1. Research notes

A sustained fall in post-COVID car use? The case of the Lyon metropolitan area

Research notes
Begin: October 2023
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After the collapse of automobile traffic during the lockdowns, Covid-19 seemed to have brought the car back into the city, to the detriment of public transport. Through a series of surveys and vehicle countings carried out in the Lyon metropolitan area by Covimob project researchers, changes in automobile practices are revealed to be more complex, while a rethink of car use due to telecommuting is revealed.

Research participants

- Stéphanie Vincent
- Olivier Klein
- Ali El Zein
- Pascal Pochet
- Adrien Beziat

At the beginning of the Covid-19 pandemic, when a strict lockdown was implemented on March 17 2020 in France, car travel – just like all other modes - plummeted (Figure 1). However, car traffic fell less sharply and recovered more rapidly after the lockdown, especially compared to public transport. This observation raises questions about how sustainable the trend towards a reduction in car use in daily mobility practices actually is. More broadly, what have been the effects of Covid on car use in the short and long term?

The goal of the Covimob project is to analyse how mobility and the use of transport modes has evolved in relation to the changes brought about by the pandemic in the Lyon metropolitan area. [1] It answers this question with three particular types of data used in this article: road count data from January 2019 to August 2023 [2] , quantitative data from two online surveys, and a qualitative survey with 25 people carried out at the end of the strict lockdown [3] , between June and early October 2020. [4]

Changes in car use were the result of multiple modal transfers (changes in travel modes used) and of travel demand being strongly affected by the pandemic and its consequences.

