

# Resource productivity statistics

Statistics Explained

*Data extracted in June 2025.  
Planned article update: July 2026.*

## Highlights

Resource productivity in the EU economy has increased by around 52% since the year 2000.

At EU country level, resource productivity increased in nearly all countries between the year 2000 and 2024. It more than doubled in Ireland, Spain, Slovakia, Czechia and the Netherlands.

About one-third of EU countries, and the EU economy as a whole, achieved absolute decoupling of resource use from the economic activities in the period 2000-2024.

This article presents recent statistics on [resource productivity](#) in the [European Union \(EU\)](#) and its EU countries. Since the year 2000, the EU's resource productivity has increased by around 52%.

Resource productivity quantifies the relation between economic activity - expressed by [gross domestic product \(GDP\)](#) - and the consumption of material resources - measured as [domestic material consumption \(DMC\)](#) which is an indicator derived from [economy-wide material flow accounts \(EW-MFA\)](#). Resource productivity is an important indicator of the sustainable development goal 12 ' [responsible consumption and production](#) '.

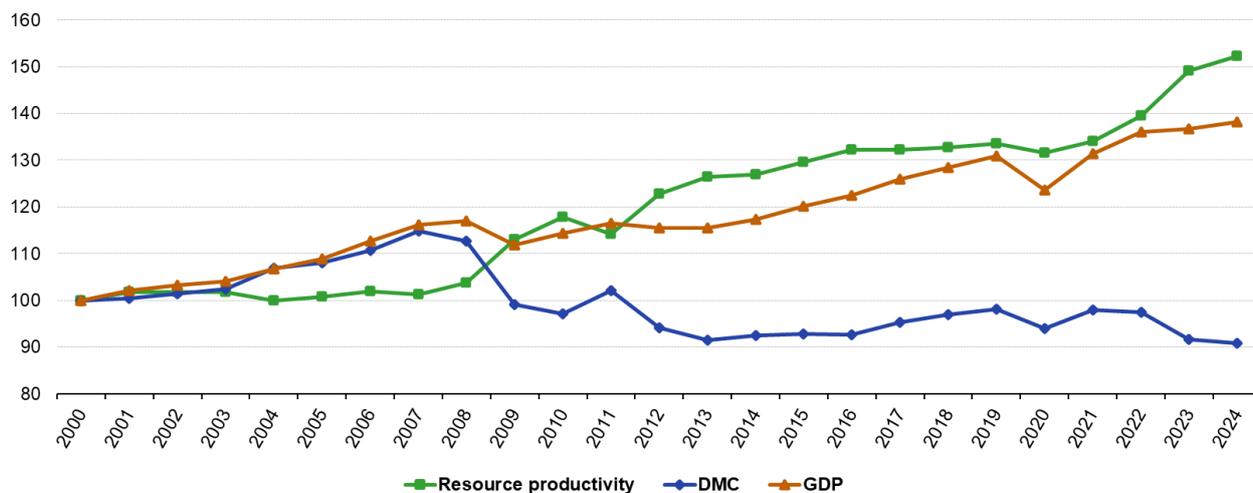
## Resource productivity of the EU and EU countries over time

Resource productivity is measured as [gross domestic product \(GDP\)](#) over [domestic material consumption \(DMC\)](#). The latter measures the total amount of materials directly consumed in an economy by businesses for economic production and by households. The former is a basic measure of the overall size of a country's economy. Two different versions of GDP are used in this article:

- GDP expressed in chain-linked [volumes](#) is used for comparisons over time as it shows the development of the economic aggregate excluding inflation;
- GDP expressed in current prices converted into [purchasing power standards \(PPS\)](#) is used for cross-country comparisons in a specific year as PPS remove differences in price levels between countries.

