Google Mobility Trends for the Western Region

A Supplement to the Timely Economic Indicators series.

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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 initial Timely Economic Indicators report and examines Google Mobility data for the Western Region and Atlantic Economic Corridor (AEC).[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	**Grocery & Pharmacy**	**Parks**
• Mobility trends for places such as restaurants, cafés, shopping centres, theme parks, museums, libraries & cinemas.	• Mobility trends for places such as supermarkets, food warehouses, farmer's markets, specialty foodshops & pharmacies.	• Mobility trends for places like national parks, public beaches, marinas, dog parks, plazas & public gardens.

Public Transport	**Workplaces**	**Residential**
• Mobility trends for places that are public transport hubs, such as underground, bus and train stations.	• Mobility trends for places of work.	• Mobility trends for places of residence.

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[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 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:

Recognise Category Charataristics

- [ ] Visits to Parks and outdoor spaces are highly influenced by weather and holidays – we would expect larger spikes in this category.

- [ ] The Residential category shows a change in duration—the other categories measure a change in total visitors. You should therefore be careful in making comparisons to other categories.

- [ ] People already spend a lot of time at home (even on workdays), we'd generally expect smaller changes than in other categories.

Be Careful with Comparisons

- [ ] Avoid comparing day-to-day changes. Especially weekends with weekdays.

- [ ] Avoid comparing levels across countries or regions. Regions can have local differences in the data which might mislead.

- [ ] Don't infer that larger changes mean more visitors or smaller changes mean less visitors.
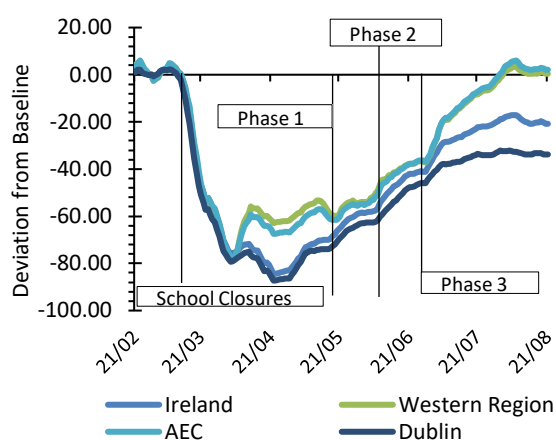
WDC Analysis

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 by 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.

Summary

- Mobility data suggests a high level of compliance with public health restrictions.

- Mobility data suggests an increase in economic activity during re-opening phases.

- Regional variation:
    - National retail & recreation, grocery & pharmacy and public transport mobility has remained below the pre-pandemic baseline. Western Region and AEC counties have been close to, at or considerably above baseline in these categories during August. The National and Dublin trends suggest that the regional variation may at least partly be a result of domestic tourism.

- Workplace mobility is still below the pre-pandemic baseline both nationally and in Western Region and AEC.

- **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.**
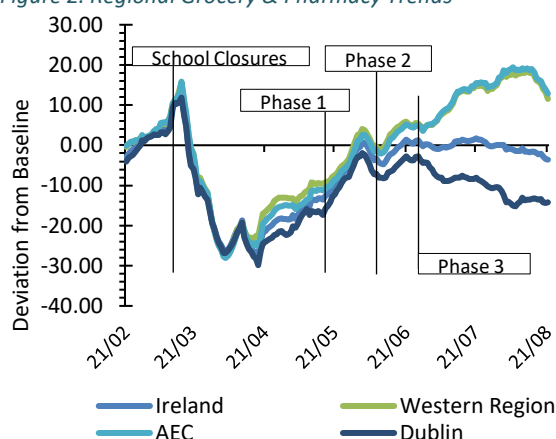
Regional Mobility

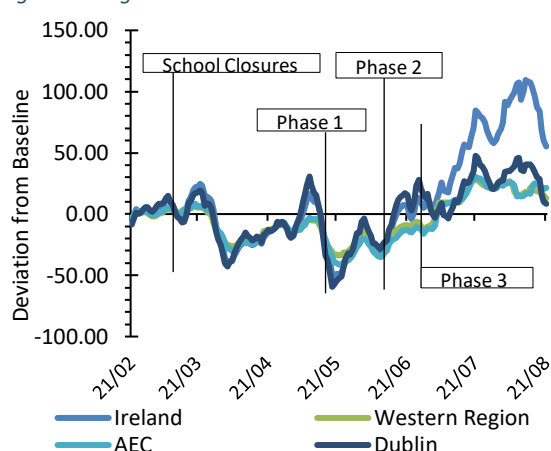*Figure 1. Regional Retail and Recreational Mobility*

Source: Own Calculations from Google Mobility Data

Retail & Recreation Trends

- Big decline from school closures suggests high compliance with public health restrictions.

- Sharp upward trend through re-opening phases suggests rise in economic activity.

- In August, Western Region & AEC back at pre-pandemic baseline but national mobility below. Dublin and national trends suggest this may reflect domestic tourism.

Figure 2. Regional Grocery & Pharmacy Trends

Source: Own Calculations from Google Mobility Data

Grocery & Pharmacy Trends

- Sharp increase as reported panic buying occurred in March.

- Western Region & AEC above baseline from Phase 2 and diverged from national trend during Phase 3. Dublin and National trends suggest this may reflect domestic tourism.

Figure 3. Regional Parks Trends

Source: Own Calculations from Google Mobility Data

Parks Trends

- Big increase in July/August compared to the January/February baseline.

- Parks mobility is highly influenced by the weather.

