

The Impact of COVID-19 on Transport and Gasoline Demand

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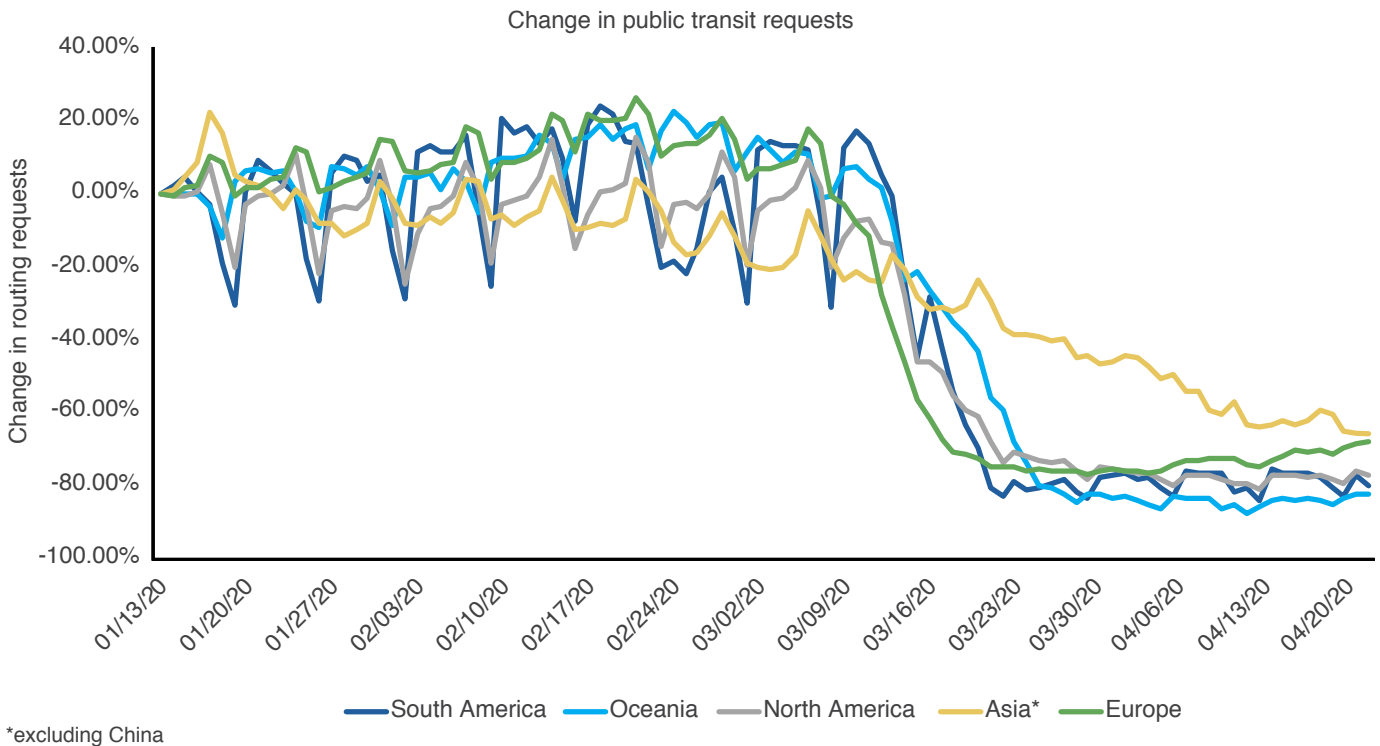
In the last few months, the world has experienced the negative effects of COVID-19. The outbreak, which started as an epidemic concentrated in China, quickly spread to become a global pandemic. As of May 12, 2020, there have been over four million COVID-19 cases globally, and this number continues to increase.

As the effects of the COVID-19 pandemic continue to unfold, many sectors of the economy are faced with difficult challenges. In particular, the mobility sector (road and public transit) has seen a sharp decline since the onset of the outbreak. Transport is a demand derived from human and economic activity. As such, the varying degrees of social distancing measures and restrictions on movement enacted worldwide have severely impacted transport demand. These measures include working from home, home schooling, limiting the movement of people to essential services only (supermarkets, pharmacies, gas stations), and mandating that individuals keep a certain distance apart.

