2785/11619
Cat. No: KS-02-13-238-EN-C

HOW TO OBTAIN EU PUBLICATIONS

Free publications:

- one copy:
  via EU Bookshop (http://bookshop.europa.eu);
- more than one copy or posters/maps:
  from the European Union's representations (http://ec.europa.eu/represent_en.htm);
  from the delegations in non-EU countries (http://eeas.europa.eu/delegations/index_en.htm);
  by contacting the Europe Direct service (http://europa.eu/europedirect/index_en.htm) or calling 00 800 6 7 8 9 10 11 (freephone number from anywhere in the EU) (*).

  (*) The information given is free, as are most calls (though some operators, phone boxes or hotels may charge you)

Priced publications:

- via EU Bookshop (http://bookshop.europa.eu).

Priced subscriptions:

- via one of the sales agents of the Publications Office of the European Union (http://publications.europa.eu/others/agents/index_en.htm).

Smarter, greener, more inclusive?

Indicators to support the Europe 2020 strategy

Smarter, greener, more inclusive? — Indicators to support the Europe 2020 strategy is the first of a new type of Eurostat flagship publication providing statistical analyses related to important European Commission policy frameworks or economic, social or environmental phenomena. It provides statistical support for the Europe 2020 strategy and backs up the monitoring of its five headline targets.

The analysis in this publication is based on the Europe 2020 headline indicators chosen to monitor the strategy's targets. Other indicators focusing on subgroups of society or on related issues showing underlying trends help deepen the analysis and present a broader picture. The publication presents official statistics produced by the European Statistical System and disseminated by Eurostat. They cover the period from 2000 or 2005 up to the most recent year for which data are available (2011 or 2012).

http://ec.europa.eu/eurostat

KS-02-13-238-EN-C

ISBN 978-92-79-31156-7

Publications Office

doi: 10.2785/11619