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Figure 4. Regional Public Transport Mobility
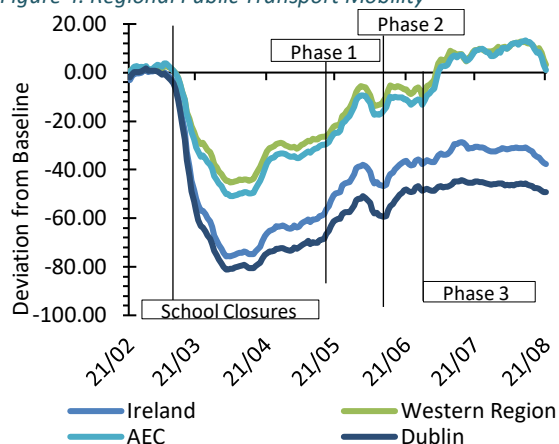
Source: Own Calculations from Google Mobility Data

Figure 5. Regional Workplaces Trends
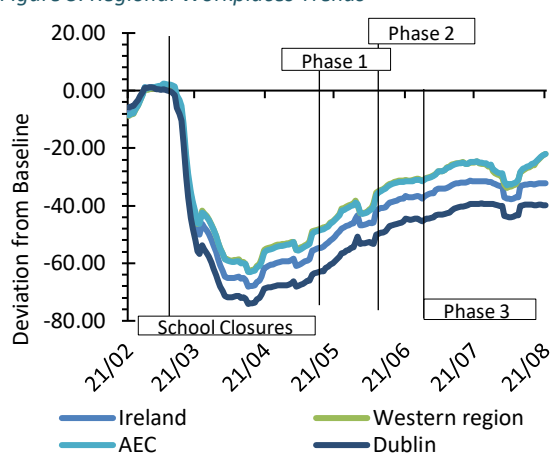
Source: Own Calculations from Google Mobility Data

Figure 6. Regional Residential Trends
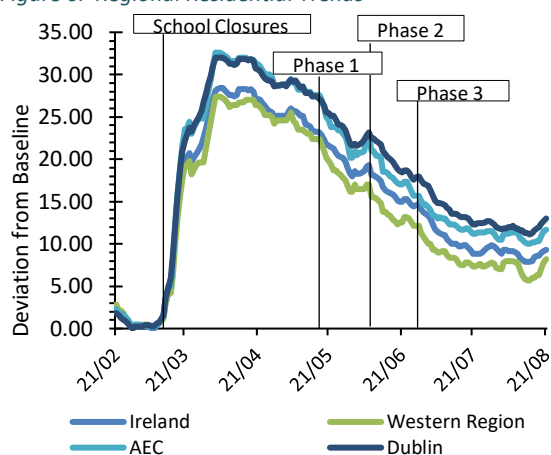
Source: Own Calculations from Google Mobility Data

Public Transport Trends

- Large decline in public transport following school closures in March.

- Upward trend through re-opening phases

- Western Region and AEC mobility was at or above the baseline during August.

Workplaces Trends

- Large decline during the public health restrictions.

- Mobility has increased during the re-opening phases although still considerably below the baseline as of 21st August.

Residential Trends

- Large increase in time spent at home during the public health restrictions suggests high compliance with restrictions.

- Time spent at home has declined through the re-opening phases.

Google Mobility Data for the Western Region
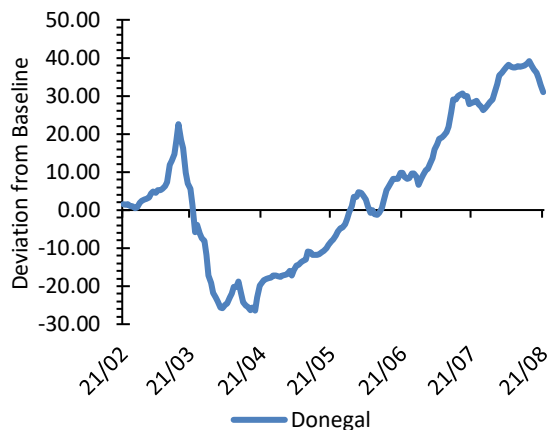**A Supplement to the Timely Economic Indicators.**

County Data – Clare
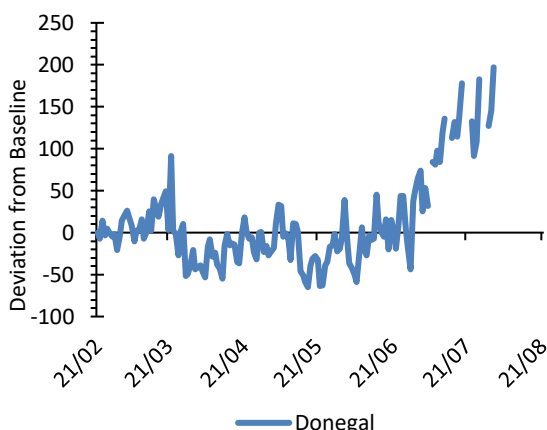
Figure 7. Retail & Recreation
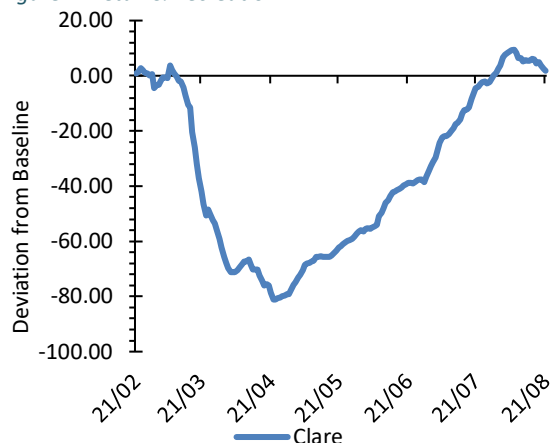
Source: Own Calculations from Google Mobility Data

Figure 8. Grocery and Pharmacy
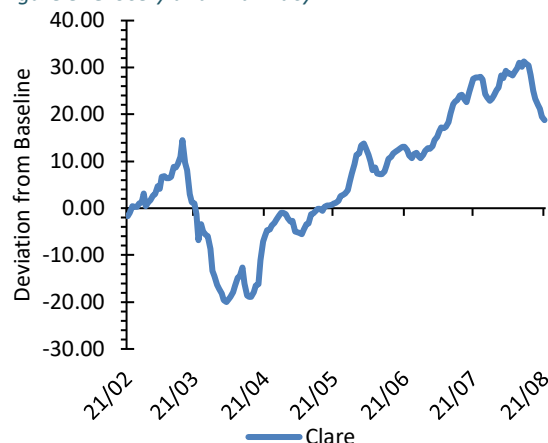
Source: Own Calculations from Google Mobility Data

