

Supply chain difficulties in service stations have been accompanied by fuel storage behaviour by households

The month of October was troubled by strikes in French refineries, resulting in a drop in production with service stations running out of fuel. The proportion of service stations out of stock of at least one fuel¹ reached its maximum on Monday 10 October, with 35% of petrol service stations affected. In this context, analysis of CB bank card transactions indicates storage behaviour on the part of households: purchases of fuel certainly increased significantly during the first half of October, when shortages were at their height, then subsequently fell dramatically as a backlash. This storage behaviour could be seen not only in those regions that were most affected by shortages but also in those that were least affected. All in all, fuel purchases, as measured by CB bank card transactions, would appear to have increased overall in October, compared to September.

In October, production of coke and refined petroleum decreased and the number of service stations that ran out of fuel increased, in a context of strikes in the refineries

Between the end of September and the start of November, social movements led to closures of French refineries. These closures led in turn to a drop in production in the coke and refined petroleum branch in September (-7%) and a further decline in October (-46% compared to September, ► **Figure 1**). The proportion of petrol service stations that had run out of at least one type of fuel started to increase in late September (► **Figure 2**), reaching a maximum on Monday 10 October (35% of stations affected, with widely differing situations in different areas), and it remained high throughout the rest of that week, before declining gradually until the beginning of November.

Spending on fuel reached very high levels in the first half of the month, then fell back from mid-October

On a national scale, in the first half of October, the daily listing of fuel purchases, as measured by CB bank card transactions, showed significant increases, especially at the time of the greatest shortages and just before

(► **Figure 2**). All in all, in the first half of October, the level of spending on fuel using CB bank cards was almost 25% higher, on average, than the equivalent period in 2019, while in September, it was a little over 3% above its 2019 level. This additional spending observed at the very time when stock shortages were at their maximum can be interpreted as storage behaviour on the part of households, as a precaution to protect their fuel supply.

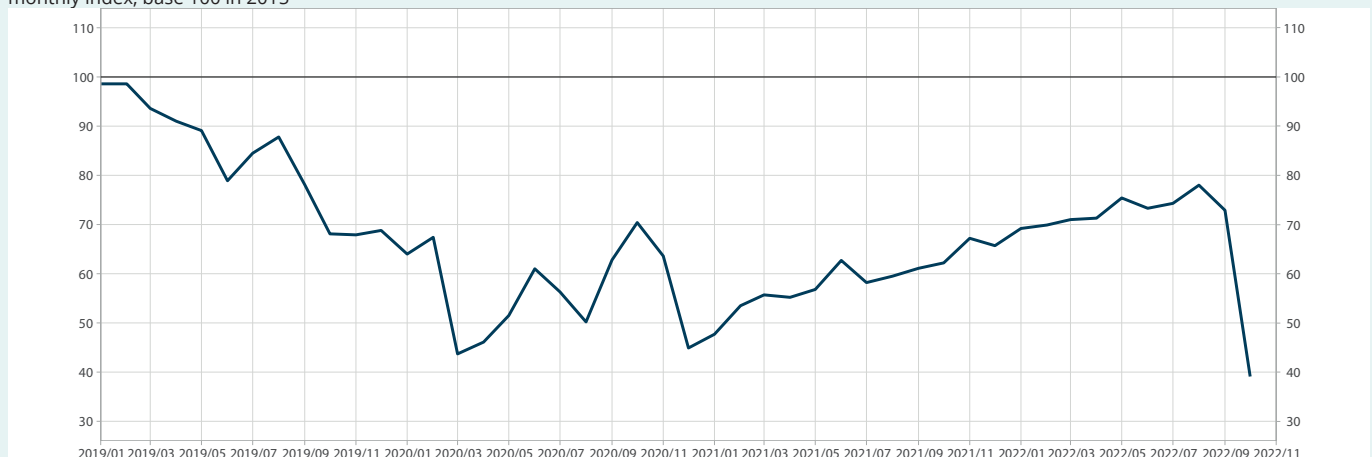
From the third week of October, the share of service stations that had run out of fuel was still close to the average level noted in the first week (18% of service stations had run out of stock in the first and third weeks of October) but fuel purchases by households declined substantially, as a reaction to their storage behaviour of previous weeks. These purchases were at a much lower level even than in September (-5% on average over the second half of October compared to the equivalent period in 2019, against a little over +3% in September).

Stock shortages were unevenly distributed across the country

Stock shortages at service stations affected all regions of Metropolitan France (excluding Corsica). However, some areas were much less affected during the period (► **Figure 3**): Bretagne and Nouvelle-Aquitaine stand

► 1. Production index for the coke and refined petroleum branch

monthly index, base 100 in 2015



Last point: October 2022, SA-WDA data.