## Resource productivity in comparison with GDP and DMC, EU, 2000-2024

(Index 2000 = 100)



Note: GDP in chain-linked volumes, reference year 2015. Y-axis does not start at 0  
 Source: Eurostat (online data code: nama\_10\_gdp, env\_ac\_mfa; env\_ac\_rp)

eurostat

**Figure 1: Resource productivity in comparison with GDP and DMC, EU, 2000-2024** Source: Eurostat (nama\_10\_gdp) (env\_ac\_mfa) (env\_ac\_rp)

Since 2000, the resource productivity of the [European Union \(EU\)](#) economy increased by around 52%. This growth happened mainly with and after the global financial crisis of 2007-2008, however, before this, resource productivity had remained rather stable. The COVID-19 recession caused a moderate decrease between 2019 and 2020 before the trend towards more resource productivity continued (see Figure 1).

An analysis of the resource productivity components, namely GDP and DMC, helps to explain these developments. Before 2007-08, GDP and DMC had been increasing almost in parallel resulting in a more or less stable resource productivity. Between 2008 and 2016, the two components decoupled, i.e. developed in reverse directions. Between 2016 and 2021, both components seemed to re-couple again, i.e. show rather parallel annual change patterns. With the on-set of the recovery from the COVID-19 pandemic since 2021 we see a strong decoupling, with GDP increasing by 5% from 2021 to 2024 while DMC has decreased by more than 7% over the same period.

The global financial crisis in 2007-08 had a very different impact on the resource productivity of the EU than the COVID-19 recession. While the former triggered a significant growth in resource productivity, the latter caused a moderate decrease, which, however, remained less pronounced than the GDP fall between 2019 and 2020. During the global financial crisis and the following years, the consumption of materials – in particular for construction, i.e. gross capital formation – dropped much more than the GDP and stayed at low levels until 2016. On the other hand, the COVID-19 pandemic caused a much more significant shrinking of the EU economy compared with the global financial crisis, while material consumption decreased moderately, in particular because the consumption of construction material and biomass almost remained unchanged.

At EU country level, resource productivity developed quite differently (see Table 1). It increased in nearly all countries between the year 2000 and 2024. In Ireland, Spain, Slovakia, Czechia and the Netherlands, resource productivity has more than doubled. Despite the COVID-19 recession, resource productivity increased between 2019-22 in some countries, most notably in Ireland, Hungary, Malta and Slovakia.

