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MOBILITY AND TRANSPORT POLICY IN GERMANY AND FRANCE: TIME FOR CHANGE AND... JOINT SOLUTIONS?

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Abstract

This chapter is devoted to mobility in France and Germany. First, key mobility indicators for the two countries are presented. This shows that private motorised transport still dominates in both France and Germany. Despite many negative effects on the climate, but also on health and quality of life, no far-reaching measures have been adopted. Hopes are pinned on technological progress and the integration of electromobility. However, this will not solve the shortage of land in cities or the car-dependence of many (low-income) households in rural areas in France. Subsequently, an empirical example from Berlin is used to show how financial and time restrictions affect the willingness of car drivers to switch to alternative modes of transport. Financial measures have a greater influence than time-related measures. For the French example, regional disparities and social dependence on the car are considered more closely. Finally, the current policy initiatives of the two countries are presented in order to assess the potentials of the transport transition.

Keywords

Mobility patterns in France and Germany – active mobility – scenarios for modal shift – sustainable development – social impacts

1 Introduction

Mobility is of fundamental importance for our daily lives. Motorised transport continues to account for a large share of traffic despite its impact on the global climate and negative effects on society, such as air pollution, land consumption, lack of physical exercise, and noise – which causes sleep disorders, difficulties with concentration and learning, tinnitus and cardiovascular problems (UBA 2019). In

addition, the number of car accidents remains on a relatively high level. Motorised individual transport encourages people to neglect gentler means of transport that are more positive for mental and physical health, such as walking. According to the World Health Organisation (WHO), it is recommended that children and young people should do at least 60 minutes per day of moderate-to-vigorous intensity physical activity, adults should do at least 150 minutes (of moderate-intensity) or 75 minutes (of vigorous-intensity) physical activity throughout the week (Rütten/Pfeifer 2016). A large proportion of the population do not implement the WHO recommendations for activities of moderate intensity (Finger/Mensink/Lange et al. 2017; Finger/Varnaccia/Borrmann et al. 2018). The use of ecomobility, i.e. travelling on foot and by bicycle and public transport, allows more exercise to be integrated into everyday life (Heinrichs/Jarass 2020). Land consumption in urban areas must also be considered. Often the modal split does not correspond with the distribution of public space in dense urban structures.

To promote sustainable mobility, both Germany and France rely on the development of technological innovations and a growing proportion of vehicles using renewable fuels. Even though electric cars have less local air pollution, they are still responsible for noise, space consumption, traffic accidents and the environmental costs of the production cycle of these cars. The negative effects of traffic are particularly noticeable in dense urban areas but interactions between rural regions and centres of employment are also greatly influenced by the respective transport systems. There are thus close links between urban and spatial development and the planning of transport infrastructure.

In order to better understand the mechanisms of mobility in France and Germany, the following discussion compares mobility behaviour in the two countries. Subsequently, policy measures for promoting sustainable mobility are outlined. Here two digressions are made, one focusing on France and one on Germany. In France, regional disparities and social dependence on the car are considered more closely. In Germany, an empirical investigation in Berlin explores willingness to switch from the car to other modes of transport. The findings are discussed in terms of transferring experience to the other country.

2 Everyday mobility: The dominance of the car in mobility in France and Germany and tendencies for change

A comparison of the figures for daily mobility in France and Germany reveals a number of marked differences but also some similarities (Figure 1). Differences in the infrastructures of the two countries also become clear.

Infrastructure

In terms of territory, France is significantly larger than Germany although population density is only about half as great. The motorway network in Germany is only slightly more extensive than in France but the rail network is about 10,000 kilometres longer (see Figure 1).

