

RACE — 2 PARIS

SHIFTING GEARS FOR CLIMATE ACTION:
TRANSFORMING EUROPE'S TRANSPORTATION



SET NETWORK

TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
INTRODUCTION	4
CASE STUDIES.....	6
THE EUROPEAN UNION	7
AUSTRIA	15
BELGIUM	22
CZECH REPUBLIC.....	31
GERMANY	38
ITALY	45
THE NETHERLANDS	53
SPAIN	62
SUMMARY AND RECOMMENDATIONS	72

THE SET NETWORK

The **socio-ecological think tank network (SET-NET)** was founded in response to escalating social inequality, the deepening climate crisis, and the surge of populist and far-right parties across Europe. As a group of seven founding members from across Europe, we want to contribute to a just and ecologically sustainable transition of our economies and societies. By collaborating across borders and political scales within the EU, we aim to strengthen our collective impact on European and global policy issues.

Participating think tanks are independent civil society organisations committed to transparency and fundamental democratic values. Think tanks participating in the network are not affiliated to particular political parties, and have a record of addressing both social and ecological policy issues. The think tanks in our network have complementary strengths. We aim to expand the network significantly, first within and later beyond the European policy space to build on these strengths and to have greater political impact.



EXECUTIVE SUMMARY

While the clock is ticking in the race to reach the goals of the Paris Agreement, Europe's national transport sectors stand out due to their failure to achieve significant reductions in greenhouse gas emissions. Thanks to fossil interest groups and their allies, relevant policymakers, representatives of the corporate constituencies, and the corresponding lobbies and advocacy groups have successfully resisted taking necessary measures in many areas of the transport system. Obstructive activities are growing across Europe despite the escalating climate crisis. Unprecedented heat waves and severe repercussions of droughts, fires on the one hand, and floods on the other hand, are already affecting communities across Europe much like in the rest of the world.

With our Race2Paris report, we examine several relevant characteristics of the development of the transportation sector in the EU and in seven European countries: Austria, Belgium, the Czech Republic, Germany, Italy, the Netherlands, and Spain. Despite global commitments, our findings reveal a disconcerting reality – the transport sectors in these nations lag significantly behind the aspirations of the Paris Agreement, especially when it comes to the reduction of greenhouse gas emissions.

The chapter on transport related climate protection policies at the European level reveals how political forces aligned with the automotive, aviation, and fossil industries have impeded the task to mitigate climate collapse. Players of the oil and gas sectors as well as car manufacturers exert substantial political influence and, for example, obstruct the implementation of stricter greenhouse gas emission standards at the European level.

Our research reveals both differences and similarities in each country's transportation sector. Belgium and Austria, for example, grapple with a company car system hindering progress toward sustainable mobility. The Netherlands shines with its widespread bicycle culture, showcasing a commitment to eco-friendly urban mobility. However, the sale of environmentally damaging SUVs has increased dramatically in recent years there as well. Similarly, car ownership continues to rise in the Czech Republic, with SUVs dominating new vehicle registrations. Europe's automotive heartland, Germany, has shown persistence in blocking European climate protection policies in recent years as well as preventing the introduction of an overall speed limit on German highways. In Spain and Italy, high-speed train connections have increased. However, these primarily connect large urban centres, while medium-sized cities and rural areas have experienced dramatic declines in their public transport connectivity.

Civil society groups, active nationally and locally, with their numerous initiatives and very specific policy suggestions on how to tackle climate issues, however, spark hope that the transformation of the transportation sector is indeed possible. At the same time, national and local climate protection policies, alongside civil society initiatives, provide a promising foundation for tackling the urgent task of revolutionising the transportation sector in the years ahead. In Germany and Austria, nationwide public transport ticket initiatives have been introduced to promote public transportation as a viable and affordable alternative to motorised private transport. In Belgium, a system was put in place where if an employer

agrees to pay 80 percent of a public transport ticket, the federal government covers the remaining 20 percent. These initiatives have been a step in the right direction by considerably reducing the cost of public transportation. The Italian city of Genoa demonstrates how ticket costs are a key leverage point for increasing public transport usage. Since the city introduced free public transportation, its usage has gone up by a third. Another positive example is civil society organisations in Prague, which have initiated protests advocating for the implementation of a 30-kilometre-per-hour speed limit throughout the capital. Meanwhile, the Spanish city of Pontevedra serves as a prime example for the benefits of a car-free city centre.

However, such local activities and initiatives will not suffice in turning the wheel in the race to live up to the Paris Agreement. What is needed is a much stronger commitment to the expansion of public transportation services in combination with a European-wide public investment fund to better link national transportation networks between member states across Europe. The aim should be to establish free public transportation for all, and thus significantly reduce the dependence on individualised transport systems based on cars and trucks with combustion engines. This needs to be combined with the implementation of strong disincentives for environmentally damaging transportation practices.

INTRODUCTION

For the first time in history, global warming has exceeded 1.5 degrees Celsius above pre-industrial levels over a twelve-month period, according to the EU's Copernicus Climate Change Service.^[1] Additionally, January 2024 was the hottest first month of the year ever recorded.^[2] Regardless of these alarming temperatures, the recent COP29 conference in the oil-rich and authoritarian Azerbaijan failed to trigger a significant shift in international climate policy efforts.

Despite the annual increase in global greenhouse gas emissions, we thus continue to deliberately walk into climate disaster. The transportation sector plays a key role in this unfolding crisis. While net emissions in other sectors have partially decreased over time – in the energy sector, for example – emissions in the transportation sector have remained constant in many countries across Europe. Like silent architects of environmental upheaval, these emissaries of carbon dioxide contribute to rising temperatures, extreme weather events, and a dangerous disruption of earth's delicate ecological balance. These are frustrating facts, legitimately causing despair. All the same, society as a whole must vigorously combat climate change, fighting for every tenth of a degree to prevent an even more severe climate catastrophe. Therefore, it is imperative that our commitment to fulfilling the objectives of the Paris Agreement remains unwavering. In this context, addressing the persistently high emissions from the transportation sector should become a critical element in governments' broader efforts to mitigate climate change.

Amid this backdrop, SET-NET's research initiative, Race2Paris, explores the transportation sectors in seven European countries: Austria, Belgium, the Czech Republic, Germany, Italy, the Netherlands, and Spain. These countries represent a broad spectrum of Central and Western Europe's geographic, climatic, and economic diversity, as well as different transportation systems.

To understand the roots of the prevalent resistance to ecologically transforming the transportation sector, our research delves into both historical trajectories and current dynamics that have shaped the transport landscape. Race2Paris analyses levels of greenhouse gas emissions over 30 years, as well as the affordability of public transport services over the past 20 years. We draw on the Eurostat database for data on transport emissions^[3] (1990-2022) and public transport ticket prices^[4] (2002-2022). To assess the affordability of public transport services, we compute an index of public transport ticket prices deflated by average nominal gross incomes.^[5] Additionally, the report examines the investment preferences between automobile and railway infrastructures with OECD data (2000-2021).^[6]

Furthermore, Race2Paris also explores patterns of privatisation of (sustainable) public transportation infrastructure. Additionally, it highlights the efforts of civil society groups advocating for the ecological transformation of the transport sector to ensure a sustainable future.

One pivotal revelation that resonates through time is the persistence of an individualised transportation system introduced in the 1960s. While this system symbolises modern

convenience, it has inadvertently fostered a reliance on modes of transport with a higher environmental footprint. To effect meaningful structural change and move away from these deeply entrenched, harmful transportation practices, we need a massive Europe-wide public investment programme focused on sustainable rail infrastructure, as well as regional and interregional public transport systems.

Amidst these challenges, SET-NET's research casts a discerning eye on glimmers of hope by way of small yet impactful initiatives, such as the KlimaTicket in Austria, initiatives in Germany to bring the railway company back into public hands, Spanish cities banning inner city car use or protest groups in Prague fighting for reduction of inner city traffic. These localised endeavours, while often overshadowed by broader systemic obstacles, illuminate a path forward – a path that demands collective action and political pressure by progressive forces across European countries.

References

^[1] Vox (2024). *2023 was the hottest year on record. It also pushed the world over a dangerous line.* Available online: <https://vox.com/23969523/climate-change-cop28-paris-1-5-c-uae-2023-record-warm>.

^[2] Climate Copernicus (2024). *January 2024 – Surface air temperature and sea surface temperature highlights.* Available online: <https://climate.copernicus.eu/copernicus-2024-world-experienced-warmest-january-record#:~:text=January%202024%20was%20the%20warmest,previous%20warmest%20January%20C%20in%202020>.

^[3] Eurostat data series "Greenhouse gas emissions by source sector" [[env_air_gge](#)], source sector "Fuel combustion in transport" [CRF1A3].

^[4] Eurostat data series "Harmonised index of consumer prices (HICP)" *monthly data (index)* [[prc_hicp_midx](#)] and *item weights* [[prc_hicp_inw](#)], classification of individual consumption "Passenger transport by railway" [CP0731].

^[5] Eurostat data series "GDP and main components (output, expenditure and income)" [[nama_10_gdp](#)] national accounts indicator "Wages and salaries" [D11] and "Population and employment" [[nama_10_pe](#)] national accounts indicator "Employees domestic concept" [SAL_DC].

^[6] Infrastructure investment covers spending on new transport construction and the improvement of the existing network. Data from the [OECD Data Explorer](#).

RACE — 2 PARIS

— CASE STUDIES



THE EUROPEAN UNION

Moritz Neujeffski and Olivier Hoedeman
Corporate Europe Observatory

In the shadow of the European Union's ambitions to combat climate change, a stark contradiction emerges, casting doubt over the continent's environmental initiatives. Despite achieving some reduction of greenhouse gas emissions across various sectors, the transport sector emerges as the sole outlier, stubbornly resisting the trend of progress. It is the only sector in which emissions have slightly increased since the 1990s. Looking at road emissions only, CO₂ emission levels have increased by 24 percent between 1990 and 2022, passenger cars accounting for the largest share.^[1]

The aviation sector mirrors this worrying pattern. In 2019, the CO₂ emissions from flights departing from airports in the EU27+EFTA countries amounted to 147 million tonnes, marking a 34 percent increase compared to the levels in 2005.^[2] These statistics are not just numbers on a page; they are a clarion call for urgent action. If Europe is to uphold its commitment to the Paris Agreement and to become a global leader in climate action, it is imperative to increase efforts to transform the transport sector.

With the European Green Deal's adoption in December 2019, the von der Leyen Commission introduced a major reform proposal aimed at reducing the European Union's overall emissions. The goal is to achieve carbon neutrality by 2050 with an intermediate goal of reducing greenhouse gas emissions by 55 percent by 2030 compared to 1990 levels.^[3] This includes a reduction of emissions of cars by 55 percent by 2030, as well as concrete targets for the establishment of a charging infrastructure for electrical vehicles.^[4] It also aims at a 100 percent reduction target for 2035 for new vans and new cars. Also, from 2026 onwards road transport is supposed to be covered by the emissions trading system (ETS). The EU Commission has also suggested covering aviation under the ETS and promotes the usage of so-called sustainable fuels for planes.

Yet, critics have argued that the European Green Deal is still not enough to decrease greenhouse gas emissions significantly, especially when it comes to the transport sector.^[5] The inclusion of road transport in emissions trading from 2026 onwards and proposals for carbon pricing in the aviation sector are steps in this direction, but the overall impact on emission reduction remains a point of concern. The ETS has proven to be largely ineffective due to an oversupply of allowances and low carbon prices, which have undermined the system's intended incentives for reducing greenhouse gas emissions.^[6] If and to what extent fossil fuel substitutes represent viable alternatives for the aviation sector remains unproven and unlikely for the foreseeable future. Moreover, the resistance of exporting countries like Germany (and especially the German liberal party) has already watered down the Green Deal. The goal to reduce CO₂ emissions from trucks and buses by 90 percent from 2040 onwards has been adapted so that those operating with e-fuels can be approved without a time limit.^[7] Automotive industry associations, such as ACEA, have advocated for the relaxation of previously established European CO₂ emissions targets,^[8] a stance recently supported by German Chancellor Olaf Scholz.^[9] Meanwhile, agricultural regulations under

the Green Deal have also been softened following widespread farmers' protests in 2023-2024 across countries including Poland, Germany, and the Netherlands.^[10]

Overall, the recent climate protection initiatives by the European Union have been firmly anchored in the concept of 'ecological modernization'. This approach inherently intertwines the battle against climate change with the pursuit of fostering economic growth and bolstering international competitiveness. Consequently, technological advancements and innovation are championed as the primary drivers of a green transition. However, this narrative leaves a critical issue conspicuously unaddressed – the dual dilemma of overconsumption and overproduction. Simultaneously, the notion of degrowth – advocating for a paradigm shift towards sustainable practices and prioritising well-being of humans and nature over the relentless accumulation of wealth – is conspicuously absent from the Commission's discourse. This omission represents a significant gap in addressing the full spectrum of strategies required for a genuinely sustainable transition. In response to the European Parliament's shift towards the populist right following the 2024 elections, the new von der Leyen Commission has shifted its focus toward prioritizing international competitiveness.^[11]

Furthermore, the Commission's silence on a crucial aspect is notable – the disparity in emissions per capita. This silence speaks volumes, particularly when scrutinising the distribution of transport emissions across different income brackets. It is a glaring inequality as a recent report by the NGO Oxfam showed: "In Europe, a person from the richest 1 percent emits on average 14 times more carbon (CO₂) than a person in the bottom 50 percent."^[12] This stark contrast reveals that when it comes to CO₂ emissions, we are not all sitting in the same boat or yacht for that matter.

But why does promoting stringent EU climate policies, particularly for the transport sector, pose such a challenge? One reason is that the Commission has for a long time prioritised economic competitiveness and has endorsed liberalisation and privatisation in national railway sectors. This approach has (inadvertently) undermined more sustainable transport options, such as a large-scale public investment in efficient and attractive public transport. A significant factor in hindering more ambitious climate protection policies has been the prevailing influence of powerful lobby groups from traditional transport industries, including automotive and aviation, alongside CO₂-intensive sectors such as steel, chemicals, and fossil fuel extraction. These entities consistently dilute EU climate legislation. The subsequent section delves into the railway sector, examining the impact of EU legislation on liberalisation, before addressing the influential lobbies of the car and aviation industries.

Obstacles to a Green European Transport Revolution

The Market-based Focus of the Commission

40 years ago, coinciding with the election victory of conservative governments in Britain (Margaret Thatcher), Germany (Helmut Kohl) or the USA (Ronald Reagan), a neoliberal turn was also initiated in the European Union, affecting regulation of the Member States' transportation sectors. The Maastricht Treaty laid the foundation for the free movement of goods within the newly created single European market. For the (cross-border) transport sector, these were promising prospects. At the same time the Commission initiated

liberalisation processes to be implemented sector by sector, starting with telecommunication in the late 1980s. Efforts to liberalise the transport sector – aviation and railway – began in the early 1990s.

Directive 91/440/EEC in 1991 initiated gradual rail sector liberalisation, mandating separate financial records for railway infrastructure and services and, at the same time, requiring clearing of state-owned railway debts. Despite resistance, particularly from railway unions, subsequent directives progressively opened the freight and passenger markets for competition with private companies. In 2001 the first railway package introduced international competition in freight transport as well as licensing criteria. In 2004 followed the second package, which established the European Railway Agency and further liberalised the international rail transport market.

The third package (2007) increased competition in international passenger travel and standardised rules for public train and road transportation services. The fourth railway package, passed by the European Parliament in 2016, marked the latest liberalisation effort in the railway sector. Initially, it proposed a clear separation between infrastructure management and transportation services, banning direct contract awards. It also aimed to simplify rolling stock provision by private entities, intending to lower ticket prices amid expected passenger increases by 2030.^[13] Despite resistance, service contracting reforms were approved but the strict operator-service provider separation was halted.

In 2021, an in-depth analysis of the European Transport Workers' Federation concluded that "three decades of liberalisation have not delivered on the promises of growing the sector, improving services, or making rail transport more efficient. On the contrary, the decisive factors for the well-functioning of the sector are the public-led investments in modern railway infrastructure, rolling stock and public services as well as the internalisation of all external costs for all modes of transport."^[14]

The ongoing debate about night trains highlights how the EU's efforts to rejuvenate railway travel continue to be confined within the scope of the Commission's previous market-based approach. Cross-border night trains in Europe are gaining popularity as a climate friendly alternative to air traffic. The routes that existed until the 1990s have more or less disappeared, as railway companies in the liberalised railways markets decided they were not profitable, and the EU did not prioritise this mode of travel either. In 2023 the European Greens^[15] initiated a revival of nighttime travel by train and the Commission introduced a plan for ten new routes^[16] for night trains across Europe, however labelled as pilot projects. Nighttime travel by train offers a sustainable alternative to international flights, turning idle sleep hours into efficient travel time. According to the NGO Back-on-Track, night trains could slash EU greenhouse gas emissions by 3 percent,^[17] with polls indicating a rising interest in nighttime travel as an alternative to aviation.

Yet, a true revival of night trains has to overcome a number of hurdles. Chronic underinvestment and profitability concerns loom large. The majority of night train routes are international and thus fall within a liberalised sector. While it is theoretically possible to classify night trains as a public service and provide subsidies, practical challenges arise as all countries along the route must reach a consensus and allocate subsidies proportionally to the train's travel distance within their borders. Additionally, varying interpretations of EU

directives on international public services make their resurgence a profit-driven endeavour rather than a public commitment.^[18] To achieve the expansion in night train connections that is needed in Europe, these should be defined as public services of EU wide importance, so subsidising and adequate investment becomes possible. A different framework is needed for international trains at EU level, going beyond the liberalised market.

Night train pilot projects are a welcome step into the right direction; however, they do not represent a U-turn in EU policy. On the contrary, since the 1990s the Commission has continuously advocated liberalisation and privatisation as solutions for the railway sectors in Europe. Most recently, the European Commission took action against the Dutch government over their direct re-awarding of the Main Line Network concession to Netherlands Railways (NS). The Commission said to have received "substantiated complaints"^[19] from private rail operators, which led Commissioner Vălean to state "we are under an obligation to pursue these complaints and enforce EU rail legislation." The Commission proceeded to launch a formal infringement procedure against the Dutch government.

As the country chapters will show at the outset of the liberalisation of national railway systems oftentimes stood the EU's railway directives. However, it was not the Commission alone pushing for liberalisation. There have been other industry forces at work, too, which have continuously lobbied for the maintenance of car-dependent transportation systems as well as the maintenance or increase of aviation activities. In the following we will shortly present the strength and strategies of these two sectors and exemplify their activities at the European level.

Strong Fossil Lobby Forces at Work

The Strength of the Automobile Industry at the EU level

The automotive sector is a powerful industry in the European Union. The European Automobile Manufacturers Association (ACEA) reports that the European automotive sector employs more than 13 million Europeans, accounting for 7 percent of the region's total workforce. Germany's car and supplier industry alone employs around 800,000 people. The industry's economic power is mirrored in its lobby power. Taken together the 10 biggest car manufacturers spent more than 10 million euros on lobbying in 2021 alone, held almost 50 meetings with Commissioners and employed 50 lobbyists (full-time equivalents). Automotive industry associations such as the Association des Constructeurs Européens d'Automobiles (ACEA) or the German Verband der Automobilindustrie (VDA) have equally high annual lobbying expenditures. In a 2019 study of the impact of the automotive industry Tobias Haas and Hendrik Sander note that:

"We are not just talking here about occasional interventions, but rather about long-term, stable relations that have grown up between the EU institutions and capital's representatives, the latter getting in on every phase of the political decision-making process."^[20]

Over the years the car industry, its business associations and networks have engaged in numerous political battles over EU regulations aimed at reducing CO₂ emissions of the transportation sector. In several rounds of negotiations the automotive industry has managed to water down climate policy initiatives, such as with regard to binding CO₂ limits

for combustion engines (2007, 2012, 2017).^[21] Moreover, leading car companies have managed to consecutively postpone or reduce binding CO₂ targets by way of direct lobbying of representatives of the Commission and national governments. The car industry's dominance in the CARS21 expert group ensured to water down industry-wide abuse of the system for emissions regulation. The Dieselgate was a result of such lax sets of regulations.^[22] During the political debate on banning combustion engines, the German Minister of Finance, Christian Lindner of the German liberals (FDP) managed to secure a back-door for the German car industry.^[23] Vehicles with internal combustion engines that exclusively refuel with CO₂-neutral fuels (meaning synthetic fuels) will now be allowed to be registered after 2035. Networks such as the European E-fuel alliance, consisting of companies such as ExxonMobil and Porsche, had called for such opt-outs beforehand.^[24]

The Aviation Industry at the EU-Level

When it comes to financial power and political influence, the airline industry is in no way inferior to the automotive industry. The NGO InfluenceMap has evaluated the climate protection efforts and positions of the aviation sector on EU climate protection policies in detail. They come to the conclusion that

"New research shows the aviation sector has emerged as one of the strongest opponents of climate policy in Europe [...] [t]he research further shows that many airlines have initiated extensive, climate-focused PR campaigns to deflect growing concern from governments and the public over the sector's climate footprint."^[25]

The aviation industry officially aims to reduce EU aviation emissions by 2050 but resisted endorsing concrete national and EU-level climate regulations in their direct interaction with policymakers. For example, following the EU's introduction of the "Fit for 55" climate package in June 2021, the German Aviation Association rejected emissions trading proposals and argued against clean fuel blending, citing concerns about "competitive distortion". A year later, the airlines succeeded with this stance.^[26] In a similar vein, the biggest airlines of Europe have actively lobbied against the Commission's plans to promote sustainable aviation fuels (SAF) (see reFuelEU), as the NGO Transport & Environment has shown.^[27]

On top of lobbying against European legislation, the aviation industry has also attempted to convince the Commission to go against unwanted national climate protection legislation. An illustrative case in point is the formal complaint filed by lobby groups representing French and European airports and airlines to the European Commission. The complaint pertains to the French government's prohibition on domestic flights covering distances of less than 250 kilometres, which can be conveniently undertaken by train. This flight ban was instituted as a result of the ground breaking Citizens' Convention for Climate. Although the complaint could not prevent the ban entirely, it weakened key parts of the legislation (for example, the number of airports concerned).^[28]

A similar case in the Netherlands has only recently been investigated by the European Commission. The Dutch government had planned to cut flights at Schiphol airport by 10 percent to reduce noise and to protect the environment. With over 25 million passengers in 2022, Schiphol is the second-largest airport in Europe. Freedom of Information requests by

Corporate Europe Observatory have shown how several airline associations and airline initiatives lobbied against the measure, claiming it violated single market law. Ultimately, the Dutch government backed down and put off the plans.^[29]

Thus, we see that effective climate protection is oftentimes watered-down, blocked or delayed to the benefit of profit-motives. Unfortunately, market-based solutions are also regarded as preconditions when it comes to Commission initiatives.

Recommendations

Reevaluating Policy Objectives: The European Commission must fundamentally shift its approach to climate protection. Prioritising economic growth and competitiveness ultimately undermines effective climate action. The Commission needs to encompass more heterodox economic perspectives such as De-growth perspectives, recognizing that sustainability and environmental protection require moving beyond traditional growth metrics.

Diversifying Emission Reduction Strategies: Even after recent reforms of the European Trading System, relying solely on such price-based mechanisms to control emissions is insufficient. The European Union needs to implement stricter direct emission reduction measures, including mandatory cuts and outright bans on certain high-emission activities. This approach should complement the existing cap-and-trade system, ensuring a more robust and direct impact on emissions reduction.

