Google Mobility Trends for the Western Region: August-November

A Supplement to the Timely Economic Indicators series.

Read the WDC Policy Team's Insights Blog and sign up to our mailing list at
https://westerndevelopment.ie/insights/

Luke McGrath
Economist
Policy Analysis Team
lukemcgrath@wdc.ie

Introduction

The current public health crisis has resulted in an unprecedented collapse in economic activity. Policymakers and stakeholders face important data gaps due to the inherent lag between economic activity and the publication of official statistics. To assess economic activity closer to real-time, the Western Development Commission (WDC) has compiled a set of timely economic indicators in an attempt to bridge this gap. The WDC acknowledges that this indicator set is limited given the lack of detailed and frequently published official economic data at the county level. To address this limitation the WDC aims to supplement the regular indicators report with a series of ad-hoc reports based on less conventional data sources. This report is the first such supplement to the second Timely Economic Indicators report and is an update of the previous Google Mobility Report. The previous report covered the period February to August 21st. This report includes mobility data up to November 11th and thus captures the first three weeks of the national Level 5 (L5) public health restrictions[1]

What is Google Mobility

Google Mobility is a publicly available dataset compiled by Google to provide insight into how peoples' movements have changed throughout the pandemic. The dataset provides Google related data on visitor numbers (or duration for the residential category) to various categories of location each day. The categories are defined by Google as follows:

Retail & Recreation

- Mobility trends for places such as restaurants, cafés, shopping centres, theme parks, museums, libraries & cinemas.

Grocery & Pharmacy

- Mobility trends for places such as supermarkets, food warehouses, farmer's markets, specialty foodshops & pharmacies.

Parks

- Mobility trends for places like national parks, public beaches, marinas, dog parks, plazas & public gardens.

Public Transport

- Mobility trends for places that are public transport hubs, such as underground, bus and train stations.

Workplaces

- Mobility trends for places of work.

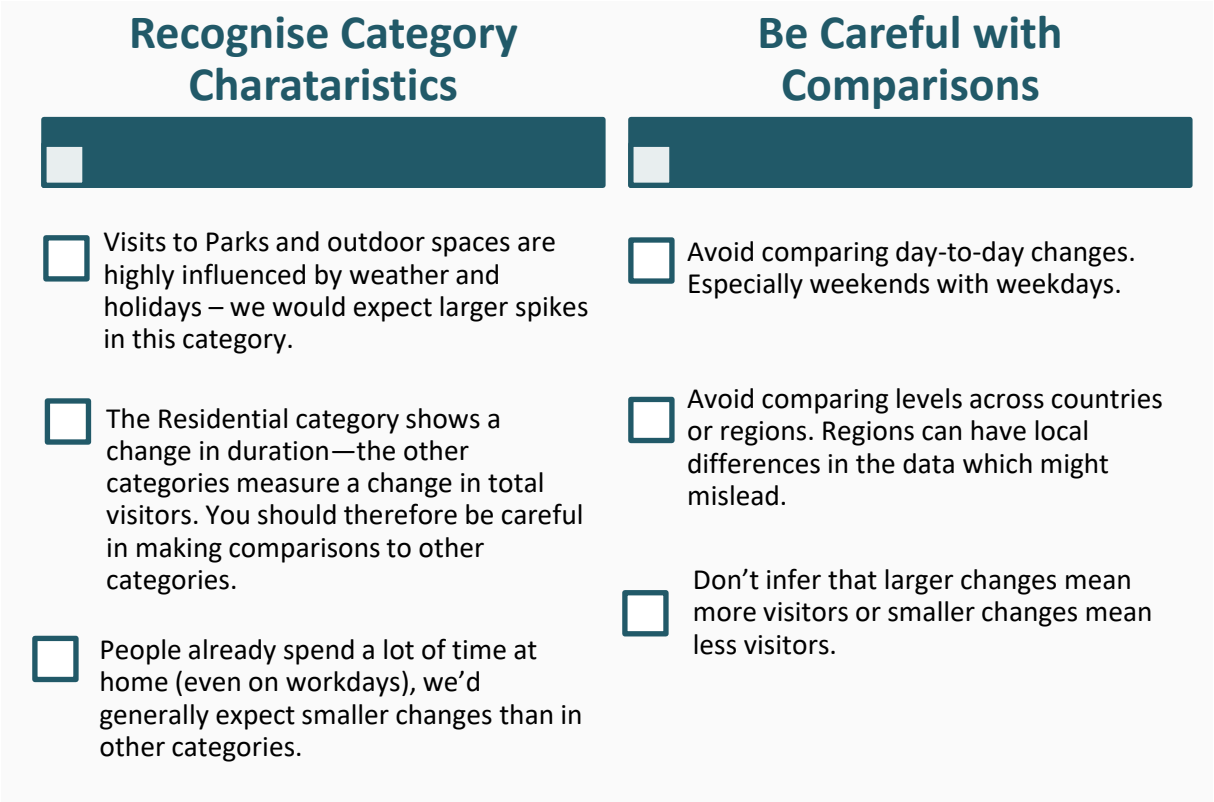
Residential

- Mobility trends for places of residence.

[1] Under the WDC Act 1998 the WDC's statutory remit is to *'...foster and promote the economic and social development of the Western Region'.* Where the Western Region is the seven counties of Mayo, Roscommon, Galway, Sligo, Leitrim, Donegal and Clare. The Atlantic Economic Corridor (AEC) is the Western Region plus Limerick and Kerry.

Key considerations for the interpretation of Google Mobility statistics

Google measures visitor numbers (or duration in the case of the residential category) and compares this change relative to a baseline before the pandemic outbreak. Baseline days represent a normal value for that day of the week, given as the median value over the five-week period from January 3rd to February 6th, 2020. It is important to note that **a return to the baseline does not necessarily equate to a return to "normal."** For example, suppose retail and recreation mobility was equal to the baseline in December, this would likely be a lower level than normal given we might expect December to be a much busier month for retail and recreation than the baseline (January/February). The lack of knowing what normal mobility is also means that comparing across regions/counties or comparing the Western Region/AEC to Ireland may be misleading. The mobility data may suggest higher relative levels of mobility in a region/county, but this is based on a common baseline that fails to capture seasonal mobility. For example, historical summer retail and recreation mobility in Clifden is likely to have been much higher due to seasonal tourism than the winter months and this disparity between winter and summer is likely to be much larger than say in Dublin City. Looking only at baseline deviations will not accurately capture the comparative changes in normal mobility levels. Google offers the following advice when using the Mobility dataset:



WDC Analysis

To avoid a comparison of day to day changes and to smooth out the data series for each category, the deviations from the baseline in each category are computed using a 7-day moving average. The results with the 7-day moving average are reported in the analysis below unless noted otherwise. The aggregates for the Western Region and AEC are reported as well as each individual county. The Western Region and AEC aggregates should be interpreted carefully as they are constructed using the simple mean of the available data from each county for each day. The daily county data is converted into a 7-day moving average with no adjustment for the number of observations (as the WDC cannot access this data) thus Leitrim for example, is given the same weight as Galway in the aggregate. Consequently, the trends rather than the absolute numbers for the Western Region and AEC are relevant whereas the absolute numbers as well as the trends are relevant for Ireland and the individual counties. Data gaps can be seen in some counties for some categories. Gaps arise where there is insufficient data available to meet Google's quality and privacy thresholds for more detail see here.