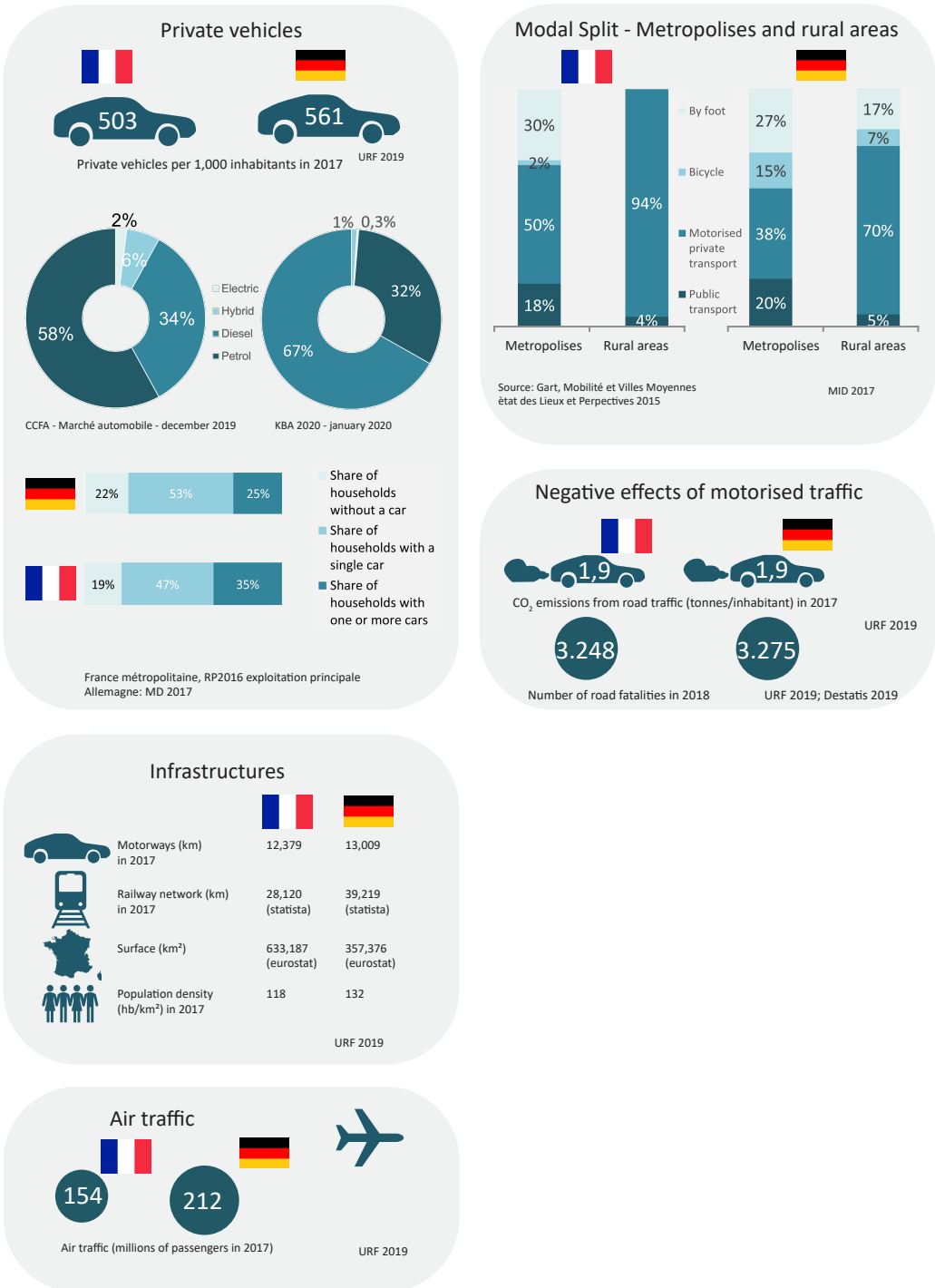


Figure 1: Comparative mobility data in France and Germany / Source: authors

Car ownership and carsharing

Car ownership in Germany – a country characterised by a strong automotive industry – amounts to 561 cars per 1,000 population, higher than in France (503 cars per 1,000 population). In terms of engine type, conventional vehicles are dominant in both Germany and in France. However, in France hybrid vehicles make up a larger proportion of the fleet than in Germany. The share of cars per household shows that a somewhat larger share of households has no car in Germany (22%) than in France (19%). Residential location plays an important role in the distribution of cars per household: while 42% of households in German metropolises live without a car, in rural areas there are only 10% of households that do not have a car.

Carsharing¹ is a typical urban phenomenon. In 14% of all households in German metropolises at least one person is a customer of a carsharing organisation; in rural regions this is true of just under 1% of households (Nobis/Kuhnimhof 2018: 36). In France, the proportion of carsharing remains very low.

Those who use carsharing tend to originate from households without cars, with higher income and are often young and male.

Mobility behaviour

In France, differences between the urban and rural areas are significantly more pronounced than in Germany. In the rural areas of France, more trips are made by car than in the rural areas of Germany.

Overall, people in Germany and France have become more mobile. In France, the average daily distance of trips rose from 34.4 km in 1992 to 40 km in 2017 (Crozet 2018), which is clearly reflected in the sprawl of the large French metropolises. In Germany, the average daily distance travelled (per mobile person) rose from 44 km in 2008 to 46 km in 2017 (BMVBS 2009; Nobis/Kuhnimhof 2018). On average, in 2017 mobile people made 3.7 trips a day, in 2008 it was 3.8 trips. This reveals a slight increase in average trip distances between 2008 and 2017.

Private motor vehicle transport

The car remains the dominant transport mode for the French and the Germans. Indeed, three-quarters of French employees do not work in the municipality where they live, which implies that a large number of commuter trips are made between place of residence and place of work. Such trips are a key element of current tensions in the mobility policy field. In the last 25 years, there has been a 22% increase in traffic generated by the car and, as the demands of the *gilets jaunes* (yellow vests) show, the car is still a crucial element of social life (work and leisure) in peri-urban and rural areas. France thus remains a country where the private motor vehicle is the dominant mode, accounting for just over 80% of passenger transport, a value that has been very stable for many years. A large-scale survey provides additional detail on these findings. It was conducted in July 2018 with the aim of evaluating daily mobility in France (10,148 people were surveyed) and shows that the car continues to be the central element of

1 The new 2019 loi d'orientation des mobilités (LOM – Mobility Orientation Act) strengthens car sharing in France and makes it possible to subsidise local experiments.

