Statistics on European Neighbourhood Policy Countries: East

2018 edition

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Statistics on European Neighbourhood Policy Countries: East — 2018 edition

The 2018 edition of *Statistics on European Neighbourhood Policy Countries: East* presents up-to-date series of key statistical data for six partners — Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine — also known as the ENP-East countries, as well as data for the EU-28.

The tables, figures, associated commentary and methodological notes concern key social, economic and environmental themes for which data are collected annually by Eurostat from the ENP-East countries through a series of harmonised questionnaires. All tables and figures in the publication are followed by data codes, which link directly to tables within Eurostat's free dissemination database (Eurobase): the data codes generally contain the data for the EU-28 and in most cases also contain data for the individual EU Member States, EFTA countries, enlargement countries and in a few cases also ENP-East countries.

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Armenia

National Statistical Service of the Republic of Armenia

www.armstat.am

Azerbaijan

The State Statistical Committee of the Republic of Azerbaijan

www.stat.gov.az

Belarus

National Statistical Committee of the Republic of Belarus

www.belstat.gov.by

Georgia

National Statistics Office of Georgia

www.geostat.ge

Moldova

National Bureau of Statistics of the Republic of Moldova

www.statistica.md

Ukraine

State Statistics Service of Ukraine

ukrstat.org

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Introduction

Introduction

Policy background

The European Neighbourhood Policy (ENP) — established in 2004 — reflects the European Union's (EU) wish to build on common interests with partner countries and commitment to work jointly in key priority areas, including in the promotion of democracy, rule of law, respect for human rights, and social cohesion. Through the ENP, the EU offers partner countries potential greater access to the EU's market and regulatory framework, standards and internal agencies and programmes.

The ENP is a key part of the EU's foreign policy. The ENP partner countries form two groups, those to the east of the EU referred to as the ENP-East countries and those to the south of the EU referred to as the ENP-South countries. The ENP-East grouping brings together the countries of Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine in the Eastern Partnership. Action plans setting out an agenda for political and economic reforms with short and medium-term priorities have been developed with all of the countries, except Belarus. They reflect the state of each country's progress in terms of its relations with the EU.

The ENP was most recently revised in November 2015, when a profound review of the ENP took place, recognising the different level of involvement sought in the bilateral relations by the EU's partners and following extensive public consultations with all the main stakeholders.

The current policy aims to build more effective partnerships between the EU and its neighbours towards a more stable EU Neighbourhood, in political, socio-economic and security terms. Strengthening the state and societal resilience of the EU's partners is a key priority in the face of threats and pressures they are experiencing, including the challenges associated with migration and mobility. The key principles of the revised ENP are differentiation amongst partner countries, flexibility (in order to accelerate assistance and to ensure it is better adapted to rapidly changing political circumstances and priorities), joint ownership, greater involvement of the EU Member States, and shared responsibility.

The 2015 review built on the relaunch of the ENP which took place in May 2011, when, partly in response to the 'Arab Spring', the European Commission and the European External Action Service launched a new and ambitious ENP, confirming the EU's determined and reinforced engagement with its neighbours to the east and to the south.

Of the six ENP-East countries, three — Georgia, Moldova and Ukraine — have signed Association Agreements and the Deep and Comprehensive Free Trade Agreements with the EU. In February 2017, the EU and Armenia completed negotiations for a Comprehensive and Enhanced Partnership Agreement. During the same year, the EU and Azerbaijan launched negotiations for a new comprehensive agreement.

For more information about the ENP, see: http://eeas.europa.eu/topics/european-neighbourhood-policy-enp_en

The action plans are available at: http://eeas.europa.eu/headquarters/headquarters-homepage/8398/enp-action-plans_en

The latest progress reports are available at: http://eeas.europa.eu/headquarters/headquarters-homepage/8409/enp-progress-reports_en

The EU supports the achievement of the objectives of the actions plans and association agreements through: financial support; economic integration and access to EU markets; easier travel to the EU; and technical and policy support. Once a year, the European Commission and the High Representative of the European Union for Foreign Affairs and Security Policy publish reports assessing the progress made towards the objectives of the action plans.

Statistical cooperation

Among the EU Member States, statistics are coordinated by Eurostat, the statistical office of the EU, through the European Statistical System (ESS). The European statistical system is based on the harmonisation of statistical concepts, methodologies, definitions and methods which enable the collection of reliable, robust and comparable statistics among EU Member States, European Free Trade Association (EFTA) and enlargement countries.

Eurostat shares its expertise with non-member countries within the framework of its international statistical cooperation activities — supporting, upgrading and enhancing the statistical systems of these non-member countries. The beneficiaries of this support include:

- EU enlargement countries (candidate countries or potential candidates);
- ENP countries
  - in the ENP-East area; and
  - in the ENP-South area;
- African, Caribbean and Pacific (ACP) countries;
- Latin American countries;
- Asian countries.

Statistical cooperation with the ENP-East countries

In the light of the revitalised ENP strategy, the importance of official statistics has been reinforced and the need for international cooperation in statistics renewed; statistics need to capture the situation in a country in both static and dynamic forms, helping policymakers identify needs, formulate objectives and orientate policies; statistics need to enable progress towards agreed goals to be monitored and measured — a key component of governance. Statistics are also needed to inform and support the dialogue and exchanges between the EU and its partners in eastern Europe, within the framework of the ENP. To meet this need, the EU and the ENP-East countries have been working together for a number of years to strengthen statistical systems in the region.

In 2014, a new strategy for statistical cooperation in the ENP-East region was prepared by the ENP-East countries in cooperation with Eurostat. Its main objectives for 2014-2020 are to:

- empower users including policymakers and civil society;
- improve the availability of good quality statistics in line with the EU acquis in statistics;
- strengthen institutional capacity by implementing the European statistics Code of Practice;
- support the implementation of the European Neighbourhood Instrument — Regional East strategy (2014-2020) with statistical data.

For more information, see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Statistical_cooperation_-_introduction

The strategy envisages that a number of objectives will be achieved, inter alia, using the following means:

- data collection;
- joint pilot surveys;
- joint statistical publications for the region;
- specific technical assistance, project-oriented towards the implementation of EU standards in statistics in the context of Association Agreements and Deep and Comprehensive Free Trade Area negotiations;
- projects targeting, for example, quality, dissemination, statistical areas, management, registers and classifications to produce data;
- training courses;
- workshops and seminars.

Eurostat supports the European Commission's technical assistance programmes in the ENP-East countries by providing statistical assistance to national statistical authorities, encouraging best practice and the transfer of know-how through mutual contacts, training, study visits, workshops and seminars and assisting countries in the process of harmonisation towards European Statistical System and/or international standards.

By publishing data for the ENP-East countries, both in this publication and through its free, public reference database (Eurobase) and Statistics Explained, Eurostat is playing a key role in improving the transparency for these countries.

For more information, see: http://ec.europa.eu/eurostat/statistics-explained/index.php/Statistical_cooperation_-_European_Neighbourhood_Policy-East_(ENP-E)

Reading guide

Publication structure

The main body of *Statistics on European Neighbourhood Policy Countries: East* — 2018 edition contains tables, figures, commentary and explanations structured into 13 chapters: population; living conditions; health; education; the labour market; economy and finance; international trade in goods; agriculture and fishing; industry and services (including tourism); science and technology; transport; energy; and the environment.

Spatial coverage

The EU-28 aggregates that are presented in this publication for the purpose of comparison have been processed and calculated by Eurostat on the basis of information provided by the national statistical authorities of the 28 EU Member States. Unless otherwise indicated, these data cover the 28 Member States (as of February 2018) throughout the period considered in each table and figure, regardless of whether there were 15, 25, 27 or 28 members of the EU in the reference year concerned. In other words, the data have been calculated backwards with a stable geographical coverage.

Map 1 shows the location of the 28 Member States of the EU as well as the ENP-East countries. Table 1 provides an overview of a number of key indicators for the EU-28 and each of the ENP-East countries: the number of inhabitants, the size of each economy (as measured by GDP) and the average standard of living (as measured by GDP per capita). Note that the data for Georgia exclude the regions of Abkhazia and Tskhinvali region/South Ossetia over which the government of Georgia does not exercise effective control — a few indicators (for example concerning the area of the country) do cover these regions and are footnoted accordingly. Equally, data for Moldova generally exclude areas over which the government of the Republic of Moldova does not exercise effective control and again footnotes identify the few indicators related to the physical environment where the

Map 1: EU Member States and ENP-East countries

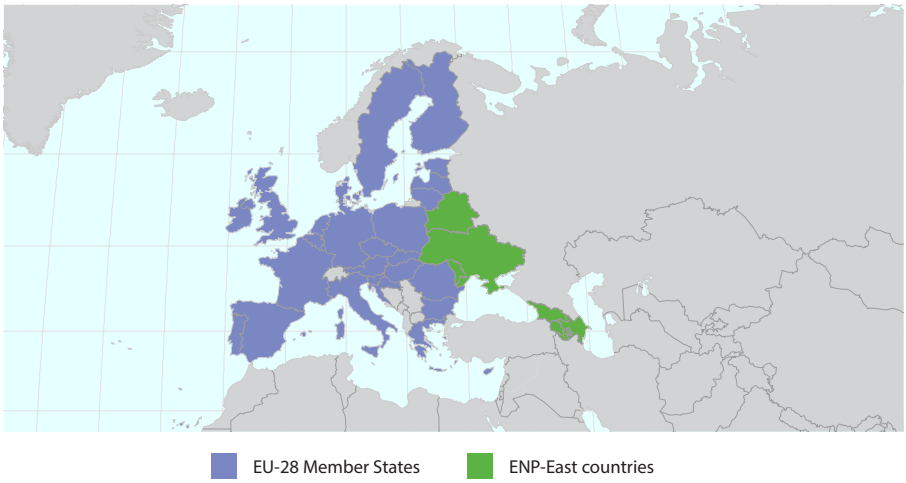


Table 1: Key indicators, 2016

	Population	Gross domestic product	
		Total (EUR billion)	Per capita (EUR)
EU-28	*510 279*	14 907.9	29 200
Armenia	2 999	9.6	3 192
Azerbaijan	9 706	34.2	3 549
Belarus	9 498	42.9	4 511
Georgia (1)	3 720	*13.0*	3 484
Moldova (1)	3 553	*6.1*	1 722
Ukraine (2)	42 591	*84.2*	1 974

(1) GDP: based on 1993 SNA.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data codes: demo_pjan, nama_10_gdp and nama_10_pc)

coverage includes these areas. The latest data for Ukraine, generally 2014-2016, exclude the territories which are not under effective control of Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol; these changes in the coverage of the Ukrainian data are indicated in each table or figure by footnotes noting a break in series or specifying any change; these changes in coverage have an impact on the comparability of Ukrainian time series when comparing data for 2014-2016 with data from before 2014.

Timeliness

The data presented in this publication were collected from the ENP-East countries between September and December 2017. The data for the EU-28 were extracted from Eurobase in January 2018. As Eurobase is updated regularly, some data in this publication may have already been revised. The accompanying text was drafted in February 2018.

Data sources

The data for the ENP-East countries are supplied by and under the responsibility of the national statistical authorities of each of the countries concerned. Data from other sources are used in this publication to a limited extent and are identified in the source under each table and figure. The publication of these data does not constitute the expression of an opinion by the European Commission on the legal status of a country or territory or on the delimitation of its borders.

The EU-28 data that are presented in this publication for the purpose of comparison have been processed and calculated by Eurostat on the basis of information provided by the national statistical authorities of the 28 EU Member States, with or without estimates. These data are available from Eurobase through the following link: http://ec.europa.eu/eurostat/data/database

Eurostat data code

Data codes have been inserted after each table and figure to help readers access the most recent data on Eurostat's website: the data codes link directly to the associated tables within Eurobase.

In the PDF version of this publication, the data codes under each table and figure are presented as internet hyperlinks, providing a direct link to the information used to construct tables and figures. The data on Eurostat's website are frequently updated and may therefore differ from those presented in this publication, while these datasets may often contain more detailed data.

Exchange rates

For some indicators, monetary values were provided by the ENP-East countries in national currency terms. In these cases, Eurostat converted the series using exchange rates (annual averages for the reference year in question) so that data for all indicators provided in monetary units are denominated in the same currency.

While the conversion to a common currency unit facilitates comparisons of data between countries, it is important to understand that changes in exchange rates are partially responsible for movements identified when looking at the development of a time series for an indicator that is denominated in euro. Table 2 provides information on the annual average exchange rates between the euro and the currencies of the ENP-East countries for the period 2006-2016. Note that Belarus introduced a new rouble on 1 July 2016.

Table 2: Euro exchange rates, annual averages, 2006–2016
(1 euro = … national currency)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Armenia	521.20	467.81	450.24	507.35	496.03	518.72	516.38	544.12	552.11	530.60	531.85
Azerbaijan (1)	1.1200	1.1750	1.2100	1.1200	1.0600	1.1000	1.0104	1.0422	1.0430	1.1380	1.7659
Belarus (2)	2 692	2 937	3 135	3 885	3 950	6 432	10 713	11 782	13 574	17 610	2.2005
Georgia	2.2297	2.2862	2.1886	2.3305	2.3644	2.3473	2.1232	2.0940	2.3462	2.5204	2.6172
Moldova	16.492	16.599	15.292	15.525	16.400	16.337	15.563	16.724	18.632	20.898	22.055
Ukraine	6.337	6.918	7.708	10.868	10.533	11.092	10.270	10.612	15.716	24.229	28.300

(1) 2016: end of year.
(2) 2006-2015 old denomination. As of July 2016, 1 BYN = 10 000 BYR.

Source: Eurostat

Symbols used for data presentation

Statistical data are often accompanied by additional information, for example concerning the quality or status of the data. In figures, all additional information is provided by way of footnotes. The following symbols are used in tables:

Value in *italics*	provisional data, estimates or forecasts (in other words data that are likely to change);
:	shown where data are not available, confidential or unreliable;
–	shown where an indicator is not relevant.

Measurement units or scalars

%	percentage
billion	1 000 million
BYN/BYR	Belarusian rouble
EUR	euro
GEL	Georgian lari
GWh	gigawatt hours
head	unit of measure for counting the number of (farm) animals
kg	kilogram
kgoe	kilogram of oil equivalent
km	kilometre
km^2	square kilometre
m	metres
passenger-km	passenger-kilometres
points	percentage points
PPS	purchasing power standard
tce	tonne of coal equivalent
toe	tonne of oil equivalent
tonne (t)	1 000 kg
tonne-km	tonne-kilometres
USD	United States dollar

Abbreviations/acronyms

ACP	African, Caribbean and Pacific (countries)
BPM	Balance of payments manual
CAP	common agricultural policy
CO_2	carbon dioxide
EACEA	Education, Audiovisual and Culture Executive Agency
EDP	excessive deficit procedure
EFTA	European Free Trade Association
ENP	European neighbourhood policy
EU	European Union
EU-27	European Union of 27 Member States (2007-2013)
EU-28	European Union of 28 Member States
FAO	Food and Agricultural Organisation of the United Nations
FDI	foreign direct investment
GDP	gross domestic product
ICT	information and communication technologies
IEA	International Energy Agency
ILO	International Labour Organisation
IMF	International Monetary Fund
ISCED	international standard classification of education
NACE	statistical classification of economic activities in the European Community
OECD	Organisation for Economic Co-operation and Development
PC	personal computer
PDF	portable document format
PPP	purchasing power parities
R & D	research and development
Rev.	revision
SITC	standard international trade classification
SME	small and medium-sized enterprises
SNA	system of national accounts
UAA	utilised agricultural area

1 Population

Population size and structure

In 2016, the total population of the six ENP-East countries was 72.1 million persons, which was equivalent to approximately 14.1 % of the total number of inhabitants in the EU-28 (see Table 1.1). Ukraine was the most populated of the ENP-East countries with 42.6 million inhabitants in 2016, while none of the remaining five ENP-East countries had a population of more than 10 million persons, although Azerbaijan (9.7 million) and Belarus (9.5 million) were only just below this level. By contrast, Georgia (3.7 million), Moldova (3.6 million) and Armenia (3.0 million) had the smallest populations among the ENP-East countries. To give some idea of the relative size of the ENP-East countries, the total number of inhabitants in Ukraine was situated between that recorded in Poland and Spain, while the size of the populations in Azerbaijan and Belarus were between those of Austria and Hungary and the size of the populations in Georgia, Moldova and Armenia lay between those of Lithuania and Croatia.

Population density is a measure that expresses the total number of inhabitants per square kilometre (km^2). In the EU-28, there was an average of 117 inhabitants per km^2 in 2015; note there were considerable differences across the European Union (EU) territory, both between EU Member States and between different regions of the same Member State, as large cities and metropolises display much higher population densities than sparsely populated rural areas. Moldova was the only ENP-East country to report a level of population density in line with the average for the EU-28 (117 inhabitants per km^2 in 2015). Each of the five remaining ENP-East countries was more sparsely populated: Azerbaijan and Armenia both reported an average of more than 100 inhabitants per km^2 in 2016, while population density was much lower in Ukraine (75 inhabitants per km^2; 2014 data cover the full Ukrainian territory), Georgia (65 inhabitants per km^2) and particularly Belarus (46 inhabitants per km^2).

Table 1.1: Population as of 1 January, 2016

	Total	Male	Female	Population density
		(thousands)		(inhabitants per km^2)
EU-28 (1)	*510 279*	*249 367*	*260 912*	117
Armenia	2 999	1 429	1 570	101
Azerbaijan (2)	9 706	4 776	4 817	112
Belarus	9 498	4 421	5 078	46
Georgia	*3 720*	*1 780*	*1 941*	65
Moldova (1)(2)	*3 553*	1 710	1 845	*117*
Ukraine (3)	42 591	19 718	22 873	*75*

(1) Population density: 2015.
(2) Male and female population: 2015.
(3) Population density: 2014.

Source: Eurostat (online data codes: demo_gind and demo_r_d3dens)

Figure 1.1 shows these differences between the sexes in an alternative presentation. Women accounted for 51.1 % of the total population of the EU-28 in 2016. There was almost parity between the number of women and men in Azerbaijan, with women accounting for a 50.2 % share of the total population in 2015. However, in the remaining ENP-East countries the female share of the total number of inhabitants was higher than in the EU-28, peaking at 53.5 % in Belarus and 53.7 % in Ukraine.

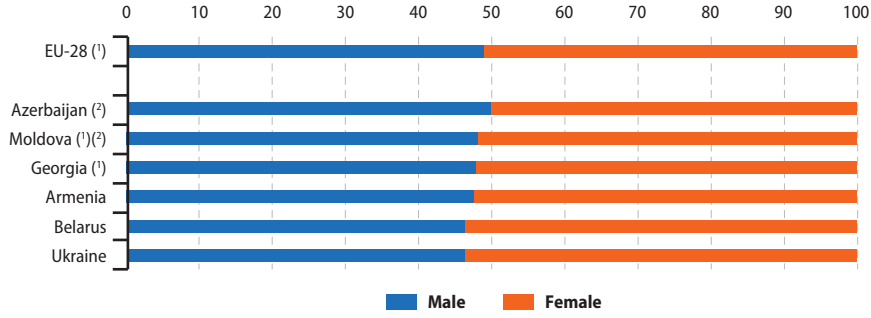
Since the industrial revolution, it has been common to find population sizes increasing at a relatively rapid pace in most western economies (other than during periods of war). However, more recently it has become commonplace to observe population ageing, which results among others from consistently low birth rates and higher levels of life expectancy. These changes have transformed the shape of age pyramids with a transition towards far fewer children being born and much older population structures; in some cases these patterns have resulted in falling population numbers.

Population change may be defined as the difference in the size of a population between two given time periods (usually a period of one year, for example, the difference in the number of inhabitants on 1 January between two consecutive years). Population change has two distinct components:

- natural population change (in other words, the number of live births minus the number of deaths);
- net migration (in other words, the number of immigrants minus the number of emigrants; it should be noted that net migration as referred to in the context of population change statistics includes also the statistical adjustments occurring in the annual balance of the population).

A positive population change (or population growth) occurs when the result of net migration plus net natural population change (live births minus deaths) is positive. With relatively low fertility rates across much of Europe, it has become quite common for negative rates of natural population change to occur (in other words, more deaths than births during a calendar year). In these cases, migration provides a means to rebalance population numbers so that the total number of inhabitants remains unchanged or continues to grow. However, there are multiple push and pull factors that impact on migratory patterns and net migration into one country is, by definition, counter-balanced by net emigration from another. The latter is particularly common among countries characterised by conflicts/war, relatively low living standards or human rights violations.

Figure 1.1: Population by sex, 2016
(% of total population)



(1) Estimates.
(2) 2015.

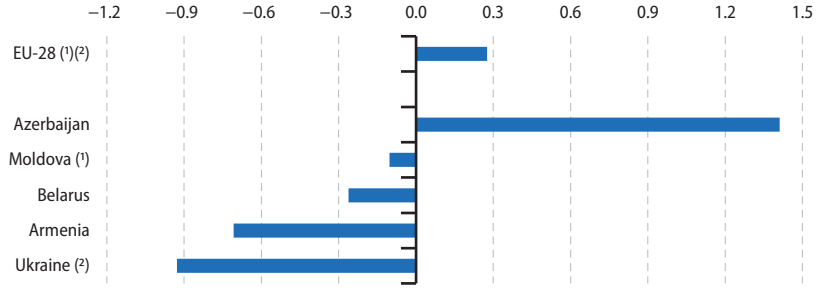
Source: Eurostat (online data code: demo_pjan)

Statistics on population change are increasingly used to support policymaking and provide an opportunity to monitor demographic behaviour within political, economic, social and cultural contexts. These statistics can be used to support a range of different analyses, for example, studies relating to population ageing and its effects on the sustainability of public finances and welfare, an evaluation of fertility as a background for family policies, or the economic and social impact of demographic change.

During the most recent 10-year period for which data are available (2006-2016), the total number of inhabitants in the EU-28 grew at an average rate of 0.3 % per annum. There was faster population growth in Azerbaijan (1.4 % per annum), while each of the remaining ENP-East countries saw their populations decline. Of these, the largest falls were recorded in Armenia (–0.7 % per annum) and Ukraine (–0.9 % per annum). Note that data for Ukraine have a break in series and data are not presented for Georgia as population changes cannot be published until the latest census figures have been back casted.

A similar analysis based on absolute numbers reveals that the total population of Azerbaijan increased by more than one million inhabitants between 2006 and 2016 (rising overall by 1.1 million people). During the same period, the populations of the other ENP-East countries declined, with the overall fall in Moldova equal to 26 thousand inhabitants, while the decline in the number of inhabitants in Ukraine was much larger, reaching 3.6 million people. Note that the population of Ukraine was already falling prior to the annexation of various territories from government control, but that the pace of change became greater after the onset of the conflict and that these figures for later periods are affected by a break in series due to changes in territorial coverage.

Figure 1.2: Annual average change in the population as of 1 January, 2006-2016
(% per annum)



Note: data are not presented for Georgia as population changes cannot be published until the latest census figures have been back casted.

(1) Estimates.
(2) Break in series.

Source: Eurostat (online data code: demo_pjan)

Table 1.2 and Figure 1.3 show the structure of the population by age for the EU-28 and the ENP-East countries. In 2016, the share of the elderly — defined here as those aged 65 and over — in the total population of the EU-28 was 19.2 %. This was higher than in any of the ENP-East countries, reflecting among other factors greater longevity among the EU population. By contrast, those aged 65 and over accounted for 6.2 % of the total population in Azerbaijan, around 10-11 % in Moldova (2015 data) and Armenia and 14-16 % in the remaining ENP-East countries.

At the other end of the age spectrum, children aged less than 15 years accounted for 15.6 % of the EU-28's population in 2016. This share reflects, to some degree, the relatively low fertility rates recorded in most EU Member States. The only ENP-East country to record a lower share of children in its total population was Ukraine (15.2 %). Otherwise, children accounted for a higher share of the total number of inhabitants in the ENP-East countries and this was particularly the case in Azerbaijan, Armenia and Georgia, where their share of the total population was 22.5 %, 19.6 % and 19.1 % respectively.

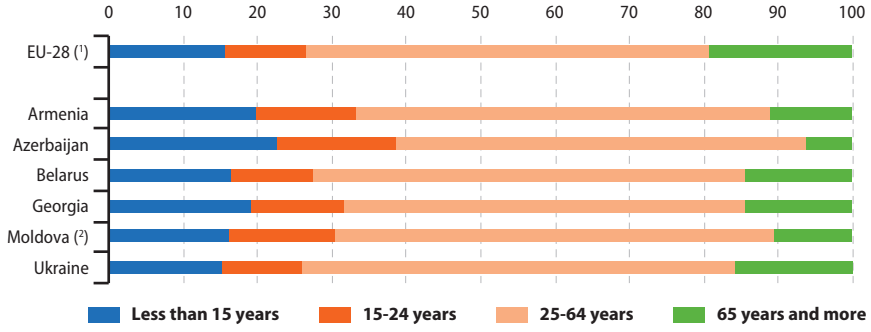
Table 1.2: Population by age class as of 1 January, 2006 and 2016
(% of total population)

	Less than 15 years		15-24 years		25-64 years		65 years and more	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28 (1)	16.0	*15.6*	12.6	*11.1*	54.5	*54.2*	16.8	*19.2*
Armenia	20.6	19.6	19.4	13.8	49.2	55.6	10.8	10.9
Azerbaijan	24.5	22.5	20.6	16.1	47.8	55.2	7.1	6.2
Belarus	15.2	16.3	16.5	11.1	53.7	58.2	14.6	14.4
Georgia	18.4	19.1	16.4	12.6	50.9	54.0	14.3	14.4
Moldova (2)	18.3	16.0	19.5	14.5	52.4	59.2	9.8	10.3
Ukraine (1)	14.5	15.2	15.8	10.7	53.6	58.1	16.2	15.9

(1) Break in series.
(2) 2015 instead of 2016.

Source: Eurostat (online data code: demo_pjangroup)

Figure 1.3: Population by age class as of 1 January, 2016
(% of total population)



(1) Estimates.
(2) 2015.

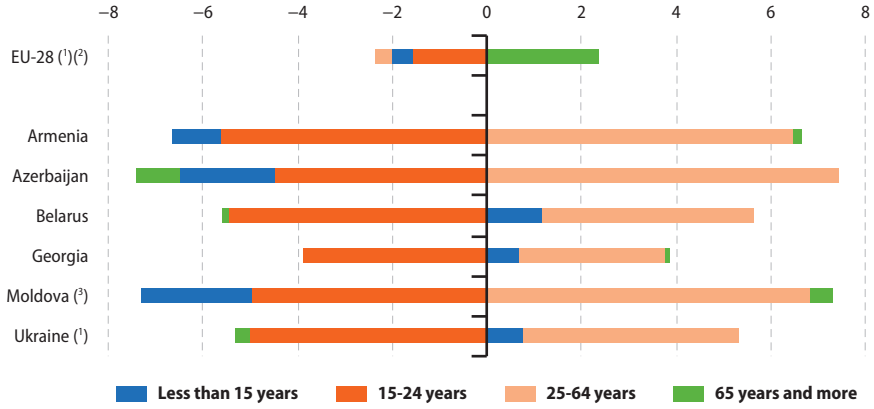
Source: Eurostat (online data code: demo_pjangroup)

As noted above, the growth in the relative share of older people in the EU-28's population may be explained by increased longevity, a pattern that has been apparent for several decades as life expectancy continues to rise; this development is often referred to as 'ageing at the top' of the population pyramid and may be attributed, among others, to medical advances, lifestyle changes and a shift in the types of work that are carried out, with a move away from farming and heavy industry towards more sedentary occupations.

Within the last decade for which data are available (2006-2016), the share of the elderly in the total EU-28 population rose by 2.4 percentage points. Alongside this increase in the number of relatively old persons, one of the most important structural changes in the EU-28 population is a reduction in the relative size of the working-age population. The relative shares of the three other age groups in Figure 1.4 in the total EU-28 population fell, in part due to consistently low levels of fertility over many years which have contributed to population ageing. As the proportion of people of core working age (25-64 years) in the EU-28 is shrinking while the relative share of elderly persons is expanding, one may expect an increased burden on those of core working age to provide for the social expenditure required by the ageing population.

The pattern of population change in the ENP-East countries was quite different, insofar as the relative share of core working-age population continued to increase in each country. On the other hand, there were sizeable reductions in the relative shares of young people aged 15-24 years in each of the ENP-East countries. These reductions may be linked, at least in part, to the dissolution of the Soviet Union at the end of 1991, which gave rise to the creation of 15 independent republics and a period of transition to new economic systems that were often characterised by considerable economic hardship and low birth rates. Developments for the other two age groups at either end of the age spectrum — children aged less than 15 years and the elderly aged 65 years and more — were mixed across the ENP-East countries, with the relative share of the elderly rising in Moldova (2015 data), Armenia and Georgia, while the relative share of children rose in Belarus, Ukraine and Georgia.

Figure 1.4: Change in population by age class as of 1 January, 2006-2016
(percentage points)



(1) Break in series.
(2) Estimates.
(3) 2015 instead of 2016.

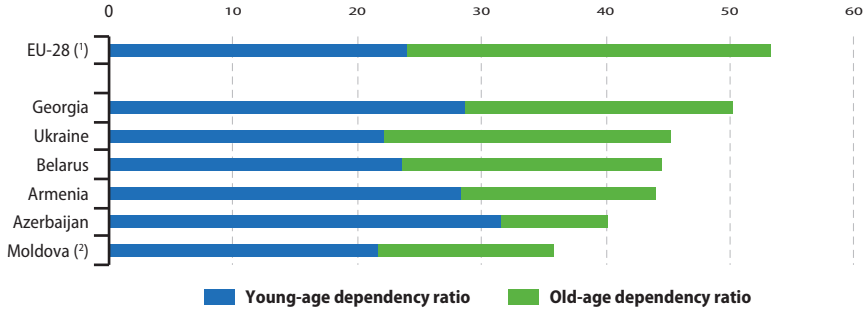
Source: Eurostat (online data code: demo_pjangroup)

Age dependency ratios may be used to study the level of support given to younger and/or older persons by the working age population. The old-age dependency ratio for the EU-28 was 29.3 % in 2016 (see Figure 1.5); as such, there were 3.4 persons of working age for every person aged 65 and over. Among the EU Member States there were considerable differences, as the ratio between the working age and elderly populations of Ireland, Luxembourg and Slovakia was approximately 5 : 1, while in Italy, Greece, Finland and Germany it was close to 3 : 1. Old-age dependency ratios in the ENP-East countries were consistently below the average for the EU-28, although the latest information for Ukraine (23.1 %), Georgia (21.6 %) and Belarus (20.9 %) reveals a similar pattern to that reported in the EU Member States with the lowest ratios. On the other hand, old-age dependency ratios in Armenia (15.8 %) and Moldova (14.0 %; 2015 data) were much lower than in any of the EU Member States and this pattern was even more apparent in Azerbaijan (8.6 %).

Within the EU-28, there were between four and five working age persons for every child aged less than 15 years; as such, the young-age dependency ratio for the EU-28 was 23.9 % in 2016. Among the ENP-East countries there was a mixed pattern, as Moldova (2015 data), Ukraine and Belarus reported fewer child dependents per working age person than in the EU-28. By contrast, there were relatively high proportions of children in relation to the working age populations of Armenia (28.3 %), Georgia (28.7 %) and particularly Azerbaijan (31.6 %); in the latter, the structure of the population was such that there were just over three working age adults per child.

The combination of young and old-age dependency ratios provides the total age dependency ratio, calculated as the ratio of dependent people (children and the elderly) compared with the population considered to be of working age (15-64 years). In 2016, this ratio was 53.2 % in the EU-28, indicating that there were fewer than two working age persons for every dependent. Georgia was the only ENP-East country to report a similar pattern, as its total age dependency ratio was 50.3 %. Ratios for three of the remaining ENP-East countries — Armenia, Belarus and Ukraine — were situated within the range of 44-45 %, while the total age dependency ratios in Azerbaijan (40.2 %) and Moldova (35.7 %) were considerably lower.

Figure 1.5: Young and old-age dependency ratios, 2016
(% of population aged 15-64)



(1) Provisional.
(2) 2015.

Source: Eurostat (online data code: demo_pjanind)

Births and mortality

The crude birth rate in the EU-28 was 10.0 per 1 000 inhabitants in 2016, which was the same as the crude death rate — see Table 1.3. Among the ENP-East countries, crude birth and death rates were almost balanced in Belarus and Moldova (2015 data). However, there was a rapid pace to natural population growth in Azerbaijan, with a relatively high crude birth rate (16.3 per 1 000 inhabitants) compared with a much lower crude death rate (5.8 per 1 000 inhabitants). This pattern was repeated, to a lesser degree in Armenia and Georgia, where crude birth rates exceeded the crude death rates by 4.2 and 1.5 per 1 000 inhabitants. By contrast, the crude death rate in Ukraine exceeded the crude birth rate (resulting in a negative rate of natural population change; 2015 data); Ukraine was the only ENP-East country to record a crude birth rate that was lower than in the EU-28.

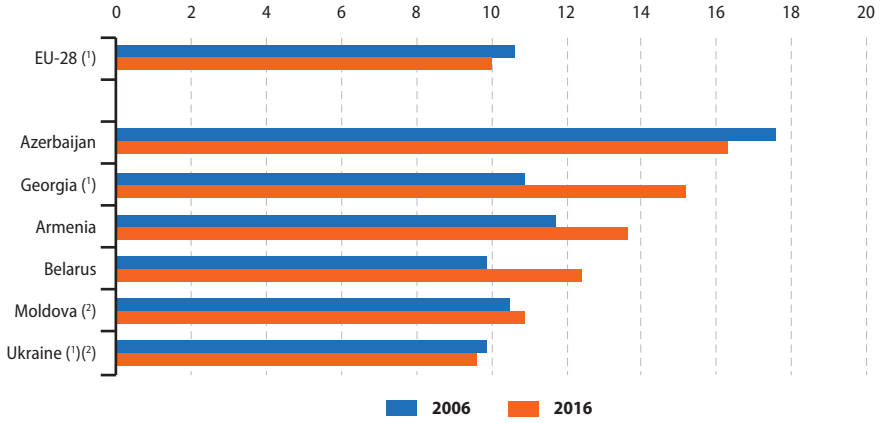
Table 1.3: Crude birth and death rates, 2006, 2011 and 2016
(per 1 000 inhabitants)

	Crude birth rates			Crude death rates		
	2006	2011	2016	2006	2011	2016
EU-28 (1)	10.6	10.5	*10.0*	9.6	9.7	*10.0*
Armenia	11.7	13.3	13.6	8.4	8.6	9.4
Azerbaijan	17.6	19.2	16.3	6.2	5.9	5.8
Belarus	9.9	11.5	*12.4*	14.2	14.3	*12.6*
Georgia (2)	10.9	12.9	*15.2*	9.6	11.1	*13.7*
Moldova (3)	10.5	11.0	*10.9*	12.0	11.0	*11.2*
Ukraine (2)(3)	9.9	11.0	9.6	16.3	14.6	13.9

(1) 2011 and 2016: break in series.
(2) 2016: break in series.
(3) 2015 instead of 2016.

Source: Eurostat (online data code: demo_gind)

Figure 1.6: Crude birth rates, 2006 and 2016
(per 1 000 inhabitants)



(1) Break in series.
(2) 2015 instead of 2016.

Source: Eurostat (online data code: demo_gind)

In 2015, EU-28 life expectancy at birth was 77.9 years for men and 83.3 years for women. The latest information for the ENP-East countries confirms that life expectancy at birth of their populations remained below the levels recorded in the EU-28. In 2015, male life expectancy ranged from a low of 67.5 years in Ukraine (with a lower expectancy in Moldova in 2010) to 72.9 years in Azerbaijan. Female life expectancy across the ENP-East countries was relatively homogeneous, ranging from a low of 77.3 years in Ukraine (again with a lower expectancy in Moldova in 2010) to a high of 79.0 years in Belarus.

There was an increase in male and female life expectancy in the EU-28 between the years shown in Table 1.4 and this pattern was repeated in all but one of the ENP-East countries. The exception was Georgia, as there was a fall in life expectancy for both men and women between 2010 and 2015.

Life expectancy at birth was consistently higher for women than for men: in the EU-28 this gender gap was 5.4 years in 2015. Azerbaijan was the only ENP-East country to record a smaller gap (4.8 years). The biggest difference in life expectancy between the sexes was recorded in Belarus, where women born in 2015 could expect to live an additional 10.4 years compared with men (see Figure 1.7).