Figure 9. Parks
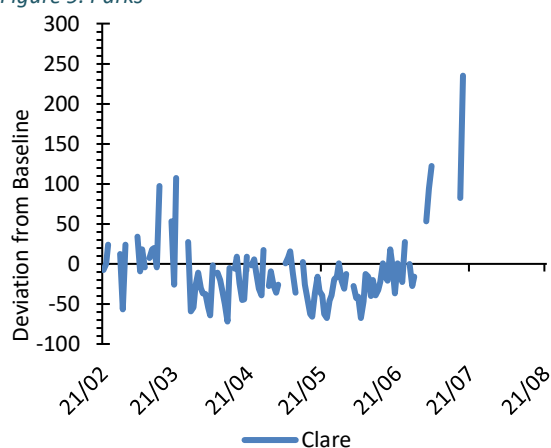
Note: As there is considerable missing data the raw data rather than the 7-day rolling average is illustrated.
Source: Own Calculations from Google Mobility Data
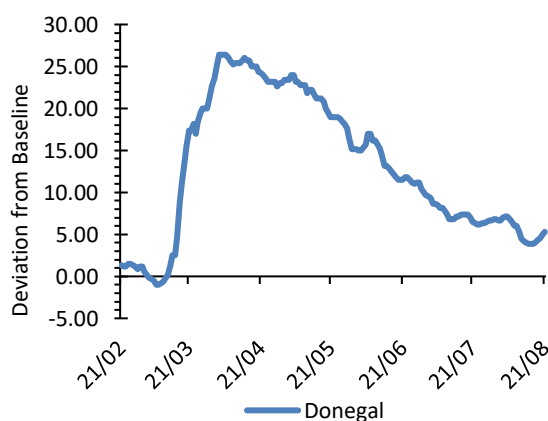
Figure 10. Public Transport Mobility
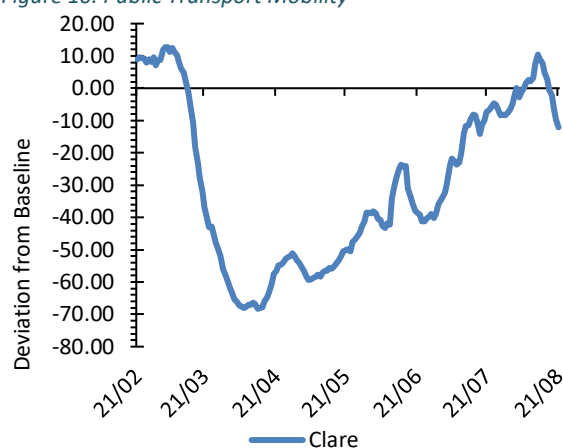
Source: Own Calculations from Google Mobility Data

Figure 11. Workplaces
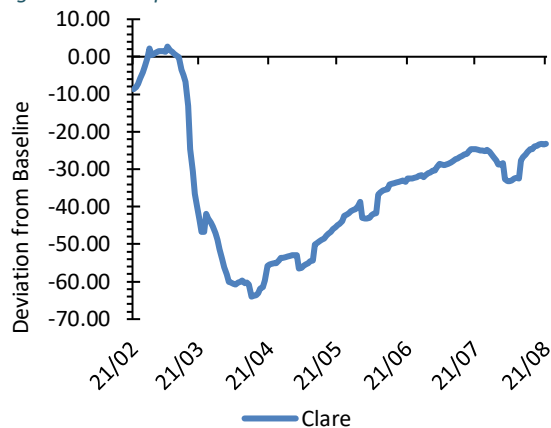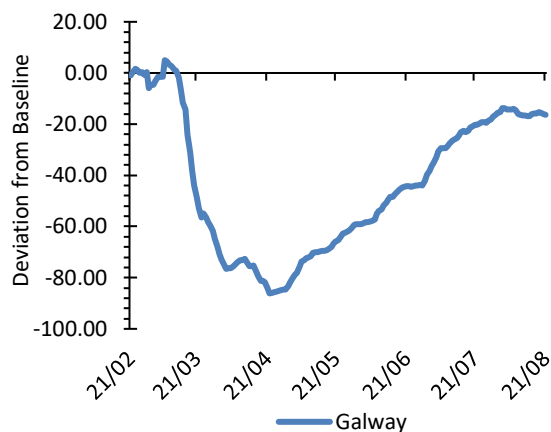

Source: Own Calculations from Google Mobility Data

Figure 12. Residential
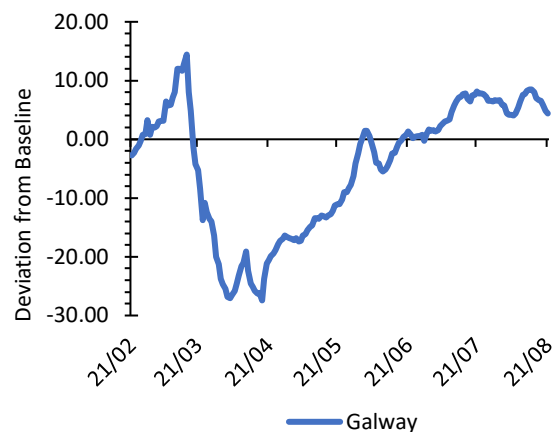

Source: Own Calculations from Google Mobility Data

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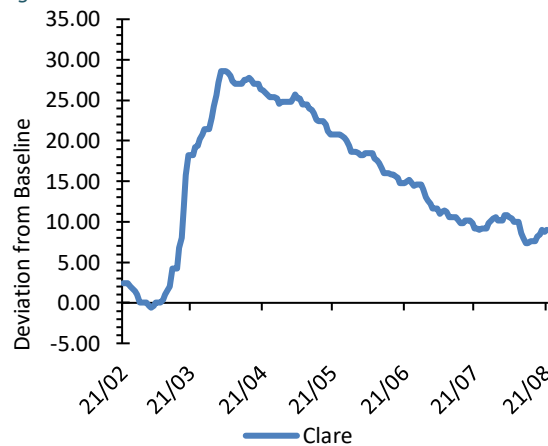
County Data – Donegal