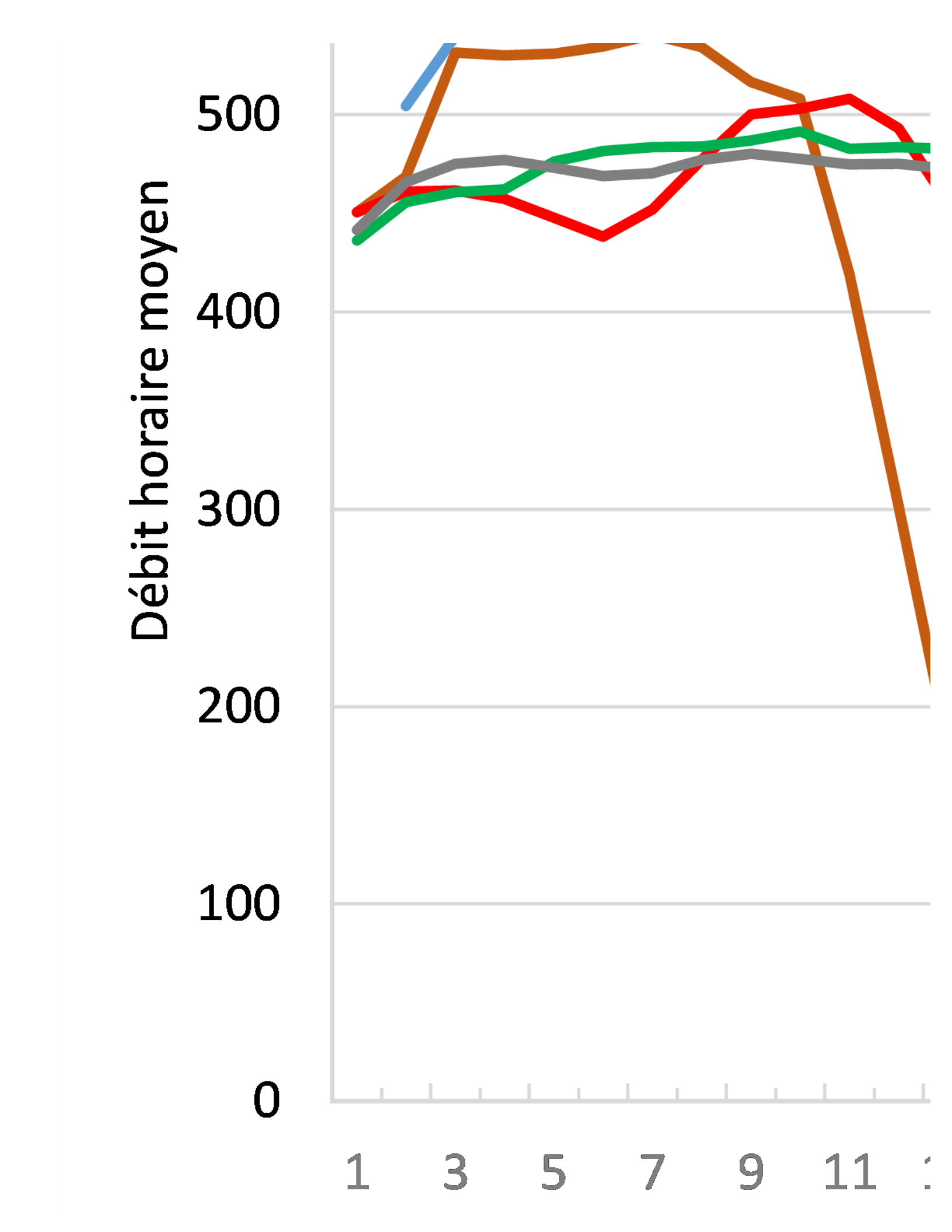
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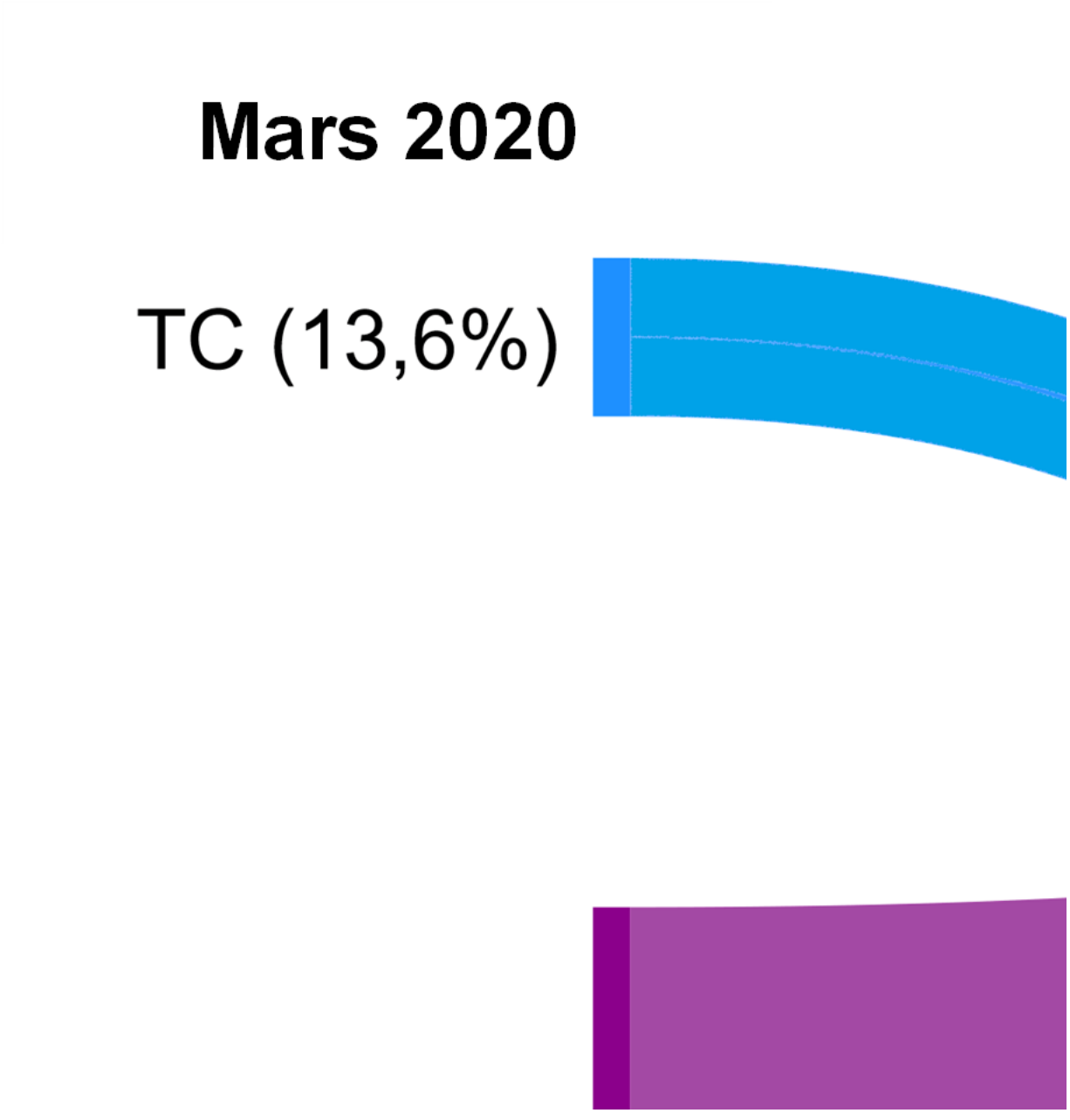
Figure 1: Evolution of road flows recorded by CRITER counting points from 2019 to August 2023 in the Lyon metropolitan area *Smoothed data (value for week s: moving average of s-1, s, and s+1). March 17 — May 10, 2020: 1st lockdown; October 30 — December 15, 2020: 2nd lockdown; March 26 — May 3, 2021: restrictions, teleworking strongly encouraged. Source: Arcadis, treatment: authors.*

1. The car as a shelter from infection, and a fall in public transport supply

In Lyon as elsewhere, the number of journeys being made fell dramatically between spring and summer 2020, due to the drop in face-to-face activities: entire businesses shut down, many were furloughed and there was an unprecedented rise in teleworking. Modal transfers are also observable for home-to-work commutes (Figures 2 and 3).