Prioritising Public Infrastructure: The trend towards privatisation of infrastructure financing must be reversed in favour of increased public investment. Publicly owned and financed infrastructure is crucial for a sustainable transportation future. The European Transport Federation (ETF) stressed that "the best way to boost sustainable rail transport that ensures good service, working conditions and safety, is through vertically integrated, publicly funded, owned and operated railway companies."^[30] The European Union must critically reassess recent liberalisation efforts, prioritising public welfare and long-term environmental goals. This is particularly important for the railway sector.

Reducing Industry Influence: The influence of the automotive and airline industries on EU climate legislation is a significant barrier to meaningful climate action. The Commission must ensure a critical distance from these sectors, preventing them from undermining or diluting legislation. Policies and regulations should be developed with the primary aim of environmental protection, free from the vested interests of industries most responsible for emissions.

Reviving Night Trains: To offer sustainable alternatives to air travel, the EU must facilitate the revival of international night train services. This requires regulatory changes to simplify the complex bureaucratic and operational barriers currently hindering cross-border railway services. By de-liberalising the international railway market, the Commission can make night trains a viable and attractive option for travellers, reducing reliance on air travel. The civil society coalition Back on Track is demanding that the EU takes on a strong pro-active role and helps develop a minimum supply of international train connections.

Encouraging Active and Public Transportation: Last but not least, the EU should promote policies that increase the use and development of active transportation modes, such as biking and walking, alongside significant investments in public transit systems. This includes creating safer, more accessible infrastructure for non-motorized transport and enhancing the quality, reliability, and coverage of public transportation networks. By prioritising these modes, the EU can significantly reduce transportation-related emissions, improve urban air quality, and foster healthier, more liveable cities.

These recommendations represent a comprehensive approach to transforming European transportation in a way that aligns with urgent climate protection goals. Only through ambitious policy changes and a commitment to sustainable development can the European Union hope to meet its environmental objectives and contribute to the global effort against climate change.

References

-
- [1] Destatis (2023). *Road transport: EU-wide carbon dioxide emissions have increased by 24 percent since 1990*. Available online: <https://www.destatis.de/Europa/EN/Topic/Environment-energy/CarbonDioxideRoadTransport.html>.
- [2] Eurocontrol (2022). *EUROPEAN AVIATION ENVIRONMENTAL REPORT 2022*. Available online: <https://www.eurocontrol.int/sites/default/files/2022-09/eurocontrol-easa-eaer-2022.pdf>.
- [3] European Commission (2021). *Transport and the Green Deal: Providing efficient, safe and environmentally friendly transport*. Available online: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/transport-and-green-deal_en.
- [4] See previous footnote 3.
- [5] Climate Action Network Europe (CAN). *The inconvenient truth about EU's climate and energy ambition (and the opportunity to fix it)*. Available online: <https://caneurope.org/the-inconvenient-truth-about-eus-climate-and-energy-ambition-and-the-opportunity-to-fix-it/>.
- [6] Life ETX (2024). *EU ETS 101: A beginner's guide to the EU's Emissions Trading System (2024 update)*. p. 35. Available online: https://carbonmarketwatch.org/publications/eu-ets-101-a-beginners-guide-to-the-eus-emissions-trading-system-2024-update/#pdf_embed.
- [7] Available online: <https://www.electrive.net/2024/02/09/nach-fdp-stoermanoever-weg-frei-fuer-neue-co2-standards-fuer-lkw-und-busse/>.
- [8] Electrive (2024) *Nach FDP-Störmanöver: Weg frei für neue CO2-Standards für Lkw und Busse*. Available online: <https://www.acea.auto/press-release/european-auto-industry-calls-for-urgent-action-as-demand-for-evs-declines/>.
- [9] Rheinische Post (2024). *Mit welchen Maßnahmen Scholz schnell die Wirtschaft ankurbeln will*. Available online: https://rp-online.de/politik/deutschland/industriegipfel-mit-diesen-massnahmen-will-scholz-die-wirtschaft-ankurbeln_aid-121156159.
- [10] CarbonBrief (2024). *EU backs down on agricultural emissions after farmers' protests*. Available online: <https://www.carbonbrief.org/daily-brief/eu-backs-down-on-agricultural-emissions-after-farmers-protests/>.
- [11] Böll Foundation Brussels (2024) *Böll EU Newsletter 7/2024 - Competitiveness or Green Deal? I'll have both!* Available online: <https://eu.boell.org/en/2024/09/16/boell-eu-newsletter-7-2024-competitiveness-green-deal>.
- [12] Oxfam (2023). *EU's richest 10 percent emit as much planet-heating emissions as half the EU's poorest population*. Available online: <https://www.oxfam.org/en/press-releases/eus-richest-10-emit-much-planet-heating-emissions-half-eus-poorest-population>.

- [13] OGPP (2014). *Rekommunalisierung öffentlicher Dienstleistungen in der EU*. Available online: [intending to lower ticket prices amid expected passenger increases by 2030](#).
- [14] European Transport Worker's Association (2021). *Lessons learned from three decades of liberalisation of the European Railways*. Available online: <https://www.etf-europe.org/wp-content/uploads/2021/06/Lessons-learned-from-three-decades-of-liberalisation-of-the-European-Railways-1.pdf>.
- [15] The European Greens/EFA (2023). *NIGHT TRAINS ARE COMING BACK! IS TRAVEL FINALLY GOING GREEN IN 2023?*. Available online: <https://www.greens-efa.eu/opinions/new-night-trains-in-europe-for-the-climate/>.
- [16] European Commission (2023). *Connecting Europe by train: 10 EU pilot services to boost cross-boarder rail*. Available online: https://transport.ec.europa.eu/news-events/news/connecting-europe-train-10-eu-pilot-services-boost-cross-border-rail-2023-01-31_en.
- [17] Back on Track Germany e.V. (2022). *The Global Warming Reduction Potential of Night Trains*. Available online: https://back-on-track.eu/wp-content/uploads/2022/09/220915_B-o-T_GHG-Potential.pdf.
- [18] Gromme, Alexander (2023). *Het comfort van nachttreinen blijft ondermaats, de EU moet een minimumaanbod uitwerken*. Available online: <https://www.demorgen.be/meningen/het-comfort-van-nachttreinen-blijft-ondermaats-de-eu-moet-een-minimumaanbod-uitwerken~b7c4c751/?referrer=https://www.google.com/>.
- [19] International Railway Journal (2022). *EC warns Netherlands over NS direct award*. Available online: <https://www.railjournal.com/policy/ec-warns-netherlands-over-ns-direct-award/>.
- [20] Haas, Tobias & Sander, Hendrik (2019). *Die Europäische Autolobby. Eine kritische Analyse zum Einfluss der Industrie*. Available online: https://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publicationen/Autolobby-DE-WEB.pdf.
- [21] See previous footnote 21, page 19.
- [22] Corporate Europe Observatory (2017). *How the EU's Better Regulation agenda fuelled Dieselgate*. Available online: <https://corporateeurope.org/en/power-lobbies/2017/02/driving-disaster>.
- [23] ZEIT ONLINE (2024). *Lindner bekräftigt Nein der FDP zu Verbrenner-Aus ab 2035*. Available online: <https://www.zeit.de/politik/deutschland/2023-03/lindner-verbrenner-motoren-fdp>.
- [24] eFuel Alliance. Available online: <https://www.efuel-alliance.eu/de/initiative/wer-wir-sind>.
- [25] InfluenceMap (2021). *The Aviation Industry and European Climate Policy*. Available online: <https://influencemap.org/report/Aviation-Industry-Lobbying-European-Climate-Policy-131378131d9503b4d32b365e54756351>.
- [26] Tim Kemmerling (Taz). *Ganz schön dünne Luft. Airline-Lobbyismus beim Emissionshandel*. Available online: <https://taz.de/Airline-Lobbyismus-beim-Emissionshandel/!5947604/>.
- [27] Transport & Environment (2022). *Europe's largest airlines claim net zero future whilst lobbying to weaken EU's climate laws*. Available online: <https://www.transportenvironment.org/discover/europes-largest-airlines-claim-net-zero-future-while-lobbying-to-weaken-eus-climate-laws/>.
- [28] Corporate Europe Observatory (2023). *30 years of EU single market. Time to remove the obstacles to social-ecological transformation*. Available online: <https://corporateeurope.org/sites/default/files/2023-06/30%20Years%20of%20EU%20Single%20Market-Report-Final.pdf>.
- [29] Corporate Europe Observatory (2023). *How the Aviation Lobby Got the European Commission to Derail Dutch Flight Reduction Plans*. Available online: <https://corporateeurope.org/en/2023/11/how-aviation-lobby-got-european-commission-derail-dutch-flight-reduction-plans>.
- [30] European Transport Worker's Association (2021). *Lessons learned from three decades of liberalisation of the European Railways*. Available online: <https://www.etf-europe.org/wp-content/uploads/2021/06/Lessons-learned-from-three-decades-of-liberalisation-of-the-European-Railways-1.pdf>.

RACE — 2 PARIS

— AUSTRIA



AUSTRIA

Barbara Schuster
Momentum Institut

In many ways, Austria's transport system has the potential to be very train-centred. Albeit its mountainous landscape, the country's small size allows for short travel distances and, therefore, short travel times. Furthermore, compared to the overall size of its economy, Austria produces a lot of steel and is home to many key industries needed for building railways.^[1] To some extent, this is the result of a long history of railway-network expansions that gained momentum in Habsburg-times during the 19th century. Today, Austria's federal railway company provides one of the most reliable railway services in Europe, with 95 percent of trains arriving on time.^[2]

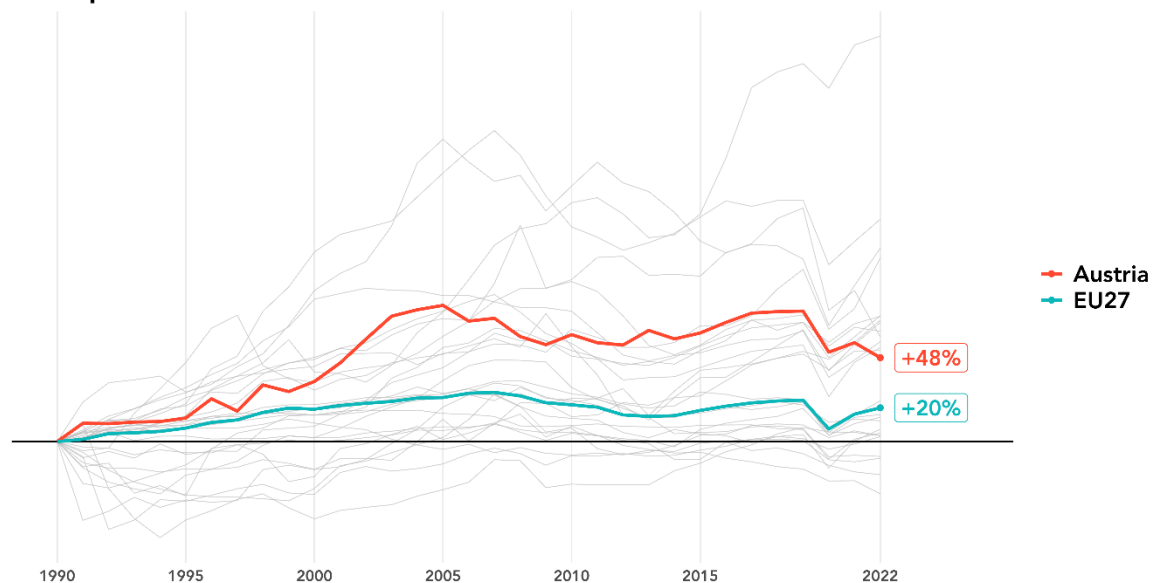
Nevertheless, Austria's transport sector relies heavily on road transport. While long distance rail services are well established, the countryside lacks public transportation. Before the Covid pandemic hit in 2020, rail traffic had increased by two thirds (63 percent) compared to 1995. Due to lockdowns, train usage fell significantly during the pandemic, but data shows that rail transport quickly recovered after the periods of strict pandemic restriction measures. In 2022, rail traffic has increased by 52 percent compared to 1995 and a further upward trend is likely.^[3] Despite this increase in rail traffic, around half of the Austrian population (48 percent) has inadequate access to public transportation. Outside the capital Vienna, even six out of ten residents (61 percent) lack adequate access to public transportation. What is even more alarming is that one in ten people in the country – around 1.2 million people – have no access to any public transport connection at all. The best public transport network is in Vienna, where only one percent of the population is inadequately connected to the public transport network. Vorarlberg, a very mountainous but densely populated region, is in second place with 31 percent of residents having inadequate access. The worst public transport coverage is in Burgenland, 74 percent of residents do not have sufficient public transport connections, closely followed by Carinthia with 72 percent.^[4]

Furthermore, urban sprawl is a widespread phenomenon in Austria, leading to long distances between residential areas and local infrastructure. Urban sprawl, moreover, results in extensive soil sealing – an area equivalent to about 18 soccer pitches of soil is sealed per day.^[5]

Transport Emissions

Between 1990 and 2022, total GHG emissions in Austria have decreased by 7.9 percent. However, the transport sector, particularly passenger cars, is responsible for the reduction not being more significant. In fact, transport emissions have increased by 48 percent between 1990 and 2022. Hence, Austria's transport emissions have increased more than the EU27 average (+20 percent). Thus, successful efforts to decrease emissions in all other sectors have been undermined by the increase in transport emissions.^[6]

Transport Emissions in Austria



Source: Eurostat, Own Calculations

Since Austria failed to significantly reduce transport emissions in the past, climate friendly transport policies should be a top priority. Thus far the country lacks consistent and consequential transport policies that could lead to significant reductions in transport emissions.

Privatisations in the Railway Network

Austria still relies on its publicly owned federal railwork company ÖBB ("Österreichische Bundesbahnen"). However, in the past 20 years, unbundling measures have been implemented. Hence, while still being part of the ÖBB holding, ÖBB's infrastructure branch "ÖBB Infra" is now a separate subsidiary. As a result, the public railway network can now also be used by private railway companies. The largest third-party railway company, "Westbahn", started offering services between Vienna and Salzburg in 2011, followed by services to Munich and Innsbruck.^[7] The route between Vienna, Linz, and Salzburg, the so-called "Weststrecke", is one of the most frequently used connections in Austria. ÖBB runs two connections per hour between Vienna and Salzburg, on top of which Westbahn offers an additional two. Alpine areas, on the other hand, lack sufficient train services. ÖBB trains only run every 1-2 hours between Vienna and Vorarlberg (the westernmost federal state of Austria), while Westbahn only travels this route once a day.^[8] This underlines the importance of public railway companies in providing services also on non-profitable routes.

Passenger Car Trends: SUVs on the Rise

In 2023, new passenger car registrations were 14 percent lower compared to 1995. Yet, this is only a small glimmer of hope from a climate perspective: although there is a slight downward trend in newly registered passenger cars, the proportion of SUVs among total registrations has been rising continuously for over a decade. In 2023, almost every second newly registered car was a SUV (45 percent), this is a significant rise from the mere one in ten cars recorded in 2009. Interestingly, this trend is particularly pronounced in Vienna, a

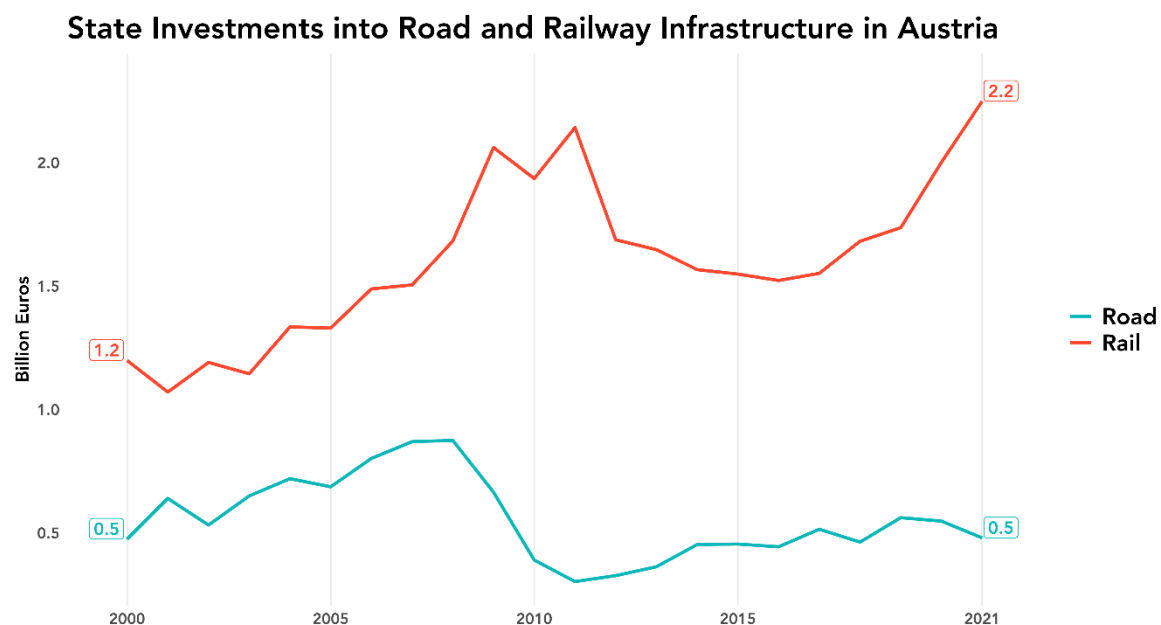
city well-served by public transportation, featuring well-paved roads and lacking steep terrain.^[9]

The rise of SUVs is also fuelled by company cars. Across Austria, two-thirds of the SUVs are registered as company cars and one-third as private cars. Notably, the proportion of SUVs in company cars is considerably higher in districts with particularly poor public transport connections. The district of Liezen in Styria, for example, has the highest proportion of SUVs at 66 percent, while 89 percent of the population have inadequate access to public transport. This is also true for other districts in remote regions and highlights the need for the expansion of public transport to rural regions, where people are currently almost entirely dependent on cars due to a lack of alternatives.^[10]

The increase in SUVs on our streets is alarming regarding climate impact, safety, and distribution of resources. The production of SUVs is more resource and energy intensive, and SUVs also emit more emissions while driving. Due to their size and weight, the likelihood of accidents and (deadly) injuries increases. Furthermore, SUVs pose challenges to the fair distribution of public space, as SUVs are larger and therefore require more space for parking and driving. Consequently, SUVs should only be registered as company cars if the associated job activities can only be carried out with an SUV. In addition, large vehicles should be subjected to weight- and size-dependent parking fees.

State Investments into Road and Railway Infrastructure

The rapid expansion of the public transport network should be a central element in the policy mix aimed at mitigating the climate crisis, yet there still exist regions that are more than poorly connected to the network. In addition, over the last decades, the Austrian railway network has decreased considerably. While motorways and expressways were expanded by 347 kilometres between 1997 and 2022, 690 kilometres of railway lines were dismantled during the same time period.^[11,12,13]



Source: OECD, Own Calculations

At a first glance it may appear that Austria's investments into railway infrastructure exceed those in road infrastructure. However, this is only true at the federal level. In reality, infrastructure costs are shared among the federal government, states, and municipalities, each contributing approximately one-third. When considering the total investments, it becomes clear that Austria invests heavily in roads, resulting in more funding directed towards road infrastructure than railways. For instance, in 2022 alone, Austria invested a total of 3.6 billion euros in the maintenance and expansion of the road network, compared to approximately 3.1 billion euros allocated to the rail network during the same period. If one includes the expenditure of Wiener Linien (Vienna's public transportation company) of around 1 billion euros to the Vienna public transport system, investments in rails exceed those in roads. However, caution should be exercised in interpretation, especially given the fact that Vienna has the best public transportation network in the entire country, but only a part of Austria's population benefits from it. Additionally, the new subway line U5 is currently being built, which comes with extraordinary costs that contribute to Vienna's overall investment – and it is essential to note that the construction of a new subway line is not a regular event.^[14]

Other than the extension of the subway network, public investments in railway infrastructure currently focus on high speed, trans-alpine connections as well as on the expansion of already well-established routes around Vienna. The larger, trans-alpine projects are very cost intensive, since they involve building tunnels through the Alps. While these projects will, without a doubt, improve existing services and further reduce travel times, especially between northern and southern Austria, they cannot replace local public transport initiatives. While the federal government is now giving more financial means to municipalities, concrete measures still need to be put into place.^[15]

Affordability of Public Transport Services

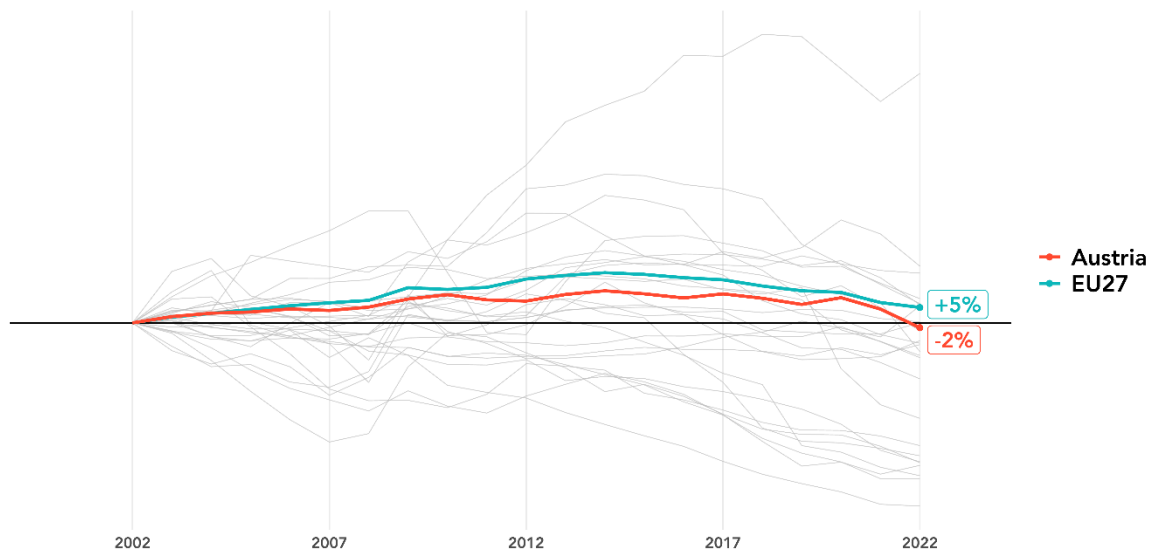
While availability of public transport remains an issue for Austria's transport policies, the affordability of public transport has been improved in recent years. Compared to the EU27 average, public transport services have become less expensive over the last twenty years. This is partially due to the introduction of the "KlimaTicket" in 2021. The KlimaTicket is a heavily subsidised annual public transport ticket that allows holders to use almost every means of public transport all over Austria. Thus, it covers high speed trains as well as local buses. For adults, it costs 1,095 euros per year. In 2023, due to the high inflation, its validity period was increased to 13 months.

Starting in 2024, young adults will receive a free KlimaTicket on their 18th birthday. The 18-year-olds then have three years to use the free KlimaTicket once for one year. This initiative aims to address changing mobility needs after graduating from school and encourage greater use of public transport. While the offer of a free ticket is generally positive, it should be introduced at an earlier age. In rural regions, every second young person obtains their driving licence at the age of 17, and driving school training for the L17 can already be started at the age of 15.5. To make public transport a more attractive option, incentives should be introduced well before the 18th birthday. This could be achieved, for example, with the help of discounts or free public transport tickets for young people aged 15 and above, especially since full-price tickets are required from the 15th birthday onward.