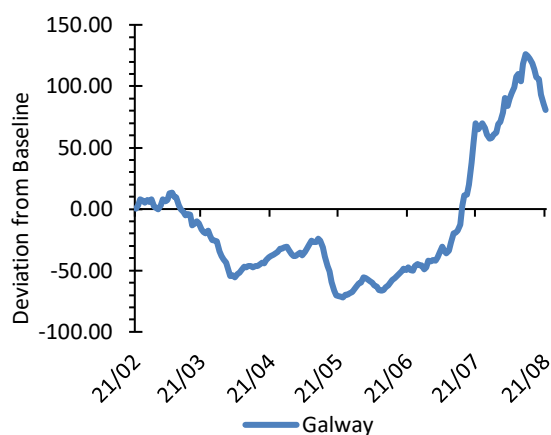Figure 13. Retail & Recreation
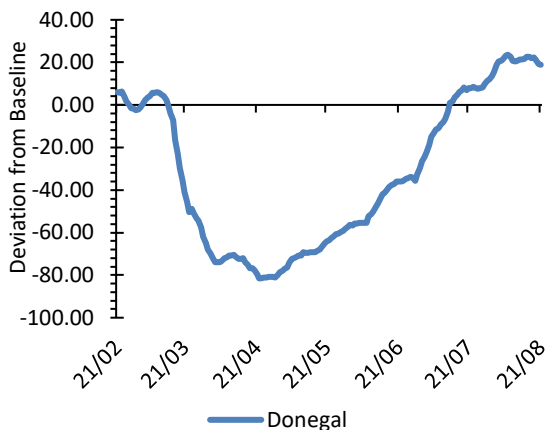
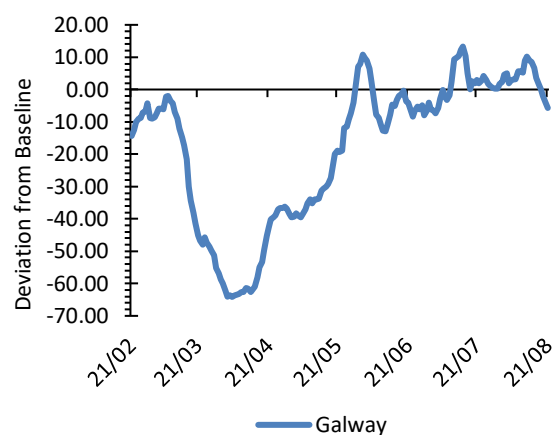*Source: Own Calculations from Google Mobility Data*

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.
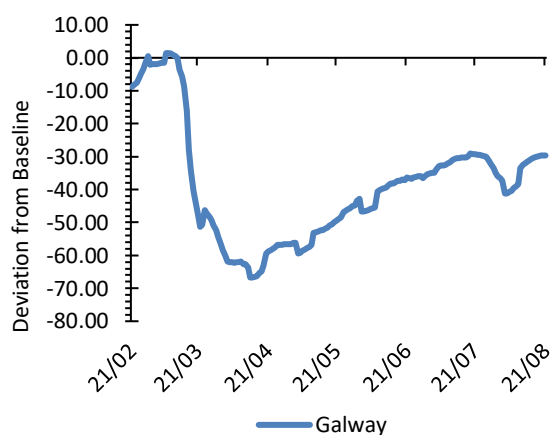*Source: Own Calculations from Google Mobility Data*

Figure 16. Public Transport Mobility
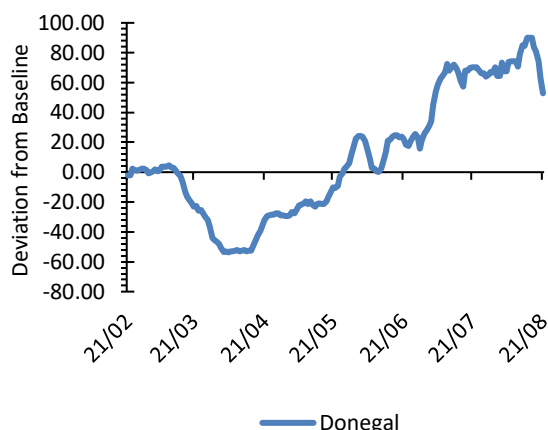
Source: Own Calculations from Google Mobility Data

Figure 17. Workplaces
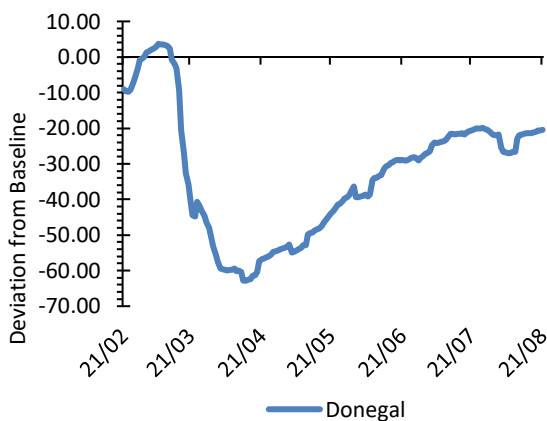
Source: Own Calculations from Google Mobility Data