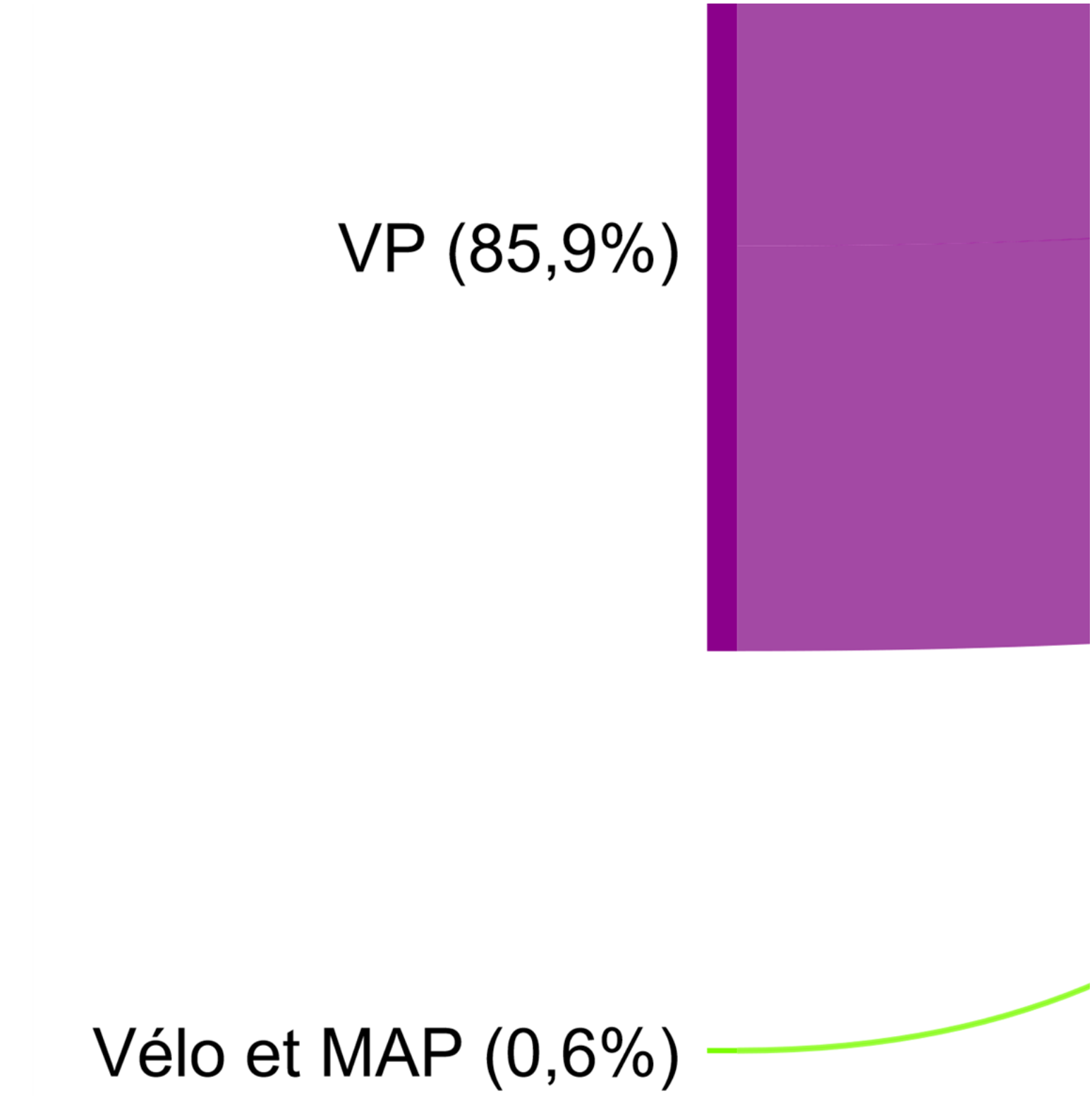


Figure 2: What modes of transport did post-lockdown car-commuters use before the pandemic? *Modes used to get to work before the pandemic (“March 2020") by commuters using private cars (PC) in June 2020 (as a % of June 2020 private vehicle commutes, in the Lyon metropolitan area and the Rhône department). Analysis: out of 100 home-to-work trips made by private car (PC) in June 2020, 86 of these were made by car just before the March 2020 lockdown, 13 by PT and 1 by bike or on foot (WALK). Source: Covimob survey June 2020.*

The shift from public transport to cars can be partly explained by a fall in public transport services during that period: almost 50% during the first lockdown, only returning to its overall volume in mid-June 2020 (El Zein et al., 2022). In an interview, Jean-Pierre describes his own first-hand experience with his son, who lives in Tassin-la-Demi-Lune (a town bordering Lyon, located to the west) and is undertaking a work placement in a company located in the 9th arrondissement as part of his studies:

> “My son, who went back to [working on site] two days a week, before, he used to go by public transport; now he goes by car. […]. Because there are far fewer trains and it's much faster by car.”