How to read it: in October, the industrial production index for the coke and refined petroleum branch stood at 39.1.

Source: INSEE

French economic outlook

out from other regions as the share of service stations in these regions that ran out of fuel was just over 8% in October, against 20% on average in the other regions. Conversely, the Auvergne-Rhône-Alpes region was most affected on average across the month (nearly 23% of petrol stations out of stock in October).

Storage behaviour by households was seen both in the regions most affected by shortages and in those less affected

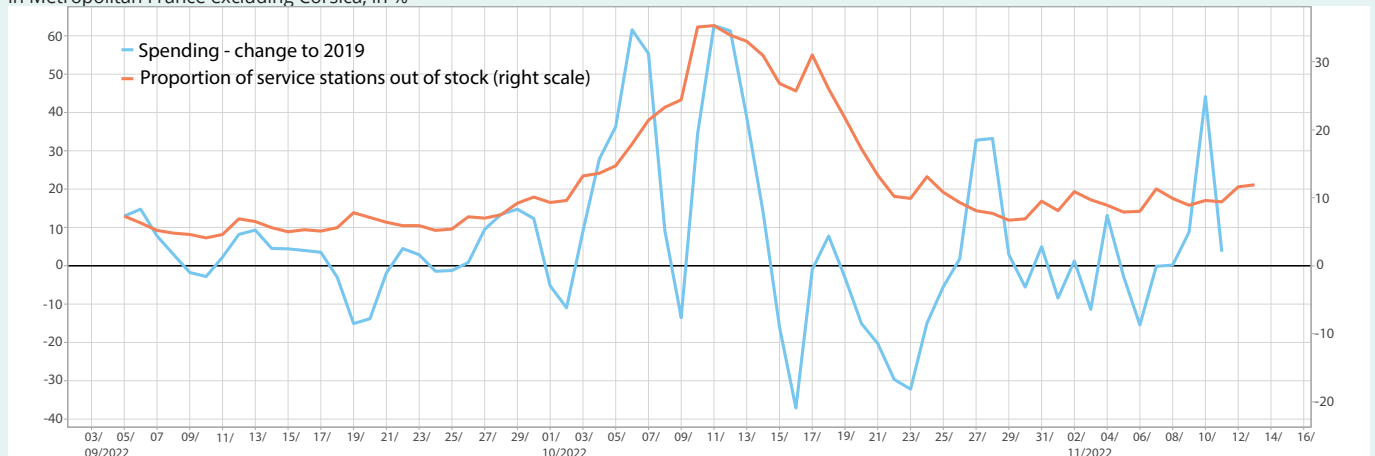
In Auvergne-Rhône-Alpes, in the first week of October, fuel purchases by CB bank card were almost 55% above the level for the equivalent day in 2019, just a few days before the proportion of service stations out of stock in this region reached its maximum (over 40% of service stations affected on 11 October, ► **Figure 4**). Fuel purchases by CB bank card also soared in Bretagne, at around the same time and on the same scale, then again

the following week to an even greater extent, although less than half as many service stations were then affected by shortages in this region. This similarity in changes in fuel purchases in regions that were affected differently by stock shortages suggests some anticipatory behaviour on the part of households: they may have wanted to protect themselves ahead of time from the risk of shortage, even if it subsequently turned out that deliveries were able to continue in their region.

Due to the sharp increases observed at the beginning of October, purchases of fuel by CB bank card increased over the month², while leisure-related transactions decreased

As the increase in fuel purchases by CB bank card in October was greater than the reaction observed in the later part of the month, bank card transactions adjusted for price changes suggest an increase in consumption

► **2. Real daily amounts of CB bank card transactions and proportion of service stations out of stock**
real daily amounts compared to that of a similar day in 2019, in %; proportion of stations out of stock of at least one fuel (excluding LPG and superethanol) in Metropolitan France excluding Corsica, in %



Last point: 11 November 2022.