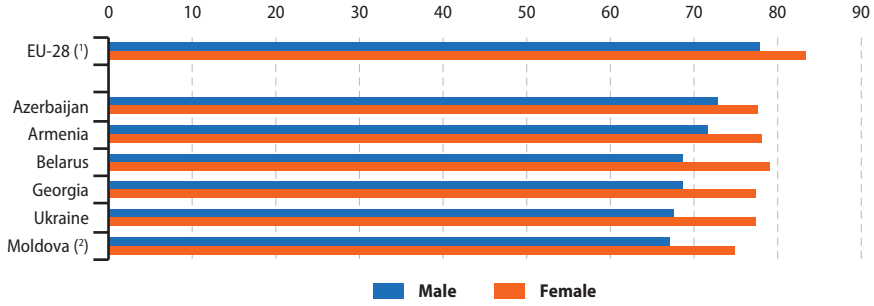
Table 1.4: Life expectancy at birth, 2005, 2010 and 2015
(years)

	Male			Female		
	2005	2010	2015	2005	2010	2015
EU-28 (1)	75.4	76.9	*77.9*	81.5	82.8	*83.3*
Armenia (2)(3)	69.7	70.5	71.7	76.0	76.7	78.2
Azerbaijan (2)	70.1	71.2	72.9	75.4	76.0	77.7
Belarus (4)	:	64.7	68.6	:	76.9	79.0
Georgia (2)	69.7	70.0	68.7	78.4	78.8	77.4
Moldova (2)	64.7	64.9	:	72.4	73.5	:
Ukraine (2)	62.3	65.2	67.5	73.8	75.3	77.3

(1) Breaks in series.
(2) 2006 instead of 2005.
(3) 2009 instead of 2010.
(4) 2011 instead of 2010.

Source: Eurostat (online data code: demo_mlexpec)

Figure 1.7: Life expectancy at birth, 2015
(years)



(1) Estimates.
(2) 2012.

Source: Eurostat (online data code: demo_mlexpec)

The infant mortality rate is defined as the ratio of the number of deaths of children under one year of age to the number of live births; the value is expressed per 1 000 live births and therefore excludes foetal deaths (stillbirths).

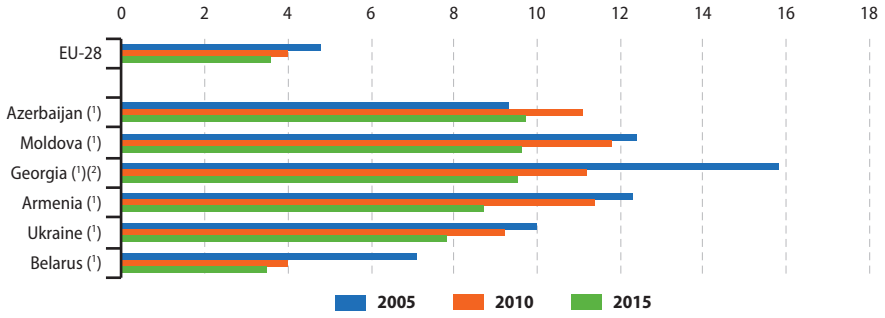
Falling infant mortality is one of the most significant changes to have impacted life expectancy, as barely 200 years ago it was commonplace for almost half of all new-borns to die while they were still young children. Even during the last 50 years there have been significant improvements in infant mortality rates across much of Europe.

In 2015, the EU-28 infant mortality rate was 3.6 per 1 000 live births. While infant mortality rates were generally higher among the ENP-East countries, Belarus stood out as its rate (3.5 deaths per 1 000 live births; 2014 data) was slightly below the average across the EU-28 (see Figure 1.8). Otherwise, infant mortality rates in the ENP-East countries were more than twice as high as in the EU-28, with rates within a relatively narrow range from 7.8 deaths per 1 000 live births in Ukraine (2014 data) up to 9.7 deaths per 1 000 live births in Azerbaijan (also 2014 data).

During the 10-year period from 2005 to 2015 the infant mortality rate in the EU-28 fell by approximately one quarter, from 4.8 to 3.6 deaths per 1 000 live births. The most significant reductions in infant mortality were generally recorded within those EU Member States which tended to record the highest levels of infant mortality at the start of the period under consideration.

Among the ENP-East countries, infant mortality rates also tended to fall. Azerbaijan was the only exception as its infant mortality rate rose from 9.3 to 11.1 deaths per 1 000 live births between 2005 and 2010, before falling back to 9.7 deaths per 1 000 live births in 2014. Infant mortality rates in Ukraine, Moldova and Armenia fell at a pace that was broadly similar to that recorded in the EU-28, as they recorded overall reductions of 22-29 % during the period from 2005 to 2014. The two remaining ENP-East countries recorded much faster reductions for their infant mortality rates: in Georgia the rate fell overall by 40 % between 2006 and 2014, while in Belarus it more than halved (−51 %) between 2005 and 2014.

Figure 1.8: Infant mortality rate, 2005, 2010 and 2015
(per 1 000 live births)



(1) 2014 instead of 2015.
(2) 2006 instead of 2005.

Source: Eurostat (online data code: demo_minfind)

2 Living conditions

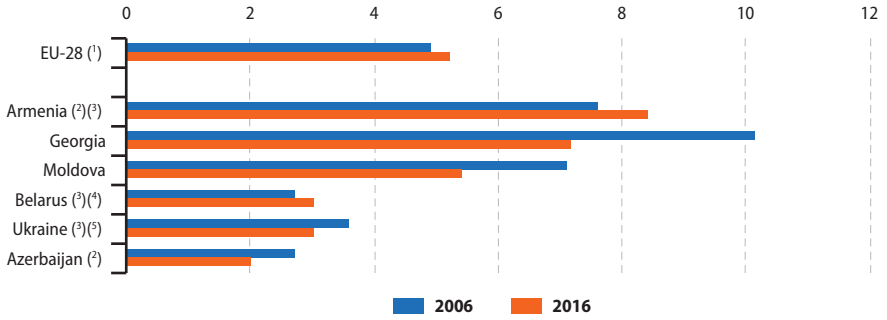
Income distribution

While money is not always the most important thing in life, it can often play an important role in determining an individual's quality of life, as people with more money generally tend to eat better food, live in better quality housing in safer neighbourhoods, send their children to better schools, enjoy more holidays, and participate in a wider range of leisure/recreation activities.

Income distribution measures provide a means of analysing economic inequalities, highlighting the gap between the rich and the poor in a society. The income quintile share ratio, also known as the S80/S20 ratio, is a measure of the inequality of income distribution: it is calculated as the ratio of the total income received by the 20 % of the population with the highest incomes (the top quintile) compared with that received by the 20 % of the population with the lowest incomes (the bottom quintile). Note that incomes are equivalised to take account of the varying composition of households.

Figure 2.1 shows that the highest earners in the EU-28 (the top income quintile) had incomes in 2016 that were, on average, 5.2 times as high as the incomes of the lowest earners (the bottom quintile); this was a slightly higher ratio than in 2006 (data for EU-27), indicating that income inequality in the European Union (EU) had widened somewhat. In 2016, Moldova reported a similar level of income inequality to that observed in the EU-28, while Georgia and Armenia (2015 data) reported more pronounced levels of income inequality. The three other ENP-East countries reported a more equal distribution of income (based on this indicator), with the lowest ratio recorded in Azerbaijan (2015 data) where the income of the top income quintile was twice as high as that for the bottom quintile. During the most recent 10-year period for which data are available, the income quintile share ratio fell in four of the ENP-East countries. This pattern of incomes being more equitably distributed over time was particularly noticeable in Georgia and Moldova. By contrast, income inequalities widened in Belarus and in Armenia (2006-2015), repeating the pattern observed for the EU.

Figure 2.1: Inequality of income distribution (income quintile share ratio), 2006 and 2016
(ratio)



Note: the EU and the countries shown in the figure do not all use the same definition of income; this impacts on the comparability of the indicator.

(1) 2006: EU-27.
(2) 2015 instead of 2016.
(3) Calculated using an alternative equivalence scale or without an equivalence scale.
(4) Break in series.
(5) 2007 instead of 2006. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data code: ilc_di11)

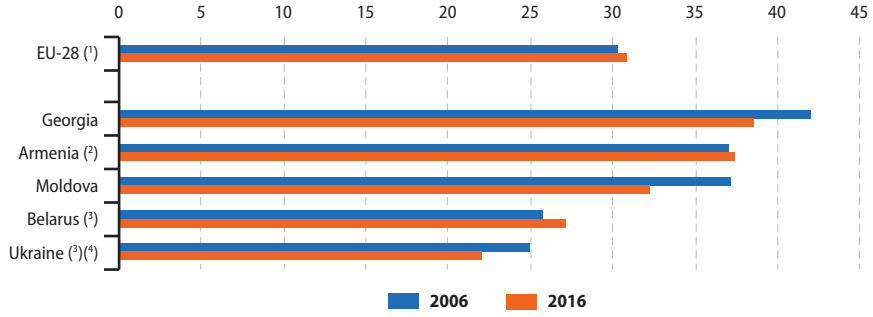
Since the global financial and economic crisis much has been written about stagnating income levels in various developed world economies. This pattern has been particularly prevalent among relatively poor households, especially for people living in regions and working in activities that are exposed to the influence of globalisation. That said, even in countries where incomes have continued to rise, it has been commonplace for the rich to get richer, while the incomes of the poor have risen at a much slower rate, with the term 'left-behinds' being coined in reference to the cohort of low-income households.

The Gini coefficient is an alternative measure of income inequality that may be used to illustrate income disparities. It shows the extent to which all incomes within the population differ from the average income: the closer the coefficient is to 100 the less equal are the incomes (a figure of 100 would mean that all of the income in an economy was received by a single person), while the closer it is to zero the more equal are the incomes (a figure of zero would mean that everybody received the same income).

In the EU-28, the Gini coefficient in 2016 was 30.8, which was slightly higher than this ratio had been in 2006 (data for EU-27), when it was 30.3. In a similar way to what was observed for the income quintile share ratio, Moldova reported a Gini coefficient (32.2) that was close to the value observed for the EU-28, while Georgia and Armenia (2015 data) reported higher values (38.6 and 37.4), and Belarus and Ukraine reported lower values (27.1 and 22.0); no data available for Azerbaijan.

Figure 2.2 shows that the modest increase in the EU's Gini coefficient between 2006 and 2016 was repeated in Armenia (2006-2015), while there was a somewhat faster increase recorded for this ratio in Belarus (although its Gini coefficient remained lower than in the EU-28). The three remaining ENP-East countries for which data are available each recorded relatively large falls in their Gini coefficients, as this ratio declined by 3.0 points in Ukraine (2007-2016), 3.4 points in Georgia and 4.9 points in Moldova.

Figure 2.2: Gini coefficient, 2006 and 2016
(ratio)



Note: Azerbaijan, not available.

(1) 2006: EU-27; estimate.
(2) Break in series. 2015 instead of 2016.
(3) Calculated using an alternative equivalence scale or without an equivalence scale.
(4) 2007 instead of 2006. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data code: ilc_di12)

Poverty

Poverty can occur when people lose control over the relation between their consumption patterns and their income, especially when this impacts their ability to lead a reasonable standard of living. It is a multidimensional concept and is analysed either in absolute (for example, how many people are living on less than USD 1.25 a day) or relative terms (for example, what share of the population has an income level that is less than 60 % of the median income).

The population at risk of poverty is defined as people living in a household with a level of disposable income (after social transfers) that was below the poverty threshold, which is set at 60 % of national median equivalised disposable income. As thresholds are set independently for each country, poverty indicators reflect low incomes in comparison with other residents of the same country; note this does not necessarily imply they have a low standard of living. The total net income of each household is calculated by adding together the income received by all the members of the household from all sources.

For each person, the equivalised income is calculated as the household's total net income divided by the equivalised household size, generally based on the modified OECD scale: a weight of 1.0 for the first adult, 0.5 for other persons aged 14 and over who are living in the household and 0.3 for each child aged less than 14.

The impact of the global financial and economic crisis often resulted in a worsening of the social situation across EU Member States. In 2016, there were 86.9 million people, or 17.3 % of the EU-28 population at risk of poverty. With the cost of living and median income levels generally much lower across the ENP-East countries than in the EU-28, poverty thresholds ranged from EUR 55.50 per month in Georgia up to EUR 107.84 in Belarus (note that some ENP-East countries use different scales for calculating the equivalised household size or poverty threshold).

Table 2.1 shows the proportion of the population that was at risk of poverty both before and after social transfers. Such transfers cover the benefits that are provided to people in order to protect them (to some degree) against the

Table 2.1: Selected poverty indicators, 2016

	At-risk-of-poverty threshold (monthly income)		Proportion of the population at risk of poverty before transfers (%)		Proportion of the population at risk of poverty after transfers (%)	
	(national currency)	(euro)	Male	Female	Male	Female
EU-28	–	–	42.1	46.7	16.6	17.9
Armenia (1)	41 698	78.6	:	:	29.5	30.1
Azerbaijan	149	84.1	:	:	:	:
Belarus (2)	237	107.8	18.7	16.5	12.3	11.0
Georgia (3)	145	55.5	:	:	21.3	20.0
Moldova	1 558	70.6	20.5	23.5	16.9	19.2
Ukraine (2)(4)	1 827	64.6	:	:	22.9	22.8

(1) 2015. Poverty threshold: based on World Bank methodology.
(2) Poverty threshold: calculated according to alternative an equivalence scale.
(3) Poverty threshold: calculated as 60 % of median consumption per adult equivalent. Proportion of the population at risk of poverty: consumption based.
(4) Poverty threshold: calculated as 75 % of the median amount of total equivalent expenditure. Proportion of the population at risk of poverty: 2015. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data codes: ilc_li09 and ilc_li02)

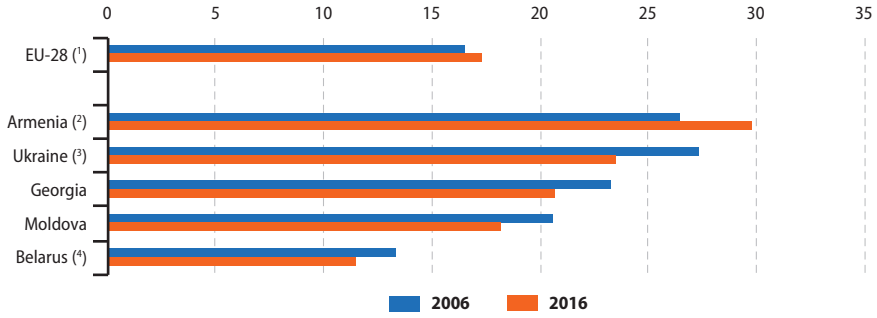
risks and needs associated with unemployment, parental responsibilities, sickness/health care and invalidity/disability, the loss of a spouse or parent, old-age, housing and other forms of social exclusion.

In 2016, more than two fifths of the EU-28 population was at risk of poverty before transfers (42.1 % of men and 46.7 % of women). After social transfers, around one sixth (16.6 %) of the male population in the EU-28 was still at risk of poverty, while the corresponding share for women remained slightly higher (17.9 %). Although there is only a limited selection of data available for Belarus and Moldova, the impact of social transfers on the risk of poverty was lower in both of these ENP-East countries. The share of the population that was at risk of poverty fell by just over 60 % within the EU-28 as a result of social transfers, whereas in Belarus the corresponding decrease was about one third, and in Moldova it was less than one fifth.

An analysis of the risk of poverty after social transfers (see Figure 2.3) reveals that Belarus was the only ENP-East country to record a lower risk of poverty in 2016 (11.5 %) than the EU-28. The risk of poverty after social transfers was slightly higher than the EU-28 average in Moldova, at 18.2 %, and affected more than one fifth of the population in Georgia (20.6 %), close to one quarter in Ukraine (23.5 %), and nearly three tenths (29.8 %) in Armenia (2015 data); no data available for Azerbaijan.

Between 2006 and 2016, the proportion of the EU population that was at risk of poverty after social transfers increased slightly from 16.5 % (for the EU-27) to 17.3 % (for the EU-28). By contrast, in four of the five ENP-East countries for which data are shown in Figure 2.3 the share of the population at risk of poverty fell, most notably in Ukraine (−3.8 percentage points); the exception was Armenia, where the risk of poverty increased between 2006 and 2015 (by 3.3 points).

Figure 2.3: Proportion of the population at risk of poverty after transfers, 2006 and 2016
(%)



Note: Azerbaijan, not available.

(1) 2006: EU-27; estimate.
(2) 2015. Break in series.
(3) 2007 instead of 2006. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.
(4) Calculated according to alternative an equivalence scale.

Source: Eurostat (online data codes: ilc_li02 and ilc_li09)

Expenditure on social protection

Social benefits consist of transfers, in cash or in kind, by social protection schemes to households and individuals to relieve them of the burden of a defined set of risks or needs. In 2014, expenditure on social protection benefits in the EU-28 was equivalent to more than one quarter (27.6 %) of gross domestic product (GDP); this ratio was surpassed in Ukraine (28.1 %; 2015 data). However, expenditure on social protection benefits relative to GDP was much lower in the remaining ENP-East countries: in Belarus (14.8 % in 2016) it was just over half the level in the EU-28, while in Armenia (9.3 %; 2015 data) it was nearer to one third, and in Georgia (7.6 % in 2016) it was closer to one quarter of the level recorded in the EU-28.

Between 2006 and 2014, the ratio of expenditure on social protection benefits to GDP in the EU increased from 24.8 % (data for EU-27) to 27.6 % (data for the EU-28). The ENP-East countries for which data are available (see Table 2.2) also reported increases for this ratio over a similar period of time, most notably in Armenia where the ratio nearly trebled from 3.4 % in 2006 to 9.3 % by 2015.

Expenditure on pensions accounted for just under half of the total expenditure on social protection benefits in the EU-28 in 2014; a similar pattern was repeated in Ukraine in 2015. By contrast, the share of pensions in the total expenditure on social protection benefits was nearer to two thirds in Belarus (2016 data) and Georgia (2015 data), rising to more than four fifths in Armenia (2015 data).

Population ageing is one factor that may explain, at least to some degree, the increasing share of expenditure on pensions. Between 2006 (data for EU-27) and 2014 (data for the EU-28), the ratio of social protection expenditure on pensions relative to GDP in the EU rose from 11.2 % to 12.7 %. Three out of the five ENP-East countries for which data are available — Belarus, Georgia and especially Armenia (2008-2015) — also reported that pensions accounted for a growing share of expenditure during the period 2006-2016. By contrast, expenditure on pensions was stable relative to GDP in Moldova, while it fell by 0.6 points in Ukraine (2007-2015).

Table 2.2: Expenditure on social protection benefits and pensions, relative to gross domestic product, 2006 and 2016
(% of GDP)

	Social protection benefits		of which, pensions	
	2006	2016	2006	2016
EU-28 (1)	*24.8*	*27.6*	*11.2*	*12.7*
Armenia (2)	3.4	9.3	5.8	7.8
Azerbaijan	:	:	:	:
Belarus (3)	13.4	14.8	9.0	9.4
Georgia	4.8	*7.6*	3.3	*5.0*
Moldova	:	:	7.1	7.1
Ukraine (4)	27.1	28.1	13.5	12.9

(1) 2006: EU-27. 2014 instead of 2016.
(2) 2015 instead of 2016. Pensions: 2008 instead of 2006.
(3) Social protection benefits: ratio of expenditures on social policy and expenditures of the Social Security Fund of the Ministry of Labour and Social Protection of the Republic of Belarus to GDP.
(4) 2007 instead of 2006. 2015 instead of 2016. 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data code: spr_exp_sum)

3 Health

Healthcare expenditure

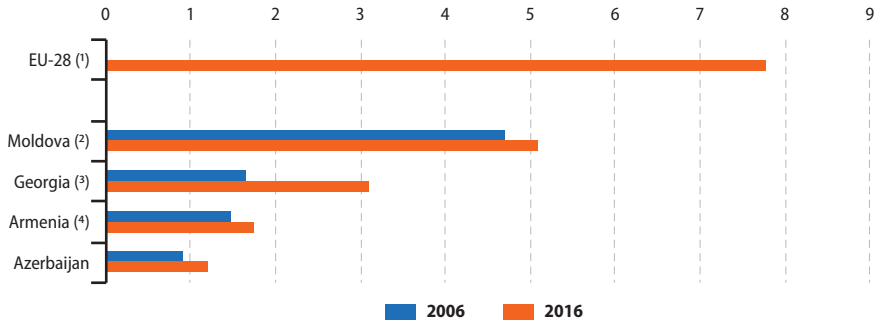
Healthcare systems around the world are financed and organised in different ways, but most Europeans would agree that universal access to quality healthcare, at an affordable cost to both individuals and society at large, is a basic need; moreover, this is one of the common values and principles of health systems in the European Union (EU).

Statistics on healthcare expenditure may be used to evaluate how a country's healthcare system responds to the challenge of providing quality healthcare. The level of current healthcare expenditure relative to gross domestic product (GDP) was 11.1 % in Germany, 11.0 % in Sweden and France, and 10.6 % in the Netherlands; these were the highest ratios among the EU Member States in 2015. By contrast, current healthcare expenditure accounted for no more than 6.5 % of GDP in Estonia, Lithuania, Poland, Luxembourg and Latvia, with Romania recording the lowest ratio (5.0 %).

Among the ENP-East countries (see Figure 3.1), the ratio of public expenditure on health relative to GDP was generally lower than in any of the EU Member States. In 2016, Moldova recorded a ratio of 5.1 % that was slightly higher than the level of expenditure recorded in Romania, whereas public health expenditure in Georgia (3.1 % of GDP), Armenia (1.8 %; central government expenditure only) and Azerbaijan (1.2 %) was at a much lower level; no data available for Belarus and Ukraine.

Between 2006 and 2016, public expenditure on health relative to GDP rose in each of the four ENP-East countries for which data are available. The biggest increase (in percentage points terms) was recorded in Georgia, where the share of public health expenditure rose by 1.4 points, while the increases in expenditure for Moldova, Armenia and Azerbaijan were of a similar magnitude (rising by 0.3-0.4 points).

Figure 3.1: Public expenditure on health as a share of GDP, 2006 and 2016
(%)



Note: Belarus and Ukraine, not available.

(1) 2006: not available. 2015 instead of 2016.
(2) 2006: estimate.
(3) 2016: provisional.
(4) Central government only.

Source: Eurostat (online data codes: hlth_sha11_hf and nama_10_gdp)

Healthcare resources

One of the most important resources of any healthcare system is its staff: be these nursing professionals, midwives, physicians, dentists, pharmacists or physiotherapists. Eurostat gives preference to the concept of 'practising' healthcare professionals — those who provide services directly to patients as consumers of healthcare — rather than licensed to practice or professionally active.

In 2015, there were approximately 1.8 million practising physicians in the EU-28, while, based on the sum of available data, there were almost 300 thousand practising dentists, over 434 thousand practising pharmacists and around 553 thousand physiotherapists. Expressed in relation to population numbers, in 2015 there were an estimated 720 nursing professionals and 355 physicians per 100 000 inhabitants in the EU-28 (see Table 3.1 for differences in the geographical coverage).

The number of nursing professionals in Belarus (relative to population size) was considerably higher than in the EU-28, reaching 1 324 per 100 000 inhabitants in 2016; none of the three remaining ENP-East countries for which data are available recorded a ratio that was above the EU-28 average. The number of physicians per 100 000 inhabitants was approximately twice as high in Georgia (714) as it was in the EU-28, while Armenia (440) and Belarus (437) also recorded higher ratios; by contrast, there were slightly fewer physicians per 100 000 inhabitants in Azerbaijan (332) and Moldova (319). A similar mixed pattern was observed for midwives, as Belarus and Azerbaijan recorded ratios per 100 000 inhabitants that were almost three times as high as in the EU-28, rising to 4.5 times as high in Armenia (note the ratios for Azerbaijan and Armenia are presented in relation to the number of women not the total population); by contrast, there were fewer midwives per 100 000 inhabitants in Moldova and Georgia.

For the three remaining groups of healthcare professionals — dentists, pharmacists and physiotherapists — the number of personnel per 100 000 inhabitants was consistently lower in each of the ENP-East countries than it was in the EU-28; this pattern was particularly true for physiotherapists. Among the ENP-East countries, the highest number of dentists per 100 000 inhabitants was recorded in Georgia (52, compared with an EU-28 average of 70); the highest number of pharmacists per 100 000 inhabitants was recorded in Moldova (87, compared with an EU-28 average of 90); and the highest number of physiotherapists was recorded in Belarus (4, compared with an EU-28 average of 110).

Table 3.1: Healthcare personnel relative to population size, 2016
(per 100 000 inhabitants)

	Nursing professionals	Midwives	Physicians	Dentists	Pharmacists	Physio-therapists
EU-28 (1)	*720*	*35*	*355*	*70*	*90*	*110*
Armenia (2)	451	158	440	0	4	3
Azerbaijan (3)	562	90	332	29	:	3
Belarus	1 324	97	437	0	36	4
Georgia	:	11	714	52	:	:
Moldova	*548*	*19*	*319*	*49*	*87*	*3*
Ukraine	:	:	:	:	:	:

(1) 2015. Rounded (to the nearest five) estimates based on the latest available data for each Member State made for the purpose of this publication. Nursing professionals: excluding Belgium, the Czech Republic and the Netherlands. Midwives: excluding Ireland.
(2) Midwives: calculated per 100 000 women aged 15-49.
(3) Midwives: calculated per 100 000 women.

Source: Eurostat (online data codes: hlth_rs_prsns, hlth_rs_phys, hlth_rs_prs1 and demo_pjan)

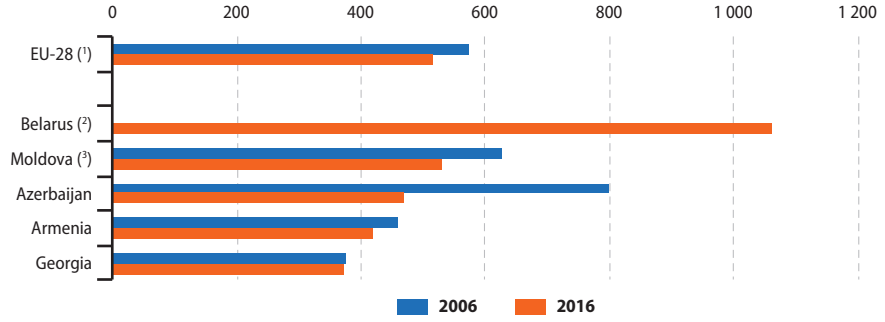
The number of hospital beds provides an alternative measure for analysing healthcare resources. The count of hospital beds concerns those beds that are regularly maintained and staffed and immediately available for the care of admitted patients; both occupied and unoccupied beds are included for curative care, long-term care and rehabilitative care.

In 2015, there were approximately 2.6 million hospital beds available for use in the EU-28; this equated to an average of 515 hospital beds per 100 000 inhabitants. Germany recorded not only the highest number of hospital beds among the EU Member States (664 thousand in 2015), but also the highest number relative to its population size, with an average of 813 hospital beds per 100 000 inhabitants; Austria and Bulgaria both recorded more than 700 beds per 100 000 inhabitants.

In Belarus, the number of hospital beds relative to its population (1 060 per 100 000 inhabitants in 2016) was more than twice as high as the EU-28 average. Among the four remaining ENP-East countries for which data are available (no information for Ukraine), in Moldova (528 beds per 100 000 inhabitants) the ratio of hospital beds to population was similar to the EU-28 average, while in Azerbaijan (468), Armenia (418) and Georgia (372) it was lower than the EU-28 average.

Partly driven by cost considerations, patient well-being, and technical and medical advances, recent years have witnessed a significant change in the way that a variety of treatments are delivered, with increasing emphasis on out-patient services. This may explain, at least in part, why the number of hospital beds in the EU-28 decreased both in absolute numbers and in relative terms between 2006 and 2015, falling by almost 60 beds per 100 000 inhabitants. During the period 2006-2016, the number of hospital beds relative to population size also fell in the four ENP-East countries for which data are available (see Figure 3.2). The reduction in the number of beds in Georgia was marginal, while the decrease in Armenia was less pronounced than in the EU-28. However, there were 100 fewer beds per 100 000 inhabitants in Moldova and the number of beds relative to the size of the population in Azerbaijan almost halved, falling from 800 to 468 per 100 000 inhabitants between 2006 and 2016.

Figure 3.2: Number of hospital beds relative to population size, 2006 and 2016
(per 100 000 inhabitants)



Note: Ukraine, not available.

(1) 2015 instead of 2016.
(2) 2006: not available.
(3) 2006: estimate.

Source: Eurostat (online data code: hlth_rs_bds)

Hospital discharges

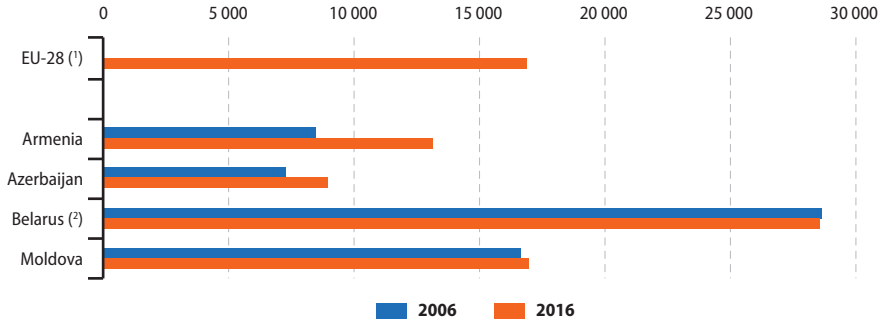
Discharges occur when a hospital patient is formally released after an episode of care: this is typically because the patient's treatment has ended, but may also result from a patient signing out against medical advice, transferring to another healthcare institution, or because of death. These statistics on hospital discharges may be used to analyse the supply of hospital services — they may be complemented by other supply-side statistics (such as the frequency of operations and procedures, the average length of hospital stays, occupancy rates for hospital beds, or healthcare expenditure) or demand-side statistics (such as unmet medical needs).

Relative to population size, hospital discharge rates for in-patients across the EU averaged 16.9 thousand per 100 000 inhabitants in 2015 (see Figure 3.3; note the territorial coverage for the EU is not complete). There were wide-ranging differences between individual EU Member States, as (subject to data availability) discharge rates ranged from a low of 7.7 thousand per 100 000 inhabitants in Cyprus up to a high of 32.1 thousand per 100 000 inhabitants in Bulgaria.

There was also a considerable degree of variation between in-patient discharge rates for the ENP-East countries in 2016, from a low of 8.9 thousand per 100 000 inhabitants in Azerbaijan up to a high of 28.6 thousand per 100 000 inhabitants in Belarus; there are no data available for either Georgia or Ukraine. The discharge rate in Moldova was similar to that recorded in the EU, at 16.9 thousand per 100 000 inhabitants, while the rate in Armenia (13.1 thousand per 100 000 inhabitants) was somewhat lower.

Between 2006 and 2016, discharge rates for in-patients decreased in a majority of the EU Member States; this may reflect, at least to some degree, budgetary constraints and/or changes in practices/technology that impact on the average length of care and/or the balance between in-patient and out-patient care. Among the ENP-East countries, there was a different pattern for the most recent 10-year period, as discharge rates for in-patients were almost unchanged in Belarus (2007-2016) and Moldova, while there was an increase in discharge rates for both Azerbaijan (up 22.7 %) and particularly Armenia (up 56.2 %).

Figure 3.3: Hospital discharges of in-patients relative to population size, 2006 and 2016
(per 100 000 inhabitants)



Note: Georgia and Ukraine, not available.

(1) 2006: not available. 2015 instead of 2016; rounded estimate based on the latest available data for each Member State made for the purpose of this publication; excluding Greece and the Netherlands; excluding discharges of new-borns in Estonia and Latvia.
(2) 2007 instead of 2006.

Source: Eurostat (online data code: hlth_co_disch1)

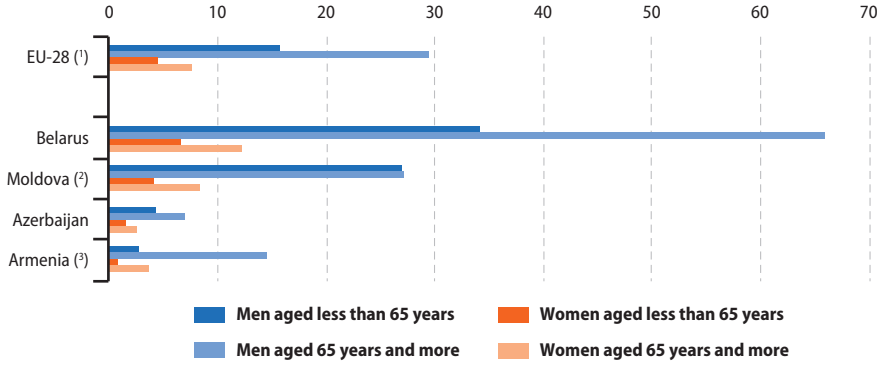
Causes of death

Across the EU-28, the principal causes of death include diseases of the circulatory system (such as heart disease), cancer and respiratory diseases. Suicide and intentional self-harm accounted for 1.2 % of the total number of deaths in the EU-28 in 2014: there was a considerable gender gap, as 1.8 % of all male deaths were attributed to suicide and intentional self-harm, while the share among women was 0.5 %.

Crude death rates — the number of deaths relative to the average size of the population — from suicide and intentional self-harm were higher among men than women in the EU-28. In 2014, men aged less than 65 years were 3.5 times as likely as women of the same age to die from suicide and intentional self-harm, while this ratio climbed to almost four times as likely for people aged 65 years and more. A similar analysis for the ENP-East countries reveals that men were also more likely than women to die from suicide and intentional self-harm. In 2016, these differences between the sexes were particularly pronounced in Belarus and Moldova: for example, men aged less than 65 years were 5.2 (Belarus) and 6.8 (Moldova) times as likely as women to die from suicide and intentional self-harm than were women.

Among the ENP-East countries for which data are available (see Figure 3.4), Belarus recorded the highest crude death rates from suicide and intentional self-harm for both men and women in 2016: the rates of 34.2 deaths per 100 000 inhabitants for men aged less than 65 and 65.9 deaths per 100 000 inhabitants for men aged 65 and more were about twice as high as in the EU-28. In Moldova, crude death rates from suicide and intentional self-harm for men were also higher than in the EU-28, whereas rates for women were similar to those recorded in the EU-28. By contrast, crude death rates from suicide and intentional self-harm were much lower than in the EU-28 in both Armenia and Azerbaijan; Armenia recorded the lowest rates for people aged less than 65 years, while Azerbaijan recorded the lowest rates for people aged 65 years and more.

Figure 3.4: Crude death rate from suicide and intentional self-harm, 2016
(per 100 000 inhabitants)



Note: Georgia and Ukraine, not available. Ranked on crude death rate from suicide for men aged less than 65 years.

(1) 2014.
(2) Estimates.
(3) Women aged 65 years and more: 2015.

Source: Eurostat (online data code: hlth_cd_acdr2)

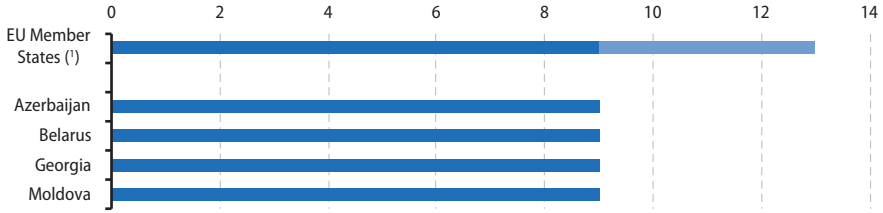
4 Education

Schooling and expenditure

Access to quality education is considered fundamental for economic development. All countries stand to gain from better education through investing in a range of skills such as critical thinking, problem solving and digital literacy, which are increasingly relevant in service-based economies that are characterised by rapidly changing technological developments.

In 2016, the length of compulsory education in the European Union (EU) Member States ranged from 9-13 years; in all four of the ENP-East countries for which data are available (see Figure 4.1) compulsory education lasted nine years. In 2015, public expenditure on education relative to gross domestic product (GDP) was 4.9 % in the EU-28, while public spending on education in 2016 represented 6.3 % of GDP in Moldova, 5.0 % in Belarus, 3.8 % in Georgia, and less than 3.0 % in Azerbaijan and Armenia; note that the data for Armenia only concern central government expenditure.

Figure 4.1: Length of compulsory schooling, 2016
(years)

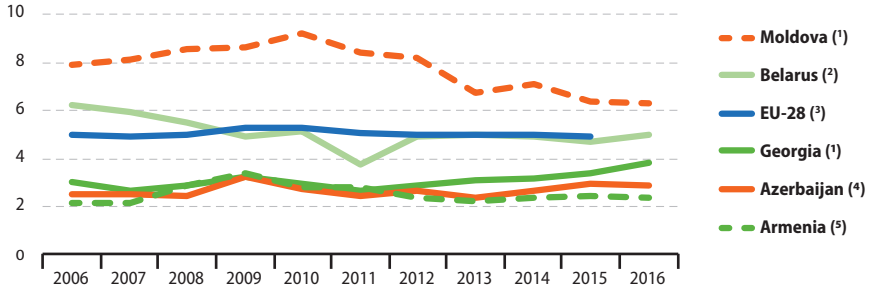


Note: Armenia and Ukraine, not available.

(1) The length of compulsory schooling among the EU Member States ranges from 9 to 13 years.

Source: European Commission/EACEA/Eurydice Compulsory Education in Europe – 2017/18

Figure 4.2: Public expenditure on education as a share of GDP, 2006-2016
(%)



Note: Ukraine, not available.

(1) 2016: provisional.
(2) 2007: break in series.
(3) 2016: not available. 2015: break in series.
(4) 2014: provisional.
(5) Central government expenditure only.