Furthermore, during a pandemic when the fear of infection is high, cars are seen as providing protection. Interviewees reported concerns about using public transport, especially the subway, as being underground increases the feeling of confinement and the the sense of a

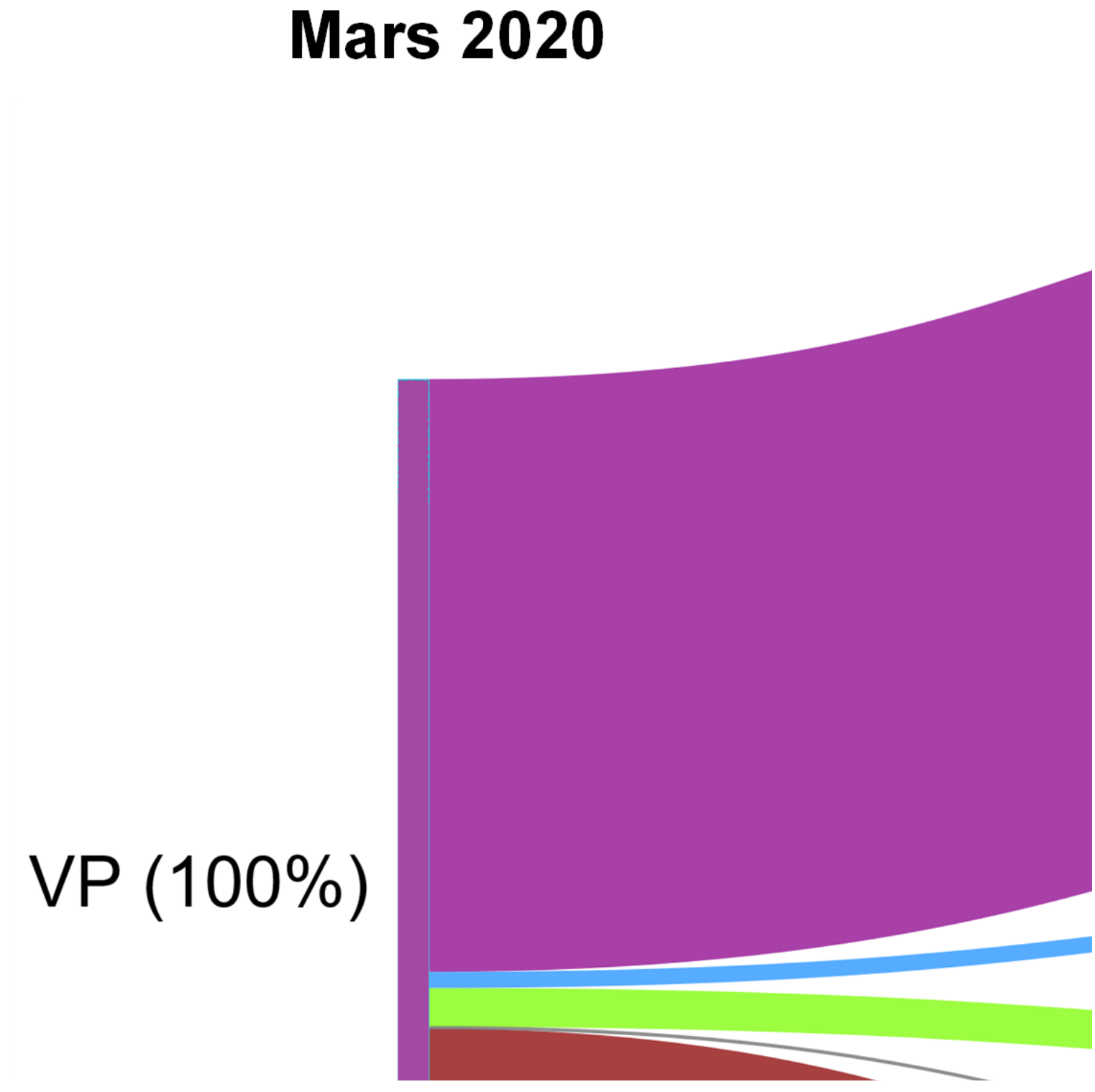
lack of ventilation. The shift to private cars also provides people with more comfort and flexibility.

The rise in cycling - whether on mechanical or electrically assisted bikes – and walking also highlights the desire for greater individuation in people’s mobility practices, out of fear of infection:

> “The crisis made me opt for individual modes of transport to avoid groups and incivilities (poor mask-wearing habits, etc.). So, walking for short trips (less than 30 min) and personal car for the rest.” (Excerpt from the free comments from the April 2021 panel web survey)

2. 2. For trips between home and work, the reduction in car use was primarily due to changes in work activity

The June 2020 survey also allows us to observe the evolution of modal uses of workers traveling mainly by car before the pandemic (March 2020).