French mobility: 87% of the French use it at least once a day. 61% of those surveyed who are in work use the car to travel to their place of work (61% also use it to visit the doctor and 55% to go to the post office). On average, 31% of those surveyed need more than 30 minutes for their trip to work or school, with this figure increasing to 54% in the Ile-de-France and to 41% in the inner suburbs. On average, the daily return trip to work takes an hour and 10 minutes. Figure 1 shows a spatial comparison between rural areas and metropolises in France, revealing that private motor vehicles are used for 94% of trips in rural regions. This is significantly less in metropolises, but private motor vehicles are still used for half of the trips made here.

As in previous years, in Germany private motor vehicles account for 57% of trips and 75% of kilometres travelled (as driver or passenger) and thus represent the main component of the modal split (Nobis/Kuhnimhof 2018). Between 2008 and 2017, there was nonetheless a slight decrease in this modal share. Here too there is a clear difference between metropolises and rural areas (see Figure 1). 70% of trips in rural regions are made using private motor vehicles, the equivalent figure for trips made in metropolises is only 38%. Germany is thus more multimodal than France, especially in the metropolises but also in rural regions.

Public transport

France is also experiencing a great increase in public transport. Overall, 75% of traffic flows are in the Ile-de-France region, compared to just 25% in the provinces. However, the strongest growth is in the provinces, with accelerated development of the metro (+5.5%) and tram networks (+1.9%). The authorities responsible provide 75% of the population with public transport services. Since the reorganisation of the mobility administration (NOTRe and MAPTAM², see Paris/Gustedt 2022), this figure has steadily increased. France is thus rapidly changing its management of mobility by strengthening the role of regional authorities and metropolises. Public transport accounts for 18% of the total number of trips in metropolises and only 4% in rural regions (see Figure 1). This gap between urban and rural areas reflects the car dependence of the peripheral regions.

Public transport in Germany increased by two percentage points between 2008 and 2017 and now has a modal share of 10%. There is a clear contrast here between the metropolises and rural areas. In metropolises 20% of trips are made by public transport, while in rural areas public transport is only used for 5% of all trips. This is underscored by figures related to season tickets: in metropolises more than a third of people aged over 14 have a ticket of this kind (ibid.: 42).

Active Mobility

Bicycles are only gradually appearing in official statistics in France: in 2018, 2.1% of the labour force used a bicycle to get to work, primarily in cities. In the core cities this figure rose to 4.7%: Strasbourg took first place with 17.3% of the labour force commuting by bicycle, while Grenoble lay in second place with 17.1%. The popularity of cycling has

2 *Loi sur la Nouvelle administration territoriale de la République* (NOTRe – Law on the New Territorial Organisation of the Republic, 2015); *loi de modernisation de l'action publique territoriale et d'affirmation des métropoles* (MAPTAM – Law on Modernisation of Public Territorial Action and Affirmation of Metropolises 2014).

grown in line with rapid increases in the power of electric bicycles. In 2018, turnover was 27% higher than in 2017. E-bikes amounted to 12.5% of the 2.7 million bicycles that were sold in 2018, but in terms of value accounted for 40%.

The number of bike lanes is increasing steadily and as of 1 January 2019, almost 70% of the planned national bike lanes had been realised (15,780 km of 23,330 km). The bike lanes are a real success with the French municipalities actively extending the network and thereby improving their attractiveness for tourism.

Long-distance transport in France

Rail transport, indispensable for coping with the massive growth in volumes of traffic, has been characterised by a 48 % increase in the last 25 years, largely thanks to the success of the TGV which has grown by 200 %. The *Transport express régional* (TER – regional express transport) has grown by 81 % in the last 25 years and is currently undergoing a major reform with the opening up of regional passenger services to competition (tendering) in France. However, this has not led to any particular increase in the market share of rail transport, which increased from 10 % to just 11.7 % between 1992 and 2017. It rather reflects the great increase in mobility among the French and also the delayed modernisation of the rail system in France: there has been a certain amount of reliance on a not particularly innovative ‘Everything-SNCF’ logic and a lack of modern approaches. This has advantaged new *services librement organisés* (SLO – services organised on a liberal basis), such as carsharing and carpools, which advertise with reduced fares, additional services (WIFI) and more flexibility. Correspondingly, they have overtaken certain rail services, e. g. the *Train d’équilibre du territoire* (TET – territorial equilibrium trains) whose share has rapidly fallen in recent years (-7.5 % in 2018 compared to 2017). The modal share of the SLO remains modest, however, just 3 % if TGVs, intercity rail services and inland flights are taken into account.

Rail transport is fairly stable (53 % of public transport measured in kilometres travelled per person) but declined in the second half of 2018 (-3 %) in comparison to 2017 in every way, primarily due to the long SNCF strike. This situation calls for the reform of rail transport in France to be put at the forefront of the restructuring objectives of the entire sector. The railways are still not open to competition although the whole of Europe is moving in this direction.

