

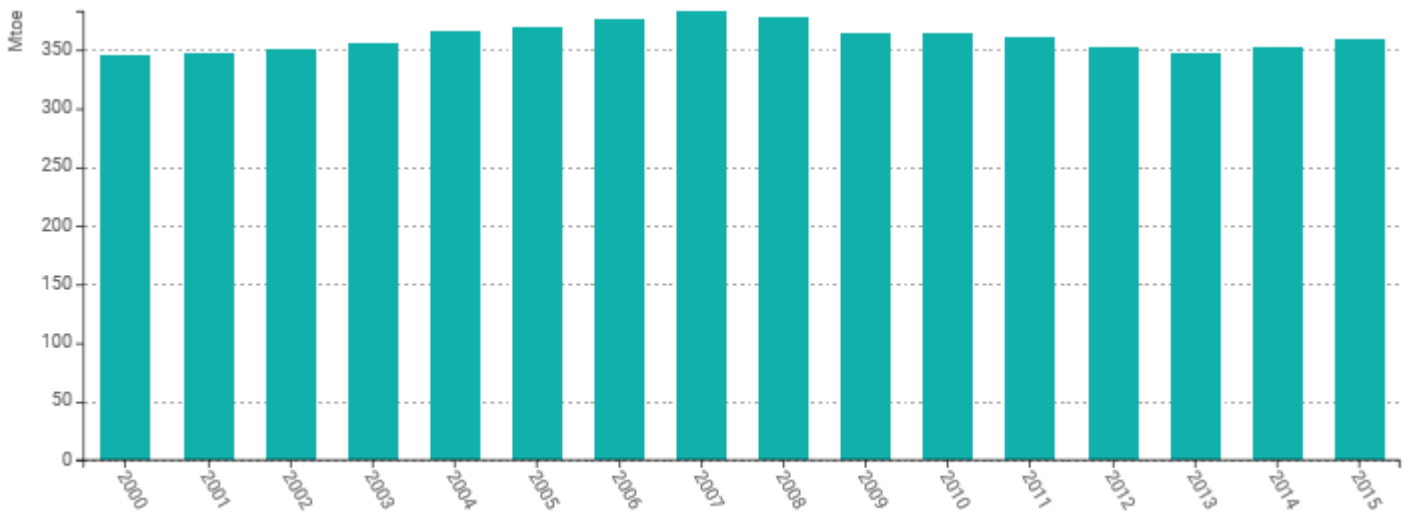
Sectoral Profile - Transport

Energy consumption

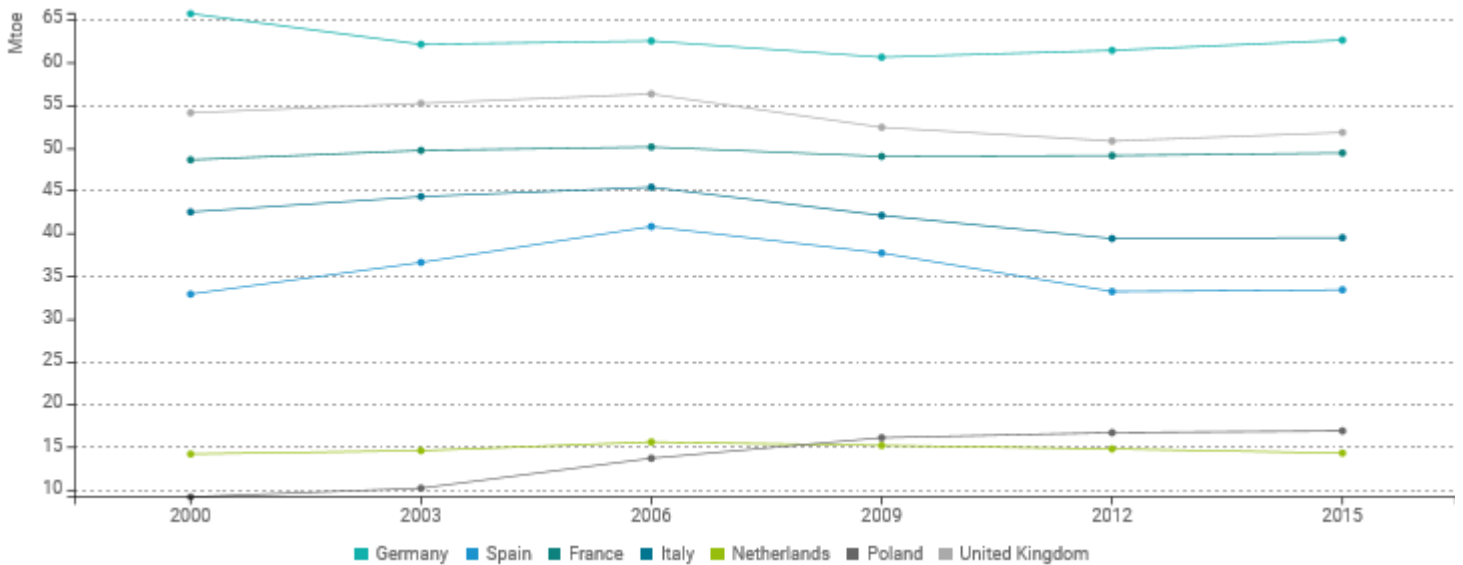
Overview

- The energy consumption of transport has been decreasing since 2007 at EU level (-0.8%/year), which contrasts with the previous period (+1.5%/y from 2000 to 2007). This was mainly due to a stable or decreasing consumption in the largest EU countries: quite stability in France and Germany; significant reduction in Spain (-2.8%/year), Italy (-1.8%/year) and UK (-1.1%/year).
- In 2015, the energy consumption of transport of the EU was only 4% above its 2000 level.

Energy consumption trends in transport (EU)



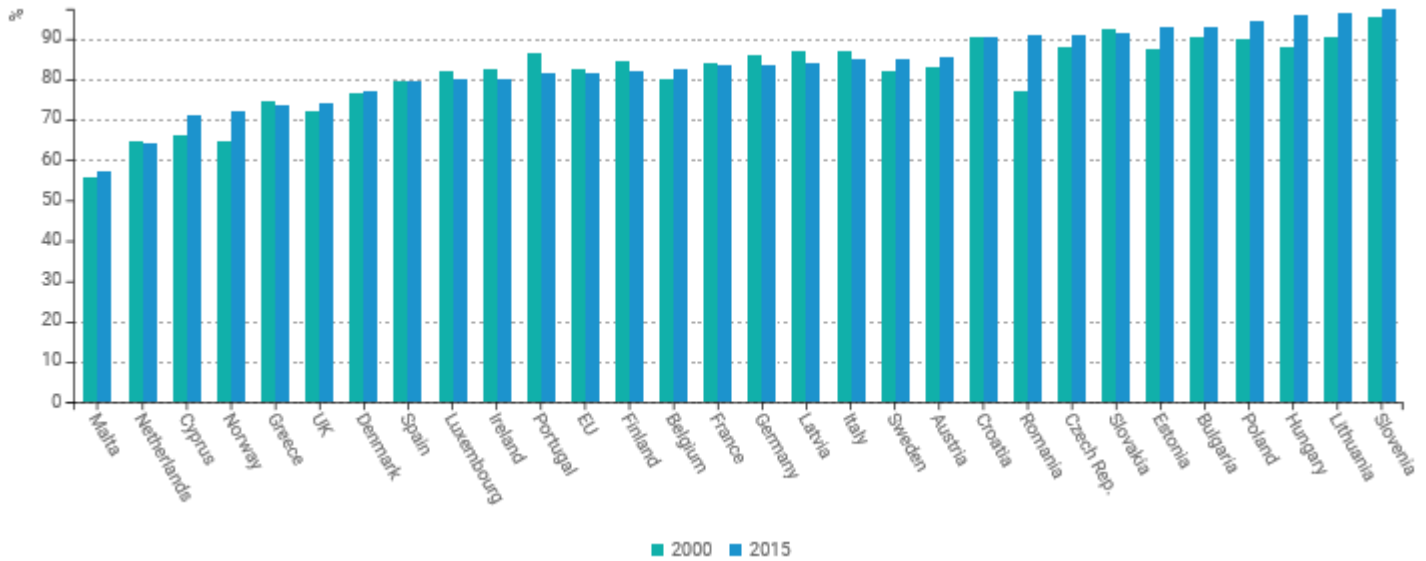
Energy consumption of transport in selected countries



Share of road in transport energy consumption

- Road transport absorbs more than 80% of the total energy consumption of transport in the EU (range 60-97%).
- Stable share of road in total transport at EU level, with however an increasing share in half of the countries.