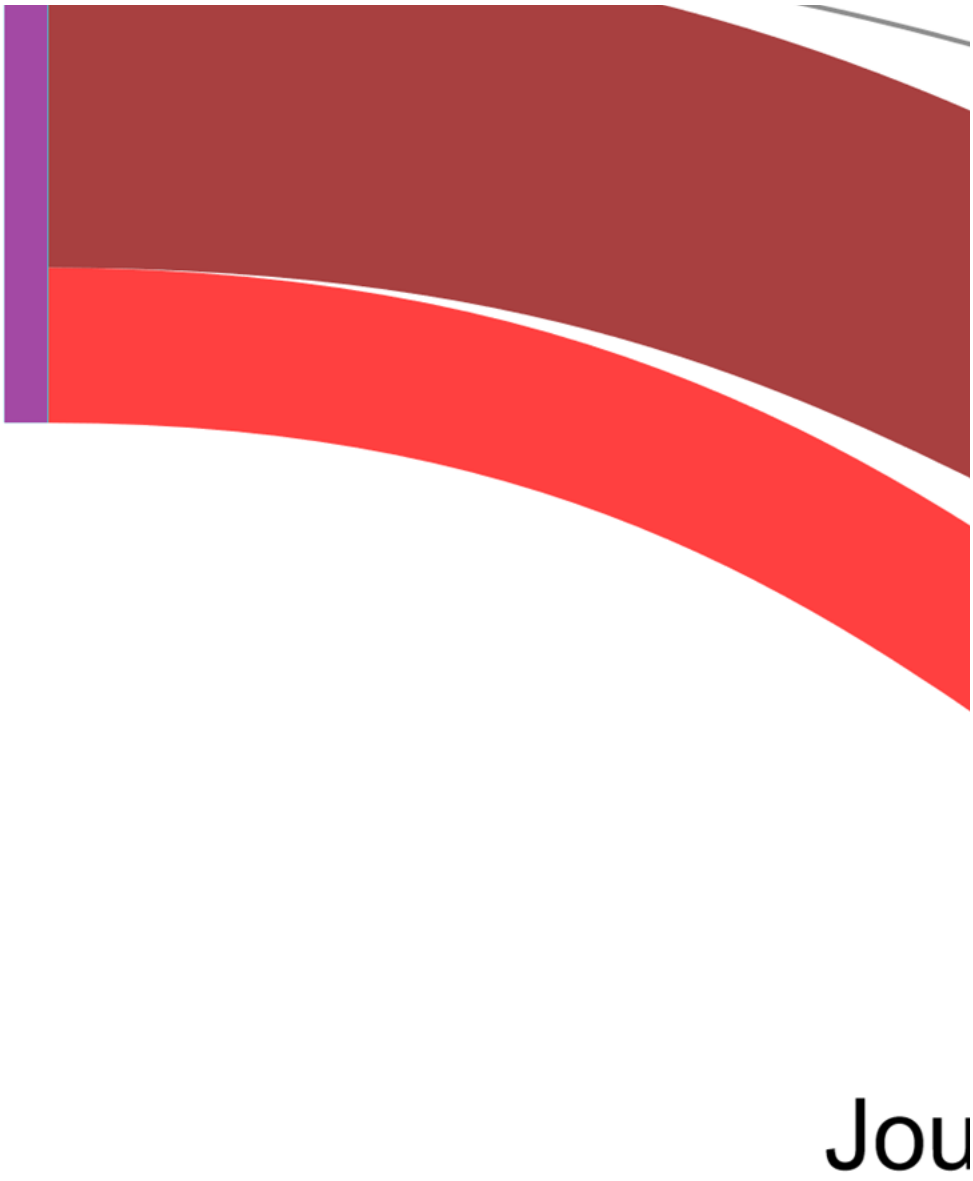


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Figure 3: What modes of transport did pre-pandemic commuters use after lockdown?

Modes used in June 2020 by commuters who used private cars (PC) in March 2020, to get to work (as % of private car commutes in March 2020), in the Lyon metropolitan area and the Rhône department. Analysis: out of 100 home-to-work trips using a PC in March 2020, 59 were made by car in June 2020, 2 by PT, 4 by bike, while 35 were no longer made, 24 due to teleworking and 11 due to reduced activity (partial unemployment, furloughs). Source: Covimob survey June 2020.

Figure 3 shows that the majority of workers commuting by car before March 2020 continued to do so in June 2020. Transfers to other modes (6.2%, mainly to cycling and public transport, with transfers from car to walking being very low) are half as important as the gains (13.6%, Figure 2). The main reason for the drop in home-to-work trips was the rise in teleworking and the decrease in activity. The return to car use after the end of the first lockdown thus appears to be relative and limited by the practice of telework.

Subsequently, between June 2020 and April 2021, car use remained stable among the workers who responded to both surveys: telework, which was both encouraged and practised in April 2021, impacted the overall volume of home-to-work commutes in the same way as in June 2020.

