

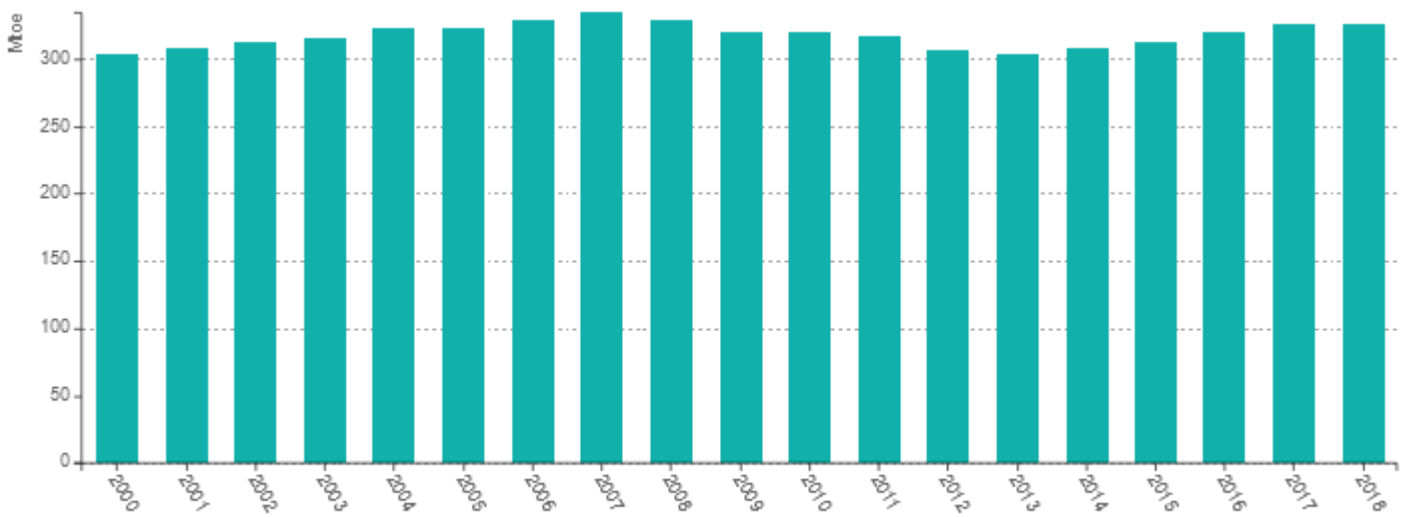
Sectoral Profile - Transport

Energy consumption

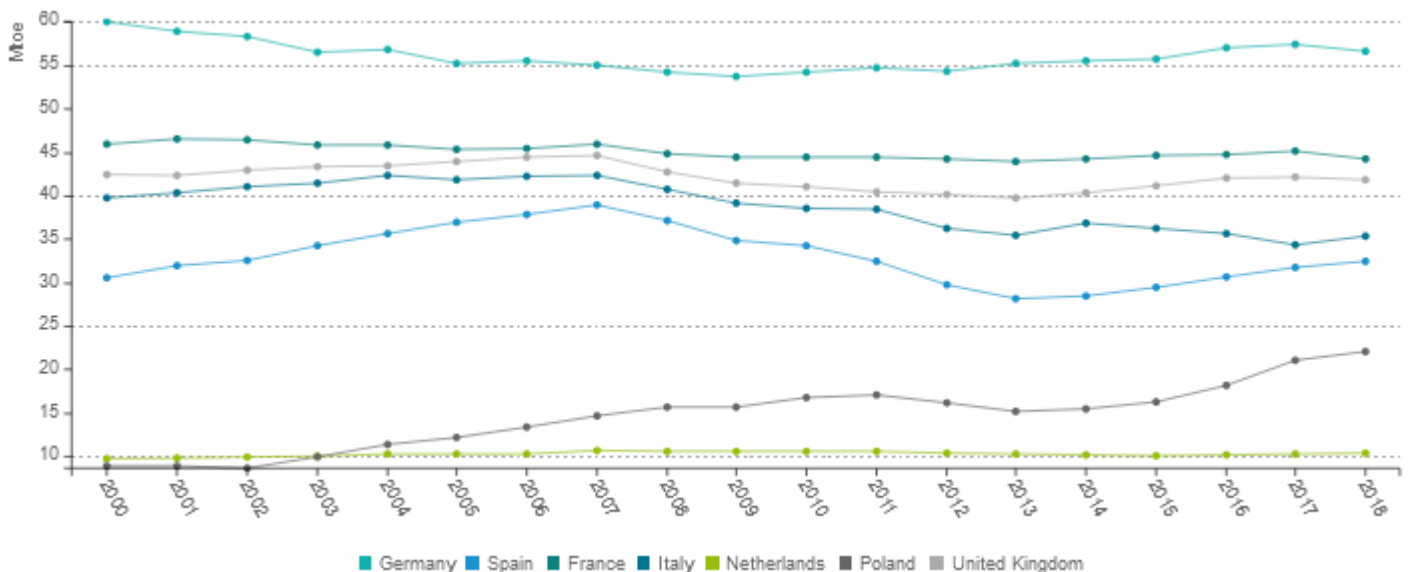
Overview

- The energy consumption of transport is growing again since 2014 at EU level with the economic growth rebound (+1.1%/year), which contrasts with the previous period impacted by the economic crisis (-1.6%/year from 2007 to 2013). This is mainly due to an increasing consumption in some large EU countries, with even a significant increase in Poland (7.8%/year) and Spain (2.9%/year).
- In 2018, the energy consumption of transport of the EU was 7% above its 2000 level.

Energy consumption trends in transport in the EU



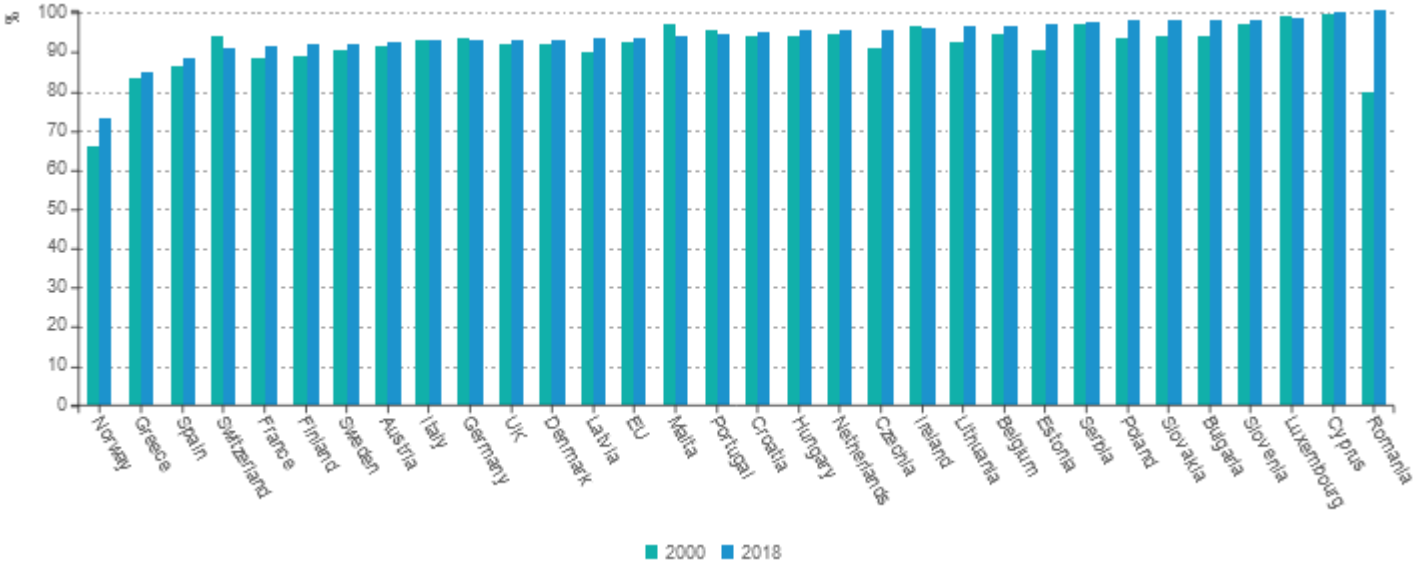
Energy consumption of transport in selected countries



Share of road in transport energy consumption

- Road transport absorbs almost 94% of the final energy consumption of transport (excluding international air) in the EU (range 73-100%).
- Slightly increasing share of road transport at EU level (+1.2 percentage point between 2000 and 2018), with an increasing share in 3/4 of the countries.

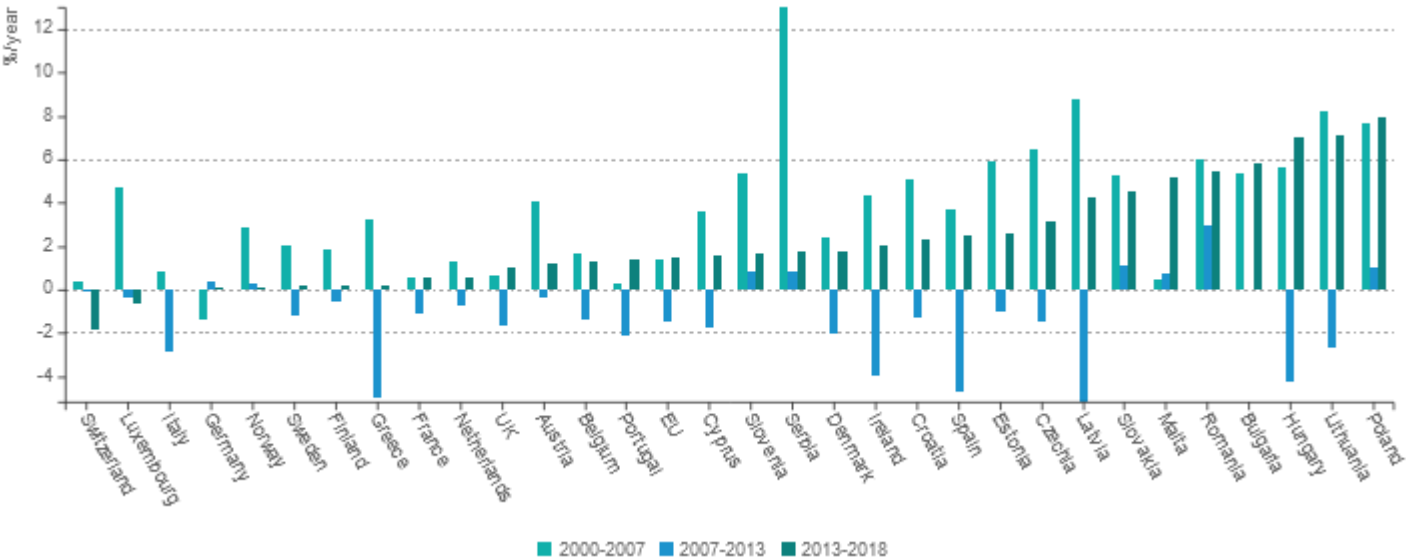
Share of road in transport energy consumption