Figure 18. Residential

Source: Own Calculations from Google Mobility Data

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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
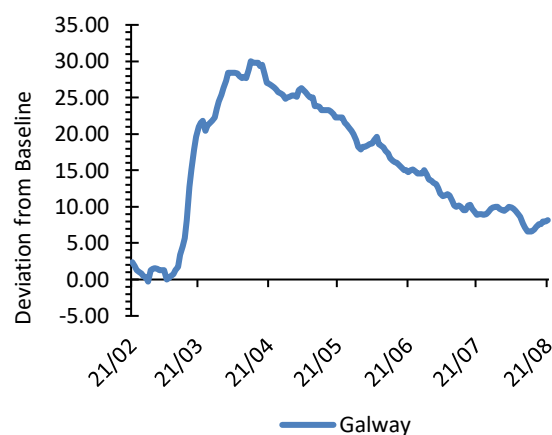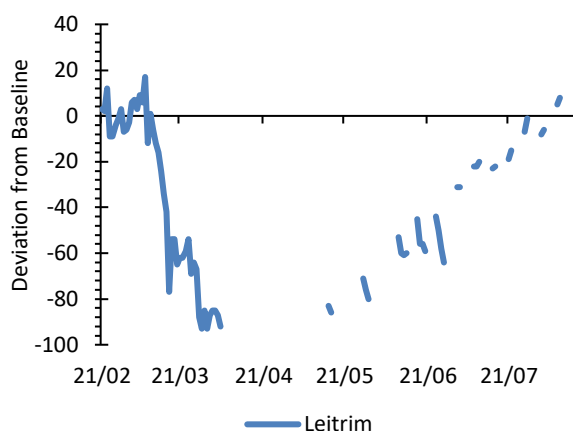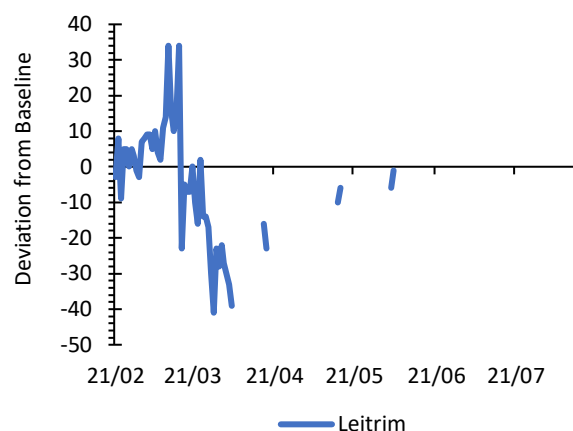
Figure 22. Public Transport Mobility

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

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County Data – Leitrim
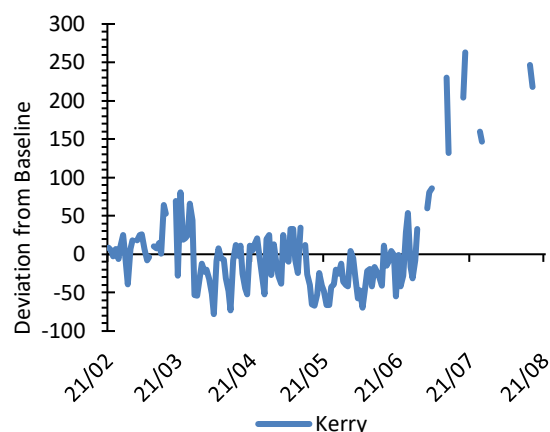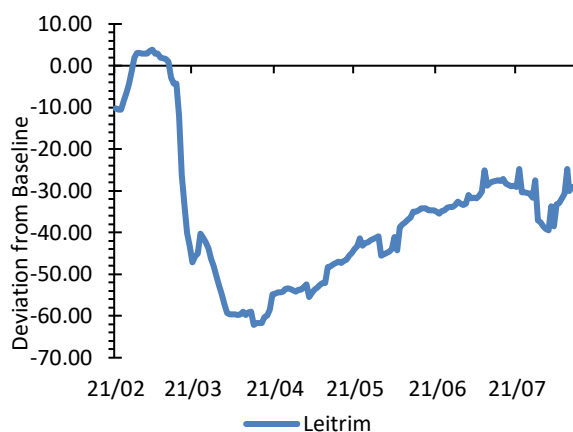
Figure 31. Retail & Recreation

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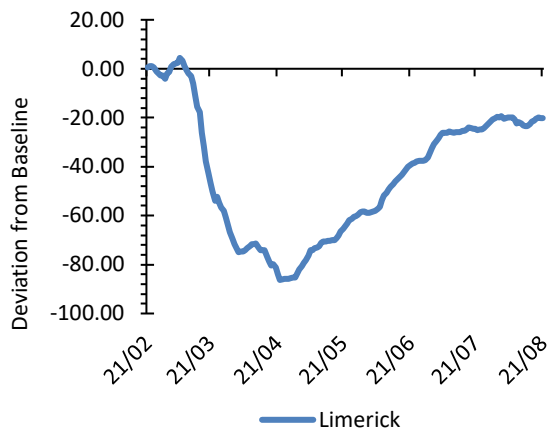*Source: Own Calculations from Google Mobility Data*

Figure 32. Grocery & Pharmacy

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 33. 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 34. Workplaces

Source: Own Calculations from Google Mobility Data

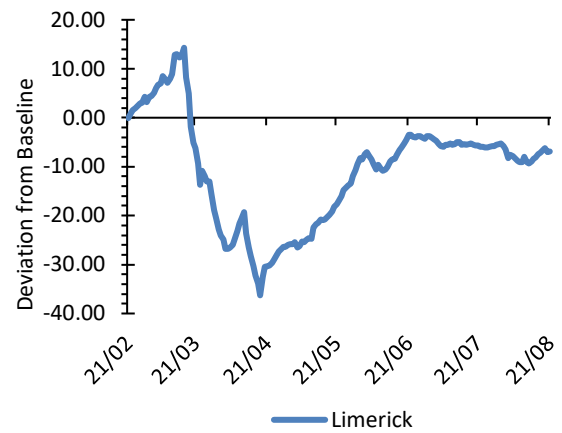- **No data availability for Public Transport or Residential for Leitrim as of 27th August 2020**