3. A return to car use that is relative, temporary and flexible

Increased car use was connected to the reduced attractiveness of public transport and to changes in activity due to the pandemic, but it also varied according to the characteristics of respondents. The data analysed does not show a recovery in car traffic, the main trend being a decrease due mainly to telework. The “recovery” is only visible in the months following the end of lockdown in May 2020. And it is only noticeable in relative terms, in relation to public transport, not in the overall volume of car traffic.

The June 2020 survey and our statistical [5] analyses also show that this temporary resumption of car use after the lockdown differed according to the respondents' previous modal practices and their perception of infection risk in different transport modes. Compared to the pre-pandemic period, the probability of using a car more in June 2020 was high among households with two vehicles. It decreased with the number of bicycles owned.

The probability of using a car more frequently in June 2020 than before the March lockdown was three times higher for daily public transport users than for others. The probability of increased car use was twice as high for users who viewed the health measures implemented on public transport to limit the spread of the virus to be insufficient. On the other hand, car use did not change according to place of residence (central or peripheral), profession or gender.

Between March and June 2020, the relative upturn in car use was also linked to changes in work organisation. Teleworking two or more days a week makes car use more affordable when commuting physically to work only on certain days. Julie, a psychologist living in Genay and working in the 9th arrondissement of Lyon, reorganised her work in order to carry out as many of her consultations as possible remotely, allowing her to go to her office only once a week, by car, at times when she could avoid rush hours:

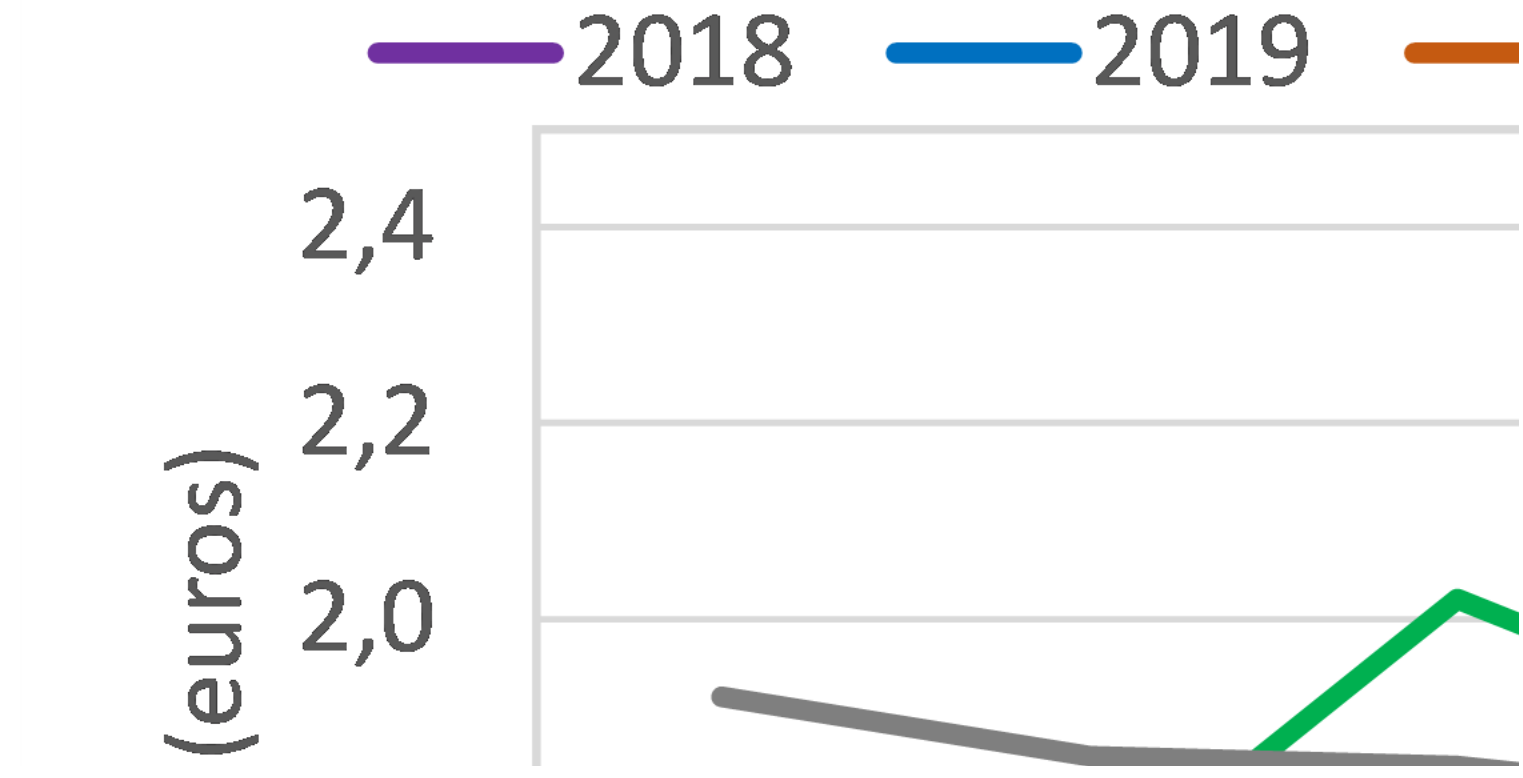
> “And when you go back to the office, how do you get there? In a car. [...] Already the bus, naturally, I don't like it. So that gives me a good reason. [...] Now, as I have short days, I go there by car.”