In addition to the KlimaTicket, there are also "smaller", regional versions of it that only allow the use of public transport in certain federal states. These tickets are available at lower prices. In Vienna, for example, the regional ticket costs 365 euros per year.^[16]

Affordability of Public Transport Services in Austria

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

Reforms we need

1. The public transport system needs to be expanded, especially in rural areas. Far-off municipalities should consider introducing innovative means of transportation, such as on-demand mobility services. These services could also be based on mobile phone apps - however, accessibility for non-digitally-trained persons needs to be ensured.
2. Active mobility should be boosted around the country. In 2017, 40 percent of all car travels were shorter than 5 kilometres. This is, at least partially, due to the fact that there are no bicycle lanes in many rural regions.^[17]
3. For certain occasions, car sharing offers a suitable addition to public transport systems and active mobility. Some municipalities are already offering publicly provided car sharing options.
4. Spatial planning should aim at reducing travel distances and thereby reducing land-use and mobility needs. In urban areas with a high quality of public transport, car-free zones should be introduced. Large vehicles, like SUVs, should be subjected to weight- and size-dependent parking fees.
5. Furthermore, fossil infrastructure (gas stations, parking lots, etc.) should be phased out. This is accompanied by a ban on combustion engines and the abolition of diesel privileges.

References

- [1] EUROFER (2023). European Steel in Figures 2023. Available online: https://www.eurofer.eu/assets/publications/brochures-booklets-and-factsheets/european-steel-in-figures-2023/FINAL_EUROFER_Steel-in-Figures_2023.pdf.
- [2] ÖBB (2024). Pünktlichkeitswerte Österreich. Available online: <https://www.oebb.at/de/rechtliches/puenktlichkeit/oesterreich>.
- [3] Statistik Austria (2023). Personenverkehr Schiene. Available online: <https://www.statistik.at/statistiken/tourismus-und-verkehr/personenverkehr/personenverkehr-schiene>.
- [4] ÖROK-Atlas (2023). ÖV-Güteklassen & ÖV-Erschließung der Bevölkerung 2021. Available online: <https://www.oerok-atlas.at/#indicator/87>.
- [5] Greenpeace (2023). Entwicklung des Bodenverbrauchs in Österreich seit 1987. Available online: https://greenpeace.at/uploads/2023/06/202306_factsheet_bodenverbrauch-sterreich-seit-1987.pdf.
- [6] Eurostat (2023). Greenhouse gas emissions by source sector. Available online: https://ec.europa.eu/eurostat/databrowser/view/env_air_gge_custom_13132848/default/table?lang=en.
- [7] WESTbahn (2023). Über die WESTbahn. Available online: <https://corporate.westbahn.at/ueber-westbahn/>.
- [8] ÖBB (2024). ÖBB Fahrplan. Available online: <https://fahrplan.oebb.at/>.
- [9] Statistik Austria (2023). Registration of new motor vehicles. Available online: <https://www.statistik.at/en/statistics/tourism-and-transport/vehicles/registration-of-new-motor-vehicles>.
- [10] Schuster, Barbara (2024). Jeder zweite Firmenwagen ist in Österreich ein SUV. Momentum Institut. Available online: <https://www.momentum-institut.at/news/jeder-zweite-firmenwagen-ist-oesterreich-ein-suv>.
- [11] Puwein, Wilfried (1999). Investitionen in die Bahn- und Strasseninfrastruktur. WIFO Monatsberichte, 72(8), 577-587. Available online: https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=8281&mime_type=application/pdf.
- [12] Statistik Austria (2023). Rail. Available online: <https://www.statistik.at/en/statistics/tourism-and-transport/transport-enterprises-infrastructure/rail>.
- [13] Bundesministerium für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie (2023). Statistik Straße und Verkehr. Available online: https://www.bmk.gv.at/dam/jcr:95841203-b1f8-4613-b55d-fe9bc09f5dbe/Statistik_Straße_Verkehr_2023_UA.pdf.
- [14] Schuster, Barbara (2023). Öffentliche Verkehrsmittel: Jede:r Zweite hat unzureichende Anbindung. Momentum Institut. Available online: <https://www.momentum-institut.at/news/unzureichende-anbindung-oeffentliche-Verkehrsmittel>.
- [15] BMK Infothek (2017). Tunnelblick: Die größten Bahnprojekte. Available online: <https://infothek.bmk.gv.at/investitionen-bahn-tunnel-suedstrecke/>.
- [16] One Mobility Ticketing GmbH (2023). KlimaTicket Ö. Available online: <https://www.klimaticket.at/en/>.
- [17] VCÖ (2017). Aktive Mobilität. Available online: <https://vcoe.at/service/fragen-und-antworten/aktive-mobilitaet>.

RACE — 2 PARIS

— BELGIUM



BELGIUM

Sacha Dierckx
Denktank Minerva

Belgium is world famous for its chocolate and beers, but in some (policy) circles also for its system of company cars. As the IMF wrote in its Country Report for Belgium in 2023: "The tax treatment of company cars (i.e., cars purchased by companies and available to employees for private use) creates a significant incentive for employees to be compensated with a car, rather than in cash."^[1] According to a study for Transport & Environment, the subsidy per company car in Belgium amounts to more than 6,500 euros or almost 200 euros per Belgian inhabitant per year for all the company cars.^[2] The company car system is also one of the reasons why Antwerp and Brussels are two of the most congested cities in Europe.

Nevertheless, the train does not seem to gain from the many traffic jams in Belgium. It only had a modal share of 8.7 percent for personal transport in 2019, compared to 82.7 percent for cars.^[3] Moreover, the Belgian federal Bureau of Planning expects the modal share of rail to be even lower in 2040, at 7.9 percent.

Maybe this underperformance has something to do with the impression you sometimes get in Belgium that complaining about the railways seems to be a national sport. Because while there are definitely many challenges to improve the reliability, the punctuality and the affordability of the Belgian railway system, the still rather expansive network of rails and train stations and the comparatively still rather affordable train tickets deserve a lot better (see figure below).

Transport Emissions

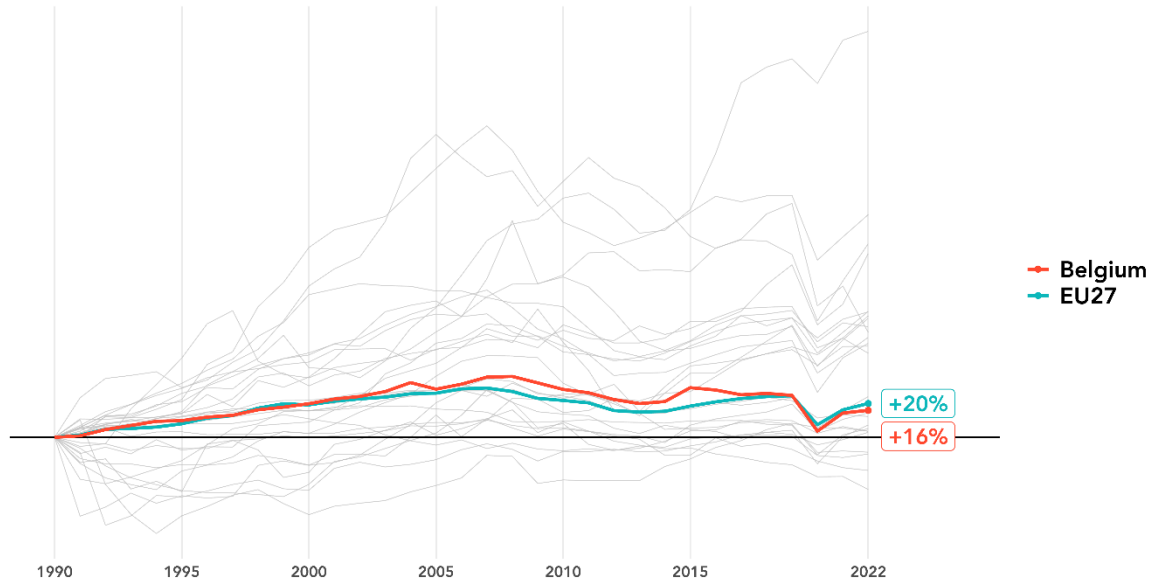
The transport sector is responsible for 23.4 percent of Belgium's greenhouse gas emissions.^[4] It is one of only two sectors where emissions have actually grown since 1990 (+15.8 percent), and the sector where emissions have grown by far the most in absolute terms. The biggest cause is road transport, which accounts for 96 percent of total emissions in the sector.^[5] In the pre-corona year 2019, cars were responsible for 55.6 percent of those road transport emissions. Heavy trucks – Belgium has a large logistics sector with the Port of Antwerp as its biggest hub – and buses accounted for 31.7 percent, and light duty trucks for 12.0 percent of transport emissions.

The railway system accounts for only 0.3 percent of greenhouse gas emissions in the transport sector.^[6] More than 90 percent of the railway system is electrified and the CO₂-intensity per passenger kilometre is almost 20 times lower than for a traditional fossil fuel car.

Emissions in the transport sector are one of the reasons why Belgium is underachieving when it comes to national climate goals and the Paris Agreement. Even though the former target under the European Effort Sharing Regulation (ESR) for 2030 was lower for Belgium (and still is under the new target), in 2019 Belgium was one of the five countries with the

largest gap between the target and the projected emissions.^[7] Overall, Belgium is one of the countries with the largest per capita emissions in Europe.^[8] Without a rapid and large reduction of CO₂ emissions in the transport sector, Belgium is bound to remain one of the climate villains of the continent.

Transport Emissions in Belgium



Source: Eurostat, Own Calculations

One of the main strategies to deal with these emissions is the "greening" of company cars by pushing companies towards "zero emission" cars from July 2023 onwards. This could be achieved by gradually decreasing the fiscal advantage they enjoy for non-zero emission company cars. This typical Belgian solution tries to use an existing bad system to achieve a dignified end but fails to improve the fairness of this very unequal system, to strive for a safer and generally more sustainable transport system, to take action against transport poverty, or to reduce congestion and the many other costs related to a car-centric mobility system.

On top of this the Flemish government in the northern region opted for an incentive for purchasing an electric car, subsidising it with 5,000 euros (if the car does not cost more than 40,000 euros), starting in 2024 and reducing the subsidy annually towards 2026. Even though this decision was denounced by many experts as madness (both economically and socially), the Flemish Finance Minister defended the choice to give subsidies to electric car buyers instead of investing in the chronically underfunded Flemish public bus and transport company De Lijn. The commotion did force the Flemish government to limit the subsidy scheme to a one year scheme, valid only in 2024 (scrapping the allocated resources for 2025 and 2026).

Privatisations in the Railway Network

For now, the Belgian railway system remains in public hands for domestic travel. However, the system has already been partially prepared for liberalisation and privatisation.

In 2005, the integrated public railway company NMBS-SNCB ("National Railway Company of Belgium") was divided into three public enterprises: NMBS-SNCB, the operator of the

railways, Infrabel, the rail infrastructure company, and NMBS Holding, the umbrella holding company.

In 2014, however, the structure was changed again. The holding company ceased to exist, and the operator NMBS-SNCB and infrastructure company Infrabel became completely autonomous public enterprises. A third company, HR Rail, was created, as the "employer" of the personnel, "providing" the staff to both NMBS-SNCB and Infrabel. Again, this rather bizarre construction was another typical Belgian solution to the various demands of the European regulations on the one hand, and the trade unions opposing the division of the workers on the other hand. Ever since, the structure has so far remained the same, withstanding calls from the left to recreate an integrated railway company with only a separation of accounts (as in Germany), and from the right to abolish HR Rail and let the NMBS-SNCB implement their own, autonomous staff policy, implying growing divisions within the railway workforce.

Even though the structure has been prepared for privatisation and liberalisation, domestic passenger transport is still in public hands. In 2022, the NMBS was given a so-called "direct award" for 10 more years, for the period 2023-2032. As of now it is uncertain what will happen after the concession period ends in 2033.

However, there are indications that liberalisation will be coming. In the agreement for the current 2019-2024 federal government legislative period, it was stated that there would be two "pilot projects" with a call for bids or tenders, one in the northern region Flanders and one in the southern region Wallonia, even though these pilot projects have not yet been put into practice. Moreover, the government agreement also states: "To prepare NMBS for the upcoming liberalisation, it will be studied whether private expertise can be inserted in the NMBS." In its perspective on 2029-2032, the NMBS itself already foresees that about 2.5 million train kilometres or 2.7 percent of domestic rail travel will be run by "other" (i.e. private or foreign) operators.

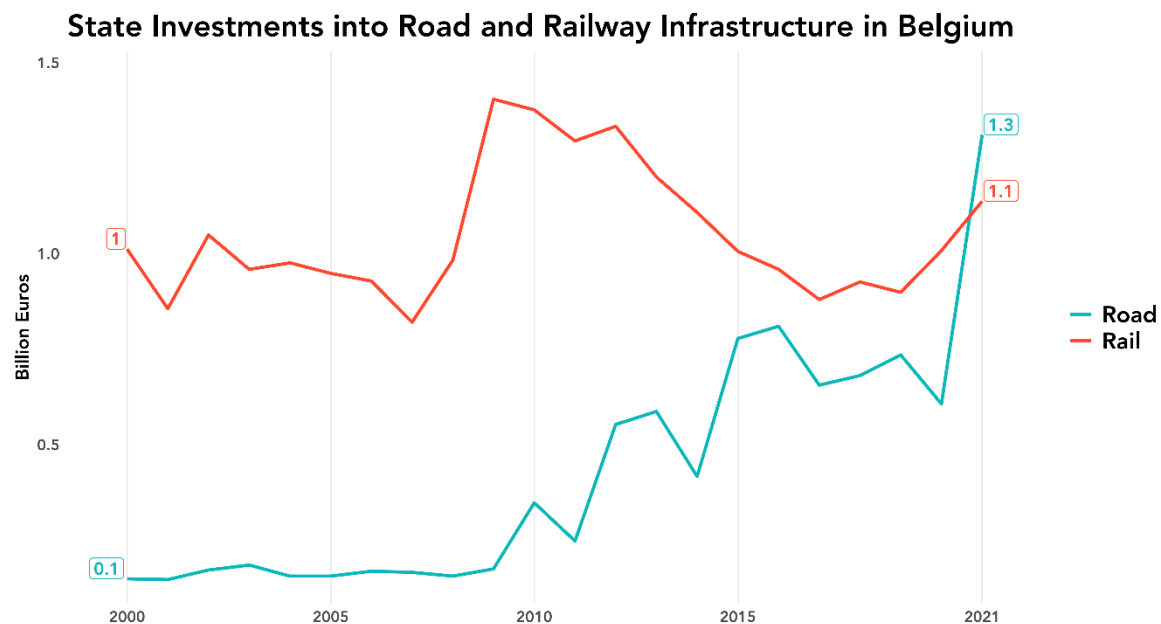
Even more concerning, there is quite a broad consensus that the EU's Fourth Railway Package implies that a renewed "direct award" for the NMBS-SNCB after 2032 will be very difficult, and that different parts of the passenger railway operation will have to be allocated through tendering. This position, and the fact that for now there does not seem to be a lot of interest in opposing the Fourth Railway Package and/or the tendering after 2032 – not even in the outgoing Green Party's Mobility Ministry – signals that the 2030s will bring more privatisation and liberalisation of the railway system.

In this context, it is also worth mentioning that while the passenger railway company still has a public monopoly, ideas of liberalisation and privatisation have already penetrated other parts of the public transport system. Rail freight has been fully liberalised since 2007. In addition, international passenger rail has also been liberalised. At the regional level, in Flanders, parts of the bus transport are also increasingly being subcontracted to private operators, which has led to public outcry about its public accessibility.

State Investments into Road and Railway Infrastructure

For a while, Belgium seemed to be one of the good students considering public investments in railway infrastructure. According to a Greenpeace study, Belgium was one of only three

out of thirty European countries where investments in rail infrastructure exceeded investments in road infrastructure in the period 1995-2018.^[9] However since then, this trend has reversed again in more recent years (see graph above). This can be explained by the fact that Belgium already had a very well-developed road network in 1995. According to existing (imperfect) data, it has one of the densest road networks in the world^[10], as well as one of the densest motorway networks in Europe.^[11] More recently, however, very large, new road infrastructure projects are again being planned (or execution has already started), amongst others around Brussels (the expansion of the ring road) and especially around Antwerp (the very controversial "Oosterweel" project).



Source: OECD, Own Calculations

Moreover, the railways have had to deal with belt-tightening for many years. For instance, while the annual investment budget provided by the government to Infrabel was more than 1 billion euros in 2005-2008 (inflation-adjusted, equivalent to 2022's euros), it was 15-20 percent less in real terms over the period 2011-2020. The operating grant has even been reduced by more than 80 percent since 2005.

If you look at the development of railway employees, it is even clearer. The number of full-time-equivalents employed by the NMBS decreased from 19,238 in 2011 to 15,618 in 2022, and the number of employees of Infrabel decreased from around 12,750 in 2010 to 9,533 in 2022.

The good news is that the government has planned a growth of investment in railways. The annual subsidies decided by the current federal government for both the NMBS and Infrabel have increased during the past legislature (2019-2024) and will increase further according to the Public Service Obligations (PSO's) agreed between the two companies and the federal government for the period 2023-2032. With these higher investments, and the 2040 Rail Vision, the government has a target of 15 percent of the modal share by 2040 (i.e. the percentage of travellers using rail transport as their most important means of mobility).

However, while the increased budgets for the railways are very welcome, the promised amount is less than Infrabel had initially demanded. Moreover, it remains to be seen whether the promises will survive the budget talks of the incoming government and the new European budget rules. Potential staff shortages endanger the aforementioned ambition to reach 15 percent modal share. Finally, even though the renewed ambition is very welcome, at the moment no specific follow-up actions or policies are foreseen if the target of a modal share of 15 percent remains out of reach.

Railway Network over Time

With a railway network of 3,607 kilometre of railway network Belgium. is one of the countries with the densest railway network in the world.^[12]

If we look at the number of train kilometres driven per quarter, it has more or less remained the same since 2007, with a slight increase from just under 21 million kilometres in 2007 to around 21.75 million kilometres on average per quarter in 2022.^[13]

However, while the network of railways and train stations is still dense, it is said that almost 700 kilometres or one fifth of the network is in bad shape, which means that without investments, trains have to run slower. Construction work on these segments is urgently needed.^[14] The railway system thus urgently needs a boost in investments rather than a stabilisation or even decline in investments.

Affordability of Public Transport Services

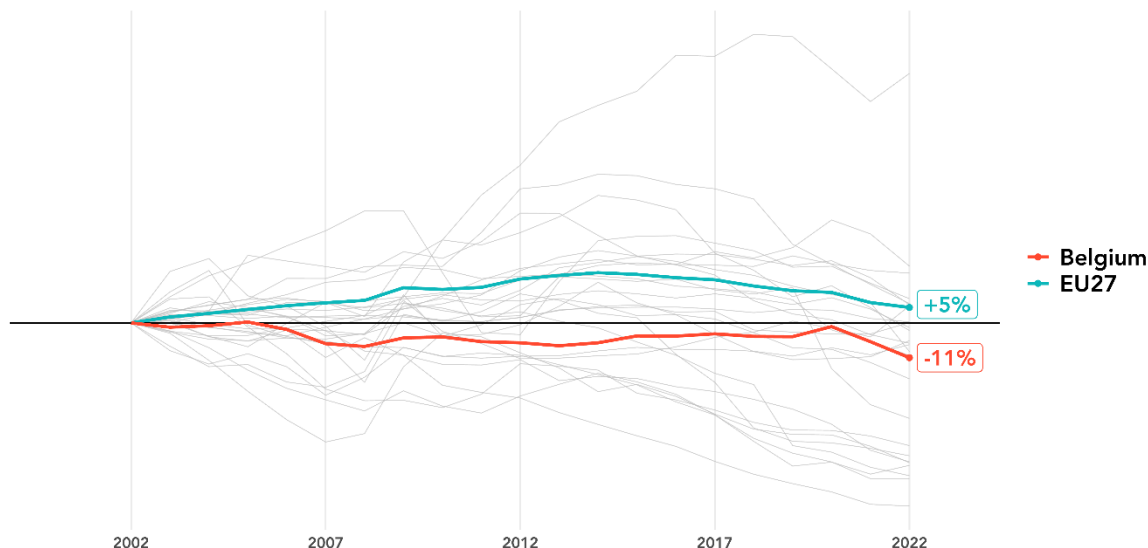
Whether public transport is cheap or expensive in Belgium, depends on who you ask. Not only do people have different ideas of what "cheap" exactly means, but there are also many different tariff formulas, with various price rises over time, which makes comparisons very difficult. For instance, while prices for a general 10-ride ticket between any two stations grew by 43 percent in nominal terms since 2004 (from 65 euros in 2004 to 93 euros in 2023), the 10-ride ticket for people under 26 years old rose by only 33 percent (from 43 euros in 2004 to 57 euros in 2023).

In general, one could conclude that the Belgian railways are cheaper than in many other countries. That is mostly because there are cheaper formulas for younger people, for people over 65, for large groups, and for large families. Moreover, more than 60 percent of the workers who have a season ticket for commuting, get it for free because of a system in place that if the employer agrees to pay 80 percent of the ticket, the federal government pays the remaining 20 percent.

However, all these advantages do not mean that everything is perfect. For instance, if you calculate only the cost of the travel itself, riding from Central Station in the capital of Brussels to the city of Ostend at the Belgian coast (around 115 kilometres one-way), it is cheaper to take the train than to drive a gasoline car if you're only one adult. But with two adults travelling it is already cheaper to drive a gasoline car together than to buy two train tickets on a Standard Multi Pass.

Affordability of Public Transport Services in Belgium

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

One of the reasons is that the NMBS has a system where it is allowed to automatically let ticket prices rise with inflation, and raise them extra if it reaches its rather weak yearly punctuality goals. According to a study by the left-wing party PvdA-PTB, train ticket prices rose by 20 percentage points over inflation in 1995-2017.^[15] The system has also resulted in large nominal price rises with high inflation over the last couple of years.

Finally, while other countries, such as Germany and Austria, are experimenting with all-in yearly tickets for public transport, in Belgium this is not yet the case. One of the reasons is that there are three regional companies providing bus, tram and subway services with their own season tickets. But even for train travel only, a yearly all-in ticket for the NMBS already costs 3,900 euros, or 325 euros a month.

Reforms we need

To create a transport sector that is not only geared towards reaching the goals of the Paris Agreement, but also with less transport poverty, better air quality, safer cities and roads, Belgium still has lots of work to do.

1. On the one hand, public transport needs to be made more attractive. First, substantial structural investment is needed, not only in the infrastructure and rolling stock of the railway companies, but also in the regional bus and tram public transport companies. Especially in Flanders, the northern region, the public transport company is in shambles.

As part of an attractive public transport system, the four public transport companies (railway company NMBS/SNCB and the regional bus/tram/metro companies De Lijn, MIVB-STIB and TEC) should create an integrated offer, collective tariffs, and integrated tickets.

Moreover, a big political fight will be necessary in the coming decades to prevent the liberalisation of domestic passenger travel by rail. This fight should be led by trade unions (as liberalisation will erode the working conditions of the staff, in a context where the number of full-time-employees (FTE's) has already decreased significantly), railway travellers who have nothing to win but higher ticket prices and (even) worse service with liberalisation and privatisation, and environmental NGOs and activists fighting for a larger modal share for sustainable travel. It should also be coupled with the democratisation of the decision-making of the railway companies, for instance through giving a larger role to the already existing Advisory Committee of Train Travelers. And ideally, it should be connected to a fight for cheaper public transport, or even free public transport in the future, to make it more attractive and increase public support for the climate transition.

