Summary of Behavioural Evidence – March 2021

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Introduction

Ireland finds itself in a challenging phase of the pandemic. Following the extension of Level 5 restrictions to April 5th 2021, the decline in Covid-19 case numbers since the second week of January stalled in early to mid-March. New confirmed cases remain relatively high. People have been living with quite severe public health restrictions for approaching three months. The proportion of the population who have been vaccinated is increasing, but the vaccination programme remains at an early stage. There is a strong desire to avoid a "fourth wave", which could have serious consequences, were it to materialise before widespread vaccination.

This research note summarises recent evidence from behavioural studies that is of relevance to the decisions Ireland now faces. The findings are arranged by research question in numbered sections as shown below. Sections are designed to be self-contained, so that readers can easily find evidence relevant to specific questions. There is a brief description of data sources in a short Appendix.

1. How has social activity changed under Level 5 restrictions?
2. How is behaviour related to close contacts?
3. How well are people following public health guidelines?
4. What factors drive more risky behaviour?
5. How is personal wellbeing holding up?
6. What are public expectations for restrictions?
7. What is the public's opinion on re-opening?
8. Do the public want the COVID-19 vaccine?

1. How has social activity changed during the period of Level 5 restrictions?

More than one data source indicates that social activity has increased in recent weeks. While to some extent the reopening of schools made some increased activity inevitable, the data we report here suggest a more widespread rise in activity. The Amárach Tracking Survey (hereafter ATS) for the Department of Health asks each week whether people are staying at home rather than going out. The left panel of Figure 1 shows that while most of the population reports staying at home (note the scale on the vertical axis), this proportion began to fall from the beginning of February through to mid-March.

The ESRI's Social Activity Measure (hereafter SAM) for the Department of the Taoiseach has been undertaken every two weeks since the week beginning January 25th. It records visits to specific locations. The centre and right panels of Figure 1 plot the proportion of the adult population that visited each of the 8 most popular destinations within the previous week. In 7 of 8 cases, there is an upward trend. These data from the ATS and SAM are also broadly consistent with Google and Apple mobility reports, which have similarly recorded shallow upward trends.

Perhaps the most concerning trend in Figure 1 is the increase in visits to other homes (right panel, green). SAM records whether people visited other homes and whether they received visitors to their

own home. Respondents describe visits as social, professional, care or childcare related. Figure 2 shows the proportion who were involved in any kind of home visit during the day prior to participating in the study (which is conducted evenly across both week and weekend days). This was almost one-in-four for the week beginning March 8th, with more than one-in-ten involved in a social visit. Most of these visits involved time spent indoors. This is the most substantive behavioural change recorded during the period.

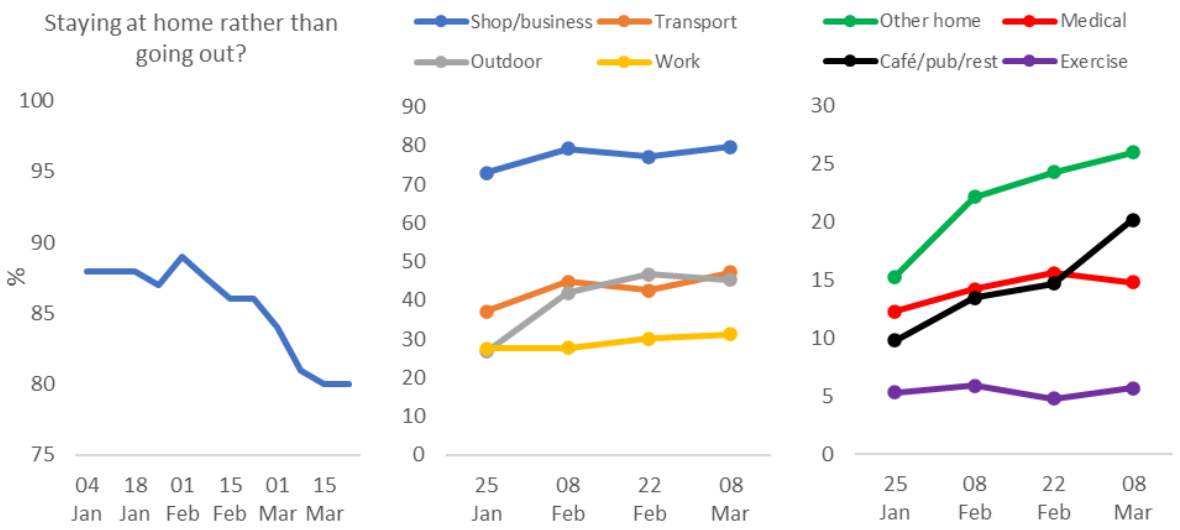

Figure 1. Increases in social activity. Note the changing scale of vertical axis. Left panel (Amárach Tracking Survey, ATS) reveals that people began to report going out more following the beginning of February. Centre and right panels (ESRI Social Activity Measure, SAM) show proportions who visited the 8 most popular types of location during the previous week. In 7 of 8 cases, there is an upward trend. (Note that almost all visits to cafés, pubs or restaurants were to collect take-away).