Governments have introduced containment measures to restrict the spread of the virus. These have had severe economic costs. The measures have resulted in a halt to usual day-to-day activities by most agents within economies, with many workers in non-essential sectors now working from home and limiting their movement. The lockdowns have resulted in declines in urban road and transit demand globally of at least 50%.

Apple Maps Mobility Trends Reports allow for a detailed understanding of mobility trends. This analysis uses data from these reports. The data shows changes in requests for directions by users of Apple Maps for trips by public transit (metro, bus, etc.) and cars from January 13, 2020.

Figure 1. Change in public transit requests since January 13, 2020.



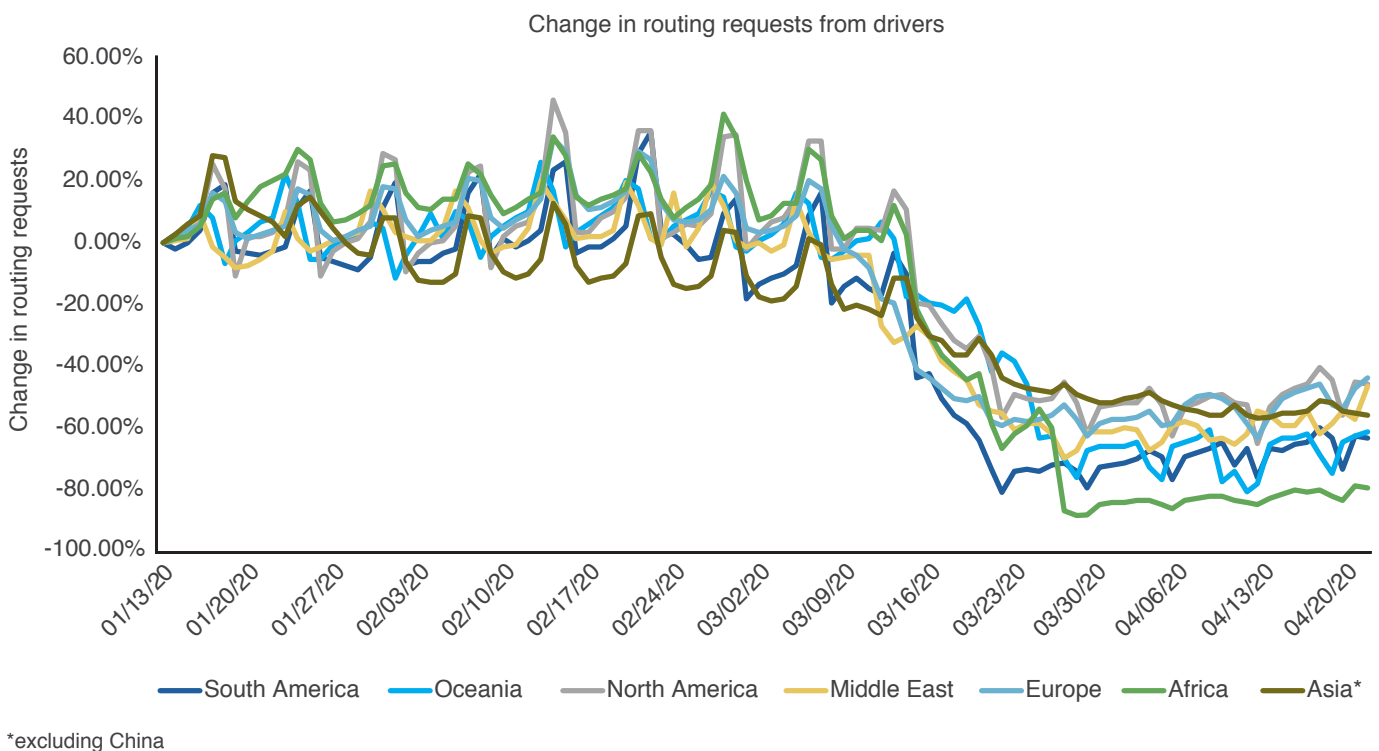
Source: Apple Mobility Trends Reports.