Source: Eurostat (online data code: gov_10a_exp)

Enrolments

Education statistics are classified according to the International Standard Classification of Education (ISCED 2011). Based on the latest available data (see Table 4.1 for more details), there were more than 107 million pupils and students attending educational establishments from pre-primary to tertiary education across the EU-28 in 2015, while the corresponding total among the six ENP-East countries in 2016 was at least 12.7 million pupils and students.

A closer analysis of these data shows that 14.3 % of all pupils and students in the EU-28 attended pre-primary education (ISCED level 02) in 2015. The relative importance of this type of early childhood education varied considerably among the ENP-East countries in 2016, from around one tenth (9.4 %) of the total number of pupils and students in Azerbaijan to more than one fifth (22.5 %) in Moldova.

Over a quarter (26.7 %) of all pupils and students in the EU-28 attended a primary education establishment (ISCED level 1) in 2015. In Belarus, Moldova and Ukraine (2015 data), the share of pupils in primary education was slightly lower than in the EU-28 — within the range of 22.2 % to 23.5 % in 2016 — while primary education accounted for a higher share of the total number of pupils and students in Armenia (27.5 %), Azerbaijan (30.7 %) and Georgia (36.2 %; including 2012 data for pre-primary education in the denominator for the total number of pupils and students).

At the other end of the educational system, 18.1 % of all pupils and students in the EU-28 attended tertiary education in 2015. Compared with the EU-28, a higher proportion of all pupils and students attended tertiary education in Belarus (24.1 %) in 2016 and Ukraine (23.5 %) in 2015, while the share of tertiary students in Armenia and Georgia (including 2012 data for pre-primary education in the denominator for the total number of pupils and students) were only slightly below that in the EU-28.

Table 4.1: Number of pupils and students, 2016
(thousands)

	Total	Pre-primary education (ISCED level 02)	Primary education (ISCED level 1)	Lower secondary education (ISCED level 2)	Upper secondary education (ISCED level 3)	Post-secondary non-tertiary education (ISCED level 4)	Tertiary education (ISCED levels 5-8)
EU-28 (1)	*107 725.1*	*15 421.0*	*28 746.7*	*20 594.5*	*21 815.9*	*1 616.5*	*19 530.6*
Armenia	*553.5*	*65.4*	*152.1*	*162.5*	*73.3*	*0.0*	*100.2*
Azerbaijan	*1 976.7*	*186.0*	*607.0*	*600.9*	*339.4*	*37.2*	*206.2*
Belarus (2)	1 845.1	330.6	410.5	441.9	202.5	15.7	444.0
Georgia (3)	:	:	301.1	140.8	122.9	9.9	144.3
Moldova (4)	592.1	133.1	139.3	159.7	67.5	0.4	92.0
Ukraine (5)	6 969.8	1 291.2	1 599.3	1 708.2	617.7	117.9	1 635.6

(1) 2015.
(2) Data refer to the calendar year when the academic year ends.
(3) Post-secondary non-tertiary education: number of graduated students.
(4) Excluding foreigners.
(5) 2015. Pre-primary: children at pre-school institutions. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data codes: educ_uoe_enrp01, educ_uoe_enrp04, educ_uoe_enrs01, educ_uoe_enrs04, educ_uoe_enrs07 and educ_uoe_enrt01)

Attainment

In 2016, the share of the population aged 20-24 that reached at least an upper secondary educational level — the youth education attainment level — was 83.1 % in the EU-28 (see Table 4.2). The female youth education attainment level in the EU-28 was, at 85.5 %, some 4.7 points higher than the level for men.

In 2016, almost all youths in Ukraine (97.4 %; 2015 data), Georgia (94.0 %) and Azerbaijan (93.6 %) had completed at least an upper secondary level of education, while much lower attainment levels were recorded in Moldova (78.1 %) and Armenia (72.2 %; 2015 data). While the male youth education attainment level was 6.9 percentage points lower than the corresponding rate for young women in Moldova (see Figure 4.3), there was almost no difference in attainment levels between the sexes in Georgia; the remaining ENP-East countries each reported higher youth education attainment levels for young men (rather than young women).

Table 4.2: Upper secondary educational attainment among those aged 20-24 years, 2006, 2011 and 2016
(%)

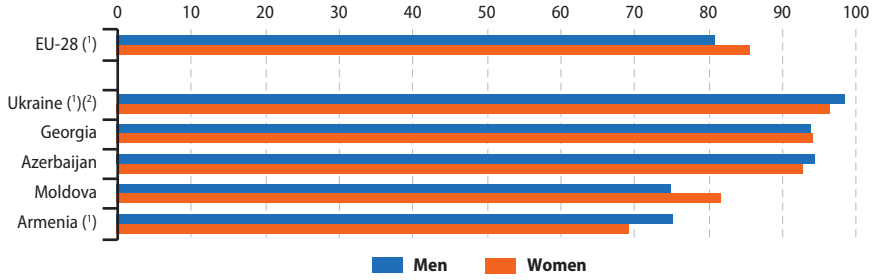
	Total			Men			Women		
	2006	2011	2016	2006	2011	2016	2006	2011	2016
EU-28 (1)	78.3	79.7	83.1	75.7	76.9	80.8	81.0	82.5	85.5
Armenia (2)	42.3	39.9	72.2	47.4	46.3	75.2	37.9	34.2	69.3
Azerbaijan	92.6	93.6	93.6	93.4	94.5	94.5	91.6	92.6	92.6
Belarus (3)	:	34.9	:	:	33.3	:	:	36.6	:
Georgia	90.9	93.2	94.0	89.0	91.1	93.9	92.8	95.2	94.1
Moldova	75.5	75.5	78.1	72.7	70.6	74.8	78.4	80.8	81.7
Ukraine (4)	93.8	95.6	97.4	92.3	94.0	98.3	95.5	97.2	96.5

Note: the percentage of the population aged 20-24 having attained an upper secondary or tertiary level of education (ISCED levels 3-8).

(1) 2016: break in series. 2007 instead of 2006.
(2) 2009 instead of 2011. 2015 instead of 2016.
(3) 2009 instead of 2011. Proportion having completed at most general secondary education.
(4) 2015 instead of 2016. 2011 and 2015: excluding the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol. 2015: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: edat_lfse_9903)

Figure 4.3: Upper secondary educational attainment among those aged 20-24 years, 2016
(%)



Note: Belarus, not available. The percentage of the population aged 20-24 having attained having attained an upper secondary or tertiary level of education (ISCED levels 3-8).

(1) 2015.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol.

Source: Eurostat (online data code: edat_lfse_9903)

Policymakers are increasingly turning their focus to developing human capital. For example, the EU's strategic framework for education and training (ET 2020) has set an objective whereby the share of 30-34 year olds with tertiary educational attainment should be at least 40 % by 2020. Student numbers within tertiary education (ISECD levels 5-8) have increased, as the share of 30-34 year olds in the EU-28 who had completed a tertiary education rose rapidly from 29.0 % in 2006 to 39.1 % a decade later. At 43.9 % in 2016, a higher share of women aged 30-34 (rather than men of the same age) had completed a tertiary education; the gap between the sexes was 9.5 points.

Georgia was the only ENP-East country (for which data are available; see Table 4.3) compared with the EU-28, to report a higher proportion of 30-34 year olds having completed a tertiary level of education, at 41.5 % in 2016. For the three other ENP-East countries, this ratio stood at 24.1 % in Azerbaijan, 30.6 % in Armenia (2015 data) and 34.2 % in Moldova. In keeping with findings for the EU-28, the share of the population aged 30-34 who had completed a tertiary education in the ENP-East countries was generally on the increase (the only exception was Moldova). In a similar vein, a higher share of women rather than men had completed a tertiary education and this was particularly notable in Moldova and Belarus (2009 data).

Table 4.3: Proportion of 30-34 year olds having completed tertiary or equivalent education, 2006, 2011 and 2016

(%)

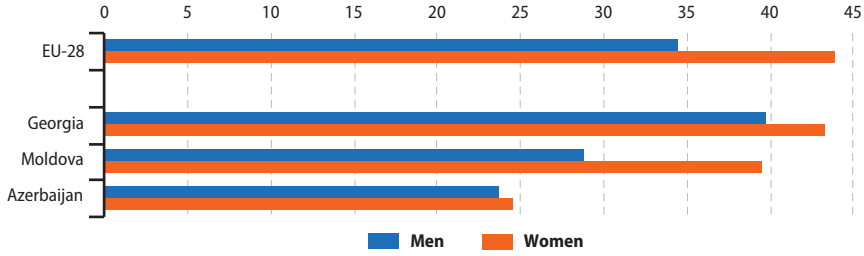
	Total			Men			Women		
	2006	2011	2016	2006	2011	2016	2006	2011	2016
EU-28 (1)	29.0	34.8	39.1	26.3	31.0	34.4	31.6	38.6	43.9
Armenia (2)	:	27.8	30.6	:	:	:	:	:	:
Azerbaijan	12.0	24.1	24.1	13.7	23.7	23.7	10.4	24.5	24.5
Belarus (3)	:	59.6	:	:	53.4	:	:	65.7	:
Georgia	36.2	44.1	41.5	33.6	44.3	39.8	39.0	43.9	43.3
Moldova	36.0	31.3	34.2	32.2	26.1	28.8	39.6	36.5	39.5
Ukraine	:	:	:	:	:	:	:	:	:

(1) 2016: break in series.
(2) 2015 instead of 2016.
(3) 2009 instead of 2011.

Source: Eurostat (online data code: edat_lfse_03)

Figure 4.4: Proportion of 30-34 year olds having completed tertiary or equivalent education, 2016

(%)



Note: Armenia, Belarus and Ukraine, not available.

Source: Eurostat (online data code: edat_lfse_03)

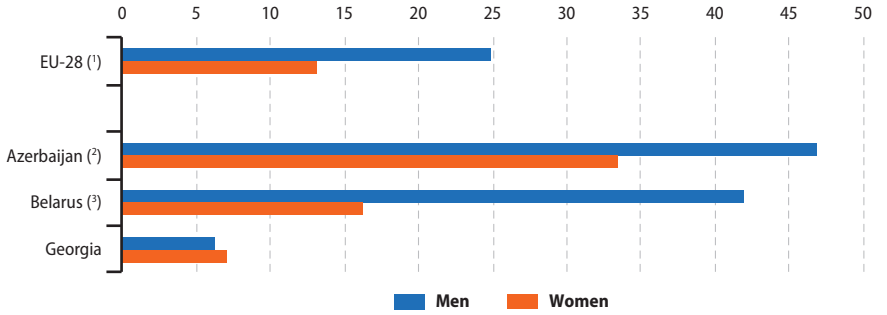
Science and technology graduates

Aside from promoting tertiary education in general, policymakers in the EU have focused their attention on differences between subjects that are studied by men and women. Educational stereotyping continues to exist, with relatively few women studying engineering or physics, while programmes related to occupations such as social work tend to be dominated by women. By targeting enrolment within science and technology programmes, policymakers hope that an increase in female participation will provide a stimulus for economic transformation and development.

Figure 4.5 shows that in 2016 there were 24.9 male graduates in the EU-28 with a science or technology degree per 1 000 male inhabitants aged 20-29, which was almost twice as high as the corresponding ratio for women (13.1 graduates in science and technology per 1 000 female inhabitants aged 20-29).

In Belarus, the ratio of men having graduated from a science or technology discipline to the male population aged 20-29 was higher than in the EU-28, reaching 41.9 per 1 000 in 2016. The equivalent ratio for women was also slightly higher in Belarus (16.3 per 1 000) for these disciplines than it was across the EU-28, but considerably lower than the ratio in Belarus for men. By contrast, in Georgia this ratio was lower than in the EU-28 and furthermore, it was higher for women than it was for men. Note that the data shown in Figure 4.5 for Azerbaijan have a different definition from those for the EU-28 and for the other ENP-East countries and are not directly comparable.

Figure 4.5: Tertiary graduates in science and technology relative to the population aged 20-29 years, 2016
(per 1 000 male/female inhabitants aged 20-29 years)



Note: Armenia, Moldova and Ukraine, not available.

(1) 2015.
(2) Graduates in science, mathematics, computer technology, engineering, production and construction per 1 000 inhabitants aged 20-21 years.
(3) Data refer to the calendar year when the academic year ends.

Source: Eurostat (online data codes: educ_uoe_grad02 and demo_pjangroup)

5 Labour market

Activity rates

The statistics presented in this chapter provide measures relating to the involvement of individuals and businesses in the labour market; they cover structural aspects of the labour market, both for the supply and demand side. Within the European Union (EU), information on the labour market is used to provide a key contribution to a set of integrated employment guidelines that form part of the Europe 2020 strategy.

The activity rate is the percentage of economically active persons in relation to the comparable total population; the economically active population comprises employed and unemployed persons. There was a steady increase in the EU-28 activity rate among the population aged 15-64 years during the period 2006-2016. At the start of this period the activity rate stood at 70.1 % — it subsequently rose each and every year during the following decade — to reach 72.9 % by 2016 (see Table 5.1).

In 2016, the activity rate for the population aged 15-64 years in Belarus was considerably higher than in the EU-28, at 77.5 %. Georgia (73.1 %) and Azerbaijan (71.4 %) both recorded activity rates that were broadly comparable with the EU-28 average, while Ukraine (66.4 %) and Armenia (63.9 %) had lower rates. The activity rate in Moldova (47.2 %) was much lower, as less than half of the working-age population was economically active.

An analysis of developments during the period 2006-2016 reveals that the activity rate in Georgia followed a broadly upward path and increased overall by 6.3 percentage points, which was by far the largest increase recorded among the ENP-East countries. Belarus was the only other ENP-East country to record an increase in its activity rate during the most recent 10-year period for which data are available, as its activity rate generally rose up until 2015 before falling in 2016; note that part of the fall in 2016 may be attributed to a break in series and a considerable change in age coverage for this indicator between 2015 and 2016. Activity rates in the four remaining ENP-East countries declined during the period 2006-2016. In Ukraine and Azerbaijan there were relatively small fluctuations during the last decade and the overall impact was a modest decline in activity rates, falling by 0.4 and 1.3 points respectively. However, in Moldova and Armenia (2007-2016), there was a greater degree of fluctuation over time and the overall impact was that activity rates fell by 3.7 and 10.0 points.

Table 5.1: Activity rates, 2006-2016
(% of population aged 15-64)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	70.1	70.3	70.7	70.8	71.0	71.1	71.7	72.0	72.3	72.5	72.9
Armenia (1)	:	73.9	62.4	61.6	64.1	66.0	65.4	66.4	65.6	65.1	63.9
Azerbaijan	72.7	71.7	70.3	70.0	69.5	68.9	69.2	69.5	70.1	70.5	71.4
Belarus (2)	76.4	77.1	78.9	79.9	81.4	81.8	81.2	81.4	81.8	82.1	77.5
Georgia	66.8	68.3	68.0	69.4	70.3	71.5	72.7	71.9	72.4	73.9	73.1
Moldova (3)	50.9	49.5	49.0	47.7	46.5	47.0	45.3	46.0	45.6	46.9	47.2
Ukraine (4)	66.8	67.3	67.8	67.1	67.1	67.3	67.6	67.9	65.8	66.3	66.4

(1) 2007: persons aged 16-64.
(2) 2006-2015: share of employed and registered unemployed; men aged 16-59 and women aged 16-54. 2010 and 2016: breaks in series.
(3) Including persons producing goods for own consumption.
(4) 2014-2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2015-2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: lfsa_argan)

Female inactivity (in economic terms) is higher than for males in almost all developed world economies: this may be linked to a wide range of different socio-economic factors, including: the traditional role of women as homemakers with family responsibilities; labour market inequalities such as the gender pay gap or a lack of equal opportunities in the workplace; the absence of flexible working structures; availability of affordable childcare; the impact of taxation policy or social security payments/family benefits that encourage some women to remain at home (rather than to seek a job).

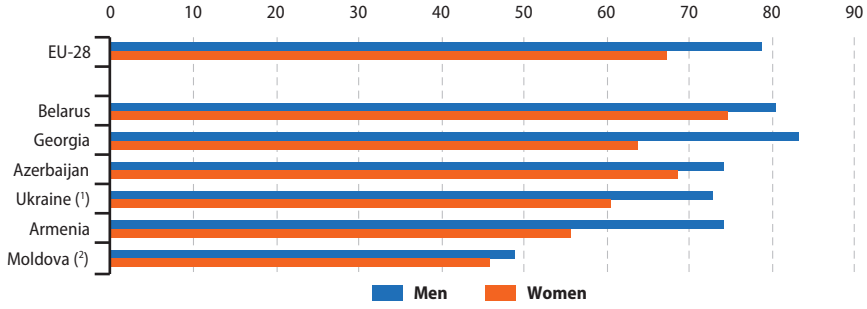
Figure 5.1 presents an analysis of activity rates (among the population aged 15-64) by sex. In 2016, the male activity rate in the EU-28 was 78.6 %, which was 11.2 points higher than the female activity rate (67.4 %).

With the exception of Moldova (48.8 %), more than 70 % of the male population in each of the ENP-East countries was economically active in 2016. Georgia (83.1 %) and Belarus (80.5 %) recorded activity rates for men that were above the EU-28 average, while rates in Azerbaijan (74.2 %), Armenia (74.0 %) and Ukraine (72.8 %) were below the EU-28 average.

Female activity rates for four of the six ENP-East countries were lower than the EU-28 average (67.4 %) in 2016: the two exceptions were Belarus (74.6 %) and Azerbaijan (68.6 %). While the female activity rate in Georgia (63.7 %) was relatively close to the EU-28 average, a higher proportion of women were economically inactive in the three remaining ENP-East countries, as female activity rates stood at 60.4 % in Ukraine and 55.6 % in Armenia, while Moldova recorded the lowest female activity rate (45.7 %) — repeating the pattern observed for men — and was the only ENP-East country where less than half of all men and women aged 15-64 were economically active.

As for the EU-28 (where the gender gap in activity rates was 11.2 points), male activity rates were systematically higher than those recorded for women in each of the ENP-East countries. In 2016, the gap in activity rates between the sexes ranged from 3.1 points in Moldova to 19.4 points in Georgia; alongside Georgia, both Armenia (18.4 points) and Ukraine (12.4 points) recorded gaps that were wider than in the EU-28.

Figure 5.1: Activity rates, by sex, 2016
(% of male/female population aged 15-64)



Note: ranked on the total activity rate (male and female).

(1) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(2) Including persons producing goods for own consumption.

Source: Eurostat (online data code: lfsi_emp_a)

Employment

The employment rate is the percentage of employed persons in relation to the comparable total population; this analysis of employment rates is based on information for the working-age population, defined here as the population aged 15-64 years.

In 2016, the EU-28 employment rate for the population aged 15-64 years stood at 66.7 % (see Table 5.2). While some 2.4 points higher than a decade before in 2006, this overall change disguises a fluctuating development during the most recent 10-year period for which data are available. Indeed, having risen in both 2007 and 2008 to reach 65.7 %, the EU-28 employment rate subsequently fell in consecutive years, returning in 2010 to a level that was below that recorded in 2006. There was almost no change in the EU-28 employment rate between 2010 and 2013, after which the employment rate started to rise again. By 2015, it had returned to the same level (65.7 %) that had been recorded prior to the crisis and this was followed by a further increase in 2016 (to 66.7 %).

In 2016, employment rates among the ENP-East countries peaked at 72.9 % in Belarus. Azerbaijan recorded an employment rate (67.7 %) that was slightly higher than the EU-28 average, while each of the remaining ENP-East countries recorded lower rates. In Georgia (63.4 %) and Ukraine (60.1 %) more than 6 out of every 10 persons aged 15-64 were in employment, while this share fell to almost half in Armenia (52.1 %) and to less than half in Moldova (45.2 %).

An analysis of developments for the ENP-East countries during the latest 10-year period reveals that employment rates also tended to fall in 2009 and/or 2010, although rates in Belarus and Georgia appeared immune to the impact of the global financial and economic crisis. Thereafter, there was a mixed pattern to developments: looking at changes in employment rates between 2011 and 2016, the ENP-East countries were split, with rates increasing in Georgia, Azerbaijan and Moldova, while they fell in Armenia, Ukraine and particularly Belarus; note that as for the activity rate, the rapid decline in the employment rate for Belarus in 2016 may be attributed to a break in series and a considerable change in age coverage for this indicator between 2015 and 2016.

Table 5.2: Employment rates, 2006-2016
(% of population aged 15-64)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	64.3	65.3	65.7	64.5	64.1	64.2	64.1	64.1	64.9	65.7	66.7
Armenia (1)	45.3	51.7	51.7	49.6	51.4	53.3	53.7	55.2	53.7	52.7	52.1
Azerbaijan	67.8	67.1	66.2	66.0	65.6	65.1	65.6	66.0	66.7	67.0	67.7
Belarus (2)	75.3	76.3	78.2	79.2	80.7	81.2	80.7	81.0	81.4	81.3	72.9
Georgia	56.1	57.8	55.3	56.2	57.4	59.3	60.4	60.1	62.2	63.9	63.4
Moldova (3)	47.0	46.9	47.0	44.6	43.0	43.8	42.7	43.6	43.8	44.5	45.2
Ukraine (4)	62.1	62.9	63.4	61.0	61.5	61.9	62.4	62.9	59.6	60.2	60.1

(1) 2007: persons aged 16-64.
(2) 2006-2015: men aged 16-59 and women aged 16-54. 2010 and 2016: breaks in series.
(3) Including persons producing goods for own consumption.
(4) 2014-2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2015-2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: lfsi_emp_a)

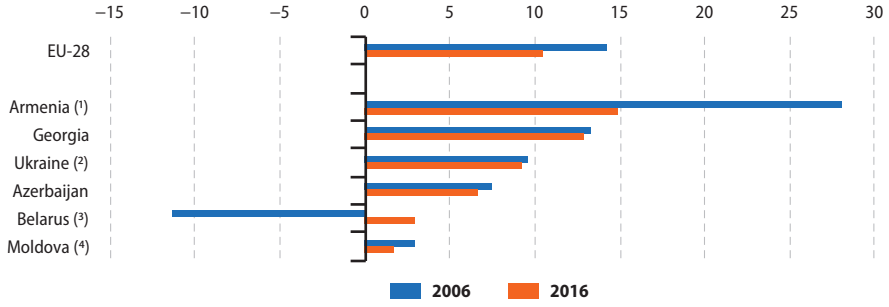
Within the Europe 2020 strategy, policymakers across the EU have sought measures designed to increase the share of their working-age populations who are in employment; three specific areas have been targeted, namely, to increase employment rates for women, early leavers from education and training and older persons. This section looks at the first of these aspects, namely, the difference in employment rates between the sexes.

The EU-28 gender gap for employment rates among people aged 15-64 years decreased during the period 2006-2016. However, the male employment rate (71.9 %) remained considerably higher than the corresponding rate for women (61.4 %) in 2016, despite the gap having fallen from 14.3 points in 2006 to 10.5 points by 2016 (see Figure 5.2).

Among the ENP-East countries, the gender gap (between male and female employment rates) in 2016 was lowest in Moldova (1.7 points), while Belarus, Azerbaijan and Ukraine also recorded gaps that were smaller than the EU-28 average. Although this gender gap had narrowed slightly to 12.9 points in Georgia and fallen rapidly to 14.9 points in Armenia, both of these ENP-East countries recorded gaps between the sexes that were greater than the EU-28 average in 2016.

Comparing gender gaps (between male and female employment rates) in 2006 and 2016, the majority of the ENP-East countries followed the pattern observed in the EU-28, namely, that differences in employment rates between the sexes narrowed. This was particularly the case in Armenia, reflecting a rapidly increasing female employment rate that rose from 33.1 % in 2006 to 45.3 % of the female working-age population in 2016. In Moldova, Azerbaijan, Georgia and Ukraine the narrowing of the gender gap for employment rates was at a slower pace than in the EU-28 (although with the exception of Georgia, each of these ENP-East countries had a narrower gender gap in 2016 than the EU-28 average). The only exception where the gender gap did not narrow was Belarus, as it reported a higher female (than male) employment rate in 2006 and the reverse in 2016, although this reversal of the gender gap probably reflects a major methodological change as the data for 2006 is based on different age coverage between the sexes.

Figure 5.2: Employment rates, gender gap, 2006 and 2016
(percentage points difference, employment rate for men aged 15-64 - employment rate for women aged 15-64)



(1) 2006: unweighted sample results.
(2) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. Break in series.
(3) 2006: men aged 16-59 and women aged 16-54. Break in series.
(4) Including persons producing goods for own consumption.

Source: Eurostat (online data code: lfsi_emp_a)

Table 5.3 shows an analysis for the structure of employment by economic activity. Within the EU-28, services accounted for 71.6 % of those employed (aged 15 and over) in 2016. This was considerably higher than in any of the ENP-East countries, as the highest share was recorded in Ukraine (persons aged 15-70 years) at 60.1 % followed by Belarus at 58.7 %, while services also accounted for the largest share of the workforce — but closer to half of total employment —in Armenia, Azerbaijan and Moldova.

While agriculture, forestry and fishing provided employment to 4.3 % of the EU-28 workforce in 2016, their share was much higher in the ENP-East countries, rising above one third of total employment in Armenia, Moldova and Azerbaijan and reaching almost half (49.1 %) of those employed in Georgia. By contrast, agriculture, forestry and fishing provided work to a much smaller share of the workforce in Ukraine (15.6 %) and particularly Belarus (9.7 %).

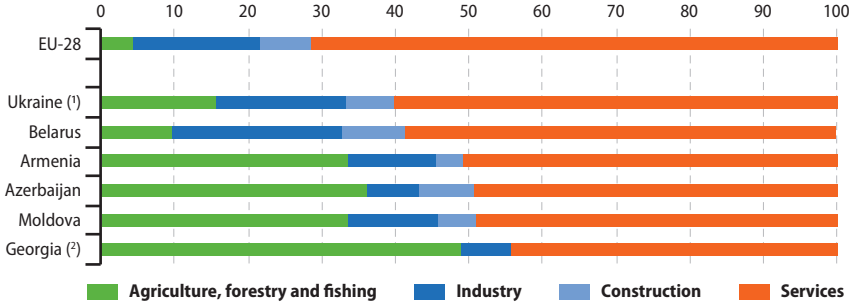
Table 5.3: Analysis of employment, by economic activity, 2006 and 2016
(% share of total employment for persons aged 15 and over)

	Agriculture, forestry and fishing		Industry		Construction		Services	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28	5.9	4.3	19.6	17.4	7.9	6.7	66.4	71.6
Armenia (1)	35.7	33.6	11.5	12.1	7.9	3.7	44.9	50.6
Azerbaijan	38.5	36.3	7.4	7.1	5.3	7.2	48.8	49.4
Belarus	:	9.7	:	23.2	:	8.3	:	58.7
Georgia (2)	55.3	49.1	5.9	6.7	:	:	38.8	44.2
Moldova	33.6	33.7	12.8	12.1	5.4	5.0	48.2	49.2
Ukraine (3)	22.9	15.6	21.5	17.7	5.8	6.6	49.8	60.1

(1) 2007 instead of 2006. 2007: estimate for services.
(2) Services includes construction.
(3) Persons aged 15-70. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. Break in series.

Source: Eurostat (online data codes: lfsa_egana and lfsa_egan2)

Figure 5.3: Analysis of employment, by economic activity, 2016
(% share of total employment for persons aged 15 and over)



Note: ranked on the share of services.

(1) Persons aged 15-70. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. Break in series.
(2) Services includes construction.

Source: Eurostat (online data code: lfsa_egan2)

A self-employed person is the sole or joint owner of the unincorporated enterprise in which he/she works, unless they are also in paid employment which is their main activity (in that case, they are considered to be an employee). The self-employed category also includes: unpaid family workers; outworkers (who work outside the usual workplace, such as at home); workers engaged in production done entirely for their own final use or own capital formation, either individually or collectively. An employee is an individual who works for a public or private employer and who in return receives compensation in the form of wages, salaries, fees, gratuities, payment by results or payment in kind; professional military staff are also included.

In 2016, self-employed and family workers occupied close to one out of every six jobs in the EU-28; employees accounted for the remainder (84.1 %) of the workforce (see Table 5.4). Within the EU-28, the relative share of self-employed and family workers in total employment fell by 1.3 points between 2006 and 2016.

The structure of employment by working status was quite different in most of the ENP-East countries. The relative importance of self-employed and family workers reached a high of 57.6 % of the total workforce in Georgia, was also over two fifths in Armenia (42.0 %) and over one third in Moldova (37.0 %). These high shares reflect, to some degree, the relative weight of agricultural activities within these countries' economies, with numerous cooperatives and small-scale, family-run farms. The structure of employment in Ukraine — the largest of the ENP-East countries — closely resembled that observed in the EU-28. By contrast, employees accounted for 24 out of every 25 persons aged 15 and over who were working in Belarus, where the relative importance of self-employed and family workers was around one quarter of its share in the EU-28.

Comparing the development of employment structures by working status between 2006 and 2016, Georgia and Ukraine both recorded falls in their respective shares of self-employed and family workers in total employment, down by 8.0 and 3.4 points respectively. By contrast, the relative weight of self-employment and family workers in the total workforce of Moldova increased by 4.0 points.

Table 5.4: Analysis of employment, by working status, 2006 and 2016
(% share of total employment for persons aged 15 and over)

	Self-employed and family workers		Employees	
	2006	2016	2006	2016
EU-28	17.1	15.8	82.9	84.1
Armenia	:	42.0	:	58.0
Azerbaijan	:	:	:	:
Belarus	:	4.0	:	95.9
Georgia	65.6	57.6	34.4	42.4
Moldova (1)	33.0	37.0	67.0	63.0
Ukraine (2)	19.0	15.6	81.0	84.4

(1) Including persons producing goods for own consumption.
(2) Persons aged 15-70. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. Break in series.

Source: Eurostat (online data code: lfsa_egaps)

Unemployment rates

According to the International Labour Organisation (ILO), an unemployed person is defined as someone: aged 15-74 years; without work during the reference week; available to start work within the next two weeks (or has already found a job to start within the next three months); actively having sought employment at some time during the last four weeks. The unemployment rate is the number of people (aged 15-74 years) who are unemployed, expressed as a percentage of the total labour force (aged 15-74 years). When there is an economic downturn, it usually takes several months before the unemployment rate begins to rise. Once the economy starts to pick up again, employers usually remain cautious about hiring new workers and there may again be a lag of several months before unemployment rates start to fall.

While the global financial and economic crisis often led to large contractions in economic activity across the EU in 2008 and 2009, it was not uncommon for unemployment rates to increase not just in 2009 but also in 2010 (and for some EU Member States even for a couple more years). In fact, the EU-28 unemployment rate rose from a low of 7.0 % in 2008 to peak at 10.8 % in 2013, before falling in each of three consecutive years to 8.6 % by 2016 (see Table 5.5).

A comparison between 2006 and 2016 among the ENP-East countries reveals that unemployment rates rose in both Belarus and Ukraine; for the former this may be attributed to a break in series, with information prior to 2016 being based solely on registered unemployment, while there were relatively sharp increases for the unemployment rate in Ukraine in both 2009 and 2014. Among the four ENP-East countries where the unemployment rate declined between 2006 and 2016, Azerbaijan recorded a relatively low rate and an uninterrupted decline over the period 2006-2014, with a small increase in 2015 and stability in 2016. The remaining three countries were more affected by the global financial and economic crisis as their unemployment rates peaked in 2009 or 2010, after which they started to decline. In Georgia (persons aged 15 and over), the unemployment rate fell during seven consecutive years from a relative high of 16.9 % in 2009 to 11.8 % in 2016. In Moldova, the unemployment rate fell for four consecutive years from a peak of 7.4 % in 2010, rising in 2015 and then falling again in 2016 to 4.2 %. In Armenia, the unemployment rate reached a relative high of 19.8 % in 2010, after which it fluctuated with three annual increases and three annual reductions, to stand at 18.0 % in 2016.

In 2016, the unemployment rate in Armenia (18.0 %) was more than double the EU-28

Table 5.5: Unemployment rates, 2006-2016
(% of labour force aged 15-74)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	8.2	7.1	7.0	8.9	9.5	9.6	10.4	10.8	10.2	9.4	8.6
Armenia (1)	28.1	30.0	17.2	19.6	19.8	16.6	17.9	16.9	17.6	18.5	18.0
Azerbaijan	6.6	6.3	5.9	5.7	5.6	5.4	5.2	5.0	4.9	5.0	5.0
Belarus (2)	1.4	1.1	0.9	0.9	0.8	0.7	0.6	0.5	0.5	0.9	5.8
Georgia (3)	13.6	13.3	16.5	16.9	16.3	15.1	15.0	14.6	12.4	12.0	11.8
Moldova	7.4	5.1	4.0	6.4	7.4	6.7	5.6	5.1	3.9	4.9	4.2
Ukraine (4)	6.8	6.4	6.4	8.8	8.1	7.9	7.5	7.2	9.3	9.1	9.3

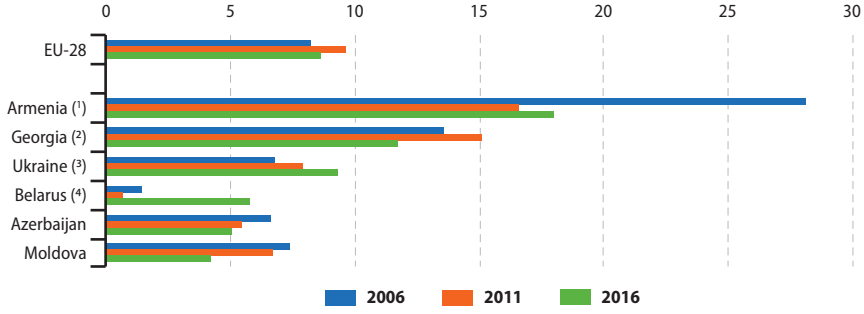
(1) 2006: unweighted sample survey results. 2007: Persons aged 16-75. 2008-2013: persons aged 15-75. 2007, 2008 and 2014: break in series.
(2) 2006-2015: registered unemployment. 2016: break in series.
(3) Persons aged 15 and over.
(4) Persons aged 15-70. 2014-2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2015-2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: lfsa_urgan)

average (8.6 %), while rates in Georgia (11.8 %; persons aged 15 and over) and Ukraine (9.3 %; person aged 15-70) were also higher than in the EU-28. By contrast, Moldova had the lowest unemployment rate (4.2 %) among the ENP-East countries, with a rate that was less than half that recorded in the EU-28.

In 2016, the EU-28 male (15-74 years) unemployment rate was 0.4 points lower than the corresponding rate for women; Azerbaijan was the only ENP-East country to record a similar pattern, as its female unemployment rate was 6.0 %, while the male rate was 1.8 points lower, at 4.2 %. In the five remaining ENP-East countries, female unemployment rates were lower than male rates. This gender gap was particularly pronounced in Georgia (persons aged 15 and over), as the male unemployment

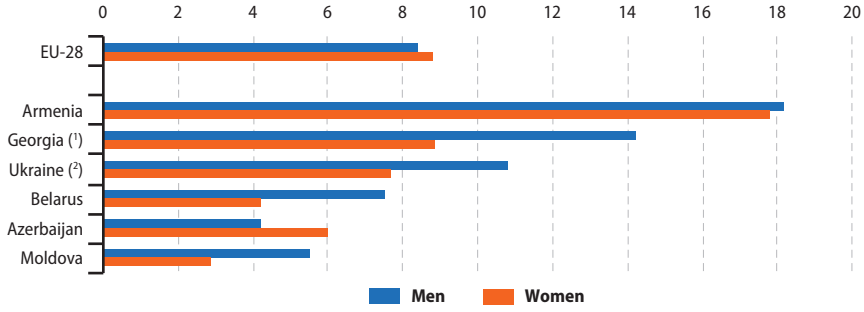
Figure 5.4: Unemployment rates, 2006, 2011 and 2016
(% of labour force aged 15-74)



(1) 2006: unweighted sample survey results. 2011: persons aged 15-75. Breaks in series.
(2) Persons aged 15 and over.
(3) Persons aged 15-70. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) 2006 and 2011: registered unemployment.

Source: Eurostat (online data code: lfsa_urgan)

Figure 5.5: Unemployment rates, by sex, 2016
(% of male/female labour force aged 15-74)



Note: ranked on the total unemployment rate (male and female).

(1) Persons aged 15 and older.
(2) Persons aged 15-70. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: lfsa_urgan)

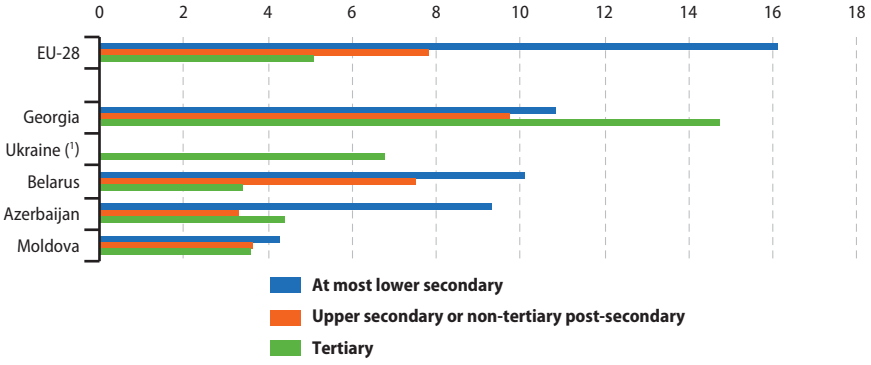
rate (14.2 %) was 5.4 points higher than the female rate (8.8 %). There was little difference between the latest male and female unemployment rates in Armenia (the male rate was 0.4 points higher than the female rate).