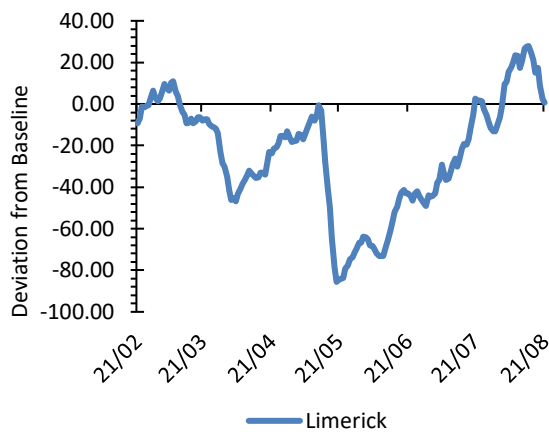# County Data – Limerick

Figure 35. Retail & Recreation

Source: Own Calculations from Google Mobility Data

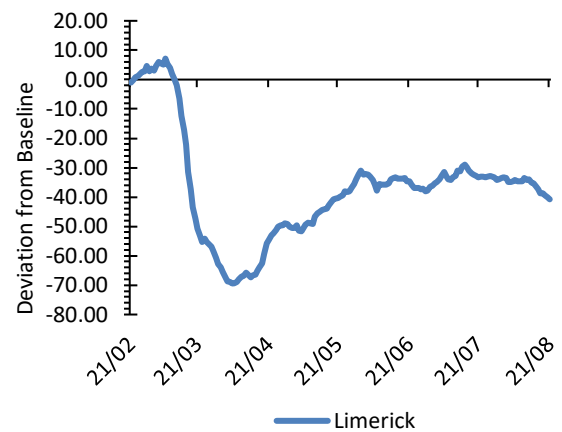*Figure 36. Grocery and Pharmacy*

Source: Own Calculations from Google Mobility Data
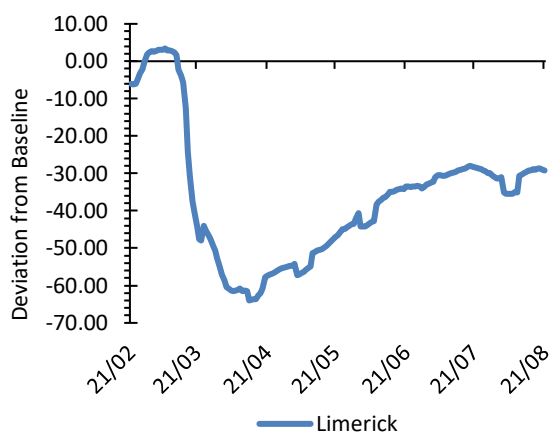
Figure 37. Parks

Source: Own Calculations from Google Mobility Data

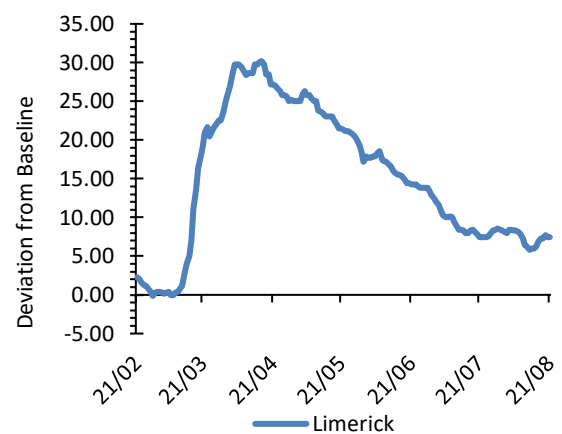*Figure 38. Public Transport Mobility*

Source: Own Calculations from Google Mobility Data

Figure 39. Workplaces

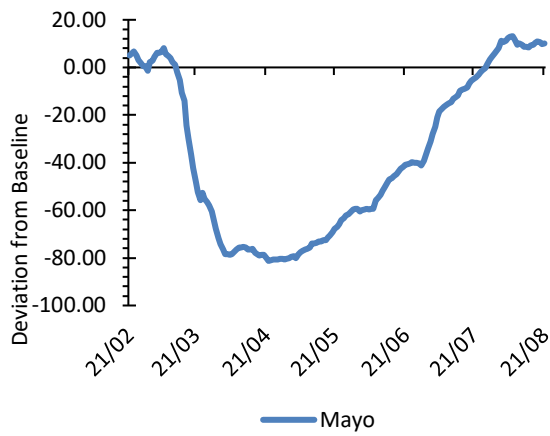*Source: Own Calculations from Google Mobility Data*

Figure 40. Residential

Source: Own Calculations from Google Mobility Data

Google Mobility Data for the Western Region
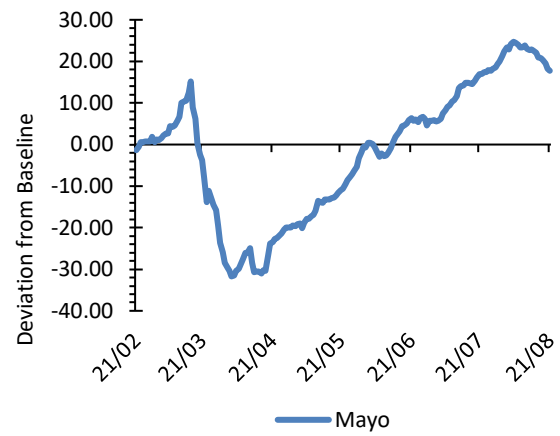**A Supplement to the Timely Economic Indicators.**

County Data – Mayo
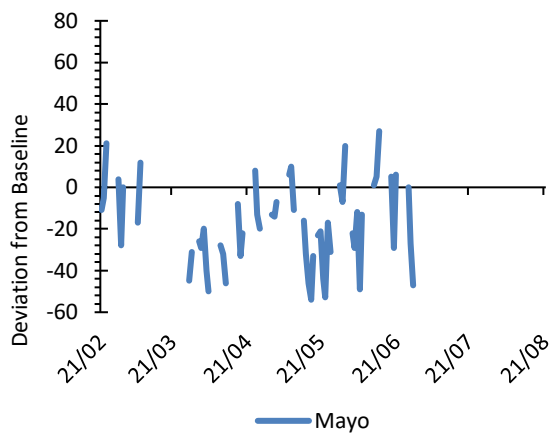
Figure 41. Retail & Recreation