2. On the other hand, private individual car mobility and road transport in general should be made more difficult. A reform of the company car system, to make it less attractive for companies and workers, has long been overdue. The ownership and driving of heavy cars and SUVs should be restricted or at least financially discouraged. New road-building like the Oosterweel project should be critically assessed. And while some cities have shown the courage to make circulation plans to decrease through traffic or to create Low-Emission Zones (LEZ), more needs to be done to discourage the use of cars in cities. Beside the use of circulation or bypass plans and (U)LEZ, parking policies are an underused instrument.
3. Finally, Belgium has a lot of potential for cycling as it is relatively flat (especially the northern part) and the distances are rather short (especially with the potential of e-bikes). While Belgium is home to world-renowned cyclists Wout Van Aert and Remco Evenepoel, the cycling infrastructure is not yet so world-renowned. Even though it has already improved a lot in cities such as Brussels and Gent, there is still a lot of room for improvement. An increasing number of cyclists and an increasing use of public transport is the perfect combination for a more sustainable transport sector.

References

-
- [1] International Monetary Fund (2023). *Belgium Selected issue March 2023*. Available online: <https://www.imf.org/-/media/Files/Publications/CR/2023/English/1BELEA2023002.ashx>.
- [2] Transport & Environment (2020). *Company cars: how European governments are subsidising pollution and climate change*. Available online: https://www.transportenvironment.org/wp-content/uploads/2021/07/2020_10_Company_cars_briefing.pdf.
- [3] Federaal Planbureau (2022). *Vooruitzichten van de transportvraag in België tegen 2040*. Available online: https://www.plan.be/uploaded/documents/202204280911120.FOR_TRANSPORT2040_12634_N.pdf.
- [4] Klimaat.be (2022). *De uitstoot in de belangrijkste sectoren*. Available online: <https://klimaat.be/in-belgie/klimaat-en-uitstoot/uitstoot-van-broeikasgassen/uitstoot-per-sector>.
- [5] European Environmental Agency (2023).
- [6] Federale Overheidsdienst. Mobiliteit En Vervoer (2022). *Milieu*. Available online: <https://mobilit.belgium.be/nl/spoor/milieu/milieu>.

- [7] European Commission (2021). *EU Climate Action Report*. Available online: https://climate.ec.europa.eu/system/files/2021-11/policy_strategies_progress_com_2021_960_en.pdf.
- [8] European Environmental Agency (2023). *EEA greenhouse gases – data viewer*. Available online: <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>.
- [9] Greenpeace (2023). *Development of Transport Infrastructure in Europe: Exploring the shrinking and expansion of railways, motorways and airports*. Available online: https://greenpeace.at/uploads/2023/09/analysis_development-of-transport-infrastructure-in-europe_2023.pdf.
- [10] CIA – The World Factbook. *Country Comparisons – Roadways*. Available online: <https://www.cia.gov/the-world-factbook/field/roadways/country-comparison/>.
- [11] Eurostat (2020). *The densest motorway networks across EU regions*. Available online: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20200528-1>.
- [12] https://upload.wikimedia.org/wikipedia/commons/6/69/Rail_density_map.svg
- [13] Infrabel (2022). *Evolutie van treinkilometers*. Available online: <https://opendata.infrabel.be/explore/dataset/evolutie-van-treinkilometers/>.
- [14] De Tijd. *Bijna 700 kilometer Belgisch spoor verkeert in te slechte staat*. Available online: <https://www.tijd.be/politiek-economie/belgie/algemeen/bijna-700-kilometer-belgisch-spoor-verkeert-in-te-slechte-staat/10418978.html>.
- [15] Trends (2017). *PVDA: NMBS-tarieven stijgen sneller dan onze lonen*. Available online: <https://trends.knack.be/geld/sparen/pvda-nmbs-tarieven-stijgen-sneller-dan-onze-lonen/>.

RACE — 2 PARIS

— CZECH REPUBLIC



CZECH REPUBLIC

Oldřich Sklenář

As in other European countries, passenger cars emit the largest share of transport emissions in the Czech Republic. Yet, Czech Republic has superseded western European countries by far in terms of growth in numbers of passenger cars in recent years: since the beginning of the 2010s, the number of passenger cars has increased by 40 percent to more than 6.5 million cars for a population of just under 11 million.^[1] The Czech Republic has thus exceeded the EU average in motorisation of the population, catching up with neighbouring Germany, for example.^[2] The number of SUVs has doubled over the last eight years, 2015-2023.^[3] Last year most new vehicles registered on Czech streets were SUVs. At the same time, car manufacturing is the largest industry, accounting for 9 percent of the Czech GDP, and by far the largest export item. Automotive exports account for almost a quarter of Czech exports. In 2022, the Czech Republic ranked second in the world in production per 1,000 inhabitants, just behind neighbouring Slovakia.^[4] This is also the source of the automotive industry's strong opposition in the debate on reducing greenhouse gas emissions. This was reflected, for example, in the request to mitigate and postpone the validity of the discussed new Euro 7 emission standard, when representatives of the Automobile Industry Association argued the threat of losing tens of thousands of jobs.

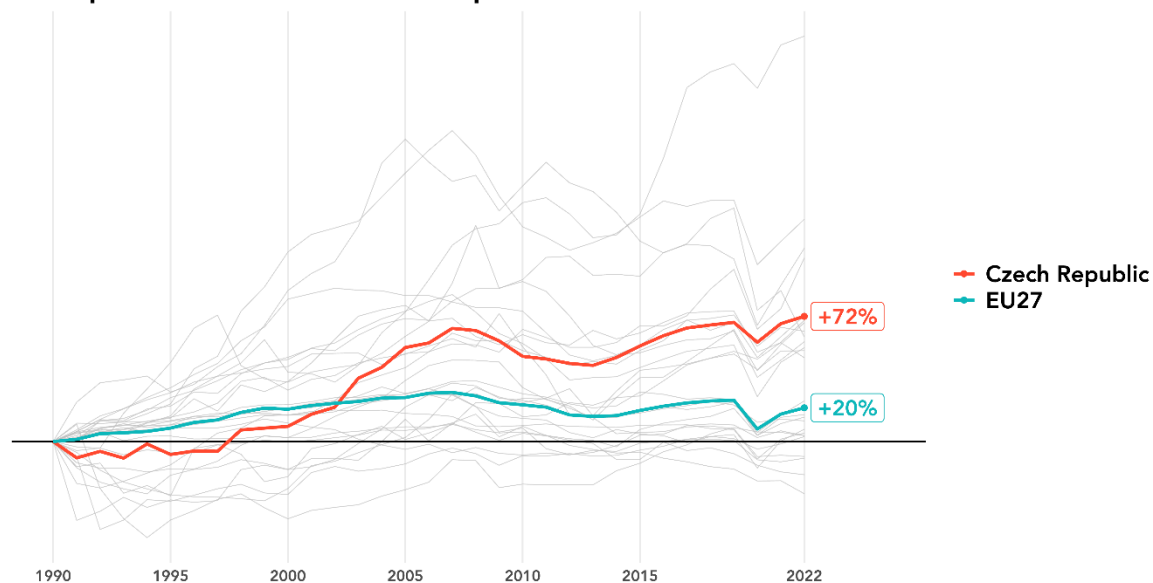
Transport Emissions

Unlike most other sectors in the Czech Republic, emissions from transport have been growing for a long time. They have increased by more than 70 percent since 1990. In 2021, the sector produced 19.4 million tons of CO₂ (MtCO₂) which represented 16 percent of all GHG emissions in the Czech Republic. As already mentioned, the largest share of these emissions is from passenger car traffic (11.2 MtCO₂), followed by road freight transport emissions (6.2 MtCO₂).

The 2019 Clean Mobility Plan update, with reference to a calculation based on the National energy and climate plan (2019 edition) targets, mentions the need to reduce emissions in the transport sector at a rate of 0.2 MtCO₂ per year by 2030.^[5] Yet, despite these plans, emissions in the transport sector have continuously risen since the temporary decline during the covid-19 pandemic.

The updated National Climate and Energy Plan of October 2023 lists projected GHG emissions for the transport sector in 2030 of 16 MtCO₂.^[6] The last time transport in the Czech Republic had similar emissions was shortly after 2000.

Transport Emissions in Czech Republic



Source: Eurostat, Own Calculations

McKinsey&Company's Climate Neutral Czech Republic analysis calculates a relative decrease of only 1 MtCO₂ by 2030 (approximately 5 percent of the sector's current emissions).^[7] This is due to two conflicting factors – on the one hand, emissions are expected to decrease by 4 MtCO₂ Equivalent due to the electrification of road transport and higher efficiency of internal combustion engines, while on the other hand this decrease is expected to be compensated by higher use of road transport.

The current political and societal debate is framed primarily by the phaseout of internal combustion engines (ICE) vehicles and the transition to electric mobility. Despite the stated objectives, many government and opposition parties are actively opposing the ban on the sale of ICE vehicles. Other systemic measures, such as reducing demand for passenger car transport per se, are usually not even part of the discussion.

Privatisations and Liberalisation in the Railway Network

Pressures to privatise the state railways began to occur almost immediately after the fall of the communist regime and the transition to a market economy. Privatisation was eventually prevented mainly by strikes by railway trade unionists. The largest strike in Czech history to date took place in February 1997, lasting a total of five days and involving about half of the railway workers.

Contrary to the strikers' demands, in 2003 Czech Railways was split into the Railway Infrastructure Administration – SŽDC (from 2020 only SŽ – Railway Administration) and the joint-stock company České dráhy. In 2007, the joint-stock company ČD Cargo was split off from the latter, under which freight transport falls. All of these companies are publicly held by the Czech state, but some activities, such as repairs, have been privatised, which has led to problems associated with the low quality of repairs. Moreover, the limited capacity of the private repair companies is causing delays in the repair of rolling stock.

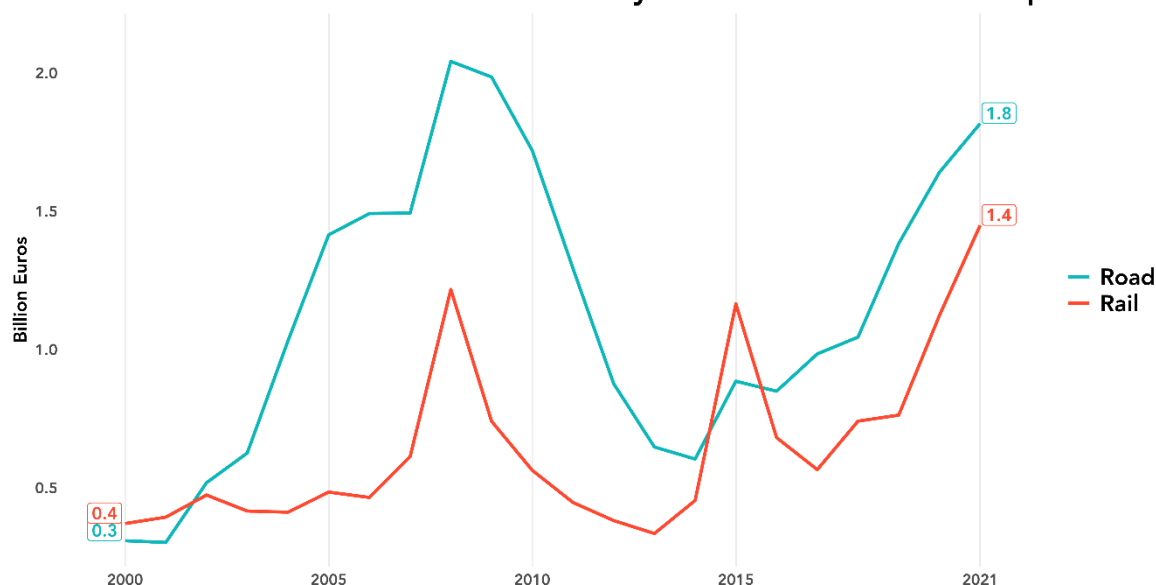
At the same time, the division of Czech Railways enabled the entry of private carriers into the Czech railway sector. According to many experts, the competition has led to higher

quality at České dráhy itself, especially with regard to services provided directly on trains. However, Czech Railways is in an unequal position compared to other carriers. Among other things, they must comply with the Public Procurement Act when purchasing vehicles, their maintenance and other activities. Private carriers are not restricted by these rules, which gives them a competitive advantage.

State Investments into Road and Railway Infrastructure

The total volume of annual investment in transport infrastructure in the Czech Republic in recent years has been around 5-6 billion euros, partly from national sources and partly from European funds (Operational Programme Transport, Recovery and Resilience Facility, Connecting Europe Facility, European Investment Bank funds). Approximately 40 percent of the expenditure consists of routine maintenance and operational repairs, while approximately 60 percent goes to investments. Investments in road transport are still prioritised over investments in rail infrastructure. This reality actually unmasks the picture presented in the National Clean Mobility Action Plan, which projects that the majority of energy and emission reduction targets for transport will be achieved through modal shift. It suggests moving away from the energy and emission-intensive car transport to the less energy-intensive rail transport.

State Investments into Road and Railway Infrastructure in Czech Republic



Source: OECD, Own Calculations

Affordability of Public Transport Services

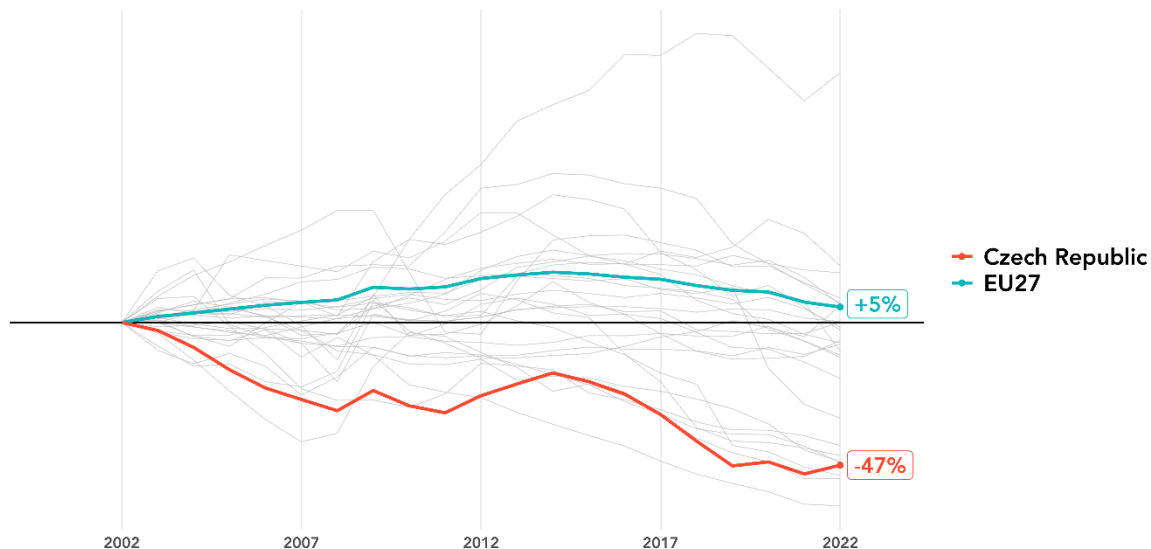
Public transport in the Czech Republic is significantly more affordable than the European average. At the same time, it should be noted that the relative price of fuel has also fallen over the same period, to an even greater extent than public transport fares. In 2022, when fuel prices were at an all-time high, it was possible to buy more than half as much petrol for an average wage as in 2002.

According to the Distributional Analysis of the Impact of the Energy Crisis on Czech Households, prepared by the Association for International Affairs, the government's

reduction in fuel duty to mitigate the effects of the crisis had only a very limited effect.^[8] At the same time, this measure mainly benefited higher-income households.

Affordability of Public Transport Services in Czech Republic

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

The prices of imported fuels have fallen significantly since then, making individual car transport increasingly attractive to many users compared to public transport. Meanwhile, public transport fares started to become more expensive. For example, the largest train carrier, České dráhy, has increased its fares by 15 percent in 2023 and plans to increase them by a further 9.5 percent in 2024.

Promising Alternatives

One of the alternatives to owning and using a personal car is carsharing. According to available data, carsharing users use more public transport, and walk or cycle more often than car owners. Carsharing companies offer their services by providing low emissions vehicles to municipalities, companies and residents.

One shared car can replace up to 15 private vehicles. When using an electric car, such a car replaces 15 ICE cars (the share of electric cars in the Czech Republic is still below 1 percent of all cars in operation). It is therefore a quick way to maximise the efficiency of this technology. In addition to reducing emissions, the reduction in the number of cars in operation also results in fewer cars occupying public space giving municipalities the opportunity to implement climate change adaptation measures. Many municipalities find themselves in a situation where they simply do not have the space to implement such measures. These measures (especially elements of the so-called green or blue-green infrastructure that offer solutions for climate issues through nature-based measures such as green corridors, green alleys, rain gardens etc.) are logically implemented on land owned by municipalities and in areas at risk of urban heat island. These lands typically include areas adjacent to roads. However, most of these are currently used for parking. Reducing the number of cars therefore provides room for adaptation to climate change and gives

municipalities the opportunity to build more climate friendly infrastructures such as bike lanes.

Another way to reduce the share of individual car transport is the support of public transport. For example, the city of Mladá Boleslav recently significantly reduced the annual fare subscription for public transport. From 2022, passengers pay 40 euros for an annual ticket, which represents 15 percent of the original fare. All pensioners have free fares in the city. In addition, in recent years the city has invested significantly in changing the bus fleet, building a network of cycle paths and promoting the operation of shared bicycles, on which the first fifteen minutes can be ridden for free.

Public transport has been completely free since 2018 in Strakonice, Lovosice and neighbouring Litoměřice. Experience from these municipalities shows that the abolition of fares has led to a significant increase in the number of passengers.

Intercity public transport is as important as inner city public transport. Thanks to the efforts of the local town administration, the town of Židlochovice has managed to get the local railway line, which had been closed for 40 years, back into operation. This has increased the quality of life for many in a sustainable manner. Local residents can now travel to the nearest regional town faster and more comfortably than by car or bus.

Reforms we need

1. The capacity of the rail network, which is currently at the edge of its capacity on key routes, must be increased.
2. Instead of the current decline of the regional rail network, its systemic support should be addressed.
3. Tariff policy must be changed so that short-distance journeys by public transport are more profitable for passengers than journeys by car.
4. Systemic support for e-carsharing should be addressed, including dedicated parking in the city centres.

In addition to the measures mentioned above, there should also be a change at the level of spatial planning. In the future, it is necessary to stop repeating the patterns leading to satellite developments, which in practice lead to an increase in demand for individual car transport and at the same time to worsened accessibility by public transport. Instead, it is appropriate to promote better use of developed areas, including reclamation of brownfield sites and support for the renovation of vacant buildings.

Urban planning should be carried out in line with the application of the 15-minute city concept, in which most daily necessities and services, such as work, shopping, education, healthcare, and leisure can be easily reached by a 15-minute walk, bike ride, or public transit ride from any point in the city. When planning transport infrastructure, alternatives to road transport should be systematically promoted, including, for example, changes in street profiles during planned reconstruction.

References

- [1] Car Importers Association.
- [2] Eurostat (2023). *Number of cars per inhabitant increased in 2021*. Available online: <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230530-1>.
- [3] Car Importers Association (2023). *Graphs and tables on vehicle statistics registered in the Czech Republic in the period 1-12/2023*. Available online: https://portal.sda-cia.cz/clanky/download/2024_01_tiskovka-2023-12_grafy.pdf.
- [4] Statista (2023). *Number of cars produced per 1,000 inhabitants worldwide in 2022, by country*. Available online: <https://www.statista.com/statistics/1412789/car-production-per-1-000-inhabitants-by-country/>.
- [5] Ministry of Industry and Trade (2020). *Aktualizace Národního akčního plánu čisté mobility*. Available online: <https://www.mpo.cz/cz/prumysl/zpracovatelsky-prumysl/automobilovy-prumysl/aktualizace-narodniho-akcniho-planu-ciste-mobility--254445/>.
- [6] Ministry of Industry and Trade (2023). *Aktualizace Vnitrostátního plánu České republiky v oblasti energetiky a klimatu*. Available online: <https://www.mpo.cz/cz/energetika/strategicke-a-koncepcni-dokumenty/aktualizace-vnitrostatniho-planu-ceske-republiky-v-oblasti-energetiky-a-klimatu--277532/>.
- [7] McKinsey&Company (2020). *Klimaticky neutrální Česko*. Available online: https://www.mckinsey.com/cz/~/_media/mckinsey/locations/europe%20and%20middle%20east/czech%20republic/our%20work/decarbonization_report_cz_vf.pdf.
- [8] Asociace pro mezinárodní otázky (2023). *Distribuční analýza dopadů energetické krize na české domácnosti*. Available online: <https://www.amo.cz/cs/klimatym/distribucni-analyza-dopadu-energeticke-krize-na-ceske-domacnosti/>.

RACE — 2 PARIS

— GERMANY



GERMANY

Moritz Neujeffski and Dieter Plehwe

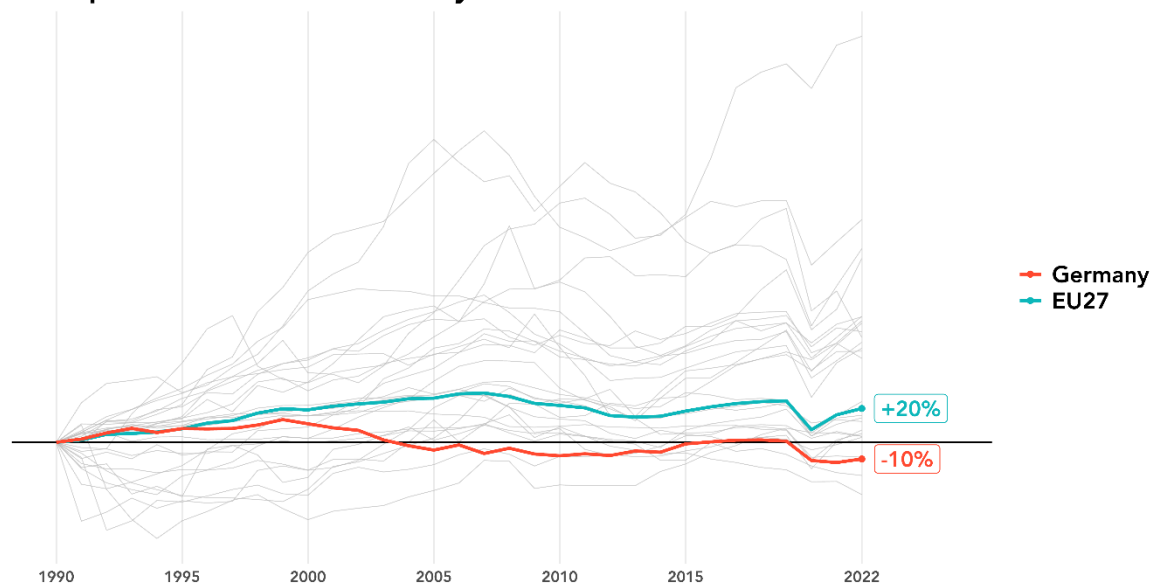
Germany is a country of car owners. Germany hit a new record with 48.8 million registered passenger cars as of January 1, 2023, according to the Federal Motor Transport Authority, showing a slight increase from the previous year. One in two drive cars on a daily basis. The transition to electric vehicles (EVs) is progressing slowly, with EVs making up just 2.1 percent of the total registered cars at the beginning of 2023.^[1]

Moreover, German car production remains a core feature of the country's industrial sector and in 2016 accounted for 4.5 percent of German GDP.^[2] Germany has three independent domestic automotive manufacturers (Volkswagen, Mercedes-Benz, BMW) and a total of around 900 companies are automotive suppliers, employing around 800,000 people.^[3] In 2023, 4.1 million new passenger cars were built in Germany, one third of EU production.^[4] Moving the German hub of car manufacturing away from combustion engines will be key to managing the social and ecological transition in Europe.

