

ASA DataFest 2020: COVID-19 Virtual Data Challenge

Data Machine Team:

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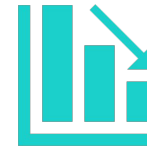


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Our Question:



50% Increase in internet usage
Rogers Communications Inc. stated that home internet usage is up more than 50 per cent



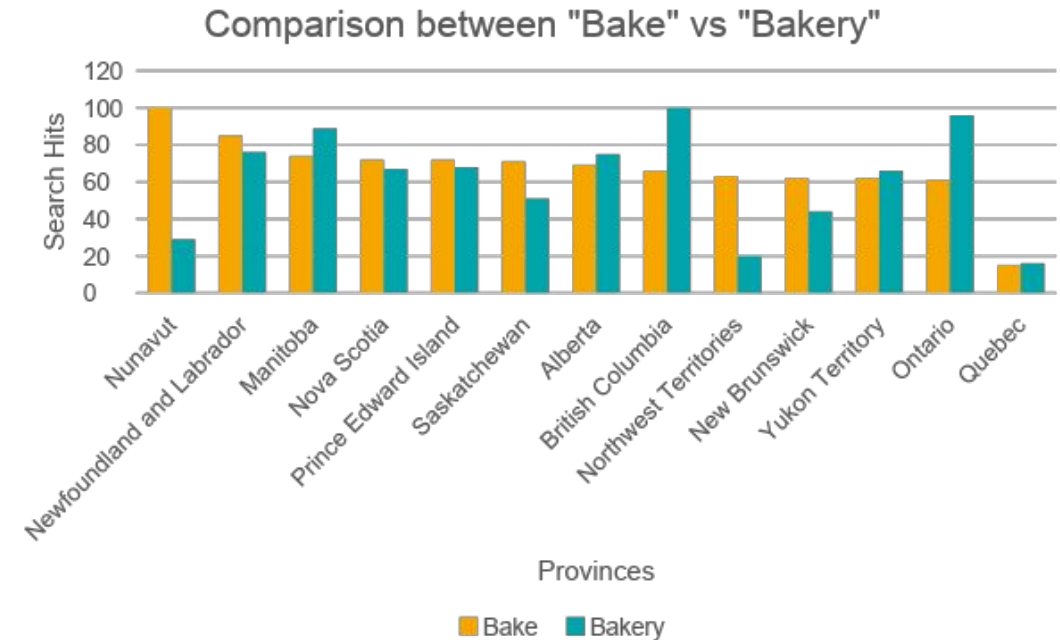
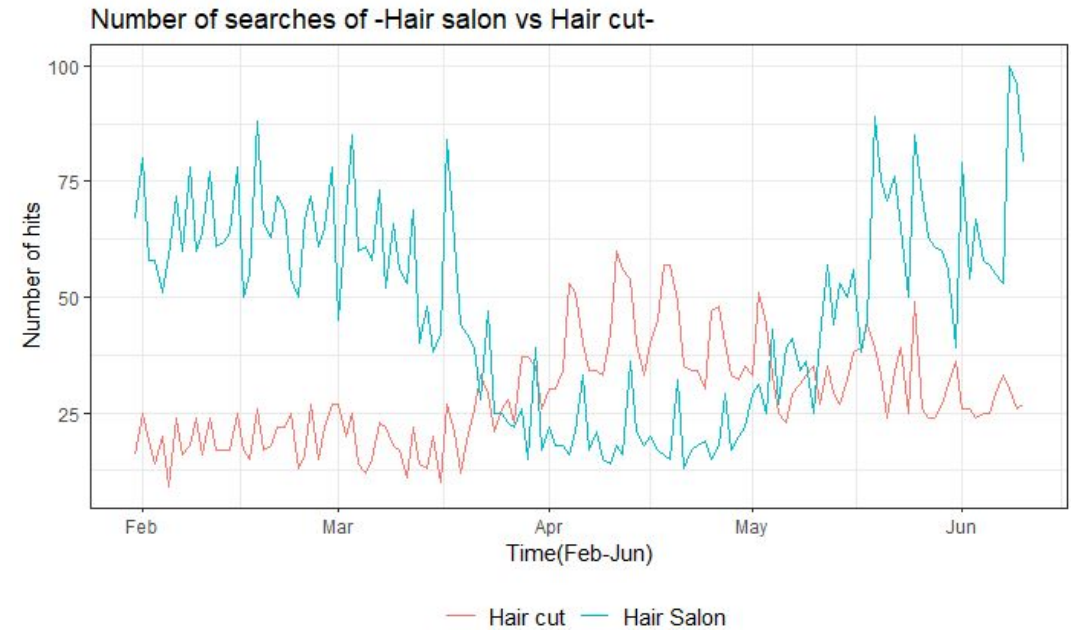
40% Decrease in activity in Canadian parks
Google's Community Mobility Report for Canada found that activity in Canadian parks was down nearly 40 per cent from baseline levels by the end of March.

- 1) How did the search pattern for indoor vs outdoor activities change in the Canadian population?
- 2) Is the search of activities related to the number of cases?