Trends in road transport

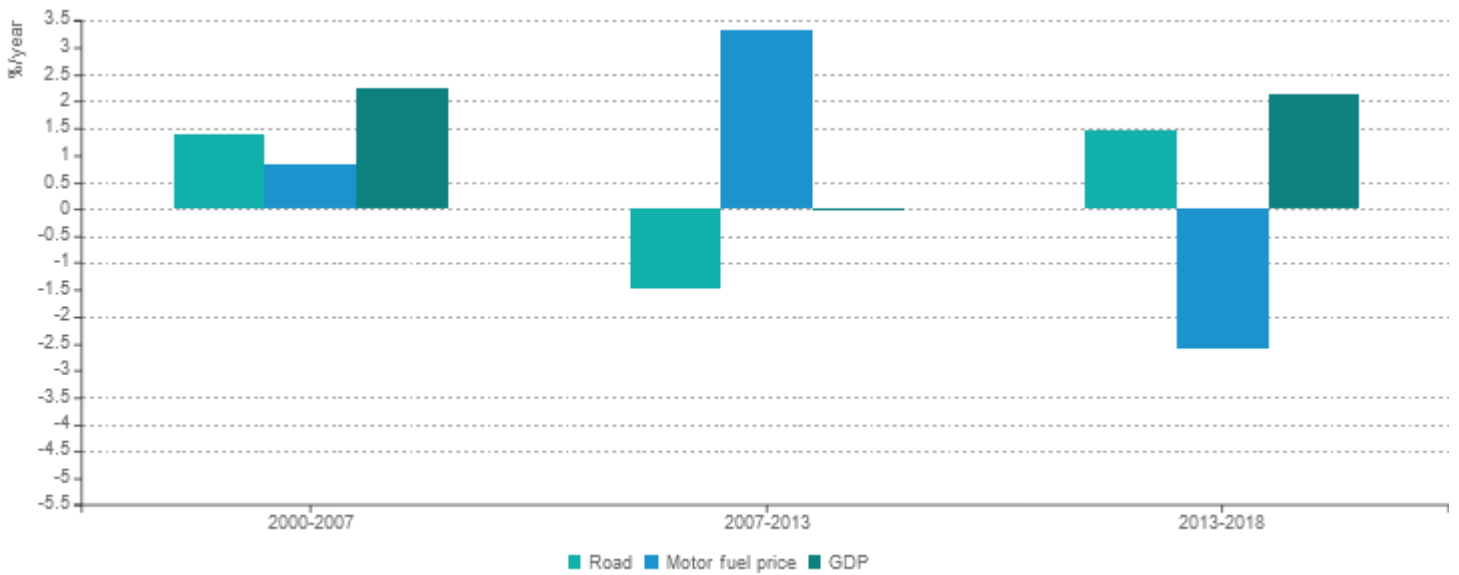
- The consumption of road transport has been increasing in almost all countries except Luxembourg and Italy since 2013.

Energy consumption trends in road transport



- Since 2013, road consumption is increasing again (1.5%/year). This trend is mainly explained by the economic growth rebound (2.2%/year increase of the GDP) and significant decrease of motor fuel prices (-2.6%/year).
- Before that, consumption of road transport decreased between 2007 and 2013 (-1.5%/year), after a rapid progression between 2000 and 2007 (1.4%/year) despite increasing motor fuel prices.

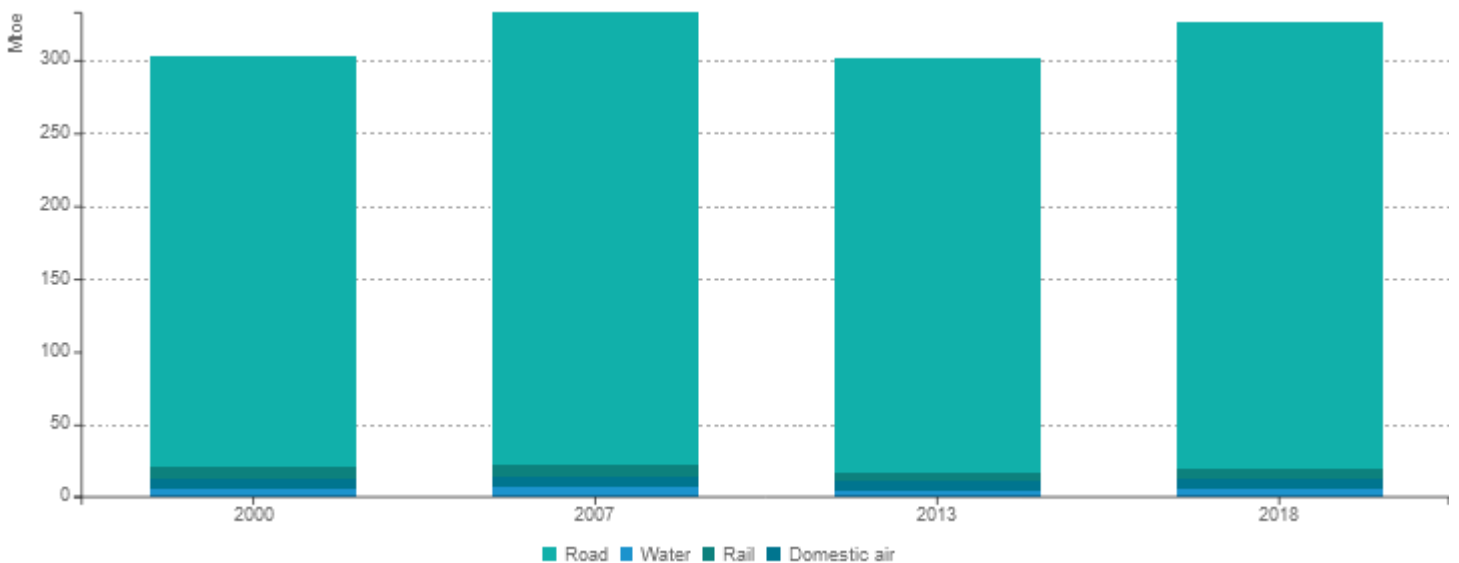
Energy consumption of road transport, fuel prices and GDP (EU)



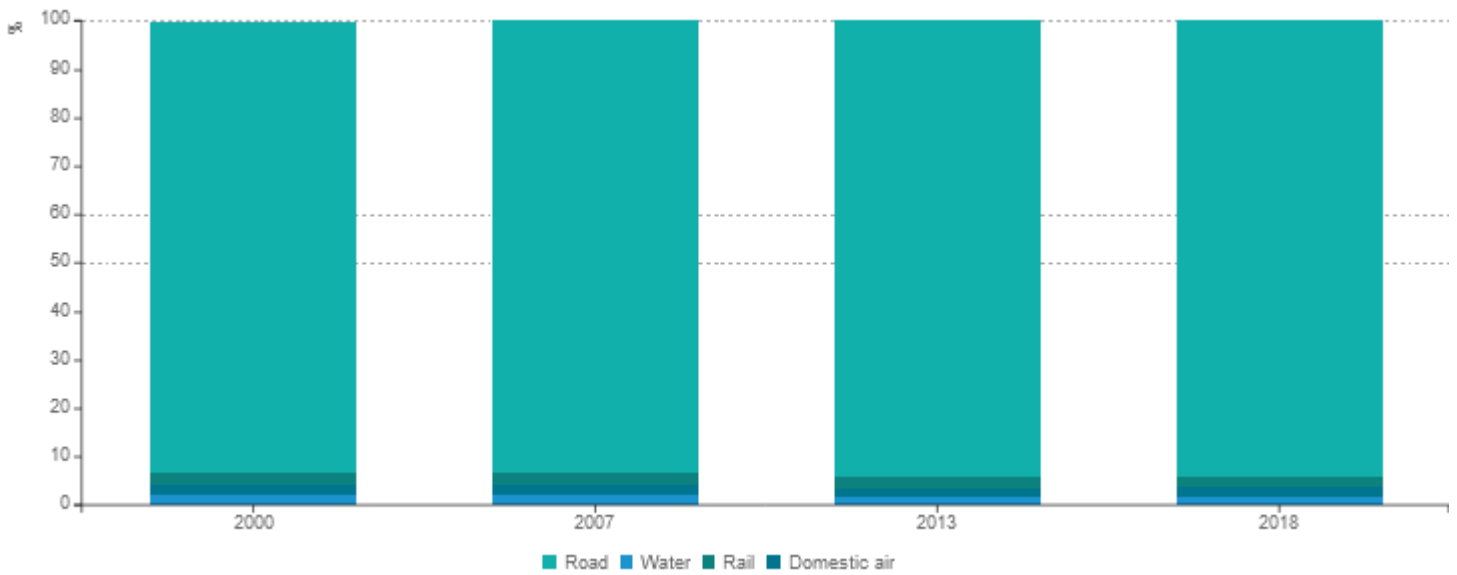
Consumption by mode

- The share of road transport has slightly increased since 2000 (+1 point, to 94% in 2018). On the contrary, the share of rail and water has decreased (from 2.7% in 2000 to 2% in 2018 for rail and from 2% in 2000 to 1.6% in 2018 for water transport). The share of domestic air transport has been stable (2%).