Read the WDC Policy Team's Insights Blog and sign up to our mailing list at https://westerndevelopment.ie/insights/

Summary

- The initial Google Mobility report noted strong regional variation during the summer months. Retail & recreation, grocery & pharmacy and public transport mobility was close to, at or considerably above pre-pandemic levels in these categories for the WR and AEC. The report suggested these trends may have been driven by domestic tourism and noted a potential worry was that these trends might not be sustained. The most recent data appears to confirm this worry. Mobility trends suggest a strong "staycation" effect was observed during the summer months and that this abated from September. It is important to note that the end of the regional spike in mobility occurred before the enhanced public health restrictions and thus suggests a contraction in economic activity, likely related to tourism, even before the additional restrictions.

- The Level 5 (L5) restrictions are less stringent than March and this is reflected in the mobility data. There has been a sharp decline in most categories, but mobility levels are higher than in March. However, retail and recreation mobility, an indicator of consumption, was well below pre-pandemic levels in the WR and AEC during November having been well above those levels during the summer.

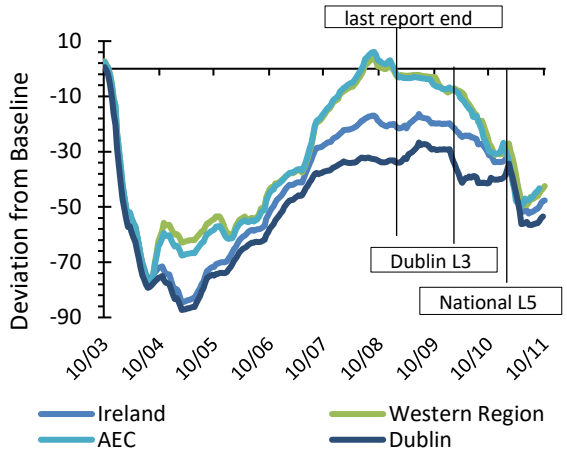
- There has been an uptick in retail and recreation and grocery and pharmacy mobility during November. This ***should not*** be interpreted as non-compliance with the public health restrictions as those trends follow workplace trends. A plausible explanation is that an adjustment period occurred with some businesses closing for a short period before re-opening in compliance with L5.

- Workplace mobility has declined following L5, although mobility levels are much higher than during March. The relatively minor changes in workplace mobility following L3 in Dublin and L3/L4 in the Border counties may be explained by the adaption to remote working.

- **The above must be caveated with a recognition that this is an unconventional data set and the WDC does not have access to the number of observations for each county in each category or have knowledge about what "normal" mobility is.**

Regional Mobility

Figure 1. Regional Retail and Recreational Mobility

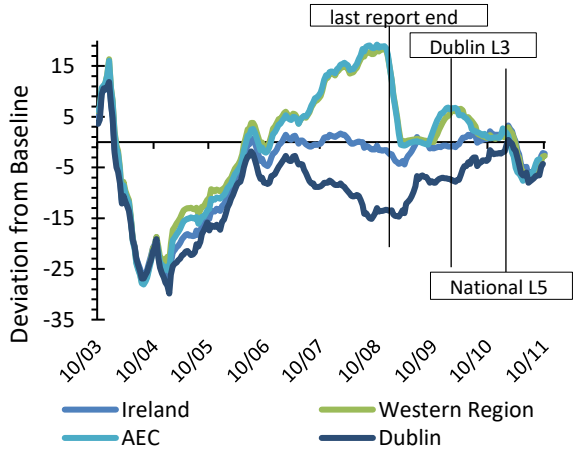


Source: Own Calculations from Google Mobility Data

Retail & Recreation Trends

- Sharp decline in WR and AEC from mid-Aug. to Nov. Trends suggest a summer "staycation" effect ended before L5.
- L5 restrictions are less stringent than March and this is reflected in Nov. mobility above March levels but well-below the pre-pandemic baseline.
- L5 = sharp initial decline then an uptick. Trends ***do not*** imply non-compliance, as they follow workplace mobility (see below). A plausible explanation is that an adjustment period occurred with some businesses closing for a short period before re-opening in compliance with L5.

Figure 2. Regional Grocery & Pharmacy Trends

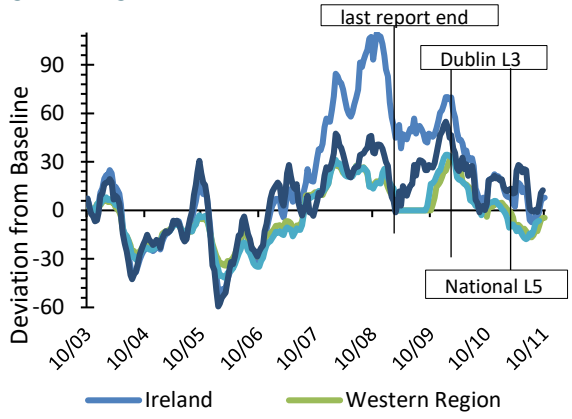


Source: Own Calculations from Google Mobility Data

Grocery & Pharmacy Trends

- Sharp decline in WR and AEC from mid-Aug. is partly explained by missing data (see below) but trend was clearly downward.
- Trends suggest a "staycation" effect may explain summer spike in mobility in WR & AEC that ended before L5.
- L5 restrictions have coincided with a convergence of mobility levels nationwide to just below the pre-pandemic baseline.

Figure 3. Regional Parks Trends

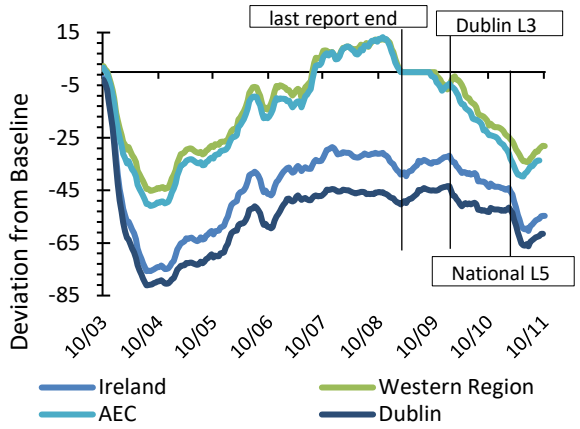


Source: Own Calculations from Google Mobility Data

Parks Trends

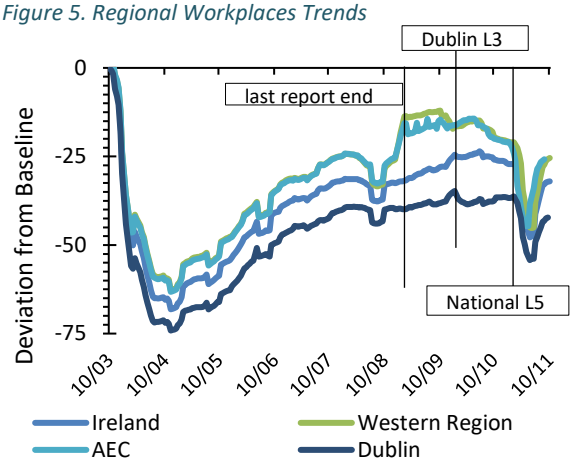
- Large national increase during the summer. Parks mobility is driven by the weather.