Resource productivity - GDP/ DMC by country, 2000-2024  
(Index 2000 = 100)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
EU	100	101.8	101.8	101.7	99.9	100.7	101.9	101.2	103.7	113.0	117.8	114.2	122.8	126.4	126.9	129.5	132.2	132.2	132.6	133.5	131.5	134.1	139.5	149.1	152.2
Belgium	100	87.3	99.0	101.8	106.3	113.7	111.9	108.5	109.7	118.4	121.8	115.7	125.4	126.9	130.0	132.9	134.5	133.4	141.2	138.8	144.7	156.6	145.4	152.8	162.6
Bulgaria	100	97.2	100.8	104.9	99.5	105.1	103.3	106.7	105.0	127.1	130.8	120.6	126.4	130.2	120.0	110.3	128.8	128.3	128.2	132.1	129.9	126.3	126.7	142.6	144.2
Czechia	100	101.8	108.3	108.8	107.3	115.1	119.0	123.7	129.0	134.5	145.5	140.2	156.5	158.9	157.1	158.2	164.5	170.4	172.5	177.0	181.0	179.5	183.1	203.4	213.7
Denmark	100	102.9	107.9	105.3	102.9	97.1	94.8	98.8	102.6	116.0	125.7	114.2	113.8	122.2	123.1	120.8	117.8	119.4	121.0	122.1	121.8	125.1	122.1	139.7	142.8
Germany	100	107.4	109.6	110.5	111.1	115.1	116.2	120.3	123.0	122.2	126.4	123.0	128.0	128.4	130.3	137.0	138.3	140.4	146.5	153.4	151.5	153.1	161.6	179.3	185.1
Estonia	100	104.1	101.2	83.6	93.5	100.0	103.5	94.3	102.2	90.1	93.2	93.1	95.1	91.6	99.5	102.1	108.9	96.7	96.9	111.2	113.0	126.2	124.4	127.7	124.7
Ireland	100	104.6	109.0	97.6	98.6	103.1	102.6	103.6	114.0	141.2	162.4	191.1	189.7	181.5	202.9	244.8	230.9	240.7	243.2	250.3	288.2	333.8	344.4	336.8	324.7
Greece	100	98.8	100.8	97.2	104.3	105.6	114.4	86.5	87.3	97.1	104.5	103.4	102.8	108.2	106.0	111.0	117.5	121.0	127.0	137.0	141.4	150.6	156.3	161.6	163.8
Spain	100	100.9	95.2	92.8	93.0	93.3	92.6	93.6	108.4	128.0	144.1	162.2	197.9	208.0	210.5	208.6	220.1	221.3	208.1	216.5	197.6	204.6	219.6	233.2	222.9
France	100	105.8	106.2	114.1	110.8	117.0	117.1	114.7	116.2	126.8	130.3	131.1	134.5	136.5	138.5	147.7	152.0	142.7	146.7	133.5	137.1	135.0	144.0	146.2	159.0
Croatia	100	85.4	78.3	77.7	71.6	77.4	76.7	80.5	72.5	85.4	99.4	99.7	106.0	102.9	111.3	107.8	108.9	113.9	114.3	114.2	103.0	115.2	120.5	118.1	112.3
Italy	100	100.4	96.4	97.2	95.7	95.0	94.6	97.8	100.1	106.0	111.6	112.0	125.4	144.3	146.4	151.1	152.6	155.4	156.0	155.9	151.6	150.6	156.4	168.7	171.1
Cyprus	100	103.9	99.3	115.9	108.9	111.8	118.3	108.0	74.4	92.8	101.9	104.3	137.2	177.5	175.6	180.7	173.2	154.5	164.8	162.0	163.3	164.6	178.1	172.8	169.9
Latvia	100	102.0	99.1	98.6	94.7	91.9	91.9	87.2	94.1	133.3	112.3	100.1	106.9	101.1	108.0	104.8	119.8	110.6	105.9	106.4	102.4	101.5	98.8	122.5	126.4
Lithuania	100	118.6	105.1	99.1	98.8	102.8	109.7	102.9	99.4	125.6	114.4	112.2	127.6	109.7	121.3	124.7	123.7	115.5	123.3	120.8	114.3	117.2	122.7	121.6	119.9
Luxembourg	100	112.5	106.7	106.7	106.6	113.3	107.9	119.7	134.0	133.6	136.9	136.4	139.8	143.2	139.8	124.8	130.0	124.3	133.9	135.8	135.3	132.5	132.1	141.4	147.6
