Change in visits to retail and recreation places in Arctic 5 cities

This article broadens the analysis which has been done in an earlier report researching the economic impacts and the recovery processes of the COVID-19 pandemic in the cities of Oulu, Rovaniemi, Umeå, Luleå and Tromsø. The report is available at:

In many countries, including Finland, Sweden and Norway, governments have decreed various types of lockdown policies to prevent the spread of COVID-19. These restrictions have affected how people spend their free time and what places they visit. Google Community Mobility Reports provide interesting data that can be used to evaluate the effect of these restrictions.

**Google Community Mobility Reports**

Google Community Mobility Reports show how visits and length of stay at different places change compared to the baseline. The baseline is the median value, for the corresponding day of the week, during the 5-week period from January 3 to February 6, 2020.

The reports are created with aggregated, anonymized sets of data from users who have turned on the Location History setting on their mobile phone. Therefore, the reports are based only on a sample of users and they might not reflect the exact behavior of a wider population.
The figures below are based on the Google Community Mobility Reports. They show how the number of visits to places categorized as retail and recreation have changed in the Arctic 5 cities, which are Oulu, Rovaniemi, Tromsø, Luleå and Umeå. Retail and recreation category consists of places like restaurants, cafes, shopping centers, theme parks, museums, libraries and movie theaters.

Change in the number of visits is measured as the rolling average compared to the baseline, which is the median day value from January 3 to February 6, 2020. The lines represent the rolling 7-day average, except in Figure 1, where the lines represent the rolling 14-day average and Figure 2, where due to weekly data the lines represent rolling two week average.

**Arctic 5 cities**

![Figure 1. Change in visits to retail and recreation places compared to the baseline in all Arctic 5 cities. Source: Google Community Mobility Reports.](image)

The long-term pattern of visits to retail and recreation places is quite similar in all the Arctic 5 cities. At the beginning of the COVID-19 pandemic, the number of visits fell sharply in all cities, although the drop in Sweden was not as radical as it was in Finland and Norway. After the rise towards the baseline in summer 2020, the number of visits again fell towards the end of the year, peaking before Christmas. In 2021, the development has been upwards towards the baseline, with Oulu and Luleå already past it.
Weekly new COVID-19 cases per 100 000 inhabitants were highly similar among the Arctic 5 cities before September 2020. After that, there was an increase in weekly cases in every city, but the most significant increases occurred in Luleå and Umeå. Elsewhere, the increase in the number of cases was relatively small. In 2021, there has been only occasional spikes in Oulu and Tromsø. The number of cases in Rovaniemi has been minimal throughout the pandemic. In Luleå and Umeå, new weekly cases started to increase in February and the highest spike was in Luleå in late February. The numbers have decreased since then, but in Luleå and Umeå, the number of weekly COVID-19 cases have been clearly higher than in the other Arctic 5 cities. Currently, there are more COVID-19 cases than a year ago during the same period in the Arctic 5 cities.
2020: At the beginning of the COVID-19 pandemic, the number of visits to retail and recreation places fell significantly in March due to mobility restrictions. By mid-June, the number of visits recovered steadily nearly to the baseline. Average drop in visits compared to the baseline in this period was 24.8%.

2021: After the opening of restaurants in March and April, the number of visits to retail and recreation places increased substantially. Spike on April 1 could be due to Easter. Public holiday Ascension Day combined with good weather might have caused the spike in May, when the number of visits crossed the baseline for the first time during this period. Currently, the number of visits is above the baseline. Average drop in visits compared to the baseline in this period was 11.1%, so there are more visits in 2021 than in 2020.
2020: At the beginning of the COVID-19 pandemic, the number of visits to retail and recreation places fell significantly in March due to mobility restrictions. From April, the number of visits began to increase towards the baseline. Average drop in visits compared to the baseline in this period was 31.6%.

2021: The drop between March and April is explained by the closing of restaurants. The number of visits fluctuated between April and June, but the overall pattern seems to be directed upwards towards the baseline. The number of visits has already peaked over the baseline in June. Average drop in visits compared to the baseline in this period was 23.4%, so there are more visits in 2021 than in 2020.
2020: At the beginning of the COVID-19 pandemic, the number of visits to retail and recreation places fell significantly reaching their lowest point in late March. From April, the development was upwards towards the baseline with occasional spikes and drops. Average drop in visits compared to the baseline in this period was 30.6%.

2021: The number of visits fell during early-March but began to rise again after that. The long-term development is directed upwards with the number of visits being above 2020 levels but still below the baseline. Average drop in visits compared to the baseline in this period was 25.7%, so there are more visits in 2021 than in 2020.
Figure 6. Change in visits to retail and recreation places compared to the baseline in Luleå. Source: Google Community Mobility Reports.

2020: At the beginning of the COVID-19 pandemic, the number of visits to retail and recreation places fell significantly during March and reached their lowest point in mid-April. After the drop, the development was upwards crossing the baseline level just before June. Average drop in visits compared to the baseline in this period was 10.1%.

2021: The long-term development is directed upwards, with some ups and downs. Spike in late-March is just before Easter. The number of visits crossed the baseline before June. Average drop in visits compared to the baseline in this period was 14.0%, so there are less visits in 2021 than in 2020.
2020: At the beginning of the COVID-19 pandemic, the number of visits to retail and recreation places fell significantly during March. After being at their lowest in mid-April, the number of visits began to rise towards the baseline. Public holiday Labour Day stands out as a spike on May 1. Average drop in visits compared to the baseline in this period was 16.3%.

2021: In March the number of visits were far below the baseline, but the overall long-term development is directed upwards. Starting from May, the pattern looks very similar as in 2020, just slightly less visits this year than the year prior. Average drop in visits compared to the baseline in this period was 29.0%, so there are less visits in 2021 than in 2020.

All in all, the patterns of the graphs in Figure 1 are quite similar for all Arctic 5 cities. The number of visits to places in retail and recreation category are below the baseline in 2020 and 2021 in all the cities. One clear difference is that so far in Luleå and Umeå,
there has been less visits in 2021 than in 2020. In Oulu, Rovaniemi and Tromsø, the opposite is true: there has been more visits in 2021 than in 2020. The latest trends for all the cities indicate that there might be less mobility during summer 2021 than a year ago.

Further information:

Associate Professor Jaakko Simonen, the University of Oulu
jaakko.simonen(at)oulu.fi
tel. +358 294 482 938
www.oulu.fi/oulubusinessschool

Researcher Tapio Riepponen, the University of Oulu
tapio.riepponen(at)oulu.fi
tel. +358 294 482 937
www.oulu.fi/oulubusinessschool