Figure 4. Regional Public Transport Mobility



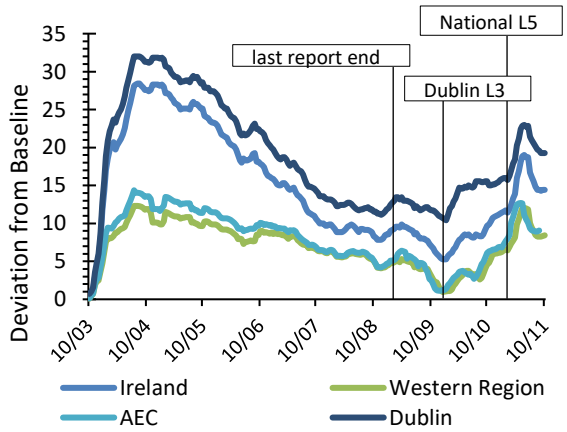
Source: Own Calculations from Google Mobility Data

Figure 5. Regional Workplaces Trends



Source: Own Calculations from Google Mobility Data

Figure 6. Regional Residential Trends



Source: Own Calculations from Google Mobility Data

Public Transport Trends

- Large decline in public transport from mid-Aug. The decline was steeper in the WR and AEC than observed nationally and in Dublin.
- L5 includes large capacity constraints thus Nov. mobility levels are closer to March than in the other mobility categories.
- There was an uptick during the start of Nov. As illustrated below, this coincided with an increase in workplace mobility.

Workplaces Trends

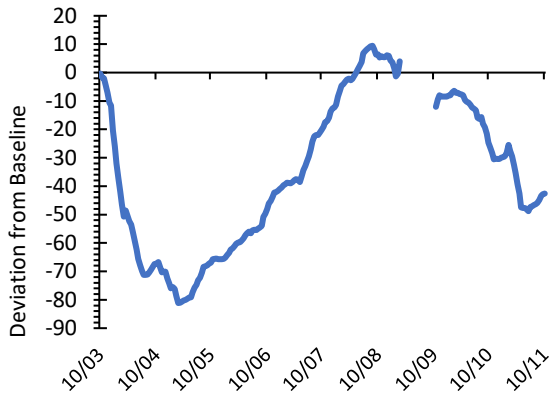
- Stability before increased restrictions.
- The relatively minor changes following L3 in Dublin and L3/L4 in the Border counties may reflect the prior adjustment to remote working.
- L5 saw a sharp decline, followed by a rebound. L5 is less stringent for businesses than March thus the rebound likely reflects an adjustment period to comply with L5. This may also explain the uptick in mobility in other categories.

Residential Trends

- Residential trends are the reverse of workplace trends.
- Time spent at home has increased during the enhancement of restrictions although less than during March.

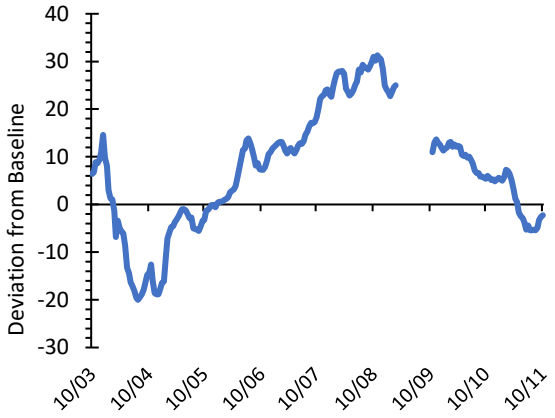
County Data – Clare

Figure 7. Retail & Recreation



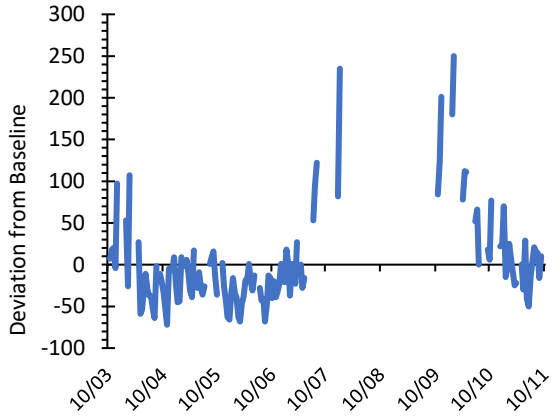
Source: Own Calculations from Google Mobility Data

Figure 8. Grocery and Pharmacy



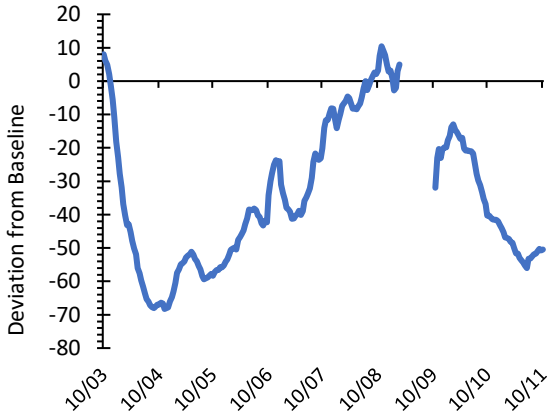
Source: Own Calculations from Google Mobility Data

Figure 9. Parks



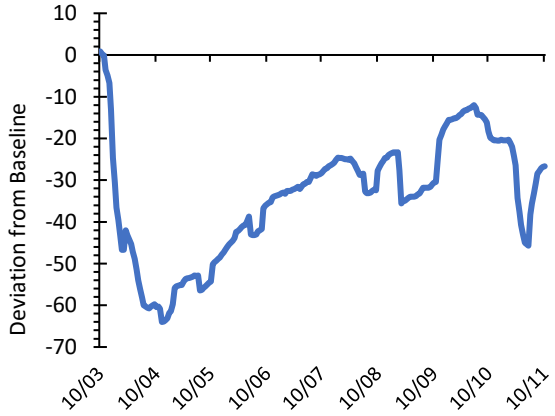
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Figure 10. Public Transport Mobility



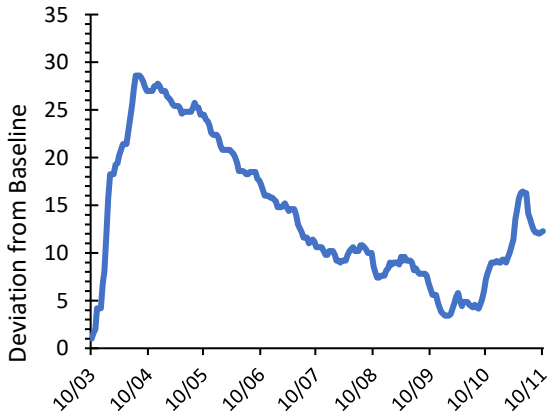
Source: Own Calculations from Google Mobility Data