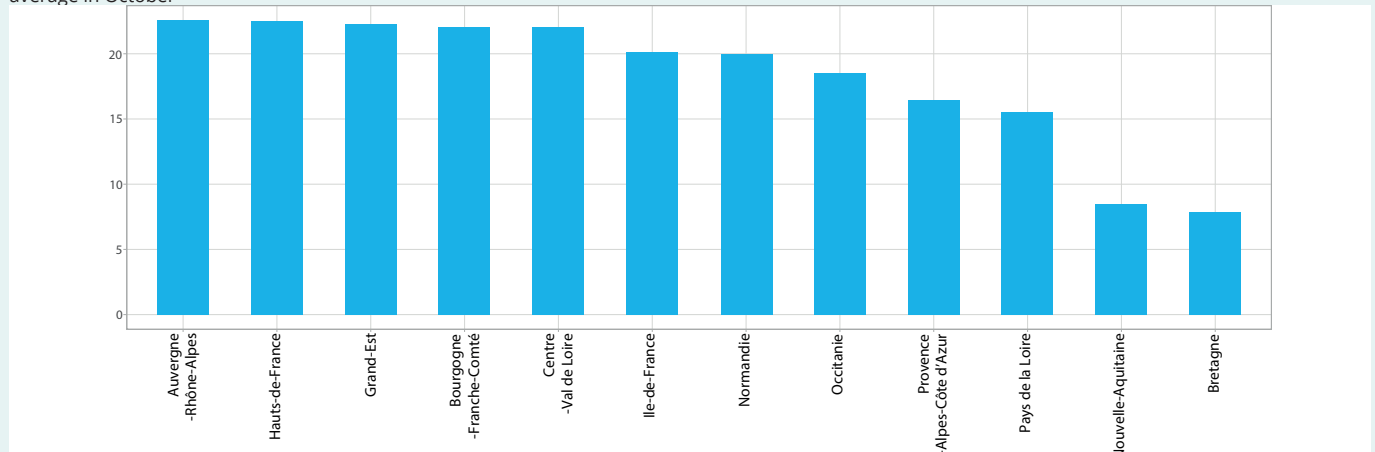
How to read it: on Thursday 6 October 2022, CB bank card fuel purchases were almost 62% higher than their level on a similar day in 2019, Thursday 3 October. The proportion of service stations with at least one fuel out of stock in Metropolitan France excluding Corsica was 18%.

Note: spending by CB bank card is adjusted for weekly price changes, as collected on this [website](https://www.prix-carburants.gouv.fr).

Source: CB bank cards and website data <https://www.prix-carburants.gouv.fr>; INSEE calculations

► 3. Proportion of service stations out of stock on average for October, by region

share of service stations out of stock of at least one fuel (excluding LPG and superethanol) by region in Metropolitan France excluding Corsica, in %, on average in October



How to read it: in Auvergne-Rhône-Alpes, on average, almost 23% of service stations were out of stock of at least one fuel in October.

Source: website data <https://www.prix-carburants.gouv.fr>; INSEE calculations

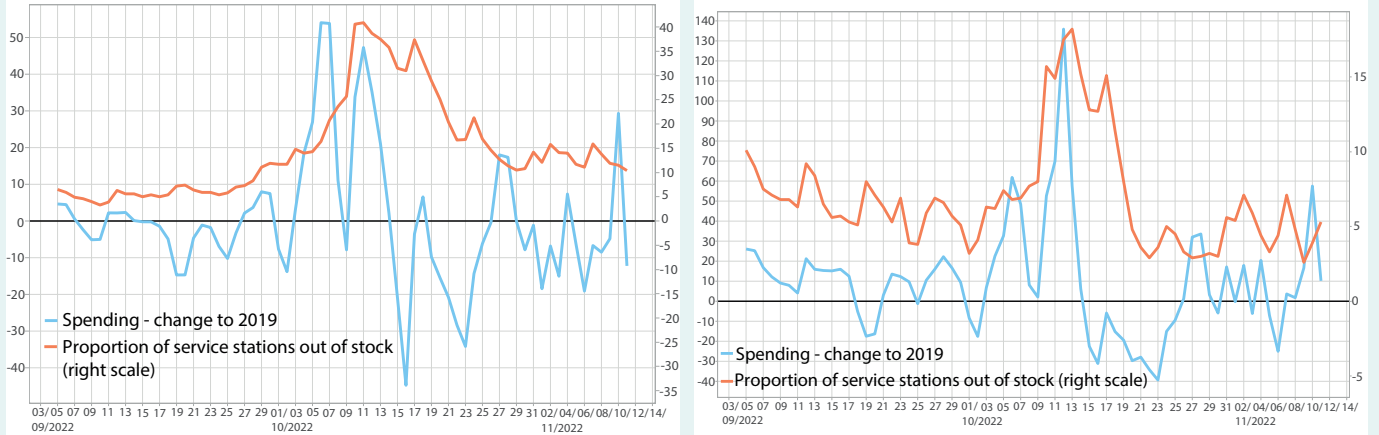
compared to September (► **Figure 5**), which was already slightly up on August. Conversely, the amounts of CB bank card transactions spent on leisure outings, excluding cinema (theatres, museums, etc.), adjusted for price changes, decreased in October, continuing the decline already observed the previous month. Spending

by CB bank card on accommodation has been in decline since its high point in May and spending on catering was on a downward trend in September and October. Spending on leisure outings (excluding cinemas) and catering, however, picked up a little in November. ●

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► 4. Real daily amounts of CB bank card transactions and proportion of service stations out of stock, in Auvergne-Rhône-Alpes (l.) and Bretagne (r.)

real daily amounts compared to an equivalent day in 2019, in %; share of service stations out of stock of at least one fuel (excluding LPG and superethanol), in %



Last point: 11 November 2022.