The data is only representative of people using Apple Maps, not of the entire population. However, for the purpose of this analysis, it provides a useful indication of mobility trends globally. China is not included in this analysis, as Apple's reports do not provide data for the country.

Impact on public transit demand

The demand for public transport has declined globally by an estimated 75%-80%. Figure 1, above, shows the change in routing requests by users of Apple Maps since January 13, 2020, for 63 countries grouped into continents. Most countries have experienced sharp declines in requests for directions using public transport, except those in Asia, which have seen a steadier cumulative decline. Public transport systems are considered a high-risk environment for the spread of viruses (UITP 2020). However, public transport is a cheap mode of transport and is, therefore, in heavy demand from those in lower socio-economic groups. The confinement measures put in place to limit the spread of COVID-19 have meant that regular users of public transport have had to curtail their use. As such, this appears to have disproportionately affected those in lower socio-economic groups and those who work in lower-income essential services, such as convenience stores and sanitation services. In contrast, those in higher socio-economic groups have access to many alternative modal choices, including private transport.

Figure 2. Change in driving requests since January 13, 2020.



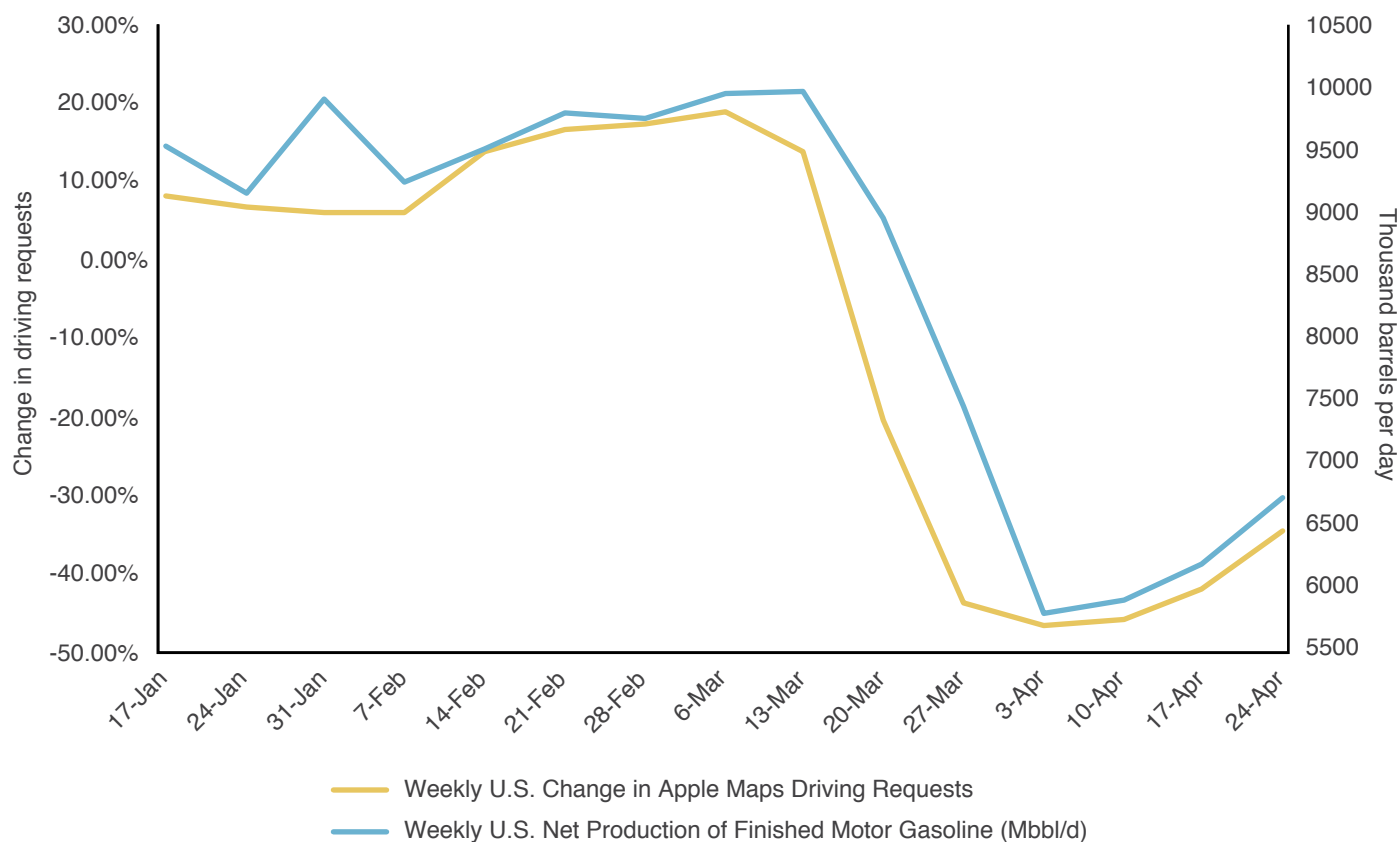
Source: Apple Mobility Trends Reports.