Figure 11. Workplaces



Source: Own Calculations from Google Mobility Data

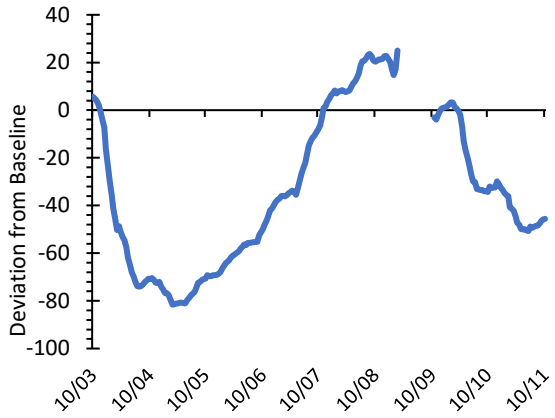
Figure 12. Residential



Source: Own Calculations from Google Mobility Data

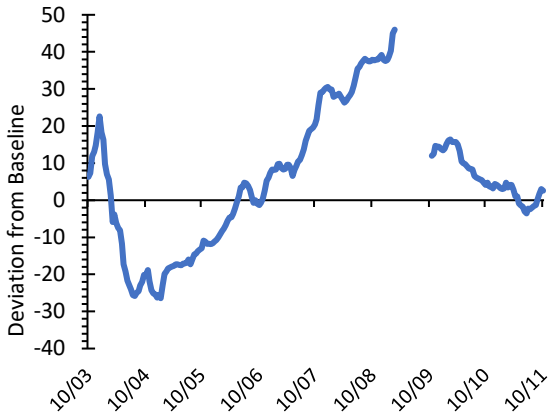
County Data – Donegal

Figure 13. Retail & Recreation



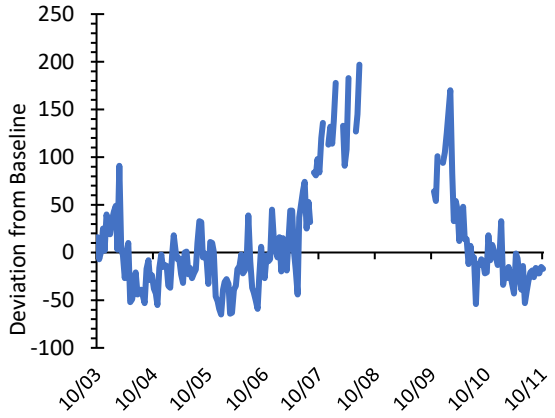
Source: Own Calculations from Google Mobility Data

Figure 14. Grocery and Pharmacy



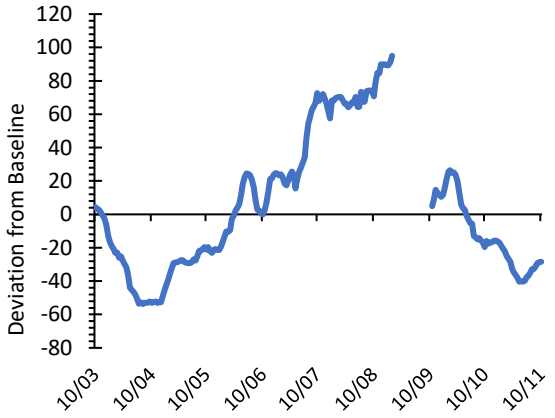
Source: Own Calculations from Google Mobility Data

Figure 15. Parks



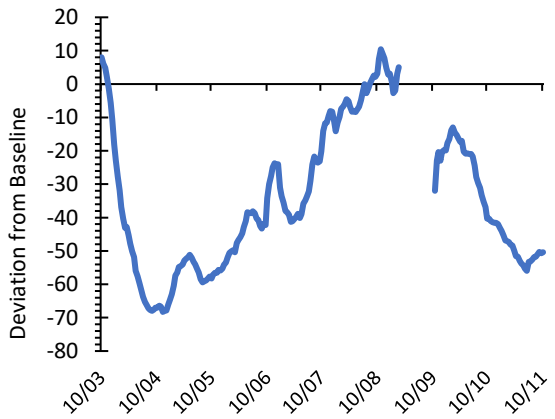
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Figure 16. Public Transport Mobility



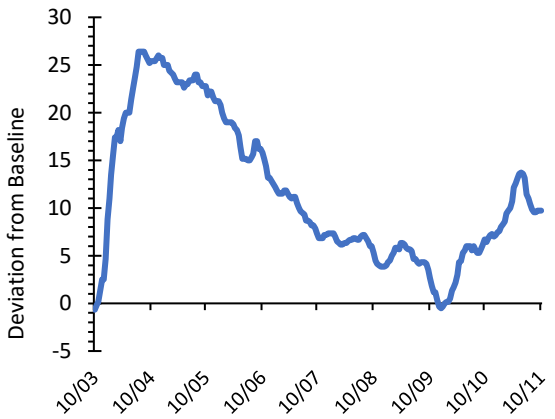
Source: Own Calculations from Google Mobility Data

Figure 17. Workplaces



Source: Own Calculations from Google Mobility Data

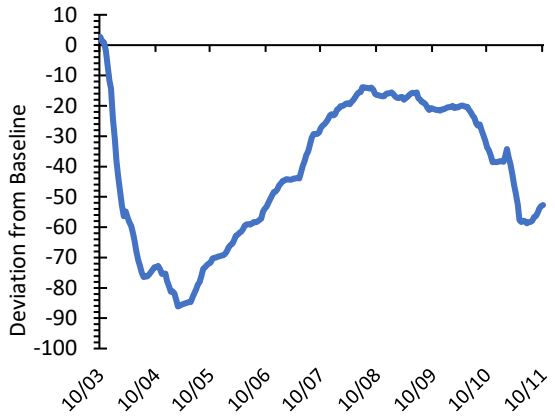
Figure 18. Residential



Source: Own Calculations from Google Mobility Data

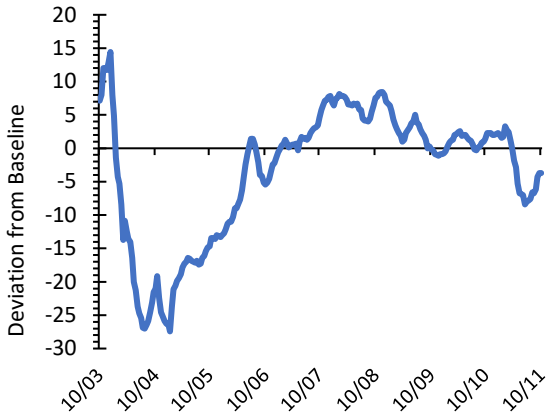
County Data – Galway

Figure 19. Retail & Recreation



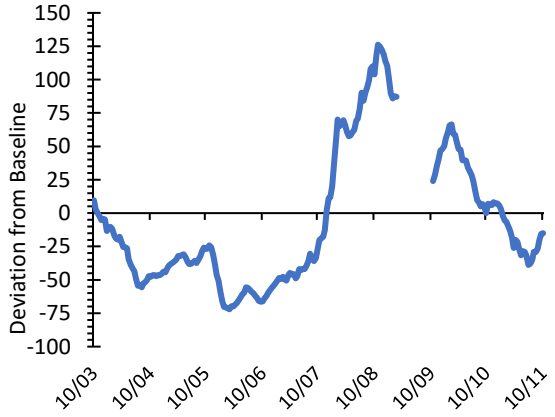
Source: Own Calculations from Google Mobility Data

Figure 20. Grocery and Pharmacy



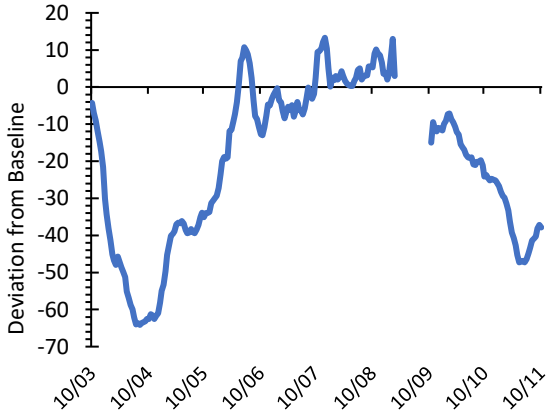
Source: Own Calculations from Google Mobility Data

Figure 21. Parks



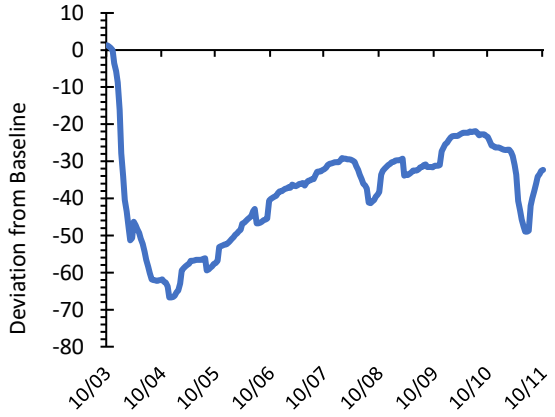
Source: Own Calculations from Google Mobility Data

