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European Commission

SCIENCE FOR POLICY BRIEFS

Future of Transport: Update on the economic impacts of COVID-19

Headlines

- The disruptions caused by the COVID-19 pandemic may affect transport and mobility for much longer than the duration of the emergency
- Several transport operators have lost a significant part of their income since mid-March 2020, raising worries about their financial stability and their capacity to recover their services
- Risk aversion and self-imposed social distancing may result in modifications of the current trends in personal mobility patterns and user choices
- A possible economic slow down can further complicate the demand and supply of transport and mobility services, as well as investment and innovation in the sector
- The re-orientation of public policy in the aftermath of the pandemic may limit the relative importance of the policy priorities that shaped the evolution of the transport sector before the crisis, especially those related to climate change and the environment.

Direct impacts on transport and mobility

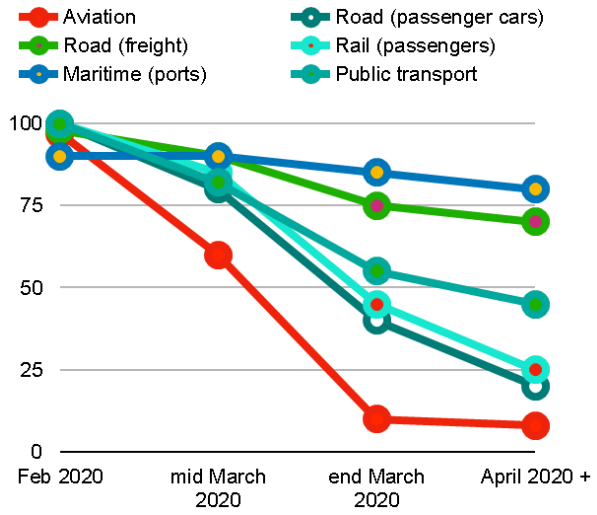
Traffic and transport operations are a reflection of the social and economic activity. During the pandemic, the measures applied in order to limit the propagation of the disease resulted in extensive mobility restrictions with a pronounced impact on most transport modes.

Air transport is the most affected sector, with more than 90% of programmed flights in EU27 cancelled. Passenger car traffic decrease by 60% to 90%, while public transport and passenger rail decreased by more than 50% in most Member States. The freight sector was more resilient, since supply chains were mostly kept open to support the continuing productive operations.

Nevertheless, the pause in non-essential activities in some Member States and the decrease in retailing had a visible impact in certain segments of transport, distribution and logistics. Maritime transport and port traffic were affected by the reduction in the trade with China during the early phases of the pandemic, but is showing signs of recovery.

Demand for transport and mobility services will probably rebound once restriction measures are removed and activity gradually recovers. Nevertheless, the rate of recovery will vary across transport modes and Member States and will depend to a large extent on the speed of economic recovery, the cost of the measures to support it and the changes in the supply and demand of transport services as a result of the direct and indirect impacts of the pandemic. A clear picture of the full impacts will, most likely, not be possible before the end of 2021 and the repercussions will be probably still visible at least 3 years after the crisis.

Figure 1: Change in transport activity, EU27 (baseline = 100)



Source: JRC estimates based on data from EUROCONTROL, Google, Apple

Joint Research Centre

The *JRC Flagship Report on the Future of Transport*[1] was published in June 2019 and addressed the main trends affecting transport and mobility in the long term.

The main conclusion of the analysis was that the improvement of transport governance and the development of innovative mobility solutions with the engagement of citizens will be crucial to ensure that the future of transport is cleaner and more equitable than its car-centred present. The response to the COVID-19 pandemic and the recovery path in its aftermath can influence the evolution of the various factors and make the need for improved governance and innovativeness even more urgent.

Change in mobility patterns

The pandemic crisis is already considered as one of the greatest shocks in the last 60 years, strong enough to modify future needs and social values. Several of the changes in personal priorities may persist in time, even after the eventual recovery. On one hand, social distancing has accelerated the adoption of technological solutions that help avoid transport.

Teleworking, video-conferencing and other remote collaboration methods have long been seen as potential solutions for reducing transport demand. The extensive adoption of such solutions by a large share of enterprises during the crisis will probably result in an increased share of employers and employees continuing to use them once the confinement measures are over. On the other hand, the increase in e-shopping during the crisis -as a response to limitations in retailing, risk aversion and social distancing- is also expected to be sustained in the future. Either as employees or as consumers, many individuals will limit trips that can be avoided through technology, or simply because they would consider them unnecessary.