Hungary	100	91.8	99.9	102.2	91.4	83.1	103.2	132.5	119.3	136.5	150.8	153.0	172.3	153.5	124.6	131.4	140.6	130.7	120.6	122.1	135.1	146.0	161.1	162.2	176.8
Malta	100	103.0	109.9	95.5	94.6	111.3	93.3	118.3	138.4	128.6	157.8	120.9	110.5	140.7	109.3	100.6	104.0	136.3	123.1	131.6	116.3	144.7	160.6	175.6	160.1
Netherlands	100	102.9	114.5	117.2	113.0	117.6	119.4	118.1	114.8	117.4	119.1	122.6	124.0	131.6	131.6	141.5	156.8	154.1	153.3	154.5	161.2	183.0	173.8	204.7	212.9
Austria	100	104.2	99.4	104.5	102.9	102.0	103.6	105.8	110.1	113.8	115.1	111.8	118.5	120.8	118.8	124.6	124.8	127.3	130.1	130.1	121.0	121.0	134.5	140.7	145.3
Poland	100	105.9	110.9	112.6	111.6	113.4	117.5	113.2	114.8	123.0	120.8	102.6	121.5	128.2	134.5	141.5	142.0	140.2	145.2	159.6	158.2	165.3	174.2	185.1	198.4
Portugal	100	97.3	101.0	113.4	106.3	107.6	96.4	95.2	91.4	98.1	110.3	116.8	121.8	141.2	131.0	131.8	137.0	129.9	135.3	138.7	142.9	129.2	152.7	154.0	151.6
Romania	100	66.0	73.0	68.6	70.2	67.3	67.7	60.8	62.5	76.1	93.8	70.7	76.4	77.0	77.1	66.6	67.7	79.2	78.0	68.1	63.7	65.7	69.1	73.7	68.6
Slovenia	100	104.6	104.2	99.4	102.8	110.1	100.0	96.7	113.7	126.6	135.1	151.3	169.9	171.7	163.8	165.2	176.7	182.3	172.5	187.8	184.9	185.1	182.5	185.7	199.4
Slovakia	100	96.4	96.5	103.7	95.0	91.5	100.6	109.0	102.9	112.8	122.8	124.4	143.1	149.6	139.8	147.5	151.2	150.5	148.1	166.4	167.5	175.0	187.6	193.5	217.9
Finland	100	100.5	102.0	99.4	102.3	103.3	102.8	106.2	105.7	117.9	84.5	85.2	87.3	84.9	91.1	100.1	93.0	94.6	92.4	104.1	96.3	98.2	92.6	101.1	104.3
Sweden	100	103.0	103.5	104.4	105.4	99.9	111.6	104.9	104.5	115.2	107.2	104.9	104.9	103.1	103.1	108.7	108.7	105.0	103.3	100.9	103.6	106.2	108.5	118.9	122.8
Iceland	100	115.6	127.1	119.7	117.3	123.4	122.6	134.9	149.0	205.7	218.4	238.3	212.0	219.6	229.8	216.5	213.5	195.5	200.4	234.1	251.4	234.9	228.1	213.6	279.0
Norway	100	109.4	114.6	106.3	102.2	101.2	80.9	83.5	70.8	75.1	71.5	70.8	68.6	69.1	72.4	63.6	78.1	81.5	74.3	75.4	80.9	89.8	90.3	98.1	..
Switzerland	100	101.5	103.5	107.6	103.0	104.5	107.4	111.3	112.8	110.1	110.9	110.3	114.6	114.0	114.4	124.4	123.4	128.1	135.4	135.1	137.4	144.5	149.3	158.4	..
North Macedonia(*)	..	..	..	..	..	..	..	..	..	..	100	94.2	97.1	101.4	104.7	107.7	113.2	121.2	124.0	119.7	115.9	133.7	136.9	138.3	..
Albania(*)	..	..	..	..	..	..	..	..	..	..	100	100.8	100.9	93.3	97.0	86.0	81.7	110.9	109.1	113.8	128.0	133.1	132.0	135.0	..
Serbia(*)	..	100	100.0	111.8	106.3	111.4	112.9	128.1	127.1	135.1	129.3	128.2	141.0	130.8	136.2	129.7	122.6	131.4	132.0	129.8	123.2	131.5	122.6	114.5	..
Türkiye	100	113.0	116.6	118.6	124.4	114.8	107.4	110.6	112.3	109.6	99.1	104.2	122.2	131.8	133.1	131.0	133.0	135.9	152.2	172.5	162.6	177.6	184.4	190.7	..
Bosnia and Herzegovina(*)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	100	93.0	103.6	102.1	104.9	100.8	112.4	117.6	127.3	..