Male (see the previous page), youth (especially early leavers from education and training) and long-term unemployment appear to be more susceptible to cyclical economic changes than overall unemployment. As a result, social policymakers often face the challenge of remedying these situations by designing ways to increase employment opportunities for various subgroups of society, those working in particular economic activities, or those living in specific regions.

Figure 5.6 provides information on unemployment rates by level of educational attainment; these data are classified according to the International Standard Classification of Education (ISCED 2011); it provides evidence concerning the impact that education and training may have on the chances of finding work. In 2016, the highest unemployment rate in the EU-28 (for people aged 15-74 years) was recorded among people with at most a lower secondary education (up to ISCED level 2), at 16.1 %. The unemployment rate for people with an upper secondary or non-tertiary post-secondary education (ISCED levels 3 or 4) was less than half the rate for people with at most a lower secondary education, standing at 7.8 %, while the lowest unemployment rate was recorded for people with a tertiary education (ISCED levels 5-8), at 5.1 %.

In 2016, Belarus and Moldova both recorded a similar pattern to that observed in the EU-28, with their lowest unemployment rates for people who had obtained a tertiary degree. By contrast, the lowest unemployment rates in Georgia and Azerbaijan were recorded for people with an upper secondary or non-tertiary post-secondary education. In 2016, unemployment rates for people with a tertiary education were higher than the EU-28 average in Georgia (14.7 %) and Ukraine (6.8 %), but they remained lower than the EU-28 average in Azerbaijan (4.4 %), Moldova (3.6 %) and Belarus (3.4 %).

Figure 5.6: Unemployment rates, by level of educational attainment, 2016
(% of labour force aged 15-74)



Note: Armenia, not available. Ranked on total unemployment.

(1) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. At most lower secondary and upper secondary or non-tertiary post-secondary: not available.

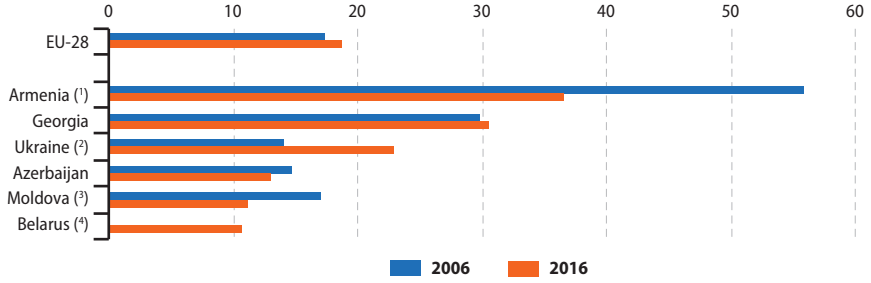
Source: Eurostat (online data code: lfsa_urgaed)

The youth unemployment rate is defined as the percentage of unemployed people within the age group 15-24 years compared with the total labour force of the same age. It is important to note that a relatively large share of this subpopulation aged 15-24 may be outside the labour market (since many youths study full-time and are therefore not available for work).

In 2016, almost one fifth (18.7 %) of the EU-28 labour force aged 15-24 was without work.

The youth unemployment rate was more than double the total unemployment rate (8.6 %) for the whole of the labour force (aged 15-74). In 2016, the highest youth unemployment rates in the ENP-East countries were recorded in Armenia (36.6 %), Georgia (30.5 %) and Ukraine (23.0 %), all above the EU-28 average. By contrast, youth unemployment rates in Azerbaijan (13.1 %) and Moldova (11.2 %) were lower than in the EU-28, which was also the case in Belarus, where the lowest rate was recorded, at 10.7 %.

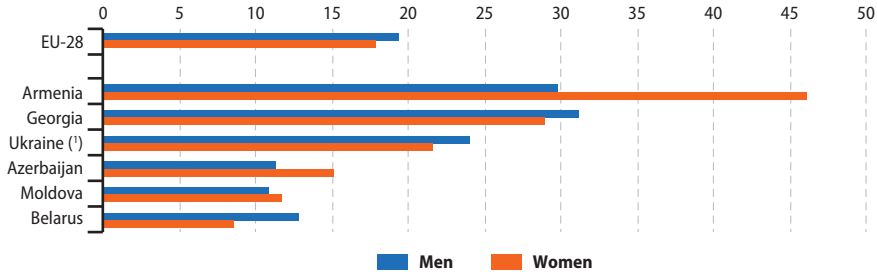
Figure 5.7: Youth unemployment rates, 2006 and 2016
(% of labour force aged 15-24)



(1) 2006: unweighted sample survey results.
(2) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(3) 2006: estimate.
(4) 2006: not available.

Source: Eurostat (online data code: lfsa_urgan)

Figure 5.8: Youth unemployment rates, by sex, 2016
(% of male/female labour force aged 15-24)



Note: ranked on the total youth unemployment rate (male and female).

(1) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: lfsa_urgan)

As for the EU-28, youth unemployment rates were consistently higher than total unemployment rates in each of the ENP-East countries. In 2016, the difference between these two rates was least marked in Belarus, as the youth unemployment rate of 10.7 % was less than double the overall rate for the total labour force (5.8 %). Youth unemployment rates in the remaining ENP-East countries were between 2.0 (Armenia) and 2.7 (Moldova) times as high as total unemployment rates; the same ratio for the EU-28 was 2.2.

In 2016, EU-28 youth unemployment rates were higher for young men (19.4 %) than they were for young women (17.9 %). This gender gap was repeated in Georgia, Ukraine and Belarus, with a larger gap between the sexes (higher rates for young men). By contrast, female youth unemployment rates were higher than those for young men in Moldova, Azerbaijan and particularly Armenia (where the gap was 16.2 points).

Long-term unemployment refers to people (aged 15-74 years) who are out of work and have been actively seeking employment for at least a year. In 2016, the long-term unemployment rate in the EU-28 was 3.9 % for the male labour force and 4.0 % for the female labour force (see Table 5.6). Among the ENP-East countries, particularly low long-term unemployment rates were recorded in Belarus and Moldova (less than 2.0 % for both men and women in 2016). The rates of long-term unemployment for men and for women were also below the EU-28 average in Ukraine (persons aged 15-70), while the rate was lower for men (but not for women) in Azerbaijan. By contrast, long-term unemployment rates for men and for women were above the EU-28 average in Georgia (persons aged 15 and over) and Armenia; the share of the labour force that had been unemployed for more than 12 months was particularly high in Armenia where it was over 10.0 % for men and for women.

The long-term unemployment rate for men in the EU-28 rose by 0.5 points between 2006 and 2016, while there was no change in the rate for women. Excluding Armenia and Belarus (for which there are significant breaks in series), Ukraine was the only one of the four remaining ENP-East countries to record a similar pattern of developments to the EU-28, as its long-term unemployment rate for men rose by 0.8 points and that for women by a smaller margin (0.5 points). By contrast, long-term unemployment rates for men and for women fell in Azerbaijan and Moldova, with a larger decline recorded for men in both of these countries. Finally, while long-term unemployment rates for men and for women also declined in Georgia, the reduction in the two rates was the same.

Table 5.6: Long-term unemployment rates, by sex, 2006, 2011 and 2013
(% of male/female labour force aged 15-74)

	Men			Women		
	2006	2011	2016	2006	2011	2016
EU-28	3.4	4.1	3.9	4.0	4.1	4.0
Armenia (1)	6.8	8.2	10.2	13.7	11.3	11.0
Azerbaijan	4.1	2.7	2.5	4.9	4.7	4.2
Belarus (2)	0.1	0.0	1.6	0.2	0.0	0.9
Georgia (3)	6.8	6.5	5.6	5.7	5.5	4.5
Moldova	3.5	2.6	1.2	2.0	1.7	0.5
Ukraine (4)	1.6	1.6	2.4	1.7	1.4	2.2

(1) 2006: unweighted sample survey results. 2011: persons aged 15-75. Breaks in series.
(2) 2006 and 2011: registered unemployment.
(3) Persons aged 15 and older.
(4) Persons aged 15-70. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: une_ltu_a)

6 Economy and finance

Gross domestic product (GDP)

National accounts are the source for a multitude of well-known economic indicators, among which gross domestic product (GDP) is one of the most often cited. It is a central measure within national accounts providing information on the overall size of an economy, while derived indicators such as GDP per capita are widely used to compare living standards, or to monitor economic convergence/divergence.

An analysis of GDP provides information on the overall level of economic output: Table 6.1 shows that the GDP of the EU-28 was EUR 14 900 billion in 2016, while the six ENP-East countries together had a combined level of output that was EUR 190 billion. The largest economy among the ENP-East countries was Ukraine with GDP valued at EUR 84 billion in 2016, while the economy of Belarus was half this size (EUR 43 billion), followed by Azerbaijan (EUR 34 billion). The other three ENP-East economies were much smaller: Georgia's economy was less than one sixth the size of that in Ukraine, with GDP valued at EUR 13 billion, while the economies of Armenia and Moldova each generated less than EUR 10 billion of GDP in 2016.

The weight of the ENP-East economies relative to the EU-28's GDP fluctuated during the period 2006-2016. Their combined economic output in 2006 had been equivalent to 1.2 % of the EU-28's GDP, a ratio which rose to 1.7 % by 2008,

Table 6.1: GDP, 2006-2016
(billion EUR)

	2006	2008	2010	2012	2014	2016
EU-28	12 269.0	13 071.8	12 828.0	13 463.4	14 044.7	14 907.9
Armenia (1)	5.1	7.9	7.0	8.3	8.7	9.6
Azerbaijan (2)	16.7	33.2	40.0	54.2	*56.6*	34.2
Belarus (3)	*29.4*	41.4	43.2	51.1	59.4	42.9
Georgia (4)	6.2	8.7	8.8	12.3	12.4	*13.0*
Moldova (4)	2.7	4.1	4.4	5.7	6.0	*6.1*
Ukraine (5)	*89.2*	*128.5*	*106.4*	*142.1*	*101.0*	*84.2*

(1) 2006-2010: based on 1993 SNA.
(2) 2006-2014: based on 1993 SNA. 2008: break in series.
(3) 2006 and 2008: based on 1993 SNA.
(4) Based on 1993 SNA.
(5) 2014 and 2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: nama_10_gdp)

Table 6.2: GDP per capita, 2006-2016
(EUR)

	2006	2008	2010	2012	2014	2016
EU-28	24 700	26 100	25 500	26 600	27 600	29 200
Armenia (1)	1 582	2 451	2 291	2 732	2 902	3 192
Azerbaijan (2)	1 969	3 805	4 472	5 905	*6 010*	3 549
Belarus (3)	3 066	4 345	4 547	5 401	6 265	4 511
Georgia (4)	1 406	1 989	1 978	2 740	2 767	*3 484*
Moldova (4)	757	1 153	1 231	1 593	1 691	*1 722*
Ukraine (5)	*1 906*	*2 779*	*2 319*	*3 116*	*2 348*	*1 974*

(1) 2006-2010: based on 1993 SNA.
(2) 2006-2014: based on 1993 SNA.
(3) 2006 and 2008: based on 1993 SNA.
(4) Based on 1993 SNA.
(5) 2014 and 2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: nama_10_pc)

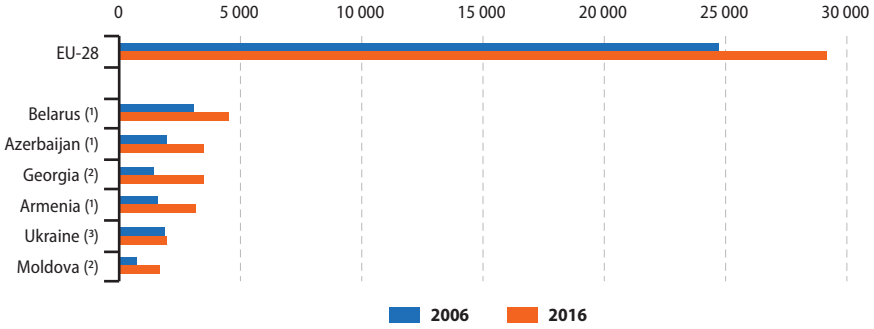
dropped to 1.4 % in 2009, rose to 2.1 % in 2013, but then fell rapidly back to 1.3 % by 2016. These figures reflect, among others, the global financial and economic crisis, changes in the global price of energy products and (for the most recent periods) the conflict in Ukraine.

GDP per capita in the EU-28 averaged EUR 29 200 per inhabitant in 2016 which was much higher than in any of the ENP-East countries. The figures presented in Table 6.2 are based on current price euro series (and hence do not reflect any difference in price levels between countries); note that many goods and services cost less in the ENP-East countries than they do, on average, in the EU.

GDP per capita in the EU-28 was, on average, 17 times as high as in Moldova in 2016 and nearly 15 times as high as in Ukraine, while it was about eight to nine times as high as in Armenia, Georgia and Azerbaijan. By contrast, the highest level of GDP per capita among the ENP-East countries was recorded in Belarus, at EUR 4 511 per inhabitant; as such, its level of GDP per capita was just under one sixth of that recorded for the EU-28.

A comparison of GDP per capita between 2006 and 2016 reveals that this broad measure of living standards, based on a current price series — which therefore does not take account of any price changes — rose overall by 18.2 % in the EU-28 (see Figure 6.1). Ukraine was the only ENP-East country to record a smaller increase, as its average level of economic output per inhabitant was almost unchanged (up 3.6 %); note however that prior to the start of the conflict in 2013, Ukraine's GDP per capita had been 65.5 % higher than in 2006. GDP per capita in Azerbaijan and Belarus peaked in 2014, when it was 3.1 and 2.0 times as high as in 2006. However, GDP per capita fell for both of these ENP-East countries in 2015 and again in 2016, such that by the end of the period under consideration GDP per capita was 47.1 % higher in Belarus and 80.2 % higher in Azerbaijan (compared with 2006). In the three remaining ENP-East countries — Armenia, Georgia and Moldova — GDP per capita more than doubled between 2006 and 2016; the highest rate of change was recorded in Georgia, where this ratio was 2.5 times as high by 2016.

Figure 6.1: GDP per capita, 2006 and 2016
(EUR)



(1) 2006: based on 1993 SNA.
(2) Based on 1993 SNA. 2016: provisional.
(3) 2006: estimate. 2016: provisional; excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nama_10_pc)

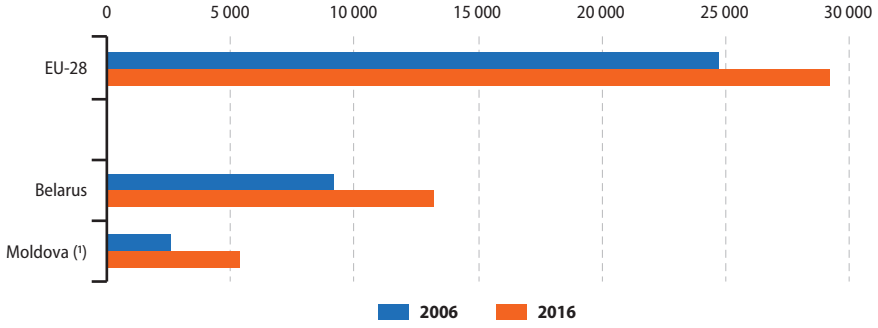
Price differences across borders mean that different amounts of money are needed to purchase the same goods and services depending on the country under investigation. While converting information into a common currency unit, such as the euro, makes it easier to compare values, it fails to address differences in price levels between countries.

A purchasing power standard (PPS) is an artificial currency unit, which provides a common currency in which economic aggregates may be expressed having adjusted for price level differences across countries through the use of a purchasing power parity (PPP). Using PPPs to convert expenditure expressed in national currencies into an artificial common currency, the PPS, eliminates the effect of price level differences between countries; theoretically, one PPS can buy the same amount of goods and services in each country. The resulting series provide a true cross-country comparison which reflects differences in the purchasing power of, for example, households.

Note that PPS presented here are calculated in a way that one PPS equals one euro for the EU-28; as such, GDP per capita for the EU-28 aggregate remains unchanged, whether denominated in euro or PPS terms. By contrast, prices for a broad range of goods and services are often lower in the ENP-East countries than, on average, in the EU-28, which leads to a narrowing of the gap in GDP per capita between the EU-28 and the ENP-East countries when expressed in PPS terms rather than euro terms. Figure 6.2 provides an interesting contrast to the data presented in Figure 6.1: for example, in 2016 the level of GDP per capita in Belarus (13.2 thousand PPS) was almost half that recorded in the EU-28 (29.2 thousand PPS). This could be compared with the same ratio in euro terms, where GDP per capita in Belarus was just under one sixth of that recorded for the EU-28, indicating that there were considerable differences in price levels. A similar analysis for Moldova reveals that its GDP per capita was 5.3 thousand PPS in 2016, which was less than one fifth of the level recorded in the EU-28. By contrast, in euro terms the difference in living standards between the EU-28 and Moldova was 17 : 1.

Table 6.3 presents information on GDP developments during the period 2006-2016; it is based on annual changes compared with the previous year in real terms, in other words, monetary values that are adjusted (deflated)

Figure 6.2: GDP per capita, 2006 and 2016
(PPS)



(1) Based on 1993 SNA. 2016: provisional.

Source: Eurostat (online data codes: nama_10_pc and prc_ppp_ind)

for changes in prices. The calculation of the annual rate of change of GDP using chain linked volume indices (real changes) is intended to allow comparisons of the dynamics of economic development over time.

The global financial and economic crisis had a considerable impact on economic developments. In the EU-28, the largest contraction in activity was recorded in 2009, as the real rate of GDP change was −4.3 % (when compared with the year before). After a modest recovery in 2010 and 2011, there was a subsequent reduction (−0.4 %) of economic activity in the EU-28 in 2012, followed by almost no change (0.3 %) in the level of output in 2013 and increases of 1.8 %, 2.3 % and 2.0 % in 2014, 2015 and 2016.

In 2009, there was also a sharp contraction in economic activity in most of the ENP-East countries: this was particularly true in Armenia and Ukraine, where output fell by 14.1 % and 15.1 % (compared with the previous year). The reductions in activity recorded in Moldova (down 6.0 %) and Georgia (down 3.7 %) were relatively close in magnitude to the losses reported for the EU-28. By contrast, there was almost no change in the level of economic output in Belarus (0.2 %), while a high rate of economic growth continued to be witnessed in Azerbaijan (9.3 %).

There was a rebound in activity in 2010, as all of the ENP-East economies recorded a positive development: the highest growth rate (7.7 %) for the real change in GDP was registered in Belarus, while the smallest increase (2.2 %) was recorded in Armenia. Growth continued among the ENP-East economies in 2011, but the slowdown observed in the EU-28 in 2012 was also observed in four of the six ENP-East economies: Armenia and Azerbaijan alone reported GDP growth that was higher than that observed the previous year. In 2013 and 2014, five of the ENP-East countries reported GDP growth, with no change in the level of GDP in Ukraine in 2013, followed by a 6.6 % fall in 2014. In 2015, three ENP-East countries reported a fall in their GDP, with the decline in Ukraine (−9.8 %) considerably greater than those in Belarus (−3.8 %) and Moldova (−0.4 %). The latest rates of change for the ENP-East economies in 2016 showed a further fall in output in Belarus (−2.6 %), as well as a reduction in Azerbaijan (−3.1 %); by contrast, the highest annual growth rate for real GDP was recorded in Moldova, with an increase of 4.3 %, while Georgia (2.7 %) and Ukraine (2.3 %) both recorded growth rates that were higher than in the EU-28 (2.0 %).

Table 6.3: Real change in GDP, 2006-2016
(% change compared with previous year)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	3.3	3.0	0.4	−4.3	2.1	1.7	−0.4	0.3	1.8	2.3	2.0
Armenia (1)	13.2	13.7	6.9	−14.1	2.2	4.7	7.2	3.3	3.6	3.2	0.2
Azerbaijan (2)	34.5	25.0	10.8	9.3	5.0	0.1	2.2	5.8	*2.8*	1.1	−3.1
Belarus (3)	10.0	8.6	10.2	0.2	7.7	5.5	1.7	1.0	1.7	−3.8	−2.6
Georgia (4)	9.4	12.6	2.4	−3.7	6.2	7.2	6.4	3.4	4.6	2.9	*2.7*
Moldova (4)	4.8	3.0	7.8	−6.0	7.1	6.8	−0.7	9.4	4.8	−0.4	*4.3*
Ukraine (5)	7.6	8.2	2.2	−15.1	4.1	5.4	0.2	0.0	−6.6	−9.8	2.3

(1) 2006-2011: based on 1993 SNA.
(2) 2006-2015: based on 1993 SNA.
(3) 2006-2008: based on 1993 SNA.
(4) Based on 1993 SNA.
(5) 2014-2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2015 and 2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: nama_10_gdp)

The development of specific expenditure components of GDP can give valuable insights into the main drivers of economic activity. Table 6.4 shows that final consumption expenditure — in other words, expenditure by governments and households on goods and services for direct satisfaction — accounted for 76.4 % of EU-28 GDP in 2016. Gross capital formation — which largely consists of investment — accounted for 20.1 % of the EU-28's GDP, while the remaining 3.5 % was attributed to the EU-28's trade surplus.

A majority of the ENP-East countries ran trade deficits in 2016 which has implications for an analysis of expenditure, as in such cases the combined shares of final consumption expenditure and gross capital formation relative to GDP generally exceed 100 % (by an amount similar to the value of the deficit). This explains why, for example, final consumption expenditure alone accounted for a 105.4 % share of GDP in Moldova and may also provide one reason why the relative weight of final consumption

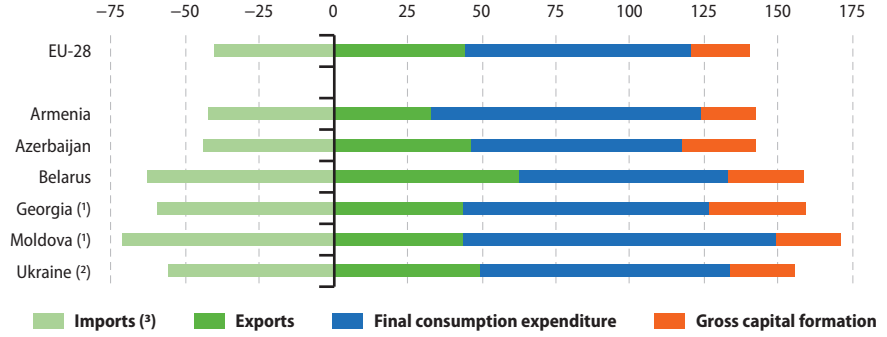
Table 6.4: Expenditure components of GDP, 2006 and 2016
(% relative to GDP)

	Final consumption expenditure		Gross capital formation		Trade balance	
	2006	2016	2006	2016	2006	2016
EU-28	77.1	76.4	22.4	20.1	0.5	3.5
Armenia (1)	82.3	90.8	35.9	18.4	−15.9	−9.6
Azerbaijan (1)	45.6	71.0	29.9	24.9	27.7	2.8
Belarus (1)	70.7	70.7	32.2	25.2	−4.2	−0.1
Georgia (2)	93.3	*83.2*	30.9	*32.4*	−24.2	*−15.6*
Moldova (2)	113.9	*105.4*	32.7	*22.4*	−46.6	*−27.8*
Ukraine (3)	78.2	84.7	24.5	21.5	−2.7	−6.2

(1) 2006: based on 1993 SNA.
(2) Based on 1993 SNA.
(3) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nama_10_pc)

Figure 6.3: Expenditure components of GDP, 2016
(% relative to GDP)



(1) Based on 1993 SNA. Provisional.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(3) Shown as a negative value.

Source: Eurostat (online data code: nama_10_pc)

expenditure in Armenia, Ukraine and Georgia was higher than in the EU-28.

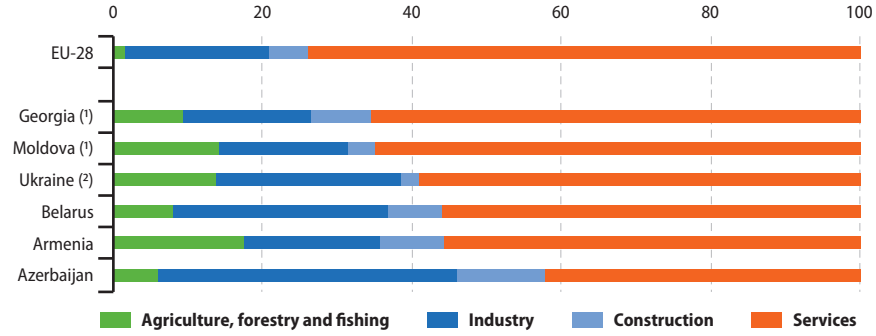
The final part in this section provides an analysis of economic structures in the EU-28 and ENP-East countries. Phenomena such as technological change, developments in relative prices, outsourcing and globalisation, have fuelled a range of structural changes in economic systems. Quite often these have resulted in manufacturing activities and some services (those that can be provided remotely, for example, through call centres) being moved to lower labour-cost regions.

Figure 6.4 shows that services were, by far, the largest part of the EU-28 economy, accounting for almost three quarters (73.8 %) of the total gross value added that was generated in 2016. Almost one fifth (19.4 %) of the EU-28's total value added was attributed to industrial activities, while the relative shares of construction (5.3 %) and agriculture, forestry and fishing (1.5 %) were much smaller.

In 2016, services and industry also accounted for the two highest shares of economic activity in each of the ENP-East countries. The relative importance of services was lower than in the EU-28, peaking at almost two thirds of total gross value added in Georgia (65.4 %) and Moldova (64.8 %); Azerbaijan was the only ENP-East country to report that services accounted for less than half (42.3 %) of its economic activity. By contrast, industrial activities accounted for a relatively high share of total economic activity in Azerbaijan (40.2 %), Belarus (28.8 %) and Ukraine (24.7 %).

In 2016, the weight of construction in total gross value added ranged among the ENP-East countries from a low of 2.5 % in Ukraine up to 11.5 % in Azerbaijan (compared with an EU-28 average of 5.3 %). However, the biggest differences in economic structure between the EU-28 and the ENP-East countries concerned the relative importance of agriculture, forestry and fishing: in 2016, the share of these activities in total value added ranged from four times as high as the EU-28 average (1.5 %) in Azerbaijan (6.0 %) to more than 11 times as high in Armenia (17.4 %).

Figure 6.4: Analysis of gross value added, by economic activity, 2016
(% of total gross value added)



Note: ranked on the share of services.

(1) Based on 1993 SNA. Provisional.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nama_10_a10)

Government finance

Net lending (+)/net borrowing (-) is a national accounts balancing item. It is most frequently used in the context of the excessive deficit procedure (EDP) and government finance statistics; when the balancing item is positive, then the public balance — in other words, the difference between government spending and income — is said to be in surplus, whereas when it is negative, there is a deficit.

The EU-28's general government deficit expanded at a rapid pace during the global financial and economic crisis, reaching 6.6 % of GDP in 2009, while it was only slightly lower a year later, at 6.4 % of GDP in 2010. The EU-28 general government deficit subsequently narrowed, falling for six consecutive years, such that it stood at 1.7 % in 2016 (which was almost the same rate that had been recorded a decade earlier in 2006).

In 2008, at the onset of the financial and economic crisis, Belarus reported a general government surplus (1.4 % of GDP), Azerbaijan a balanced position (0.0 %) and the four other ENP-East countries deficits ranging from 0.7 % to 2.0 % of GDP; the largest deficit was recorded in Georgia. A year later, the ENP-East countries each recorded general government deficits, within the range of 0.5 % in Azerbaijan to 7.5 % in Armenia. By 2011, Belarus and Azerbaijan had returned to a surplus, while the other four countries continued to record deficits (although these were smaller than 3.0 % of GDP). In the following three years (2012-2014), the ENP-East countries reported relatively small general government deficits/surpluses, with the exception of Ukraine which reported its deficit widening from 2.2 % of GDP in 2011 to 4.5 % of GDP by 2014. The latest data available, for 2015 and 2016, show a relatively large increase in the deficit for Armenia and a narrowing of the deficit in Ukraine, with Belarus the only ENP-East country to report a surplus.

General government consolidated gross debt, also known as public debt, is the nominal value of total gross debt outstanding at the end of the year. Within the EU-28, government debt relative to GDP increased during successive years from 57.6 % of GDP in 2007 (just prior to the global financial and economic crisis) up to 86.5 % by 2014, before falling back to 83.2 % in 2016. The latest data for the ENP-East countries generally reveals lower debt-to-GDP ratios than in the EU-28, ranging from 27.0 % in Moldova (2015 data) to 56.6 % in Armenia, although the ratio recorded in Ukraine (94.9 %) was well above this range and also above the EU-28 average.

Table 6.5: General government deficit/surplus relative to GDP, 2006-2016
(% of GDP)

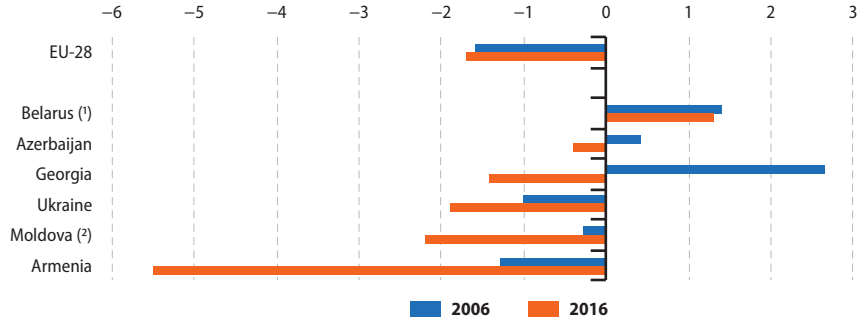
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	−1.6	−0.9	−2.5	−6.6	−6.4	−4.6	−4.2	−3.3	−3.0	−2.4	−1.7
Armenia	−1.3	−1.5	−0.7	−7.5	−5.0	−2.8	−1.5	−1.5	−1.9	−4.8	−5.5
Azerbaijan	0.4	−0.3	0.0	−0.5	*−0.9*	0.6	−0.2	0.6	−0.5	−0.5	−0.4
Belarus (1)	1.4	0.4	1.4	−0.7	−2.5	2.0	0.5	0.2	1.0	1.8	1.3
Georgia	2.7	0.3	−2.0	−6.5	−4.5	−0.9	−0.6	−1.1	−2.0	−1.1	*−1.4*
Moldova	−0.3	−0.2	−1.0	−6.3	−2.5	*−2.4*	−2.1	−1.8	*−1.7*	−2.2	:
Ukraine	−1.0	−0.6	−1.6	−5.6	−6.3	−2.2	−3.7	−4.1	−4.5	−0.8	*−1.9*

(1) Calculation based on the deficit/surplus of the consolidated budget of the Republic of Belarus.

Source: Eurostat (online data code: gov_10dd_edpt1)

Debt-to-GDP ratios rose rapidly in the aftermath of the global financial and economic crisis, and with the EU-28 and the majority of the ENP-East countries recording public deficits, these ratios generally continued to rise thereafter. A comparison between 2006 and 2016 shows that debt-to-GDP ratios were, with the exception of Moldova, consistently higher at the end of the period under consideration. In 2016, debt-to-GDP ratios were at least five times as high as they had been a decade earlier in both Ukraine and Belarus, while the same ratio in Armenia was three times as high. While the level of government debt relative to GDP also rose in Georgia from 28.0 % in 2006 to 44.5 % by 2016, the pace of change was more broadly aligned to developments witnessed in the EU-28.

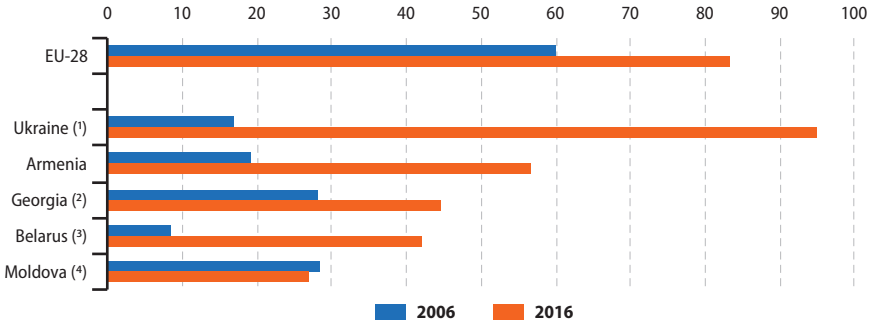
Figure 6.5: General government deficit/surplus relative to GDP, 2006 and 2016
(% of GDP)



(1) Calculation based on the deficit/surplus of the consolidated budget of the Republic of Belarus.
(2) 2015 instead of 2016.

Source: Eurostat (online data code: gov_10dd_edpt1)

Figure 6.6: General government consolidated gross debt relative to GDP, 2006 and 2016
(% of GDP)



Note: Azerbaijan, not available.

(1) Public and publicly guaranteed debt.
(2) 2016: provisional.
(3) Break in series. 2006: central government debt.
(4) 2015 (provisional) instead of 2016. 2006: central government debt.

Source: Eurostat (online data code: gov_10dd_edpt1)

Balance of payments and foreign direct investment

The balance of payments records all economic transactions between resident and non-resident entities during a given period. Note that while a majority of the information that is presented relates to the new compilation standard of the International Monetary Fund's (IMF's) sixth balance of payments manual (BPM6) there are some data (detailed in individual footnotes) based on the previous edition of these standards.

The current account of the balance of payments covers international transactions in goods, services, income and current transfers; as such it may be used to analyse the exposure of an economy to the rest of the world.

The EU-28 current account surplus was EUR 221.9 billion in 2016, corresponding to 1.5 % of GDP; this information relates exclusively to flows with countries outside of the European Union (EU) (extra-EU flows). The latest developments for the EU-28's current account show a continuation of patterns first established in 2009: while the current account deficit peaked in 2008 at 2.1 % of GDP, it gradually diminished, and in 2012 turned into a surplus equivalent to 0.6 % of GDP; this surplus grew in consecutive years to 1.5 % of GDP by 2016. The EU-28's current account surplus in 2016 was constituted by the following contributions from its different components: surpluses for goods (1.2 % of GDP) and services (0.9 % of GDP) were balanced somewhat by a deficit for secondary income (0.5 % of GDP), while primary income (0.0 % of GDP) had no impact (see Table 6.6).

In 2016, Azerbaijan was the only ENP-East country to report a current account surplus (2.8 % of GDP). This position could be attributed to a very large surplus for goods (11.1 % of GDP) — driven by the high value of oil and gas exports — which was largely offset by the current account deficit for services (8.3 % of GDP).

Each of the remaining ENP-East countries recorded current account deficits in 2016: these ranged from 2.3 % of GDP in Armenia to 4.2 % of GDP in Moldova, with a much larger deficit in Georgia (12.9 % of GDP). These latest figures reflected current account deficits for goods which were 27.1 % of GDP in Georgia and 30.8 % of GDP in Moldova. By contrast, four out of the six ENP-East economies recorded current account surpluses for services in 2016, with a relative peak registered in Georgia (11.4 % of GDP).

Table 6.6: Current account balance by component, 2016
(% of GDP)

	Goods	Services	Primary income	Secondary income
EU-28	1.2	0.9	0.0	−0.5
Armenia	−8.9	−0.7	2.1	5.2
Azerbaijan	11.1	−8.3	:	:
Belarus	−5.3	5.2	−4.7	1.3
Georgia	−27.1	11.4	−5.0	7.8
Moldova	−30.8	3.2	6.8	16.6
Ukraine	−7.6	1.6	−1.0	3.2

Source: Eurostat (online data codes: bop_eu6_q and nama_10_gdp)

Foreign direct investment (FDI) statistics provide information on one component of the financial account; they describe the situation when an entity that is resident in one country seeks to obtain a lasting interest in an enterprise that is resident in another. Note that as of 2013 there was a methodological change for EU-28 data and that the statistics presented from this reference year onwards are based on new standards — as provided by the Balance of Payments Manual, 6th edition (BPM6) and the Benchmark Definition of FDI, 4th edition (BD4). These new standards have been systematically applied for data covering the ENP-East countries other than Moldova.

The EU-28 was a net investor abroad between 2006 and 2013 and again in 2015. In 2016, inward flows of FDI into the EU-28 were valued at EUR 379.4 billion, while outward flows were valued at EUR 248.4 billion; as such, the EU-28 was a net recipient of FDI.

Ukraine was the ENP-East country that received the largest flows of inward FDI (EUR 3.0 billion) in 2016, which was slightly more than double the flows of FDI into Georgia (EUR 1.4 billion) and almost three times as high as in Belarus (EUR 1.1 billion). Note that foreign investment in Azerbaijan has been high in recent years (particularly within its oil and gas sectors), although data are not currently available. Most of the ENP-East countries for which data are available (see Tables 6.7 and 6.8) were net recipients of FDI between 2006 and 2016, the exception being Armenia which was a net investor in 2016.