The other important point is the rapid growth of intercity bus services, which experienced an increase of 19.2 % in 2018 compared to 2017. In comparison, there was only a 7.2 % increase from 2016 to 2017. Almost nine million passengers profited from this new mode of transport, which was introduced in France in August 2015, three years later than in Germany. There continues to be fierce competition between Flixbus and BlaBlaBus. Numerous observations suggest that passengers have shifted from rail to bus transport, especially from the TET trains which, as we have seen, lost 7.5 % of their passengers between 2018 and 2013.*

* To underscore this: on 1 January 2018, six TET lines were transferred to the regions.

Like in France, cycling plays an increasingly important role in Germany, even if the increase in bicycle use is not fully reflected in the mobility statistics. In 2017, 11% of trips made in Germany were undertaken by bicycle. Every twentieth bike trip makes use of electrical support. While e-bikes do not play a significant role among younger age groups, about 12% of elderly people's bike trips are undertaken using e-bikes (Nobis/Kuhnimhof 2018: 5).

The bicycle is a particularly important mode of transport in metropolises: here 15% of trips are made by bicycle while in rural regions the equivalent figure is only 7%.

Even though walking is a fundamental form of mobility, it is largely excluded from the French mobility statistics. For very short distances, walking is however preferred to cycling. An Insee study published in January 2017 (Insee 2017) suggests that a quarter of the labour force walk to work if the distance is a kilometre or less. A fifth of the labour force walk if their place of work is between one and two kilometres away. For distances of more than five kilometres, the bicycle replaces walking.

In Germany, walking is included in the statistics but a distinction is rarely made between short and long trips on foot. 22% of trips in Germany are made on foot and walking is also a particularly popular mode of transport. 83% of those asked (completely) agree that they like to make trips on foot (Nobis/Kuhnimhof 2018: 127).

3 Policy programmes in France and Germany

Climate action plans have been implemented in France and in Germany. In Germany, the *Klimaschutzprogramm 2030* (Climate Protection Programme 2030) aims to achieve a 40-42% reduction in emissions from the transport sector by 2030 compared to 1990 (CFACI 2019). For France, a whole series of action plans³ have been defined since 2015 and in November 2019 the new and very ambitious *loi d'orientation des mobilités* (LOM – Mobility Orientation Act) was passed. The package of measures includes achieving climate neutrality by 2050 and ending the sale of motor vehicles with internal combustion engines by 2040 (CFACI 2019).

The European Union supports and encourages such developments. Since 2020, emissions from new cars may not exceed an average of 95 grammes of CO₂ per kilometre. France provides financial and tax incentives to encourage the electrification of vehicles, especially fleets of company cars (the goal for low-emission vehicles in company fleets is 10% by 2022 and 50% by 2030) and aims to provide seven million charging stations by 2030. In July 2019, there were said to be 26,772 public charging points in France. Between 2010 and May 2019, 248,342 electric or hybrid vehicles were

3 In connection with the Paris Climate Agreements (2015): *Loi de transition énergétique* (Energy Transition Act, 2015), *Plan climat* (Climate Plan 2017), *Stratégie nationale décarbonisation* (National Decarbonisation Strategy, 2015 and 2018), *Trajectoires pour une réduction à long terme des émissions de gaz à effets de Serre* (Trajectories for a long-term Reduction in Greenhouse Gas Emissions, 2033 and 2050), *Plan pluriannuel énergie* (Multi-Annual Energy Plan, 2019-2023 and 2024-2028), *Stratégie mobilité durable* (Strategy for Sustainable Mobility, 2019-2023).

licensed in France⁴ (ibid.). This is the equivalent of 2% of the French market. The French metropolises play a leading role by establishing environmental zones and prohibiting access for the most polluting vehicles.

In Germany, the *Bundesverkehrswegeplan 2030* (BVWP 2030 – Federal Transport Infrastructure Plan 2030) has an important role in the planning of transport infrastructure for the next 10-15 years. It calls for the removal of bottlenecks on main transport axes and nodes. Rail is given a privileged position for both freight and passenger travel in order to encourage a shift from road to rail. The introduction of a synchronised train timetable is intended to make travel by rail more attractive. 31% of total investment (269.6 billion euros) is earmarked for new investment or extensions and 69% for the repair and renovation of the existing network. Nonetheless, the priorities here have clearly not been adapted to favour the transport transition because most finance continues to be spent on road transport (132.8 billion euros), followed by rail with 112.3 billion euros and waterways with 24.5 billion euros. In Germany investment is increasing (BMVI n.d.). In particular regions on the French side (e.g. in Ile-de-France), it is also possible to observe a similar shift with a larger share of finance directed towards the roads.

France and Germany continue to be very similar in terms of how they deal with daily commuting. In France, legislation provides for commuting costs to be reimbursed by the employer. In Germany, employees can set off part of their daily commuting costs against income tax. This fixed commuter payment (*Pendlerpauschale*) of 0.3 €/km is based on the shortest route for a one-way trip. For distances longer than 20 km, this rate of payment was increased to 0.35 €/km in the latest climate legislation package. In France, employers, for instance in the Ile-de-France region, reimburse 50% of the costs for a season ticket for public transport. Since the start of the ‘yellow vests’ movement, steps have also been taken to increase compensation measures for mobility in rural areas (halting measures intended to abolish diesel vehicles, suspending CO₂ taxation).