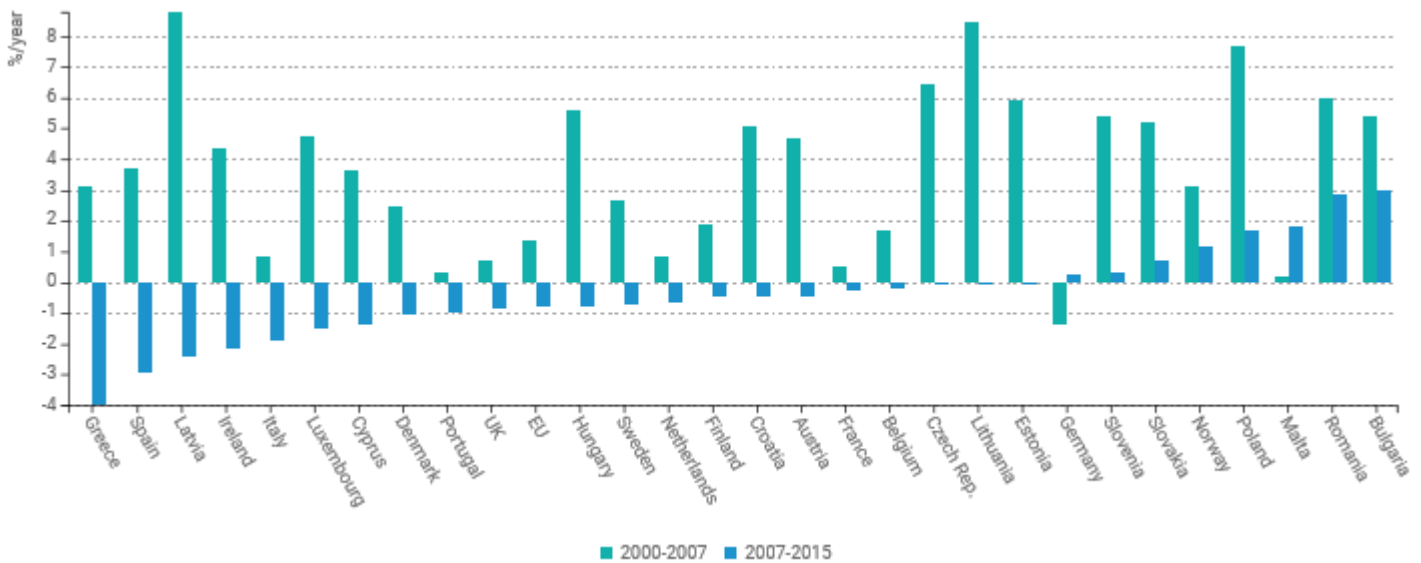
Share of road in transport energy consumption



Trends in road transport

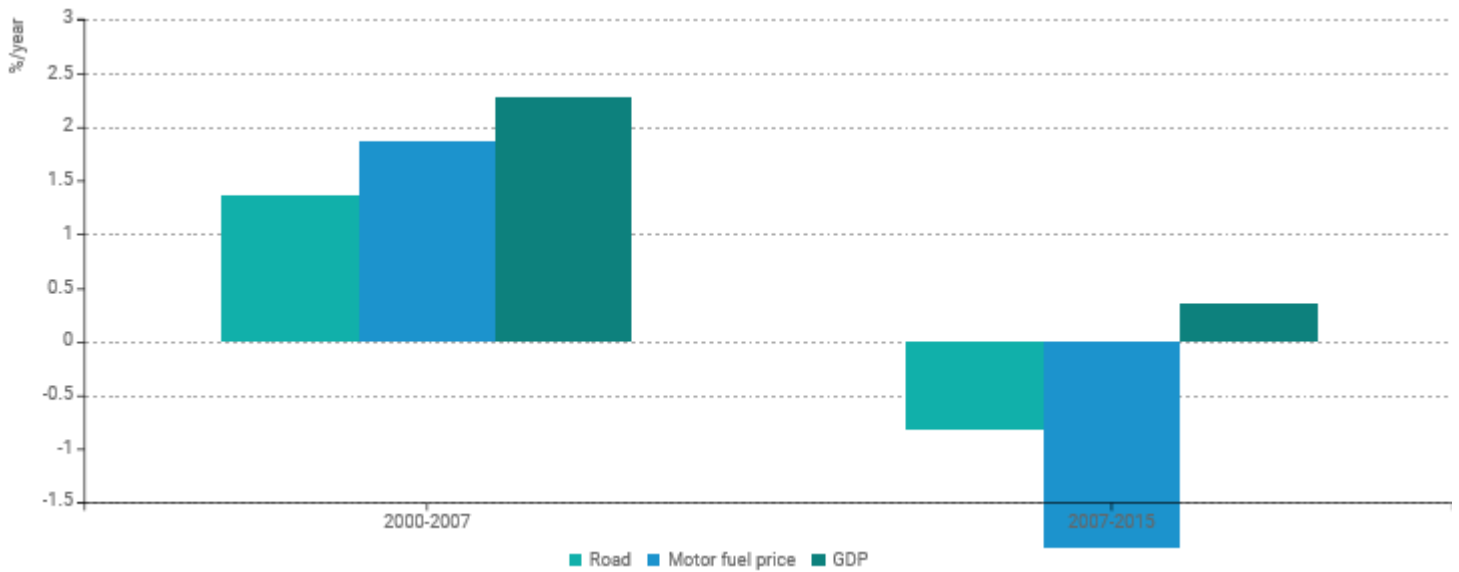
- The consumption of road transport has been decreasing in almost all countries since 2007, except in 8 countries (Estonia, Germany, Slovenia, Slovakia, Norway, Poland, Romania and Bulgaria).

Energy consumption trends in road transport



- Decreasing consumption of road transport since 2007 (-0,8%/year), after a rapid progression between 2000 and 2007 (1.4%/year), despite increasing motor fuel prices.
- The trend since 2007 is mainly explained by the low economic growth (+0.4%/year for GDP) as motor fuel prices have been decreasing (-1.9%/year).

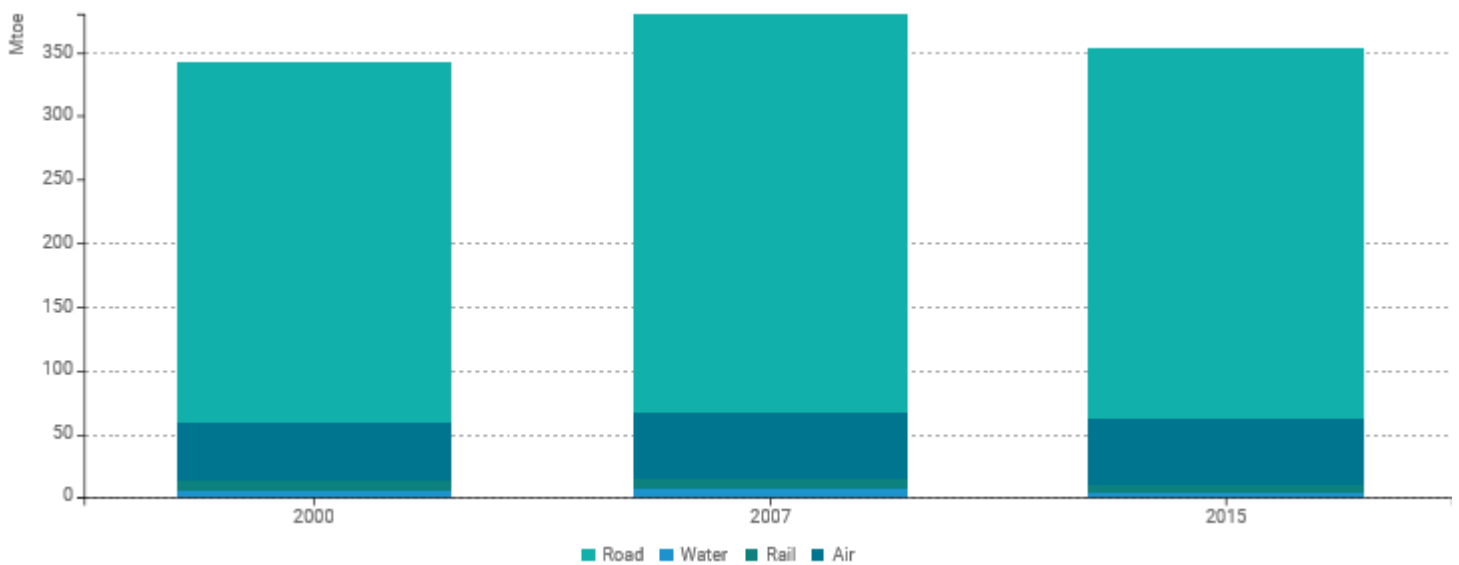
Energy consumption of road transport, fuel prices and GDP (EU)



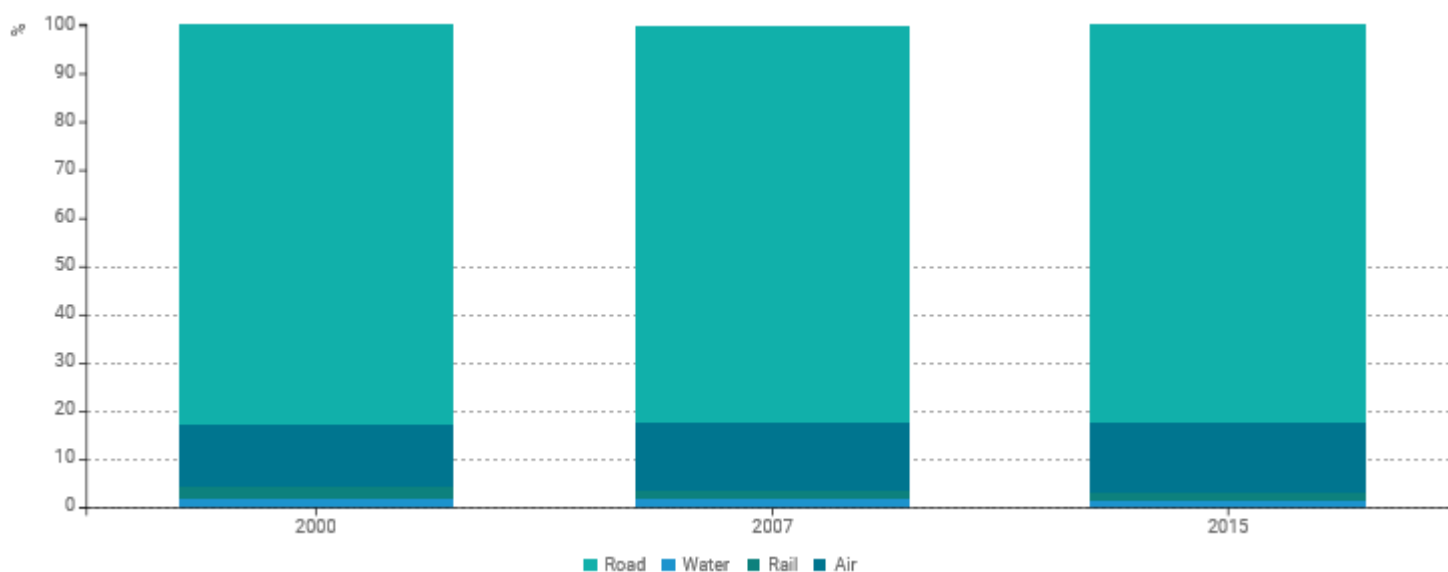
Consumption by mode

- Stable distribution of the energy consumption by mode since 2000 at EU level.
- Road and air consumption have decreased similarly since 2007 (-0.8%/year and -0.5%/year respectively) due to 2 main factors: low economic growth and more efficient vehicles and planes.