Table 6.7: FDI outflows, 2006-2016
(million EUR)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28 (1)	317 685	564 225	379 049	329 724	303 356	470 121	317 419	605 320	93 854	667 582	248 383
Armenia	:	:	:	:	:	:	:	:	−1	0	154
Azerbaijan	:	:	:	:	:	:	:	:	:	:	:
Belarus	2	11	22	72	38	87	121	199	57	97	112
Georgia	−10	54	99	−15	102	107	231	90	307	279	*227*
Moldova (2)	1	−13	−11	−5	−3	*−15*	−15	−10	*−31*	−16	−9
Ukraine	−106	491	690	116	555	138	938	316	84	−46	*15*

(1) 2006 and 2007: EU-27. 2006-2012: based on the 5th edition of the IMF's balance of payments manual.
(2) Based on the 5th edition of the IMF's balance of payments manual.

Source: Eurostat (online data codes: bop_fdi_main and bop_fdi6_flow)

Table 6.8: FDI inflows, 2006-2016
(million EUR)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28 (1)	231 184	432 106	182 224	274 578	224 494	424 723	309 762	580 429	148 138	628 196	379 439
Armenia	:	:	:	:	:	:	:	:	212	131	118
Azerbaijan	:	:	:	:	:	:	:	:	:	:	:
Belarus	282	1 313	1 544	1 321	1 041	2 787	1 137	1 703	1 445	1 506	1 133
Georgia	925	1 269	1 053	470	615	753	708	718	1 341	1 419	*1 427*
Moldova (2)	206	396	483	149	157	*207*	129	123	*151*	155	89
Ukraine	4 466	7 220	7 457	3 453	4 893	5 177	6 536	3 389	310	2 670	*3 035*

(1) 2006 and 2007: EU-27. 2006-2012: based on the 5th edition of the IMF's balance of payments manual.
(2) Based on the 5th edition of the IMF's balance of payments manual.

Source: Eurostat (online data codes: bop_fdi_main and bop_fdi6_flow)

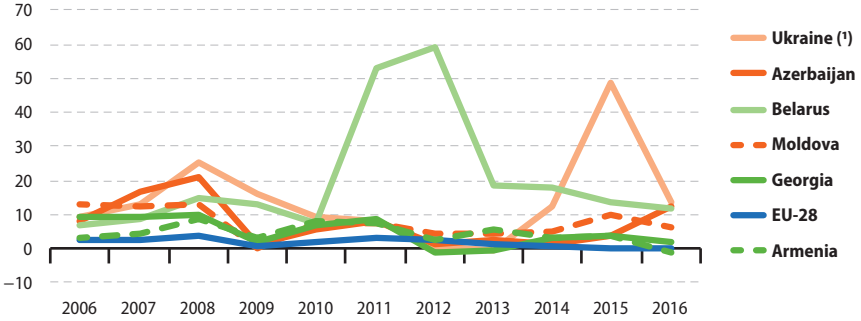
Inflation

Inflation may be defined as the increase in the general level of prices of goods and services in an economy; the reverse situation, when the general level of prices falls, is called deflation. Inflation and deflation are usually measured by consumer price indices (or retail price indices). Other factors (such as wages) being equal, inflation in an economy means that the purchasing power of consumers falls as they are no longer able to purchase the same amount of goods and services with the same amount of money.

Compared with historical developments, the EU-28's harmonised index of consumer prices (HICP) rose at a relatively modest pace during the period 2006-2016. In the run-up to the global financial and economic crisis and in its immediate aftermath there was considerable volatility in food and, especially, energy price developments. However, the inflation rate was relatively subdued thereafter, with the three latest year-on-year rates of change for 2014-2016 ranging from 0.0 % to 0.5 % (see Figure 6.7).

Price inflation was usually much higher in the ENP-East countries than it was in the EU-28. This was true in the run-up to the crisis, as consumer prices in each of the ENP-East countries rose by at least 9.0 % in 2008, rising by more than 20.0 % in Azerbaijan and Ukraine. After the crisis, and similar to developments for the EU-28, there was a return to more subdued price changes in several of the ENP-East countries, for example, there were modest deflationary pressures in Georgia in 2012 and 2013, in Ukraine in 2013, and in Armenia in 2016. That said, there were two particular cases where inflation developments followed a different path: in Belarus, 2011 and 2012 were characterised by very high price increases, which may be attributed, at least in part, to the depreciation of the Belarusian rouble; while in Ukraine, prices (especially of food and energy prices) soared in 2015 as a result of the conflict and a depreciation in the value of the Ukrainian hryvnia. The latest information available for 2016 shows inflation rates returning to more customary levels, although double-digit price increases were posted in Belarus, Azerbaijan and Ukraine.

Figure 6.7: Consumer price indices, 2006-2016
(% change relative to the previous year)



(1) 2014-2016: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2015 and 2016: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: prc_hicp_aind)

7 International trade in goods

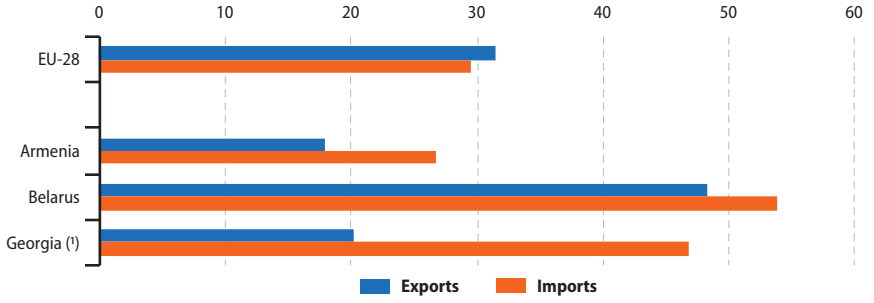
Trade in goods with the rest of the world

The relative importance of international trade within an economy can be seen from the relationship between exports/imports of goods and gross domestic product (GDP); these data are only available for three ENP-East countries — see Figures 7.1 and 7.2 as well as the European Union (EU). Note that the national accounts export and import values used in these calculations may differ for methodological reasons from statistics covering the international trade of goods.

Smaller economies often rely more (in relative terms) on exports and imports, in part reflecting their need to trade in a variety of goods that they do not produce on their national territory. The highest ratio of exports of goods relative to GDP among the ENP-East countries was recorded in Belarus (48.3 %) as was the highest ratio for imports of goods relative to GDP (53.9 %) — see Figure 7.1. By contrast, the lowest ratios were in Armenia, 17.9 % for exports and 26.8 % for imports. For Georgia, the ratio for exports was 20.2 %, in other words only slightly higher than the ratio in Armenia, while for imports the ratio was 46.7 %, which was closer to the share observed for Belarus. As the ratio for imports was higher than that for exports in all three ENP-East countries, they each recorded a trade deficit in 2016, in contrast to the EU-28 which recorded a trade surplus (for extra-EU and intra-EU trade flows combined).

Figure 7.2 presents the development of the trade balance for goods (relative to GDP) between 2006 and 2016. For the EU-28 the development was fairly regular, moving from a small deficit in 2006 to a balanced situation between 2009 and 2011 and then to a small surplus in 2016. For the three ENP-East countries for which data are available, the trade balance for goods was somewhat more volatile. In Belarus the trade deficit widened between 2006 and 2010, before narrowing sharply in 2011 and turning into a small surplus in 2012. Thereafter, Belarus recorded a series of deficits in the range of 3.6 % to 6.3 % of GDP, in other words at a roughly similar level as the deficit had been in 2006. Georgia recorded an unbroken series of deficits for trade in goods during the period considered and in all years these were bigger (relative to GDP) than in either of the other two ENP-East

Figure 7.1: International trade in goods, 2016
(% of GDP)



Note: ranked on the combined shares of exports and imports. Azerbaijan, Moldova and Ukraine: not available.

(1) Provisional. Based on 1993 SNA.

Source: Eurostat (online data code: nama_10_gdp)

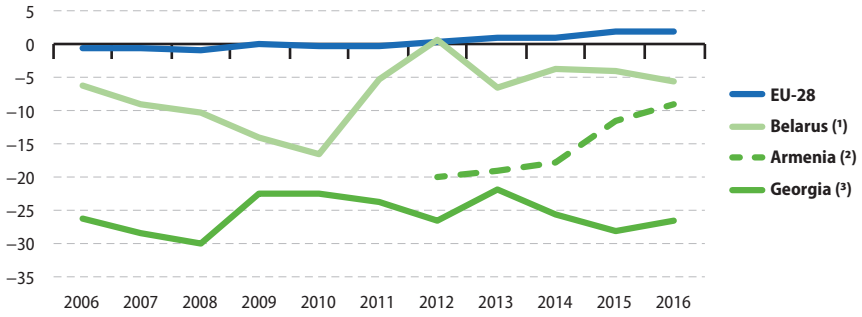
countries for which data are available. The time series available for Armenia is shorter, from 2012 to 2016, during which time its trade deficit relative to GDP narrowed, as it was more than halved over this period.

The remainder of the statistics presented in this chapter are from statistics on the international trade in goods, rather than national accounts. Data for the EU-28 refer exclusively to extra-EU trade.

In 2016, the EU-28 ran a surplus for goods traded with non-member countries, valued at EUR 32.0 billion (see Table 7.1). Among the ENP-East countries, Azerbaijan recorded a trade surplus for goods of EUR 0.6 billion, while the remaining ENP-East countries each recorded trade deficits, ranging from EUR 1.3 billion (Armenia) to EUR 4.7 billion (Georgia).

There was an expansion in the level of international trade in the EU-28 and all of the

Figure 7.2: Trade balance for goods, 2006-2016
(% of GDP)



Note: Azerbaijan, Moldova and Ukraine, not available.

(1) 2006-2011: not available.
(2) 2006-2008: based on 1993 SNA.
(3) 2016: provisional. Based on 1993 SNA.

Source: Eurostat (online data code: nama_10_gdp)

Table 7.1: International trade in goods, 2006 and 2016
(million EUR)

	Exports		Imports		Trade balance	
	2006	2016	2006	2016	2006	2016
EU-28 (1)	1 152 485	1 744 558	1 368 254	1 712 556	−215 768	32 002
Armenia	772	1 606	1 674	2 890	−902	−1 284
Azerbaijan	6 372	9 143	5 267	8 532	1 105	611
Belarus	15 720	21 271	17 805	24 951	−2 085	−3 680
Georgia	746	1 909	2 927	6 590	−2 181	−4 681
Moldova	835	1 849	2 137	3 635	−1 302	−1 786
Ukraine (2)	*30 558*	*32 850*	*35 870*	*35 459*	*−5 313*	*−2 609*

(1) Extra-EU-28 trade (trade with non-member countries).
(2) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: ext_lt_intertrd)

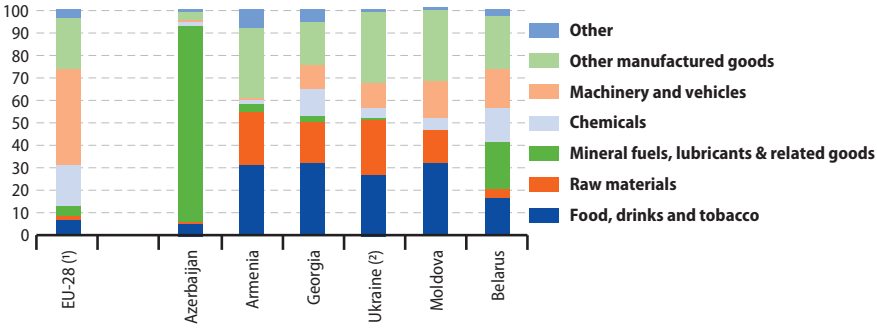
ENP-East countries between 2006 and 2016, although it should be remembered that these values are presented in current price terms and so are affected by changes in price levels (inflation).

The most marked increase (in percentage terms) was registered in Georgia where the value of exports (up 156 %) and imports (up 125 %) more than doubled between 2006 and 2016. Moldova and Armenia also reported that exports more than doubled while their imports increased less strongly. Elsewhere among the ENP-East countries the growth in international trade in goods was more subdued, particularly in Ukraine where exports were 8 % higher in 2016 than in 2006 and imports were 1 % lower. As a result of these movements, trade deficits for goods widened somewhat between 2006 and 2016 in Armenia, Belarus, Georgia, and Moldova while the deficit in Ukraine narrowed as did the surplus in Azerbaijan.

The most important export product group for goods (based on the standard international trade classification (SITC)) for the EU-28 in 2016 was that of machinery and vehicles (see Figure 7.3), which accounted for 42.7 % of the EU-28's exports, a considerably higher share than for other manufactured goods (22.7 %) or chemicals (18.0 %); none of the remaining product groups shown accounted for more than a tenth of the goods exported by the EU-28 in 2016.

By contrast, Azerbaijan was highly specialised in exporting mineral fuels and related goods (87.0 % of its exports of goods) in 2016, while this same product group accounted for one fifth (20.6 %) of the goods exported from Belarus. Georgia and Moldova reported that more than one tenth of their exports of goods in 2016 were raw materials, a share that was closer to one quarter for exports leaving Armenia and Ukraine. Food, drinks and tobacco also accounted for a relatively large share of exports in most of the ENP-East countries, the only exception being Azerbaijan. This was particularly the case in Moldova, Georgia and Armenia where these products accounted for close to one third of all exported goods.

Figure 7.3: Exports by broad group of goods, 2016
(%)



Note: ranked on the combined share of i) food, drinks and tobacco ii) raw materials and iii) mineral fuels, lubricants and related goods.

(1) Extra-EU-28 trade (trade with non-member countries).
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

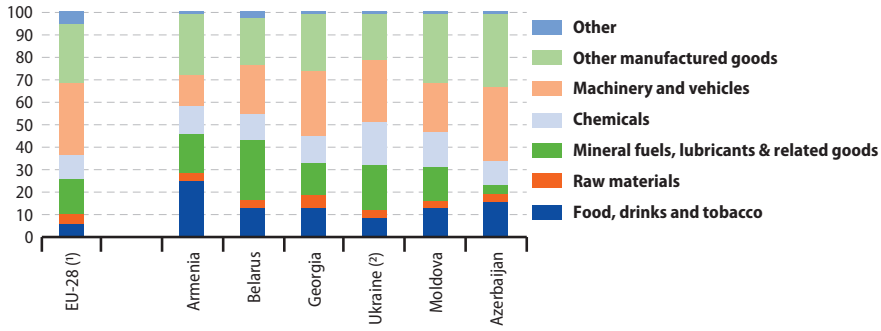
Source: Eurostat (online data code: ext_lt_intratrd)

A similar analysis, but for imports by broad product group, is shown in Figure 7.4. It reveals that close to one third (32.4 %) of the EU-28's imports of goods in 2016 were machinery and vehicles and a smaller share (26.3 %) were other manufactured goods, while mineral fuels and related goods accounted for 15.5 % of the EU-28's imports of goods from non-member countries; none of the remaining product groups shown accounted for more than a tenth of the goods imported by the EU-28 in 2016.

Among the ENP-East countries, Belarus (26.7 %) and Ukraine (20.0 %) also recorded a relatively high share of their total imports of goods being made up of mineral fuels and related goods, with shares that were one fifth or higher. Alongside these two countries, the share of mineral fuels and related goods in total imports of goods was also higher in Armenia (17.7 %) than the corresponding share in EU-28, while that in Moldova (15.4 %) was almost the same as in the EU-28.

In keeping with the analysis for the EU-28, the other main product categories imported by most of the ENP-East countries were machinery and vehicles and other manufactured products; the exception was Armenia, where the share of food, drinks and tobacco was greater than that of machinery and vehicles. In fact, food, drinks and tobacco accounted for a higher share of goods imported into each of the ENP-East countries than they did in the EU-28, as these products represented between 13.3 % and 16.4 % of total imports in 2016 except in Ukraine where the share (8.3 %) was below this range and Armenia (25.0 %) where it was above this range. Due to its very low imports of mineral fuels and related goods, the structure of Azerbaijan's imports was somewhat different from that of the other ENP-East countries. In particular, machinery and vehicles (33.1 %) and other manufactured goods (31.1 %) both accounted for nearly one third of all goods imported into Azerbaijan in 2016.

Figure 7.4: Imports by broad group of goods, 2016
(%)



Note: ranked on the combined share of i) food, drinks and tobacco ii) raw materials and iii) mineral fuels, lubricants and related goods.

(1) Extra-EU-28 trade (trade with non-member countries).
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: ext_lt_intratrd)

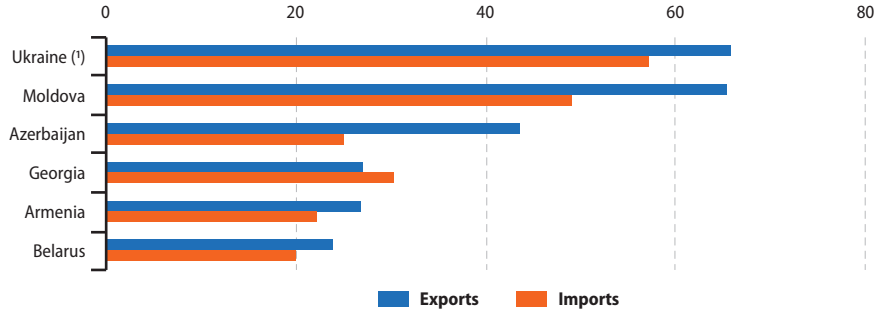
Trade in goods with the EU

The EU-28 was the origin of more than half of Ukraine's imports of goods in 2016, close to half of Moldova's imports, and for at least one fifth of the imports into the other ENP-East countries (see Figure 7.5). Looking at exports of goods leaving the ENP-East countries, close to two thirds of all exports from Ukraine (65.8 %) and Moldova (65.2 %) in 2016 were destined for the EU-28, while more than two fifths of all exports from Azerbaijan (43.5 %) went to the EU-28. For the three remaining ENP-East countries the share was nearer one quarter.

Exports of goods from the six ENP-East countries to the EU-28 were valued at EUR 32.4 billion in 2016, while imports into the six ENP-East countries from the EU-28 were valued at EUR 31.6 billion. In 2016, Ukraine — which is by far the largest ENP-East country — was the leading importer of goods from the EU-28 and the leading exporter of goods to the EU-28 (see Table 7.2). In fact, Ukraine was the destination or origin for around two thirds of the imports and exports between ENP-East countries and the EU-28 and had a trade surplus with the EU-28. Belarus and Azerbaijan were the second and third largest exporters of goods to the EU-28 among the ENP-East countries; both of these countries also recorded trade surpluses for goods with the EU-28. By contrast, the three remaining ENP-East countries each recorded trade deficits for goods with the EU-28.

There was a quite rapid increase in trading relations between the EU-28 and the ENP-East countries during the period 2006-2016. The combined value of exports from the six ENP-East countries to the EU-28 rose overall by 55.2 % during the period under consideration, while the value of imports into the ENP-East countries from the EU-28 increased at a slower pace, rising 33.5 %. These overall developments mask the fact that three of the ENP-East countries, Georgia, Moldova and Ukraine, reported strong growth in trade with the EU-28, while developments for the other three countries, Azerbaijan, Armenia and Belarus, were more subdued. Comparing the 2016 trade balances of the ENP-East countries with the EU-28 with those of 2006, the trade deficits of Armenia, Georgia and Moldova widened as did the trade surplus of Azerbaijan, while the trade surplus of Belarus narrowed (being almost completely cancelled) and the trade deficit of Ukraine turned into a trade

Figure 7.5: International trade in goods with the EU-28, 2016
(% share of total exports and imports)



Note: as reported by ENP-East countries. Ranked on the share of exports destined for the EU-28.

(1) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat and United Nations (Comtrade)

surplus. Note that all of these data are in current prices and so developments reflect changes in prices as well as volume. In this context it should be noted that the value of exports from some ENP-East countries — notably Azerbaijan — increased or decreased greatly in some years largely as a result of price changes for fossil fuels.

Figures 7.6 and 7.7 (see page 74) provide a summary of the ENP-East countries trade in goods with the EU-28, analysed for seven main product groupings (based on the SITC Rev.3).

A country's endowment with natural resources often leads to it becoming specialised in the production of certain industrial goods and this in turn may impact on the structure of its imports and exports. Mineral fuels, lubricants and related materials accounted for almost all (96.6 %) of the goods that Azerbaijan exported to the EU-28 (see Figure 7.6) in 2016 and nearly half (48.9 %) of the goods exported by Belarus. By contrast, other manufactured goods accounted for the highest share of goods exported to the EU-28 from Armenia (55.1 %), Moldova (36.1 %) and Ukraine (35.4 %; 2015 data). Two main types of goods were exported to the EU-28 from Georgia in 2016, food, drinks and tobacco (37.9 %) and raw materials (32.7 %).

There was a clearer pattern in relation to the principal groups of goods that were imported from the EU-28 by the six ENP-East countries in 2016 (see Figure 7.7). The three highest shares of imports from the EU-28 by the ENP-East countries were nearly always for machinery and transport equipment, other manufactured goods, or chemicals: for Armenia and Moldova the highest share was for other manufactured goods, while for the other four ENP-East countries machinery and transport equipment had the highest share. The second highest share was for machinery and transport equipment in Armenia and Moldova, for other manufactured goods in Azerbaijan and Georgia, and for chemicals in Belarus and Ukraine. The third highest share was for other manufactured goods in Belarus and for chemicals in Armenia, Azerbaijan, Georgia and Moldova; the one exception was Ukraine, for which other manufactured goods had only the fourth highest share of imports from the EU-28, behind mineral fuels, lubricants and related goods. The relative importance of machinery and transport equipment products in the total value of goods imported from the EU-28 ranged from more than two fifths (46.1 %) in Azerbaijan in 2016 down to less than one quarter in Ukraine (22.9 %).

Table 7.2: Trade in goods with the EU-28, 2006 and 2016
(million EUR)

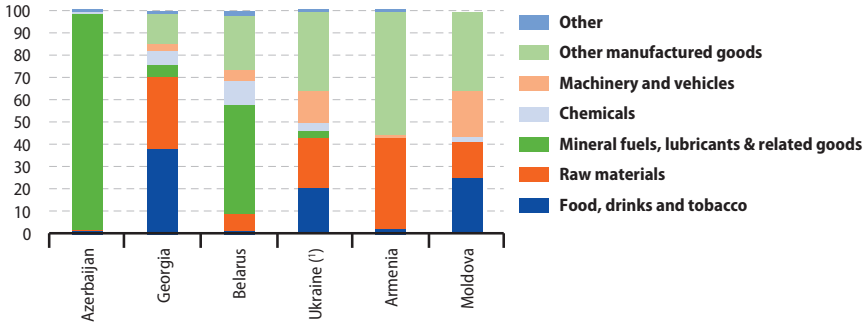
	Exportsto the EU-28		Imports from the EU-28		Trade balance with the EU-28	
	2006	2016	2006	2016	2006	2016
Armenia	375	438	549	642	−174	−205
Azerbaijan	2 905	3 567	1 295	1 927	1 610	1 640
Belarus	7 258	5 111	4 028	4 988	3 230	123
Georgia	179	517	891	2 001	−712	−1 484
Moldova	426	1 205	967	1 783	−541	−578
Ukraine (1)	9 752	21 599	15 928	20 234	−6 176	1 366

Note: as reported by ENP-East countries.

(1) 2016: excluding the territories which are not under eff33ective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimeas and the city of Sevastopol.

Source: Eurostat and United Nations (Comtrade)

Figure 7.6: Exports to the EU-28 by broad group of goods, 2016
(% share of total exports to the EU-28)

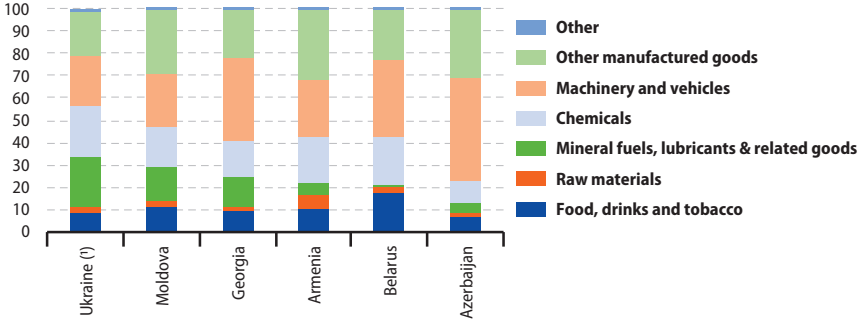


Note: as reported by ENP-East countries. Ranked on the combined share of i) food, drinks and tobacco ii) raw materials and iii) mineral fuels, lubricants and related goods.

(1) 2015. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat and United Nations (Comtrade)

Figure 7.7: Imports from the EU-28 by broad group of goods, 2016
(% share of total imports from the EU-28)



Note: as reported by ENP-East countries. Ranked on the combined share of i) food, drinks and tobacco ii) raw materials and iii) mineral fuels, lubricants and related goods.

(1) 2015. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat and United Nations (Comtrade)

8 Agriculture and fishing

Agriculture was one of the first sectors of the economy (following coal and steel) to receive the attention of European Union (EU) policymakers, and statistics on agriculture were initially designed to monitor the main objectives of the common agricultural policy (CAP). While the CAP remains one of the EU's most important policies there have been wide ranging reforms, which has led to a range of new objectives designed to correct imbalances and overproduction.

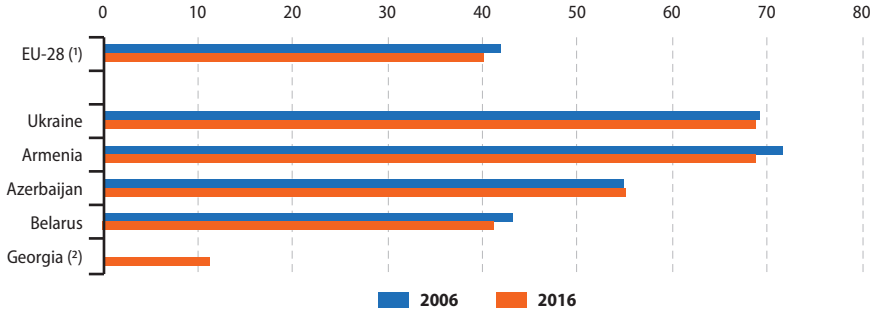
Agricultural land

The utilised agricultural area (UAA) refers to the area that is actually used for agricultural purposes. The share of land that is used for farming varies according to climate, terrain and soil type, while the level of economic development and population density may also play a role in determining land use. Within the EU-28 roughly equal proportions of the total area (around 40 %) are used for farming and for forest and woodland, with the remainder being built-up areas (villages, towns and cities), infrastructure (such as roads or railways), inland waters, scrub or waste land.

The proportion of a country that is given over to agriculture in several ENP-East countries was substantially higher than the proportion observed in the EU-28 (see Figure 8.1). For example, nearly 70 % of the total area of Ukraine and Armenia was used for agriculture in 2016. This was particularly noteworthy in Ukraine which is a relatively large country in terms of its area: indeed, some 41.5 million hectares of land were used for agricultural activities in Ukraine, equivalent to just under one quarter of the total utilised agricultural area of the EU-28. In four of the five ENP-East countries for which recent data are available (no data for Moldova), the share of total area that was used for agriculture was higher than in the EU-28: the exception was Georgia where this ratio was considerably lower, 11.3 % in 2014.

Between the years shown in Figure 8.1 there were falls in the ratio of the utilised agricultural area to the total area in the EU-28 and most of the four ENP-East countries for which a comparison over time is available. Azerbaijan was an exception as there was a slight increase in this ratio between 2006 and 2016. In percentage point terms the largest falls were in Armenia and Belarus.

Figure 8.1: Utilised agricultural area, 2006 and 2016
(% of total area)



Note: Moldova, not available.

(1) 2015 instead of 2016.

(2) 2006: not available. 2014 instead of 2016.

Source: Eurostat (online data codes: apro_acs_a and demo_r_d3area)

Land used for farming includes arable land, permanent grassland, permanent crops (such as orchards, olive trees and vineyards) and other agricultural land such as kitchen gardens; it does not include land on farms that is not cultivated for farming, for example forests and wooded areas, land under buildings or ponds. Table 8.1 provides information on the total utilised agricultural area in the ENP-East countries (no recent data for Moldova) as well as an analysis of the different types of farming land. Aside from Ukraine (already mentioned above, 41.5 million hectares), the next largest utilised agricultural area among the ENP-East countries was in Belarus, with 8.5 million hectares; this was about one fifth of the area utilised for agriculture in Ukraine. The utilised agricultural area in Belarus was about double that in Azerbaijan, which in turn was double that in Armenia, which in turn was more than double that in Georgia (2014 data).

In Ukraine and Belarus, arable land dominated the utilised agricultural area, accounting for more than three quarters (78.4 %) of the total in the former and two thirds (66.6 %) of the total in the latter. Elsewhere, the shares of arable land were less than half, with the lowest share of arable land in Armenia (21.8 %). For comparison, the share in the EU-28 was 59.8 % (2015 data). More than half (53.1 %) of utilised agricultural area in Azerbaijan was used as permanent grassland or meadow, whereas in Georgia (38.1 %; 2014 data) and Belarus (32.1 %) this share was closer to that recorded in the EU-28 (33.2 %; 2015 data). Permanent grassland or meadow accounted for less than one fifth (18.9 %) of the utilised agricultural area in Ukraine. Land under permanent crops made up 5 % or less of the utilised agricultural area in most of the ENP-East countries, with the notable exception of Georgia where its share was 13.9 % in 2014, more than double the 6.6 % share recorded in the EU-28 in 2015.

Table 8.1: Utilised agricultural area, 2016
(thousand hectares)

	Utilised agricultural area	Arable land	Permanent grassland and meadow	Land under permanent crops
EU-28 (1)	178 802	106 953	59 349	11 857
Armenia	2 046	446	:	58
Azerbaijan	4 773	1 999	2 533	241
Belarus	8 540	5 684	2 738	111
Georgia (2)	788	11	377	300
Moldova	:	:	:	:
Ukraine	41 508	32 541	7 841	892

(1) 2015.
(2) 2014.

Source: Eurostat (online data code: apro_acs_a)

Crops

Compared with the other ENP-East countries, Ukraine had by far the highest level of cereals production (see Table 8.2). Indeed, Ukraine produced more cereals (65 million tonnes) in 2016 than any of the EU Member States. Georgia and Armenia were the smallest producers of cereals among the ENP-East countries in 2016, each recording a level of output in the range of 350-450 thousand tonnes; note the data for Armenia covers wheat only. Cereals production in 2016 was higher than in 2006 in all of the ENP-East countries, with overall growth during this period exceeding that in the EU-28. A particularly large increase was recorded for Armenia, as output (of wheat) more than doubled, while in Ukraine the increase was also very large, up 95.0 % (despite a break in series that impacted on the total area available for farming).

Wheat was the main cereal crop in the EU-28, accounting for 47.6 % of all harvested cereals in 2014. In Azerbaijan the share of wheat in the total cereals harvest was higher, reaching 60.4 % in 2016 (see Table 8.3). By contrast, in half of the ENP-East countries grain maize was the most common type of cereal harvested in 2016: in Georgia, a majority (57.5 %) of the cereal crop was grain maize (excluding corn-cob-mix); in Moldova (46.5 %) and Ukraine (43.1 %) the share of grain maize was over two fifths of the total for cereals and in both cases just exceeded the shares for wheat. For comparison, the grain maize share of harvested cereals in the EU-28 was 21.0 % in 2016. Barley production was relatively common in Azerbaijan, making up nearly one third (31.2 %) of the total cereals harvested in 2016. In the remaining ENP-East countries for which data are available, barley accounted for a smaller share of the cereals harvested than in the EU-28 (20.1 %): the lowest share was 8.5 % in Moldova.

Table 8.4 provides information on the harvested quantities of a selection of fruit and root crops, as well as oilseeds and fresh vegetables. In 2016, EU-28 production of apples and pears was 12.6 and 2.4 million tonnes respectively. Collectively, the six ENP-East countries produced 2.4 and 0.3 million tonnes of apples and pears, equivalent to 19.1 % and 10.9 % of the EU-28 harvest. Ukraine produced nearly half (45.8 %) of the apples harvested in the ENP-East countries, followed by Belarus (21.2 %), Moldova (17.1 %) and Azerbaijan (10.6 %). For pears, Ukraine's share was larger (60.9 %), while only Azerbaijan (15.9 %) and Belarus (12.0 %) reported double digit shares.

The ENP-East countries' production of potatoes was 29.7 million tonnes in 2016, equivalent

Table 8.2: Cereals production (excluding rice), 2006-2016
(thousand tonnes)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
EU-28	268 795	260 677	317 008	297 879	283 349	290 057	280 007	305 196	329 768	313 695	298 999
Armenia (1)	147	254	226	198	184	224	243	312	338	363	350
Azerbaijan	2 027	1 962	2 442	2 922	1 947	2 391	2 728	2 877	2 320	2 920	2 982
Belarus	5 923	7 216	9 013	8 510	6 988	8 273	9 226	7 600	9 564	8 657	7 461
Georgia (2)	319	413	461	369	215	397	370	483	371	356	424
Moldova	2 290	902	3 170	2 177	2 421	2 498	1 206	2 681	2 922	2 206	2 993
Ukraine (3)	33 412	28 830	52 639	45 263	38 531	56 086	45 583	62 535	63 327	59 561	65 147

(1) Wheat only.
(2) 2014: break in series.
(3) 2014-2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: apro_acs_a)

to 53.1 % of the EU-28's potato harvest, by far the highest ratio among the crops shown in Table 8.4. Ukraine produced nearly three quarters (73.2 %) of all the potatoes harvested in the ENP-East countries. Equally, Ukraine accounted for nearly three quarters (72.7 %) of the sugar beet that was harvested across ENP-East countries in 2016. For both of these root crops Belarus had, by far, the second highest levels of production among the ENP-East countries, with a 20.1 % share of potato production and a 22.2 % share of sugar beet production. Turning from root crops to oilseeds, Ukraine's dominance was even greater, as its harvest of 19.2 million tonnes in 2016 represented 94.8 % of all oilseed production in the ENP-East countries (no data available for Armenia). For fresh vegetables, Ukraine's share of the 13.9 million tonnes of total production in the ENP-East countries (equivalent to 21.6 % of the EU-28's production) was more than two thirds (68.7 %), in other words well above its shares for apples and pears, but slightly less than its shares for root crops. Belarus produced 13.6 % of the fresh vegetables that were produced across the ENP-East countries, followed by Azerbaijan (9.2 %) and Armenia (7.0 %).

Table 8.3: Cereals and rice production, 2016
(thousand tonnes)

	Cereals	of which:			Rice
		Wheat	Barley	Grain maize	
EU-28 (1)	298 999	157 070	60 069	62 828	2 949
Armenia	:	350	197	:	:
Azerbaijan	2 982	1 800	929	224	5
Belarus	7 461	:	1 253	740	:
Georgia (2)(3)	424	127	47	244	:
Moldova (2)	2 993	1 293	256	1 392	:
Ukraine (2)(4)	65 147	26 043	9 436	28 075	65

(1) Wheat: 2014.
(2) Wheat includes only common wheat and spelt.
(3) Grain maize: excluding corn-cob-mix.
(4) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: apro_acs_a)

Table 8.4: Crop production, 2016
(thousand tonnes)

	Apples	Pears	Potatoes	Sugar beet	Oilseeds	Fresh vegetables
EU-28	12 568	2 359	55 912	111 750	:	64 319
Armenia	63	13	606	:	:	969
Azerbaijan	254	41	902	313	17	1 271
Belarus	509	31	5 986	4 278	279	1 892
Georgia (1)	65	11	249	:	4	215
Moldova	412	5	214	665	762	8
Ukraine (2)	1 099	156	21 750	14 011	19 192	9 530

(1) Including production from kitchen gardens.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: apro_acs_a)

Animals and animal products

The structure of livestock populations in the ENP-East countries is presented in Table 8.5. Collectively, there were more cattle than pigs in the ENP-East countries in 2016, while in the EU-28 the opposite pattern was observed. Farmers in Belarus and Georgia were specialised in raising cattle, while in Armenia and Azerbaijan the most common form of livestock was sheep. Ukraine and Moldova (incomplete data) were the only ENP-East countries to report a higher number of pigs than any other type of livestock. Some of these differences between countries may reflect religious practices.

The total number of cattle in the ENP-East countries in 2016 was 12.5 million, equivalent to 14.1 % of the EU-28 total. The largest cattle population was in Belarus (4.3 million, 34.5 % of the total among ENP-East countries), followed relatively closely by Ukraine (3.7 million, 29.5 %) and Azerbaijan (2.7 million, 21.6 %). Just under half (46.6 %) of the cattle in the ENP-East countries were dairy cows, a share that ranged from 45.1 % in Armenia to 56.6 % in Ukraine, with Belarus (34.5 %) below this range and Moldova (67.4 %) above it. For comparison, just over a quarter (26.6 %) of all cattle in the EU-28 were dairy cows.