Like in France, Germany is accelerating objectives for CO₂ reductions in the transport sector, especially with the Climate Protection Programme 2030. The aim is to reduce emissions by 40-42% in comparison to 1990 (i.e. 95-98 tonnes of CO₂) by establishing a network of charging stations for electric vehicles, supporting the purchase of electric vehicles, developing biofuels, promoting public transport and the railways – especially for freight, extending cycle paths, various measures on inland waterways and increased ‘digitalisation’ in the transport sector. To finance the measures, the federal government has increased its share in *Deutsche Bahn* (DB – German Railways) by a billion euros. In addition, the price of train travel should become more attractive while air travel prices are supposed to increase. Various activities to promote public transport are under discussion (pilot project for public transport with a subscription of €365 per year).

4 On the European scale, 810,000 electric vehicles and 906,000 hybrid vehicles are licensed (October 2019). Norway leads in the licensing of electric vehicles (43,355 were registered in October 2019, followed by Germany with 40,594 and France with 34,759 (CFACI 2019)).

Like in France, Germany has introduced a price per tonne for CO₂, and this price is intended to increase steadily. In Germany, the CO₂ price in January 2021 was 25 euros per tonne. This is supposed to increase gradually to 55 euros by 2025. The market system for emissions certificates is being extended to include the transport sector, with the exception of air travel. Companies that buy or supply fuel will soon have to purchase certificates for a certain amount of CO₂. The price for the certificates is set at a level of 10 €/t CO₂ in 2021 and will be successively increased by 5-10 €/t per year. These measures are intended to support a learning process among companies and private citizens about the necessity of reducing CO₂. At the same time, a platform for trading certificates is to be established. A European market for emissions certificates is essential for when national requirements for the purchase of emission allowances are exceeded. Decisions must be made in 2025 concerning the upper and lower limits for these emissions prices (BMF 2019). In France, the 'yellow vests' movement has put such measures on hold. The process could be put back on track through better education, tax incentives and compensation for the most vulnerable population groups in rural areas who are reliant on cars.

Overall, it becomes clear that municipalities are called upon to implement the transport transition with appropriate policy measures. Thus, there is a lot of pressure to take the initiative for urban development in cities, but national legislation is not always clear or supportive here with regard to sustainable mobility. As a result, some cities are very actively exploiting and testing the scope for sustainable infrastructures (e.g. the traffic-calming on the Seine riverbank in Paris), in some cases to the point of court decisions (e.g. pop-up bike lanes in Berlin). Other cities, however, remain in the paradigm of the car-oriented city due to the lack of legal obligations.

There are still issues concerning acceptance for and the implementation of such policies in both countries. A total of 75% of French citizens are willing to alter their mobility behaviour to improve air quality – especially by using electric vehicles. However, 52% consider that using an electric vehicle would restrict their autonomy and 42% regard the costs as being too high, while only 20% emphasise the positive effects on the environment. Just 35% express an intention to buy an electric vehicle (CFACI 2019). Although there seems to be widespread agreement in both Germany and France concerning the need to reduce the role of the car in cities, there is still too little change.

3.1 A digression to Germany: Reactions to policy measures to encourage model shifts away from the car

In light of increases in numbers of vehicles and the negative impacts thereof, a large survey was carried out in Berlin about possible policy measures intended to reduce the use of cars in the city (IASS/DLR 2018). In recent years, there has been little improvement in air quality and the allocation of public space, even though the transport transition is an important policy goal and alternatives to the car thus require consideration. The question arises as to whether the results of such surveys should not be used to rethink inner-urban and urban-rural mobility policies in both France and Germany.

The consequences of the diesel scandal demonstrate that a number of municipalities are able to initiate strong measures to limit damaging emissions and to restrict car mobility in urban areas. What regulatory policies or incentives should be implemented to cut emissions in urban areas and reduce the amount of space used for motor vehicle transport and parking?

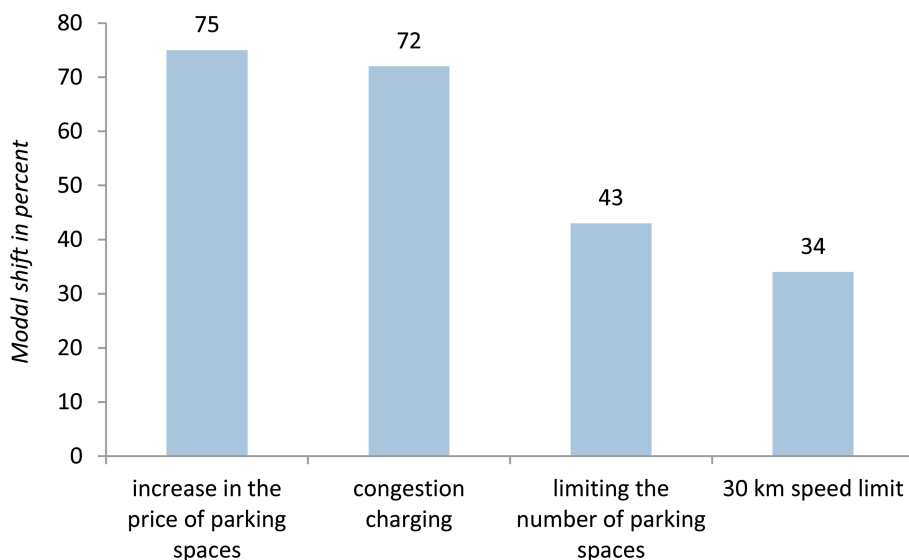


Figure 2: Modal shift from car to other modes in various policy scenarios. Participants who use their car at least 1 to 3 times a week with the commute to work as the most frequent route. Number of cases = 474-603 / Source: Jarass 2020, data: IASS/DLR 2018)