Regardless of how soon the COVID-19 threat is over, the uncertainty concerning the possibility of new waves of the virus or other pandemics will remain in the near future and will probably lead to a higher risk aversion towards transport and travel. Apart from decreasing the trip frequency at individual level, the user preferences concerning transport modes and trip distances will also possibly change.

As discussed in the *JRC Future of Transport* report, public transport is especially vulnerable to the changing trends in society and technology. Emerging mobility technology and business models already threatened the role of public transport demand by shifting users to ride hailing services, shared mobility applications and micro-mobility solutions (electric bicycles, e-scooters, etc.).

In a post-pandemic situation, it is possible that a part of the population will avoid public transport due to disease transmission concerns and opt for more individualistic forms of mobility. Such behaviour can shift demand back to private cars, biking (conventional or electric), micro-mobility and even walking. But probably favouring own vehicles as opposed to shared mobility options. “Sharing economy” services such as ride hailing, ride sharing and other emerging MaaS (Mobility as a Service) applications are therefore expected to face important viability problems as a result of the loss of income during the confinement period and the decreased demand afterwards.

Air travel is the hardest hit transport mode. Its activity in the EU decreased by 90% during the pandemic and the high capital costs of airlines and airports make the survival of several actors questionable in the short term. The medium term perspectives of aviation are also bleak, since air travel will be greatly affected by a decrease in demand for tourism and for business travel. The risk of being stranded in a foreign destination, the perceived sense of exposure to diseases when travelling in airplanes or through airports, the inconvenience caused by additional airport controls that will be possibly implemented, and the substitution of business meetings with telematic solutions are among the factors that will affect future demand. In addition, in a context of a potential economic slowdown, overall demand would decrease even further, making the medium term prospects of the sector even more questionable. It is expected that several countries –within and outside the EU- will support financially their national carriers and airports, potentially raising issues of unfair competition and distorting the landscape in the globa air transport market, but also ensuring connectivity and indirect support to other sensitive sectors of the economy such as tourism.

High Speed and conventional rail face -to a certain extent- similar challenges. Trips in the 400 km to 1000 km distance band though will probably not be affected as much as the longer distance trips by air, and rail may benefit from the substitution effect of trips not realised by air. However, trips that require indirect connections through intermediate stations or combinations of more than one transport modes are likely to be less attractive to travellers.

[1] Alonso Raposo, M. (eds.) et al. (2019) The future of road transport – Implications of automated, connected, low-carbon and shared mobility, EUR 29478 EN, Publications Office of the European Union, Luxembourg, doi: 10.2760/9247

A potential economic slowdown would also affect overall demand and limit the development of the sector in terms of new investment and market opening.

On the other hand, freight transport is more resilient to the direct impacts during the confinement period but very sensitive to the speed of the economic recovery. Production and supply chains maintained their operational capacity but can eventually be negatively affected by a drop in final and intermediate demand.

However, the concerns raised during the pandemic may cause a deceleration of the globalization in supply chains in order to avoid future risks. Several countries and businesses will probably attempt to source their inputs from producers which are closer to them and cause at least a marginal decrease in the transport intensity of their operations. E-commerce witnessed an increase in demand during the confinement period and will probably have a more important role in future consumption patterns. The trends of digitisation in logistics and distribution systems are therefore expected to continue reshaping urban and long distance freight transport.

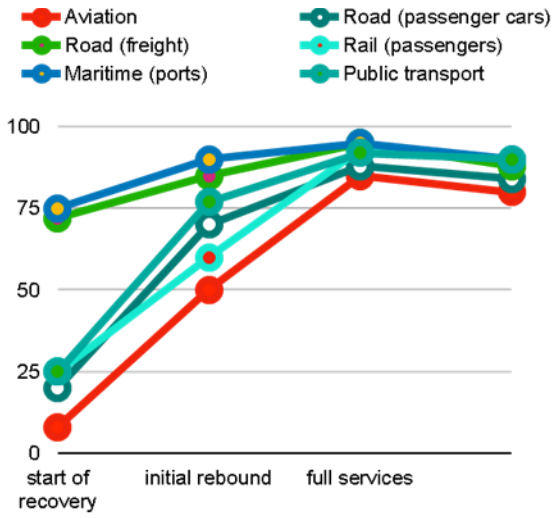
The path to recovery for the transport sector depends on the strategy that will be followed in terms of the gradual relaxation of restrictions, the future operational rules that will affect the supply side and the rate of improvement of the general economic conditions. Figure 2 presents an initial estimate of the differential reaction of each transport mode, assuming that each mode reached minimum activity during the crisis and will gradually converge towards its baseline level. Changing mobility patterns and economic uncertainty would be, however, limiting factors in the medium term.