Transport Emissions

The transport sector in Germany has been a significant contributor to carbon dioxide (CO₂) emissions. In 2019 the sector emitted around 164 Mio. t of CO₂ which accounts for 20 percent of total emissions in Germany. While other sectors have managed to cut emissions significantly (industry, housing), emissions from transport have almost remained stable since the 1990s. Emissions only started to decline slightly during the COVID-19 pandemic.

Transport Emissions in Germany



Source: Eurostat, Own Calculations

In recent years, more and more SUVs have been registered in Germany. Their fuel consumption is significantly higher compared to models in a lower weight class. Between 2013 and 2023, the proportion of vans, SUVs, and utility vehicles in the overall vehicle fleet

rose from 18 percent to 29 percent.^[5] According to the German NGO *Deutsche Umwelthilfe*, the average CO₂ emissions of newly registered SUVs and off-road vehicles in Germany in 2018 were 144 g/km, well above the overall average of 130 g/km.^[6] This is miles away from the EU fleet-wide CO₂ limit of 95 g/km for passenger cars, which has applied since 2020.^[7]

According to the country's binding targets for reducing greenhouse gas, the transport sector's emissions have to be reduced to 84 million t CO₂-eq. by 2030. Yet, the previous liberal-led Ministry of Transport does not seem particularly willing to comply with the contracts. In 2023, the Federal Audit Office issued a devastating report to the Ministry of Transport, stating that the ministry: "is not fulfilling its responsibility for climate protection in the transport sector".^[8] Adequate measures such as a general speed limit on German highways were ignored by the ministry. The creation of an immediate action programme to reduce CO₂ emissions, as actually required by law, was rejected by the ministry last year.^[9] In order to meet the goals of the Paris Agreement, Germany needs to urgently start cutting emissions in the transport sector.

Privatisations in the Railway Network

For years, Germany's rail sector has been subject to ongoing privatisation efforts. The course for privatising the German railway was set after German unification. On January 1, 1994, the *Bundesbahn* in the West and the *Reichsbahn* in the East of Germany were merged to become *Deutsche Bahn* AG, a company organised under private law. In accordance with European law and to foster competition, the market in Germany was opened up to other rail companies. The federal government remained the sole owner of the new *Bahn* AG and is still in the position to make strategic decisions. Following commercialization, however, the company operated like a private sector corporation with the aim of full privatisation.

Germany's railroad was to be turned into a profitable enterprise. At the beginning of 1994, *Deutsche Bahn* AG had around 350,000 employees.^[10] The number of employees was almost halved over the following decades. At the beginning of 1999, five independent stock corporations were established under the umbrella of the holding *Bahn* AG. Subsequently, an initial public tendering was planned, but the onset of the financial crisis in 2007/8 stopped the plan.

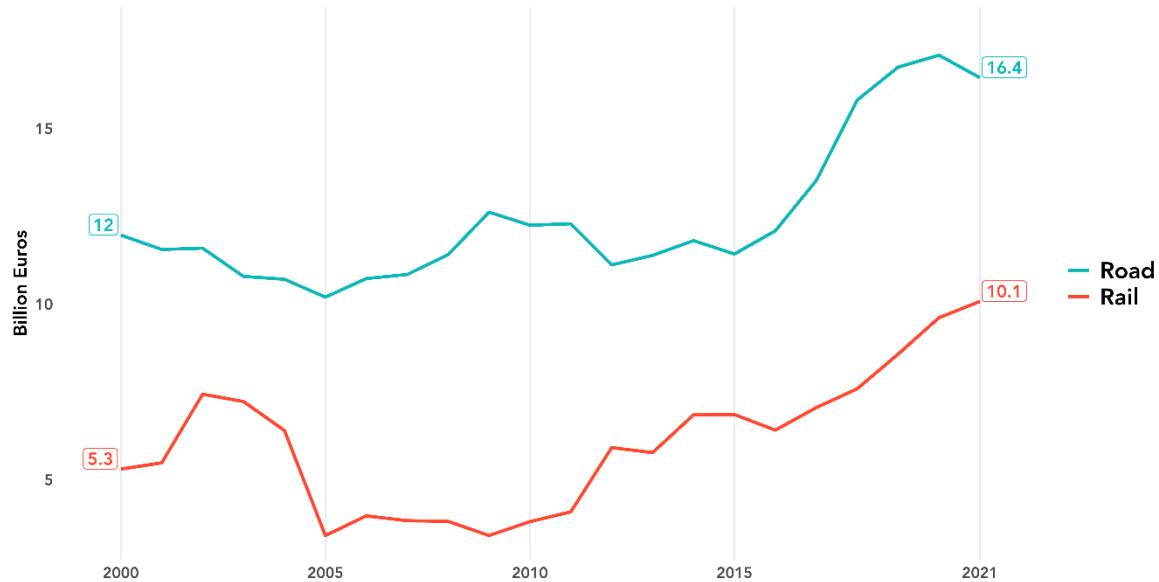
Efforts to privatise German rail and other segments of public transportation are ongoing. At the local level, publicly owned transportation companies will face selloffs in the upcoming years. In Berlin, for example, the state government has been planning to dismantle the public transport system (BVG) over the last couple of years.^[11] The city government argued that European procurement regulation forced such a privatisation. Due to the opposition of trade unions, employees and a civil society movement (*S-Bahn Privatisierung stoppen*)^[12] the plans are currently on hold. At the national level, the conservative Christian Democrats (CDU) are currently pushing for a stricter separation of *Deutsche Bahn* in terms of the provision of infrastructure.^[13]

State Investments into Road and Railway Infrastructure

Shortly before becoming a joint stock company in 2008, rail investment fell to a historic low. Compared with annual investment in German roads, investment in rail infrastructure is significantly lower, although public spending in the rail sector has increased slightly again

in recent years. Compared with other European countries, investments in railways per head are rather low in Germany. Whereas Austria, for example, invested 336 euros per head in 2023, Germany only invested 115 euros.^[14]

State Investments into Road and Railway Infrastructure in Germany



Source: OECD, Own Calculations

The logical consequence of years of low investment in the rail network and the hunger for profits have led to a steady decline in rail infrastructure in Germany. Germany still boasts the largest railway network in Europe, with a total operational length of 39,900 kilometres. However, since reunification, the network has seen a net loss of more than 4,000 kilometres, even when considering new lines. After reunification, Eastern Germany rapidly underwent development that had largely been completed in the Western part of the country during the 1970s and 1980s.^[15] Many cities, and even entire regions, have lost their connection to long-distance trains. As the rail network has contracted over the decades, passenger and freight traffic has, however, consistently increased.^[16] This is also one of the main reasons why so many train services are delayed: In 2022, only about 65 percent of long-distance trains operated by Deutsche Bahn were on time.^[17]

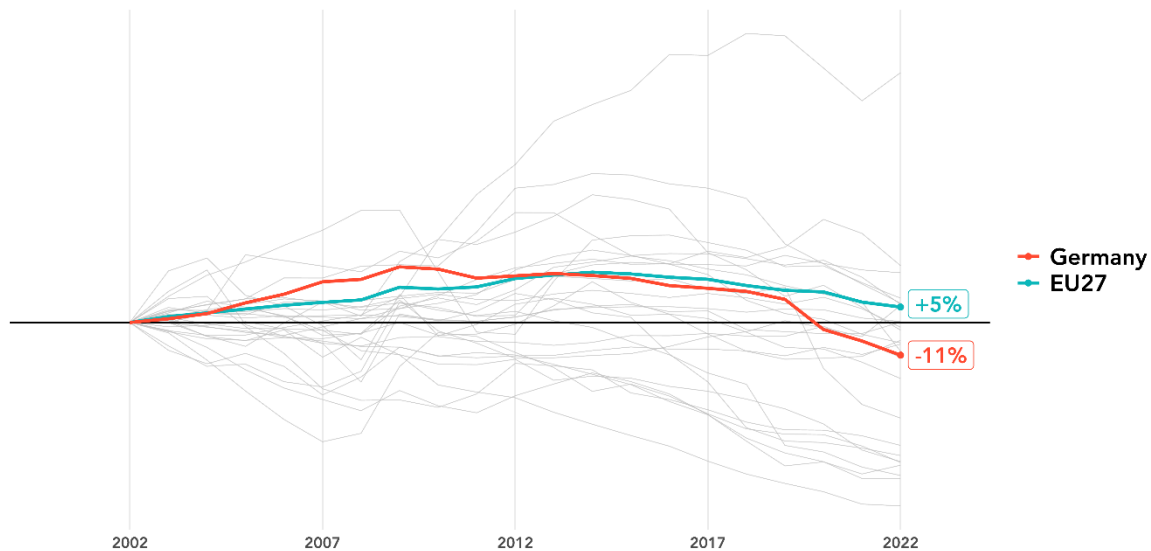
Affordability of Public Transport Services

Public transportation is relatively affordable when compared to the European average as displayed in the graph above. However, there are segments in German society for whom public transportation is not or hardly affordable. Lately, the cost of living crisis and the increased energy costs have affected ticket prices. Already during 2023 did local and regional public transportation companies increase prices strongly.^[18] At the beginning of 2024 another increase of around 13 percent made public transportation for consumers much more costly.^[19] This will especially affect low income and unemployed people. In Germany, for years thousands ended up in prison every year because they were travelling without a valid ticket and could not pay resulting fines. This is because in Germany, riding without a ticket was until the summer of 2024 still a criminal offence, a law introduced by the Nazis in 1935.^[20] The civil society movement *Freiheitsfonds* has therefore started to bail out

individuals imprisoned for fare evasion, successfully securing the release of 1091 people since 2021.

Affordability of Public Transport Services in Germany

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

Reforms we need

1. Investment in the railway system must be prioritised. In addition to the expansion of prestigious long-distance transport, the connection of regional and rural areas must also be greatly improved.
2. There needs to be much stricter regulation of car traffic in Germany. As a rich automotive-nation, Germany has a pioneering role in the reduction of CO2 emissions in the transport sector. This includes, for example, a uniform speed limit on German highways.
3. Initiatives such as the 49-Euro Ticket (*Deutschlandticket*), which permits travelling regional trains throughout the country, are proving to be beneficial alternatives that make public transport more attractive. It is important to maintain the leeway that has been gained and to make public transport financially attractive in the long term as well. Regional and local initiatives like the Bavarian reduced price ticket and Nuremberg's Social ticket reduce the cost of the *Deutschland* ticket for those eligible to 29 euros (students etc.) and 19 euros (welfare recipients), respectively.
4. In addition, criminal law must also be adapted so that travelling without a valid ticket, does not lead to incarceration anymore.
5. In short, Germany's transport priorities need to be reversed. Private individual car mobility and road transport in general need to be restricted whereas public transport and rail transport in particular need to be expanded step by step.

References

- [1] DESTATIS (2023). *Pkw-Dichte im Jahr 2022 erneut auf Rekordhoch*. Available online: https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/09/PD23_N048_46.html#:~:text=Die%20Zahl%20der%20zugelassenen%20Autos,48%2C5%20Millionen%20Pkw.
- [2] STATISTA (2023). *Anzahl der Betriebe in der Automobilindustrie in Deutschland von 2012 bis 2022*. Available online: <https://de.statista.com/statistik/daten/studie/253827/umfrage/anzahl-der-betriebe-in-der-automobilindustrie/>.
- [3] Bundesministerium für Wirtschaft und Klimaschutz. *Automobilindustrie*. Available online: <https://www.bmwk.de/Redaktion/DE/Textsammlungen/Branchenfokus/Industrie/branchenfokus-automobilindustrie.html>.
- [4] Automobilwoche (2024). *Pkw-Produktion in Deutschland 2023 gestiegen*. Available online: <https://www.automobilwoche.de/nachrichten/vda-pkw-produktion-deutschland-2023-gestiegen>.
- [5] Umweltbundesamt (2023). *Verkehrsinfrastruktur und Fahrzeugbestand*. Available online: <https://www.umweltbundesamt.de/daten/verkehr/verkehrsinfrastruktur-fahrzeugbestand#stark-steigende-tendenz-bei-suvs-und-gelandewagen>.
- [6] Deutsche Umwelthilfe (2020). *Deutsche Umwelthilfe verleiht Daimler den „Goldenen Geier 2020“ für den unsinnigsten Monster-SUV Mercedes GLS*. Available online: <https://www.duh.de/presse/pressemitteilungen/pressemitteilung/deutsche-umwelthilfe-verleiht-daimler-den-goldenen-geier-2020-fuer-den-unsinnigsten-monster-suv-mer/>.
- [7] European Commission. *CO₂ emission performance standards for cars and vans*. Available online: https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en.
- [8] Tagesspiegel (2023). *Versagen beim Klimaschutz :Bundesrechnungshof stellt Verkehrsminister vernichtendes Zeugnis aus*. Available online: <https://www.tagesspiegel.de/politik/versagen-beim-klimaschutz-bundesrechnungshof-stellt-verkehrsminister-vernichtendes-zeugnis-aus-10619023.html>.
- [9] RedaktionsNetzwerk Deutschland. *Wieder Ärger wegen Klimaschutz-Sofortmaßnahmen: Kritik an Wissing*. Available online: <https://www.rnd.de/politik/klimaschutz-verkehrsminister-wissing-weigert-sich-gegen-sofortmassnahmen-NKPUM3DJORD5RO6NL624ZTG7M4.html>.
- [10] Nürnberg, Dieter (Deutschlandfunk) (2019). *Erfolgreiche Weichenstellung? Die Privatisierung der Bahn 1994*. Available online: <https://www.deutschlandfunk.de/erfolgreiche-weichenstellung-die-privatisierung-der-bahn-100.html>.
- [11] Neumann, Peter (Berliner Zeitung) (2022). *Privatisierungskritiker fordern Stopp der S-Bahn-Ausschreibung in Berlin*. Available online: <https://www.berliner-zeitung.de/mensch-metropole/privatisierungskritiker-fordern-stopp-der-s-bahn-ausschreibung-in-berlin-li.211138>.
- [12] Bahn für alle. *Eine S-Bahn für Alle – Berliner S-Bahn retten!*. Available online: <https://bahn-fuer-alle.de/eine-s-bahn-fuer-alle/>.
- [13] Tagesschau (2023). *Vorschlag für Aufspaltung: Union will Deutsche Bahn zerschlagen*. Available online: <https://www.tagesschau.de/wirtschaft/unternehmen/union-vorschlag-deutsche-bahn-101.html>.
- [14] Allianz pro Schiene. *Das Schienennetz in Deutschland*. Available online: <https://www.allianz-pro-schiene.de/themen/infrastruktur/schienennetz/>.
- [15] Berliner Morgenpost (2023). *So ist Deutschlands Schienennetz geschrumpft*. Available online: <https://interaktiv.morgenpost.de/bahn-schienennetz-deutschland-1835-bis-heute/>.
- [16] Allianz pro Schiene. *Das Schienennetz in Deutschland*. Available online: <https://www.allianz-pro-schiene.de/themen/infrastruktur/schienennetz/>.
- [17] DeutscheBahn (2023). *Pünktlichkeit*. Available online: <https://zbr.deutschebahn.com/2023/de/konzern-zwischenlagebericht-ungeprueft/produktqualitaet-und-digitalisierung/puenktlichkeit/>.

^[18] Robertz, Victoria (2023). *Vor 49-Euro-Ticket: ÖPNV-Anbieter langen kräftig zu*. In Capital: Available online: <https://www.capital.de/wirtschaft-politik/vor-49-euro-ticket--verkehrsverbuende-erhoehen-preise-im-oepnv-kraeftig-33281328.html>.

^[19] ZEIT ONLINE (2023). *Verkehrsverbünde erhöhen Preise im neuen Jahr*. Available online: <https://www.zeit.de/mobilitaet/2023-12/oepnv-viele-verkehrsverbuende-erhoehen-preise>.

^[20] Freiheitsfonds. *Kein Fahrschein? Knast!.* Available online: <https://www.freiheitsfonds.de/>.

RACE — 2 PARIS

— ITALY



ITALY

Alessandro Montebugnoli and Simone Furzi

CRS - Centre for the Reform of the State (Roma, Italy)

Among peer European economies, Italy is the one with the highest car ownership rate. While the average ownership of cars per 100 individuals in the European Union is 54.6, it is 66.3 in Italy. Given this, reaching the goal of sustainable mobility seems to be very difficult. This is, first and foremost, due to a significant public transportation infrastructure deficit in Southern Italy. Second, national debts and European public debt legislation hinder an expansion of infrastructure investments. To turn the tide, the creation of a sustainable transportation infrastructure would require a multi-pronged intervention by the whole national community (government + administrations + civil society). Moreover, the transformation of the transportation sector should not be regarded as a sectoral issue alone: specific investments and actions are desperately needed in the transport sector, but they need to be realised in the general framework of urban and regional settlements policies.

The Automotive Sector and the Italian Economy

Despite the high number of cars on Italian streets, the Italian automotive sector represents only a small fraction of the Italian economy (Fig. 2 and 3). From 2000 to 2022, the number of vehicles produced has decreased by a factor of 2.2 (3.0 for just passenger cars) and the demand has seen a large drop (factor of 1.7) too. Nowadays, national automotive production comprises just 34.2 percent of the country's market supply. Similar trends can be observed in other western European countries too.

Table 1. *The decline of the automotive sector in Italy*

	2000	2010	2022
Total production	1,738,315	838,186	796,394
<i>Automobiles</i>	<i>1,422,284</i>	<i>573,169</i>	<i>473,194</i>
<i>Commercial vehicles</i>	<i>316,031</i>	<i>265,017</i>	<i>323,200</i>
Demand of automobiles	2,425,496	1,961,561	1,381,655*

* data referred to 2020

Source: OICA International Organization of Motor Vehicle Manufacturers e Unrae - Unione Nazionale Rappresentanti Autoveicoli Esteri

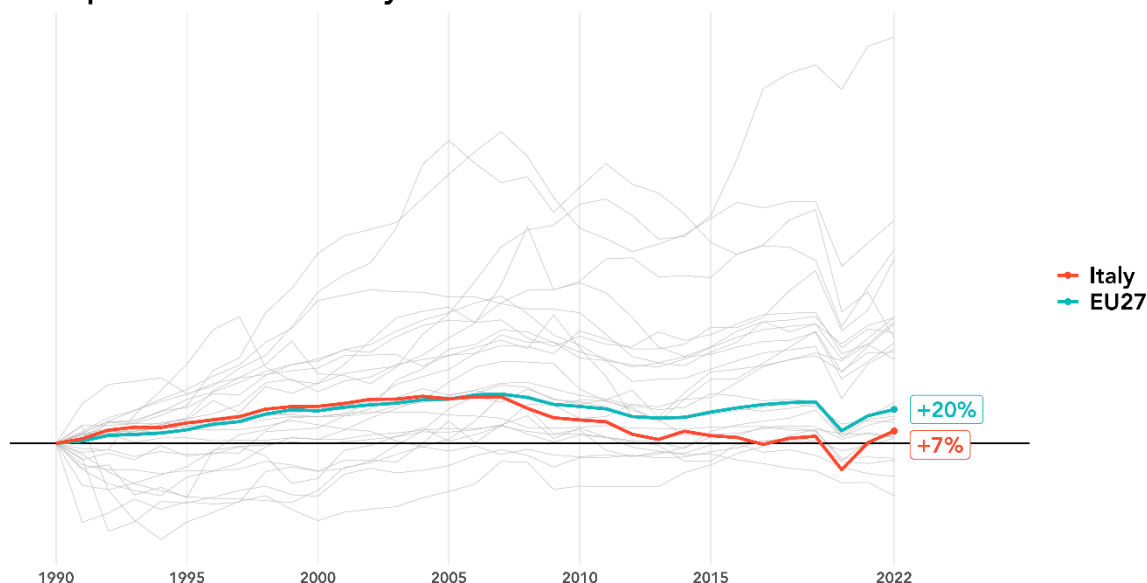
As a result, the employment rate in the automotive sector is now at 0.8 percent of the total employment rate (5 percent of the manufacturing employment rate) and its revenue is 4.4 percent of GDP (8 percent of the manufacturing GDP). 70 percent of enterprises in the automotive sector are specialised in the production of components rather than in the assembly of the 'the car' as final product. In effect, most companies in Italy's automotive sector only generate low revenue.

Transport Emissions in Italy

Between 1990 and 2019, road transport related CO₂ emissions remained nearly stationary. Last year the transport sector emitted almost 112.4 million tons of CO₂, which accounts for 30.7 percent of Italy's total CO₂ emissions. As in most other European countries, road transport emits most emissions (92.6 percent).^[1] Transportation is also responsible for consistently high emissions of various polluting agents, which cause 66,000 premature deaths every year in Italy.^[2]

Figure 1. *Transport Emissions in Italy - 1990-2022*

Transport Emissions in Italy



Source: Eurostat, Own Calculations

Compared to only mediocre improvements achieved in other sectors, the transport sector did not contribute to any emission reductions as targeted in the Paris Agreement. One of the reasons for the inability to reduce emissions is the increase in SUV registration in Italy. SUVs have a 1.5 times higher CO₂ emission per passenger / kilometre. This increase of SUVs has more than cancelled the energy efficiency gains reached by standard passenger cars.^[3] In that regard 2021 was a remarkable year for the Italian car sales market: for the first time SUV sales exceeded those of sedan cars.^[4]

The Push towards Electric Cars

On the backdrop of unchanged CO₂ emissions, it remains unclear if incentives for electric vehicle adoption are driven by CO₂ emission reduction goals or by the intent to boost the automotive industry and safeguard jobs. As declared by a prominent *think tank* of the *automotive community*: "Probably the electric transition represents the most interesting opportunity that the carmakers never had in a long time when it comes to reviving a sector that is mature if not declining".^[5]

Government policies in support of electrification of the automotive sector have been limited to the creation of an "Automotive Fund". This Fund will allocate 8.7 billion euros incentivising the purchase of electric, hybrid and low-emissions-rate cars and commercial vehicles (2

billion euros for the years 2022-2024) and, on a smaller scale (750 billion of euro), to supply side interventions such as research, innovation or strategic investments, and training. Environmentalists have sharply criticised these policies for several reasons:

1. They still subsidise fossil-fuel vehicles alongside electric ones.
2. They ignore the larger carbon footprint of producing bigger electric vehicles, which can exceed that of fossil-fuel vehicles.
3. The funding for the automotive industry is disproportionately high compared to local public transport, with only 7.5 billion euros allocated through 2035 – insufficient for the necessary overhaul. The same is true for the even smaller investments in active mobility to promote biking and walking.