In Berlin, a survey of 1,000 people was carried out covering four policy scenarios intended to promote a modal shift from the car to other means of transport (ibid.): under which conditions would participants be willing to give up their cars and which other transport modes would they be willing to use instead? Different scenarios were suggested, firstly related to financial measures (congestion charges, increased parking fees) and, secondly, related to travel time (speed restrictions of 30 km/h, increasing the time needed to find a parking space by limiting the number of spaces). The following figure shows that the most potential for a modal shift on trips to and from work is associated with financial measures. With the introduction of a congestion charge or parking fees, more than 70% of the survey participants would be willing to switch to a different form of transport and would thus give up using the car for their trips to and from work. If speed restrictions of 30 km/h were introduced on main roads, then more than a third of the survey participants suggested they would be willing to change their mode of transport. If the number of parking spaces were reduced, then 40% would switch from the car.

According to this investigation, financial measures remain the most effective instruments for achieving large modal shifts to other means of transport. This shows that cities have great potential to reduce car traffic and render mobility more environmentally friendly and less damaging to public health. Nonetheless, the survey only covers preferences and thus indicates trends without depicting real intentions and changes in mobility behaviour. Overall, it seems clear that restrictions can exercise considerable influence towards reducing car usage. However, it is also important to create incentives to promote active mobility and public transport. Of relevance for promoting non-motorised mobility are factors such as well-developed bike infrastructure, mixed land use on a small scale, proximity to public transport stops and other objectives, safety in public space and attractive urban structures (Ewing/Cervero 2010; Holz-Rau/Scheiner 2005; Cao/Handy/Mokhtarian 2006; Jarass 2019).

The COVID-19 crisis is currently demonstrating that rapid infrastructure changes are indeed possible. In Berlin, less than half of all households have their own car but almost 60% of the city's traffic areas are occupied by stationary and moving cars. In Berlin's inner city, almost three times more trips are made on foot and by bicycle (53%) than by car (17%) (SenUVK 2017). This is scarcely reflected in the allocation of public space. However, in order to comply with current distancing regulations, Berlin has established new bike lanes and the streets can be temporarily used to play in and for leisure (Jarass 2020). To facilitate mobility during the pandemic and to satisfy the increased demand for bicycle traffic, a number of Berlin districts have used extremely rapid procedures to set up over ten pop-up bike lanes within the framework of the *Straßenverkehrsordnung* (StVO – Road Traffic Regulations). The bike lanes were extended in keeping with the *Berliner Mobilitätsgesetz* (Berlin Mobility Act) so that they can largely be retained even after the COVID-19 crisis. Similar tactical planning can be observed in France, for instance in Lyon, where bike lanes have been temporarily reinforced (through yellow marking) and lanes reserved for public transport.

During the summer of 2020, on Sundays between 1 and 7 pm there were also a number of streets in the Berlin district of Friedrichshain-Kreuzberg that were reserved for playing on. The temporary closures were supervised by the local inhabitants and were originally planned for just two months. The idea was to provide more space for children and local residents. Just under 300 volunteers supported the project, which included 19 *Spielstraßen* (play roads). These Sundays were very positively received and civil-society actors were actively involved in creating child-friendly areas. Generally speaking, however, such approaches are very selective and affect only urban areas.

4 Mobility: driving social change in France

If there is one activity that best characterises the dynamic development of the French economy in recent years, then it is the transport and mobility sector. There are world-leading industry players and transport service companies in France such as Keolis, Transdev, Air France and SNCF, as well as a whole range of highly innovative start-ups with strong growth potential like BlaBlaCar. On the international scale, France seems to be a laboratory for new mobility services – electric scooters, autonomous shuttles,

new mobility management systems – and attracts global operators like Uber, Dott, Lime and, of course, Flixbus (Guihery 2019). There are also numerous research centres set up by the giants of the network economy who focus on research into traffic and mobility. Finally, in recent years the French have profited from the liberalisation of transport services and the increase of intra- and intermodal competition. These developments have affected the quality of services and pushed prices down; this is particularly true of the new intercity bus services that have been active in France since 2015 and in Germany since 2013.

In France there is no lack of options for long-distance mobility: private cars or carpools/ carshares (e.g. BlaBlaCar), the TGV and its low-cost version (Ouigo), new intercity buses (which have carried nine million passengers since 2015, compared to 24 million in Germany where they began operations in 2013), and also cheap airlines (strong players include Easyjet, Ryanair and Wizz Air). The wide variety of transport modes encourages innovations with web or smartphone apps, also with regards to customer relations, communication and marketing: apps like Mobility as a Service (MAAS), currently very popular in France for optimising choices of transport mode, are indicative of these developments.