Note: GDP in chain-linked volumes, reference year 2015

(.) not available

(\*) deviating index base year

Source: Eurostat (online data code: env\_ac\_rp)

eurostat

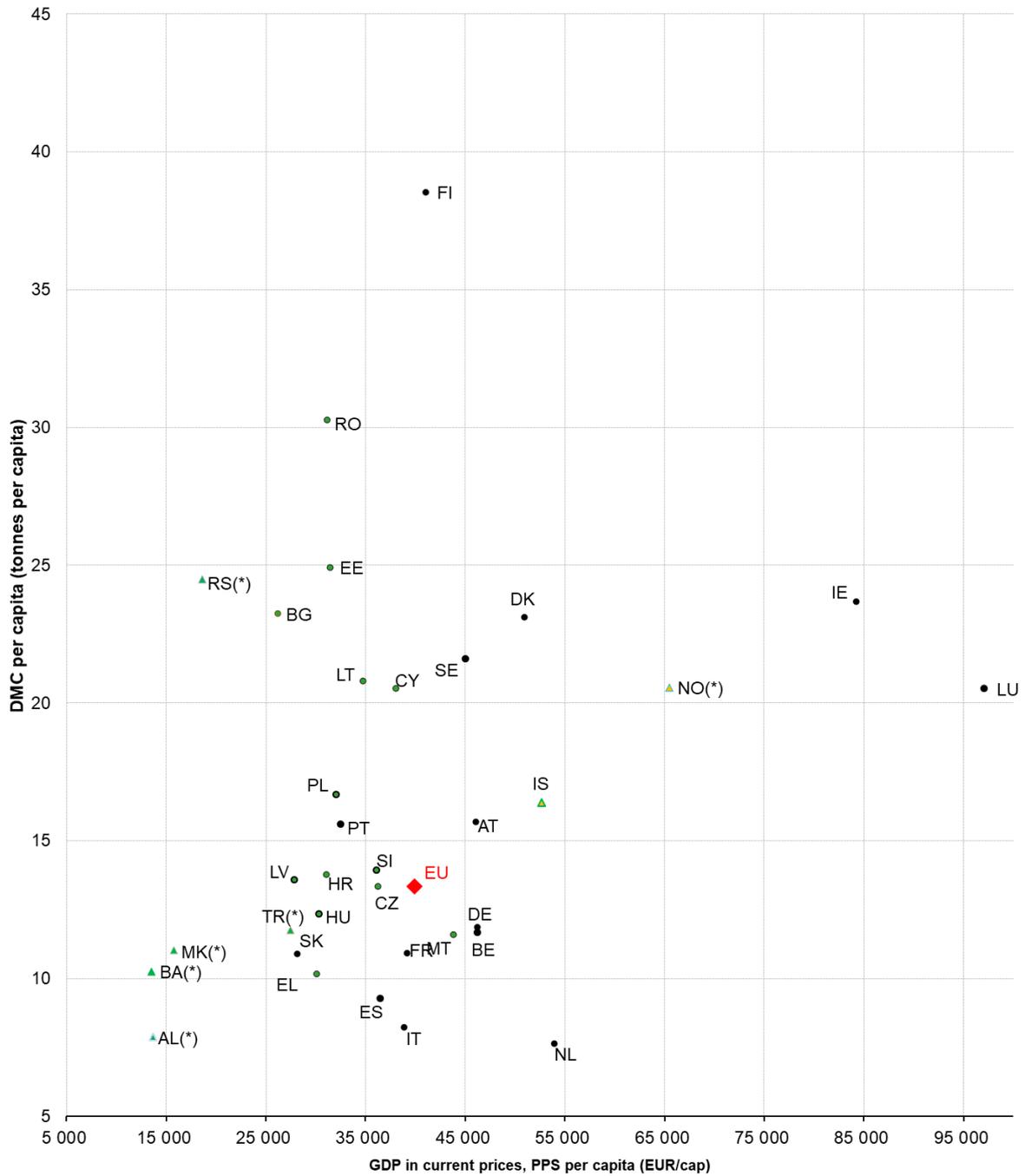
Table 1: Resource productivity - GDP\_DMC by country, 2000-2024 Source Eurostat (env\_ac\_rp)

## Variation of resource productivity across EU countries

Expressed in GDP in PPS over DMC, the resource productivity amounts to 3 €/kg for the aggregated EU economy in 2024. The ratio varies considerably across EU countries from around 1 €/kg (Romania, Finland and Bulgaria) to countries - the Netherlands, Luxembourg, Italy, Belgium, Spain, Germany, Malta, France and Ireland - above the EU average (see Table 2).

Figure 2 is a scatterplot presenting DMC against GDP levels. There is no clear linear relationship between GDP and DMC. There are countries with low GDP and high DMC, (e.g. Romania) but also countries with high GDP and low DMC (e.g. the Netherlands). Further, there are countries with low DMC and low GDP (e.g. Greece) as well as with high DMC and high GDP (e.g. Ireland and Luxembourg).