In any case, government policies failed in setting off the process of road transport electrification: In 2022, electric cars represented only 0.4 percent of total circulating cars and 3.8 percent of total sales.^[6]

State Investments into Road and Railway Infrastructure

According to data provided by the International Transport Forum, between 2010 and 2020 Italian investments in land transport infrastructures diminished by a compound annual rate of 0.05 percent. As a result, they currently correspond to 0.4 percent of GDP: a value considerably lower than in other European countries such as France (0.9 percent), the United Kingdom (0.8 percent), Germany (0.7 percent), and Spain (0.6 percent). Over the last ten years the expense for construction and maintenance of railways and roads reached 98.3 billion euros in Italy, 227 billion euros in Germany, 223 billion euros in France and 186 billion euros in the UK.^[7] Railway investments remained consistently just under 50 percent of the total investments in land transport infrastructure. As a result, extension of the railway network has slowed down substantially. Comparing the infrastructure for roads and new railway lines is insightful too: Between 1995 and 2019, so over a period of 25 years, 774 kilometres of railway tracks were constructed^[8], which stands against 1,558 kilometres of roads constructed in the same period. A third of these roads are highways. In 2019 the length of the railways represented roughly 9.9 percent of the road kilometres in Italy. This is almost the same situation as in 1995. Back then, railway lines equalled 10.3 percent of roads in Italy. This is exactly the opposite of a large transition from road transport to rail transport that would be necessary to make local public transport more affordable, sustainable, and efficient.

Recent Developments in the Railway Transportation

Having a closer look at the development of the railway sector, we observe two trends that have shaped it over recent years:

1. enhanced high-speed train connections between large urban areas (mostly in the Northern regions);
2. deterioration of regional and intercity connections between middle sized urban areas.

Regarding the first development, Trenitalia's high-speed train ridership skyrocketed from 6.5 million in 2008 to 40 million in 2019, a 515 percent increase. Italo's high-speed service also saw growth, from roughly 4.5 million passengers in 2012 to 20.1 million in 2019. This surge is attributed to the doubling of high-speed train frequencies per day, from 74 in 2008 to 160 in 2022. However, regions without high-speed services have experienced a decline in transportation options. Intercity train services decreased by 17 percent from 2009 to 2021.

Southern Italy has been particularly affected: Sicily, for instance, on average 506 trains run per day compared to Lombardy's 2,173, despite having nearly the same land area and half the population. The table below highlights the lengthy travel times between southern urban centres, despite close geographical proximity. Additionally, trains in Southern Italy are older than those in the North, with average ages of 18.5 years and 11.9 years, respectively.

Table 2: *The Southern Italian railways deficit*

Connections	Km	Travel time
Between Southern cities		
Cosenza-Crotone	115	2h 46m
Ragusa-Palermo	237	4h 23m
Potenza-Matera	94	3h 25m
Nuoro-Macomer	57	1h 15m
Between regional areas		
Roma-Villa S. Giovanni (far South)	488	5h 10m
Roma-Torino (far North)	524	3h 53m

Privatisations in the Railway Network

The decision to open the railway sector to private companies dates back to 2001. This was a response to EU railway liberalisation efforts (railway packages), introduced in Italy in 1999. In 2001, the establishment of the RFI-Rete Ferroviaria Italiana (Italian Railway Network) realised the mandated division between ownership and operation of the network - both remaining under public control - and the provision of transport services. This opened the market to competition among state-owned and private enterprises. Following a significant restructuring, since 2012, passenger transport services on Italy's high-speed rail lines have been operated by two companies: Trenitalia, which is entirely state-owned, and NTV-Nuovo Trasporto Viaggiatori (New Passengers Transport). NTV was originally established with Italian private capital and is now under the control of a U.S. investment fund (CPI), holding market shares of 65 percent and 35 percent, respectively.

In the aftermath of the financial crisis, the government, in 2014, declared to sell 40 percent of FSI property – Ferrovie dello Stato Italiano (Italian State Railway), the State-owned holding company controlling both RFI and Trenitalia. The announcement caused severe criticism, especially because the plan constituted the partial sale of the state-owned railway network – generally considered a natural non-contestable monopoly – to private companies. In fact, without any economic or industrial motivation, the main objective of the project was to 'raise cash' in order to diminish the national debt, in the aftermath of the European debt crisis. The dissolution of the government in December 2016 marked the end of these plans so far: none of the following governments pursued similar privatisation plans.

In contrast, the landscape for Public Local Transport (PLT) remains distinct. Since 1997, a financial disincentive system has been in place discouraging municipalities opting for direct or in-house management of PLT services, encouraging competitive bidding instead. The most recent Annual Law for Market and Competition (2021) has further reinforced this approach. Despite these measures, the privatisation of local bus, metro, and rail services is advancing at a modest pace, with 20 to 30 percent of Italy's PLT market currently awarded through open tendering procedures.

The Public Transport Tariffs

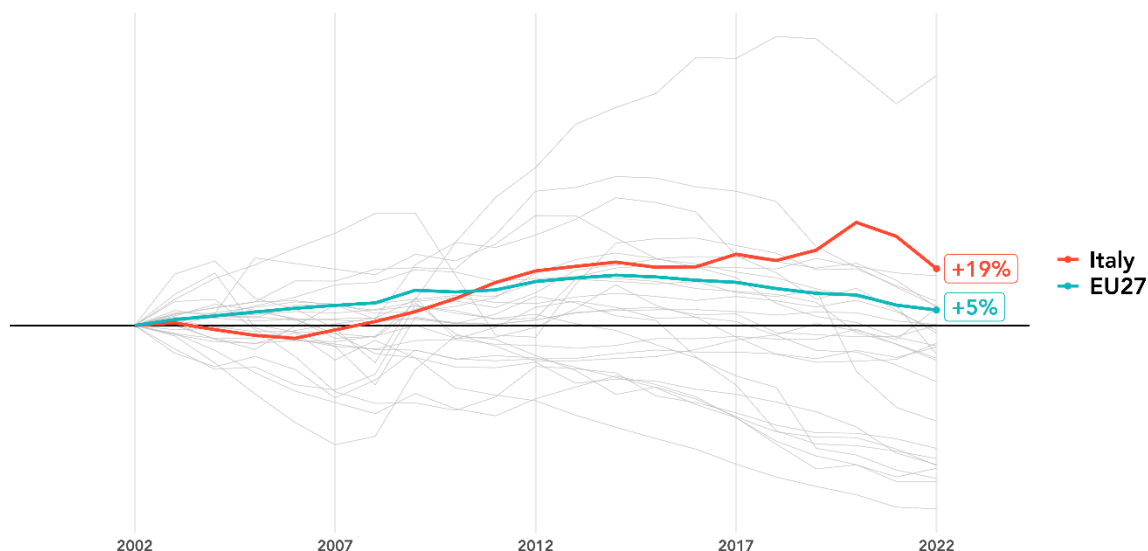
In the last 20 years, according to Eurostat data, fees for Italian public transport have risen significantly more than the European average.

Figure 2. *Affordability of Public Transport Services in Italy*

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income

Affordability of Public Transport Services in Italy

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

Nevertheless, with reference to the period 2019-2022, it has to be noted that: (i) the fees for local public transportation have remained quite steady, while the sectorial consumer price index strongly increased, due to the rise of the energy prices, (ii) the PLT fees increased much less than the *public utilities* prices.^[9]

Promising Alternatives

Genoa's municipality has launched a notable initiative by offering free access to vertical transportation systems (elevators, funiculars, and rack railways) and the metro during certain hours (10-16 and 20-22) in the first seven months of 2022. With an investment of 600,000 euros, usage increased by 33.4 percent for vertical transport and 18 percent for the metro, totalling an additional 36,000 passengers. Of these, 25 percent changed their commuting patterns, including 26 percent who switched from cars to public transport, resulting in nearly 3,000 fewer car trips each week and improving air quality.^[10]

Reforms we need

1. Italy has an obligation to drastically reduce private automotive transportation, and instead increase public transport (especially on railways) and active mobility (on foot and by bike).^[11] However, boosting sales of electric cars with public funds is not a viable substitute in the attempt to reduce CO₂ emissions. Firstly, the reduction would be far too limited (in Italy it would be 37 percent)^[12]; and secondly, because the automotive transport is inherently inefficient, irrespective of the CO₂ emissions produced. So, the decrease of private automotive transport and the increase of other ways of transport is a classic example of a *win-win situation*: community and environment would benefit in terms of health, safety, travel time, soil sealing, and usage of resources, together with lower emissions. The process of changing modes of transportation from road to rail, and from privately owned cars to public transportation needs to go along with reducing the demand or necessity for transportation in general. A good model of sustainable mobility should rather include demand management interventions, generally aimed to contain the necessity of long-haul travels. In this regard, transportation should be re-imagined as urban and regional planning issues.
2. Interventions are needed to make public transportation the more convenient alternative. But convenience is measured on two axes: how much you pay versus how much you get; and this balance, in Italy, is highly problematic. Fee reductions that are sufficiently large to "make the difference" compared with other alternatives contrast with the necessity of collecting revenues as high as possible in order to realise a conspicuous *upgrading* of what the public transport is able to deliver (in terms of extensiveness, frequency, reliability, comfort, etc.). In reference to this last element, in fact, Italy has a large negative gap: for example, the average age of the local public transportation vehicles is 10 years (even more than 12 years in some southern regions) compared to a European average age of 7 years.^[13] In this framework, 'systematic actions' based on regulation and urban planning instruments, potentially cheaper infrastructural investments and of fees reductions, can play a decisive role.

References

- [1] ISPRA (2022). *Italian Greenhouse Gas Inventory 1990-2019. National Inventory Report 2022*. Available online: <https://www.isprambiente.gov.it/en/publications/reports/italian-greenhouse-gas-inventory-1990-2020-national-inventory-report-2022>.
- [2] MIMS – Ministero delle infrastrutture e della mobilità sostenibili (2022), *Decarbonizzare i trasporti. Evidenze scientifiche e proposte di policy*. Available online: https://www.mit.gov.it/nfsmitgov/files/media/notizia/2022-04/STEMI_Decarbonizzare%20i%20trasporti_0.pdf.
- [3] IEA-International Energy Agency, (2021). *Carbon Emissions Fell across All Sectors in 2020 Except for One - SUVs*. Available online: <https://www.iea.org/commentaries/carbon-emissions-fell-across-all-sectors-in-2020-except-for-one-suvs>.
- [4] Motor1 (2022): *Italia: nel 2021 storico sorpasso dei SUV sulle berline*. Available online: <https://it.motor1.com/news/593934/mercato-italia-fuoristrada-sorpasso-berline/>.
- [5] "È probabile che la transizione [ai motori elettrici] rappresenti l'opportunità più interessante che i carmaker abbiano avuto da molti anni a questa parte per rivitalizzare un settore quantomeno maturo se non in declino". A. Stocchetti, *Tratti evolutivi di una transizione necessaria*, in G.C. Calabrese, A. Moretti A, F. Zirpoli, *Osservatorio sulle trasformazioni dell'ecosistema automotive italiano 2022*, Edizioni Ca' Foscari, Venezia, 2023, p. 62. Available online: <https://edizionicafoscari.unive.it/it/edizioni/libri/978-88-6969-703-6/>.
- [6] ACI (2022). *Autoritratto 2022*. Available online: <https://www.aci.it/laci/studi-e-ricerche/dati-e-statistiche/autoritratto/autoritratto-2022.html>.
- [7] International transport Forum (2022). *Spending on Transport infrastructure*. Available online: <https://www.itf-oecd.org/sites/default/files/docs/inland-transport-infrastructure-investment-brief-2022.pdf>.
- [8] Openpolis (2022). *In circa 25 anni, 774 chilometri in più di binari*. Available online: <https://www.openpolis.it/numeri/in-circa-25-anni-774-chilometri-in-piu-di-binari/>.
- [9] ASSTRA – Intesa San Paolo (2022). *Le performance delle imprese di trasporto pubblico locale*. Available online: <https://group.intesasanpaolo.com/content/dam/portalgroup/repository-documenti/newsroom/area-media-dsr/2022/ISP-ASSTRA%20Rapporto%20TPL%202022.pdf>.
- [10] Comune di Genova (2022). *Mobilità sostenibile, prolungata fino al 31 dicembre la gratuità di impianti verticali e metropolitana*. Available online: <https://smart.comune.genova.it/comunicati-stampa-mobilit%C3%A0-articoli/mobilit%C3%A0-sostenibile-prolungata-fino-al-31-dicembre-la-gratuit%C3%A0>.
- [11] Transport & Environment (2019). *Reduction Emission Strategies for the Transport Sector in Italy*. Available online: <https://www.transportenvironment.org/discover/emissions-reduction-strategies-transport-sector-italy/>.
- [12] MIMS – Ministero delle infrastrutture e della mobilità sostenibili (2022), *Decarbonizzare i trasporti. Evidenze scientifiche e proposte di policy*. Available online: https://www.mit.gov.it/nfsmitgov/files/media/notizia/2022-04/STEMI_Decarbonizzare%20i%20trasporti_0.pdf.
- [13] AGENS & Asstra (2022). *19° Rapporto sulla mobilità degli italiani Principali risultati*. Available online: <https://www.isfort.it/wp-content/uploads/2022/12/19-Rapporto-mobilita-italiani-Sintesi.pdf>.

RACE — 2 PARIS

— THE NETHERLANDS



THE NETHERLANDS

John Burant

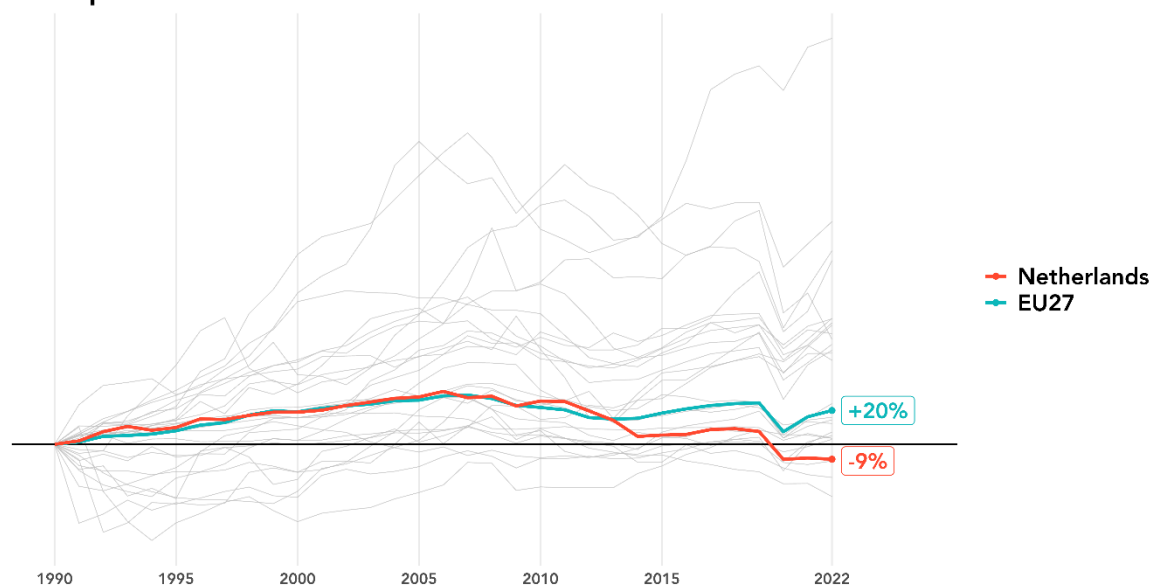
Transnational Institute (TNI)

The Netherlands is a small, densely populated country with a well-developed transportation infrastructure and relatively high utilisation of public transport. It is particularly well-known for its high bicycle usage. Compared to neighbouring Germany, the national automobile industry has much less of an economic and political influence. Overall, the country has relatively low carbon emissions per capita in transport and has ambitious aims to further reduce these emissions. There are several notable challenges: prices for public transit use keep increasing. Also public transit use remains impacted by the pandemic and car use is projected to increase.

Transport Emissions

The development in transport sector emissions in the Netherlands since 1990 is shown in the figure below on an indexed basis. Emissions in the Netherlands generally have followed that of the EU27 as a whole from 1990 until 2010. Over this period, both the EU27 as a whole and the Netherlands have shown a gradual increase up until 2007, followed by a gradual decrease until 2012. Between 2012 and 2014, however, total Dutch emissions have dropped and remained roughly flat from 2014 through 2019 followed by a reduction of emissions due to the Covid pandemic. In contrast, EU27 emissions have increased gradually over this period of time. As a result, transport-related emissions in the Netherlands have decreased by a total of 9 percent since 1990, compared to a 20 percent increase in the EU27.

Transport Emissions in Netherlands



Source: Eurostat, Own Calculations

On a per-capita basis, emissions from transport in the Netherlands are relatively low for a wealthy country. As of 2019, emissions were 1.72 tons per person, the second lowest among all European countries with a GDP per capita above 40,000 euros.^[1] The low level of emissions was due to a successful reduction of 22.3 percent since the peak per-capita emissions in 2006.

Relative Use of Transport Modes

As any visitor to the Netherlands knows, bicycles are a ubiquitous form of transport throughout the country. According to the Dutch statistics bureau, bicycles are used for 25 percent of all trips and for 70 percent of all trips less than 3.7 kilometres in distance.^[2] The average resident uses a bicycle for 232 trips each year adding up to a total of 979 kilometres. Although not directly comparable, the European Commissions' Eurobarometer indicates that 62 percent of all residents use a bicycle or scooter "on a typical day", compared with just 14 percent across the EU.^[3] Slightly older figures, from 2014-2017, indicate that the distance cycled per capita per year was 899 kilometres in the Netherlands, well above all other countries (the next highest were Denmark at 616 kilometres, Belgium at 575 kilometres, and Germany at 451 kilometres).^[4]

This has a modest impact on the relative use of transport modes, mostly decreasing the relative use of automobiles and public transport modes such as buses, metros and trams for short distances. Although car use remains significant, it is below that of peer countries. From 2014-2017, the average distance travelled by passenger cars per capita in the Netherlands was 8,321 kilometres. This was 20 to 30 percent lower than the rates reported for nine other Western European countries.^[5]

When comparing trips taken by cars, trains, buses, and trams, trains stand out accounting for 11.2 percent passenger-kilometres travelled, the 4th highest among the EU/EEA/EFTA countries plus the UK (3rd among EU countries).^[6] The high usage of trains for intercity travel and bicycles for shorter trips combines to push bus and tram traffic to the lowest usage rate among all 31 EU/EEA/EFTA countries plus the UK, accounting for only 3.2 percent of all passenger-kilometres traveled.^[7] Nonetheless, cars are still a significant component of travel, accounting for 85.6 percent of all passenger-kilometres travelled, the 7th highest among the EU/EEA/EFTA countries and the UK (4th among all EU countries).

Although the overall situation is relatively good, progress towards a further modal shift has been slow and may have stalled or even regressed. The use of public transport, which declined significantly during the corona pandemic, has not yet recovered to pre-corona levels. Furthermore, a government prognosis suggests that car transport will continue to grow until 2028 and public transit use is expected to remain below 2019 levels in this period.^[8]

Furthermore, as is the case in numerous other countries, personal vehicles are increasing in average weight in the Netherlands. Newly registered automobiles now average 1,460 kilograms, almost 500 kilograms more than their average weight in 1983. SUVs represented 30 percent of new vehicles sold in the Netherlands in 2021, up from 15 percent in 2012. While this is less than the worldwide average of 46 percent, it poses a problem because SUVs and heavier gasoline-burning cars emit more carbon (dioxide) per distance travelled than lighter vehicles.^[9]

A reduction in the impact of automobile use can also be achieved by car sharing, which exists to some extent in the Netherlands. There are several commercial (business-to-consumer, or B2C) providers operating in the Netherlands, with approximately 5,500 cars available in major cities as of 2021. Although the fleets have grown substantially from 2019, penetration is still relatively low, with 1.6 percent of the population reporting having used B2C vehicles during the past 3 years in a survey released in 2021. There is also a sizable peer-to-peer (P2P) car sharing community, with 69,000 vehicles listed on the largest private car sharing platform as of 2021, growing from zero in 2012. Generally P2P cars have lower shared utilisation than B2C shared cars, and only 1 percent of the population has reported using a P2P shared car during the past three years.^[10]

Paid bicycle sharing plans of the sort that exist in many large cities in other countries have not taken root in the Netherlands, likely due to the saturation of the market by owned bicycles. The notable exception to this is the *OV-fiets* programme run by the public railway operator NS, which makes rental bicycles available at nearly every train station in the country, so that travellers can easily use a bicycle for their last few kilometres of local travel after arriving in a new city. The programme is increasingly popular, with 5.4 million rides in 2022 narrowly eclipsing the pre-pandemic maximum achieved in 2019. This compares with 4.2 million rides in 2018 and just 1.4 million rides in 2013.^[11]

Affordability of Public Transportation Systems

Although the heterogeneity of the transport systems and different income levels among European countries rule out a definitive apples-to-apples comparison of affordability of public transport, selected statistics do give a picture of the situation in the Netherlands.

With regards to train travel, which is the dominant form of public transport in the Netherlands, the country falls at roughly the 70th percentile among European countries, with a cost of 12-14 euro cents per kilometre.^[12] Notably, there is very little government subsidy of the rail network. The main rail network receives no direct subsidies, and the monopoly concession operator pays a fee of 80 million euros per year to the governments, so there is actually a negative subsidy. For the much smaller regional network (see below), the subsidies represent 36 percent of the cost and the net consumer cost per kilometre travelled is only slightly higher.^[13]

Other modes of transit, notably bus and tram, are significantly more expensive. In 2019, the customer price per kilometre travelled was 23 euro cents for buses and 35 euro cents for trams; in addition to the consumer costs, subsidies per kilometre were 19 euro cents and 15 euro cents for these modes.

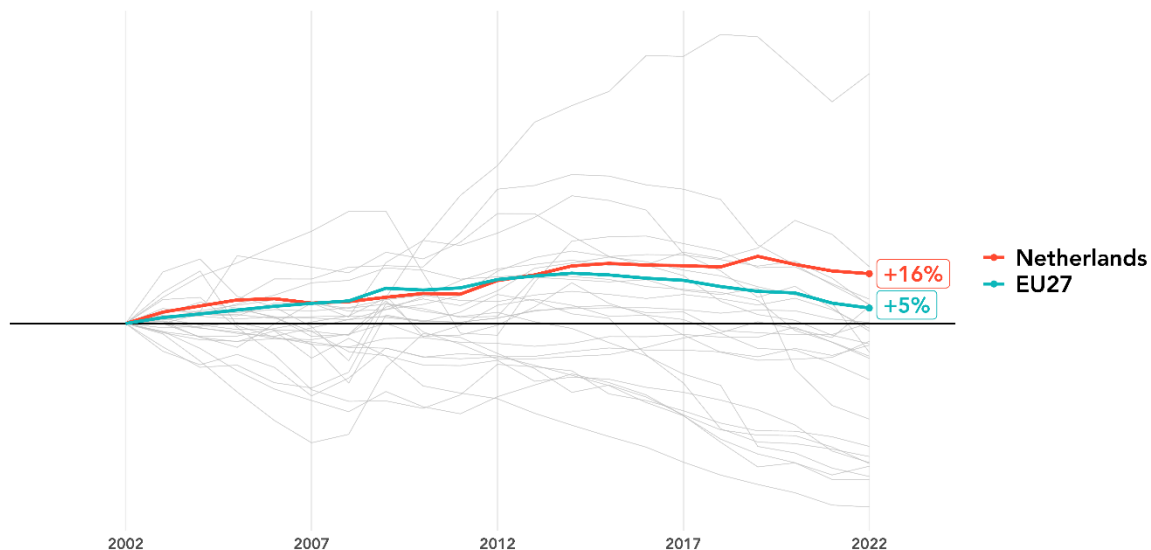
Across all modes of public transport, costs directly borne by travellers in 2019 were 4.0 billion euros. In addition, 800 million euros in subsidies, including the negative subsidy on the main railway network, were provided. The per-capita cost borne by travellers was approximately 225 euros per year.

