Tracking the Reopening of the Economy
during COVID-19 using Google Data

**Keywords:** COVID-19, Reopening, Google Trends, Google Maps Places API.

# Introduction

Production and consumption patterns since the start of the COVID-19 pandemic have transformed – things are simply not what they were. Will any of these changes become lasting changes? How quickly will things return to normal? Will there be a “new normal” and if so, what will it look like? Policy makers are quickly using up all the letters of the alphabet to describe the possible path(s) out of the pandemic – V, W, U and more recently K. In order to provide policy makers, businesses and citizens with the information they need to understand the path of the economy, economic statisticians will need to dramatically increase the granularity, frequency and timeliness of economic statistics.

Data available from various Google platforms can be used to answer these questions. Over the last number of years many organizations, think-tanks and academics have been able to develop timely leading indicators using Google data (Google Trends, Google Mobility data, Google APIs) that track very well with aggregate economic activity or track certain segments of the economy (Choi and Varian, 2012), particularly for developing economies (Narita and Yin, 2018.) These sources are significantly helping with our understanding of current (near real-time) economic activity during COVID-19.

Building on this work, our research attempts to develop economy-wide estimates of business status and business activity that align with official statistics such as business turnover and GDP. We will explain how these data sources and various methods can be used to develop business status and business activity indicators and how these indicators can be linked to official measures of economic activity. The paper concludes with an analysis for a select set of countries.

# Method

The business status indicators are derived using data obtained via the Google Places API. First, we draw a listing of businesses from selected cities and obtain information related to their activity, the number of reviews, the price level and the operational status. The operational status can be open, temporarily closed or permanently closed. The information is acquired at regular intervals –generally weekly. The Google Places “point of interest” categories are concorded to international accepted industrial classifications in order to facilitate the integration with official statistics.

From this information we are able to compute two business status indicators – a re-opening indicator and a business population indicator (or supply indicator). The re-opening indicator captures the pace of re-opening and closing for a baseline set of establishments by tracking the number of businesses that identify as temporarily closed through time. The business population indicator tracks the entry, temporary exit and permanent exit of businesses in a given geographic area by activity. The number of reviews associated with the establishments is used as an indicator of size when constructing both indicators. The indicators are aggregated by activity and geographic region.

The business activity indicator combines the business status information noted above with information from Google Trends and official national accounts statistics obtained from the IMF’s national accounts database. First the Google Trends categories are assigned an industrial classification code. For example, the trends related to the Google Trends category “restaurants” is assigned to the Accommodation and Food Services Industry. The movements in the re-classified trends data is then compared to movements in real gross domestic product by industry using various regression techniques. From this model it is possible to calculate a trend intensity to GDP factor for a given industry in a given country. This intensity indicator, along with the current period Google Trends data and the information on business operating status can now be used to nowcasts real GDP. Given the coverage of the Google Trends data, Google Places data and availability of annual and quarterly GDP by industry it is possible to calculate these estimates for most countries.

# Results

The following graph presents results of the reopening indicator. We produce reopening indicators for 24 large metropolitan areas affected by the lockdown since the start of the pandemic, including Istanbul, London, Madrid, Milan, New York, Paris, Sao Paulo, Tokyo, and Toronto. Indicators are available weekly starting April 24, the day we started collecting data from Places API. Our indicators show that the shape and pace of reopening vary across cities (Figure 1.)

# Conclusions

## In this paper we show how to leverage and combine available Google data to provide new insights on business behaviours during COVID-19. Our reopening indicators can offer granular and real-time information about the path of the recovery from the pandemic; it can enable policymakers to examine differential impacts across business types at the sector level, including disproportional impacts on the sectors with low earnings. We hope that this research can develop a toolkit for producing real-time, high-frequency indicators of economic activity based on widely accessible data from Google.

# References

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