Table 8.5: Livestock population, December 2016
(thousand heads)

	Cattle	Dairy cows	Pigs	Sheep	Goats
EU-28 (1)	88 406	23 559	147 225	*86 900*	*12 800*
Armenia	656	296	176	700	28
Azerbaijan	2 699	1 299	4	7 967	648
Belarus (2)	4 302	1 503	3 152	90	68
Georgia	963	509	136	876	61
Moldova	182	123	439	:	:
Ukraine (3)	3 682	2 083	6 669	719	596

(1) Cattle and dairy cows: 2014. Sheep and goats: rounded estimates (based on available national data) made for the purpose of this publication.
(2) Dairy cows includes all cows.
(3) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: apro_mt_lscatl, apro_mt_lspig, apro_mt_lssheep and apro_mt_lsgoat)

Table 8.6: Meat production, 2016
(thousand tonnes)

	Bovines	Pigs	Sheep	Goats	Poultry
EU-28 (1)	*7 798*	*23 563*	*710*	*45*	*13 000*
Armenia	68	18	:	:	10
Azerbaijan (2)	131	1	75	:	96
Belarus	327	384	:	:	458
Georgia (2)	22	16	5	:	24
Moldova	10	73	:	:	52
Ukraine (3)	376	748	9	5	1 167

(1) Meat from sheep, goats and poultry: rounded estimates (based on available national data) made for the purpose of this publication.
(2) Sheep: includes goat meat.
(3) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

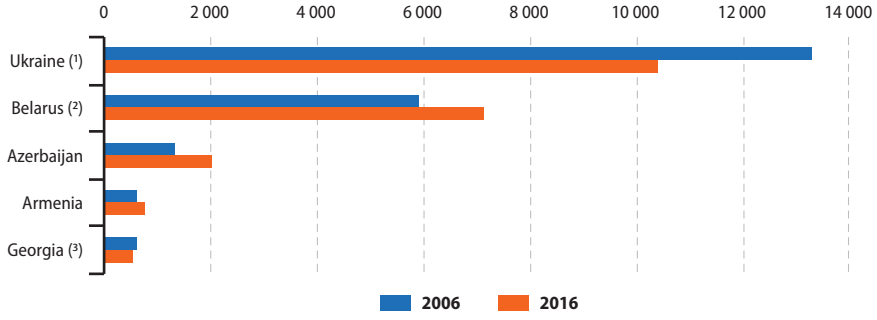
Source: Eurostat (online data code: apro_mt_pann)

There were 10.6 million pigs in the ENP-East countries (equivalent to 7.2 % of the EU-28 total), of which the vast majority were in Ukraine (63.1 %) and Belarus (29.8 %). The sheep population in the ENP-East countries numbered at least 10.4 million in 2016 (no data available for Moldova) and was therefore comparable in size with the pig population. Azerbaijan had the highest share of the sheep population in these countries, its 8.0 million head of sheep contributing 77.0 % of the total (excluding Moldova), with the next highest share in Georgia (8.5 %). For goats the situation was somewhat different, as both Azerbaijan and Ukraine had relatively large herds, accounting for 46.3 % and 42.5 % respectively of the 1.4 million goats in the ENP-East countries (excluding Moldova).

The structure of animal output — as measured by the quantity of slaughtered production — differs from the structure of the animal populations, in large part due to the fact that a proportion of cattle, sheep and goats are reared for milk rather than for meat. In Armenia and Azerbaijan, cattle accounted for the highest quantity of slaughtered production in 2016, while in Moldova the largest quantity of slaughtered production was from pigs and in Belarus, Georgia and Ukraine from poultry (see Table 8.6).

Cows, sheep and goats are the main sources of milk in the ENP-East countries. Figure 8.2 shows the quantity of milk produced in the ENP-East countries (no data available for Moldova). In 2016, the total amount of raw milk available on farms in these five countries was 20.8 million tonnes, equivalent to 12.4 % of the EU-28 total. Ukraine and Belarus accounted for half (49.8 %) and one third (34.3 %) of the milk produced in the ENP-East countries, followed by Azerbaijan with a share that was close to one tenth (9.7 %). Between 2006 and 2016 milk production increased greatly in Azerbaijan, up 54.7 %, as it also did in Armenia (up 21.6 %) and Belarus (up 21.1 %). By contrast, the quantity of milk produced in Georgia and Ukraine fell, although in both cases there is a break in series.

Figure 8.2: Raw milk available on farms, 2006 and 2016
(thousand tonnes)



Note: Moldova, not available. EU-28, 168 million tonnes in 2015.

(1) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(2) Actually yielded milk.
(3) Break in series.

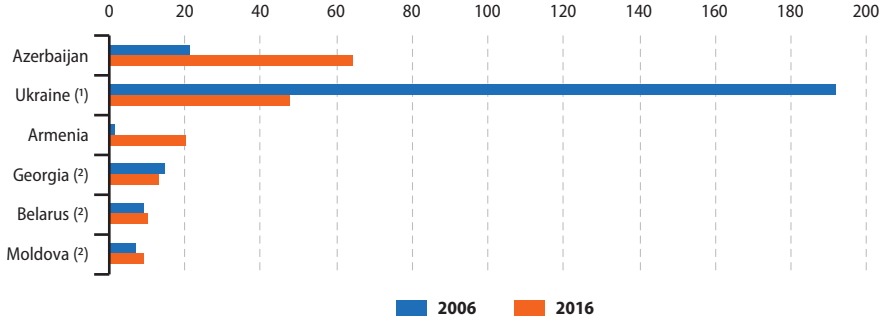
Source: Eurostat (online data code: apro_mk_farm)

Fisheries

The weight of the annual fish catch is shown in Figure 8.3 — note that this excludes fish farming (aquaculture). Three of the six ENP-East countries — Armenia, Belarus and Moldova — are landlocked and so fishing is mainly or exclusively in rivers, lakes and reservoirs. The total fish catch among the ENP-East countries (2015 data for Georgia, Belarus and Moldova) was 164.2 thousand tonnes, equivalent to 3.2 % of the catch recorded for the EU-28 in 2015. The largest fish catches were observed in Azerbaijan (64.5 thousand tonnes) and Ukraine (47.7 thousand tonnes). Despite being landlocked, Armenia's catch (20.1 thousand tonnes) was larger than that of Georgia (12.7 thousand tonnes; 2015 data).

Between 2006 and 2016, the fish catch fell greatly in Ukraine, which can, at least in part, be attributed to the break in series due to the change in the geographical coverage of the Ukrainian data: in particular, the 2016 data do not cover the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol and their long coastline. Georgia also recorded a fall in its fish catch, down 14.0 % overall between 2006 and 2015. Elsewhere among the ENP-East countries, the fish catch increased, most notably in Armenia and Azerbaijan.

Figure 8.3: Annual catch of fish, 2006 and 2016
(thousand tonnes of live weight)



Note: EU-28, 5.1 million tonnes in 2015.

(1) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(2) 2015 instead of 2016. Data from the FAO (including FAO estimates).

Source: Eurostat (online data code: fish_ca_main) and FAO

9 Industry and services

Structural business statistics

Small and medium-sized enterprises (SMEs) are a focal point for shaping enterprise policy in the European Union (EU). An analysis of the non-financial business economy by enterprise size class (based on the number of persons employed) is shown in Table 9.1: SMEs are defined as having less than 250 persons employed while the non-financial business economy covers NACE Rev. 2 Sections B to J and L to N plus Division 95 — this covers industry, construction and most services, but does not cover agriculture or services that are mainly offered by non-market providers, such as education, health, public administration; social security and defence. The overwhelming majority (99.8 %) of enterprises active within the EU-28's non-financial business economy in 2015 were SMEs — some 23.3 million — with the remaining 0.2 % accounted for by large enterprises. Together SMEs contributed 57.4 % of the value added generated within the EU's non-financial business economy and provided 66.8 % of employment.

Among the four ENP-East countries for which data on SMEs and large enterprises are available, Armenia and Georgia had a similar share of large enterprises in their business population as did the EU-28, both around 0.2-0.3 %. In Ukraine, the share was notably larger (0.9 %) and in Belarus it was larger still (1.7 %). The relatively high importance of large enterprises in the business populations of Ukraine and Belarus was underlined by the relatively low share of employment in SMEs in these two countries, 39.3 % in Belarus and 44.4 % in Ukraine (see Figure 9.1). By contrast, in Georgia the employment share of SMEs was 68.0 % and in Armenia it was 71.3 %, in both cases slightly above the share observed in the EU-28 (66.8 %; 2015 data). A size class analysis of value added data is available for Georgia, showing that 64.9 % of its added value within the non-financial business economy was generated by SMEs in 2016, again somewhat higher than the corresponding share in the EU-28 (57.4 %; 2015 data) — see Figure 9.2.

Table 9.1: Main indicators for the non-financial business economy, 2016

	Number of enterprises		Number of persons employed		Value added (EUR million)	
	SMEs	Large	SMEs	Large	SMEs	Large
EU-28 (1)	23 332 761	44 245	90 516 308	45 065 854	3 775 180	2 805 843
Armenia	59 514	110	205 207	82 430	:	:
Azerbaijan	:	:	:	:	:	:
Belarus (2)	107 382	1 894	1 036 477	1 602 763	:	:
Georgia (3)	97 620	280	453 397	213 393	4 159	2 250
Moldova	:	:	:	:	:	:
Ukraine (4)	*246 015*	*2 307*	*2 208 295*	*2 764 100*	:	:

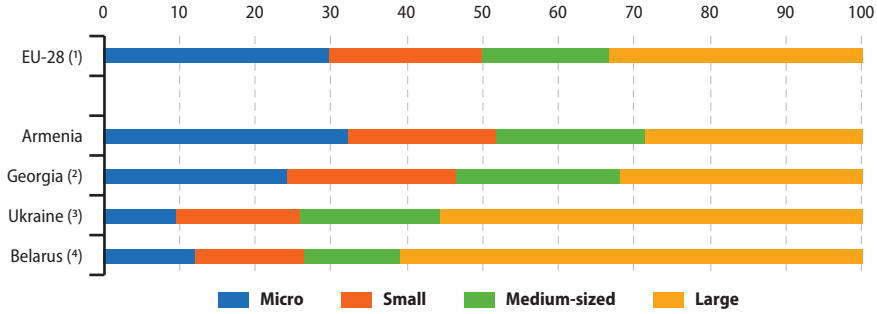
Note: NACE Rev. 2 Sections B to J and L to N and Division 95.

(1) 2015.
(2) NACE Rev. 2 (ISIC Rev.4) Sections A to N, P to R and Divisions 95 and 96. Except banks.
(3) SMEs are defined as having less than 250 persons employed and with an annual turnover of less than GEL 60 million. The number of enterprises given is the size of the survey frame for business statistics. Excluding NACE Rev. 1.1 Sections J, L, P and Q as well as retail trade on markets and fairs and also excluding non-commercial legal persons and entities of public law.
(4) Excluding data on budget organisations. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: sbs_sc_sca_r2)

Figure 9.1: Share of enterprise size classes in employment within the non-financial business economy, 2016

(%)



Note: NACE Rev. 2 Sections B to J and L to N and Division 95. Azerbaijan and Moldova: not available.

(1) 2015.

(2) Micro enterprises: less than 10 persons employed and annual turnover less than GEL 2 million. Small enterprises: 10-49 persons employed and annual turnover less than GEL 12 million. Medium-sized enterprises: 50-249 persons employed and annual turnover from GEL 12 million to GEL 60 million. Large enterprises: 250 or more persons employed and/or annual turnover is greater than GEL 60 million. Excluding NACE Rev. 1.1 Sections J, L, P and Q as well as retail trade on markets and fairs and also excluding non-commercial legal persons and entities of public law.

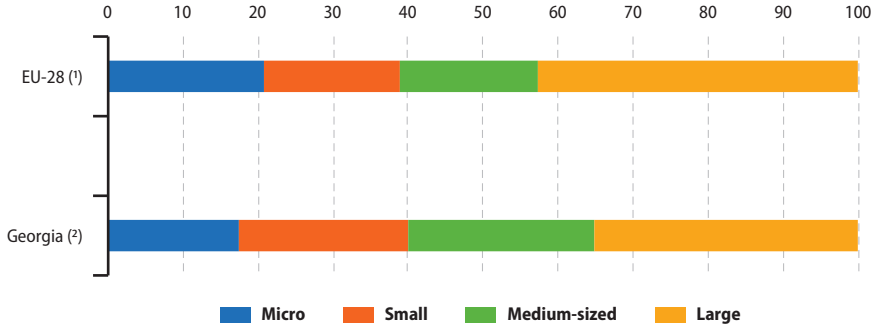
(3) Excluding data on budget organisations. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

(4) NACE Rev. 2 (ISIC Rev.4) Sections A to N, P to R and Divisions 95 and 96. Except banks.

Source: Eurostat (online data code: sbs_sc_sca_r2)

Figure 9.2: Share of enterprise size classes in value added within the non-financial business economy, 2016

(%)



Note: NACE Rev. 2 Sections B to J and L to N and Division 95. Armenia, Azerbaijan, Belarus, Moldova and Ukraine: not available.

(1) 2015.

(2) Micro enterprises: less than 10 persons employed and annual turnover less than GEL 2 million. Small enterprises: 10-49 persons employed and annual turnover less than GEL 12 million. Medium-sized enterprises: 50-249 persons employed and annual turnover from GEL 12 million to GEL 60 million. Large enterprises: 250 or more persons employed and/or annual turnover is greater than GEL 60 million. Excluding NACE Rev. 1.1 Sections J, L, P and Q as well as retail trade on markets and fairs and also excluding non-commercial legal persons and entities of public law.

Source: Eurostat (online data code: sbs_sc_sca_r2)

Short-term statistics on business

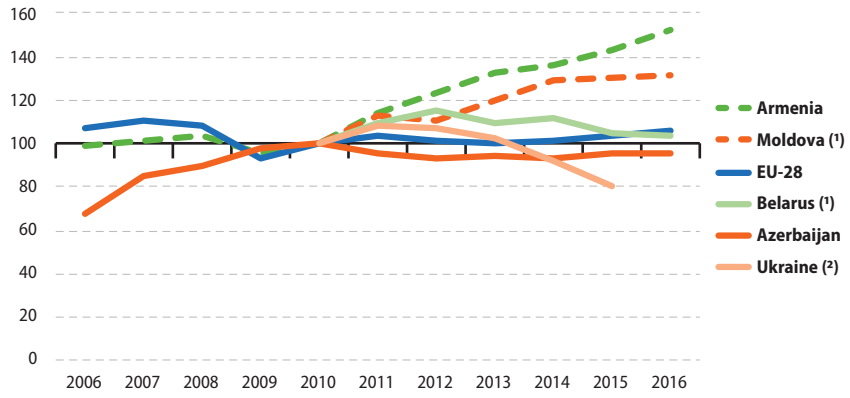
At the onset of the global financial and economic crisis, there was a sharp contraction in industrial activity in the EU-28. In 2009, the EU-28's industrial production index fell by 13.9 %, while a partial rebound in 2010 and 2011 was followed by further reductions in industrial output in 2012 and 2013; growth returned in 2014 and was maintained in both 2015 and 2016 (see Figure 9.3).

By contrast, industrial output in Azerbaijan increased in 2009 (8.6 %) and 2010 (2.7 %) and only fell thereafter. Looking at the period from 2010 onwards, industrial output fell in total by 19.8 % (2010-2015) in Ukraine and by 4.4 % in Azerbaijan. In Belarus, output initially increased, up 15.5 % between 2010 and 2012, but subsequently declined, dropping back 9.9 % between 2012 and 2016 such that it recorded overall growth of 4.1 % between 2010 and 2016, slightly less than the corresponding rate of change that was observed in the EU-28 (5.6 %). Moldova and Armenia recorded more rapid and more stable growth between 2010 and 2016, as industrial output increased overall by 31.1 % and 52.7 % during this period.

The development of domestic output price indices for industry reflects price changes in goods that are sold by manufacturers. One of the key drivers of output prices is global demand for energy resources, in particular, crude oil. In recent years the price of oil has fluctuated far more than the price of many other goods and this has had a direct impact on costs faced by many manufacturers, with oil price fluctuations often being passed down the production line between interlinked activities.

There was a peak in the price of crude oil in 2008, which coincided with the highest year-on-year increase in EU-28 output prices over the period 2006-2016. In a similar vein, a fall in global demand following the onset of the global

Figure 9.3: Calendar adjusted indices of production, industry, 2006-2016
(2010 = 100)



Note: NACE Rev. 2 Sections B to D. The y-axis does not start at 0. Georgia: not available.

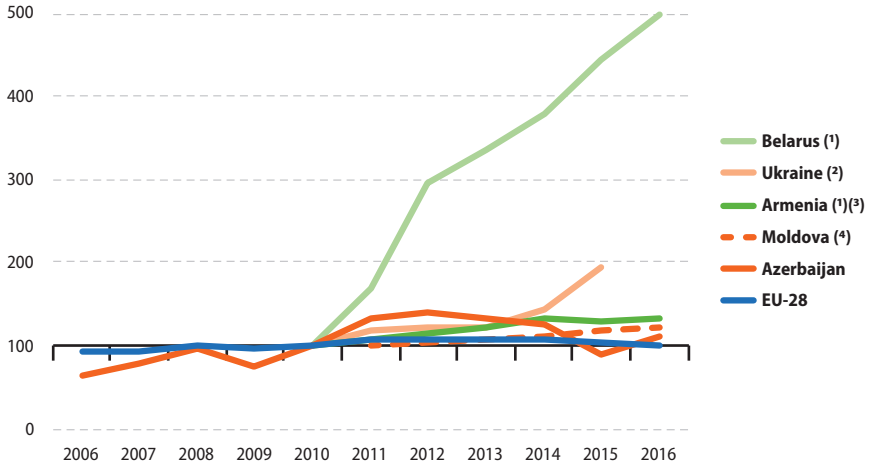
(1) 2006-2009: not available.
(2) 2006-2009 and 2016: not available. 2011-2015: excluding the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol. 2014 and 2015: also excluding the territories which are not under effective control of the Ukrainian government.

Source: Eurostat (online data code: sts_inpr_a)

financial and economic crisis, coupled with falling oil prices, led to EU-28 output prices falling in 2009. In 2010, EU-28 industrial output prices started to increase again and they accelerated in 2011. Thereafter, price increases slowed, and in 2013 there was no change in prices, followed by falling industrial output prices in 2014, 2015 and 2016.

Azerbaijan's domestic output price index for industry shows the impact of the increase in oil prices in the build up to the crisis, as the index grew by 17.7 % in 2007 and 23.4 % in 2008, before dropping by 19.4 % in 2009 and rebounding by 30.5 % in 2010 (see Figure 9.4). Looking at the period from 2010 to 2016 (no data for Georgia), several ENP-East countries had particular developments. In Azerbaijan, the rebound in the price index observed in 2010 continued into 2011, but was then followed by relative stability for three years, before volatility returned in 2015 and 2016. The developments in Ukraine were also noteworthy, with a large increase in output prices in 2011 (19.0 %), relatively stability in 2012 and 2013, followed by an acceleration of price increases in 2014 and 2015. However, the most spectacular increases among the ENP-East countries in the domestic output price index for industry during this period were in Belarus, as the index increased by an average of 30.7 % per year during this period. High price increases in general (not just for domestic industrial output) in Belarus lead to the introduction of a new rouble as national currency in July 2016, replacing the former rouble at a rate of 10 000 to 1.

Figure 9.4: Domestic output price indices, industry, 2006-2016
(2010 = 100)



Note: NACE Rev. 2 Sections B to D and Division 36. Georgia: not available. Unadjusted series.

(1) 2006-2009: not available.
(2) 2006-2009 and 2016: not available. 2014 and 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(3) Total industrial producer price index (not just domestic).
(4) 2006-2010: not available. 2011 = 100.

Source: Eurostat (online data code: sts_inppd_a)

Tourism

The number of bed places available in hotels and similar establishments provides one measure of a country's capacity to attract tourists; note that official tourism statistics include business travellers as tourists alongside individuals travelling for pleasure or other reasons. In 2016, the six ENP-East countries had a combined total of 293 thousand bed places (the latest information for Armenia and Azerbaijan refers to 2014). By comparison, there were 13.5 million bed places in hotels and similar establishments in the EU-28 in 2015.

Among the ENP-East countries, Ukraine had by far the highest number of bed places in hotels and similar establishments, around 136 thousand in 2016, which equated to 46 % of the total number of bed places available within the six ENP-East countries. Note that there was a large fall between 2013 and 2014 in the number of bed places in Ukraine which reflects to a large extent the change in geographical coverage of Ukrainian data, in particular the exclusion of the Autonomous Republic of Crimea and the City of Sevastopol. The next largest number of bed places was in Georgia (61 thousand in 2016).

Table 9.2 provides information on the development of the number of bed places in hotels and similar establishments over the period 2011-2016. Note that the development for Ukraine is influenced by a change in the geographical coverage of the data in 2014. Apart from Ukraine, all of the ENP-East countries reported a marked expansion in their bed capacity during the period shown, with the number of bed places more than doubling in Georgia.

Table 9.2: Key indicators for hotels and similar establishments, 2011 and 2016
(thousands)

	Bed places		Total arrivals		Arrivals of non-residents		Nights spent	
	2011	2016	2011	2016	2011	2016	2011	2016
EU-28 (1)	12 780	*13 522*	640 458	*695 079*	243 458	*272 539*	1 638 335	*1 801 568*
Armenia (2)	10	14	:	:	124	175	:	:
Azerbaijan (2)	32	36	510	1 122	258	777	1 504	2 125
Belarus	29	39	1 738	1 698	594	813	4 381	3 828
Georgia	26	61	853	2 540	439	1 670	:	:
Moldova	5	6	131	187	71	114	368	440
Ukraine (3)	154	136	4 657	5 037	1 059	819	11 833	10 158

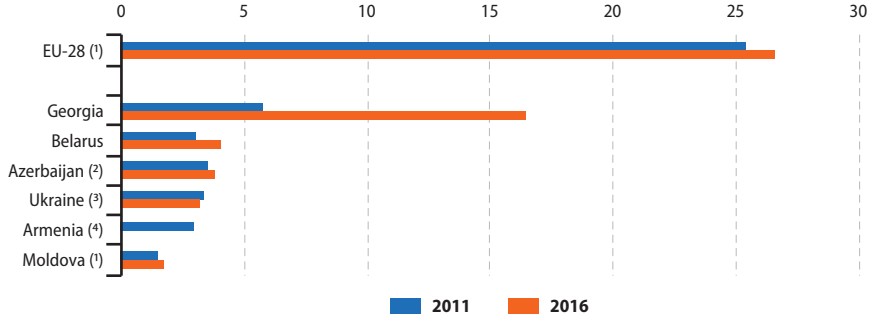
(1) Bed places and nights spent: 2015 instead of 2016. Total arrivals: 2014 instead of 2016.
(2) Bed places: 2014 instead of 2016.
(3) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: tour_cap_nat, tour_occ_arnat and tour_occ_ninat)

Figure 9.5 presents an alternative measure for analysing the capacity of hotels and similar establishments, presenting information on the number of bed places in relation to the number of inhabitants in each country. Using this measure, the EU-28 again recorded a higher capacity of bed places than any of the ENP-East countries. There were, on average, 26.6 bed places in hotels and similar establishments per 1 000 inhabitants across the EU-28 in 2015. This was more than one and a half times as high as the ratio recorded in Georgia (16.5 bed places per 1 000 inhabitants) in 2016 and six and a half times as high as the ratio in Belarus (4.1) which had the next highest ratio among the ENP-East countries. The fastest expansion in the number of bed places per 1 000 inhabitants among the ENP-East countries between the years shown in Figure 9.5 was clearly in Georgia, where the number of bed places relative to the population nearly trebled.

In 2014, there were 695.1 million arrivals at hotels and similar establishments in the EU-28, an increase of 8.5 % compared with 2011. These figures could be compared with the total for the ENP-East countries (excluding Armenia), where there were 10.6 million annual arrivals, representing a 34.2 % increase compared with 2011 (despite a break in series for Ukraine). By far the largest number of arrivals was recorded in Ukraine, where nearly half of all arrivals in the ENP-East countries were recorded. Between 2011 and 2016, Georgia and Azerbaijan recorded large increases in their respective number of arrivals at hotels and similar establishments, nearly trebling in the case of Georgia and more than doubling in Azerbaijan; by contrast, Belarus observed a small decrease during this period.

Figure 9.5: Bed places in hotels and similar establishments relative to population size, 2011 and 2016
(per 1 000 inhabitants)



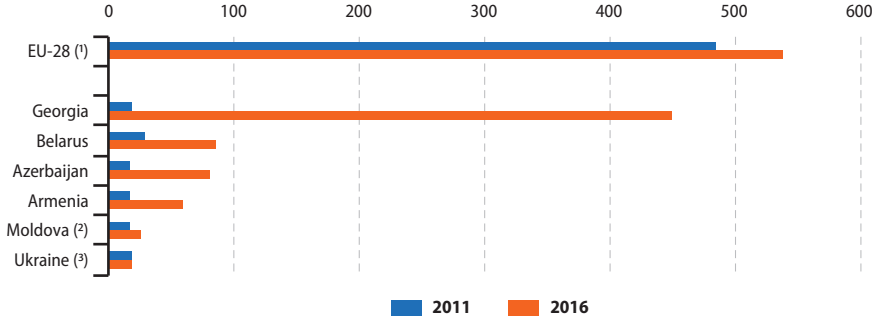
(1) 2015 instead of 2016.
(2) 2014 instead of 2016.
(3) Break in series. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) 2016: not available.

Source: Eurostat (online data codes: tour_cap_nat and demo_pjan)

Focusing on arrivals of non-residents, in 2016 there were 4.4 million arrivals at hotels and similar establishments across the six ENP-East countries. This figure could be compared with a total of 272.5 million arrivals of non-residents at hotels and similar establishments in the EU-28 (see Table 9.2). As such, the number of non-resident arrivals in the six ENP-East countries in 2016 was equivalent to just 1.6 % of the EU-28 total. Indeed, the EU is a major tourist destination: according to the United Nations World Tourism Organisation, five EU Member States — France, Spain, Italy, the United Kingdom and Germany — were among the world's top 10 destinations in 2016, both in terms of international tourist arrivals and international tourism receipts.

Figure 9.6 shows the number of arrivals of non-residents at hotels and similar establishments relative to the number of (resident) inhabitants. In the EU-28 there were 538 arrivals of non-residents per 1 000 inhabitants in 2014. Among the ENP-East countries, the ratio of non-resident arrivals to population was consistently lower than in the EU-28. The highest value by far was recorded for Georgia, with 449 non-resident arrivals per 1 000 inhabitants in 2016, while there were less than 30 non-resident arrivals per 1 000 inhabitants in Moldova (2015 data) and Ukraine. However, the number of non-resident arrivals relative to population increased at a relatively fast pace in several of the ENP-East countries between 2011 and 2016. The largest gain in relative terms was recorded in Georgia, where this ratio increased 24-fold between 2006 and 2016, while it more than trebled in Belarus and Armenia and more than quadrupled in Azerbaijan.

Figure 9.6: Arrivals of non-residents at hotels and similar establishments relative to population size, 2011 and 2016
(per 1 000 inhabitants)

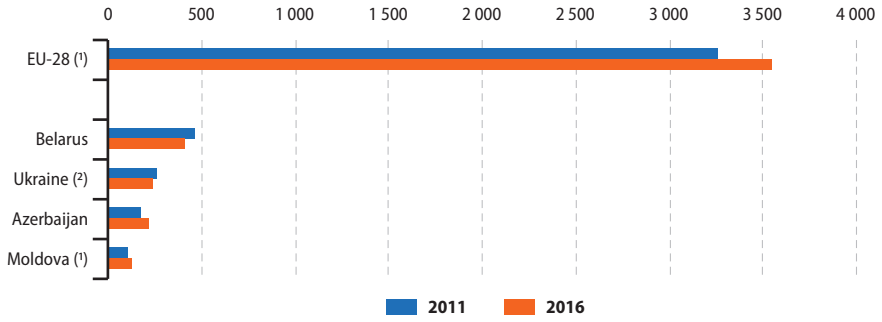


(1) 2014 instead of 2016.
(2) 2015 instead of 2016.
(3) Break in series. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: tour_occ_arnat and demo_pjan)

The final indicator shown in Table 9.2 concerns the number of nights spent in hotels and similar establishments. In 2015, there were 1.8 billion nights spent in hotels and similar establishments in the EU-28, this was equivalent to an increase of 10.0 % compared with 2011. Data are available for four ENP-East countries (not for Armenia or Georgia), where a total of 16.6 million nights were spent in hotels and similar establishments in 2016, down 8.5 % compared with 2011; nearly two thirds of these nights were spent in Ukraine. Between 2011 and 2016, the number of nights spent in hotels and similar establishments increased by 41.3 % in Azerbaijan and by 19.5 % in Moldova, however it fell by 14.2 % in Ukraine (note the break in series) and 12.6 % in Belarus. Figure 9.7 presents this information relative to the size of the population. Whereas there were 3 543 nights spent in hotels and similar establishments per 1 000 inhabitants in the EU-28 in 2015, the ratio was much lower in the ENP-East countries in 2016, ranging from 123 per 1 000 inhabitants in Moldova (2015 data) to 403 per 1 000 inhabitants in Belarus.

Figure 9.7: Nights spent in hotels and similar establishments relative to population size, 2011 and 2016
(per 1 000 inhabitants)



Note: Armenia and Georgia, not available.

(1) 2015 instead of 2016.
(2) Break in series. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: tour_occ_ninat and demo_pjan)

The final section in this chapter details the outward flow of tourists travelling abroad. Tourists from the EU-28 made 278 million non-domestic trips in 2015; note that EU-28 data for this particular indicator only refer to persons aged 15 and over.

By contrast, among the five ENP-East countries for which data are available (no information for Georgia) the highest number of outbound trips taken by tourists was recorded for Ukraine — the most populous of the ENP-East countries — at 24.7 million in 2016. There were 3.3 million outbound trips made by tourists from Azerbaijan in 2014, while the number of outbound trips made in 2016 from Armenia was 1.3 million, from Belarus it was 0.5 million (organised trips only) and from Moldova it was 0.2 million.

Developments for the number of outbound tourist trips between 2011 and 2016 are shown in Table 9.3. There was a rapid expansion in the number of outbound tourist trips from Armenia, Belarus and Azerbaijan (2011-2014), with the most recent number of outbound tourists approximately 50 % higher than in 2011. For Moldova and Ukraine there were also substantial but smaller increases, with the latest number of trips about a quarter higher than in 2011.

Turning to the number of outbound trips taken by tourists relative to the national population, the EU-28 recorded an average of 547 trips per 1 000 inhabitants in 2015; note that the tourist trip figures relate to persons aged 15 and over. Ukraine recorded the highest number of outbound trips per 1 000 inhabitants among the ENP-East countries, with its ratio of 579 trips per 1 000 inhabitants in 2016 somewhat higher than the latest (2015) value for the EU-28. The ratio in Ukraine was considerably higher than that recorded in Armenia (421 per 1 000 inhabitants) or Azerbaijan (350; 2014 data), while the ratio of the number of trips made by outbound tourists relative to the national population was considerably lower in Moldova (53; 2015 data) and Belarus (49; again organised trips only).

Table 9.3: Number of trips taken by outbound tourists, 2011 and 2016

	Number of trips (thousands)		Number of trips relativeto population size (number per 1 000 inhabitants)	
	2011	2016	2011	2016
EU-28 (1)	*287 410*	278 360	*570*	*547*
Armenia	831	1 263	255	421
Azerbaijan (2)	2 308	3 319	253	350
Belarus (3)	320	468	34	49
Georgia	:	:	:	:
Moldova (4)	136	177	38	53
Ukraine	19 773	24 668	434	579

(1) Trips by persons aged 15 and over. 2012 instead of 2011. 2015 instead of 2016. Estimates.
(2) 2014 instead of 2016.
(3) Organised outbound tourist visits.
(4) Relative to population size: 2015 instead of 2016.

Source: Eurostat (online data codes: tour_dem_tttot and demo_pjan)

10 Science and technology

Telecommunications

Information and communication technologies (ICTs) affect people's everyday lives in many ways, both at work and in the home, for example, when communicating or buying goods or services online. This chapter looks at the access to and use of some of these technologies in the European Union (EU) and the ENP-East countries.

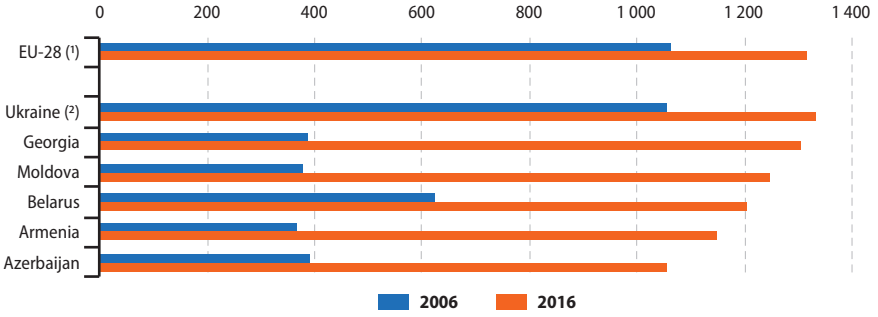
In the EU-28 there were, on average, 1 316 mobile phone subscriptions per 1 000 inhabitants in 2013; in other words, there was an average of 1.3 mobile subscriptions per person. Since the late 1980s and early 1990s the number of subscriptions has increased rapidly as mobile phones have become commonplace. Indeed, Figure 10.1 shows that subscriptions per inhabitant increased by nearly a quarter (23.7 %) between 2006 and 2013 in the EU-28.

Over the period 2006-2016, the rate of growth of mobile subscriptions was faster in each of the ENP-East countries except for Ukraine, which, like the EU-28, already had a relatively high mobile phone penetration rate in 2006. In 2016, the number of mobile phone subscriptions was higher than the number of inhabitants in all ENP-East countries, indicating that some people had more than one mobile subscription: this could result from some subscriptions remaining active even when they were no longer in use, or may be linked to some people having subscriptions for work and private use or because they owned several connected devices.

Among the ENP-East countries, Ukraine recorded the highest ratio of mobile phone subscriptions to population size in 2016, an average of 1 332 subscriptions per 1 000 inhabitants, and as such was the only ENP-East country to record a ratio of mobile phone subscriptions to inhabitants that was above the average for the EU-28 (2013 data), although the ratio in Georgia was only marginally below that in the EU-28. At the other end of the range, Azerbaijan recorded the lowest number of subscriptions per 1 000 inhabitants, at 1 057.

Between 2006 and 2016 there was rapid growth in the ratio of mobile phone subscriptions per inhabitant in the ENP-East countries. The fastest expansions were in Georgia, Moldova and Armenia, where the number of subscriptions per inhabitant more than tripled, while the ratio more than doubled in Azerbaijan and increased by 93.4 % in Belarus. As noted above, the rate of increase in Ukraine was more subdued, with the penetration rate increasing overall by 26.1 %.

Figure 10.1: Mobile phone penetration, 2006 and 2016
(number of subscriptions per 1 000 inhabitants)



(1) 2006: EU-27. 2013 instead of 2016.
(2) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: isoc_tc_ac1, isoc_tc_mcsupe and demo_pjan)

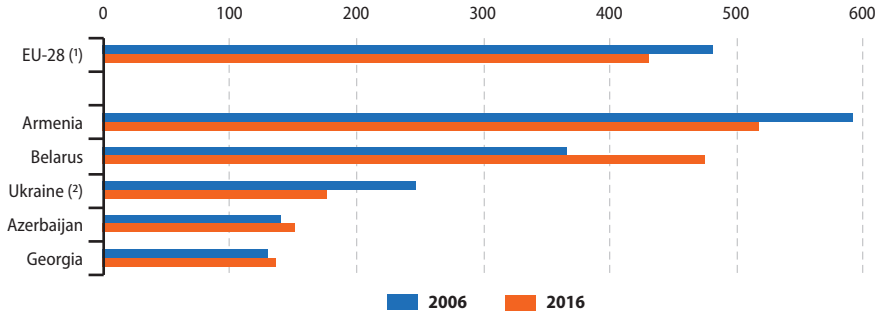
Figure 10.2 presents information in relation to the number of fixed telephone lines per 1 000 inhabitants. Fixed telephone lines are those which connect a customer's equipment (such as a telephone handset, facsimile machine or modem) to the public switched telephone network (PSTN). This indicator, together with that for mobile telephony, is one of the broadest and most common measures used to evaluate the development of telecommunications.

In the EU-28 there were, on average, 431 fixed telephone lines per 1 000 inhabitants in 2013. This figure was below the ratio recorded in 2006, when there had been, on average, 51 more fixed telephone lines per 1 000 inhabitants, although it should be noted that there is a break in series.

There was also a reduction between 2006 and 2016 in the number of fixed telephone lines per 1 000 inhabitants in two of the five ENP-East countries for which data are available (no data for Moldova): in Armenia this ratio fell from 593 to 517 per 1 000 inhabitants, while in Ukraine it fell from 247 to 177 per 1 000 inhabitants. By contrast, there were increases between 2006 and 2016 in the number of fixed telephone lines per 1 000 inhabitants in Georgia (4.8 %), Azerbaijan (8.3 %) and most notably Belarus (29.8 %).