Overall, costs for public transport in the Netherlands have risen over the past two decades, as shown by the chart below. Whereas across the EU27, the income-indexed cost of public transport rose only 6 percent over this time period, the increase in the Netherlands was 16 percent. In most countries, costs decreased over this period.

News reports suggest that in particular in urban and regional public transit costs have increased in recent years. In 2023, prices were estimated to be 7 percent higher than the year before and were projected to increase by an additional 11 percent by 2024.^[14]

Affordability of Public Transport Services in Netherlands

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

Privatisation

Although the Netherlands is regarded as having one of the most liberalised economies in the world, the extent of privatisation in rail is somewhat more limited than in many other European countries.^[15] In accordance with EU directive 91/440/EEC, the ownership and administration of the railway network and the operation of rail services were split in 1995 between two corporate entities, ProRail BV and NV Nederlandse Spoorwegen (NS).^[16] These two companies remain fully owned by the Dutch government. Moreover, the vast majority of passenger train services in the Netherlands are operated on an exclusive basis by NS. This is the result of several factors. The government has designated a major portion of the rail corridors in the Netherlands as being part of the main railway network (*hoofdrailnet*).^[17] This consists of corridors connecting major cities throughout the country as well as most of the secondary cities in the more densely populated *randstad* region in the west of the country. Moreover, services on these corridors receive special treatment: The responsible ministry has historically decided not to tender passenger services on the main railway network but rather has awarded a concession to NS after exclusive negotiations. The current concession period will run until the end of 2024, and the government has indicated plans to follow the same process in the upcoming concession cycle.^[18] This concession process has been criticised by private rail operators and by the European Commission, which is currently pressing the Netherlands to open this market to competition.^[19, 20]

Remaining passenger services are mostly regional rail services, competitively tendered by provincial authorities, mainly in the less-populated eastern regions with private operators. In 2019, 94 percent of Dutch railway passenger-kilometres were on the main network, in the public domain.^[21]

This balance of public and private operators may be changed by the programme of "open access to the railways". In accordance with European law, the Dutch government has implemented a programme whereby any rail operator may petition to provide additional services on the rail network as long as the impact on the services provided under concession are not unduly harmed. To date, services provided under this programme are limited, but numerous petitions have been made for new domestic and international services.^[22]

In contrast to trains, bus services are extensively privatised, with provinces and metropolitan authorities tendering nearly all services. Only the cities of Amsterdam, Rotterdam, and Utrecht may award concessions without a tendering process.^[23] However, these accounted for only 5 percent of all bus passenger-kilometres in 2019.^[24]

Problems with the bus tendering are beginning to emerge as public budgets do not keep up with costs and private providers claim that operating certain routes is not profitable. This is blamed on decrease in reduced ridership during the corona pandemic which has not recovered since, as explained by commuting advocacy group Rover.^[25] But a downward spiral in which reduced ridership leads to reduced services, which further pushes down ridership is foreseeable. In its latest round of tendering for bus concessions in October 2023, the rural province of Zeeland received no bidder. Even the incumbent service provider chose not to bid.^[26]

Initiatives

The stated goal of the Netherlands is to achieve net zero emissions in transport by 2050. Among the initiatives the government has adopted to pursue this goal are the following:^[27]

- All new cars sold are emission-free by 2030.
- Adoption of zero-emissions zones in 30-40 larger municipalities by 2025.
- Reduction in total distance travelled for business purposes.
- Increase in train frequencies on the highest-volume routes.

The Netherlands has had significant uptake of electric vehicles to date, outpacing many peer countries. In 2022, the Netherlands had the 4th-highest share of new vehicle registrations that were battery electric cars of all EU/EEA/EFTA countries, and 2nd-highest among EU countries.^[28]

The Netherlands has also had fairly generous incentives and subsidies for the purchase of electric vehicles. According to Dataforce, an automotive industry market research firm, subsidies for a typical vehicle purchase during 2023 in the Netherlands over the first three years of ownership amount to more than 14,300 euros, compared with 7,800 euros in France, 5,000 euros in Germany, 1,480 euros in Belgium and 786 euros in Italy.^[29]

In general, government support is credited with driving a large share of the demand for electric vehicles to date, so a connection between subsidies and incentives on the one hand and uptake on the other can be inferred.^[30] However, some of the incentive and subsidy schemes in the Netherlands are scheduled to sunset in the coming years.^[31] It is possible that this will reduce the uptake of electric vehicles in the future.

But examples of a forced switching to clean vehicles already exist. Amsterdam, for instance, has enacted laws such that by 2030 all motor traffic, except for very limited exceptions, must

be emissions free inside the main ring road, and for certain vehicle types this will apply throughout the entire city. This is to be phased in beginning in 2025 based on the registration dates of the cars thus resulting in a gradual transition.^[32]

Aviation

No discussion of the transport sector in the Netherlands would be complete without addressing aviation. Although international aviation emissions are outside of the scope of the Paris Agreement, their importance in overall emissions is significant. Moreover, as a hard-to-mitigate sector, the key step for reducing emissions in aviation must be a reduction in flight volumes. The Dutch government has also taken steps to reduce emissions of the aviation sector, albeit with small success as the following example reveals.

The Netherlands is home to Amsterdam Schiphol airport, which had 71.7 million passengers prior to the pandemic, in 2019, making it the third largest in Europe on this measure.^[33] Relative to population, this far outstrips other countries. Schiphol is the largest single worksite in the Netherlands, and home to flag carrier KLM, which is one of the largest private employers in the Netherlands with 30,000 employees. As such, the aviation industry yields significant political influence. This can be seen in the government's inability of the government to implement its plan to reduce the number of flights at the airport, discussed earlier in this document. Notably, the percent of transfer passengers (those who simply change planes at the airport) at the airport is 36 percent.^[34] These passengers are not Dutch residents and do not spend any time (or money) in the Netherlands, thus raising questions about the overall benefit of such an outsized airport to the country.

Reforms we need

1. With rising costs of public transportation and gaps emerging in the coverage of the public transport networks, an effort to increase accessibility of these services is needed. Transnational Institute (TNI) and the online campaign organising group *DeGoedeZaak* have called for public transport once again to be treated as the public good it is, instead of a profit-making venture for private companies. They call for a combination of nationalisation, democratisation, and public-public partnerships.^[35]
2. In addition, in 2023 *DeGoedeZaak* has already started campaigning for free public transport in the Netherlands. The campaign is organised as a citizen's initiative, with the goal of presenting the initiative's demands to parliament. The campaign has already passed the minimum required 40,000 signatures to take this step.^[36] Success with this initiative might help turn the tide towards increased public transport use. As mentioned above, the total out-of-pocket cost of public transport in the Netherlands was 4.0 billion euros in 2019, or slightly more than 1 percent of the total national budget in that year.^[37] In this perspective, the cost is certainly affordable.
3. Furthermore, the transition to electric vehicles should be closely monitored. If uptake rates do not continue to increase, the incentive and subsidy schemes should not be scrapped but instead maintained or improved.

4. Finally, although it is not within the scope of the Paris Agreement, emissions from international aviation will be an increasing issue in the coming years, and reforms that ensure reductions from travel via Schiphol Airport in Amsterdam are crucial on that front.

References

- [1] Calculated on the basis of total GHG emissions from source code "Fuel Combustion in Transport [CRF1A3]" from the Eurostat env_air_gge series (consistent with other uses in this paper) and population figures from the Eurostat demo_pjan series.
- [2] Netherlands Central Bureau for Statistics. *Hoeveel fietsen inwoners van Nederland?* Available online: <https://www.cbs.nl/nl-nl/visualisaties/verkeer-en-vervoer/personen/fietsen>.
- [3] European Commission (2019). *Special Eurobarometer 495: Urban mobility and transport*, September 2019. (In this survey, mopeds are treated separately).
- [4] P. Schepers, et al. (2021). *The development of cycling in European countries since 1990*. The European Journal of Transport and Infrastructure 21(2), pp. 41-70, doi:10.18757.
- [5] See P. Schepers, et al.
- [6] Analysis of Eurostat tran_hv_psmo dataset.
- [7] No data is available for Lichtenstein and so is not included.
- [8] Nederlands Ministerie van Infrastructuur en Waterstaat (2023). *Groei wegverkeer verwacht, ov in 2028 waarschijnlijk niet op niveau 2019*.
- [9] S. Hofstede, *Populariteit van SUV's drukt gewicht Nederlandse autos omhoog (en vertraagt daling uitstoot)*, de Volkskrant. Available online: <https://www.volkskrant.nl/nieuws-achtergrond/populariteit-van-suv-s-drukt-gewicht-nederlandse-auto-omhoog-en-vertraagt-daling-uitstoot~b9dd3307/>, published 30 April 2023 (accessed 2 November 2023).
- [10] T. Meelen and K. Muenzel, The uphill struggles of carsharing in the Netherlands, Proceedings of the National Academy of Sciences, 120(47), 2023.
- [11] Nederlandse Spoorwegen, Annual Reports 2013 and 2022.
- [12] S. Yanatma (2023). *Rail fares across Europe: The countries with the most expensive train tickets*, Euronews. Available online: <https://www.euronews.com/travel/2023/01/09/rail-fares-across-europe-the-countries-with-the-most-expensive-train-tickets>. Note the research for this article took a sampling approach over selected routes and rather than an exhaustive statistical analysis, and is also not adjusted for cost-of-living differences. Validity for the Netherlands was established by own calculation from government sources for train revenue and passenger-kilometre data.
- [13] The Dutch government. *Besluit hoofdrailnet*. Applicable 01 January 2015.
- [14] M. Pauw (2023). *Reizigers de pineut: regional Vervoer dreigt met 11 procent duurder te worden*, RTLNieuws. Available online: <https://www.rtlnieuws.nl/economie/artikel/5390194/regionaal-vervoer-11-procent-duurder-volgend-jaar-inflatie>.
- [15] A.S. Kim (2023). *The 2023 Index of Economic Freedom*, The Heritage Foundation.
- [16] Nederlandse Spoorweg BV. *Het tijl keert*. Available online: <https://www.ns.nl/over-ns/wie-zijn-wij/geschiedenis/het-tijl-keert.html>.
- [17] See ref 13.
- [18] The Dutch government (2023). *Hoofdrailconcessie vanaf 2025*. Available online: <https://www.rijksoverheid.nl/documenten/publicaties/2023/08/14/hoofdrailnetconcessie-vanaf-2025>.
- [19] See collected commentary at <https://www.rijksoverheid.nl/documenten/publicaties/2023/08/14/hoofdrailnetconcessie-vanaf-2025>.

- [20] R. Preston (2022). *EC warns Netherlands over NS direct award*, International Rail Journal. Available online: <https://www.railjournal.com/policy/ec-warns-netherlands-over-ns-direct-award/>.
- [21] Autoriteit Consument & Markt (2021). *Vervoersmonitor 2019* (ACM/19/035445).
- [22] See, for example: Autoriteit Consument & Markt (2023). *Melding 26 nieuwe passagiersdiensten per spoor door Arriva*.
- [23] The Dutch government. *Afspraken over regionale en stedelijk openbaar vervoer*. Available online: <https://www.rijksoverheid.nl/onderwerpen/openbaar-vervoer/afspraken-over-het-openbaar-vervoer/afspraken-over-regionaal-openbaar-vervoer>.
- [24] Autoriteit Consument & Markt (2019). *Vervoersmonitor 2019*. Available online: <https://www.acm.nl/sites/default/files/documents/vervoersmonitor-2019.pdf>.
- [25] NOS (2022). *Buslijnen weg in nieuwe dienstregeling: 'Wij zijn niet rendabel genoeg'*. Available online: <https://nos.nl/artikel/2455957-buslijnen-weg-in-nieuwe-dienstregeling-wij-zijn-niet-rendabel-genoege>.
- [26] NOS (2023). *Geen enkele vervoerder wil vanaf 2025 busvervoer in Zeeland verzorgen*. Available online: <https://nos.nl/artikel/2492881-geen-enkele-vervoerder-wil-vanaf-2025-busvervoer-in-zeeland-verzorgen>.
- [27] The Dutch government (2019). *Climate Agreement*. Available online: <https://www.government.nl/documents/reports/2019/06/28/climate-agreement>.
- [28] European Energy Agency (2013). *New registrations of electric vehicles in Europe*. Available online: <https://www.eea.europa.eu/en/analysis/indicators/new-registrations-of-electric-vehicles>.
- [29] Dataforce Verlagsgesellschaft für Business Informationen mbH (2023). *Which country has the highest incentives for electric cars in 2023?* Available online: <https://www.dataforce.de/en/news/incentives-electric-cars-2023/>.
- [30] S. Hardman (2017). *Driving the Market for Plug-in Vehicles: Understanding Financial Purchase Incentives*, University of California-Davis / International EV Policy Council.
- [31] See Rijksoverheid. *Aanschafbelasting*. Available online: <https://www.rijksoverheid.nl/onderwerpen/belastingen-op-auto-en-motor/aanschafbelasting>. And European Commission/European Alternative Fuels Observatory, *Netherlands Incentives and Legislation*. Available online: <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/netherlands/incentives-legislations>.
- [32] City of Amsterdam, *Vrachtauto's - uitstootvrije zone vanaf 2025*. Available online: <https://www.amsterdam.nl/uitstootvrij/vrachtauto'-uitstootvrije-zone-vanaf/>.
- [33] Schiphol Group (2019). *Annual Report 2019*. Available online: <https://www.schiphol.nl/en/download/b2b/1651734550/7bnJQiuvg3iIKJaOhrLYI.pdf>
- [34] See Schiphol Group *Annual Report*.
- [35] L. Steinfort and R. Wienen (2023). *Laat het OV niet aan de markt over, maak het weer een publieke zaak*. In NRC. Available online: <https://www.nrc.nl/nieuws/2023/10/30/laat-het-ov-niet-aan-de-markt-over-maak-het-weer-een-publieke-zaak-a4179059>.
- [36] See *Degoedezak. Maak Het OV Publiek Gratis Toegankelijk*. Available online: <https://campagnes.degoedezak.org/campaigns/burgerinitiatief-openbaar-vervoer>.
- [37] Netherlands Ministry of Finance (2022), *Begroting 2022*. Available online: <https://www.rijksfinancien.nl/miljoenennota/2022/1078583>.

RACE — 2 PARIS

— SPAIN



SPAIN

Pedro L. Lomas

Ecosocial area of FUHEM (Madrid, Spain)

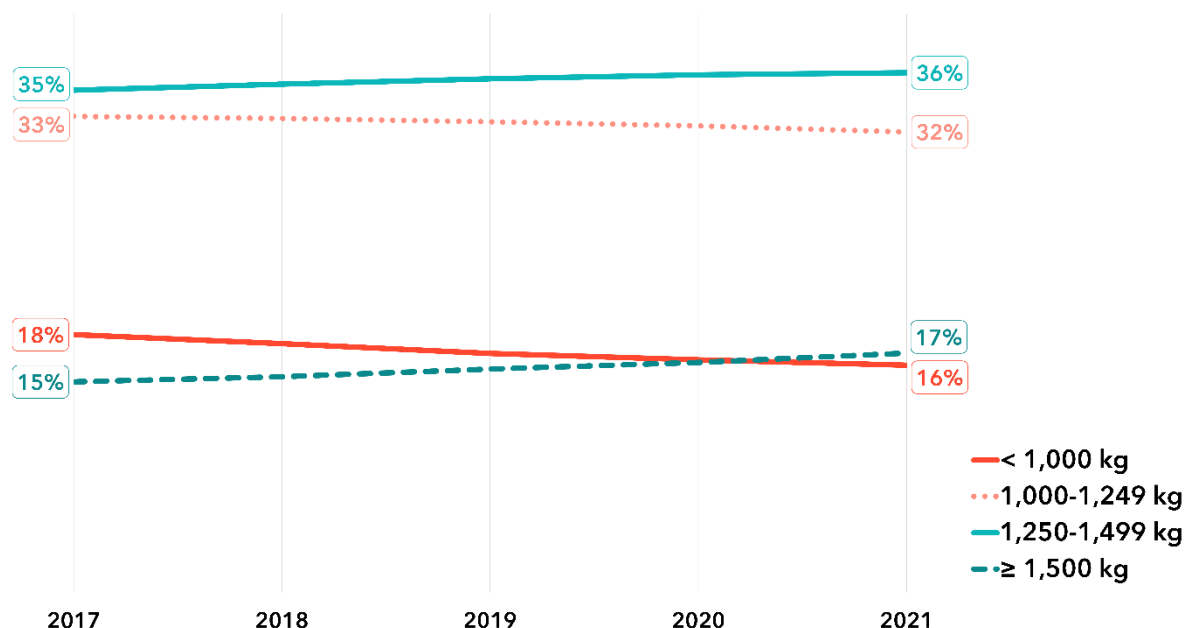
Historically, Spain has been reputed as a poorly linked country in terms of its transportation infrastructure. In the past, it was often considered that this situation was largely determined by Spain's rugged geography with – a large share of mountainous areas and plateaus, which makes Spain the second country in the European Union (EU), after Austria, with higher medium elevation (650 m).^[1]

Spain is a car owner country integrated in the trans-European transport network (TEN-T). As such Spain globally ranks third with regard to Spain is third in the global ranking of the length of high-capacity roads, after China and the United States,^[2] and second in the classification of high-speed railway length, far from China.^[3]

Road Transport as the Dominant Transport Mode

In Spain, the undisputed leader among the transport modes is the road for both passengers (circa 90 percent of the total number of passengers in 2021) and freights (circa 96 percent of transported weight in 2021).^[4]

In a clear commitment to this mode of transport, the length of high-capacity roads has more than tripled (from 5,000 kilometres in the early 1990s to more than 17,000 kilometres in 2021).^[5] Consequently, the private car fleet has more than doubled between 1990 and 2022, from 12 million to 25 million vehicles.^[6] Medium weight cars continue to be the most used even though there has been a slight rise in sales numbers of heavy cars (see the figure).^[7]

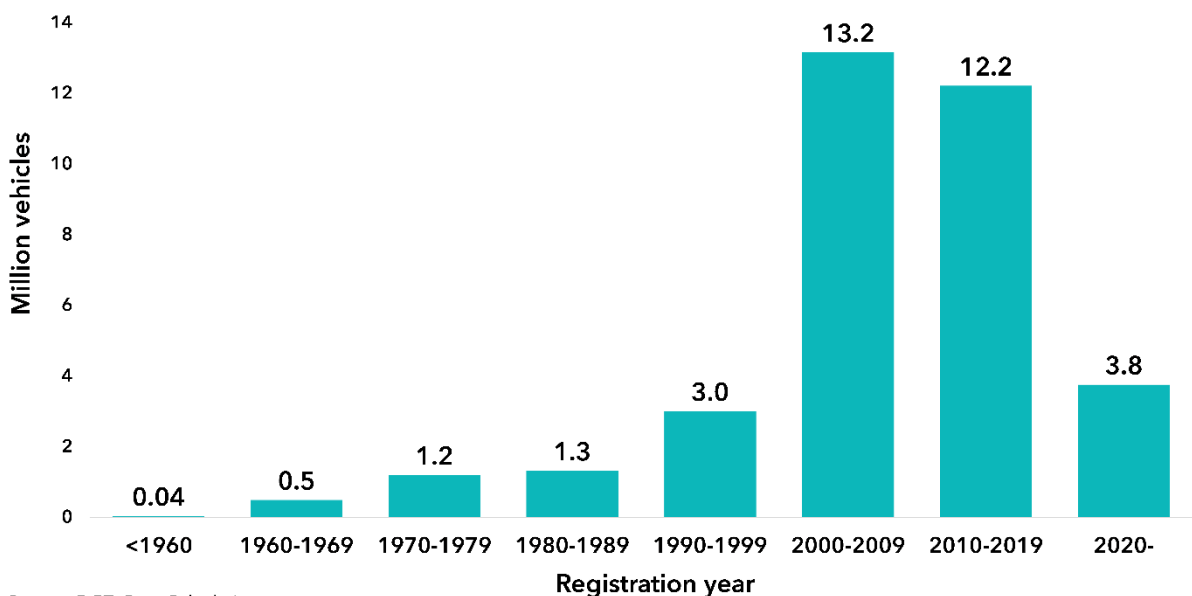


Source: Eurostat, Own Calculations

Compared to other European countries the increased demand for SUVs and other heavy cars has occurred in Spain somewhat later. Only in 2020, the sales of SUVs have surpassed the sales of other types of cars. The increase in the sale of heavy cars (SUVs and other heavy cars) experienced by other European countries has not arrived to Spain until recent years. This recent pattern has caused the sale of SUVs and other heavy cars to surpass the sale of conventional cars for the first time in 2020, By 2022 their sales had already reached 58 percent of total car sales.^[8]

Furthermore, low salaries and employment precarity have contributed to the increase in the Spanish medium age of cars to more than 13 years in 2021,^[9] with ramifications regarding air pollution as well as on the transition to the electric vehicle or to other transport modes (see the figure).

Vehicle registrations per decade



Car Manufacturing as a Strategic Industrial Sector

In terms of quantity of manufactured cars Spain comes second in the EU, trailing Germany, and seventh in global level, with more than 2.2 million vehicles manufactured in 2022.^[10]

Roughly 236,100 people work in car manufacturing (9.2 percent of the total manufacturing employment in the third quarter of 2023).^[11] In economic terms, vehicle manufacturing accounted for 8.6 percent of the total manufacturing industry Gross Value Added (GVA) in 2021.^[12] vehicle and components manufacturing represented 8.1 percent of total GDP in 2022.^[8]

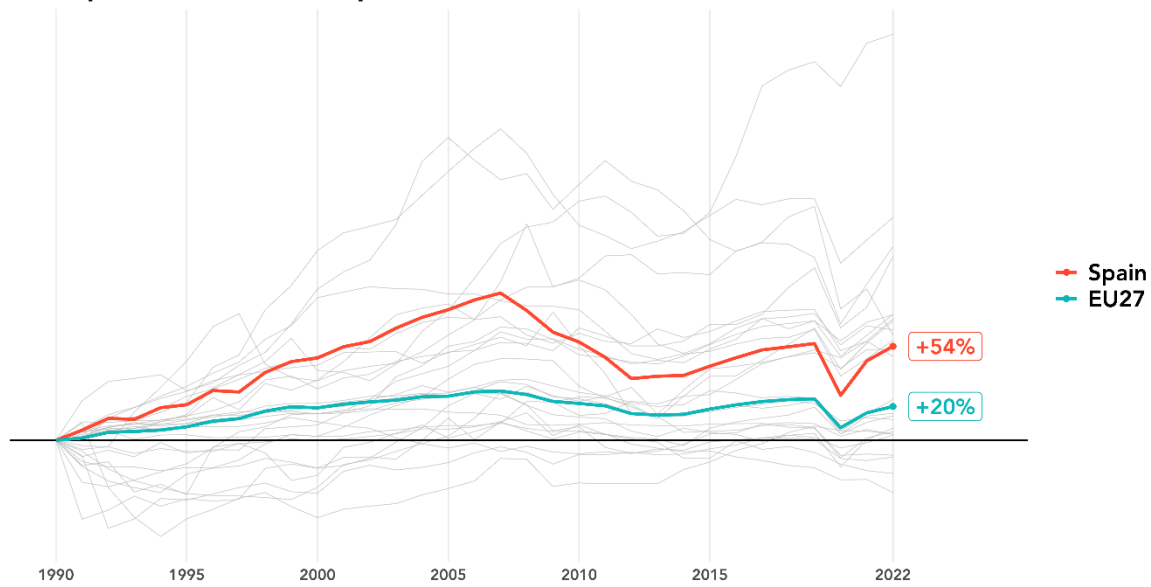
Transport Emissions

As per the so-called Effort-sharing Regulation (ESR) for the 2021-2030 period, Spain has pledged to decrease the emissions outside the EU's emissions trading system by 37.7 percent compared to the 2005 levels. The ultimate objective is to reach a target of reducing total emissions by 55 percent compared to the 1990 levels by the year 2030.^[13] The reductions of emissions in the transport sector will be key to the success of this commitment.