Energy consumption by mode (EU)



Share of energy consumption by mode (EU)

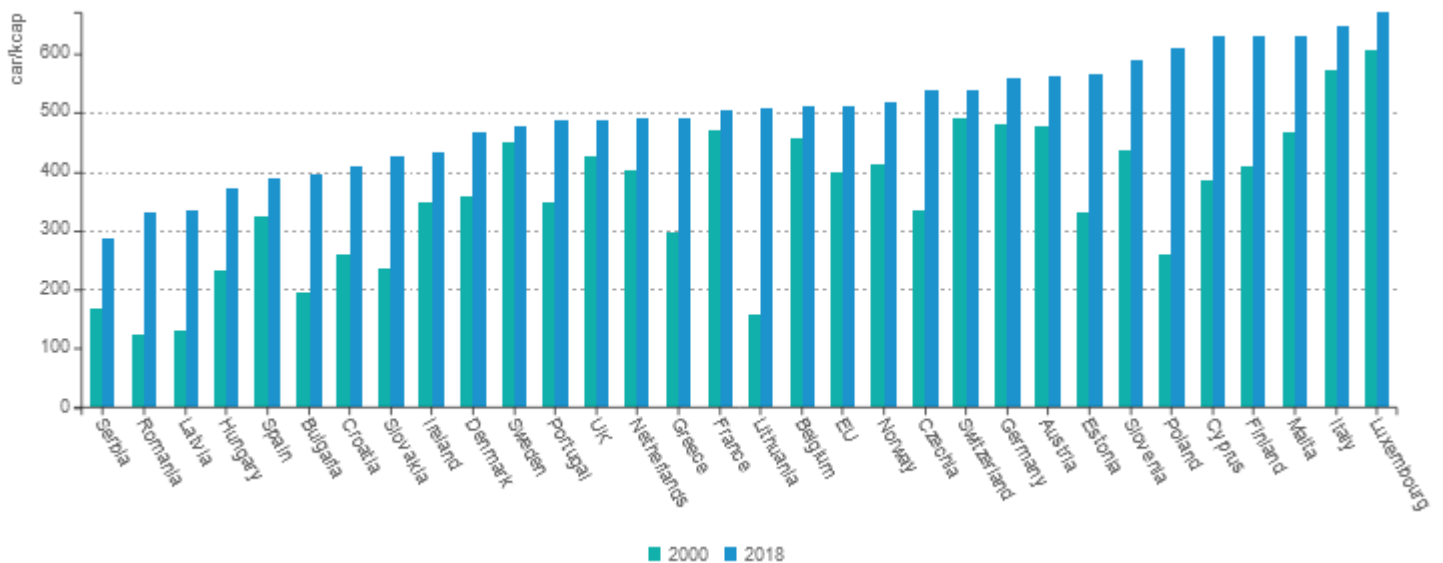


Cars

Number of cars per capita

- Very rapid growth of car ownership in less developed EU countries because of their lower equipment level, with 5 countries with a progression above 4%/year (Bulgaria, Latvia, Lithuania, Poland and Romania).
- Slower progression in other EU countries due to saturation, especially in Italy, Sweden, Luxembourg, France and Switzerland.

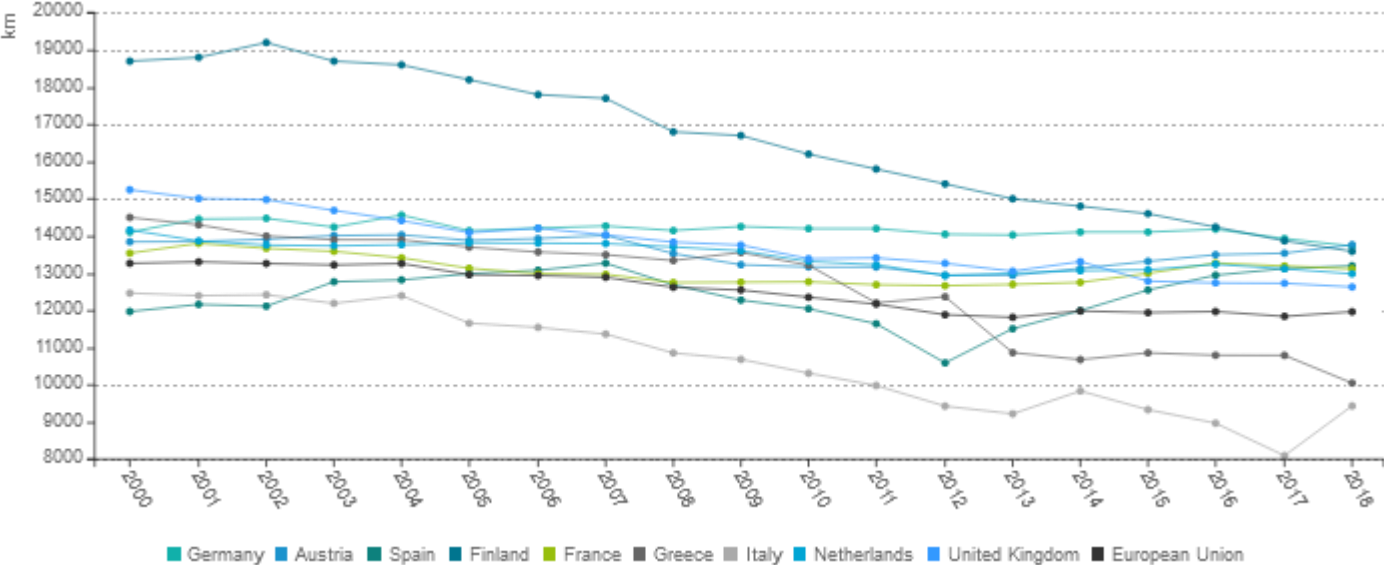
Number of cars per capita



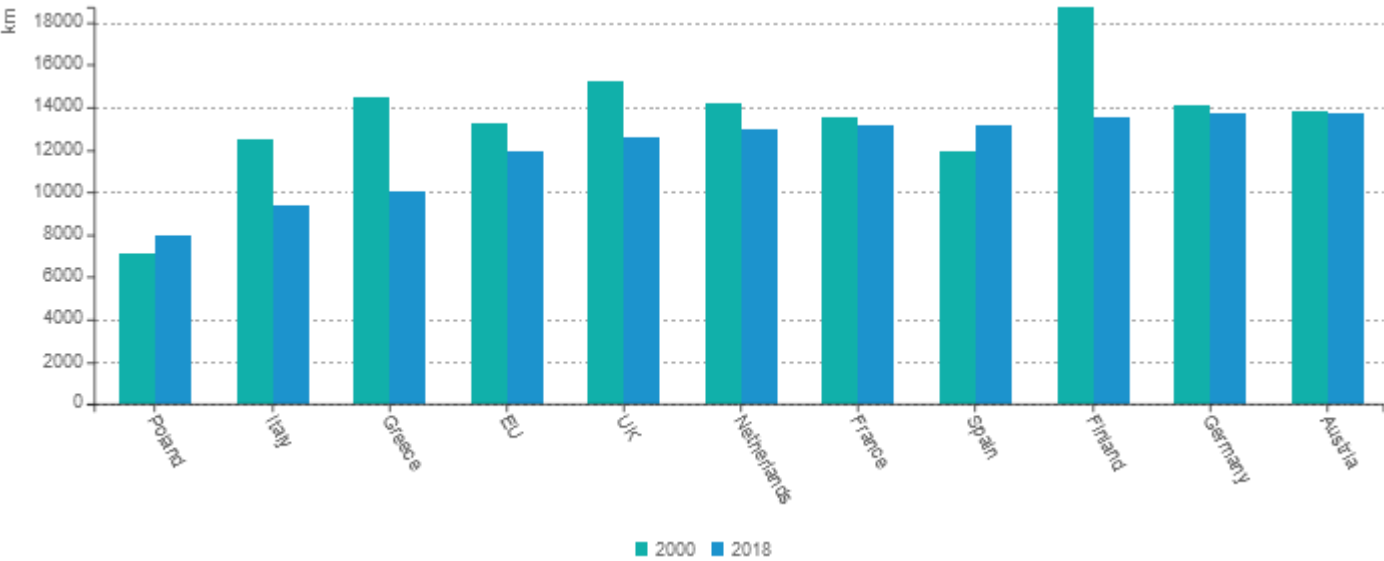
Change in distance travelled by car

- Decrease in distance travelled by car between 2000 and 2018 in most countries (around -1,300 km/year at EU level) with a very sharp reduction in Finland and Greece; it has however increased in Poland and Spain.
- Large discrepancy of the average annual distance travelled by car between countries: around 13,800 km/year for Austria and Germany; around 9,500 km/year in Italy, and on average 12,000 km/year for the EU.