Impact on road transport and gasoline demand

The exogenous shock of the pandemic has also caused passenger road transport to decline. Figure 2, above, shows the change in routing requests by users of private vehicles. Looking at the continental/regional data, the decline in routing requests has fallen by between 54% and 83% from the baseline (January 13, 2020). The decline for individual countries ranges between 19% and 50%. A fall in the use of private vehicles translates to less demand for gasoline, which, combined with the oversupply in the oil market, has put downward pressure on oil prices.

Our analysis assumes that the decline in routing requests by users of Apple Maps translates to a decline in private vehicle use. This assumption allows us to infer the effect of the COVID-19 pandemic on motor gasoline consumption (indeed, there is a 0.95 correlation). This analysis does not include diesel consumption, commonly used by vehicles in Europe, as no data is available for the selected timeframe. Since the start of the COVID-19 outbreak, there has been much speculation around how severely it will impact oil demand. Our analysis shows that, as of April 20, motor gasoline consumption dropped by approximately 11.2 million barrels per day (MMb/d) from its average level in 2018 of 26.3 MMb/d. This was due to falling demand for public and private transport, resulting from the containment measures to help combat the spread of COVID-19.

Figure 3. Weekly motor gasoline production vs. changes in Apple Maps driving requests.



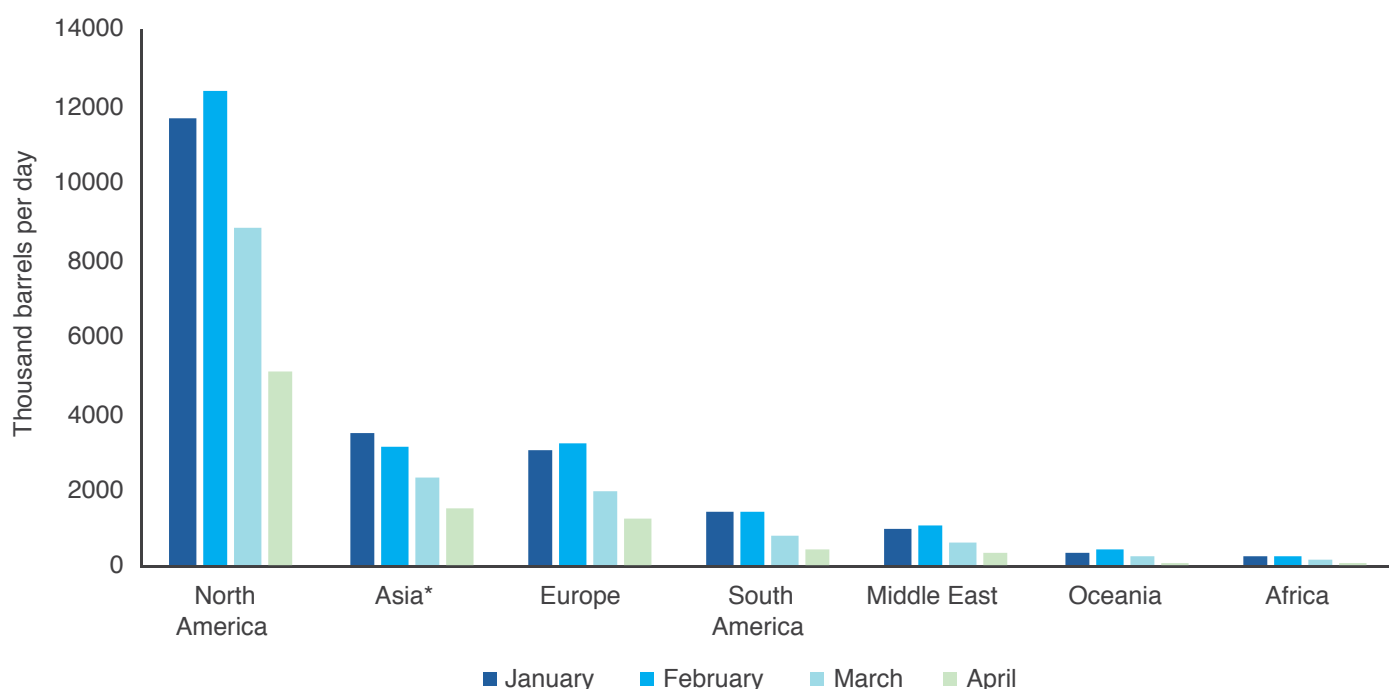
Source: EIA weekly report on United States motor fuel production and Apple Maps Mobility Trends Reports.

