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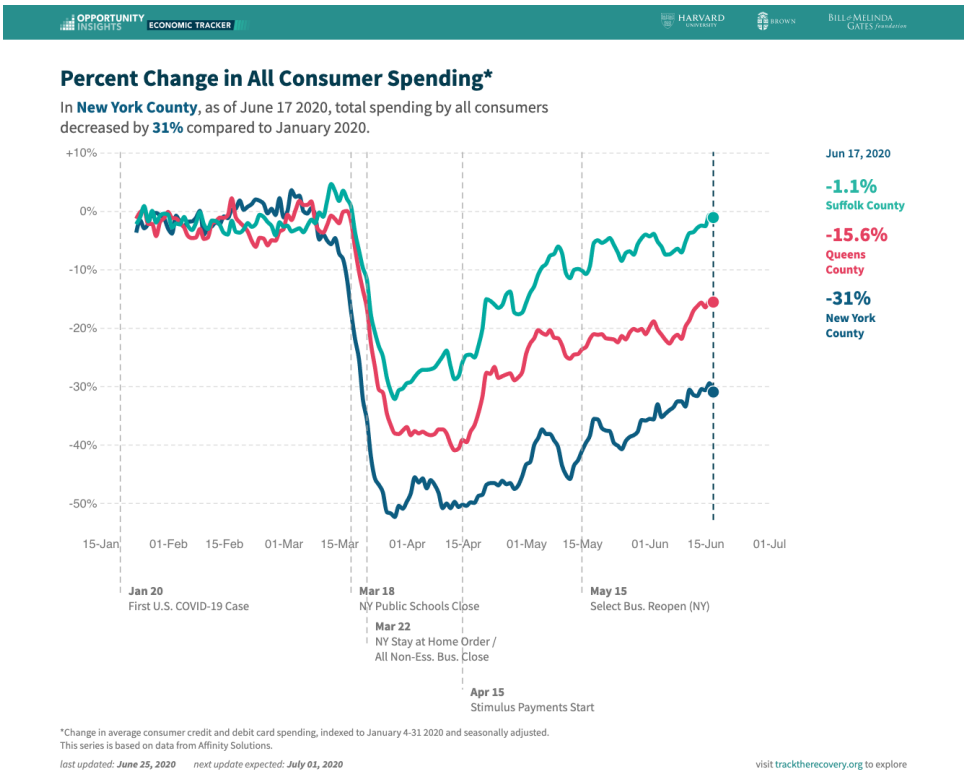
1.

a. The key takeaways from the Economic Tracker research is that high income individuals reduced their spending in March 2020 after the COVID-19 outbreak and this in turn reduced the revenue of businesses in affluent neighborhoods and increased lay-offs for low-income employees at these businesses. The unemployment surge has hit hardest in affluent neighborhoods. Furthermore, state-ordered reopening of business, paycheck protection, and the stimulus check have had little impact in decreasing unemployment. The paper suggests that mitigating economic hardships with social insurance.
The paper came to these conclusions using high-frequency, granular level using anonymized and aggregated data from private companies (i.e. credit card processors, payroll firms, financial reporting/servicing firms, etc.) because traditional methods have time lag (takes long to refresh/update/track in real time).

b.

i. Graph tracking consumer spending across Suffolk, Queens, and New York County in New York.



ii. The three counties explored above is Suffolk, Queens, and New York County in New York. These are adjacent counties (very close to one another geographical) with very different per capita income. Using statistics from 2010 United States Census Data, the per capita income for New York County is $111K, the per capita income for

Suffolk County is $35K, and the per capita income for New York County is $25k. We see the hardest hit to consumer spending is in New York County which is the most affluent of the three counties at currently -31% (with the highest per capita income). Furthermore, it was a hotspot for COVID-19 due to its density, close-spaces, and bustling commuter culture. This agrees with the Economic Tracker paper that the affluent have reduced their spending dramatically.

When we look at Queens and Suffolk county, they had a small per capita income and less of a negative impact. Albeit, Queens has a lower per capita than Suffolk, but has a greater decrease in consumer spending (at -15.6%). The reason for this maybe that Queens is more population dense/urban than Suffolk which is more suburban, and as a result, Queens was more susceptible to COVID-19. Furthermore, the paper emphasized that affluent neighborhoods that were more seriously affected by COVID-19 saw decreases in economic spending, so it makes sense Suffolk was not as affected. Even though more affluent than Queens, it was less impacted by COVID-19 so the economic downturn was less.

In conclusion, the graph above supports the arguments made by the Economic Tracker paper.

2.

a. An event study is to follow the time pattern of the outcome variable each year after the event, per person. It essentially "lines up" each series so that each event occurs at t = 0. The pros of the event study research design is that it allows the researcher to control for changes over time that hits all individual (so can compare events for individuals that happened at different times; control for macro variables) and for fixed differences across individuals (i.e. control for families that are different in levels).

   The cons of the event study research design is we need to make certain assumptions for the pre-post comparison. We have to assume the trend would have to stay the same had there been no choice for the event. Having pre-existing trends in our data works against the validity of the research design.

b. A quasi experiment is to use natural randomness to create a randomize experiment, in this case, having twins.

   The pros of this research design is that it can be "as good as randomly designed" if an appropriate instrument variable is chosen. It ensures the variation in the treatment is uncorrelated with other determinants of the outcomes. It can help determine causal effect.

   The cons of this research design are that it requires a valid instrument, which may be hard to find or not be "as good as random."

c. I find the quasi experiment research design to more convincing. With event study research design, there was a pre-existing upward trend in the data which was not addressed for. Also, it didn't take into considerations mothers/families may prepare for their first child by taking a higher paying job or save enough that they can take time off. With the quasi experiment, there was a natural randomness by using twins which I believe is as "good as random." Although pregnancy methods matter, I don't see alternative methods are as large or prominent in the period that data is from (1980 Census data).

3. Installed STATA and completed the modules (101 and 102). I've also taken ECON1123 in Spring 2020 so I'm familiar with STATA from Greg's econometrics course. Looking forward to the rest of the course!