Energy consumption by mode (EU)



Share of energy consumption by mode (EU)

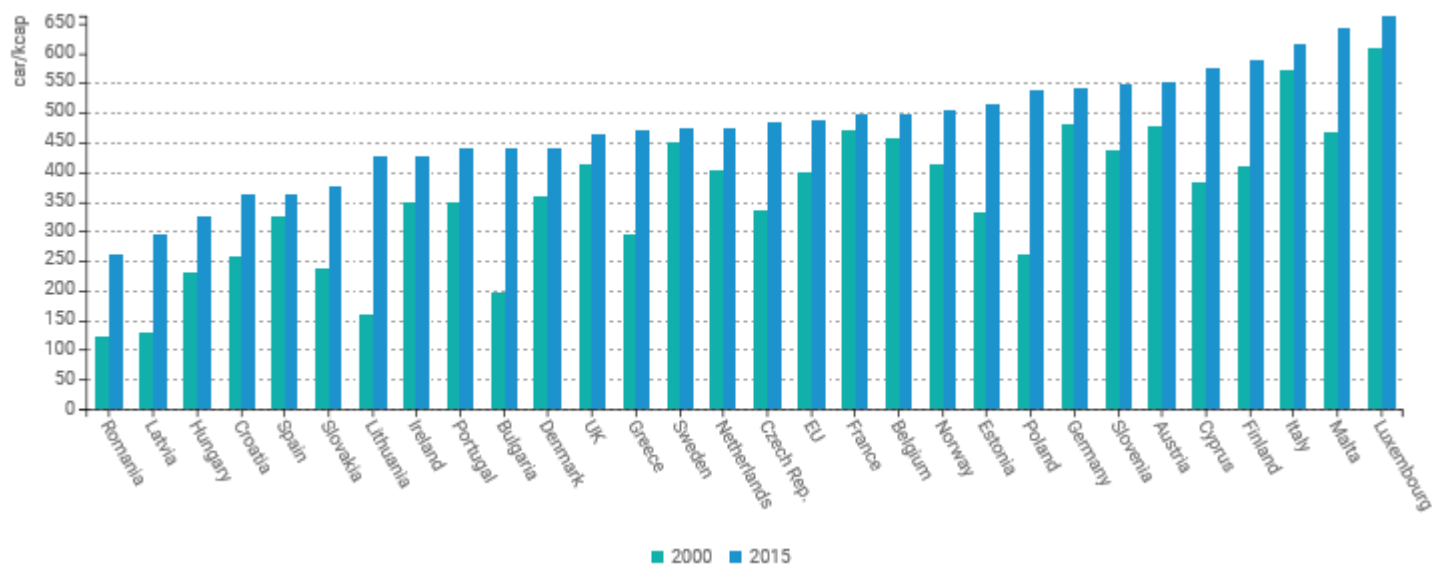


Cars

Number of cars per capita

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

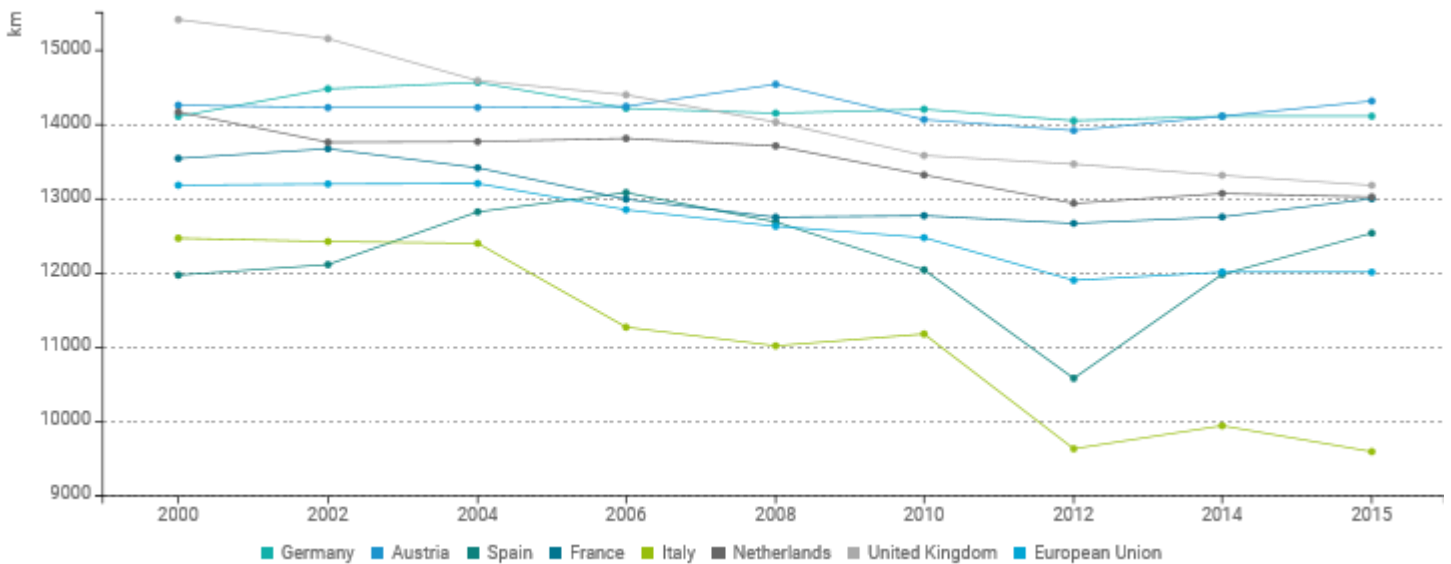
Number of cars per capita



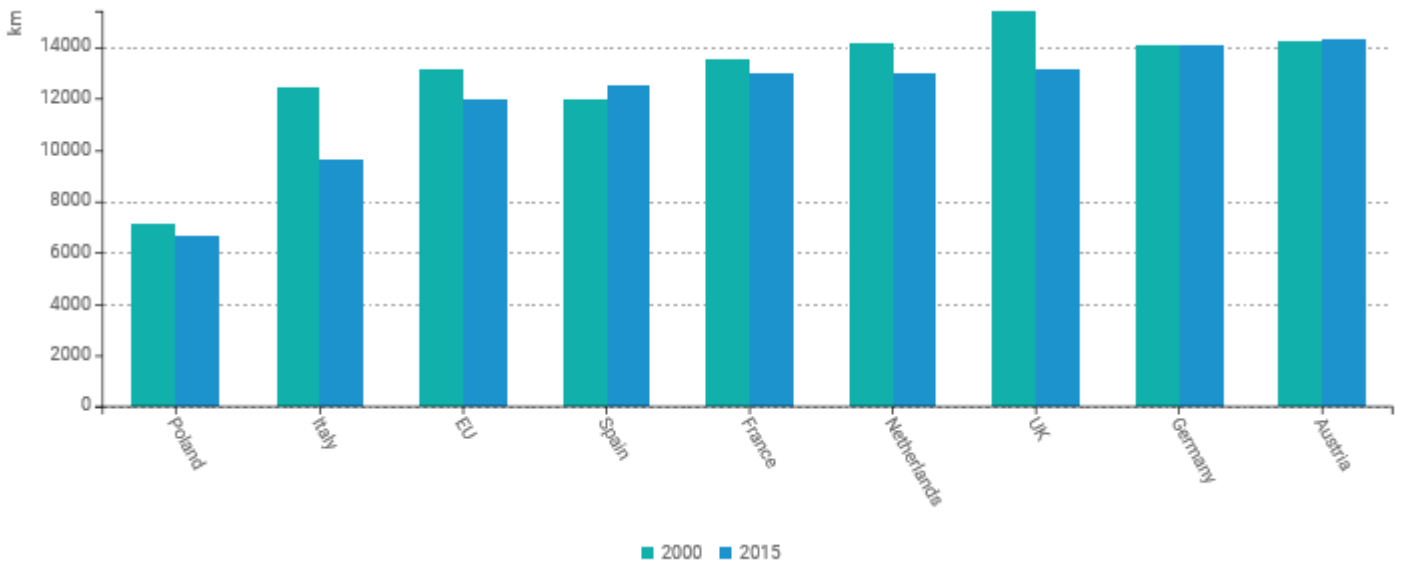
Change in distance travelled by car

- Decrease in distance travelled by car between 2000 and 2015 in almost all countries (around – 1170 km/year at EU level), and increase in recent years.
- Large discrepancy of the average annual distance travelled by car between countries: slightly above 14,000 km/year for Austria and Germany; around 10,000 km/year in Italy, and on average 12,000 km/year for the EU as a whole.
- In less developed countries, with a larger use of public transport, this distance is around 8000 km (Latvia, Poland, Czech Republic, Romania, Slovakia, Slovenia).