Figure 3 combines the United States (U.S.) Energy Information Administration (EIA) weekly report on U.S. motor fuel production (in thousands of barrels per day) and the Apple Maps Mobility Trends Report. A similar pattern emerges between Apple Maps mobility requests and U.S. weekly motor gasoline production, with a 0.95 correlation between the two. The analysis in this report makes a simplified assumption of a direct link between the change in routing requests from Apple Maps and the change in motor gasoline consumption. Even though the simplification suggested comes with shortcomings, the goal here is to show the severity of the pandemic’s impact on demand for motor gasoline.

Figure 4, below, depicts the monthly average consumption of motor gasoline for each continent/region. The analysis was computed by multiplying the annual daily average of motor gasoline consumption for each country by the percentage drop in its mobility, as reported by Apple. From March 13 – April 13, 2020, global demand for motor gasoline fell by approximately 361 MMb. This drop was mainly driven by a fall in demand from North America of 50% between January and April. During the same period, Oceania, the Middle East, and Europe had a similar average demand decline of 58%.

Ultimately, the restrictions on mobility (road and public transit) due to the policy measures enacted to help slow the spread of COVID-19 have weakened global economic activity, which, in turn, decreased transport demand and caused a decline in gasoline demand. A wider economic impact (WEI) assessment is needed to arrive at a clearer understanding as to what extent mobility restrictions, specifically the suspension of public transit and reductions in passenger road transport, have affected the economy. A WEI assessment considers different economic impacts linked to transport and transport infrastructure by looking at agglomeration effects, imperfect markets and revenue from economic growth.

Figure 4. Monthly average motor gasoline consumption, March 13 - April 13, 2020.



Source: KAPSARC analysis based on EIA data.

Finally, it will be interesting to observe how the pandemic might alter the transportation sector as a whole, but more specifically passenger mobility. Public transport in the COVID-19 world could include changes such as the number of people allowed into public transit areas, enforced through digital solutions such as face recognition technology; new hygiene restrictions in public spaces; the possibility of shared options for ridesharing apps being discontinued; and modifications to taxis, such as removable sections between drivers and passengers. Contact tracing, testing drivers of public transport and extra measures to sanitize public transport modes could also be enforced.

Policy responses and future implications

The G20 has issued a series of statements in response to the COVID-19 pandemic. These statements are aimed at helping policymakers mitigate the negative impacts of the current crisis on health outcomes, and social and economic activity. The Extraordinary G20 Digital Economy Ministerial Meeting, held on April 30, focused on the crucial role of the digital economy in mitigating the effects of the crisis. Policymakers were urged to leverage digital technologies and solutions to assist the most vulnerable businesses. These recommendations are aimed at assisting businesses to operate with the help of technology. This is particularly important for the continuing functioning of micro, small and medium enterprises (MSMEs), as they are likely to struggle the most during this crisis.

Global public transit systems will face a new post-COVID-19 reality. Policymakers should find ways to lower barriers to technological innovation in the mobility sector and proactively develop policies to enhance business resiliency.

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