Change in distance travelled by car



Change in distance travelled by car for selected countries

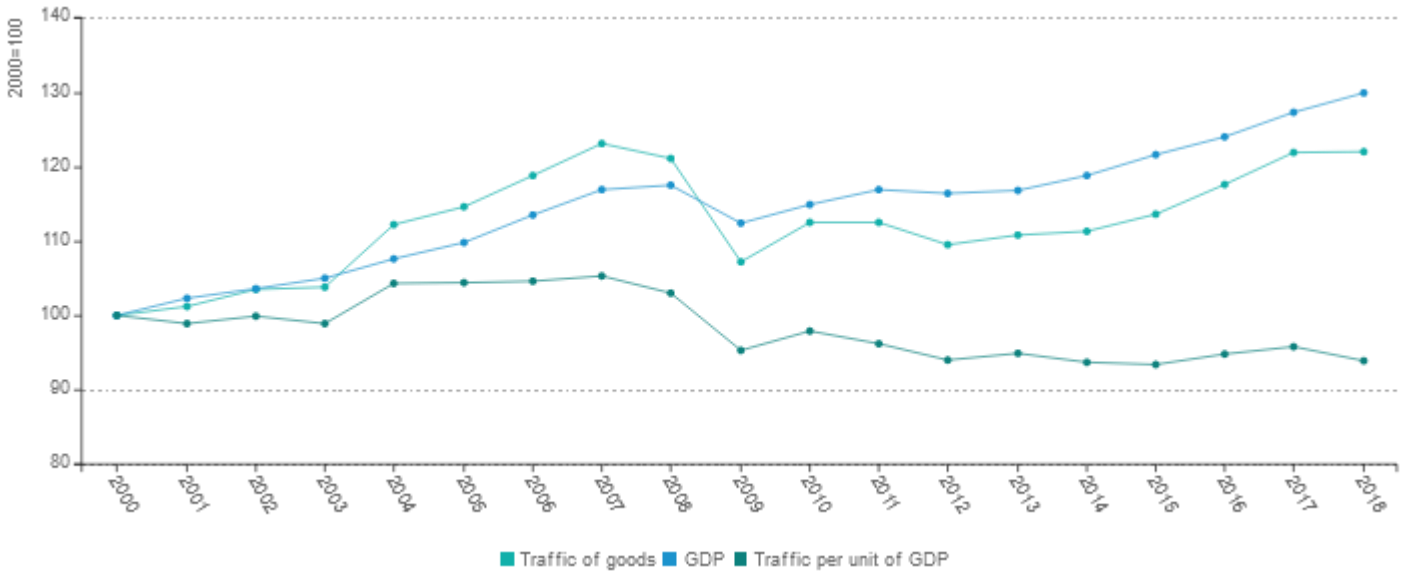


Transport of goods

Trends in freight traffic

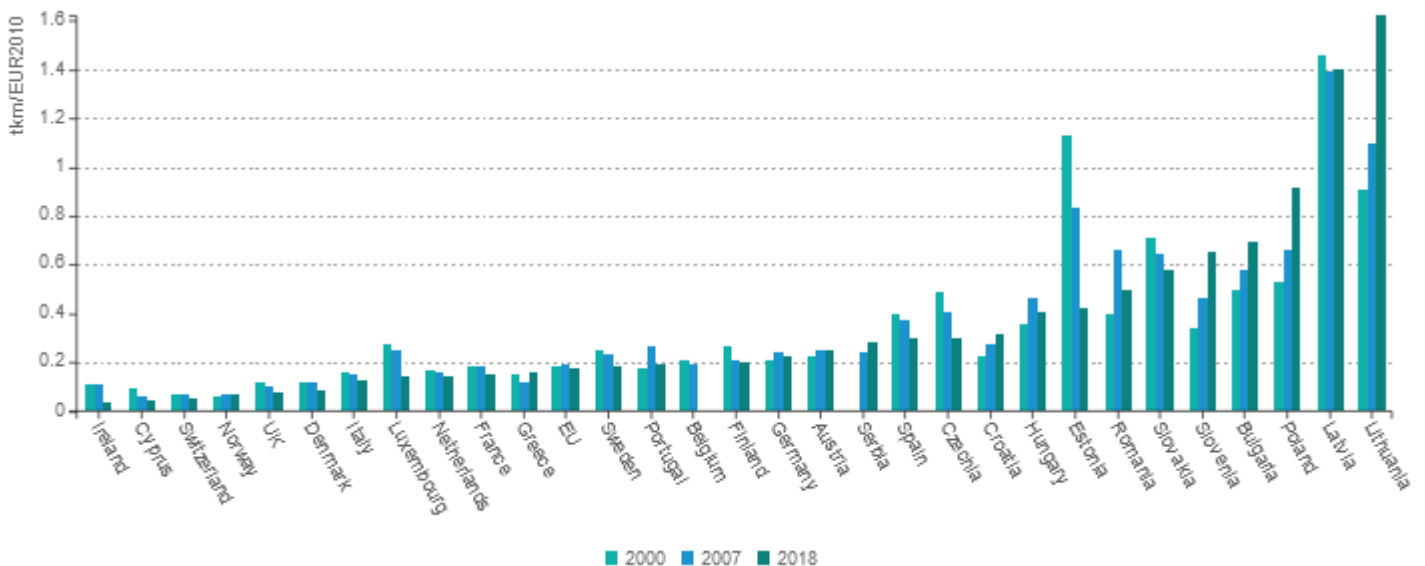
- Increasing traffic of goods since 2013, with a good correlation with GDP.
- Previously, there was a sharp decrease of freight traffic between 2007 and 2009.

Trends in freight traffic and GDP (EU)



- In the majority of countries (16), there is a reduction of the traffic intensity (traffic per unit of GDP) since 2000, with for 3 of them a reduction above 3%/year.
- In 6 countries, there is a steady increase since 2000 of the traffic intensity, while in 5 other countries there has been an increase before the crisis and a decrease after.

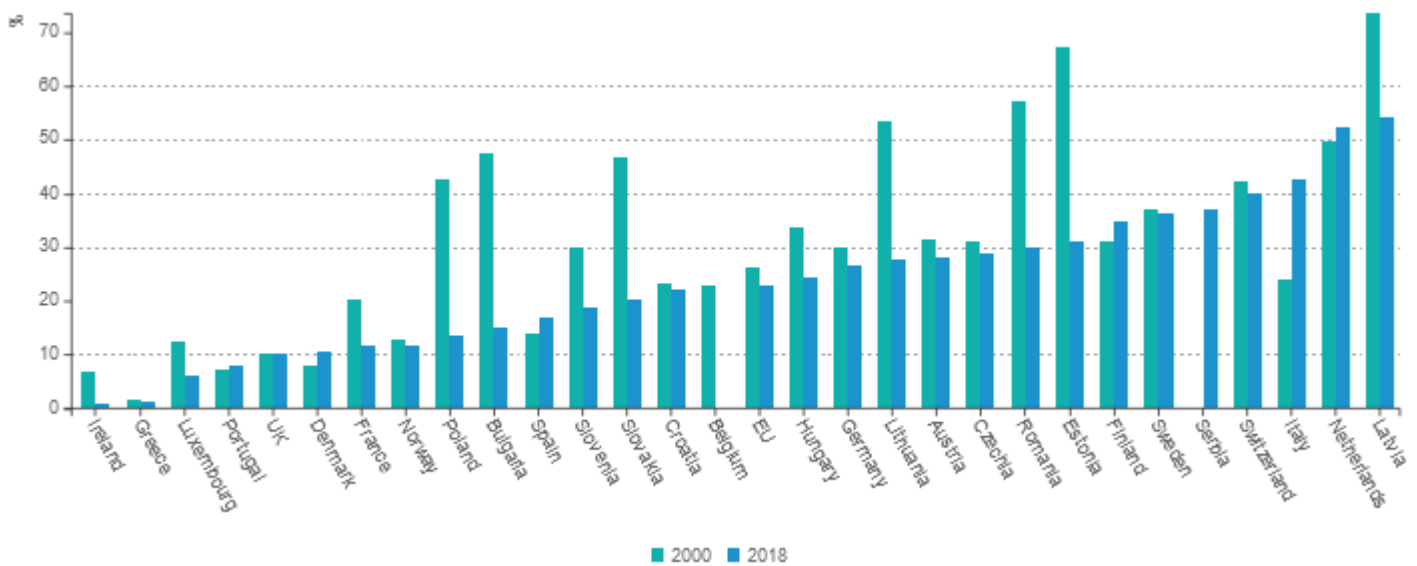
Freight traffic per unit of GDP



Share of rail and water in total goods of traffic

- The share of rail and water in the traffic of goods is decreasing in 16 countries, despite the policies implemented to promote rail or water transport (- 3.3 points at EU level).
- At EU level, 23% of goods traffic was carried by rail and water transport in 2018.
- Latvia, the Netherlands and Italy have the highest share (>40%) while the highest progression is observed in Italy, thanks to water transport.

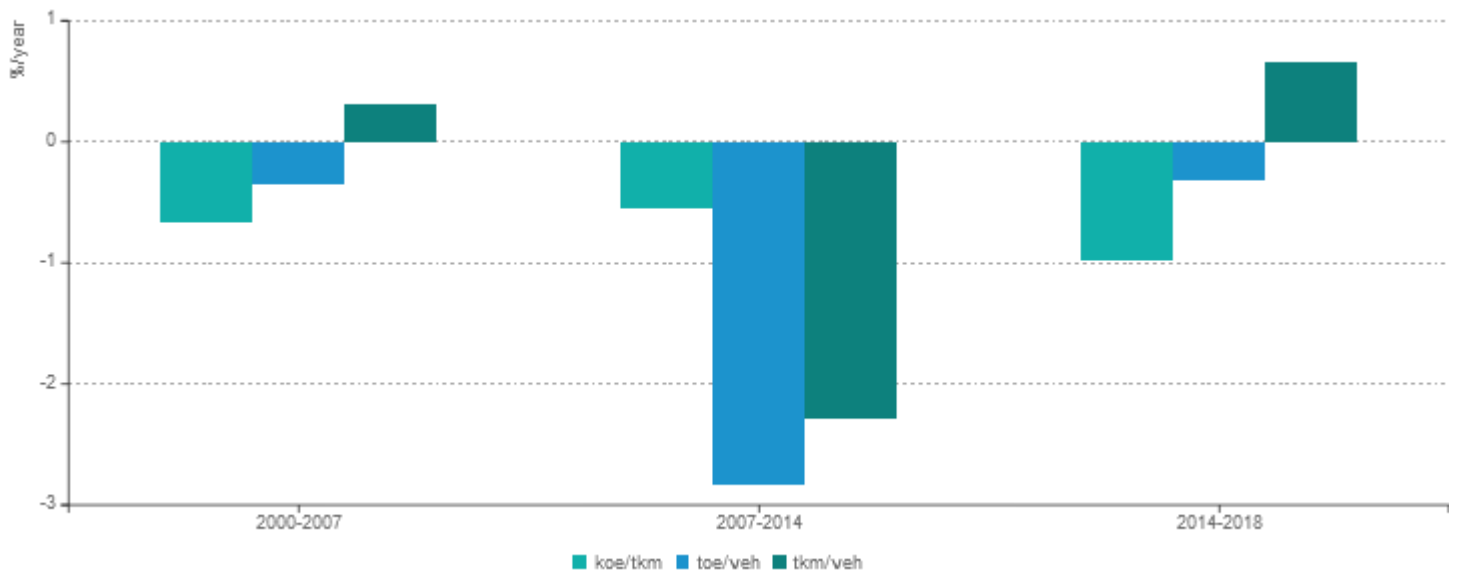
Share of rail and water in total goods traffic