4.1 A digression to France: Regional disparities and social dependence on the car

In France, there is currently intensive discussion about measures that should be taken to progress with an ecological transition to decarbonised mobility. It is assumed that this process will ‘leave behind’ a considerable proportion of the French population. Drawing on the slogans of the meeting of the *agences d’urbanisme* (urban planning agencies), which celebrated its fortieth anniversary in Paris in November 2019, this dilemma can be addressed with the following question: How can we progress from a situation where citizens are ‘lost in transition’ to one where citizens are more committed to a logic involving a ‘love of transition’?

Currently, great efforts are being made to rapidly develop regional rail networks. This seems the only way to provide the regions with a high-quality alternative to commuting to and from work by car. The implementation of a ‘competitive market’ – through tendering – would allow frequencies of connections to be increased, the quality of service to be improved and new services to be introduced at the stations and on board the trains. Here, the *régions* have been made super-organisational authorities and are also responsible for rail transport. The regulation of the sector and the public service tasks have not been forgotten, as seen in the increased role for the *Autorité de régulation des transports* (ART – Regulatory Transport Authority). The French *régions* should benefit from a reduction in the financial burdens associated with the operation of regional railways.

However, the increased demand for and supply of mobility options disguise a tangible unease among certain population groups. The demonstrations of the ‘yellow vests’ in 2019 suddenly returned issues of equality and territorial equivalence to the forefront

of the political scene, revealing the deep concerns of people in rural and peri-urban areas who are dependent on cars and have been forgotten in the face of the innovative and mobile life in the metropolises.

Indeed, the costs of individual mobility have risen sharply in recent years (+11% in ten years) and continue to be closely linked to increases in fuel prices, which triggered the most recent ‘yellow vest’ crisis⁵. Households spend 10% of their budget (145 billion euros in 2017) on personal transport. Fuel accounts for about 26% of the costs of running a car. Insurance costs have also increased in recent years.

Yves Crozet provides a good summary of this problem of the limiting of individual mobility by the costs. For people who earn 1,200 euros a month, the budget for fuel alone (1.5 €/l) represents 10% of their income if they have to travel 70 km a day by car. If this is added to the other sunk costs which account for an increasing proportion of income (over two-thirds with modest incomes), it is easy to understand why *‘une étincelle sur le prix du baril de pétrole a suffi à mettre le feu aux poudres de la frustration sociale et économique’* (‘a spark linked to the price of a barrel of oil is enough to ignite a fire of social and economic frustration’) (Crozet 2018: 47).

In 2017, spending by households on public transport amounted to 29 billion euros or almost 2% of the household budget. In the last ten years, this expenditure has risen much more than nominal GDP, 33% as opposed to 25% (Crozet 2018). This increase is linked to public transport, which has developed strongly in the metropolises (+41%), and to flights (+40%). Rail transport accounted for a moderate increase in household spending (11%).

Most public investment in public transport has primarily benefited the urban centres – new mobility, infrastructure for public transport – and much less has ended up in rural or peri-urban areas, which has further exacerbated the dissatisfaction of residents in peripheral regions. The proportion of public investment in public transport has risen from 6.5% to 27.3%, but this is especially concentrated in the Ile-de-France (ibid.). It should be noted that the French only travel 1,400 km/year by public transport while, for instance, the Swiss use public transport to travel 2,400 km/year.

At its heart then, this is a territorial issue between the large metropolises and the peripheral regions. 20% of trips in Paris are undertaken by car, but cars are used for nearly 50% of trips in the suburbs and for almost 80% of trips in rural and sparsely urbanised areas. Outside the large cities, the working population is therefore reliant on the car. The separation between the workplace and the home is *‘un phénomène récent, puissant et silencieux’* (‘a new, strong and silent phenomenon’) (Broto 2022).

This decoupling of place of work from place of residence means that it is often necessary to travel a long way from home to find employment. This is particularly the case when many rural regions of France are losing jobs, particularly in the areas of the Centre Loire Valley, Champagne, Lorraine, Burgundy and in Alsace – with the exception of Mulhouse. Including the Ile-de-France, there are just nine prominent metropolises

5 As a reminder: 62 dollars in July, 85 dollars in October, 60 dollars in December (Crozet 2018).

where most mobility innovations are concentrated. The gap between the rural and peripheral France and the France of large cities is growing ever larger and is at the root of the latest dissatisfaction. The recent 'yellow vest' protests have revealed and highlighted the plight of many families who lack a stable monthly income and the purchasing power to cover the increasing mobility costs, where the CO₂ tax plays a significant role.