Figure 22. Public Transport Mobility



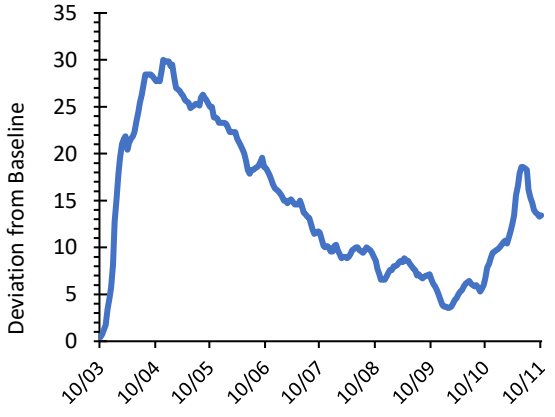
Source: Own Calculations from Google Mobility Data

Figure 23. Workplaces



Source: Own Calculations from Google Mobility Data

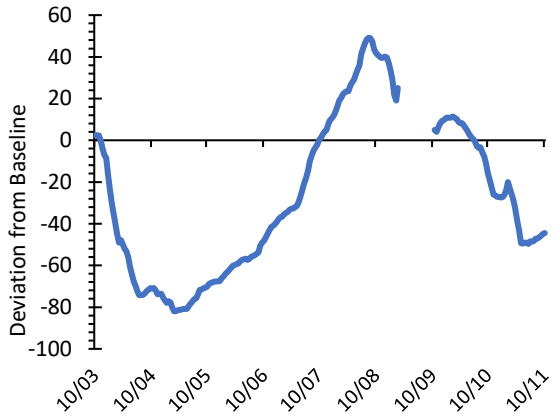
Figure 24. Residential



Source: Own Calculations from Google Mobility Data

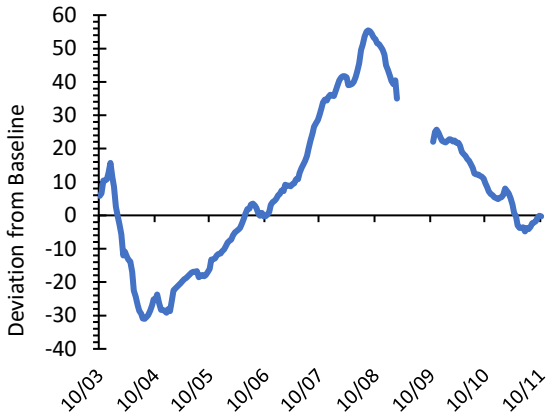
County Data – Kerry

Figure 51. Retail & Recreation



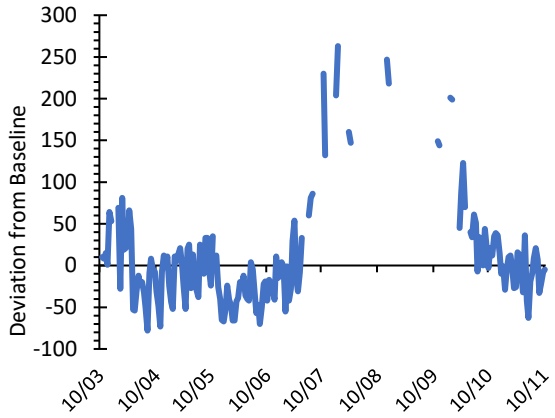
Source: Own Calculations from Google Mobility Data

Figure 52. Grocery and Pharmacy



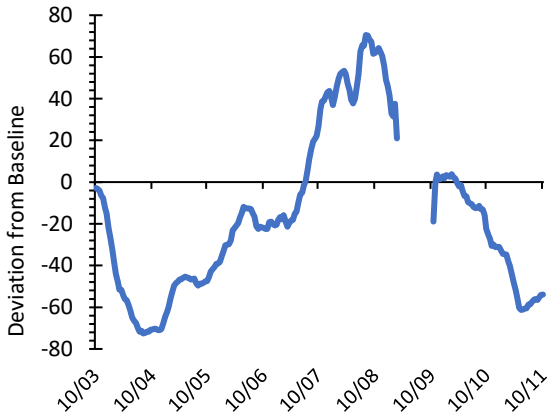
Source: Own Calculations from Google Mobility Data

Figure 53. Parks



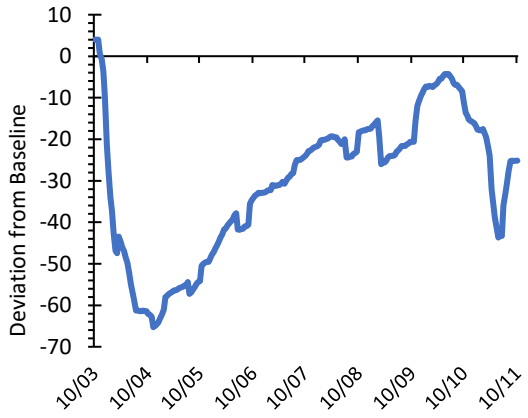
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Figure 54. Public Transport Mobility



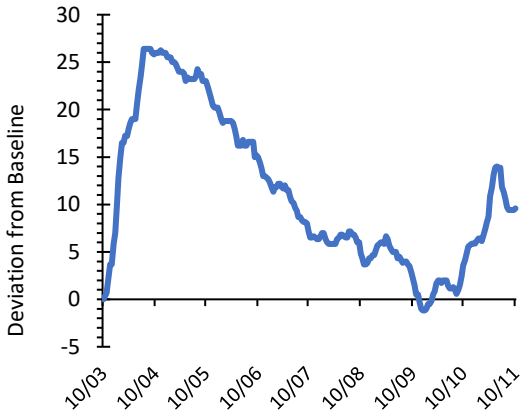
Source: Own Calculations from Google Mobility Data