Change in distance travelled by car



Change in distance travelled by car for selected countries

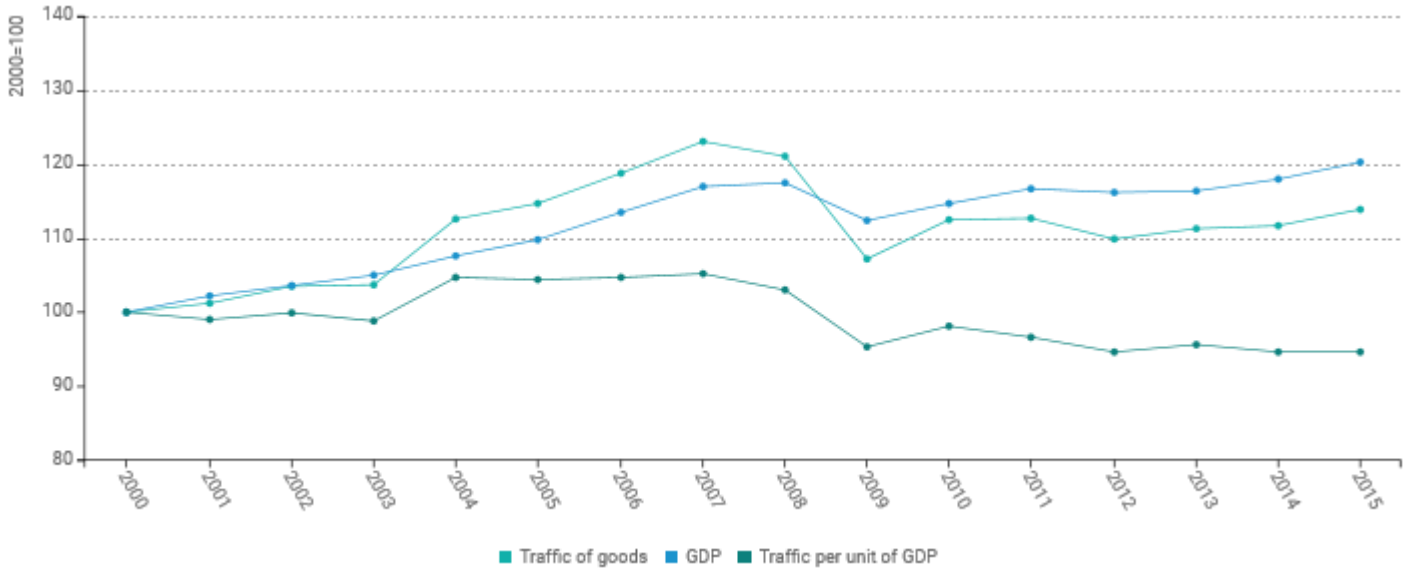


Transport of goods

Trends in freight traffic

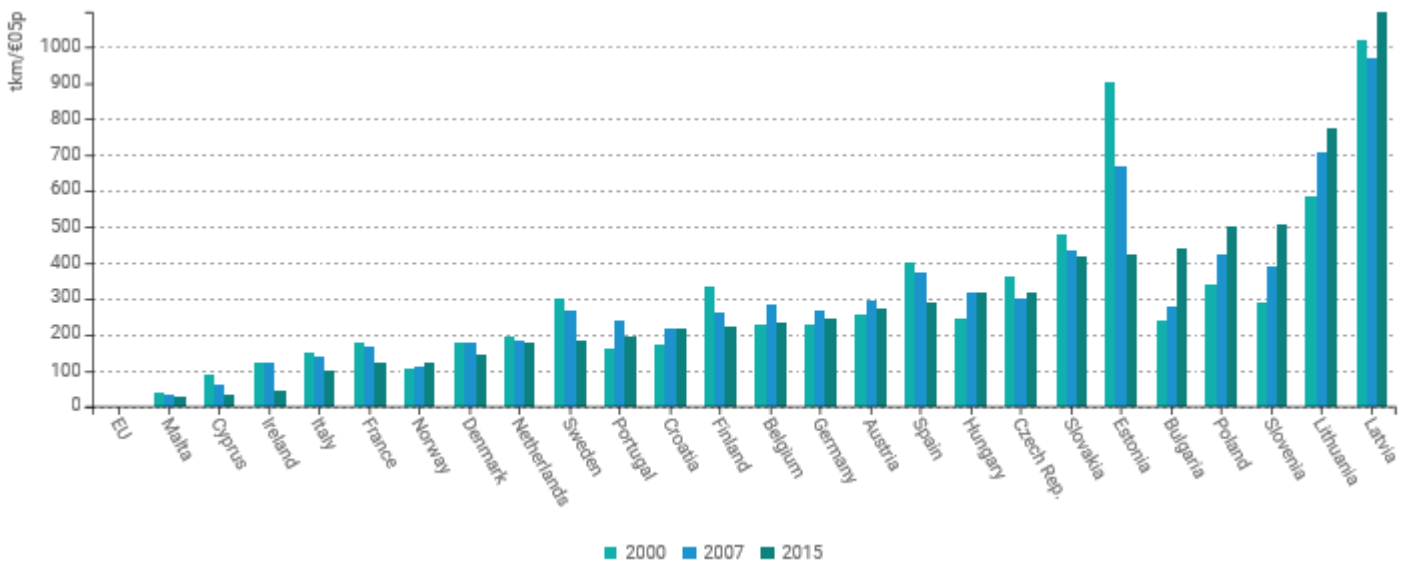
- Increasing traffic of goods until 2007, with a good correlation with GDP.
- After a sharp decrease between 2007 and 2010, the traffic of goods has remained rather stable since 2010 despite recovery of the economic growth.

Trends in freight traffic and GDP (EU)



- In 12 countries, the traffic intensity (traffic per unit of GDP) has been increasing before the crisis and has been decreasing after, with a very sharp reduction after 2007 in Ireland and Portugal;
- In 12 countries, there is a reduction of the traffic intensity since 2000, with for some of them a much larger reduction since 2007 (e.g. Italy, Spain and Sweden);
- In 2 countries, there is a steady increase since 2000 of the traffic intensity (Lithuania and Latvia) and in 2 others a stabilization (Norway and The Netherlands).

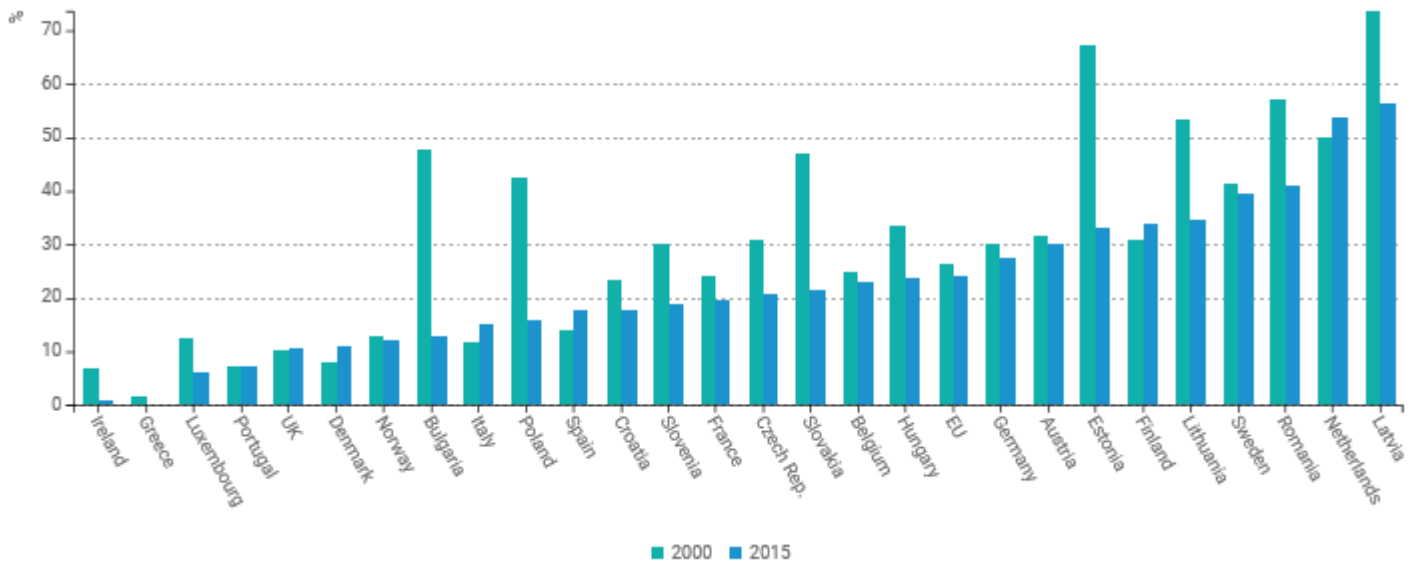
Freight traffic per unit of GDP



Share of rail and water in total goods of traffic

- The share of rail and water in the traffic of goods is decreasing in 2/3 of countries, despite the policies implemented to promote rail or water transport.
- At EU level on average, 25% of goods traffic is carried by rail and water transport.
- Latvia, The Netherlands, Romania and Sweden have the highest share (>40%) while the highest progression is observed in The Netherlands thanks to water transport and Finland thanks to rail.