Unit consumption of road transport of goods

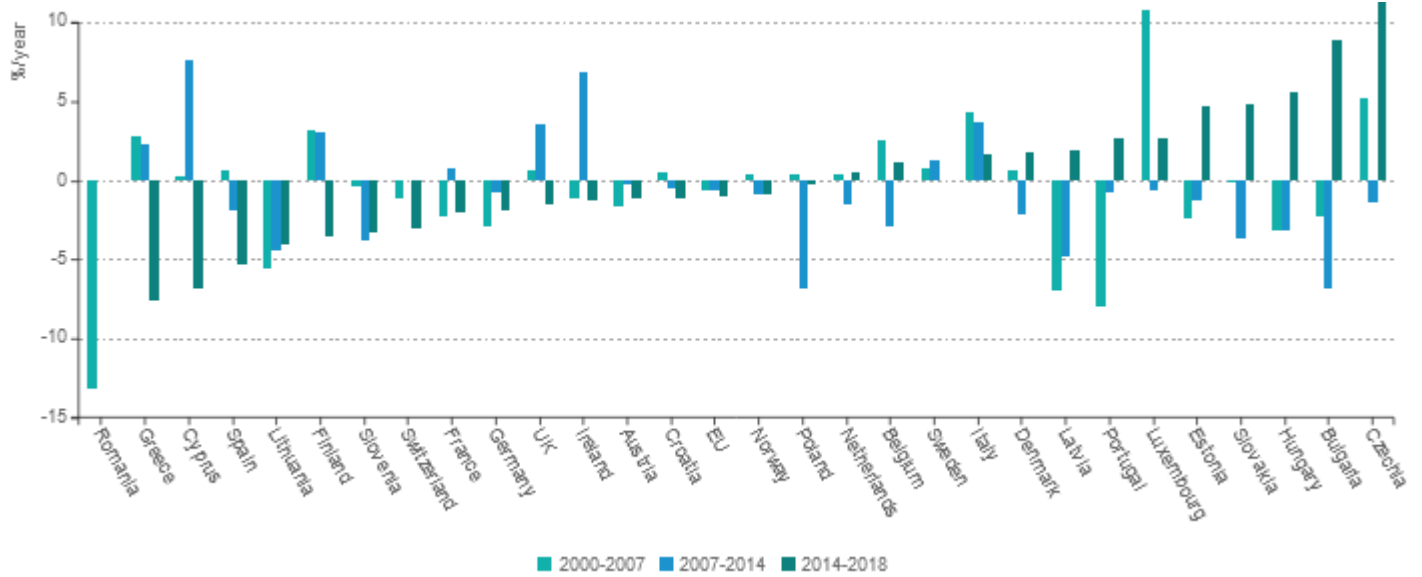
- Since 2014, energy efficiency progress of road freight transport is higher than before the economic crisis at EU level (around 1%/year over 2014-2018, compared to 0.7%/year between 2000 and 2007), as measured from the decrease of the road freight traffic consumption per ton-km.
- Lower energy efficiency progress for the period 2007-2014 (-0.5%/year) with the sharp decrease in load factors due to the drop in traffic of goods.

Change in the unit consumption of road freight transport (EU)



- Deterioration of energy efficiency in 12 countries since 2014 despite the rebound in freight traffic.

Unit consumption of road transport of goods

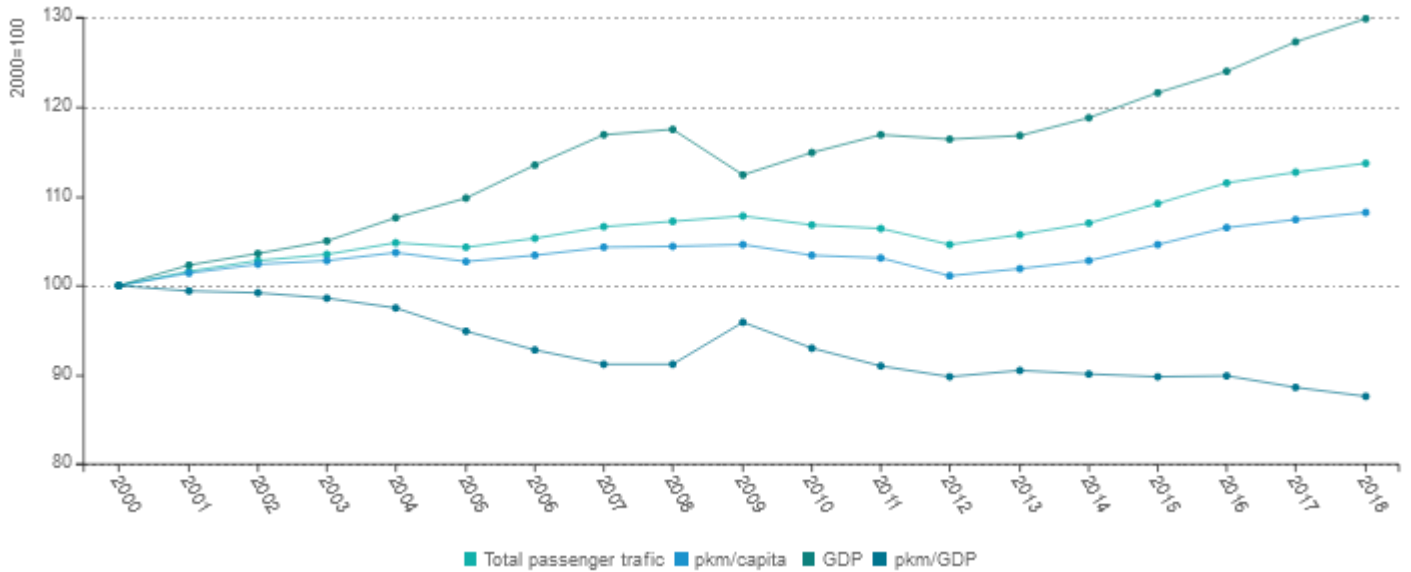


Passenger transport

Passenger traffic and GDP at EU level

Passenger traffic has been growing at a lower rate as the GDP since 2016 at EU level, as shown by the slight decrease of the passenger transport intensity (pkm/GDP). Previously, it was rather stable between 2012 and 2016 and it grew slower than GDP over 2003-2008 and then 2009-2012.

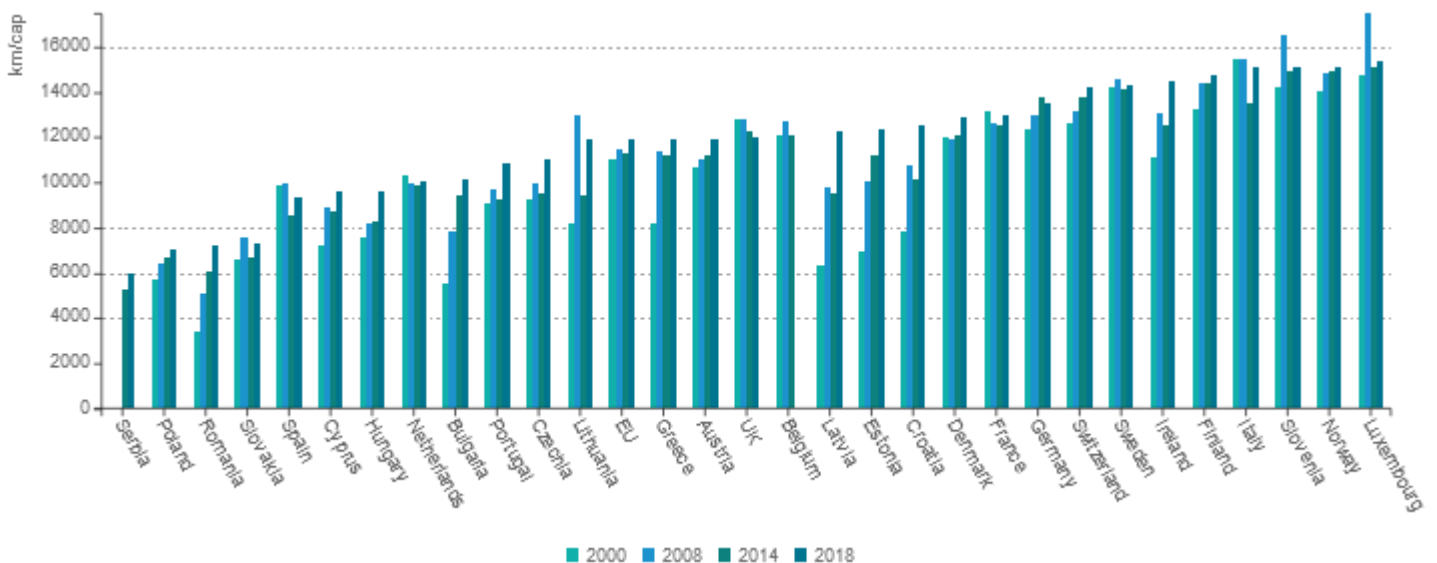
Passenger traffic and GDP at EU level



Passenger mobility per capita

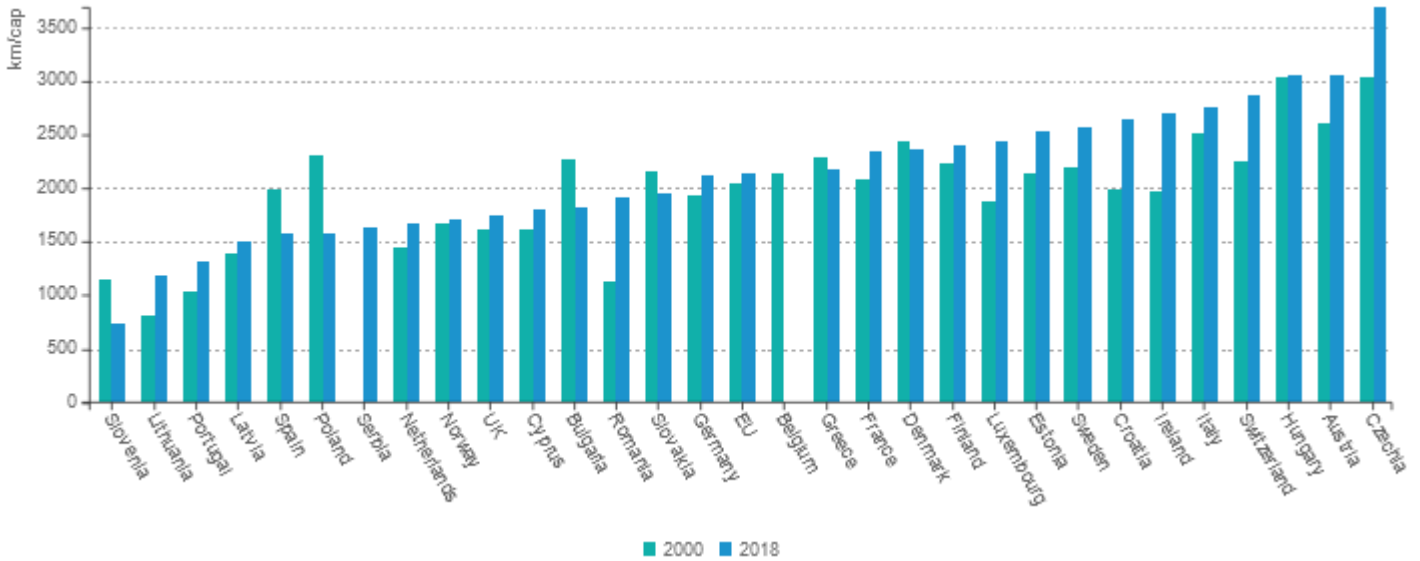
The average mobility per capita (km/year) is increasing again in 22 countries since 2014. It has been stable or decreasing in most countries (~70%) for the period 2008-2014, with the economic crisis.