Health and safety measures

Most operators in both passenger and freight transport will be probably required to improve their health & safety standards through the introduction of additional controls, disinfection procedures and additional protection equipment, e.g. improved High Efficiency Particulate Air (HEPA) filters..

At least for the first months of the gradual return to normality, limits to the number and density of passengers and personnel in vehicles, vessels and aircraft (and stations, ports and airports) should be expected. Such measures will be necessary in order to minimise the potential spread of future waves of infectious diseases and -at least as important- to provide a sense of security to users. The drawbacks, however, would be the cost increase and service limitations for transport operators, and the added inconvenience for transport users.

Figure 2: Indicative scenario of transport activity recovery, JRC estimates (baseline=100)



Impact on Innovation

Being the direct outcome of economic and social activity, transport and mobility should normally rebound in line with the speed of recovery back to normality. Apart from the direct impacts to transport demand from an economic slowdown, a lower investment in transport infrastructure, equipment and services may also affect the supply side. Public budgets will be channelled towards the post-pandemic crisis mitigation and the private sector may be facing liquidity problems, in both cases limiting the amounts available for transport related investments.

The construction of transport infrastructure and the technology-led innovation in vehicle manufacturing are two sectors with a large economic impact in the EU that may strongly be affected by a financial crisis. In addition, lack of funding or risk aversion may limit the prospects of innovation in a number of emerging technologies and applications in transport. These include the start-up ecosystem of new mobility options and business models or high uncertainty concepts such as the hyper-loop.

On the other hand, automation -especially in freight transport operations and distribution- may be positively affected, since operators will be exploring ways of reducing human exposure or test innovative ideas for future emergencies (e.g. drone distribution). The impacts on clean, connected or autonomous vehicles would be mixed and depend on a combination of many factors. While significant progress has been made in the last 3-5 years, ensuring public policy support, private sector investment and user acceptance in the

current situation and in the short to mid term can be challenging.

Public policy priorities

Several studies by the JRC[2] and others have demonstrated the critical role of public policy -at all levels- in influencing the evolution of the transport sector through strategic objectives and regulation. At EU level, this is evident by the impact that the Climate Change and Air Quality policies have had on transport policy from the national to the local level, with repercussions ranging from vehicle technology to urban traffic management.

How EU policy priorities will be re-orientated as a response to the post-pandemic challenges will to a large extent shape how the transport sector will evolve. For example, maintaining the ambitions of the European Green Deal[3] as part of the recovery measures can be a form of stimulating the EU vehicle manufacturing sector. Or, at local policy level, it can be an opportunity to promote micro-mobility and clean transport modes to improve the environmental quality but also support innovation.

Policy Options

Several operators, especially in air transport, will potentially require direct or indirect state support in order to maintain a level playing field while also ensuring the competitive position of EU operators at international level. Public transport and aviation are particularly vulnerable to the impacts of changing in user choices, worsening economic conditions and, tightening public budgets. State Aid rules will probably need to be updated and potentially take criteria such as preserving connectivity or minimum service into account.

Health and Safety guidelines for all transport modes across the EU, including a time line for their application, are needed in order to ensure public trust and a uniform adoption by all operators. They should address issues ranging from cleaning and disinfection standards to limitations to the allowed density of passengers across all types of publicly used transport mode.

The European Green Deal priorities for mobility are compatible with a post-pandemic strategy for the transport manufacturing and service sectors. Guiding the support to transport operations towards technologies and business models that meet those priorities is an option that can deliver longer term benefits.

The need to stimulate innovation in transport and mobility applications and services will increase due to the post-pandemic uncertainty. There is a risk of a decrease in both private and public investment in transport innovation, due to priorities shifting to health issues or funds being limited..

The role of government and public authorities at all levels -especially the type and duration of measures affecting transport operations- will be crucial for the future development of transport and mobility.

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[2] Christidis, P., Focas, C. (2019) Factors Affecting the Uptake of Hybrid and Electric Vehicles in the European Union, Energies 12(18), 3414.

[3] European Commission (2020) The European Green Deal, COM(2019) 640

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