## Resource productivity, cross country comparison, 2024



Note: GDP in current prices, Purchasing Power Standards (PPS). Y-axis does not start at 0  
 (\*) 2023 instead of 2024

Source: Eurostat (online data codes: env\_ac\_mfa, nama\_10\_gdp, demo\_gind)



Figure 2: Resource productivity, cross-country comparison, 2024 Source: Eurostat (nama\_10\_gdp) (demo\_gind) (env\_ac\_mfa) Country codes

Resource productivity, GDP and DMC, by country, 2024

	GDP <sub>PPS</sub> per capita	DMC per capita	Resource productivity (GDP <sub>PPS</sub> /DMC)	
	(PPS per capita)	(tonnes per capita)	(PPS per kilogram)	(Index EU = 100)
EU	39 932	13.4	3.0	100
Belgium	46 285	11.7	4.0	132.7
Bulgaria	26 229	23.2	1.1	37.7
Czechia	36 209	13.4	2.7	90.7
Denmark	50 903	23.1	2.2	73.6
Germany	46 194	11.9	3.9	130.3
Estonia	31 437	24.9	1.3	42.2
Ireland	84 202	23.7	3.6	118.9
Greece	28 109	10.9	2.6	86.2
Spain	36 487	9.3	3.9	131.5
France	39 161	10.9	3.6	120.0
Croatia	31 096	13.8	2.3	75.5
Italy	38 860	8.2	4.7	157.7
Cyprus	38 032	20.5	1.9	62.0
Latvia	27 867	13.6	2.1	68.6
Lithuania	34 769	20.8	1.7	55.9
Luxembourg	97 079	20.5	4.7	158.3
Hungary	30 344	12.3	2.5	82.3
Malta	43 828	11.6	3.8	126.3
Netherlands	53 927	7.6	7.0	235.7
Austria	46 043	15.7	2.9	98.1
Poland	32 108	16.7	1.9	64.4
Portugal	32 506	15.6	2.1	69.7
Romania	31 105	30.3	1.0	34.4
Slovenia	36 135	13.9	2.6	86.8
Slovakia	30 110	10.2	3.0	99.1
Finland	41 009	38.5	1.1	35.6
Sweden	45 041	21.6	2.1	69.7
Iceland	52 709	16.4	3.2	107.6
Norway(*)	65 518	20.6	3.2	106.5
North Macedonia(*)	15 804	11.0	1.4	47.9
Albania(*)	13 715	7.9	1.7	58.3
Serbia(*)	18 599	24.5	0.8	25.4
Turkey(*)	27 472	11.8	2.3	78.2
Bosnia and Herzegovina(*)	13 517	10.3	1.3	44.1

Note: GDP in current prices, Purchasing Power Standards (PPS)

(\*) 2023 instead of 2024

Source: Eurostat (online data codes: env\_ac\_mfa, nama\_10\_gdp, demo\_gind)



Table 2: Resource productivity, GDP and DMC, by country, 2024 Source: Eurostat (nama\_10\_gdp) (demo\_gind) (env\_ac\_mfa)