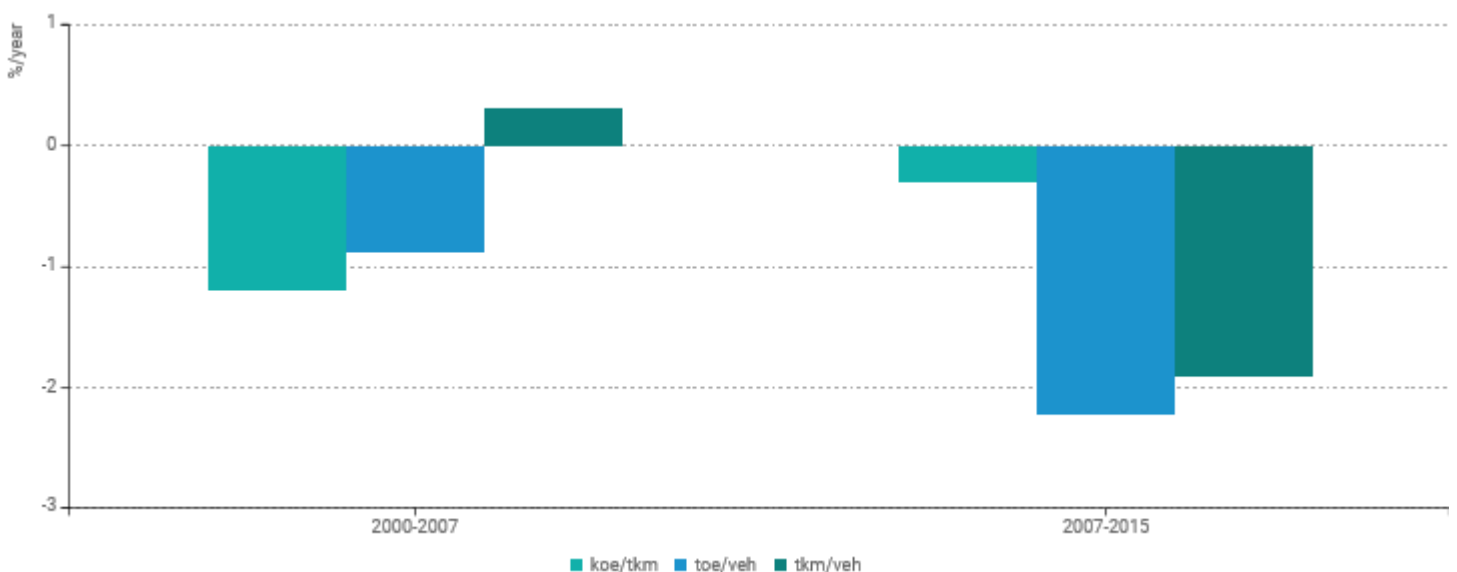
Share of rail and water in total goods traffic



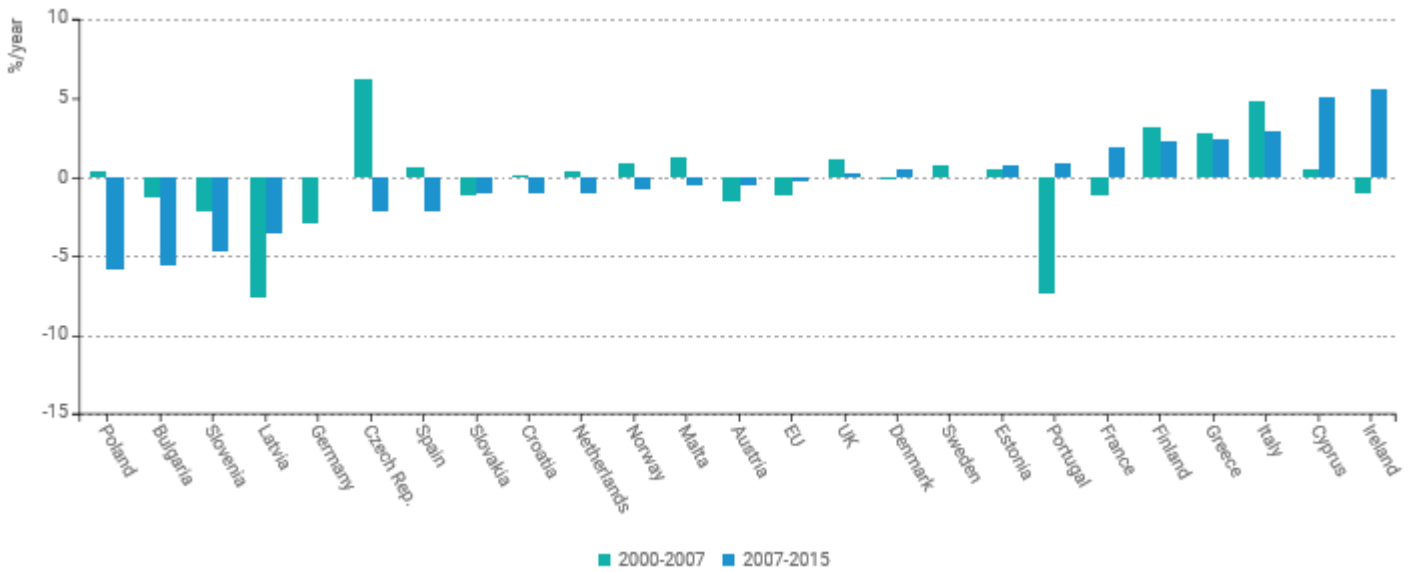
Unit consumption of road transport of goods

- Lower energy efficiency progress of road freight transport since 2007, as measured by the unit consumption per ton-km (-0.3%/year at EU level) even if the vehicles are consuming less (-2.2%/year for the unit consumption per vehicle).
- Deterioration of energy efficiency in 8 countries.
- This slow down or deterioration is due to the drop in traffic of goods since 2007 and the slow growth since then, resulting in a sharp decrease in load factors, measured in tkm/vehicle (-1.9%/year at EU level).

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



Unit consumption of road transport of goods

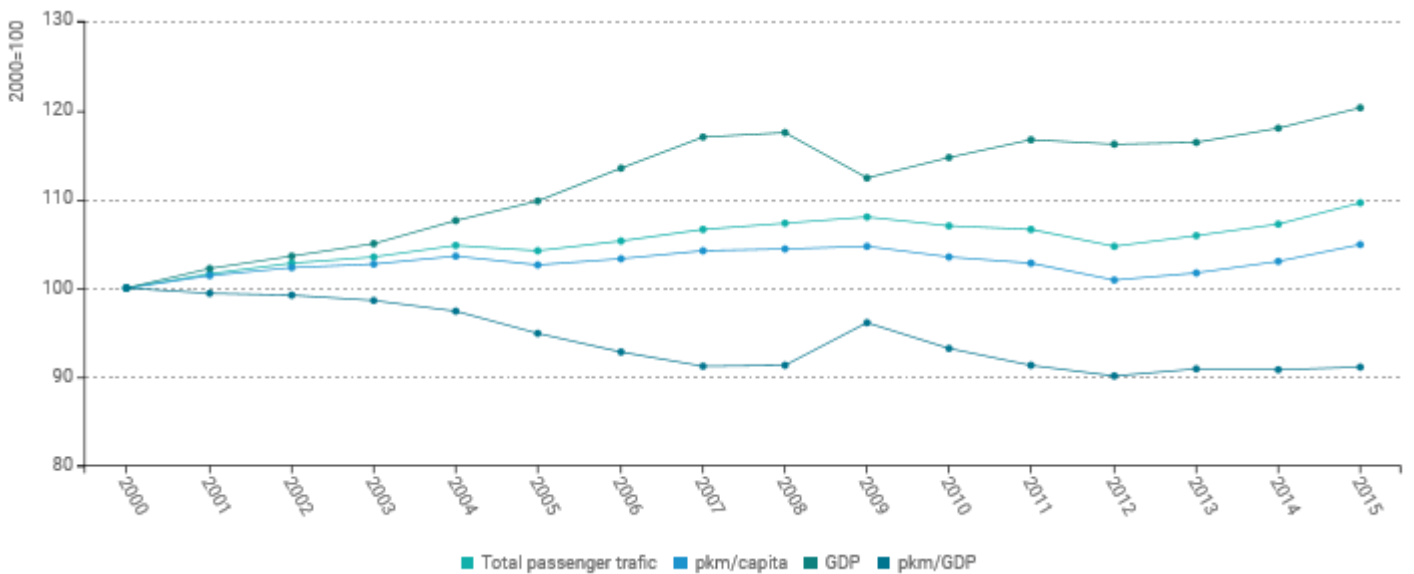


Passenger transport

Passenger traffic and GDP at EU level

Passenger traffic has been growing slower than GDP since 2003 at EU level.