Source: Own Calculations from Google Mobility Data

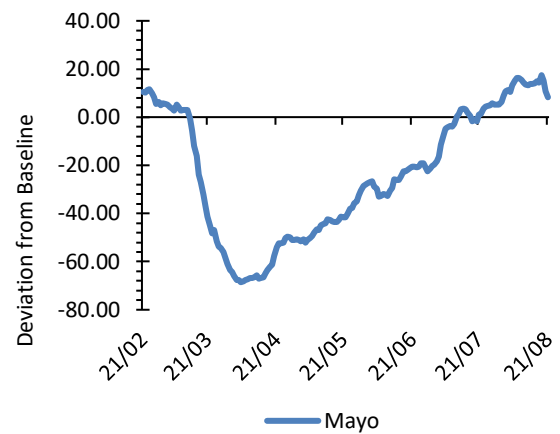*Figure 42. Grocery and Pharmacy*

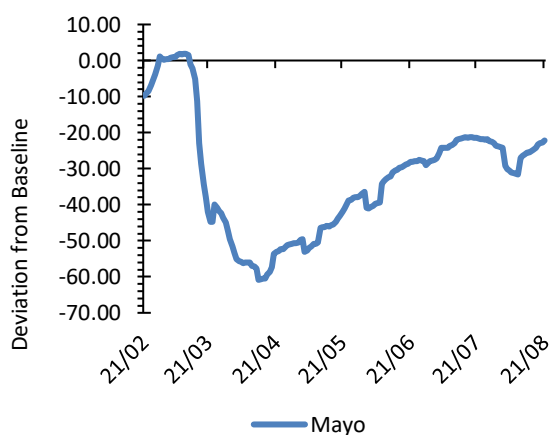Source: Own Calculations from Google Mobility Data

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
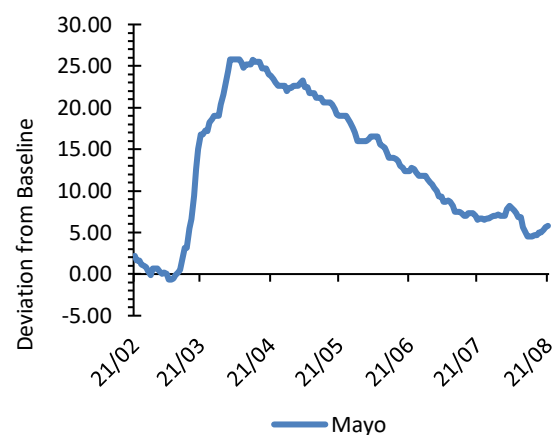
Figure 44. Public Transport Mobility

Source: Own Calculations from Google Mobility Data

Figure 45. Workplaces

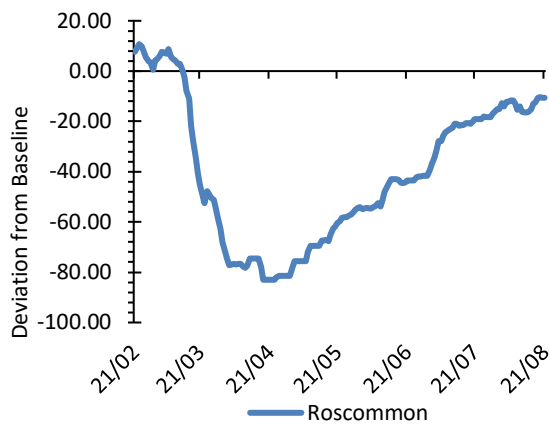Source: Own Calculations from Google Mobility Data

Figure 46. Residential
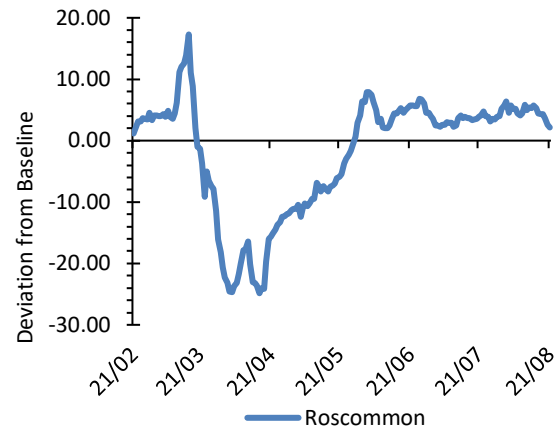

Source: Own Calculations from Google Mobility Data

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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 Residential for Roscommon as of 27th August 2020**