Despite the fall in the fixed telephone line penetration rate in Armenia, it still had the highest rate (517 lines per 1 000 inhabitants) in 2016 among all of the ENP-East countries, although the gap to Belarus — with the second highest rate (475 lines) — had narrowed considerably. These two countries were the only ENP-East countries with fixed telephone line penetration rates that were above the EU-28 average (431 lines; 2013 data). In fact, there was a large gap between the rates in Armenia and Belarus on one hand and the remaining ENP-East countries on the other, as the rate in Belarus was 2.7 times as high as in Ukraine, which had the third highest rate (177 lines).

Figure 10.2: Fixed telephone line penetration, 2006 and 2016
(number of lines per 1 000 inhabitants)



Note: Moldova, not available.

(1) 2013 (estimate) instead of 2016. Break in series.
(2) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: isoc_tc_ftteli and demo_pjan)

Digital economy and society

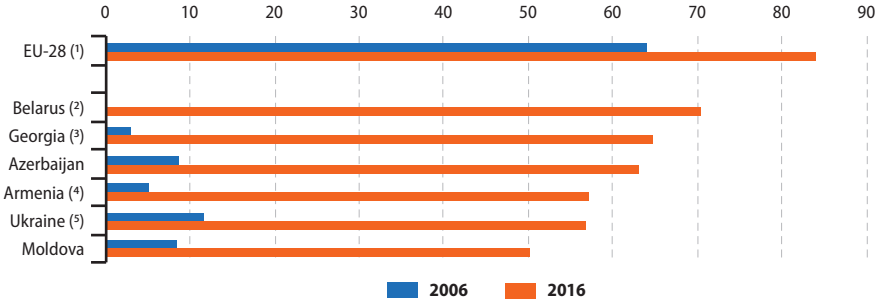
As of 2017, 84 % of households in the EU-28 had access to a personal computer (PC); this marked an increase of 20 percentage points when compared with 2007 (see Figure 10.3). Just over two thirds (70 %; 2015 data) of all households in Belarus had access to a PC, while the corresponding shares in Georgia (65 %) and Azerbaijan (63 %) were just under two thirds in 2016. In Armenia (2014 data) and Ukraine (only concerns PCs at home) the shares were 57 %, while in Moldova half of all households had access to a PC. The ENP-East countries experienced enormous growth in this share since 2006. In Georgia, the share increased by 62 points (although it should be noted that there is a break in series), while elsewhere increases ranged between 42 and 55 points, in other words more than double the increase observed in the EU-28.

Widespread access to the internet (via broadband) is seen as essential for the development of advanced services on the internet, such as e-business, e-government or e-learning. The proportion of households in the EU-28 with access to the internet was 85 % in 2016, almost identical to the proportion of households with access to a PC (84 % in 2017). The proportion of households in the EU-28 having access to the internet rose by 30 points between 2007 and 2016 (see Figure 10.4); as such it outstripped the growth in households having access to a PC.

A lower proportion of households in the ENP-East countries had access to the internet when compared with households in the EU-28. The highest proportion was recorded for Azerbaijan (77 % in 2016), followed by Georgia (71 %) and Belarus (67 %). Just over half of all households had internet access in Ukraine (54 %) and Armenia (53 %; 2014 data), while in Moldova the share was slightly below half (48 %). For all ENP-East countries, the increase in the proportion of households having access to the internet between the years shown in Figure 10.4 was considerably higher than in the EU-28. The largest increase was 69 points in Georgia between 2007 and 2016 (note that there is a break in series), while all other ENP-East countries recorded increases in the range of 45-56 points.

Nearly four fifths of people (79 %) in the EU-28 used the internet in 2016 at least once a week in the three months prior to the survey (see

Figure 10.3: Proportion of households having access to a personal computer, 2006 and 2016
(%)

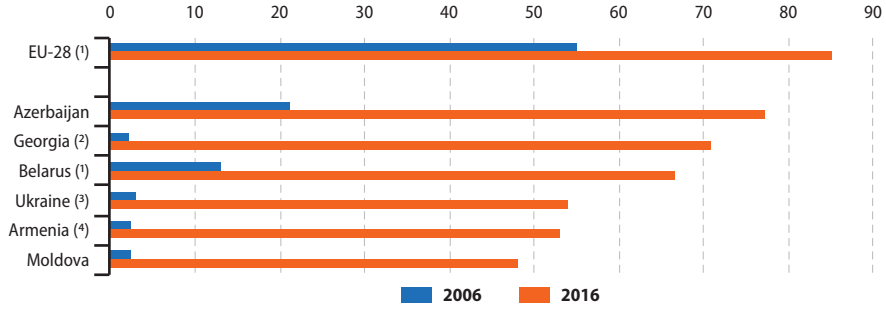


(1) 2007 instead of 2006. 2017 instead of 2016.
(2) 2006: not available. 2015 instead of 2016.
(3) 2006: having access at home.
(4) 2014 instead of 2016. Having access at home.
(5) Having a PC at home. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: isoc_ci_cm_h)

Figure 10.5). The share of weekly users was highest in Azerbaijan (98 %), followed by Belarus (84 %); whereas these two ENP-East countries reported higher proportions of weekly internet users than in the EU-28, Ukraine (68 %) and Georgia (61 %) reported lower proportions (no data available for Armenia and Moldova). Between 2007 and 2016 weekly internet use increased by 28 points in the EU-28. By comparison, the increase in Azerbaijan between 2006 and 2016 was much lower (6 points) as weekly usage was almost at saturation level already in 2006, while in Ukraine the increase was much greater, up 40 points between 2007 and 2016.

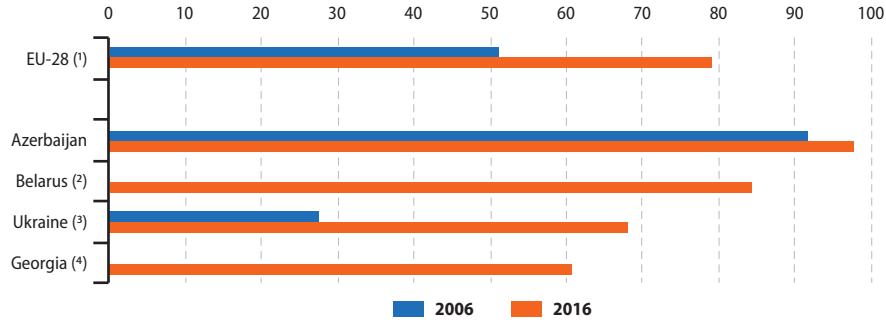
Figure 10.4: Proportion of households having access to the internet, 2006 and 2016
(%)



(1) 2007 instead of 2006.
(2) 2007 instead of 2006. 2007: having fixed internet access at home.
(3) Proportion of individuals using the internet at home. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) 2014 instead of 2016.

Source: Eurostat (online data code: isoc_ci_in_h)

Figure 10.5: Proportion of persons who accessed the internet at least once a week (during the previous three months), 2006 and 2016
(% of persons aged 16-74)



Note: Armenia and Moldova, not available.

(1) 2007 instead of 2006.
(2) Persons aged 16-72. 2006: not available.
(3) Persons aged15-74. During the previous 12 months. 2007 instead of 2006. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) 2006: not available.

Source: Eurostat (online data code: isoc_ci_ifp_fu)

Progress in the development of the digital economy is regarded as critical to improve overall economic competitiveness. ICTs have quickly become an integral part of how enterprises function: indeed, their extensive use has had a profound impact on how businesses are run, touching upon a range of aspects such as how they organise their internal communications, share information with business partners, or communicate with their customers.

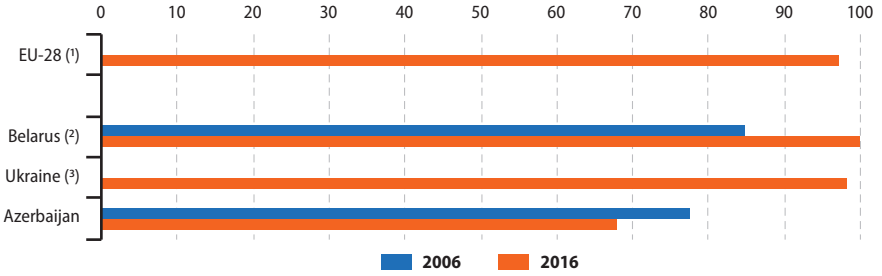
There is a limited set of data available for enterprises having access to the internet; note that the data shown in Figure 10.6 to 10.8 generally refer to enterprises with 10 or more persons employed, although the coverage is different in Belarus. All or almost all of the enterprises in the EU-28, Belarus and Ukraine had access to the internet in 2016, while in Azerbaijan the share was nearer two thirds (68 %); data are not available for other ENP-East countries.

Widespread and affordable broadband access is one of the means of promoting a knowledge-based and informed society. In 2016, 9 out of every 10 enterprises in the EU-28 had a broadband internet connection (see Figure 10.7). In Belarus the share was higher, reaching 96 %, while in Ukraine the share was just under three quarters (72 %). The share of enterprises with a fixed broadband internet access in Azerbaijan is not available, but three quarters of enterprises with internet access made use of a broadband connection.

For the purpose of the analysis presented in Figure 10.8, e-commerce refers to the trading of goods or services over computer networks such as the internet. E-sales concern the receipt of orders by methods specifically designed for the purpose of receiving orders, either via electronic data interchange (EDI) or through websites or apps; orders received by way of manually typed e-mail messages are not included. E-sales were made by 20 % of EU-28 enterprises in 2016 (1), up one third on the 15 % share recorded five years earlier. In 2016, the percentage of enterprises making e-sales was

(1) Data on e-commerce refer to the year preceding the survey: the 2016 survey collected data about e-commerce that took place during 2015.

Figure 10.6: Proportion of enterprises having access to the internet, 2006 and 2016 (%)



Note: enterprises with 10 or more persons employed, excluding financial and insurance activities (NACE Rev. 2 Section K). Armenia, Georgia and Moldova: not available.

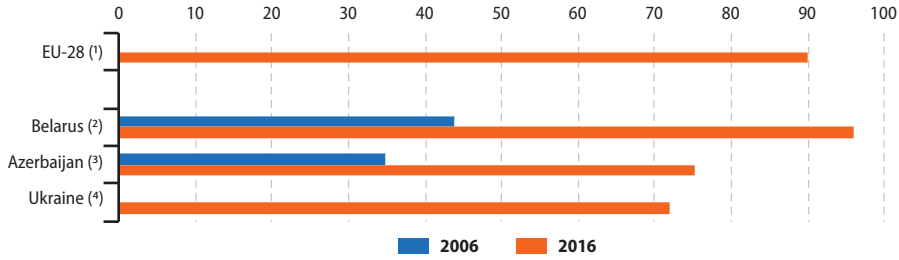
(1) 2006: not available.
(2) 2009 instead of 2006. Break in series. Survey coverage differs.
(3) 2006: not available. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: isoc_ci_in_en2)

5 % in Azerbaijan and 6 % in Ukraine, while in Belarus the share reached 52 %; the particularly high proportion in Belarus may reflect coverage differences and might also include enterprises that received orders by manually typed e-mail messages.

Figure 10.7: Proportion of enterprises having a fixed broadband internet access, 2006 and 2016

(%)



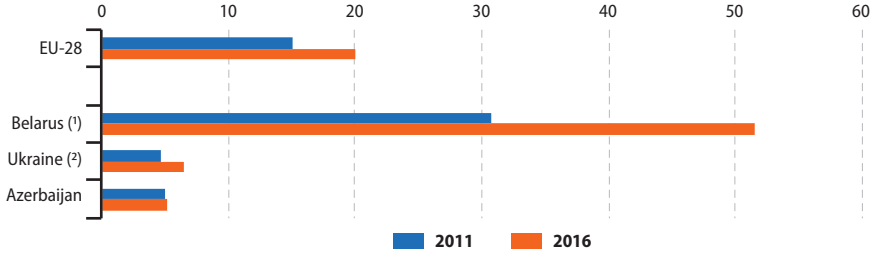
Note: enterprises with 10 or more persons employed, excluding financial and insurance activities (NACE Rev. 2 Section K). Armenia, Georgia and Moldova: not available.

(1) 2006: not available. 2013 instead of 2016.
(2) 2009 instead of 2006. Break in series. Survey coverage differs.
(3) Proportion of enterprises having a fixed broadband internet access as a share of enterprises with an internet connection.
(4) 2006: not available. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: isoc_ci_it_en2)

Figure 10.8: Proportion of enterprises having received e-commerce orders, 2011 and 2016

(%)



Note: enterprises with 10 or more persons employed, excluding financial and insurance activities (NACE Rev. 2 Section K). Armenia, Georgia and Moldova: not available.

(1) Survey coverage differs.
(2) 2010 instead of 2011. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: isoc_ci_in_en2)

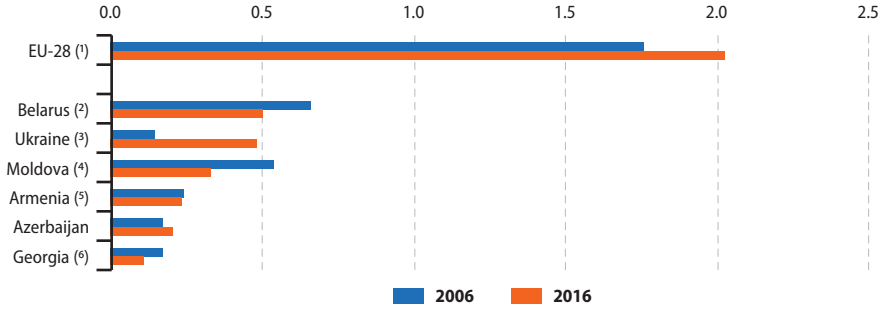
Research and development (R & D)

Research and development (R & D) comprises 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 develop new applications.

In 2016, gross expenditure on R & D was valued at EUR 302 billion in the EU-28, which was equivalent to 2.03 % of GDP: the ratio of R & D expenditure to gross domestic product (GDP) is known as R & D intensity and is shown in Figure 10.9. Among the ENP-East countries, R & D intensity ranged from 0.11 % in Georgia (2014 data) to 0.48 % and 0.50 % in Ukraine and Belarus respectively.

Between 2006 and 2016, R & D intensity in the EU-28 increased by 0.27 points. Among the ENP-East countries developments were quite varied. The largest change was in Ukraine, where R & D intensity increased by 0.34 points. Azerbaijan and Armenia reported relatively small changes in R & D intensity, increasing by 0.04 points and decreasing by 0.01 points respectively. Georgia also recorded a relatively small decrease, down 0.06 points between 2006 and 2014, but given the level of R & D intensity this was a substantial fall in relative terms, as this ratio dropped from 0.17 % to 0.11 %. Larger falls were reported for Belarus (down 0.16 points; note there is a break in series) and Moldova (down 0.20 points; 2008-2016).

Figure 10.9: Research and development intensity, 2006 and 2016
(% of GDP)



(1) 2016: provisional.
(2) Break in series.
(3) 2016: provisional; excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) 2008 instead of 2006. 2016: provisional.
(5) Includes expenditure on R & D by the higher education and government sectors.
(6) 2014 instead of 2016.

Source: Eurostat (online data code: rd_e_gerdtot)

11 Transport

Road and rail networks

There are considerable variations between the ENP-East countries as regards their total (land) area, geography and population numbers and so it is unsurprising to find wide ranging differences in levels of road and rail infrastructure; the same is true within the European Union (EU). Table 11.1 provides some basic information on the length of road, motorway and rail networks, measured in kilometres (km).

Based on the latest available information, the ENP-East countries together had a combined road network that was equivalent to approximately 7 % of the length of the EU-28 network. The longest road network among the ENP-East countries was recorded in Ukraine (163 thousand km) while the shortest was in Armenia (5.8 thousand km). Azerbaijan had by far the most extensive motorway network among the ENP-East countries, extending in 2016 to 4.7 thousand km, while the network in Armenia was 1.8 thousand km long. By contrast, in Georgia the motorway network was 104 km long in 2015 and in Ukraine it was just 15 km long in 2016. In relative terms, Georgia's motorway network expanded most quickly, as it was 3.7 times as long in 2015 as it had been in 2007.

Capacity is one aspect which may constrain the expansion of rail transport, either in terms of the number/length of railway lines, or the stock of vehicles that are available to transport people and goods. Combining the length of the rail networks in the ENP-East countries gives a total equivalent to 14.6 % of the EU-28 network in 2015. As for roads, by far the longest rail network among the ENP-East countries was in Ukraine, where there were 21.0 thousand km of railway lines. Belarus had the next largest rail network, around one quarter the length of that in Ukraine, while the shortest rail network among the six ENP-East countries was in Armenia (703 km).

Table 11.1: Length of road and rail networks, 2006 and 2016
(km)

	Motorways		Roads (excluding motorways)		Railway lines	
	2006	2016	2006	2016	2006	2016
EU-28 (1)	*64 000*	*77 000*	*4 070 000*	*4 340 000*	215 378	218 181
Armenia	1 500	1 803	6 000	5 767	730	703
Azerbaijan	4 577	4 659	14 246	14 357	2 122	2 071
Belarus	:	:	95 973	101 921	5 515	5 480
Georgia (2)	28	104	20 300	20 449	1 559	1 576
Moldova (3)	:	:	9 467	9 386	1 154	1 151
Ukraine (4)	15	15	169 089	163 018	21 870	20 952

(1) Roads and motorways: rounded estimates based on the closest reference period available for each EU Member State. Railway lines: break in series; 2015 instead of 2016.
(2) Motorways: 2007 instead of 2006. Motorways and roads: 2015 instead of 2016.
(3) Roads: length of public roads. Rail: including Transnistria.
(4) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: road_if_motorwa, road_if_roadsc and rail_if_line_tr) and the Directorate-General for Mobility and Transport (Transport in figures, available at: https://ec.europa.eu/transport/facts-fundings/statistics_en)

Table 11.2 provides a complementary analysis of road and rail networks, comparing the size of these networks with the land area and with the population of each country.

In 2015, the density of roads in the EU-28 was 1 000 metres (m) or 1.0 km for every square kilometre (km^2) of land. This value was just under double the road density in Belarus (502 m per km^2), which had the highest road density of all of the ENP-East countries in 2016 (no data available for Georgia). The lowest road density was 174 m per km^2 in Azerbaijan. However, relative to the total number of inhabitants in each country, the length of the road network in Belarus (10.7 km per 1 000 inhabitants in 2016) was somewhat higher than it was in the EU-28 in 2015 (8.5 km per 1 000 inhabitants). This measure — the length of roads relative to the size of the population — showed even greater differences between the ENP-East countries than the measure for road density based on land area. For example, the length of road network relative to population size was 7.3 times as high in Belarus as it was in Azerbaijan, whereas for road density based on land area it was 2.9 times as high.

In 2016, the density of the rail network was quite similar across the ENP-East countries, in the range of 25-27 m per km^2 in Armenia, Azerbaijan and Belarus and 35-36 m per km^2 in Moldova and Ukraine. By contrast, in the EU-28 a level of 50 m per km^2 was estimated for 2015. As for roads, the indicator showing the length of the rail network relative to population size in 2016 was more diverse, ranging from 0.2 km per 1 000 inhabitants in Armenia and Azerbaijan to 0.6 km per 1 000 inhabitants in Belarus. The ratio recorded in the EU-28 in 2015 was approximately the same as in Georgia in 2016, and thereby lower than in both Ukraine and Belarus.

Table 11.2: Density of transport networks, 2016

	Roads (excluding motorways)		Railway lines	
	(m per km^2 land area)	(km per 1 000 inhabitants)	(m per km^2 land area)	(km per 1 000 inhabitants)
EU-28 (1)	*1 000*	*8.5*	*50*	*0.4*
Armenia	203	1.9	25	0.2
Azerbaijan	174	1.5	25	0.2
Belarus	502	10.7	27	0.6
Georgia (2)	:	5.5	:	0.4
Moldova (3)	285	2.6	35	0.3
Ukraine (4)	281	3.8	36	0.5

(1) Roads: rounded estimates based on the closest reference period available for each EU Member State. Railway lines: 2015.
(2) Roads: 2015.
(3) Ratios per 1 000 inhabitants: 2015. Roads: based on the length of public roads. Rail: including Transnistria. Road density: ratio calculated relative to area including Transnistria.
(4) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

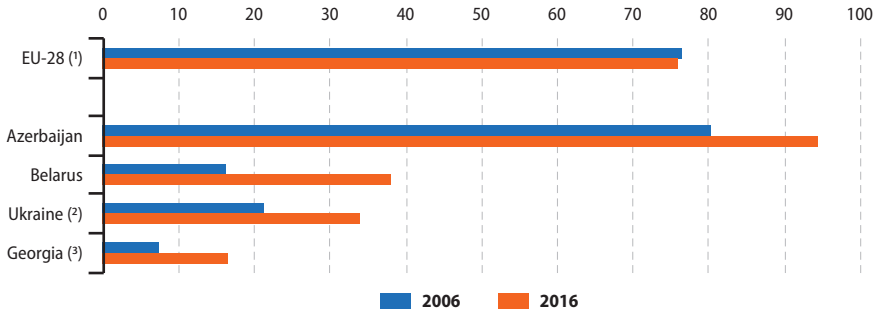
Source: Eurostat (online data codes: road_if_roadsc, rail_if_line_tr, demo_r_d3area and demo_pjan) and the Directorate-General for Mobility and Transport (Transport in figures, available at: https://ec.europa.eu/transport/facts-fundings/statistics_en)

Freight and passenger transport

Within the EU-28, road transport accounted for by far the highest share of inland freight transport: in 2015, three quarters (75.8 %) of inland freight circulated using this mode of transport (see Figure 11.1). There was an even greater reliance on using roads to transport freight in Azerbaijan, reaching 94.3 % in 2016, while this share was much lower in the three other ENP-East countries for which data are available: 38.0 % in Belarus, 34.0 % in Ukraine and 16.4 % in Georgia.

Between 2006 and 2015, the share of road freight in total inland transport across the EU-28 decreased slightly, down 0.5 percentage points. By contrast, in the four ENP-East countries for which data are available (2006-2016), the share of road freight increased. The largest increase was in Belarus where it rose 21.7 points, meaning that in relative terms this share more than doubled, rising from 16.3 % to 38.0 %. Although Georgia recorded the smallest percentage point increase among the ENP-East countries, 9.1 points, its share of road freight also more than doubled, rising from 7.3 % to 16.4 %.

Figure 11.1: Share of road freight transport in total inland freight transport, 2006 and 2016
(%, based on tonne-km)



Note: Armenia and Moldova, not available.

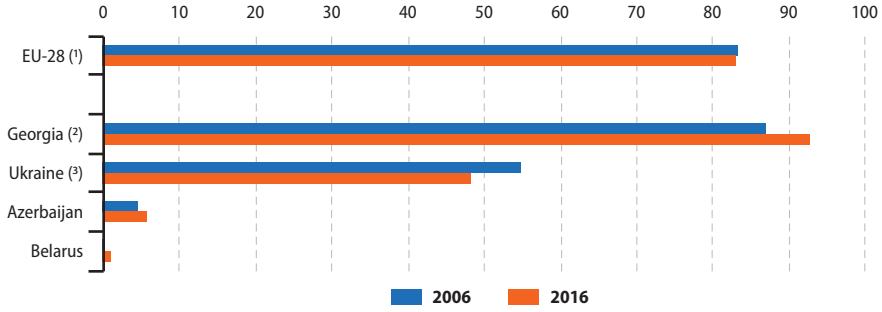
(1) 2015 instead of 2016.
(2) 2016: provisional; excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(3) Estimates. Does not follow the territorial principle; including the performance of all resident carriers on the territory of the country and abroad.

Source: Eurostat (online data code: tran_hv_frmod)

Turning to passenger transport, within the EU-28, car transport accounted for an even higher share of inland passenger transport than the share of roads in freight transport, with an 83.1 % share in 2015 (see Figure 11.2). In Georgia, there was an even greater reliance on cars for passenger transport, reaching 92.7 % in 2016. With this one exception, the share of cars in inland passenger transport was much lower in the three other ENP-East countries for which data are available: 48.2 % in Ukraine, 5.7 % in Azerbaijan and 1.1 % in Belarus.

Between 2006 and 2015 the share of car transport in total inland passenger transport in the EU-28 remained stable, falling just 0.1 points. The share in Ukraine fell more substantially between 2006 and 2016, down 6.7 points from 54.9 %. By contrast, in the other three ENP-East countries for which data are available, the share of cars in inland passenger transport increased. The largest increase was in Georgia where it rose 5.9 points from 86.8 %. Although Belarus recorded the smallest percentage point increase among the ENP-East countries, 1.0 points, in relative terms this represented a large increase, as in 2006 the share had been just 0.1 %.

Figure 11.2: Share of car transport in total inland passenger transport, 2006 and 2016
(%, based on passenger-km)



Note: Armenia and Moldova, not available.

(1) 2015 instead of 2016.
(2) Does not follow the territorial principle; including the performance of all resident carriers on the territory of the country and abroad.
(3) Provisional. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: tran_hv_psmod)

Table 11.3 presents a set of indicators for analysing road passenger and road freight developments. The data are presented in numbers of passengers and tonnes of freight, as well as in passenger-kilometres (passenger-km) and tonne-kilometres (tonne-km) which also reflect the distance passengers and goods are transported.

Given it has the largest population, it is unsurprising to note that Ukraine had the largest number of road passengers in 2016 — some 3.1 billion — although it should be noted that these data only include coaches, buses and trolley-buses, therefore excluding passenger cars, as well as motorcycles and mopeds. Azerbaijan (1.7 billion) and Belarus (1.5 billion) had the second and third highest numbers of road passengers among the ENP-East countries (no data available for Armenia). Combining the data for passenger numbers and for passenger-km indicates that the longest average journeys were in Georgia (19 km), followed by Moldova (15 km), Azerbaijan (14 km) and Ukraine (13 km), with the shortest average journey in Belarus (8 km). In all five ENP-East countries with data available, the average length of road journeys increased between the years shown in Table 11.3, most notably in Moldova where it increased from 9 km to 15 km.

As for road passenger transport, the quantity of road freight transport in 2016 was greatest in Ukraine (1.1 billion tonnes), followed by Belarus and Azerbaijan with broadly similar values to each other (163 and 141 million tonnes), and then by Moldova and Georgia, again with broadly similar values (33 and 30 million tonnes). Between 2006 and 2016, the quantity of road freight in Ukraine decreased, although this may in part reflect a change in the geographical coverage of the data. Elsewhere, the quantity of road freight increased, most notably in Belarus where it expanded by 57 % and Azerbaijan where it grew by 90 %. There were large differences between the countries in terms of the average distance that road freight was transported: note that Moldova includes international traffic as well as national transport. In 2016, the average journey length for road freight was 22 km in Georgia and 37 km in Ukraine, while it exceeded 100 km elsewhere: 113 km in Azerbaijan, 141 km in Moldova and 155 km in Belarus. For comparison, the average in the EU-28 was 88 km (2015 data).

Table 11.3: National road transport, 2006 and 2016

	Passengers				Freight			
	(thousands)		(million passenger-km)		(thousand tonnes)		(million tonne-km)	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28 (1)	:	:	:	:	16 151 493	13 519 707	1 275 582	1 195 009
Armenia (2)	:	:	2 559	2 396	:	:	251	479
Azerbaijan	894 973	1 708 191	11 785	24 429	74 384	141 459	8 222	15 967
Belarus	2 043 346	1 534 114	11 283	11 775	103 653	162 579	8 939	25 239
Georgia (3)	294 220	373 044	*5 322*	*6 945*	*27 261*	*30 413*	*586*	*674*
Moldova (4)	311 260	243 696	2 841	3 624	27 015	33 363	2 567	4 693
Ukraine (5)	5 774 595	3 062 088	63 750	39 490	1 156 122	1 070 104	26 625	40 031

(1) 2008 instead of 2006.
(2) 2015 instead of 2016.
(3) Does not follow the 'territorial principle'; including the performance of all resident carriers on the territory of the country and abroad.
(4) Freight: national and international traffic carried out by registered vehicles in the country, including private vehicles.
(5) Passengers: coaches, buses and trolley buses only. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: road_go_ta_tott)

There were 482 million passengers carried on the rail networks of five ENP-East countries in 2016 (see Table 11.4; no data for Armenia), representing a fall of 14.3 % compared with 2006. Two countries dominated this total: Ukraine had 393.6 million rail passengers in 2016, while Belarus had 81.8 million passengers; all of the other countries had less than 2.5 million passengers. Between 2006 and 2016, the number of rail passengers decreased in all of the countries, with the smallest falls in the two largest: 12.2 % in Ukraine and 17.7 % in Belarus. Elsewhere, rail passenger numbers dropped by more than a third (36.5 %) in Georgia, more than half (57.3 %) in Moldova, and by nearly two thirds (64.6 %) in Azerbaijan. In terms of passenger-km, the fall in rail passenger traffic was somewhat greater, down by more than one fifth (22.1 %) between 2006 and 2016 across the six ENP-East countries. For this measure, data are available for Armenia: although it had the lowest level of rail passenger traffic in 2016, just 50 thousand passenger-km, Armenia was the only ENP-East country that recorded an increase in traffic between 2006 and 2016. The average length of passenger rail journeys in 2016 ranged from 53.8 km in Moldova to 219.4 km in Azerbaijan and 221.1 km in Georgia (no data available for Armenia).

The total quantity of rail freight in the five ENP-East countries for which data are available (no data available for Armenia) was 320.6 million tonnes in 2016, with Ukraine (174.3 million tonnes) and Belarus (126.8 million tonnes) dominating again, although the difference in size between these two was much smaller for the quantity of freight than for rail passenger numbers. Between 2006 and 2016, the quantity of rail freight fell in the five ENP-East countries for which data are available by an average of 30.8 %, in other words, by just over twice as much as the fall in passenger numbers. Individually, Belarus reported by far the smallest decrease over this period, down 5.2 %, followed by Ukraine (down 39.6 %); the largest decrease was 68.5 % in Moldova. All six ENP-East countries reported a fall in their rail freight transport in terms of tonne-km between 2006 and 2016, although the falls were relatively small in Armenia (1.5 %) and Belarus (10.1 %), while in the others the reduction in transported freight ranged from 27.8 % in Ukraine to around half in Azerbaijan (51.9 %) and Georgia (53.7 %), and more than three quarters (78.3 %) in Moldova. The average length of rail freight journeys in 2016 was longer than the average length of passenger rail journeys in all ENP-East countries, ranging from 227.0 km in Moldova and 236.6 km in Azerbaijan to 407.8 km in Ukraine (no data available for Armenia).

Table 11.4: National rail transport, 2006 and 2016

	Passengers				Freight			
	(thousands)		(million passenger-km)		(thousand tonnes)		(million tonne-km)	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28 (1)	7 497 793	:	354 142	:	987 345	:	225 142	:
Armenia	:	:	28	50	:	:	668	658
Azerbaijan	5 170	1 832	805	402	7 417	4 117	2 023	974
Belarus	99 434	81 795	9 968	6 428	133 679	126 758	45 723	41 107
Georgia (2)	3 879	2 463	809	545	22 643	11 882	7 393	3 423
Moldova	5 284	2 258	471	122	11 093	3 493	3 656	793
Ukraine (3)	448 436	393 579	43 890	36 103	288 558	174 305	98 488	71 090

(1) Freight: 2007 instead of 2006.
(2) Rail transport on the territory of the country and abroad.
(3) Passengers in thousands: number of passenger departures from railway stations in Ukraine. 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: rail_pa_typepas, rail_pa_typepkm and rail_go_typeall)

Table 11.5 concerns national and international air transport, distinguishing between passengers and freight and also between arrivals and departures. Within the EU-28, the number of air passenger arrivals in 2016 was 770.9 million, with approximately the same number of departures, giving a total number of 1.5 billion arrivals and departures. These numbers were far higher than in the ENP-East countries, where the combined number of arrivals and departures for all six ENP-East countries together was 17.4 million (including 2015 data for Georgia and Ukraine), equivalent to about 1.1 % of the EU-28 total. However, growth in air passengers carried between the years shown in Table 11.5 was greater in the ENP-East countries (an average of 86.4 %) than in the EU-28 (21.3 %). Individually, the fastest growth was in Belarus, where the combined number of arrivals and departures was more than five times as high in 2016 as in 2006, and in Moldova where it was 3.7 times as high. The slowest growth, at least in part caused by the change in geographical coverage of the data, was in Ukraine, where air passenger traffic was 44.8 % higher in 2015 than in 2006, which was still double the average rate for the EU-28 (2008-2016).

The quantity of air freight and mail (arrivals and departures combined) was 17.1 million tonnes in the EU-28 in 2016. By contrast, the combined air freight and mail traffic in the ENP-East countries (no data available for Georgia) was 96.4 thousand tonnes, equivalent to 0.6 % of the EU-28 total. The highest quantity of air freight traffic was in Belarus, with 56.6 thousand tonnes of freight arriving and departing in 2016, followed by Azerbaijan and Armenia with around 18-19 thousand tonnes. The level of air freight in Moldova (2.8 thousand tonnes) and Ukraine (34 tonnes) was substantially lower. Between the years shown in Table 11.5, air freight traffic in the ENP-East countries (excluding Georgia) increased by 66.2 %, about five times faster than in the EU-28 (12.8 %). As for air passengers, the fastest growth for air freight and mail was recorded in Belarus, where the quantity more than doubled (120.2 %), followed by Armenia where it nearly doubled (96.8 %) and Moldova where it increased by nearly half (47.4 %). The quantity of goods carried by the relatively small air freight and mail activity in Ukraine fell by 14.0 % (again, possibly influenced by the change in geographical coverage of the data), while in Azerbaijan it fell by 11.4 %.

Table 11.5: Air transport, 2006 and 2016

	Passengers carried (millions)				Freight and mail (thousand tonnes)			
	Arrivals		Departures		Arrivals		Departures	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28 (1)	634.47	770.94	635.56	770.24	7 855.42	8 239.63	7 279.13	8 826.92
Armenia	0.60	1.10	0.60	1.00	5.20	4.50	4.10	13.80
Azerbaijan	1.30	2.00	1.20	2.00	10.00	9.10	11.10	9.60
Belarus (2)	0.24	1.24	0.24	1.25	25.70	56.60	:	:
Georgia (3)	0.20	0.30	:	:	:	:	:	:
Moldova	0.30	1.10	0.30	1.10	1.40	2.10	0.50	0.70
Ukraine (3)(4)	4.35	6.30	:	:	0.04	0.03	:	:

(1) 2008 instead of 2006.
(2) Freight arrivals: includes also departures.
(3) Arrivals: includes also departures. 2015 instead of 2016.
(4) 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: avia_paoc and avia_gooc)

Table 11.6 presents a similar set of indicators for sea (maritime) transport, namely the number of passengers and weight of freight, distinguished between inwards (disembarked/unloaded) and outwards (embarked/loaded). Among the six ENP-East countries three — Armenia, Belarus and Moldova — are landlocked, and so have no sea traffic.

Within the EU-28, the number of inward sea passengers in 2015 was 192.1 million, with approximately the same number of outward passengers, giving a total number of 383.1 million passengers. These numbers were far higher than in the ENP-East countries, where the combined number of arrivals and departures for all six ENP-East countries together was 53.6 thousand, equivalent to about 0.01 % of the EU-28 total. In the EU-28, the total number of sea passengers (inwards and outwards combined) was 11.1 % lower in 2015 than in 2008. Among the three ENP-East countries with sea transport, an analysis over time is only available for two countries. In Azerbaijan, there was growth of 33.1 % between 2006 and 2016. In Ukraine, the number of sea passengers dropped from 10.9 million (inwards and outwards combined) in 2006 to almost nothing by 2016, reflecting the change in geographical coverage of the data, in particular the exclusion from the data of the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Sea freight transport is especially common for bulky, low value products and is particularly important for EU trade with non-member countries. The quantity of the EU-28's sea freight (inwards and outwards) in 2015 was 3.8 billion tonnes. By contrast, the combined sea freight traffic in the ENP-East countries in 2016 was 19.3 million tonnes, equivalent to 0.5 % of the EU-28 total. The largest quantity of sea freight traffic was recorded in Azerbaijan, with 9.1 million tonnes of inward and outward freight in 2016, followed by Georgia (7.2 million tonnes) and Ukraine (3.0 million tonnes). Between 2006 and 2016, sea freight traffic in the three ENP-East countries with maritime transport decreased by 13.9 %, whereas in the EU-28 it decreased by 0.5 % between 2006 and 2015. As for sea passenger transport, the main change in the quantity of sea freight that was transported during this period was recorded in Ukraine, where the level of freight dropped 65.0 %, reflecting the change in geographical coverage of the data. In Georgia a fall of 7.7 % was recorded, while in Azerbaijan the quantity of inward and outward sea freight increased substantially, up 51.7 %.

Table 11.6: Maritime transport, 2006 and 2016

	Passengers (excluding cruise passengers) (thousands)				Goods (gross weight in thousand tonnes)			
	Inwards		Outwards		Inwards		Outwards	
	2006	2016	2006	2016	2006	2016	2006	2016
EU-28 (1)	216 447	192 120	214 739	191 002	2 451 778	2 279 042	1 408 642	1 561 446
Armenia	–	–	–	–	–	–	–	–
Azerbaijan (2)	8	7	9	17	6 000	9 100	:	:
Belarus	–	–	–	–	–	–	–	–
Georgia (3)	:	0	:	:	7 800	7 200	:	:
Moldova	–	–	–	–	–	–	–	–
Ukraine (4)	10 457	12	444	19	2 559	1 130	6 106	1 902

Note: Armenia, Belarus and Moldova are landlocked.