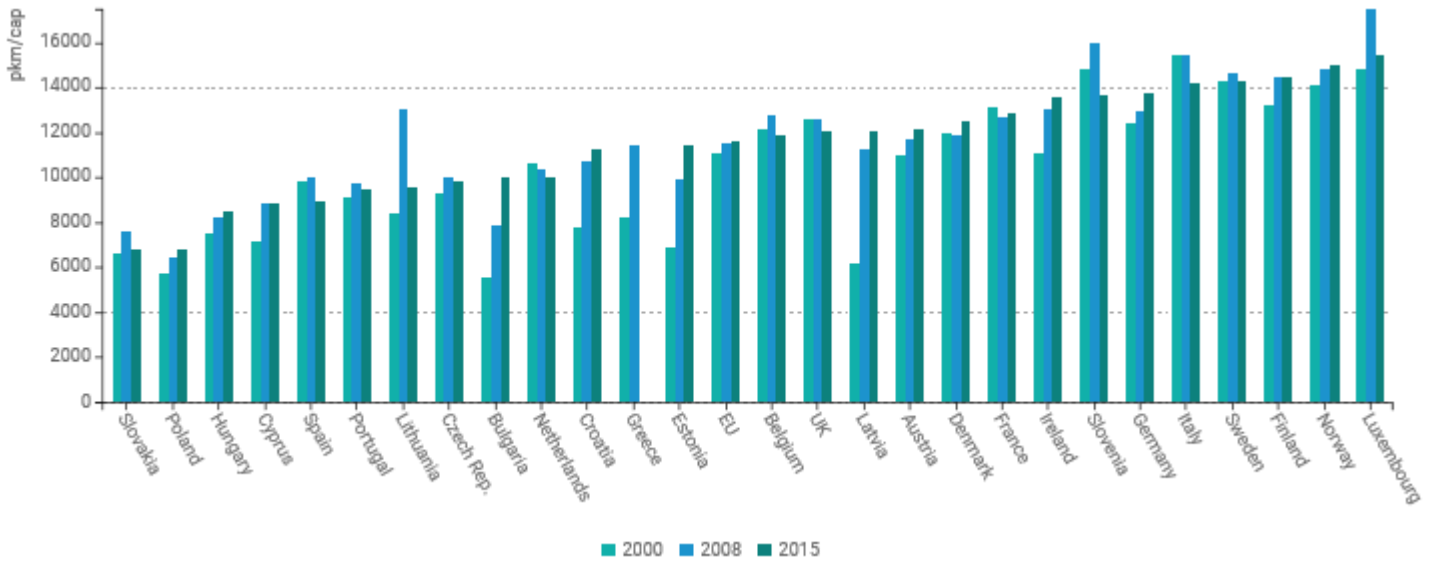
Passenger traffic and GDP at EU level



Passenger mobility per capita

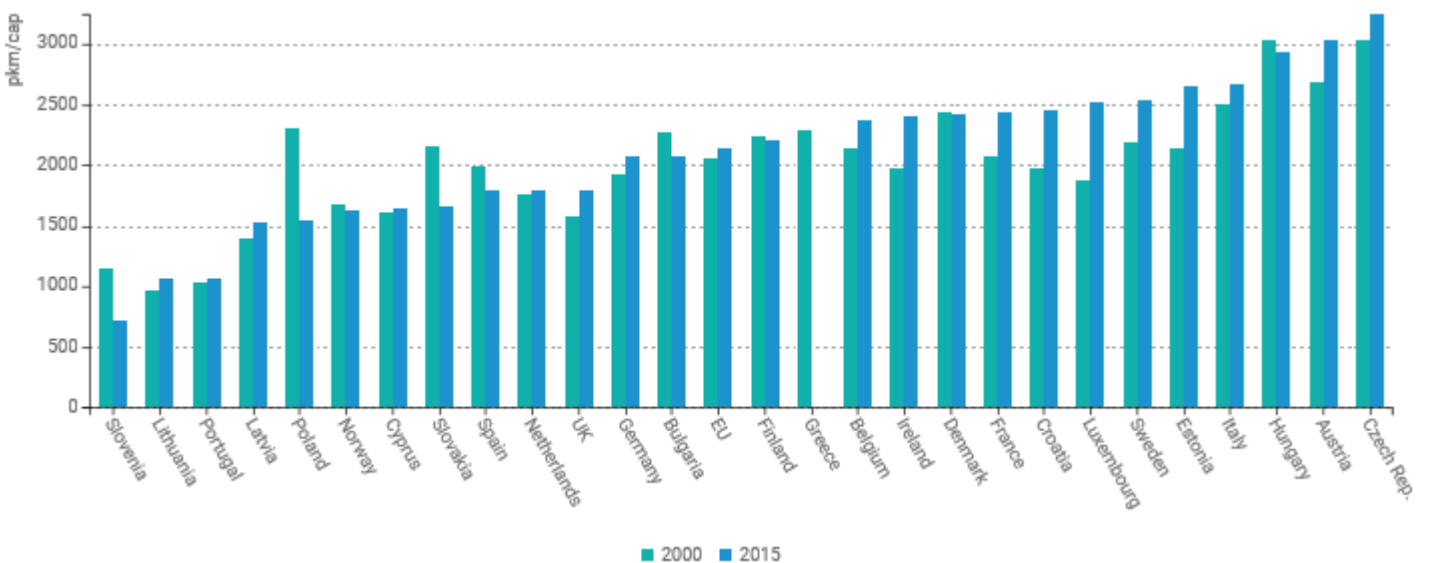
The average mobility per capita (passenger-km/year) is stable or decreasing in most countries (~80%) since 2008, with the economic crisis.

Passenger mobility per capita



- The Czech Republic, Austria and Hungary have the highest use of public transport modes (around 3000 km/year), compared to an EU average of around 2000 km.
- Luxembourg, Estonia and Croatia recorded the highest increase over the period 2000 – 2015.

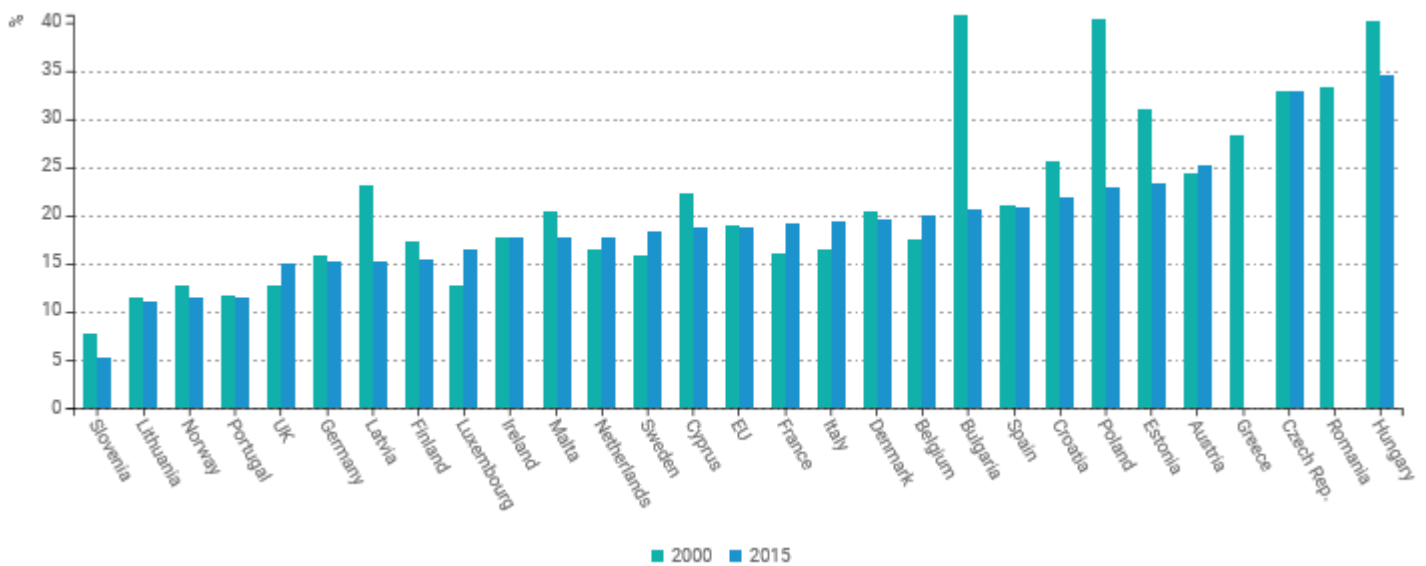
Mobility of public transport per capita



Public transport

- The share of public transport in passenger traffic has been decreasing in 60% of countries, but remained stable at EU level (18%);
- The highest progression is observed in Italy (+ 4 points), Belgium (+6 points), France, UK and Luxembourg;
- Nine countries have a share of public transport over 20%;
- The share of public transport has been decreasing rapidly in Central and Eastern European countries, where public transport used to be dominant (especially in Estonia, Poland, Latvia, Slovakia and Bulgaria).

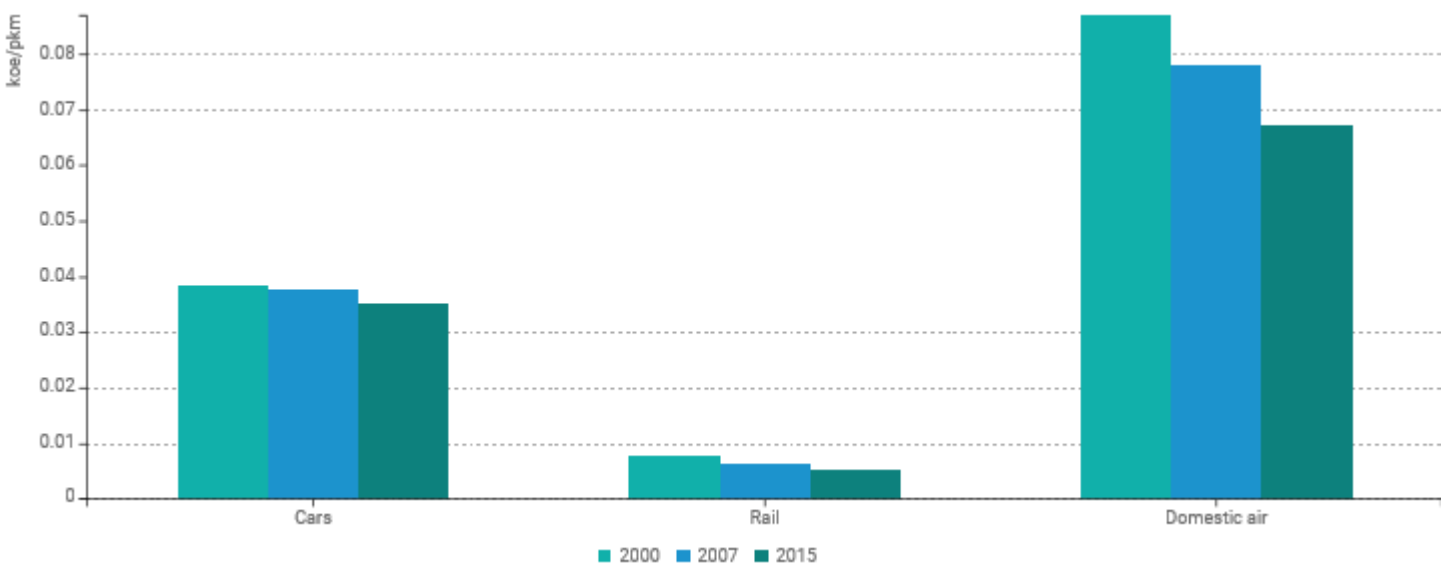
Share of public transport in total passenger traffic



Specific consumption

- Cars require almost 3 times more energy per passenger-km than public transport (rail and buses), and 6 times more than rail transport.
- Specific consumption of domestic air transport is around twice the value of cars but almost the same if international flights are included.