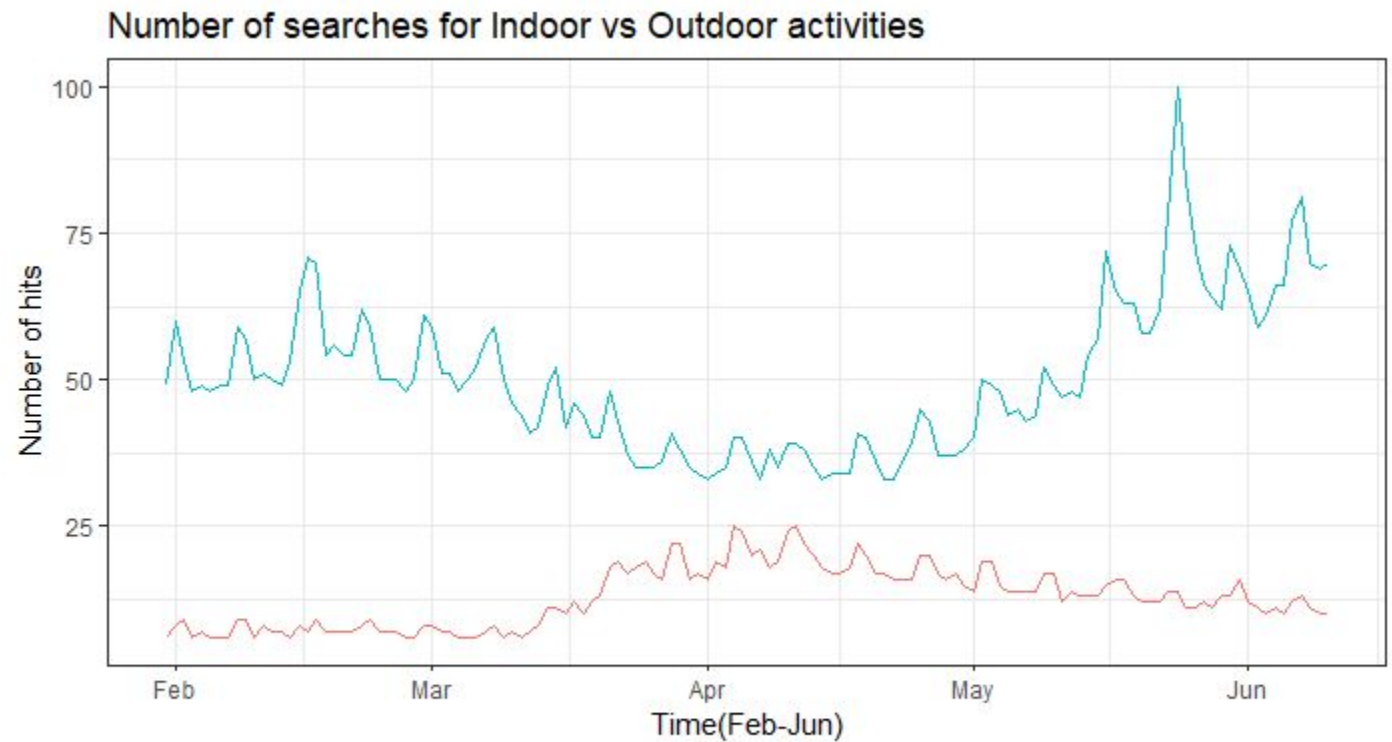
Analysis:

Comparing search terms of:

- "Hair Salon" vs "Hair Cut":
 - we can see a greater peak for "Hair Cut" search indicator in the periods of April to May corresponding to the quarantine period
- "Bake" vs "Bakery":
 - Nunavut had the highest indicator of searching "Bake"
 - British Columbia had the highest indicator of searching "Bakery"



	Indoor Activities	Outdoor Activities	Average number of cases
Before lockdown (Jan 31 th –March 17 th)	Average search hits = 13.90	Average search hits =43.41	Mean= 590.44
	$r = 0.84$	$r = -0.77$	
	Regression equation: $y = 0.008246(x) + 9.11280$	Regression equation: $y = -0.0108(x) + 49.81109$	
	P-value: 3.439×10^{-15}	P-value: 8.96×10^{-12}	
	$R^2 = 69\%$	$R^2 = 59\%$	
After lockdown (March 18 th –June.9 th)	Average search hits = 15.90	Average search hits =48.7	Mean= 1145.39
	$r = 0.37$	$r = -0.33$	
	Regression equation: $y = 45.36(x) + 424.01$	Regression equation: $y = -10.44(x) + 1653.59$	
	P-value: 0.0005374	P-value: 0.0018	
	$R^2 = 13\%$	$R^2 = 10\%$	



Findings:

1. Average higher hits for “Outdoor activities” both periods
2. Stronger indication of a positive linear relationship between number of cases and search of indoor activities
3. Linear relationship exists between the number of daily new cases and activities during both periods (*more significant* in the before period)
4. Covid-19 is negatively related to outdoor search hits
5. Overall search hits increase during the lockdown period