Figure 55. Workplaces



Source: Own Calculations from Google Mobility Data

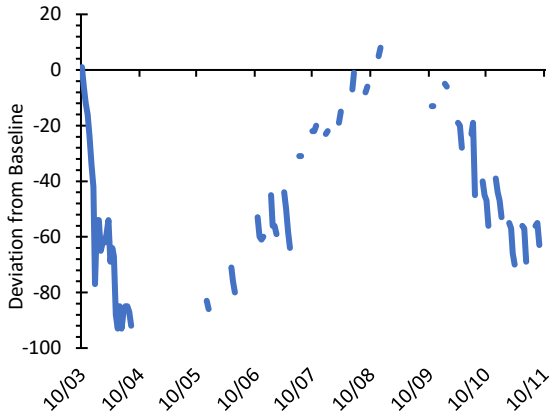
Figure 56. Residential



Source: Own Calculations from Google Mobility Data

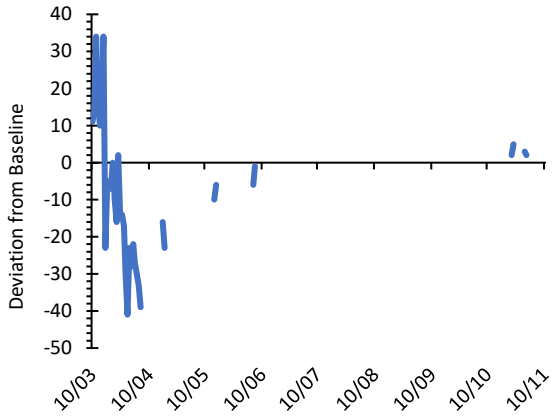
County Data – Leitrim

Figure 31. Retail & Recreation



Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

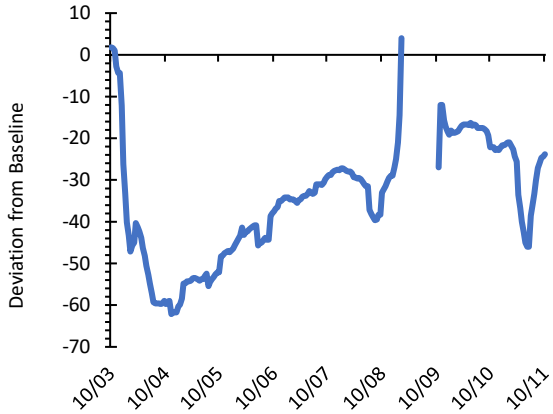
Figure 32. Grocery & Pharmacy



Source: Own Calculations from Google Mobility Data

No data availability for Public Transport, Residential or Parks for Leitrim as of 17th November 2020

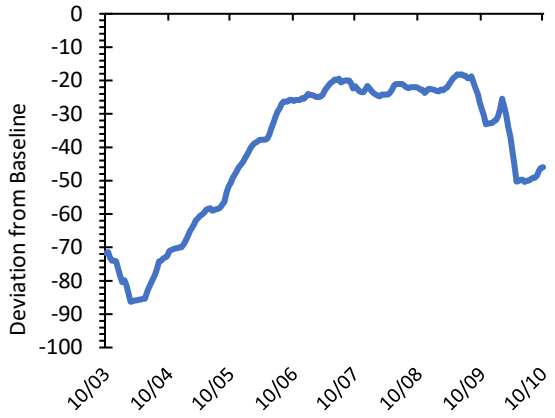
Figure 34. Workplaces



Source: Own Calculations from Google Mobility Data

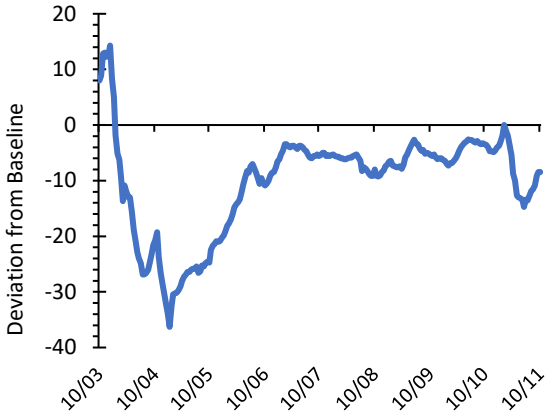
County Data – Limerick

Figure 35. Retail & Recreation



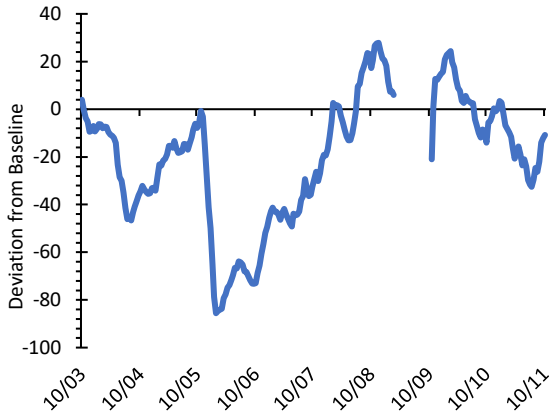
Source: Own Calculations from Google Mobility Data

Figure 36. Grocery and Pharmacy



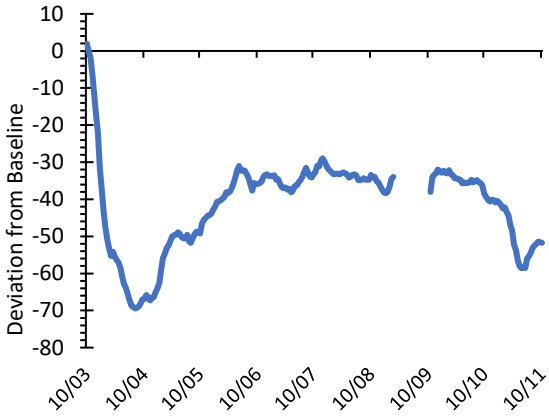
Source: Own Calculations from Google Mobility Data

Figure 37. Parks



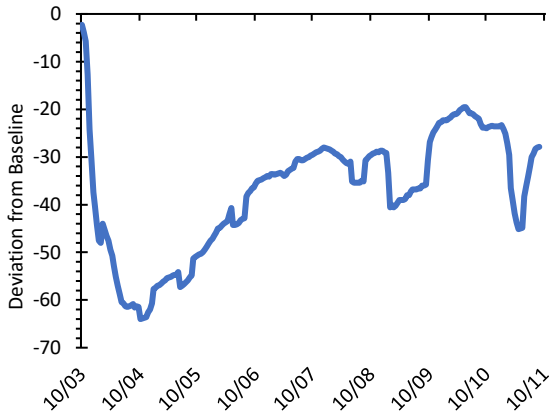
Source: Own Calculations from Google Mobility Data

Figure 38. Public Transport Mobility



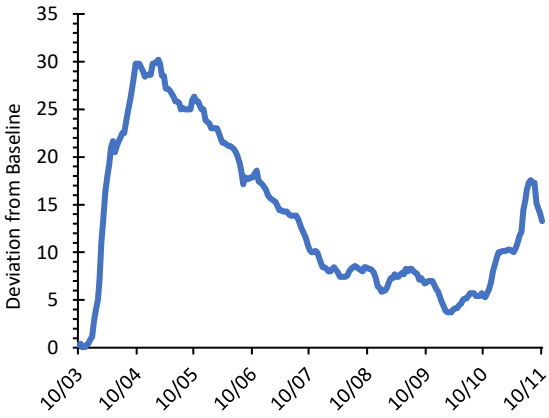
Source: Own Calculations from Google Mobility Data