Specific energy consumption by transport mode

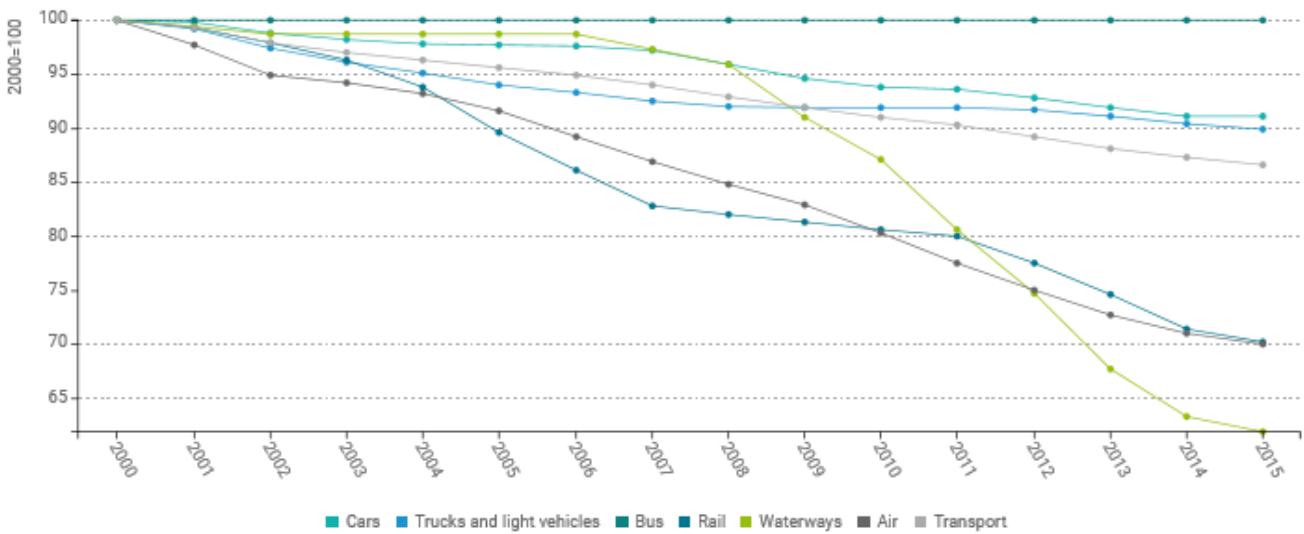


Energy efficiency and savings

Energy efficiency index for transport

- Energy efficiency improvement of 1%/year between 2000 and 2015, as measured by the ODEX that combines the energy efficiency trends of the different modes of transport (cars, trucks and light vehicles, bus, motorcycles, air, waterways, rail).
- Greater energy efficiency progress was achieved for both cars and airplanes than in the rest of the sector.
- Slow down for trucks and light vehicles since 2005, with no more efficiency progress since 2007 because of the economic crisis.

Energy efficiency index by mode (EU)

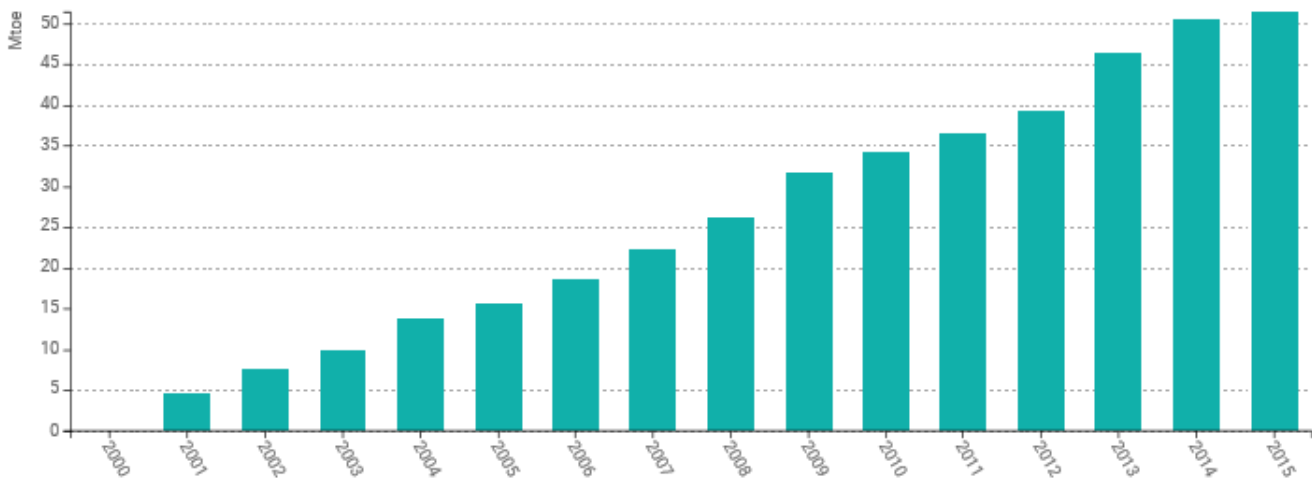


Discrepancies in energy efficiency gains in EU countries: from around 3-3.5%/year in Greece and Romania to less than 1%/year in Finland, Estonia and Czech Republic.

Energy savings in transport (EU)

- In 2015, energy savings in transport reached around 50 Mtoe at EU level: without energy efficiency improvement, the energy consumption would have been higher by 50 Mtoe.
- Slowdown in energy savings after 2007, mainly due to no more progress for goods transport because of the economic recession.

Energy savings in transport (EU)

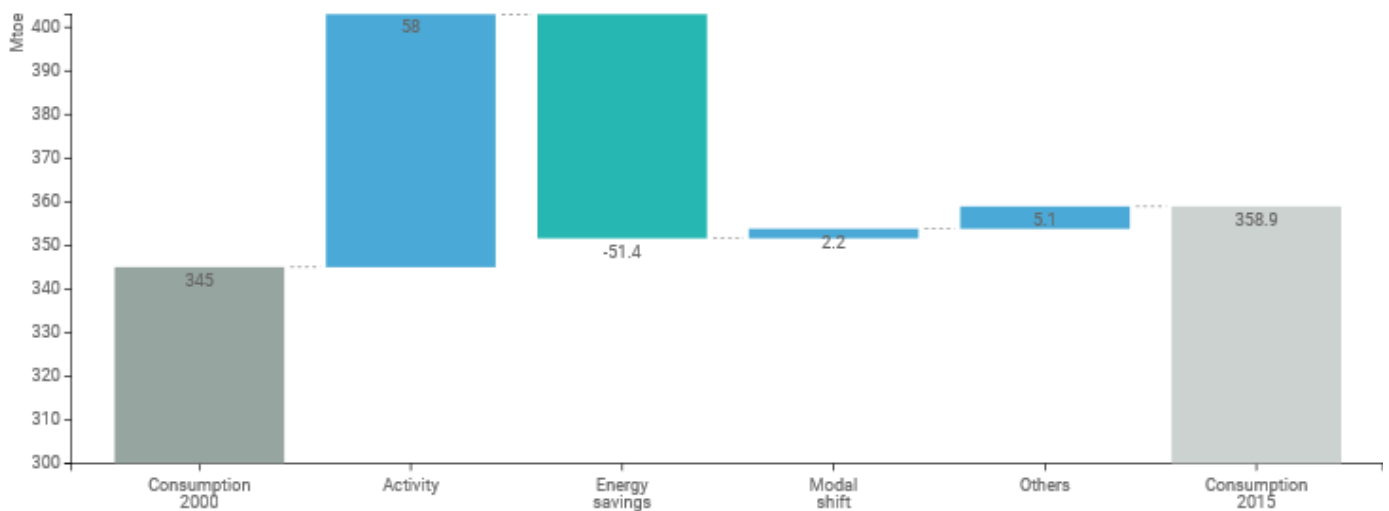


Decomposition of energy consumption

Drivers of transport consumption

- Increasing consumption of transport since 2000 by 14 Mtoe at EU level
- Change in traffic of passenger (including air) and goods ("activity effect") contributed to increase the energy consumption (by 58 Mtoe);
- This effect was counterbalanced by energy savings (i.e. change in the efficiency of cars, trucks, airplanes etc) which tend to decrease the energy consumption.
- Few impact of modal shift, i.e. change in the share of each transport mode in the total traffic.
- Other effects (behavioral effects and "negative savings" in freight transport due to low capacity utilization) tend to slightly increase the energy consumption.

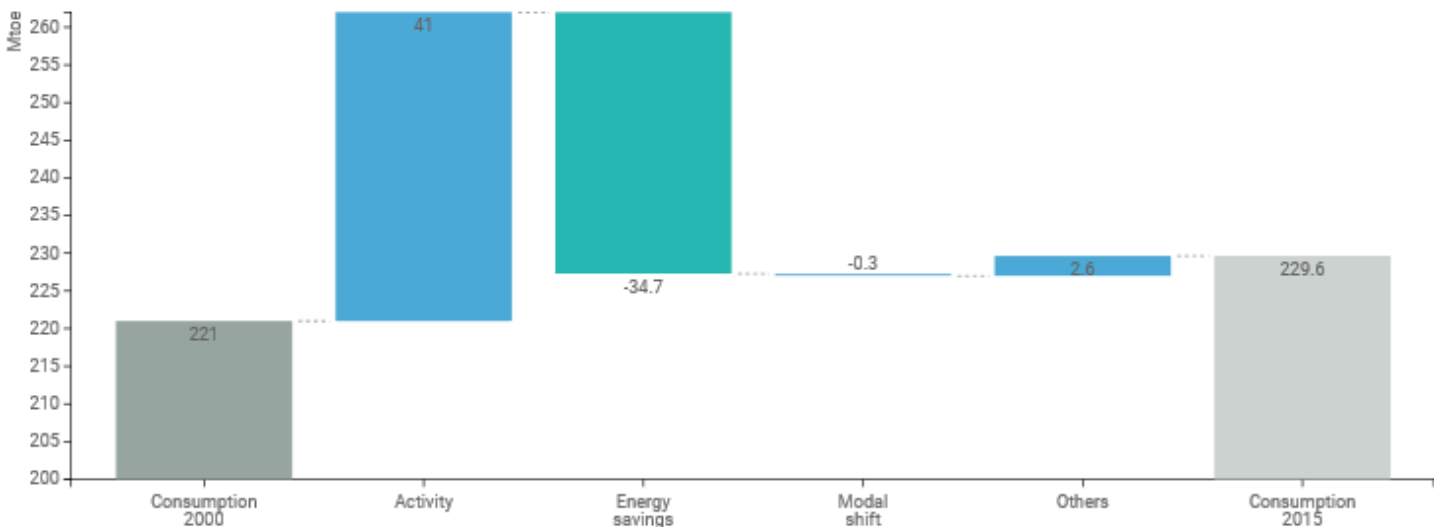
Drivers of energy consumption variation in transport at EU level



Drivers of passenger energy consumption

The energy consumption for passenger increased slightly between 2000 and 2015. This is mainly due to the fact that energy savings (35 Mtoe) (change in specific consumption per unit of traffic) have almost offset the effect of traffic growth (41 Mtoe). There was a negligible impact of modal shift, as the share of public transport in passenger traffic did not change much.