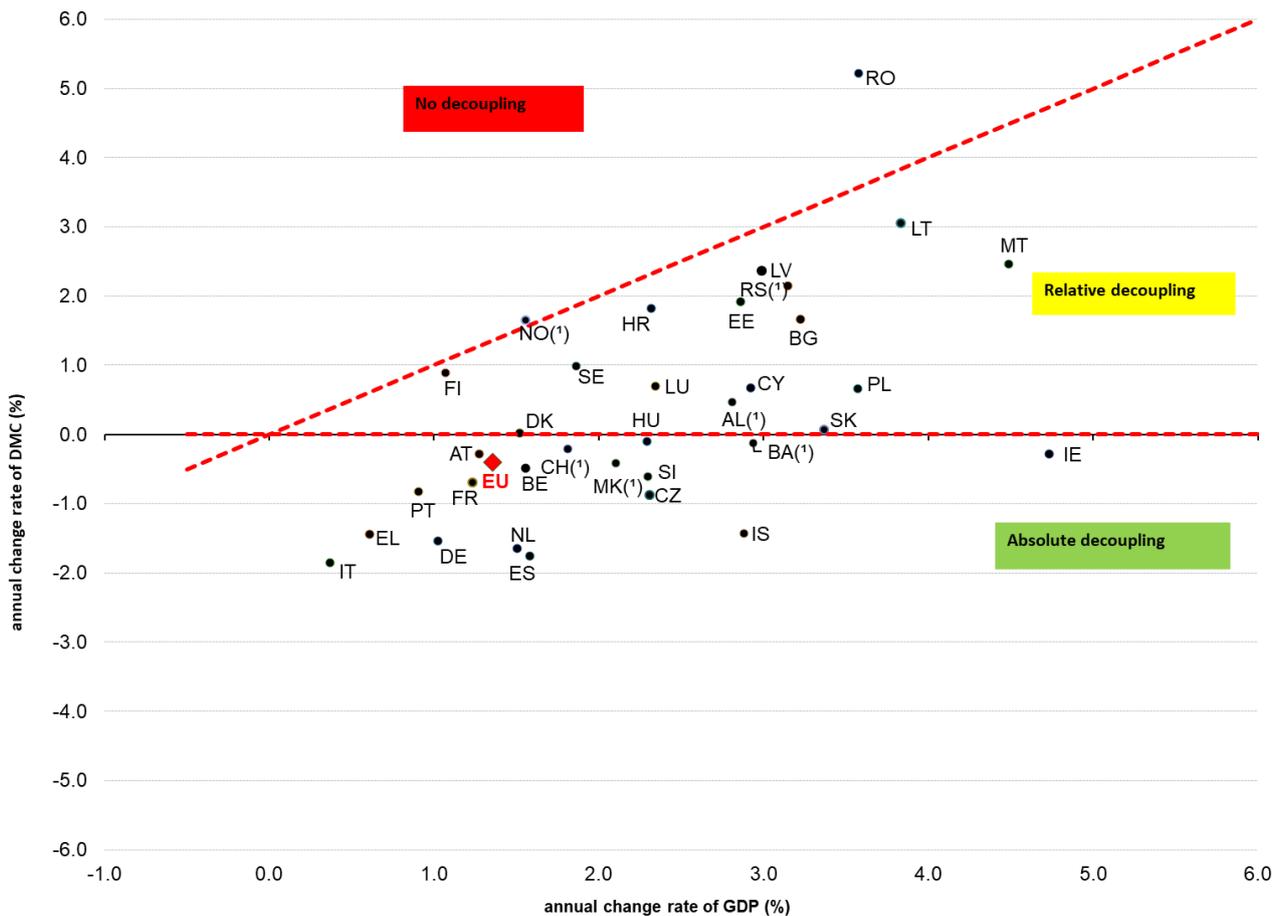
## DMC and GDP growth rates in the EU and EU countries - decoupling economic growth from material consumption

Looking at the long term change rates of DMC and GDP provides an insight on the degree of decoupling between DMC (pressure on the environment) and GDP (economic growth). Figure 3 illustrates how far decoupling has been achieved in the EU economy. The diagonal line represents identical change rates of both GDP and DMC. Countries which find themselves above this diagonal line had higher DMC growth than GDP growth and did not de-couple the 2. Below the diagonal line are all countries where GDP increased faster than their DMC and which thus achieved at

least relative decoupling. Absolute decoupling denotes absolute decrease of DMC while GDP increases and was achieved by about one-third of EU countries over the reporting period, and the EU economy as a whole.

It is important to note that this outcome should be further investigated as it could also be the result of outsourcing material-intensive production to other parts of the world. However, those aspects of dislocated environmental pressures through trade are not covered by the DMC indicator. More comprehensive data which reflect materials embodied in trade can be found in [Material flow accounts - flows in raw material equivalents](#)

### Changes of DMC and GDP by country, 2000-2024 (expressed as compound annual change rates)



Note: GDP in chain-linked volumes, reference year 2015  
(<sup>1</sup>) deviating reference period  
Source: Eurostat (online data codes: env\_ac\_mfa, nama\_10\_gdp)



Figure 3: Changes of DMC GDP by country, 2000-2024 Source: Eurostat (nama\_10\_gdp) (env\_ac\_mfa)

### Source data for tables and graphs

- [Resource productivity: tables and figures](#)

## Data sources

This article uses data from economy-wide material flow accounts (EW-MFA), which are one of the European environmental economic accounts (see [Regulation \(EU\) No 691/2011](#) on European environmental economic accounts).