Figure 39. Workplaces



Source: Own Calculations from Google Mobility Data

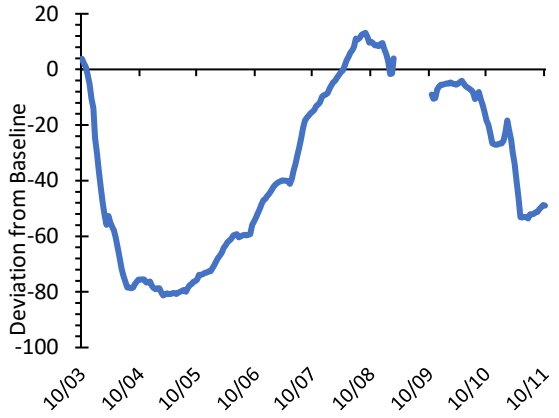
Figure 40. Residential



Source: Own Calculations from Google Mobility Data

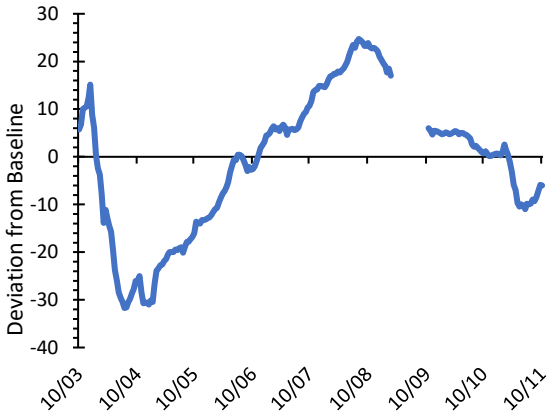
County Data – Mayo

Figure 41. Retail & Recreation



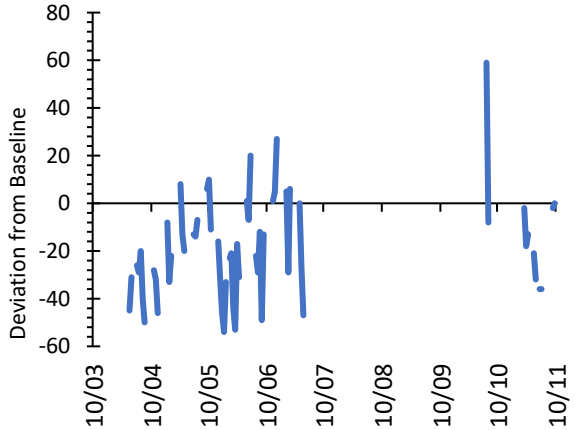
Source: Own Calculations from Google Mobility Data

Figure 42. Grocery and Pharmacy



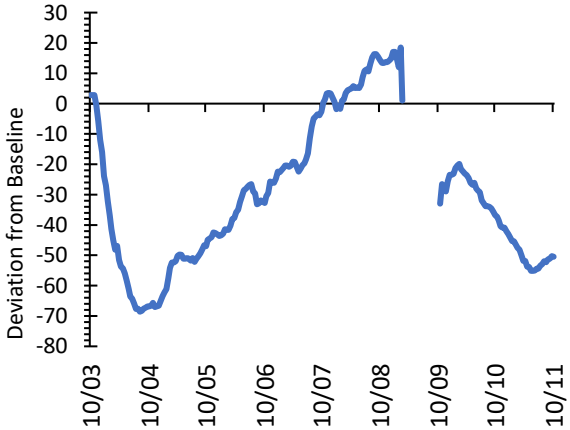
Source: Own Calculations from Google Mobility Data

Figure 43. Parks



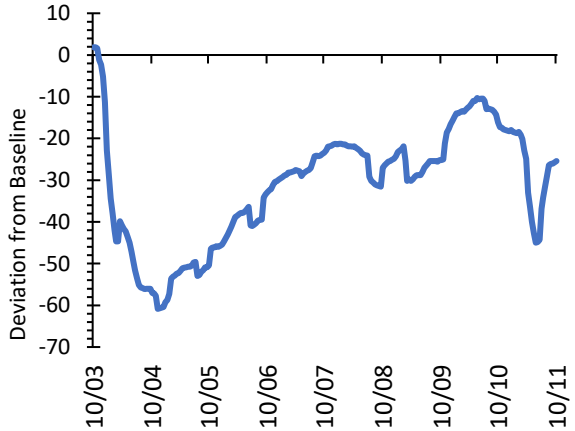
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Figure 44. Public Transport Mobility



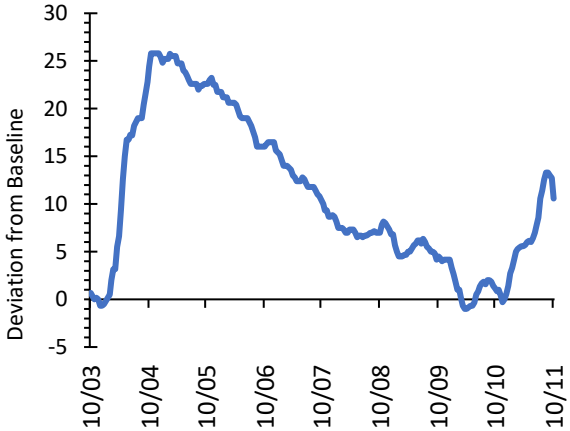
Source: Own Calculations from Google Mobility Data

Figure 45. Workplaces



Source: Own Calculations from Google Mobility Data

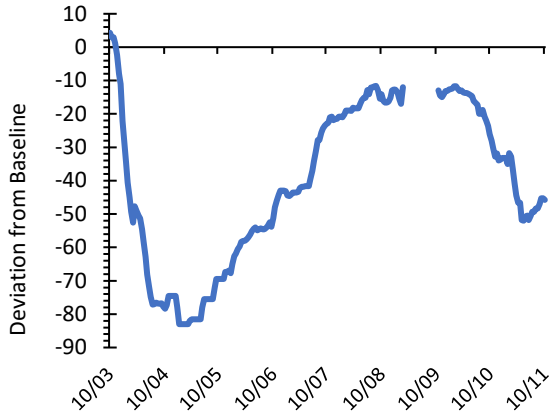
Figure 46. Residential



Source: Own Calculations from Google Mobility Data

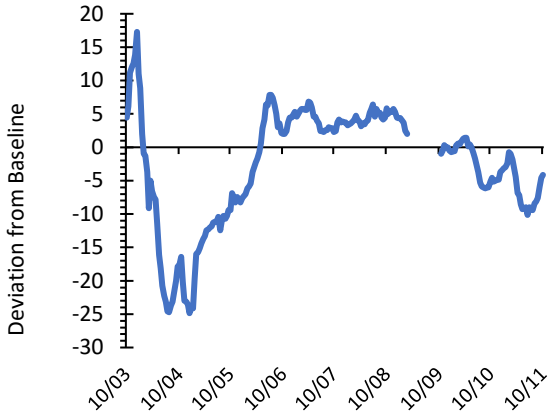
County Data – Roscommon

Figure 47. Retail & Recreation



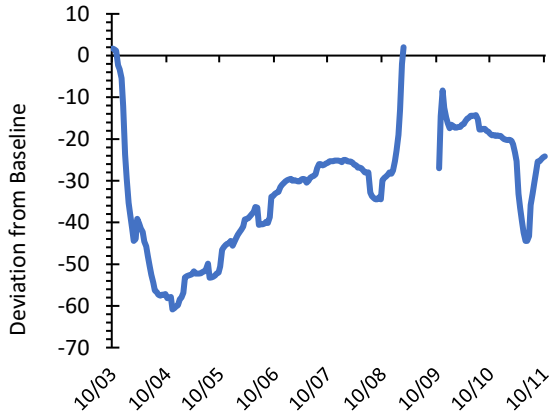
Source: Own Calculations from Google Mobility Data

Figure 48. Grocery and Pharmacy



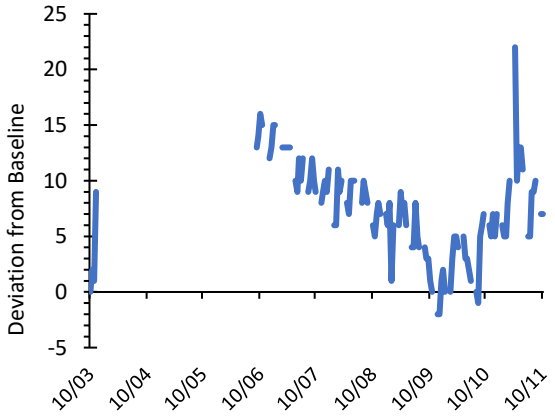
Source: Own Calculations from Google Mobility Data