Passenger mobility per capita



- Czechia, Austria and Hungary have the highest use of public transport modes (above 3,000 km/year), compared to an EU average of around 2100 km.
- Czechia, Ireland, Croatia and Luxembourg have recorded the highest increase over the period 2000 – 2018 (above 1.5%/year).

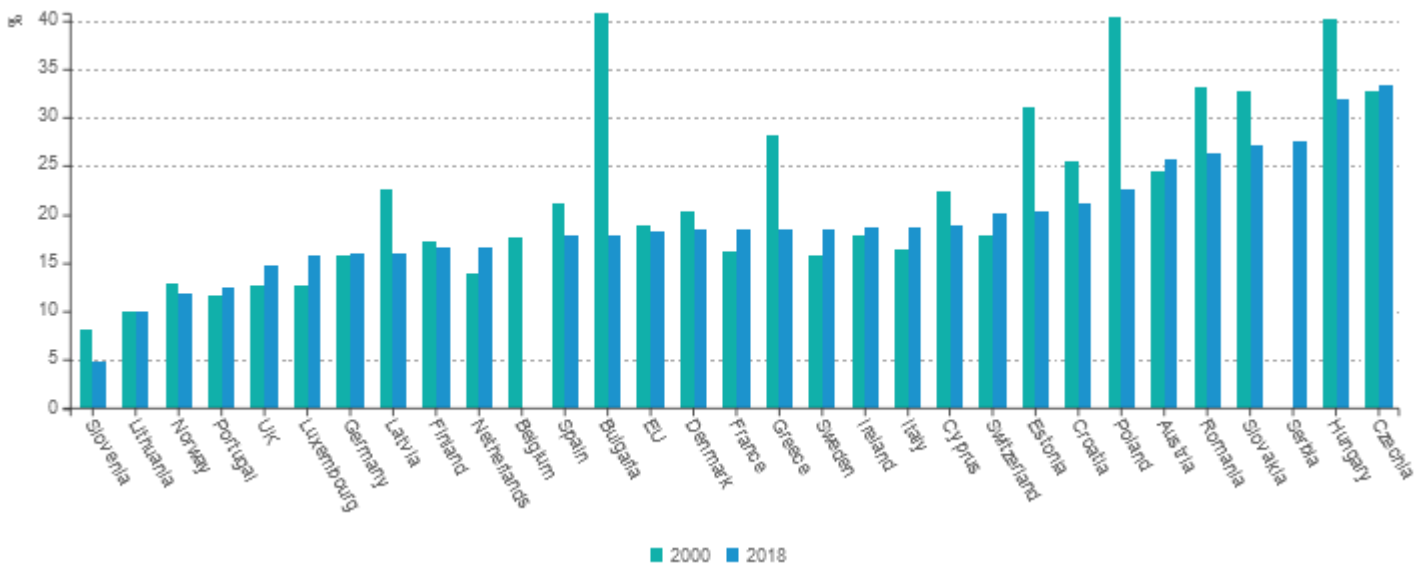
Mobility of public transport per capita



Public transport

- The share of public transport in passenger traffic has been decreasing in 13 countries. At EU level, it decreased slightly (by 0.6 points, to 18% in 2018). The share of public transport has been decreasing rapidly in most Central and Eastern European countries (except Czechia and Lithuania), where public transport used to be dominant (especially in Estonia, Poland and Bulgaria).
- The highest progression is observed in Luxembourg, Sweden and the Netherlands (around + 3 points since 2000), Italy, France and the UK (+2 points).
- 7 countries have a share of public transport over 20% in 2018, of which 2 above 30% (Czechia and Hungary).

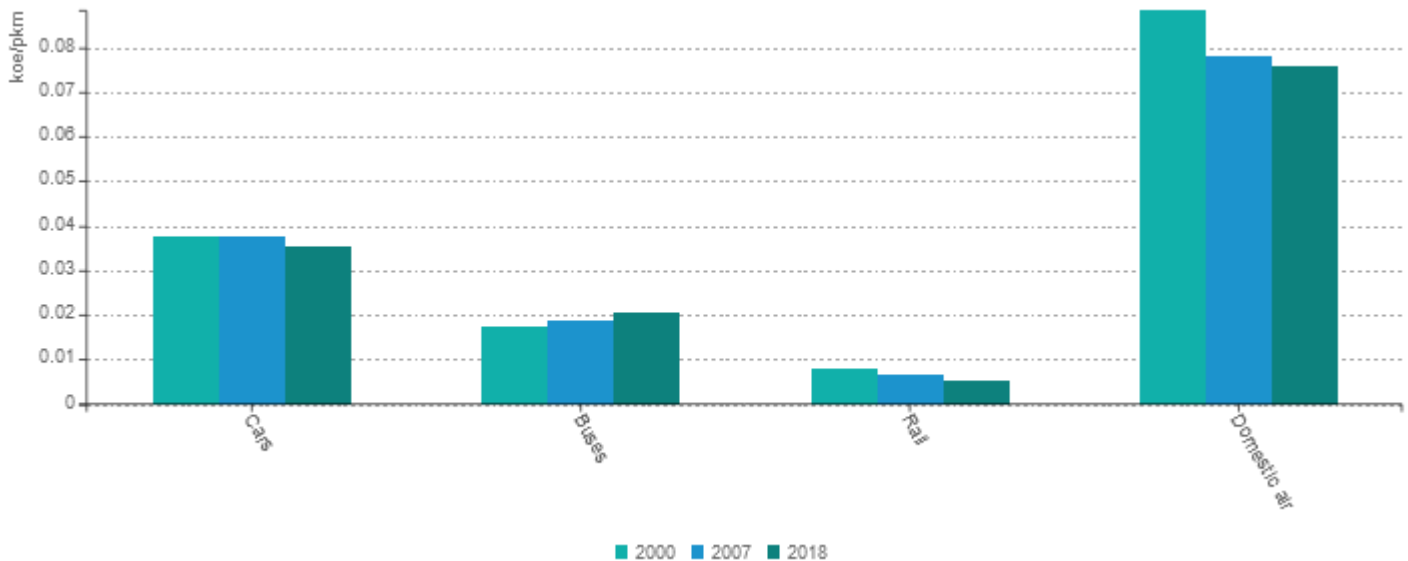
Share of public transport in total passenger traffic



Specific consumption

- Cars require almost 3 times more energy per passenger-km than public transport (rail and buses), and 7 times more than rail transport.
- Specific consumption of domestic air transport is around 2.5 times higher than the value of cars and 17 times higher than rail.