Economy-wide material flow accounts (EW-MFA) provide an aggregate overview, in thousand tonnes per year, of the material flows into and out of an economy. EW-MFA cover solid, gaseous, and liquid materials, except for bulk flows of water and air. Material inputs into national economies include domestic extraction of material originating from the domestic environment and physical imports originating from other economies. Material outputs from national economies include materials released to the domestic environment (e.g. emissions to air, water and soil) and physical exports to other economies. Material flows within the economy are not represented in EW-MFA.

A variety of material flow-based indicators are derived from EW-MFA amongst which the following:

**Domestic material consumption (DMC)** measures the total amount, in tonnes, of material directly used in an economy, i.e. by resident businesses, governments and other institutions for economic production or by households. DMC equals the domestic extractions of materials plus imports minus exports. At the same time, DMC is the amount of materials that become part of the material stock within the economy or are released back to the environment in form of e.g. emissions to air.

**Resource productivity** is defined here as GDP divided by DMC. It is important to note that GDP is expressed in different measurement units, of which the following are used to calculate 3 different resource productivity ratios. The appropriate choice depends on the context of the analysis:

- € per kg using chain-linked volume data for GDP, to be used for analysing developments in real terms over time;
- PPS per kg using current price data for GDP expressed in purchasing power standards (PPS); PPS are artificial currency units that remove differences in purchasing power between economies by taking account of price level differences; these can be used when comparing across different economies at one point in time (for one particular year);
- € per kg using current price data for GDP, which could be used when analysing a single economy at one point in time (for one particular year).

See also [MFA metadata](#) .

## Decoupling

The term decoupling refers to breaking the link between an environmental and an economic variable. As defined by the [Organisation for Economic Co-operation and Development \(OECD\)](#) , decoupling occurs when the growth rate of an environmental pressure (for example, DMC) is less than that of its economic driving force (for example, GDP) over a given period. Decoupling can be either absolute or relative. Absolute decoupling is said to occur when the environmental variable is stable or decreases while the economic driving force increases. Decoupling is said to be relative when the rate of change of the environmental variable is less than the rate of change of the economic variable.

## Context

Eurostat's environmental accounts and statistics inform policy making under the [European Commission's 2024-2029 priorities](#) . In this context, the [plan for Europe's sustainable prosperity and competitiveness](#) works towards a more circular and resilient economy to shift to a more sustainable pattern of production and consumption, retaining the value of resources in our economy for longer.

Further reading:

[A new Circular Economy Action Plan for a Cleaner and More Competitive Europe](#)

## Explore further

### Other articles

- [Material flow accounts and resource productivity](#)
- [Physical imports and exports](#)
- [Material flow accounts - flows in raw material equivalents](#)
- [Environmental accounts - establishing the links between the environment and the economy](#)

### Database

- [Environment \(env\)](#)
- [Material flows and resource productivity \(env\\_mrp\)](#), see:

[Material flow accounts \(env\\_ac\\_mfa\)](#)

[Resource productivity \(env\\_ac\\_rp\)](#)

- [Circular economy indicators](#) , see:

[Circular economy indicators \(cei\)](#)

### Thematic section

- [Environment](#)
- [Material flows and resource productivity](#)
- [Circular economy](#)

### Publications

- [Energy, transport and environment indicators — 2020 edition](#)
- [Circular economy](#)
- [Sustainable Development Goals in the European Union](#)

### Methodology

- [Economy-wide material flow accounts questionnaire and compilation guidelines](#)

### External links

- [European Commission — Environment — Circular economy](#)
- [European Environment Agency: The European environment — state and outlook 2020: knowledge for transition to a sustainable Europe SOER 2020](#)
- [OECD — Resource efficiency](#)