4. 4. Conclusion: what are the longer-term trends?

After the rapid resumption of car traffic following the first lockdown, the figures show a drop in car traffic in 2021, a year which was still largely disrupted by the pandemic. But traffic levels in 2022 and 2023 remain at lower levels than in 2019 (Figure 1). This raises questions about the evolution of the car’s role in urban mobility. This decline is probably due in part to the fact that telework continues to be practised. Yet, by comparison, since 2021 there has been sustained growth in cycling, and since the middle of 2022 public transport use has returned to pre-pandemic levels. In Lyon, as in many metropolitan communities, the renewal or even the strengthening of public policies in favour of public transport, cycling and car traffic control reinforces the impression of a return to to pre-2020 trends. Indeed, policies aimed at reducing the share of car trips, in place since the 2000s, had already contributed to a drop in the modal share of cars from 52% of trips made by the inhabitants of the Lyon metropolitan area in 1995, to 47% in 2006 and then to 42% in 2015 (Sytral, 2007; Sytral, 2016).

But the mobility context has also changed: on top of telework, fuel prices have increased significantly since 2022. Costs are an important factor in explaining this decline. The effect of fuel prices on car use is low in the short term (Crozet, 2022), due to the limited ability of households to adapt (Calvet and Marical, 2011), but effects are seen when prices remain high for a longer period. However, modest households are more sensitive to the short-term price effect but have fewer resources to adapt in the long term.

The impact of the development of telework on mobility appears to be less clear. Although its diffusion is highly differentiated socially and professionally (Aguilera, 2023; Santos Menezes et al., 2023), the desire to telework is strong among workers, especially those living in peri-urban areas who endure long and expensive commutes. On the one hand, telework reduces the frequency of long commutes by car but on the other, a reduction in the frequency of commuting can, in some cases, make car use more acceptable when physically going to the workplace. And the rebound effects (using the car for reasons other than work, helped by telework) raise the question of its overall potential to reduce car use. There are also numerous concerns surrounding a suspected phenomenon of “urban exodus” that is encouraged or facilitated by telework (PUCA, 2022; Mobile Lives Forum, 2023). If this is the case, the effect on modal uses would then be the opposite in the long term, since relocating to sparsely populated areas is often synonymous with greater car use. Finally, the most teleworkable jobs are often skilled jobs in the city centre, held by workers who already have modal alternatives to the car.