Figure 49. Workplaces



Source: Own Calculations from Google Mobility Data

Figure 50. Residential

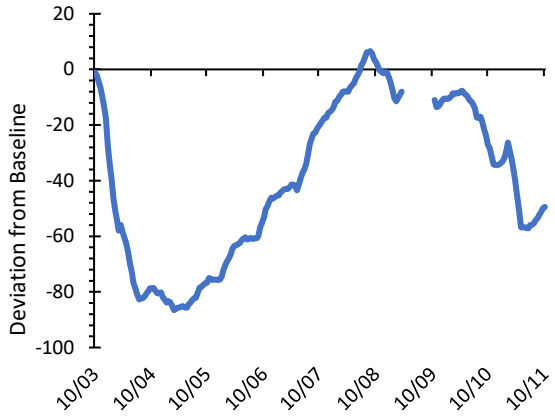


Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

- **No data availability for Public Transport or Parks for Roscommon as of 17h November 2020**

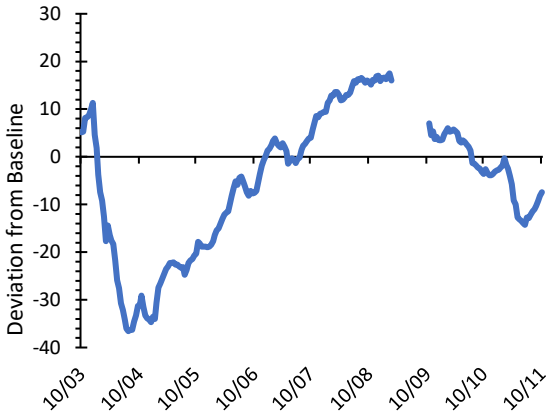
County Data – Sligo

Figure 51. Retail & Recreation



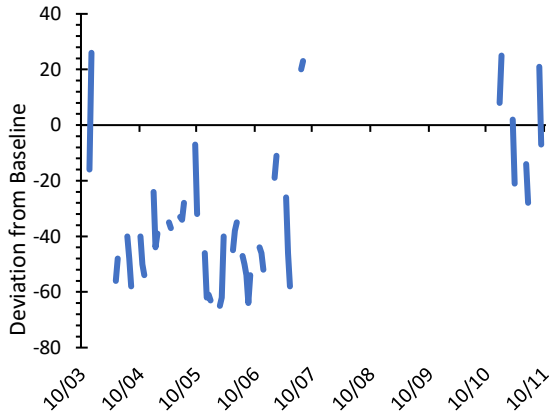
Source: Own Calculations from Google Mobility Data

Figure 52. Grocery and Pharmacy



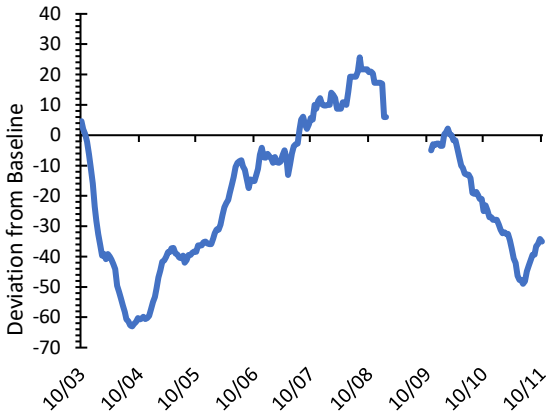
Source: Own Calculations from Google Mobility Data

Figure 53. Parks



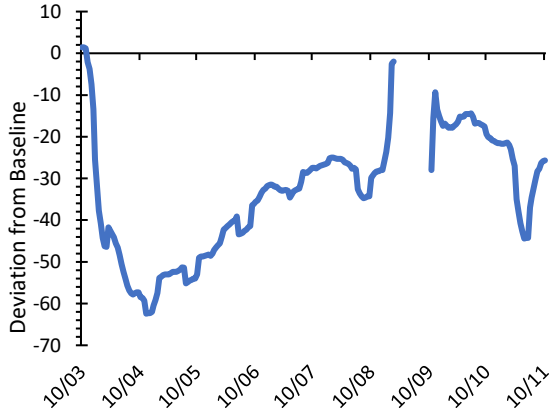
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Figure 54. Public Transport Mobility



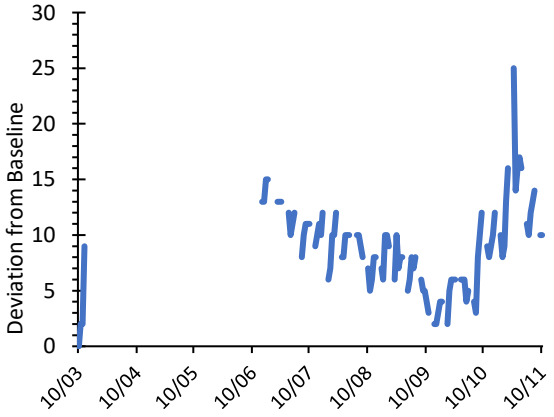
Source: Own Calculations from Google Mobility Data

Figure 55. Workplaces



Source: Own Calculations from Google Mobility Data

Figure 56. Residential



Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data

Concluding Remarks

Our initial Google Mobility report noted strong regional variation during the summer months. Retail & recreation, grocery & pharmacy and public transport mobility were close to, at or considerably above pre-pandemic levels in these categories for the WR and AEC. The report suggested these trends may have been driven by domestic tourism and noted a potential worry was that these trends might not be sustained. The most recent data appears to confirm this worry. Mobility trends suggest a strong "staycation" effect was observed during the summer months and that this abated from September. It is important to note that the end of the regional spike in mobility occurred before the enhanced public health restrictions.

The Level 5 (L5) restrictions are less stringent than March and this is reflected in mobility above March levels despite a sharp decline. There has been an uptick in retail and recreation and grocery and pharmacy mobility during November. This ***should not*** be interpreted as non-compliance with the public health restrictions enacted at the end of October, as those trends follow workplace trends. A plausible explanation is that an adjustment period occurred with some businesses closing for a short period before re-opening in compliance with L5. Workplace mobility has declined following L5 although mobility levels are much higher than during March. The relatively minor changes in workplace mobility following L3 in Dublin and L3/L4 in the Border counties may be explained by the prior adaptation to remote working.

Given the unconventional and unofficial nature of the mobility data we must be careful drawing conclusions, but the data does suggest a contraction in economic activity, likely related to tourism, even before the additional restrictions were in place. It should be noted that making inferences from the mobility data is highly problematic given we do not know what "normal" levels of mobility are during any period for any region/county. The data instead compares mobility in each category to a baseline that captures pre-pandemic mobility during January and February 2020. The baseline will fail to capture important seasonal and regional effects that may be sizeable for WR and AEC. For example, WR and AEC would normally have high levels of seasonal overseas tourism during the summer months and the economy in these regions is more reliant on the tourism sector, as discussed in previous WDC analysis.

Lydon & McGrath (2020) explain how the regional dynamics of the COVID-19 labour market shock are influenced by pre-COVID-19 employment patterns and structural factors. Those employment structures suggest the WR and AEC are comparatively more exposed to the negative labour market shock of COVID-19. The WR and AEC were found to have been hit comparatively harder by the initial COVID-19 shock. This regional labour market variation subsided through the summer reopening phases. However, in response to enhanced restrictions, pandemic unemployment claims have begun to rise again, and the early indications show that the increase in claims broadly follows the regional variation observed during the initial phase of restrictions. A worry for the WR and AEC is the length and severity of restrictions into the future given these trends.

Read the WDC Policy Team's Insights Blog and sign up to our mailing list at
https://westerndevelopment.ie/insights/

Luke McGrath
Economist
Policy Analysis Team
lukemcgrath@wdc.ie