Most of the French are therefore dependent on their cars. A recent study by the Automobile Club Association (ACA) on the costs of running a car, which was published in early April 2019, confirms that there has been a great increase in the costs of maintaining a car and the price of fuel in recent years. The emotions that led to a large number of drivers taking to the streets with the 'yellow vests' and demanding an end to the carbon tax are thus understandable and, indeed, they achieved the moratorium of this tax in December 2018. The ACA investigation demonstrated that the costs for the owner of a Renault Clio with a petrol engine were 12.7% higher than in 2017. With the exception of the toll charges and garaging fees, all expenditures have risen more quickly than inflation (1.8%). Maintenance costs (+3.4-3.8%) and fuel prices are a burden on incomes. With taxes of 144% for diesel and 167% for SP 95 petrol, fuel costs for the owner of a Renault Clio amount to 1,022 euros per year (ACA 2019). If 100 euros are budgeted for a car, taxes account for 23 euros (or 27 euros for a diesel Logan). Insurance costs also rose by an average of 2.5% between 2018 and 2019. On the other hand, the costs of purchasing a car have remained relatively stable. It can be observed that leasing with a purchase option (75% of new car purchases in France) is increasingly attractive for car drivers.

Thus the ACA study showed that the budget required by the owner of a petrol-run Renault Clio rose by 12.7% to 6,833 euros per year between 2017 and 2018. However, of great interest in this context is that the 'car budget' can be stabilised with a hybrid car: with an annual expenditure of 9,764 euros, the budget for a Toyota Prius fell by 1.1%.

In summary, it can be concluded that the average monthly expenditure of travelling by car is just under 204 euros. 46% of the French citizens surveyed who use their car regularly were dissatisfied with the mobility costs incurred, as has been made very clear by the 'yellow vests' movement.

France thus stands at a transport policy crossroads. There is a tangible unease about the ecological transition, which is necessary but receives little support from some of the population with modest incomes who are car-dependent. Clearly, a process of redirecting investment towards the peripheral, peri-urban and rural regions is currently underway. However, it will not be possible to quickly bridge the gap between the metropolises where the jobs are located and the peripheral regions where an increasing proportion of the population live. A plausible alternative answer, at least in part, could be found in the renewal of rail transport. The current introduction of competition to regional passenger rail transport should allow the relevant authorities the financial leeway to increase frequencies and improve supply, punctuality and services, while transport costs may be reduced. In France, there is indeed a range of options for fulfilling the expectations of people living in the regions. Germany, France's

most important European partner, has been able to optimise its regional rail transport to become one of the most dynamic in Europe. All that remains is for France to quickly join this European dynamism.

5 Conclusion

In both Germany and France, the car occupies a central position in the transport system. The majority of daily trips are undertaken by car, especially in rural areas, and the infrastructure caters primarily for cars. In cities, the car is often just one mode of transport among many. Nonetheless, even here public space is greatly influenced by the car.

Policy agendas in France and Germany are increasingly tackling the issue of a paradigm change towards a more healthy and environmentally friendly transport system. To date, however, the focus has been almost exclusively on technological solutions. The transformation of the transport system is often equated with electromobility. The German Climate Protection Programme forecasts a total of between seven and ten million electric vehicles by 2030, and the German manufacturers, who were initially somewhat reluctant, are now more inclined to embrace this objective. Nonetheless, it is clear that policy ideas are not yet being implemented in daily mobility. The Germans keep their cars for an average of 15 years. This means that restructuring the car market towards electric vehicles will be a long process, especially because people who buy electric cars tend to be those with high incomes who live in a house with charging facilities.

The replacement of conventional cars by electric cars is not in itself enough to provide the desired result in terms of sustainability and a reduction in traffic, especially not everywhere or for all segments of the population. Even though electric cars create less local air pollution, they are still responsible for noise, space consumption, traffic accidents and the environmental costs of the production cycle of such cars. It is necessary to use small-scale policy programmes to promote active mobility which does not cause air pollution or damage public health. In this context, incentives to reduce the use of cars are indispensable. As the 'yellow vests' movement shows, many people feel themselves to be dependent on the car, a circumstance also linked to the centralisation and distribution of employment. This dependency must be reduced through the creation of alternatives.

Even if it is rather well hidden, there is nonetheless a great deal of active cooperation between France and Germany around the energy transition in the transport sector. On 19 June 2018, a roadmap for the implementation of the Paris climate agreement (2015) was drawn up at the French-German summit in Meseberg within the framework of a high-level, inter-ministerial working group on climate change. This cooperative body is involved in regular exchange on the level of the ministries, has held two meetings and has drawn up an agreement on maritime transport (May 2019). There is a regular exchange of views on a common strategy for the decarbonising of the transport sector. Three bilateral meetings have led to a convergence of strategies for

the installation of charging stations in cross-border areas, the preparation of EU approaches such as the revision of Directive 2014/94/EU on the deployment of alternative fuels infrastructure (hydrogen), and incentives for the decarbonisation of the car market. A French-German factory project for battery production has also been launched, an initiative which was joined by Poland. The increase of CO₂ taxes remains on the agenda. There is furthermore a need to develop joint German-French projects on the European level to increase the taxation of short-haul flights – or even ban them.

France and Germany look back on many years of friendship and cooperation. To achieve this paradigm change, both countries can build on these foundations, exchanging knowledge and practical solutions to promote healthy and environmentally friendly mobility, and learning from one another.

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