Specific energy consumption by transport mode

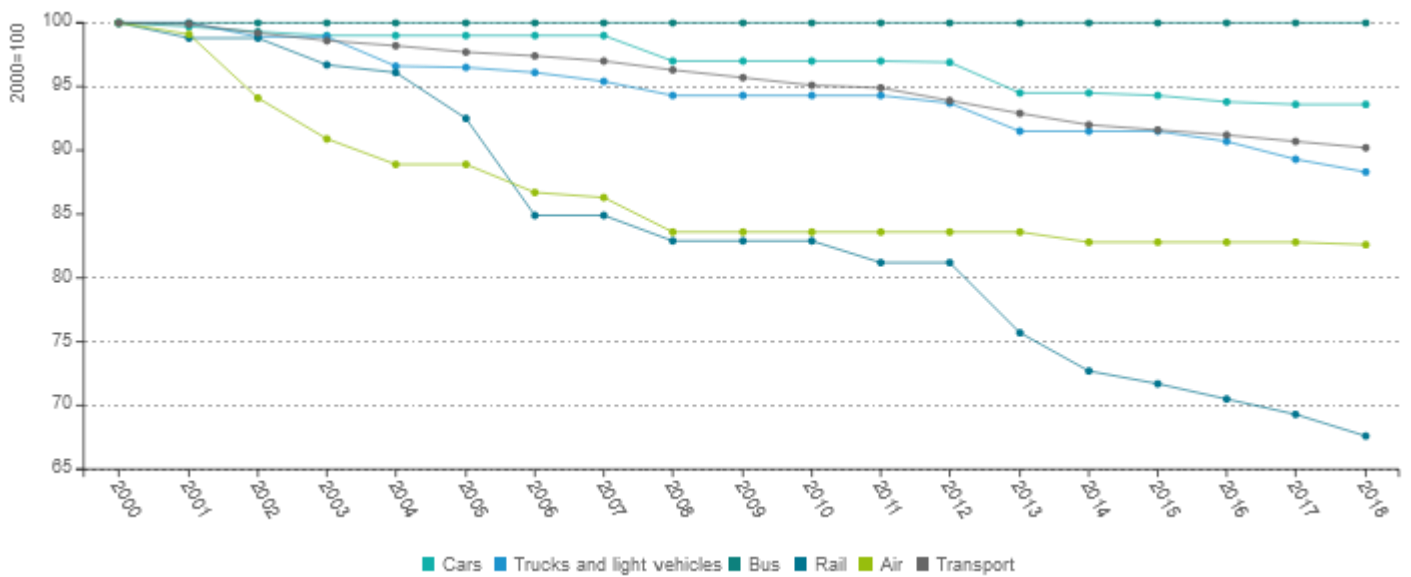


Energy efficiency and savings

Energy efficiency index for transport

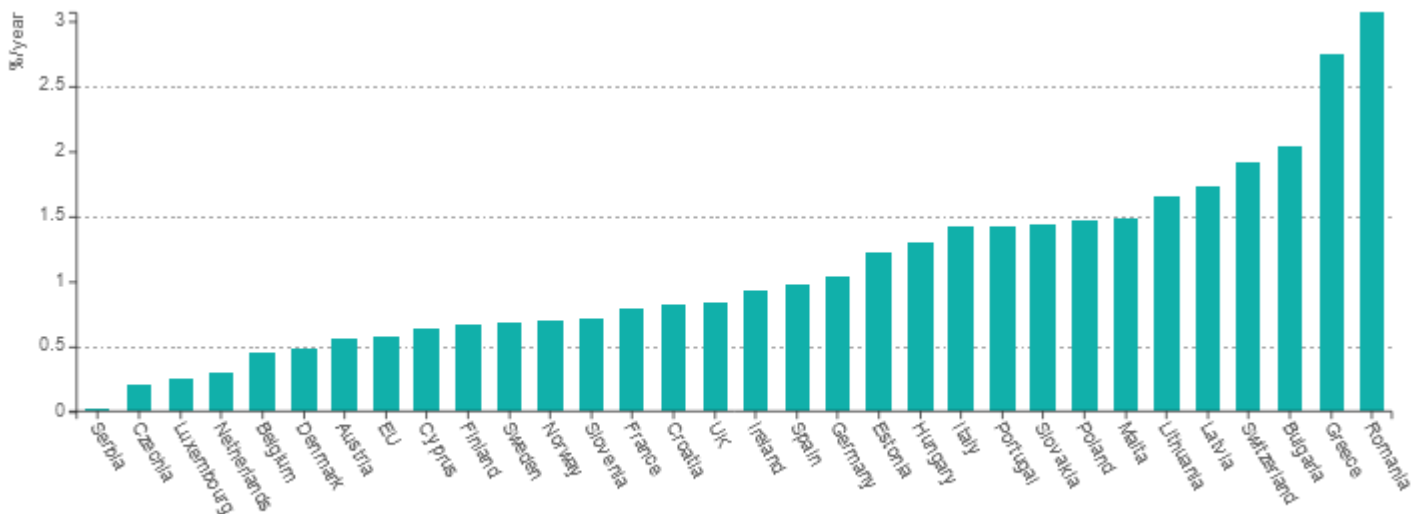
- Energy efficiency improvement of 0.6%/year between 2000 and 2018, as measured by ODEX that combines the energy efficiency trends of the different modes of transport (cars, trucks and light vehicles, bus, motorcycles, air, waterways, rail).
- Important energy efficiency progress was achieved in rail transport (2.2%/year) and domestic air (1.1%/year). Road transport energy efficiency progress was slower, in particular for cars (0.4%/year).
- After a slow down for trucks and light vehicles since 2005, with no more efficiency progress between 2008 and 2012 because of the economic crisis, energy efficiency is improving again.

Energy efficiency index by mode (EU)



Discrepancies in energy efficiency gains in EU countries: from around 3%/year in Greece and Romania to less than 0.5%/year in Czechia, Luxembourg, The Netherlands, Belgium and Denmark.

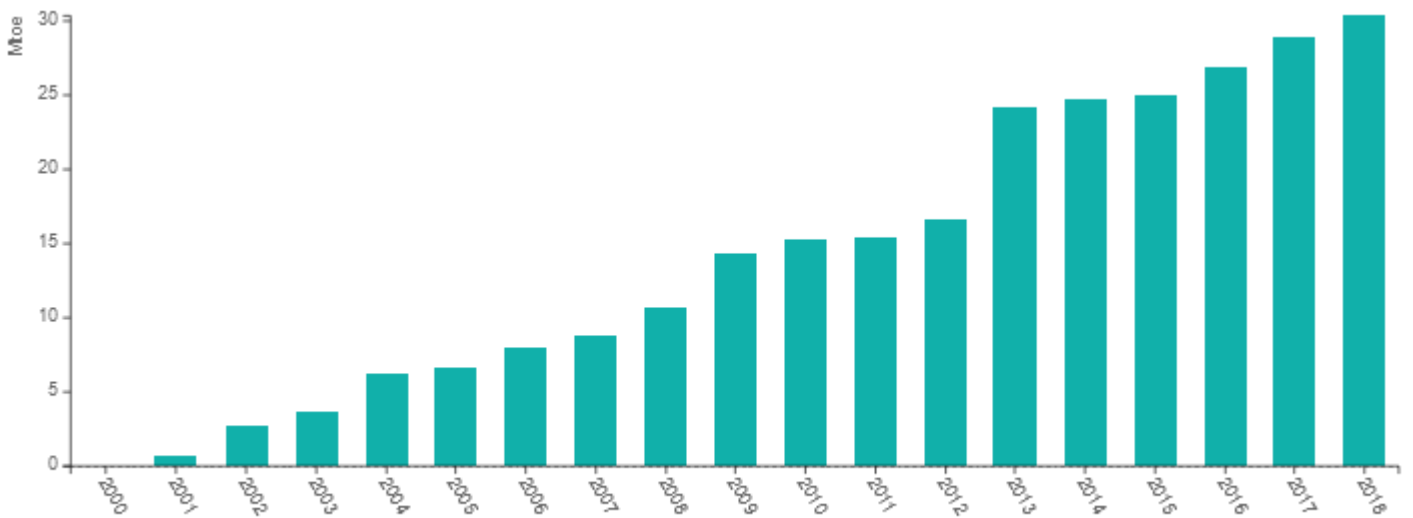
Energy efficiency gains for transport by country (2000-2018)



Energy savings in transport (EU)

- In 2018, energy savings in transport reached around 30 Mtoe at EU level: without energy efficiency improvement, the energy consumption would have been higher by 30 Mtoe.
- Slowdown in energy savings between 2009 and 2012, mainly due to no more progress for goods transport because of the economic recession.

Energy savings in transport (EU)

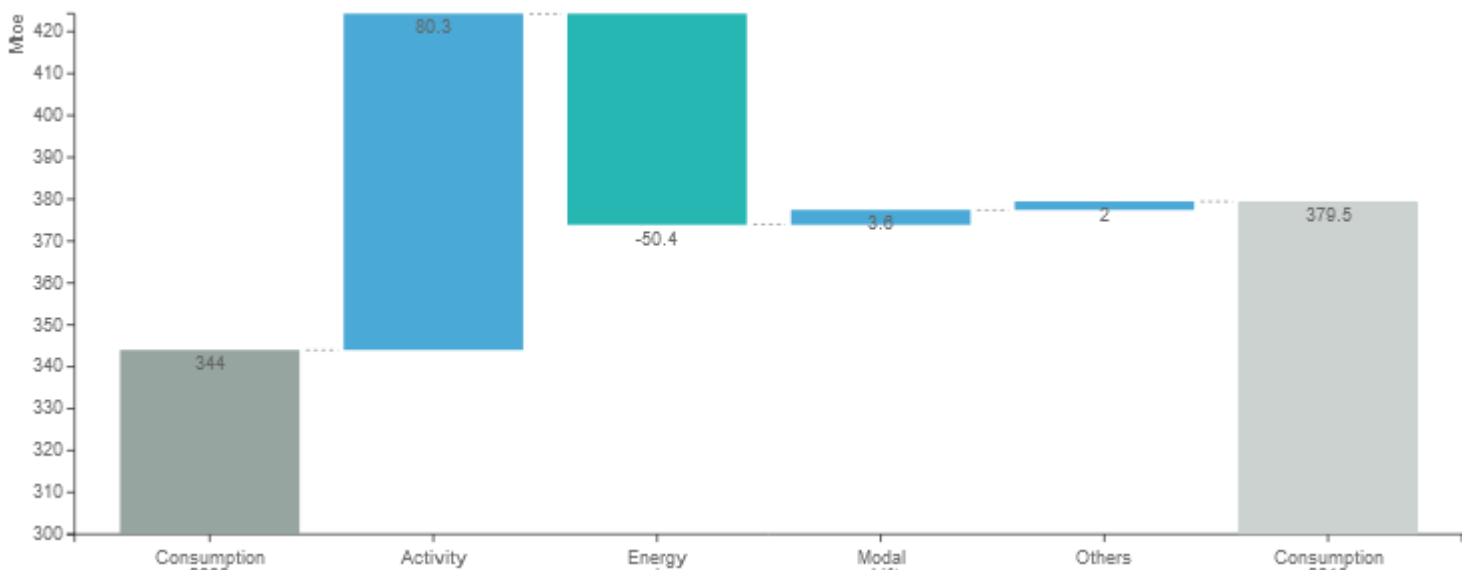


Decomposition of energy consumption

Drivers of transport consumption

- Increasing consumption of transport since 2000 by 35 Mtoe at EU level. Change in traffic of passenger and goods ("activity effect") contributed to increase the energy consumption (by 80 Mtoe).
- This effect was counterbalanced by energy savings (i.e. change in the efficiency of cars, trucks, airplanes, etc.) which contributed to decrease the energy consumption by around 50 Mtoe.
- Few impact of modal shift, i.e. change in the share of each transport mode in the total traffic (decrease of 4 Mtoe).
- Other effects (behavioural effects and "negative savings" in freight transport due to low-capacity utilization) has also a very limited impact and slightly increase the energy consumption (by 2 Mtoe).

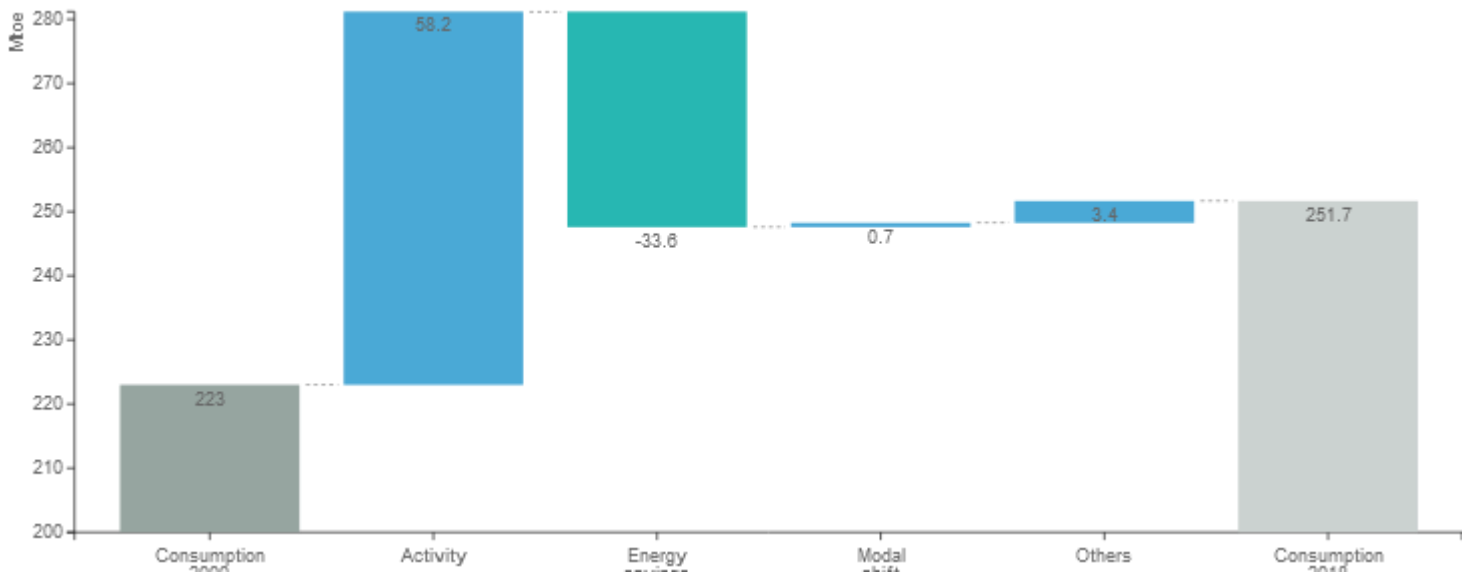
Drivers of energy consumption variation in transport at EU level



Drivers of passenger energy consumption

The energy consumption for passenger increased by 29 Mtoe between 2000 and 2018. This is mainly due to the fact that energy savings (34 Mtoe) (change in specific consumption per unit of traffic) have only partially offset the effect of traffic growth (58 Mtoe). There was a negligible impact of modal shift, as the share of public transport in passenger traffic did not change much.