But according to the data provided by EUROSTAT, the level of total Spanish emissions of Greenhouse Gases (GHG) (including all sectors) have been reduced by 5 percent between 1990 and 2022.

Also in Spain, the transport sector generates the highest CO₂ emissions, encompassing a third part of total emissions (more than 36 percent in 2022). In the period 1990-2022, transport GHG emissions increased by 54 percent.^[14]

Transport Emissions in Spain



Source: Eurostat, Own Calculations

Privatisations in the Railway Network

When it comes to the railway sector, Spain deviates from many European countries. Unlike elsewhere in the EU in Spain the railway sector has never been fully privatised. It rather has been liberalised. Following the requirements of the EU competition authorities, however, the first step in this direction has now been taken. Nowadays, there is an ongoing process of liberalisation of the railway transport which started in 2005, when the old national railway company (RENFE) was split into two companies: RENFE Operadora (passengers, freights, manufacturing and maintenance, railway material renting) and ADIF, the administrator of railway infrastructures.

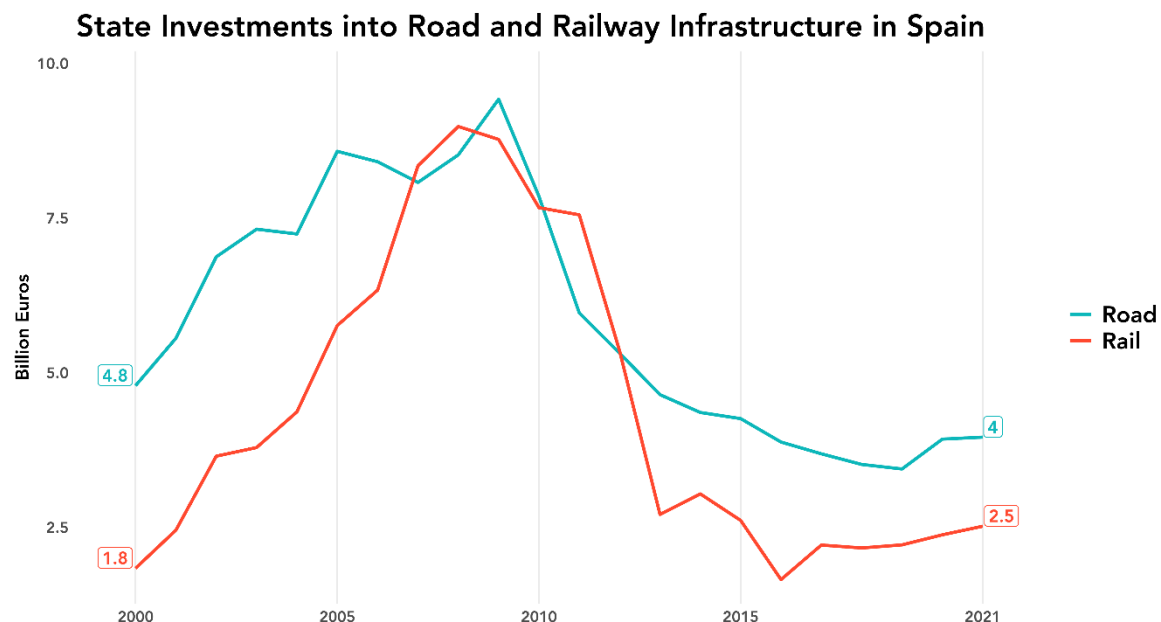
The next step was the liberalisation of the railway freight transport in 2007, using the ADIF infrastructure to support other operators from RENFE. The results of this liberalisation were disappointing for the promoters since the share of freights transported by railway has continuously declined, with a modal share not higher than 5 percent of total freights transport.^[15] This is clearly below the figures of road transport, and not higher than prior to liberalising freight transportation.

Liberalisation of passenger railway transport was initiated in 2010. Only in 2021, however, two private companies really started in 2021, offering passenger high-speed services on some medium-large distances. One of the companies is OUIGO Spain, a French company belonging to the SNFC group. The other company (Iryo) is a group of which the Italian company Trenitalia holds 45 percent of shares.

Following EU guidelines, the next step in liberalising the railway sector would be of this liberalisation process will be to allow private companies to compete with state-owned rail operator RENFE's medium-distance and local services, while safeguarding RENFE's financial stability.^[16] This originally scheduled for 2023 has so far been delayed., for various political and economic reasons

State Investments into Road and Railway Infrastructure

Spain's accession to the European Union was the starting point to dismantling of the industrial sector and at the same time the industrialization of the agrarian sector. A great part of the investments was diverted to tourism and the building sectors, both closely interconnected. With the onset of the financial crisis in 2008 and, related, the collapse of the public construction sector, public investment moved to the infrastructure sector, especially to road construction and high-speed railway lines.

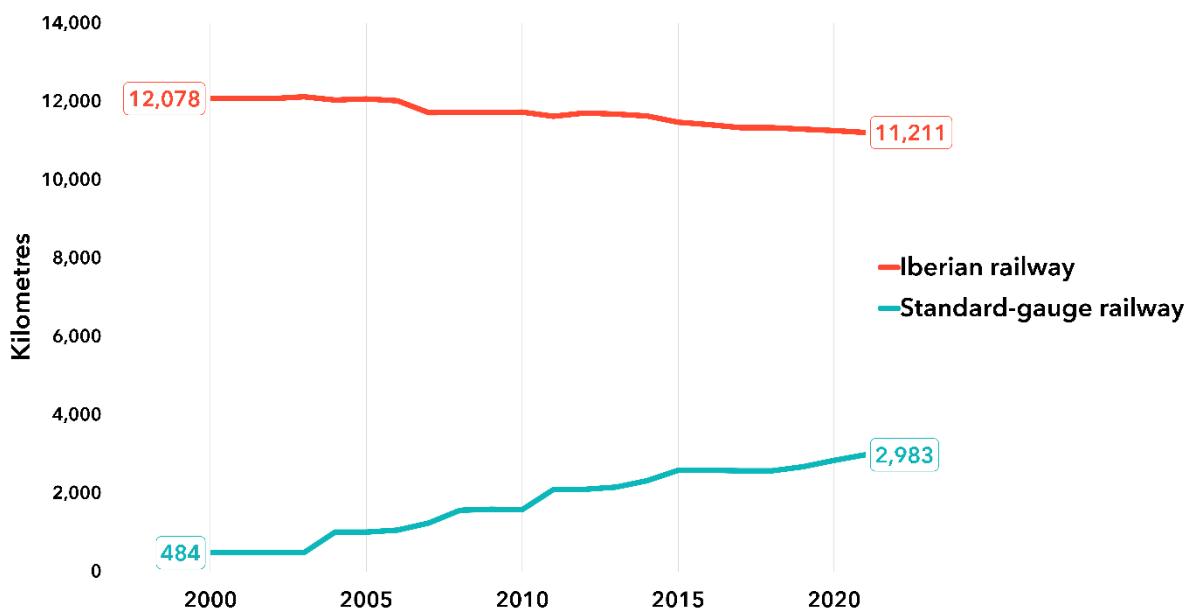


Source: OECD, Own Calculations

In terms of public investments the general pattern of the last three decades was that Spain spent 50 percent more on roads than on railway lines.^[17] There was an infrastructure investment peak reaching more than 21,000 million euros in 2009 (9,278 million euros into railway lines and 8,385 million euros into roads), and during the 2007-2012 period, investment into railway lines surpassed investment into road infrastructures (see figure). However, this high increase in railway investments was mainly devoted to the expansion of high-distance and high-speed lines. In 2021, 94 percent of new investments on infrastructures were made on this type of lines.^[18] By 2021, the investments were reduced to a third of the previous figures reached in the peak years (2008, 2009).^[17]

Railway Network over Time

In the last 20 years, the Spanish railway network has increased its length by more than 3,000 kilometres. However, the process is characterised by starkly contrasting developments (see figure).



Source: OTLE, Ministerio de Transportes, Movilidad y Agenda Urbana

On the one hand, the length of the Iberian-gauge railway network, where the conventional trains on medium and local lines run, was reduced by 7 percent in the last 20 years. There has been a reduction on the investment in short-medium distances railways, leaving many small stations understaffed, reducing the ticket sales points, train passing frequency or even closing 22 regional lines from 1995, an equivalent of 949 railway kilometres.^[17]

Until today many coastal cities in Andalucía such as Marbella or Torrevieja lack a direct connection to the railway network. Also, many medium-size cities such as Cáceres, Teruel or Soria (province capitals) in rural areas lack good quality connections. However the most affected areas have been the small villages and towns of rural Spain (more than 80 percent of the settlements in many regions), which have been completely disconnected from other bigger cities and province capitals, so that the use of buses and private cars has become an essential transport utility to live in these areas.

On the other hand, high-speed lines have expanded, mainly catering to tourism and business, with few train stops, connecting only big cities, and with high energy requirements and environmental impacts. Thus, standard-gauge railway network for long-distance high-speed trains has increased by more than 500 percent.^[19]

Affordability of Public Transport Services

In Spain as around the globe fuel prices have also increased steeply in the last decades due to a number of factors, among them ups and downs of international markets, and speculation. The war in Ukraine, and the EU's decision to stop gas imports from Russia have led to further price increase for fuel (and paradoxically, a boost on the direct and indirect

imports of fossil fuels from Russia). As a consequence, inflation has accelerated in the Eurozone, including Spain.

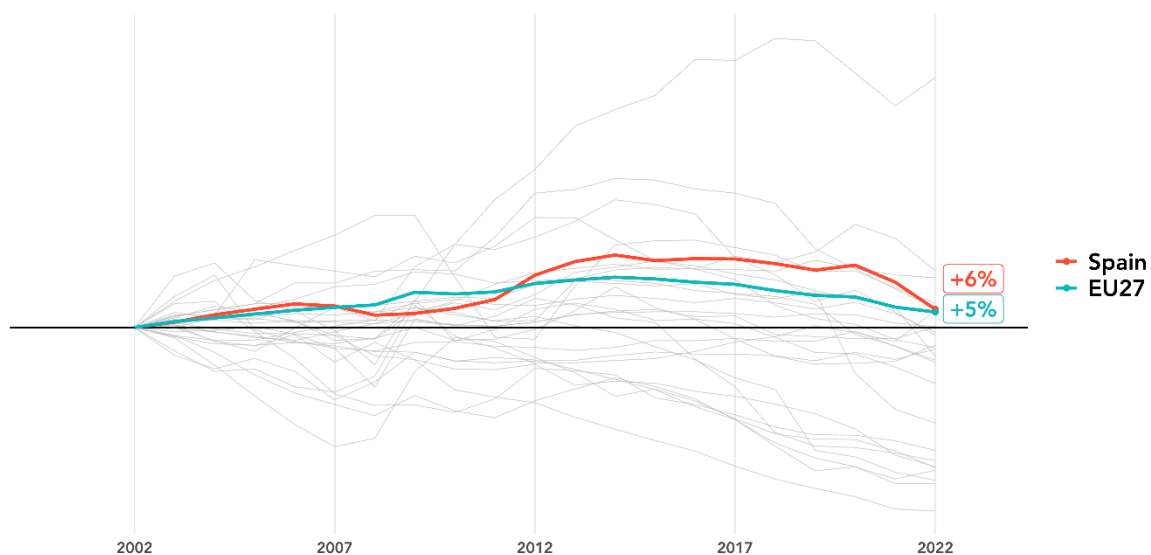
With the EU's agreement, the Spanish government has applied a set of political measures to contain the energy price related inflation, such as the use of bonuses to reduce the price of fossil fuels for the frequent users or the implementation of a gas price cap to avoid high energy costs to impact electricity prices (the so-called "Iberian exception").^[20]

The Spanish government has also subsidised public transport tickets and travel passes (10-travel pass, monthly and annual travel abonnements). For example, in Madrid, these measures reached a cost coverage of 60 percent. For local transport, especially metropolitan rental bikes, buses and local trains, certain frequent travellers also have the possibility to acquire free tickets. The rationale was to avoid the reduction of public transport passengers as Spain had experienced after the COVID-19 outbreak.

Nevertheless, these measures are expected to expire during 2024. Without these measures, and if the current pricing trend persists, public transport costs are likely to rise above the EU27 average in relation to salaries like in the previous cycle opened with the 2008 crisis (see figure).

Affordability of Public Transport Services in Spain

Index of Public Transport Ticket Prices deflated by Average Nominal Gross Income



Source: Eurostat, Own Calculations

Reforms we need

1. The promotion of intermodal connections between public transport and other sustainable transport modes, is paramount for Spain. The main aim of this measure would be to discourage the use of road transport, both for passenger cars and freight transportation.
2. Consolidation of the teleworking programmes designed under the umbrella of SARS-COV-2 pandemics. Planned reduction of urban, interurban and international movements linked to work.

3. Spain needs to introduce measures to improve the public transportation connections between rural areas and medium populated cities. Herein, innovative measures for public transportation on request is of particular importance. It includes the expansion and improvement of medium distance railway connections instead of large high-speed railway infrastructures. The main goal of this measure is to avoid great inequalities in access to (public or transport in general?) transport, especially in rural areas.
4. The Spanish government needs to commit itself to a shift of freight transport from the road to the railway network.
5. Spain also needs to bring the public transport and railway tariff policy closer to the actual economic situation of the population to build a public service accessible for all. Well developed proposals from civil society actors such as Ecologistas en Acción already exist to introduce a multimodal ticket for all public transports in Spain based on instruments tested in Germany and Austria.^[21]
6. Subsidies, bonuses and deductions on fossil fuels and transport modes associated need to be phased out.
7. Domestic flights between Barcelona and Madrid are still among the most frequent flight routes in Europe. Spain needs to ban domestic flights if railway lines connect the given destinies in 2-3 hours. Moreover, the government should also promote a revival of night train services to cover longer distance travels.

References

-
- ^[1] Atlas Nacional de España. *Instituto Geográfico Nacional. Ministerio de Transportes, Movilidad y Agenda Urbana*. Available online: <http://atlasnacional.ign.es/wane/Geomorfolog%C3%ADa>.
- ^[2] National Bureau of Statistics of China. *China Statistical Yearbook*. Available online: <http://www.stats.gov.cn/sj/ndsj/2021/indexeh.htm>.
- UNECE Transport Statistics Database. *Total Length of Motorways*. Available online: <https://w3.unece.org/PXWeb/en/Table?IndicatorCode=50>.
- ^[3] UIC (2022). *High-speed rail atlas. 4th edition*. Available online: <https://uic.org/IMG/pdf/uic-atlas-high-speed-2022.pdf>.
- ^[4] Ministerio de Transportes, Movilidad y Agenda Urbana: Observatorio del Transporte y la Logística en España (2022). *Movilidad interior de personas y mercancías*. Available online: <https://observatoriotransporte.mitma.es/inform/es/2022/2la-movilidad/21-evolucion-reciente-de-la-movilidad-general/211-movilidad-interior-de-personas-y-de-mercancias>.
- ^[5] Ministerio de Transportes, Movilidad y Agenda Urbana. *Evolución de la red de carreteras*. Available online: https://www.mitma.gob.es/recursos_mfom/evolucion_carreteras_1970-2019.pdf.
- ^[6] DGT. *Parque de vehículos- serie histórica 2022*. Available online: <https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/?id=00865>.
- ^[7] EUROSTAT (2024). *Passenger cars by unloaded weight [road_eqs_unlweig]*. Available online: https://ec.europa.eu/eurostat/databrowser/view/ROAD_EQS_UNLWEIG/default/table.
- ^[8] ANFAC. *Informe Anual*. Available online: https://anfac.com/categorias_publicaciones/informe-anual/.

- [9] DGT. Parque de vehículos-tabla auxiliar 2022. Available online: <https://www.dgt.es/menusecundario/dgt-en-cifras/dgt-en-cifras-resultados/dgt-en-cifras-detalle/?id=00867>.
- [10] International Organization of Motor Vehicle Manufacturer (OICA). Production statistics 2022. Available online: <https://www.oica.net/category/production-statistics/2022-statistics/>.
- [11] Instituto Nacional de Estadística. *Encuesta de Población Activa*. Available online: <https://ine.es/jaxiT3/Tabla.htm?t=4128>.
- [12] Instituto Nacional de Estadística. *Contabilidad nacional anual de España: agregados por rama de actividad*. Available online: <https://www.ine.es/jaxiT3/Tabla.htm?t=32450>.
- [13] The European Parliament (2021). *Climate action in Spain Latest state of play*. Available online: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690579/EPRS_BRI\(2021\)690579_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690579/EPRS_BRI(2021)690579_EN.pdf).
- [14] EUROSTAT. *Greenhouse gas emissions by source sector (source: EEA)[env_air_gge]*. Available online: [https://ec.europa.eu/eurostat/databrowser/view/env_air_gge\\$dv_447/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/env_air_gge$dv_447/default/table?lang=en).
- [15] INECO (2022). *Mercancías 30. Documento final*. Available online: https://cdn.mitma.gob.es/portal-web-drupal/mercancias30/2022_05_documento_final_mercancias_30.pdf.
- [16] Reuters (2020). *Spain sets terms to open rail services to outside competition*. Available online: <https://www.reuters.com/article/spain-railway-liberalization-idINL5N2EU57P>.
- [17] Rudolph, F., Riach, N., and Kees, J. (2023). *Development of Transport Infrastructure in Europe. Exploring the shrinking and expansion of railways, motorways and airports*. Berlin/Wuppertal: T3 Transportation Think Tank/Wuppertal Institute.
- [18] CNMC (2021). *Informe anual del sector ferroviario 2021*. Available online: <https://www.cnmc.es/expedientes/infdtsp04022>.
- [19] Ministerio de Transportes, Movilidad y Agenda Urbana. Observatorio del Transporte y la Logística en España. *Evolución de la infraestructura básica ferroviaria y de la densidad de vías férreas*. Available online: <https://apps.fomento.gob.es/BDOTLE/indicadores/visor.aspx?i=201>.
- [20] In Spain, the cost of electricity is influenced by the highest-priced energy source within the electricity mix, which frequently is gas. In Spain, the electricity price is determined by the most expensive energy source of the electricity mix, which often is gas.
- [21] Arjona, Cristina / Greenpeace (2023). *Cuando viajar es fácil, barato y sostenible: qué es y cómo funciona el abono único de transporte*. Available online: <https://es.greenpeace.org/es/noticias/cuando-viajar-es-facil-barato-y-sostenible-que-es-y-como-funciona-el-abono-unico-de-transporte/>.

RACE — 2 PARIS

— SUMMARY



SUMMARY AND RECOMMENDATIONS

The Race2Paris study of the transportation sectors across seven EU member states, as well as the broader EU level, reveals the immense scope of the transformation needed to align with climate goals. A transition from fossil fuel dependency to sustainable, low-emission mobility systems is critical to achieving these objectives, including those set by the Paris Agreement. Tackling this colossal challenge requires massive public investments to effectively curb emissions and shift toward sustainable transportation practices.

Recognising the pivotal role of transportation sectors in determining a country's ability to meet the Paris Agreement goals, the findings emphasise the urgency of strategic interventions. Each nation faces unique challenges, necessitating tailored solutions. Yet they also face common problems such as underinvestment of public railway infrastructure. Another common thread among all nations is the imperative to shift freight transport from roads to more eco-friendly rail tracks, underscoring the need for intensified efforts on this front.

Among the countries examined, Germany faces the dual challenge of increasing railway investments and overcoming the powerful car lobby's resistance to a highway speed limit and the phase-out of combustion engines. Similarly, Austria and Belgium struggle with the excessive reliance on company car systems, requiring a comprehensive reform to align with sustainable mobility objectives. Meanwhile, the Netherlands and the Czech Republic are witnessing a sharp rise in environmentally damaging SUVs, adding to their emissions challenges. In rural regions of Italy and Spain, the lack of sustainable transportation infrastructure remains a significant barrier to progress.

A key finding of this report is that the transportation sector's transformation is not only crucial for individual countries but is a collective imperative for the EU as a whole. The success of our efforts hinges on the alignment of policy interventions, public investments, and industry cooperation. As we navigate the complex landscape of transportation transformation, Race2Paris underscores the need for a harmonised, multifaceted approach. The path forward demands a commitment to tailored strategies, considerable financial investments, and cross-border collaboration. Only through such concerted efforts can the EU member states hope to reshape their transportation sectors, paving the way for a sustainable and environmentally conscious future.

As a result of our analysis of transport sectors in seven EU member states, we put forward the following recommendations:

1. **Free public transport for all.** To address the accessibility of public transportation, it is crucial to make temporary cost-reduction measures permanent, especially considering the cost of living crisis. Ensuring affordable options for the poor and young people will contribute to increased usage and reduced reliance on individual vehicles.
2. **European transport sector investment plan.** Implementing a financially powerful investment initiative at the European level is imperative for revitalising railway infrastructure across all member states. This comprehensive approach will not only enhance connectivity but also promote environmentally friendly modes of transportation.
3. **Boost night trains.** A fundamental shift in the legislation governing international train journeys is necessary. Night trains have to be established as a viable and attractive alternative to flights. This initiative aligns with the broader goal of reducing CO₂ emissions associated with air travel and fostering sustainable transportation options.
4. **Stop privatisation of the public transport infrastructure.** To counteract further privatisation and liberalisation of railway and public transportation infrastructures, robust legislation is needed. Stricter laws should be in place to protect and enhance public alternatives, fostering a culture less dependent on individual cars and more supportive of sustainable, shared modes of transportation.
5. **Make SUVs unattractive.** The surge in SUV registrations poses an unnecessary strain on the climate. Therefore, it is crucial to revise existing company car systems. SUVs should only be used when they are essential for operational purposes or activities that specifically require such vehicles. Furthermore, parking fees should be adjusted in the future to reflect the weight and size of the vehicle, promoting more climate-friendly transportation choices.
6. **Implement best practices in urban planning.** To pivot existing urban planning regimes towards promoting more environmentally-friendly transportation methods, cities must prioritise the development of comprehensive public transit networks and dedicated bike lanes. This involves reallocating street space to prioritise pedestrian paths, cycling infrastructure, and expanding public transportation options, thereby reducing reliance on personal vehicles. Additionally, integrating green spaces and implementing urban policies that promote (electric vehicle) car-sharing schemes can further encourage a shift towards more sustainable transportation modes.
7. **Consider ethics and impact of electric cars.** While electric cars are often seen as a transformative solution, it is essential to critically assess their impact. This includes evaluating environmental and social impact of mining resources required for electric car production and combating the exploitation of workers in the global South. Prioritising sustainable and ethical practices in the electric car industry and prioritising electric public transport over individual electric car use is paramount.

RACE — 2 PARIS

Publisher:
SET Network

Status:
December 2024

Design:
Joshua Mikolajczyk | studio-jelo.de



SET NETWORK