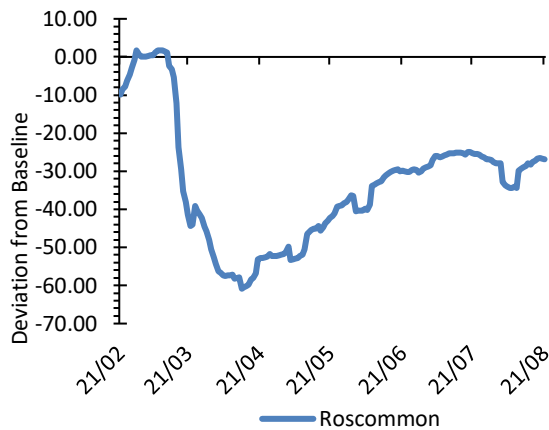# County Data – Sligo

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

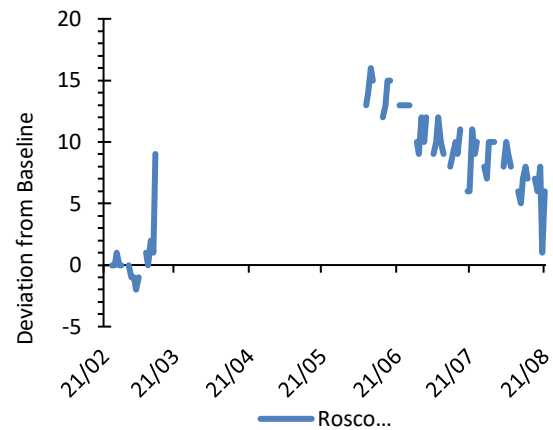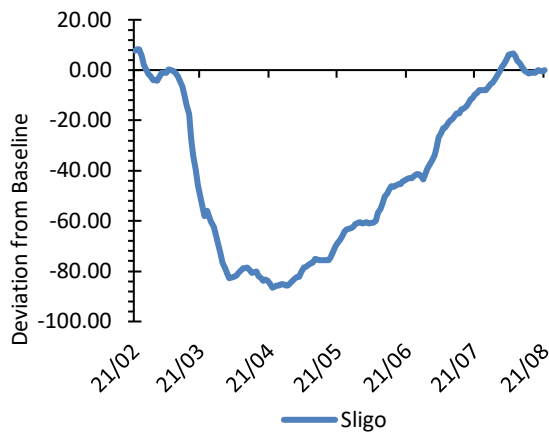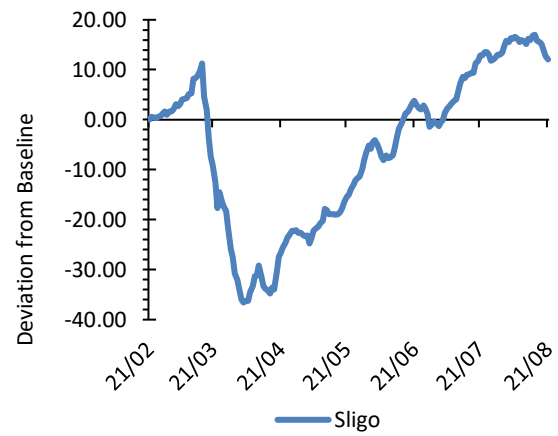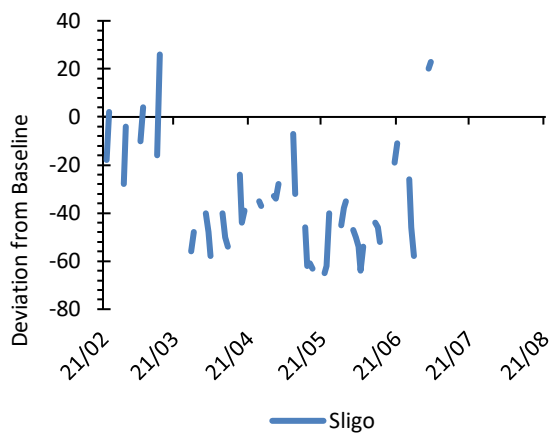*Figure 54. Public Transport Mobility*

Source: Own Calculations from Google Mobility Data
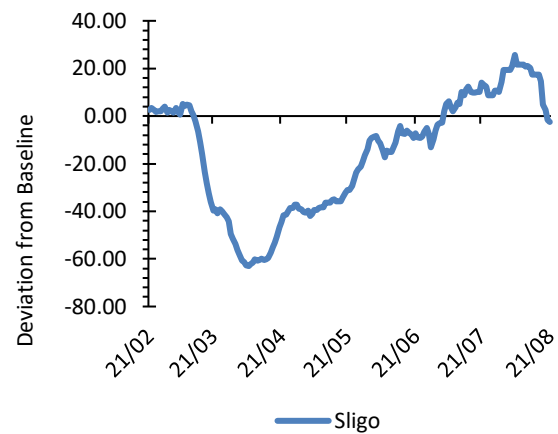
Figure 55. Workplaces

Source: Own Calculations from Google Mobility Data
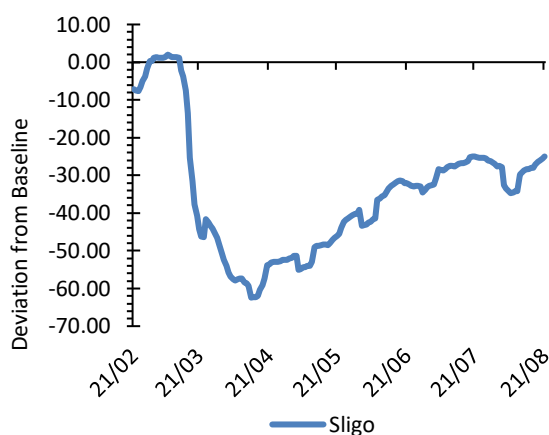
Figure 56. Residential

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

Google Mobility Data for the Western Region
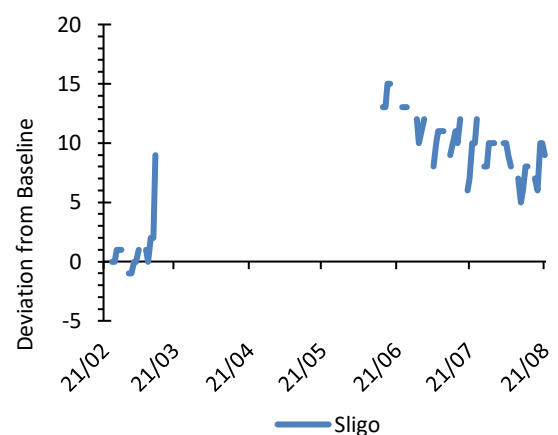**A Supplement to the Timely Economic Indicators.**

Concluding Remarks

Given the unconventional and unofficial nature of the Google Mobility data we must be careful drawing conclusions. The clearest inference we can draw is that there appears to have been large compliance with the public health restrictions nationally and in the Western Region and AEC. The Mobility data also clearly suggests an increase in retail and recreation, grocery and pharmacy, public transport, and workplace mobility during the re-opening phases and thus suggests a rise in economic activity.

In terms of a tentative look at the regional economic impact so far, the Western Region and AEC counties appear to be close to, have reached or exceeded pre-pandemic mobility in the retail and recreation, grocery and pharmacy, and public transport categories. The national and Dublin trends suggest part of the regional variation may be explained by domestic tourism or "staycations" in the Western Region and AEC. However, workplace mobility remains considerably below pre-pandemic levels in the Western Region and AEC and nationally. Making regional/county comparisons 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 the Western Region and AEC. For example, the Western Region 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.

One must be careful not to draw too strong a conclusion on what the above means for regional economic growth as the mobility data could still be consistent with relatively lower annual growth or a sharper economic contraction compared with the State. One potential worry might be that the current trends may stem from a seasonal impact of domestic tourism during July and August that may not be sustained through the remainder of the year. We will gain more insight as we move through the year and the WDC plan to revisit the mobility data in the coming months.

Please visit https://westerndevelopment.ie/policy/ for other outputs from the Policy Analysis Team.

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