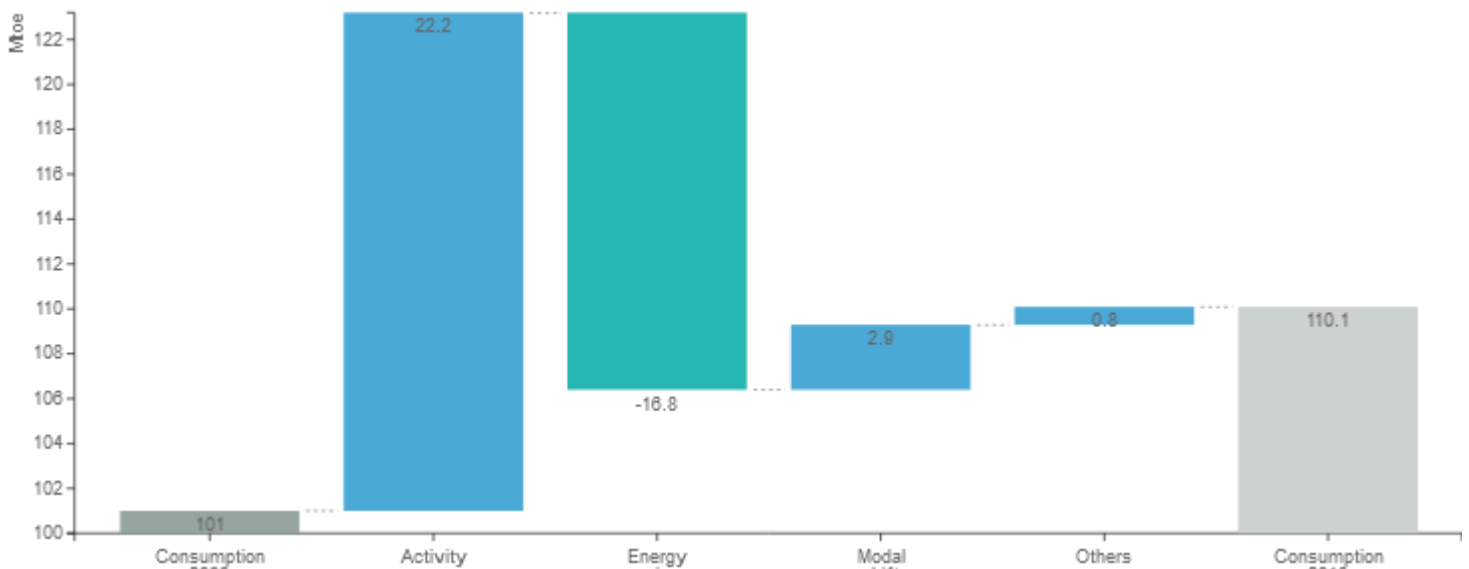
Decomposition of energy consumption for passengers (EU)



Drivers of goods energy consumption variation

The energy consumption of freight transport increased by 9 Mtoe between 2000 and 2018. This is the result of two opposite trends: the increase in traffic in ton-km and, to a lesser extent, modal shift to road transport have contributed to raise consumption (by 22 and 3 Mtoe, respectively), while energy savings have decreased consumption by 17 Mtoe.

Decomposition of energy consumption for freight (EU)

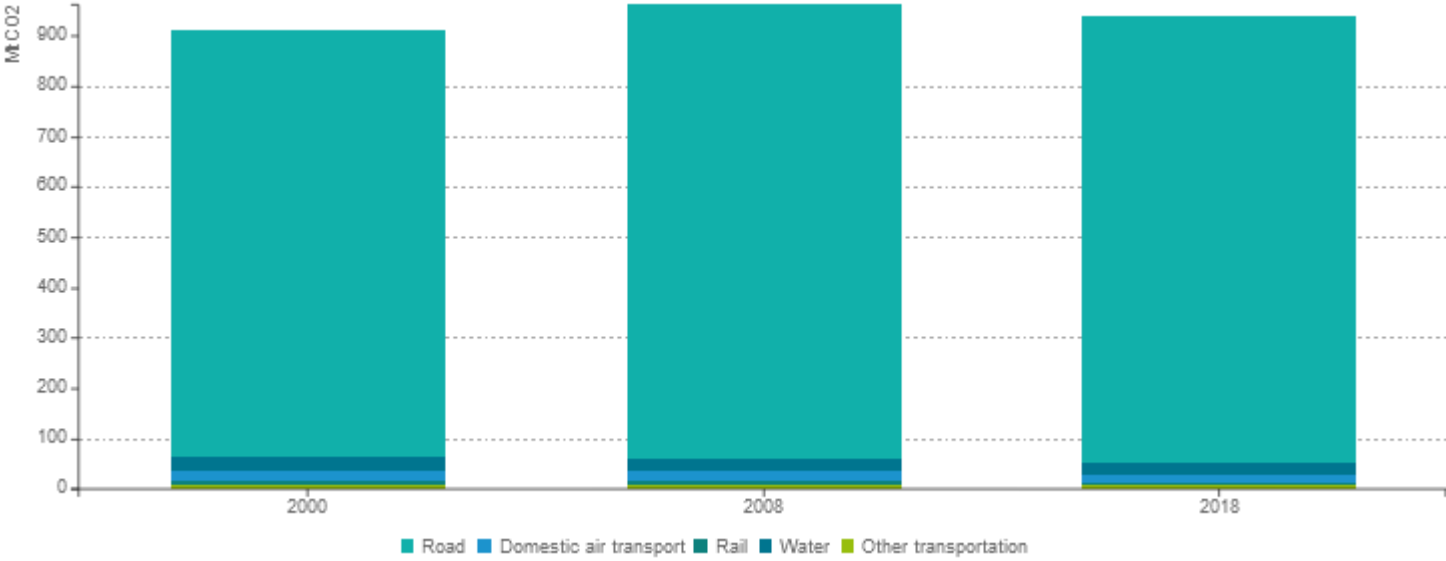


CO₂ emissions

Emissions from transport

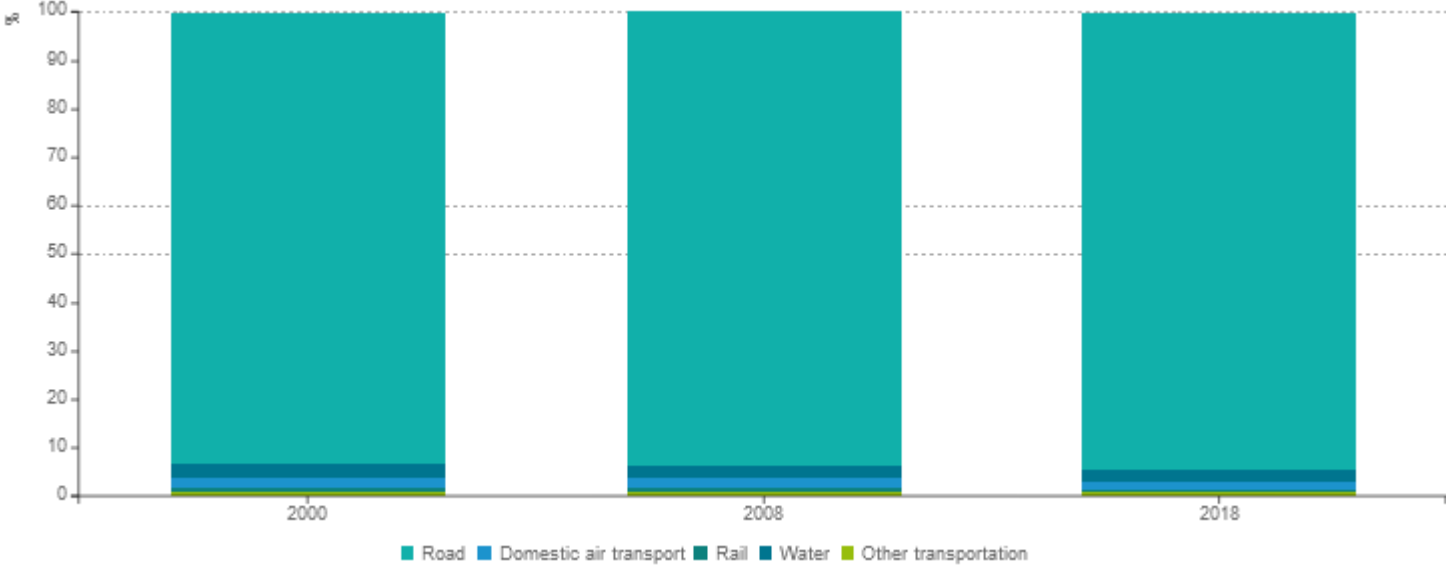
Road transport represents around 95% of CO₂ emissions from transport. Emissions have started decrease since 2008.

CO₂ emissions from transport (EU)



Source: EEA

CO₂ emissions from transport (% EU)



Source: EEA