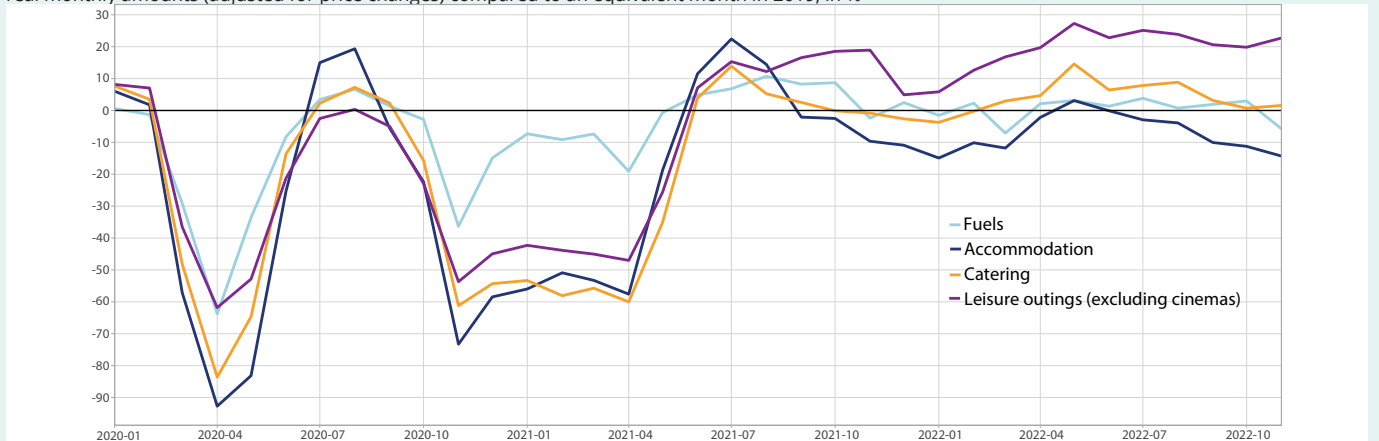
How to read it: on Thursday 6 October 2022, in Auvergne-Rhône-Alpes, CB bank card fuel purchases were 54% higher than on the equivalent day in 2019, Thursday 3 October. The proportion of service stations with at least one fuel out of stock in Auvergne-Rhône-Alpes was 16%.

Note: spending by CB bank card is adjusted for weekly price changes, as collected on this [website](#).

Source: CB bank cards and website data <https://www.prix-carburants.gouv.fr>; INSEE calculations

► 5. Real monthly amounts of CB bank card transactions, for various points of sale

real monthly amounts (adjusted for price changes) compared to an equivalent month in 2019, in %



Last point: November 2022 (1-27 November).

How to read it: in October 2022, CB bank card transaction amounts (adjusted for price changes) in catering services were 0.7% higher than in October 2019.

Source: CB bank cards, INSEE calculations

Notes

- 1 Service stations out of stock of at least one fuel are those that closed or that remained open but announced that they had run out of at least one type of fuel – diesel or petrol (unleaded 98, unleaded 95, unleaded 95 E10).
- 2 The trends described here correspond to what can be deduced from studying CB bank card transactions. They may therefore not correspond to the trends in consumption of goods published monthly by INSEE. In fact, with regard to household fuel consumption, the monthly data published regularly by INSEE are based on quantities delivered to petrol distribution circuits. These data are more exhaustive with a more stable scope over time than bank card transaction data. As a general rule, petrol service station deliveries are sufficiently frequent so that measuring quantities delivered coincides with quantities consumed. On the other hand, in the event of irregularities in fuel deliveries or consumer behaviour and wide infra-monthly variations, as was the case in October, the dynamics of quantities consumed may differ from those of quantities delivered. Thus, for the item "heating oil and fuel", monthly data on household consumption of goods show a strong momentum in September and a decline in October: these changes may suggest that tanks were filled to capacity in September (storage phenomenon at the service stations) followed by a lack of supply in October, whereas CB bank card transactions showed very large actual purchases of fuel in the first two weeks of October, with transactions up overall across the whole of October compared to September. ●