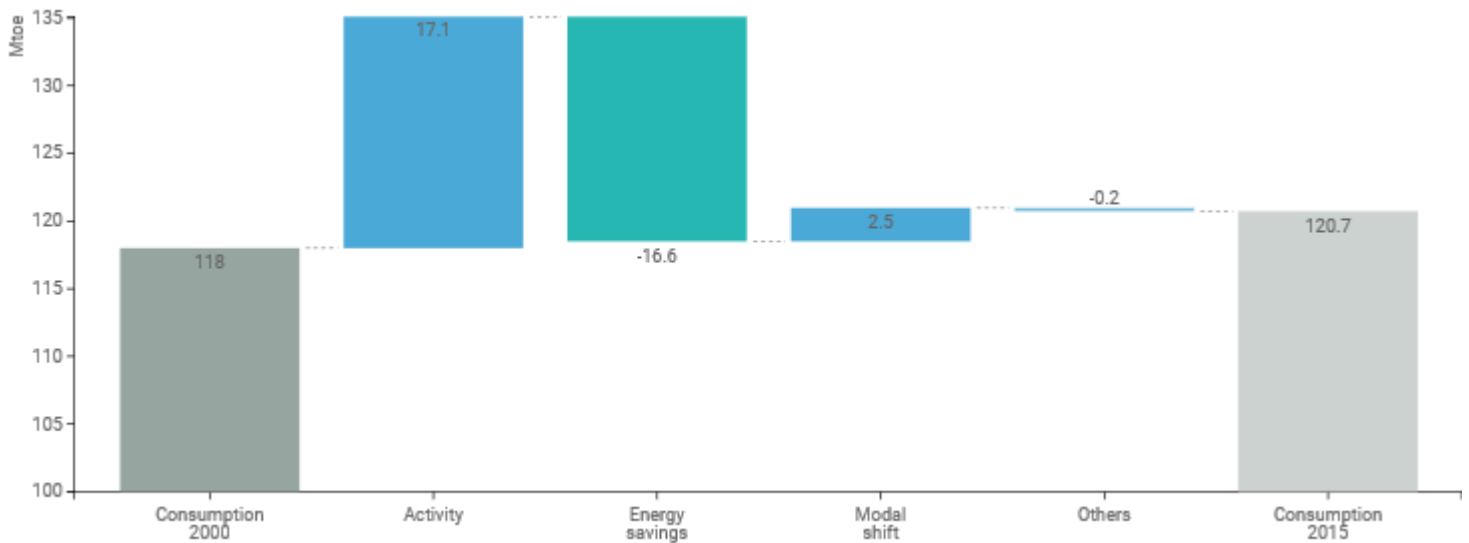
Decomposition of energy consumption for passengers (EU)



Drivers of goods energy consumption variation (EU)

The energy consumption of freight transport slightly increased between 2000 and 2015. This is the result of two opposite trends: the of increase in traffic in ton-km and, to a lesser extent, modal shift to road transport have contributed to raise consumption (by 17 and 2 Mtoe, respectively), while energy savings have decreased consumption by 17 Mtoe.

Decomposition of energy consumption for freight (EU)

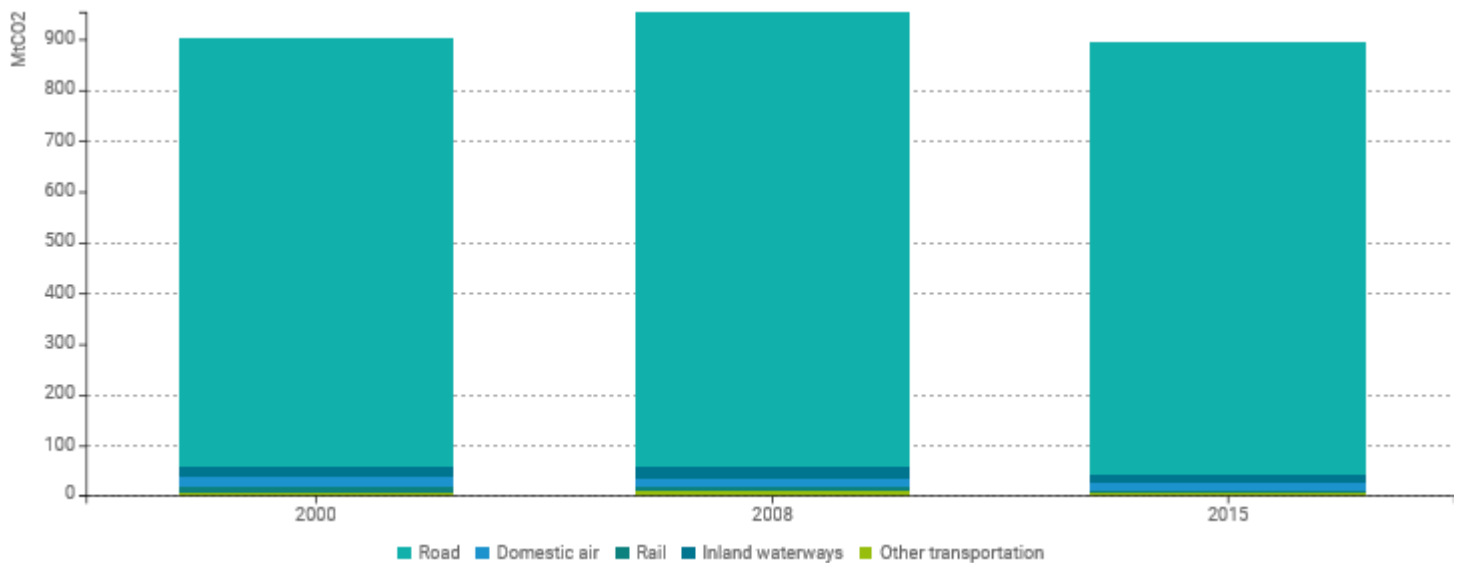


CO2 emissions

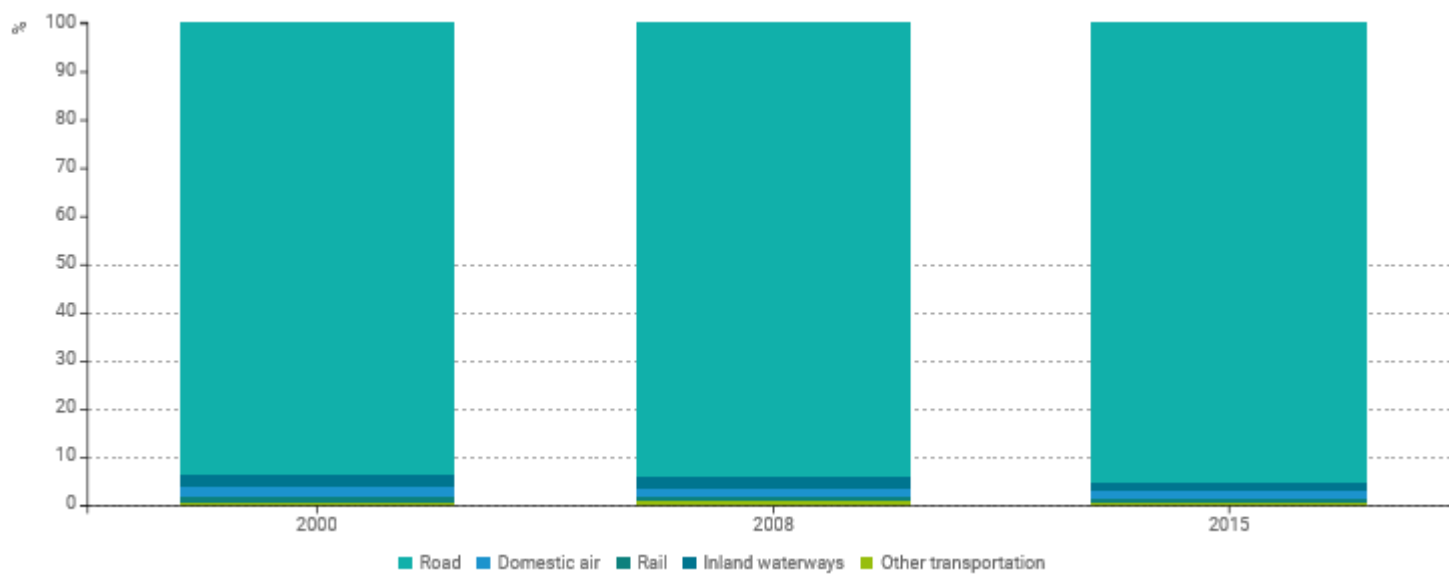
Emissions from transport

Road transport represents more than 95% of CO2 emissions from transport.

CO2 emissions from transport (EU)



CO2 emissions from transport in % (EU)



Source: EEA