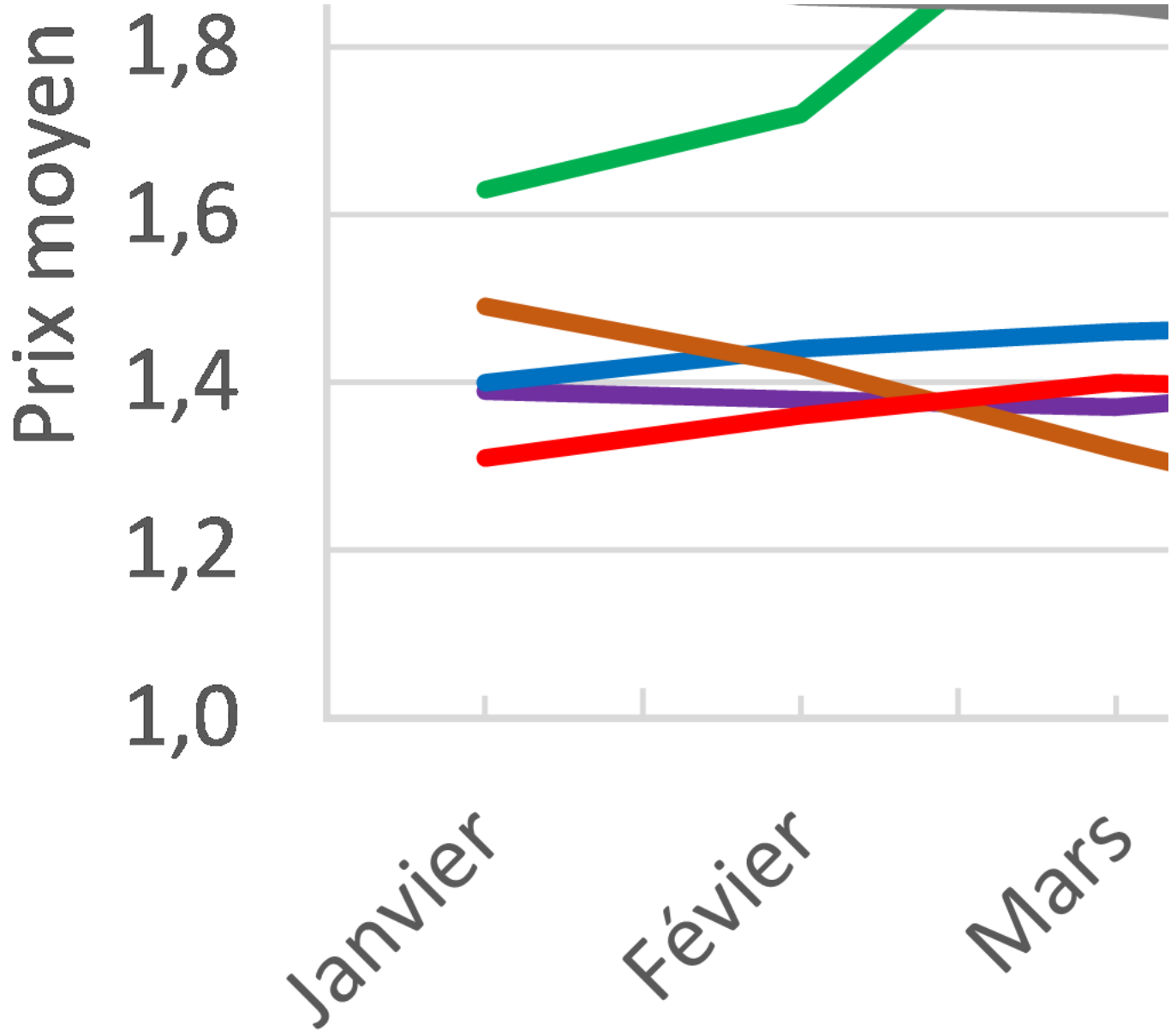


Figure 4: Evolution of the price per liter of diesel from January 2019 to August 2023. Source: INSEE; treatment: authors.

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Recent news reports on the rise in fuel prices or regulatory measures restricting car use — in particular low-emission zones — reminds us that the ability to choose one’s mode of transport and places of activity and residence, is dependent on social backgrounds and living areas. When we gain a deeper understanding of these contradictory trends, it becomes more necessary than ever to investigate mobility practices in a systematic and sustained manner.

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Notes

1 The Covimob project was funded by the CNRS, the City of Lyon, Sytral (the organising authority for urban mobility) and IDEX Lyon — Saint-Étienne, and led by Laet, in collaboration with Transae, Arcadis and Mobil'homme. https://web.msh-lse.fr/covimob/

2 Counts from the CRITER road traffic control system in the Lyon metropolitan area:
https://geo.data.gouv.fr/fr/datasets/f9325b6ac863c149c1597c7f51b6640049986e26

3 The first was carried out in June 2020 with inhabitants of the Lyon metropolitan area and the Rhône department (2,298 individuals). The second, in the form of a panel, was distributed in April 2021 to the respondents of the first survey who agreed to be contacted again (513 individuals). Several methods of dissemination were used for the first survey: Facebook (54% of responses), Sytral news feeds and the OnlyMoov application (https://www.onlymoov.com/) and, for municipalities located outside the Lyon metropolitan area, town halls (these three channels providing 37% of responses), the remaining 9% coming from other professional channels (chamber of commerce) or associations.

4 Of these 25 people, 20 live in the Lyon metropolitan area, 9 live in Lyon-Villeurbanne and the other 11 in peripheral municipalities of the metropolitan territory. The other five live in the Rhône department (outside the metropolitan area).

5 Using a multivariate logistic regression model we can assess the possibility of greater car use in June 2020 than in March 2020 depending on various situations: whether the household has this or that number of cars or bicycles, or whether or not the respondent used public transport on a daily basis in March 2020, or whether or not the respondent considers the health measures insufficient, etc.

Mobility

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

En savoir plus x

Lockdown

The lockdown measures implemented throughout 2020 in the context of the Covid-19 crisis, while varying from one country to the next, implied a major restriction on people's freedom of movement for a given period. Presented as a solution to the spread of the virus, the lockdown impacted local, interregional and international travel. By transforming the spatial and temporal dimensions of people's lifestyles, the lockdown accelerated a whole series of pre-existing trends, such as the rise of teleworking and teleshopping and the increase in walking and cycling, while also interrupting of long-distance mobility. The ambivalent experiences of the lockdown pave the way for a possible transformation of lifestyles in the future.

En savoir plus x

Teleworking

The remote performance of a salaried activity outside of the company's premises, at home or in a third place during normal working hours and requiring access to telecommunication tools.

En savoir plus x

Residential mobility

Broadly speaking, residential mobility refers to a household's change of residence within a life basin.

En savoir plus x

Associated Thematics :

Lifestyles

- Alternative mobilities
- Cars / motorcycles
- Living environments
- Change in practices
- Crises
- Work

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