(1) 2015 instead of 2016. Passengers: 2008 instead of 2006.
(2) Freight: inward includes also outwards.
(3) Inward includes also outwards.
(4) 2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

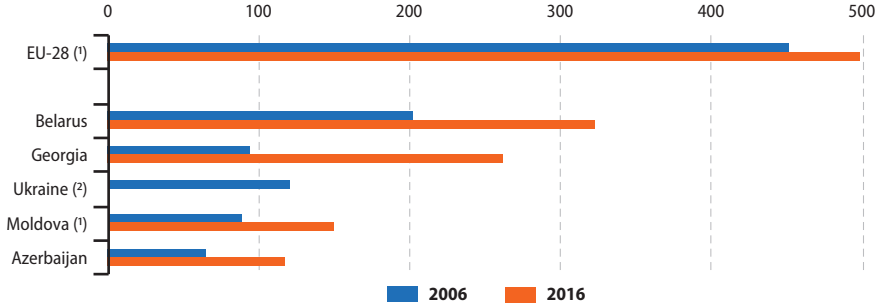
Source: Eurostat (online data codes: mar_pa_aa and mar_go_aa)

Motorisation rate

The final part of this chapter on transport looks at one indicator concerning equipment rates, namely the motorisation rate: this is calculated as a ratio of passenger cars to the number of inhabitants (see Figure 11.3). Among the ENP-East countries (no recent data available for Armenia or Ukraine), car ownership is less commonplace than in the EU-28. In the EU-28, this rate was just under one car for every two people, at 498 per 1 000 inhabitants in 2015. Belarus had the highest motorisation rate among the ENP-East countries in 2016, 323 per 1 000 inhabitants, followed relatively closely by Georgia with a rate of 262 per 1 000 inhabitants. The two lowest rates were in Moldova (149 per 1 000 inhabitants in 2015) and Azerbaijan (117 per 1 000 inhabitants).

Between the years shown in Figure 11.3, the motorisation rate increased in the EU-28 and the four ENP-East countries for which data are available. In the EU-28, the rate increased overall by 10.2 % between 2006 and 2015, while in the ENP-East countries growth was higher. In Georgia, the rate increased by 176.7 % between 2006 and 2016, in other words it more than doubled and was quite close to trebling. Elsewhere, the rate increased by at least half: rising by 80.0 % in Azerbaijan, 67.5 % in Moldova (2006-2015) and 59.8 % in Belarus.

Figure 11.3: Motorisation rate, 2006 and 2016
(passenger cars per 1 000 inhabitants)



Note: Armenia, not available.

(1) 2015 instead of 2016.
(2) 2016: not available.

Source: Eurostat and the Directorate-General for Mobility and Transport (Transport in figures, available at: https://ec.europa.eu/transport/facts-fundings/statistics_en)

12 Energy

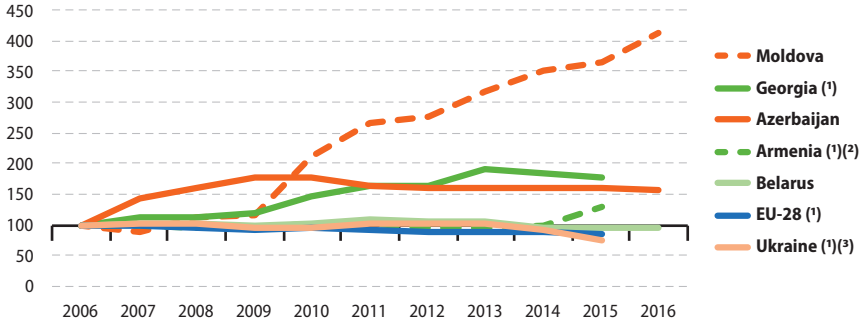
This chapter presents information on energy within the ENP-East countries and the European Union (EU); included are data for primary production, trade, consumption and electricity generation.

Energy production and trade

In 2015, the primary energy production of the EU-28 was 767 million tonnes of oil equivalent (toe); a toe is a normalised unit of energy, equivalent to the approximate amount of energy that can be extracted from one tonne of crude oil. The sum of primary energy production in the ENP-East countries was slightly less than one sixth of that recorded for the EU-28, reaching 128 million toe in 2016 (data for Armenia, Georgia and Ukraine relate to 2015). There were two main producers of primary energy in the ENP-East countries: production was almost 62 million tonnes in Ukraine in 2015 and was just under 60 million tonnes in Azerbaijan in 2016.

The level of primary energy production may fluctuate considerably as a result of changes in energy demand, energy prices and the weather (particularly for hydropower). Developments may also reflect new energy resources coming on-stream or existing energy resources becoming depleted. Between 2006 and 2015, primary energy production in the EU-28 fell by 13.4 % overall (see Figure 12.1). There were contrasting developments for the two largest energy producers among the ENP-East countries. The level of primary energy production in Azerbaijan was 1.8 times as high in 2010 as it had been four years earlier, fell somewhat in 2011, and was relatively stable thereafter — with a level of production in 2016 that was still around 1.6 times as high as that recorded in 2006. By contrast, the level of production in Ukraine was relatively unchanged during the period between 2006 and 2013, but contracted strongly in 2014 (–10.5 %) and 2015 (–19.9 %) which may be attributed, at least in part, to the change in geographical coverage of Ukrainian energy statistics. Among the ENP-East countries, by far the largest increase in primary energy production between 2006 and 2016 was observed in Moldova where output was more than four times as high in 2016 as in 2006, this growth mainly reflecting increased output from renewable energy sources.

Figure 12.1: Primary energy production, 2006-2016
(2006 = 100)

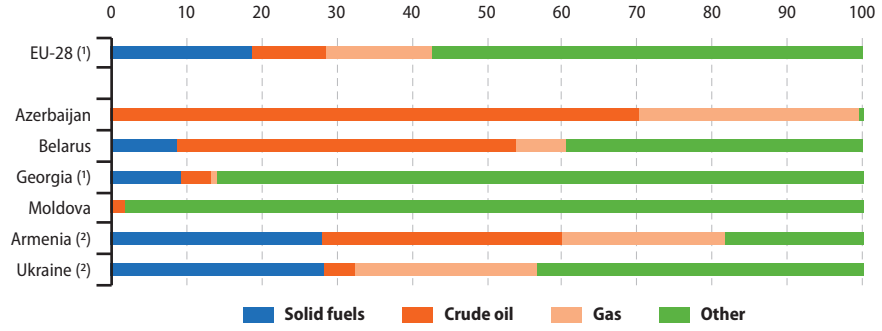


(1) 2016: not available.
(2) IEA data.
(3) 2014 and 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nrg_100a) and the International Energy Agency

The structure of primary energy production in the EU-28 reflects the availability of different fossil fuel deposits and the potential for hydropower, as well as different policies in relation to the production of energy from nuclear fuels and renewables. In Ukraine, the major natural endowment was coal (mainly located in the easternmost regions), while there was also a considerable level of output from nuclear power, including Europe's largest nuclear power plant with six reactors, in Zaporizhia. Oil and gas were the principal sources of primary energy production in Azerbaijan, with most of the fields located offshore in the Caspian Sea. Figure 12.2 shows that the largest contribution to the primary energy production of Belarus was also from petroleum products. The relatively low levels of production of solid fuels, petroleum products and gas in Georgia and Moldova were largely compensated by renewable energy sources, with an expanding hydropower industry in the former and a relatively high contribution from biomass for the latter.

Figure 12.2: Primary production of energy by product, 2016
(%)



(1) 2015.
(2) IEA data. 2015.

Source: Eurostat (online data code: nrg_100a) and the International Energy Agency

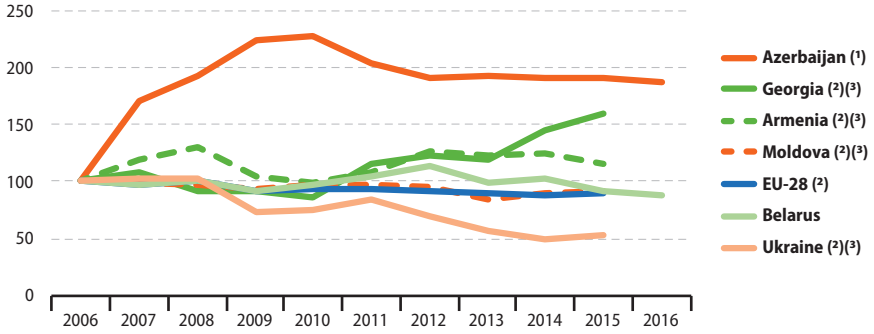
Energy consumption

Figure 12.3 shows the development of net imports of primary energy in quantity, not value. During the period 2006-2016, net imports in the EU-28 fell from 1.01 billion toe in 2006 and 2008 (prior to the onset of the global financial and economic crisis) to 936 million toe in 2009, a fall of 7.7 %.

Thereafter, there was a modest increase in 2010 followed by four consecutive years of falling net imports of primary energy. In 2015, net energy imports in the EU-28 increased again, by 2.4 %.

Among the ENP-East countries, net energy imports in Belarus, Moldova and Armenia were relatively unchanged during the same time period whereas they grew more strongly in

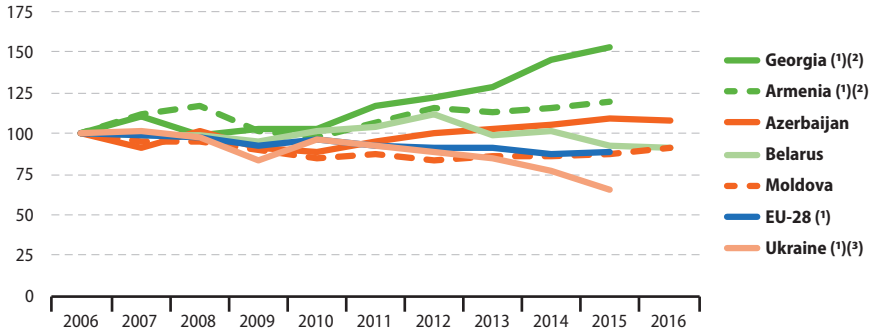
Figure 12.3: Net imports of energy, 2006-2016
(2006 = 100)



(1) Net exporter.
(2) 2016: not available.
(3) IEA data.

Source: Eurostat (online data code: nrg_100a) and the International Energy Agency

Figure 12.4: Gross inland consumption of energy, 2006-2016
(2006 = 100)



(1) 2016: not available.
(2) IEA data.
(3) 2014 and 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nrg_100a) and the International Energy Agency

Georgia and fell in Ukraine. By contrast, net energy exports from Azerbaijan grew at a rapid pace from 24 million toe in 2006 to 54 million toe by 2010, but then fell in 2011 and 2012, after which they remained relatively unchanged.

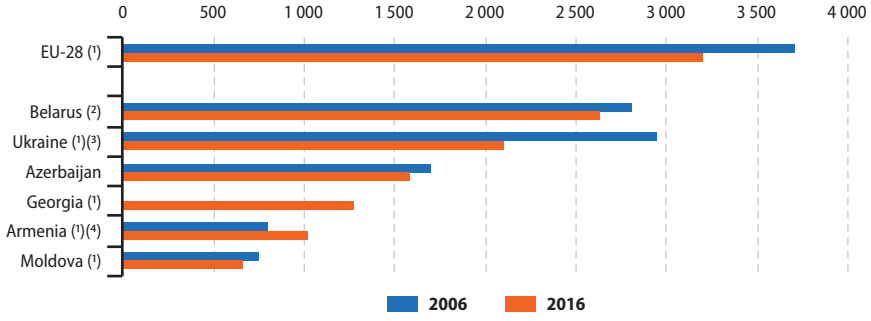
The main difference between levels of primary energy production and gross inland energy consumption is international trade: a shortfall in production needs to be met by net imports, while a production surplus is generally accompanied by net exports.

Figure 12.4 shows the development of gross inland energy consumption over the most recent decade for which data are available. There was a marked reduction (11.5 % overall) in the level of energy consumption in the EU-28 during the period 2006-2015, which may, at least in part, be attributed to efforts to improve energy efficiency, but may also reflect economic developments.

Among the ENP-East countries, gross inland energy consumption generally increased or fell at a slower pace than in the EU-28. Between 2006 and 2015, gross inland energy consumption in Georgia grew by 52.7 %, while there was growth of 19.9 % in Armenia during the same period and 7.7 % in Azerbaijan (2006-2016), despite a fall in consumption during the first half of the period under consideration. These three countries were the only ENP-East countries to report that their consumption was higher at the end of the period under consideration than at the beginning. It is not possible to draw firm conclusions on changes in consumption for Ukraine, as the data available for 2014 and 2015 exclude the illegally annexed Autonomous Republic of Crimea and the City of Sevastopol. In Belarus and Moldova the level of consumption in 2016 was between 8.0 % and 9.0 % lower than it had been 10 years earlier.

Relative to population size, gross inland consumption of energy in the EU-28 was higher than in any of the ENP-East countries, despite falling from 3.7 toe per inhabitant in 2006 to 3.2 toe per inhabitant by 2015. The highest level of consumption per inhabitant among the ENP-East countries in 2016 was 2.6 toe in Belarus, while the lowest was 0.7 toe in Moldova (2015 data). Energy consumption per inhabitant increased in Armenia between 2006 and 2015, whereas it fell over the period shown in Figure 12.5 in the other ENP-East countries for which data are available.

Figure 12.5: Gross inland consumption of energy relative to population size, 2006 and 2016
(kgoe per inhabitant)



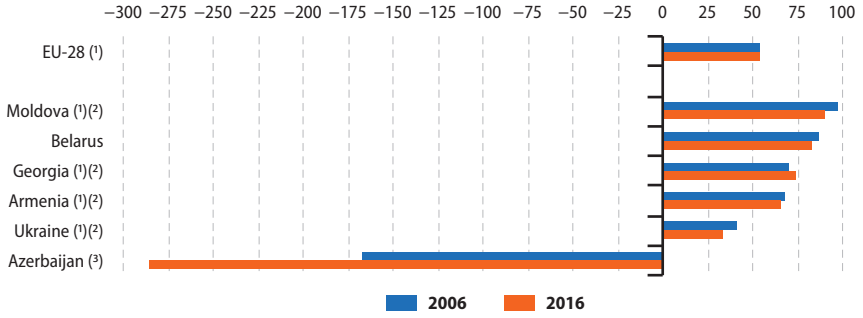
(1) 2015 instead of 2016.
(2) Data provided in tonnes of coal equivalent and converted to tonnes of oil equivalent (using conversion factor of one toe = 1.4286 tce).
(3) 2015: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(4) IEA data.

Source: Eurostat (online data codes: nrg_100a and demo_pjan)

In 2015, the EU-28 was a net importer of energy (902 million toe), with net imports accounting for a somewhat larger share of inland consumption than primary production (767 million toe); in other words, more than half of the energy requirements of the EU-28 were imported from non-member countries, leading to an energy dependency ratio of 54.0 %. Four of the ENP-East countries — Moldova, Belarus, Georgia and Armenia — were even more reliant on energy imports (see Figure 12.6), with their energy dependency ratios peaking at 90.5 % in Moldova in 2015. By contrast, Ukraine recorded a lower energy dependency ratio than in the EU-28, while Azerbaijan was a large net exporter of energy.

Energy intensity measures the overall energy efficiency of an economy. It is the ratio between gross inland consumption of energy and gross domestic product (GDP), where the GDP have been adjusted for price developments. The energy

Figure 12.6: Energy dependency, 2006 and 2016
(%)

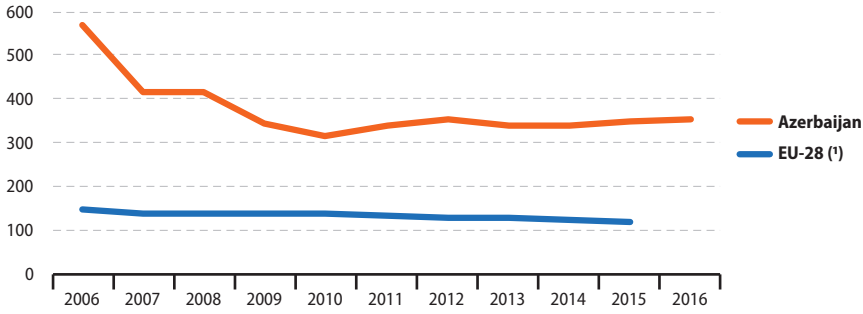


Note: calculated as net imports/(gross inland consumption+marine bunkers)*100.

(1) 2015 instead of 2016.
(2) IEA data.
(3) Net exporter.

Source: Eurostat (online data code: nrg_100a)

Figure 12.7: Energy intensity, 2006-2016
(kgoe per EUR 1 000 of GDP)



Note: based on chain-linked GDP volume data with 2010 reference year. Armenia, Belarus, Georgia, Moldova and Ukraine: not available.

(1) 2016: not available.

Source: Eurostat (online data code: tsdec360)

intensity of the EU-28's economy decreased by 17.2 % between 2006 and 2015, to end this period with consumption of 120.0 kilograms of oil equivalent (kgoe) for every EUR 1 000 of GDP (see Figure 12.7). In Azerbaijan, the only ENP-East country for which data are available for this indicator, energy intensity decreased by 37.8 % between 2006 and 2016, but remained approximately three times as high as in the EU-28.

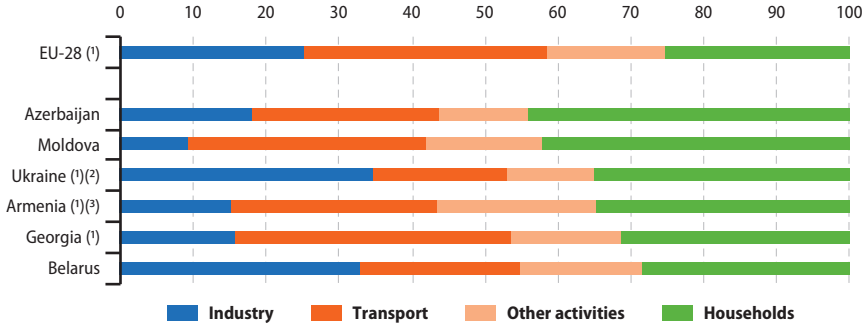
Figure 12.8 shows the structure of final energy consumption. Within the EU-28, there was a relatively balanced split between the different energy uses in 2015. Transport accounted for just under one third (33.1 %) of final energy consumption, while households (25.4 %) and industrial activities (25.3 %) each accounted for just over one quarter, leaving approximately one sixth (16.2 %) of the total attributed to 'other activities', primarily services (including those of the state), agriculture, forestry and fishing.

Each of the ENP-East countries reported that households had a higher share of their final energy consumption than the EU-28 average. In 2016, the share of households peaked at 44.1 % in Azerbaijan and 42.0 % in Moldova, while approximately one third of the energy consumed in Ukraine, Armenia and Georgia (all 2015 data) was accounted for by households and just over one quarter (28.3 %) in Belarus. Note that households in the ENP-East countries may need to consume considerably more energy for heating during the winter months than households (on average) in the EU-28.

The industrial sectors in Ukraine (2015 data) and Belarus (2016 data) were major consumers of energy, accounting for 34.5 % and 32.8 % of final energy consumption.

The relative share of transport in final energy consumption varied considerably across the ENP-East countries, from a low of 18.4 % in Ukraine (2015 data) to a high of 37.7 % in Georgia (also 2015 data). By contrast, 'other activities' accounted for a relatively small share of final energy consumption in the ENP-East countries; values generally ranged from 12.1 % in Azerbaijan and 12.2 % in Ukraine (2015 data) to 17.0 % in Belarus, although the share in Armenia (22.0 %; 2015 data) was notably higher.

Figure 12.8: Structure of final energy consumption, 2016
(%)



Note: ranked on households.

(1) 2015.
(2) Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.
(3) IEA data.

Source: Eurostat (online data code: nrg_100a)

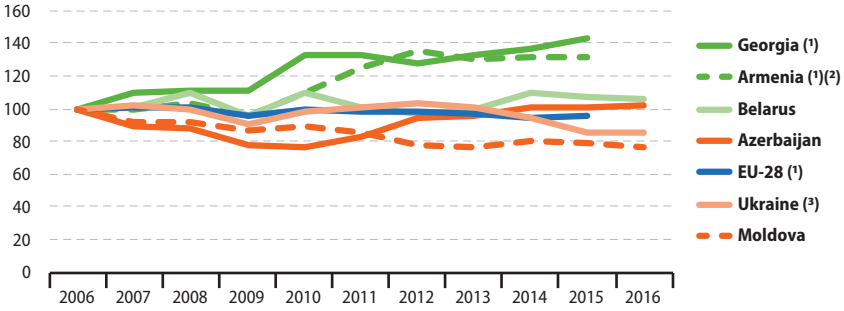
Electricity

Some ENP-East countries are confronted by interruptions to electricity supplies; this may result from a lack of productive capacity or issues surrounding the security of energy supply, for example, when importing fuels or electricity. The Black Sea Energy Transmission System is a project supported by the EU's Neighbourhood Investment Facility (NIF) which seeks to connect the power grids of the southern Caucasus with Turkey and Europe, reducing transmission losses and making the region independent from single supply sources.

In 2016, gross electricity generation in the EU-28 was 3.23 million gigawatt hours (GWh). The information collected from the six ENP-East countries shows that their aggregated electricity generation totalled 242.2 thousand GWh in 2015, equivalent to 7.5 % of the EU-28 total. The level of electricity generation in the ENP-East countries was highest in 2016 in Ukraine (165 thousand GWh), followed by Belarus (34 thousand GWh) and Azerbaijan (25 thousand GWh).

Figure 12.9 shows the development of gross electricity generation, with the quantity of electricity generated in the EU-28 falling overall by 4.1 % during the period 2006-2015. Moldova and Ukraine were the only ENP-East countries to report a lower level of electricity generation in 2016 compared with 2006, with a 24.0 % contraction in the former and a 14.7 % reduction in the latter; note that the level of electricity generation in Ukraine only fell below its 2006 level from 2014, at least in part due to changes in geographical coverage. By contrast, there was a fall and then a recovery in the generation of electricity in Azerbaijan leading to an overall increase of 1.8 % (when comparing 2016 with 2006) and there was an irregular development in Belarus with an overall increase of 5.5 %. A more consistent pattern of growth was recorded in the other two ENP-East countries, with overall growth between 2006 and 2015 of 31.3 % in Armenia and 42.5 % in Georgia.

Figure 12.9: Gross electricity generation, 2006-2016
(2006 = 100, based on GWh)



(1) 2016: not available.
(2) 2009: provisional.
(3) 2014-2016: excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: nrg_105a)

13 Environment

The environmental statistics presented here for the ENP-East countries and the European Union (EU) concern the physical environment, waste, water and wastewater, and emissions.

Physical environment

The total area (including inland waters) of the EU-28 was 4.46 million square kilometres (km^2) in 2015, of which 97 % (4.32 million km^2) was land (see Table 13.1). By comparison, the total area of the six ENP-East countries was 1.03 million km^2, of which 96 % (excluding Georgia) was land. The total area of the six ENP-East countries was equivalent to about one quarter (23 %) of the EU-28 total. Among these six countries, the share of the land area within the total area was quite similar, ranging from 95 % to 98 %. Note that these statistics for land and total area include all areas of Georgia, Moldova and Ukraine, including those areas over which the Government does not have control.

Terrestrial (and also marine) areas may be protected due to their ecological importance, providing a secure habitat for plant and animal life, with the goal of maintaining or increasing biodiversity. There were 789.1 thousand km^2 of terrestrial areas protected in the EU-28 in 2016. The largest protected terrestrial area among the ENP-East countries was in Ukraine, its 43.2 thousand km^2 being larger than the combined protected areas of the other ENP-East countries (no data available for Moldova). In the EU-28, protected terrestrial areas accounted for 17.7 % of the total area, which was at least double the shares recorded for Ukraine (7.2 %), Georgia (8.6 %) and Belarus (8.7 %), and also larger than those in Azaerbaijan (10.3 %) and Armenia (12.9 %). As can be seen from Figure 13.1, the share of protected terrestrial areas increased during the most recent 10-year period in all of the ENP-East countries for which a time series is available.

Forests are considered to have a crucial role in mitigating climate change, as well as having social, economic and wider environmental roles. Contrary to what is happening in many other parts of the world, the area covered by forests and other wooded land in the EU-28 is slowly increasing. In 2015, forests accounted for 37 % of all land area in the EU-28, a share that was 2.2-3.6 times as great as that observed in most of the

Table 13.1: Territorial indicators, 2006 and 2016

	Total area	Land area	Protected terrestrial area	Protected forest area	Share of protected terrestrial area in total area		Share of forest area that is protected	
	(km^2)				(%)			
	2016	2016	2016	2016	2006	2016	2006	2016
EU-28 (1)	*4 460 000*	*4 320 000*	789 081	288 536	:	*17.7*	*18.3*	*17.9*
Armenia	29 743	28 465	3 831	:	10.6	12.9	:	:
Azerbaijan (2)	86 600	82 670	8 925	2 665	8.1	10.3	20.8	25.7
Belarus	207 600	202 988	17 987	14 766	8.3	8.7	16.7	16.8
Georgia (3)	69 700	:	*5 976*	*4 743*	6.7	*8.6*	:	*18.0*
Moldova (4)	33 846	32 885	:	:	:	:	:	:
Ukraine (5)	603 549	579 285	43 182	:	:	7.2	:	:

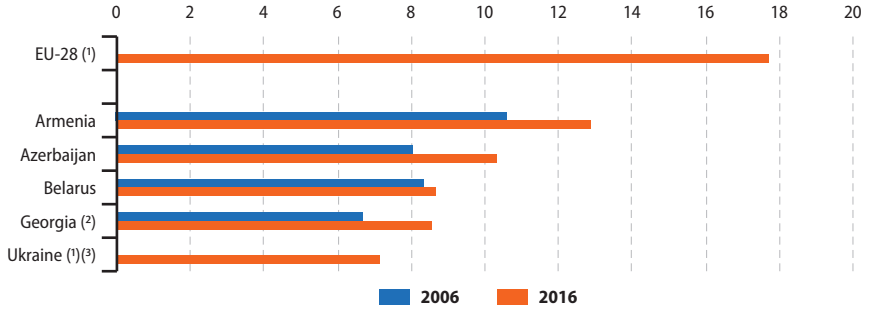
(1) Total area, land area, protected forest area and share of forest area: 2015 instead of 2016. Share of forest area: 2005 instead of 2006. Total area and land area: estimates made for the purpose of this publication.
(2) Protected forest areas concern forest areas in the territories of state nature reserves and national parks.
(3) Total area includes areas which are not controlled by the Central Government of Georgia. Share of forest area excludes the part of the Abkhazia Autonomous Republic which is not controlled by the Central Government of Georgia.
(4) Including Transnistria.
(5) Including the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data codes: demo_r_d3area, env_bio1, for_protect and for_area)

ENP-East countries, the exception being Belarus where forests accounted for 43 % of the land area in 2016 (see Figure 13.2).

There were 288.5 thousand km^2 of forest protected in the EU-28 in 2015. Data on protected forest areas are available for three ENP-East countries for 2016, with their areas ranging from 2.7 thousand km^2 in Azerbaijan, through 4.7 thousand km^2 in Georgia, to 14.8 thousand km^2 in Belarus. In the EU-28, 17.9 % of forest areas were protected in 2015, while among the ENP-East countries similar shares were observed in 2016 in Belarus and Georgia, while the share of forest areas that were protected was notably higher (25.7 %) in Azerbaijan.

Figure 13.1: Share of protected terrestrial area in total area, 2006 and 2016
(%)

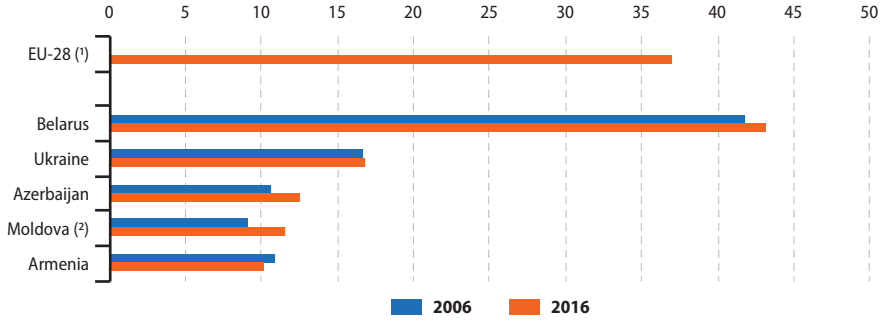


Note: Moldova, not available.

(1) 2006: not available.
(2) Total area includes areas which are not controlled by the Central Government of Georgia.
(3) Including the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: env_bio1)

Figure 13.2: Share of forest area in land area, 2006 and 2016
(%)



Note: Georgia, not available.

(1) 2006: not available. 2015 instead of 2016. Estimate made for the purpose of this publication.
(2) Including Transnistria. 2015 instead of 2016.

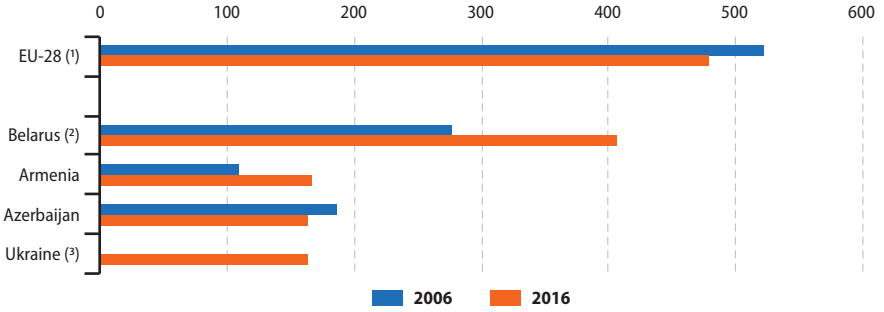
Source: Eurostat (online data codes: for_area and demo_r_d3area)

Waste

Municipal waste is mainly produced by households, though similar wastes from sources such as distributive trades, offices and public institutions are included; waste from agriculture and from industry is excluded from this indicator. The amount of municipal waste generated consists of waste collected by or on behalf of municipal authorities and disposed of through the waste management system. For areas not covered by a municipal waste collection scheme the reporting countries estimate the amount of waste generated.

In 2016, the average amount of municipal waste generated per inhabitant in the EU-28 was 480 kilograms (kg), in other words, just under half a tonne for each person. This represented a fall of 42 kg in the quantity of waste generated per inhabitant across the EU-28 since 2006. Among the ENP-East countries, the average quantity of municipal waste ranged from 163-167 kg per inhabitant in Ukraine, Azerbaijan and Armenia in 2016, while in 2015 the level of collected rather than generated waste was substantially higher in Belarus at 406 kg per inhabitant, and therefore relatively close to the EU-28 average (see Figure 13.3). Between 2006 and 2016, the quantity of municipal waste generated per inhabitant increased in Belarus (2006-2015) and Armenia, while it fell slightly in Azerbaijan as well as in the EU-28.

Figure 13.3: Quantity of municipal waste generated relative to population size, 2006 and 2016
(kilograms per inhabitant)



Note: Georgia and Moldova, not available.

(1) Estimates.
(2) Collected waste rather than generated waste. Values converted from volume (m^3) to weight. 2015 instead of 2016.
(3) 2006: not available. Household and similar waste. Excluding the territories which are not under effective control of the Ukrainian government and the illegally annexed Autonomous Republic of Crimea and the city of Sevastopol.

Source: Eurostat (online data code: env_wasmun)

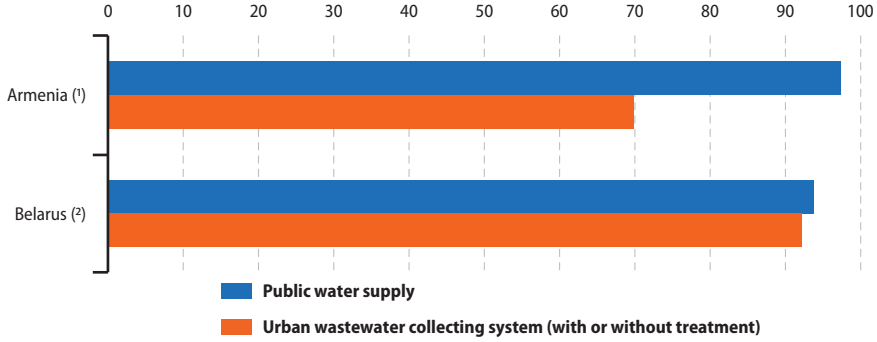
Water and wastewater

Water is essential for life, it is an indispensable resource for the economy, and also plays a fundamental role in the climate regulation cycle. The management and protection of water resources, of fresh and salt water ecosystems, and of the water we drink and bathe in is therefore one of the cornerstones of environmental protection.

The vast majority of the population in Armenia and Belarus were connected to the public water supply: 97.3 % in Armenia in 2015 and 93.7 % (of households) in Belarus in 2016 (see Figure 13.4). In Armenia, this proportion had increased by 7.9 percentage points from 89.4 % a decade earlier, while in Belarus the increase was 12.4 points from 81.3 % a decade earlier.

There was a relatively large difference between the two ENP-East countries shown in Figure 13.4 in terms of the proportion of their respective populations that were connected to urban wastewater collecting systems (with or without treatment). In Belarus, the share was 91.9 % (of households) in 2016, in other words similar to the share connected to the public water supply, whereas in Armenia the share was 69.9 % in 2015, some 27.4 points lower than the share connected to the public water supply. Over the previous decade both countries saw an increase in their rates of connection, up 4.8 points in Armenia and 12.9 points in Belarus.

Figure 13.4: Proportion of the population connected to the public water supply or wastewater collecting system, 2016
(%)



Note: Azerbaijan, Georgia, Moldova and Ukraine, not available.

(1) 2015.
(2) Proportion of households rather than population.

Source: Eurostat

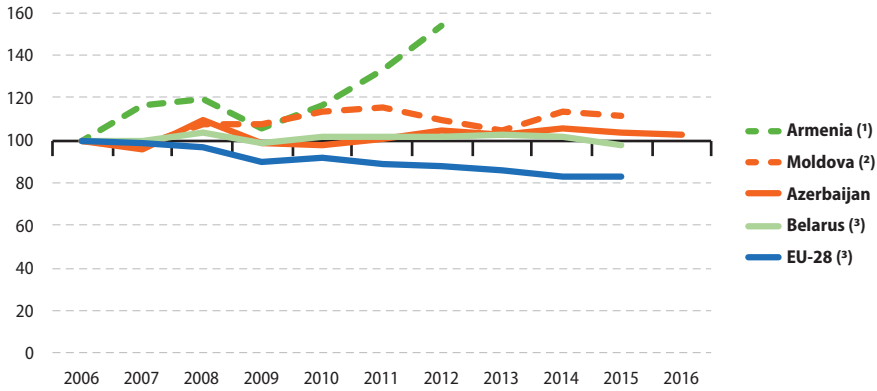
Emissions

The gases considered here as greenhouse gases are carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). The indicator shown in Figure 13.5 provides information on the combined trend in emissions of these gases. The basic data are annual emissions estimated and reported according to the Intergovernmental Panel on Climate Change (IPCC) guidelines.

The index for total greenhouse gas emissions in the EU-28 had been relatively stable until 2006, but then displayed progressively larger falls in 2007, 2008 and 2009, in large part related to the global financial and economic crisis and an associated reduction in levels of industrial activity. In 2010, greenhouse gas emissions in the EU-28 rose again, reflecting a rebound in economic activity, but in the next four years the quantity of greenhouse gas emissions continued its downward trend before a slight increase in 2015. By 2015, the index was 17.1 % lower than it had been in 2006.

The time series for Belarus, Azerbaijan and Moldova showed a relatively stable development of greenhouse gas emissions since 2006. By 2015, the index of greenhouse gas emissions in Belarus was 2.7 % lower than it had been in 2006, while Azerbaijan recorded an overall increase of 3.0 % between 2006 and 2016 and Moldova an increase of 11.1 % between 2006 and 2015. The time series available for Armenia is much shorter, but it shows a different development from that of the other ENP-East countries (for which data are available): in Armenia, the index of greenhouse gas emissions increased by 53.3 % during the six-year period covered (2006-2012), which was equivalent to an annual growth rate of 7.4 % per annum.

Figure 13.5: Development of total greenhouse gas emissions, 2006-2016
(2006 = 100; based on CO_2 equivalents)



Note: Georgia and Ukraine, not available.

(1) 2013-2016: not available.
(2) Estimates. 2016: not available.
(3) 2016: not available.

Source: Eurostat (online data code: env_air_gge)

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Statistics on European Neighbourhood Policy Countries: East 2018 edition

The 2018 edition of *Statistics on European Neighbourhood Policy Countries: East* presents up-to-date series of key statistical data for six partners — Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine — also known as the ENP-East countries, as well as data for the EU-28.

The tables, figures, associated commentary and methodological notes concern key social, economic and environmental themes for which data are collected annually by Eurostat from the ENP-East countries through a series of harmonised questionnaires.

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