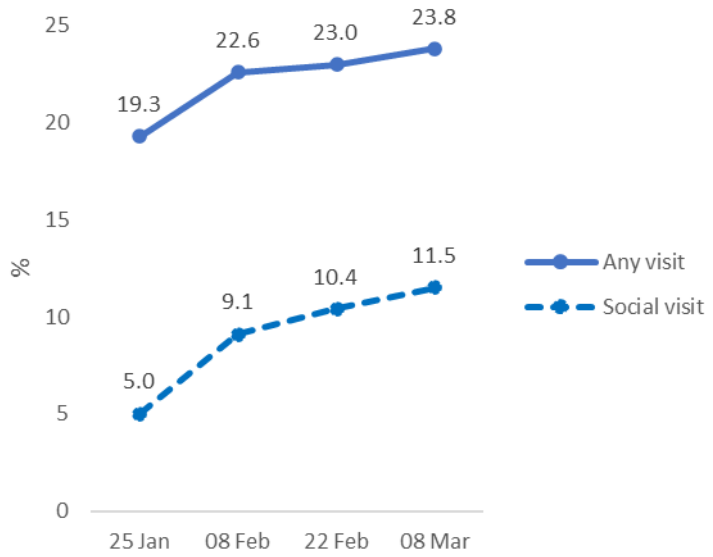

Figure 2. Increase in home visits (SAM). The figures refer to the proportion of the population who had either visited another home/garden or had received a visitor to their home/garden during the

previous day. SAM classifies visits as social, professional, care or childcare related. The rise is driven by social home visits.

2. How is behaviour related to close contacts?

Unsurprisingly, this higher social activity is associated with meeting more people from other households. Between the weeks beginning February 8th and March 8th, SAM recorded that the mean number of people from other households that an individual has met up with over the previous 48-hours rose from 1.89 to 2.23, or 1.38 to 1.67 for meetings with people not within a "support bubble". This may not initially appear to be a large difference, but it is a 21% increase in social encounters between households. The distribution is strongly skewed: approximately half the population meets up with nobody from another household over a 48-hour period, while just under one-in-ten meet up with 7 or more. The trend is driven by a minority.

For each meeting, SAM asks respondents detailed questions, including how long the meeting lasted, whether a distance of 2m was kept, and whether it took place outdoors or indoors (ventilated or not). From the responses, we can define meetings as "close contacts" where they last for more than 15 minutes without a 2-metre interpersonal distance or more than 2 hours in an indoor location without ventilation. Figure 3 shows a steep increase in the proportion of the population who had a close contact with someone from outside their household the previous day, to more than one-in-four during the week beginning 8th March.

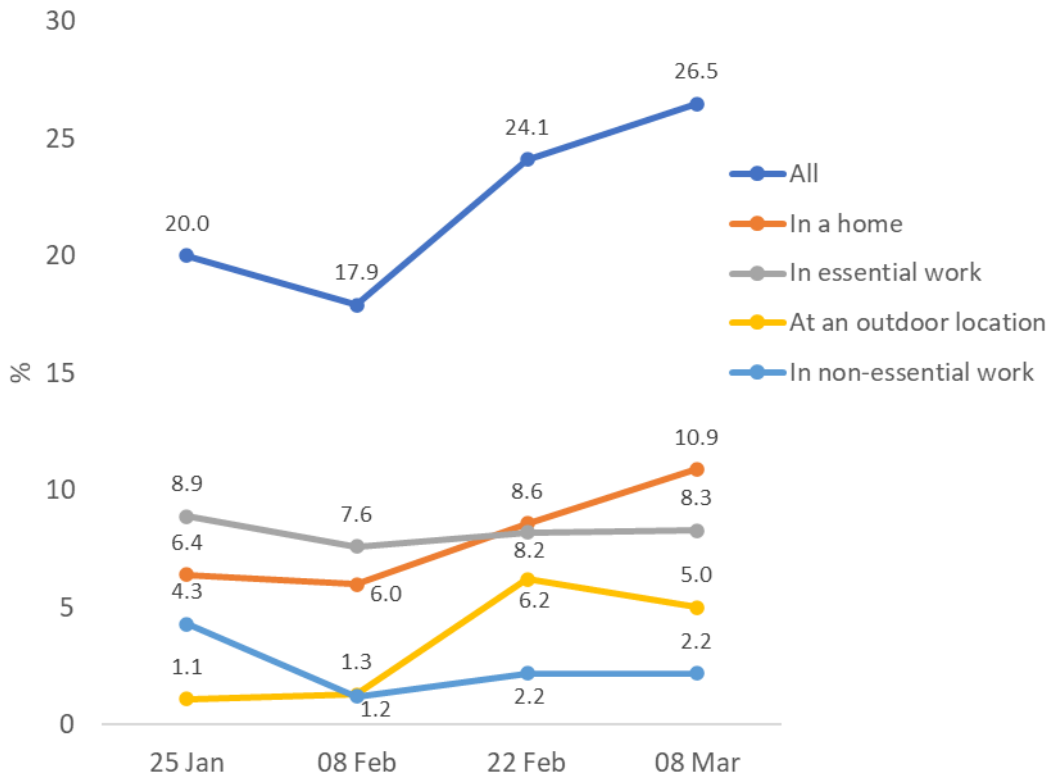

Figure 3. Close contacts (SAM). Close contacts are defined as those that lasted more than 15 minutes where a 2-metre distance was not maintained, or more than 2 hours in an indoor space that was not well ventilated. The overall increase in close contacts has been mainly driven by meetings in homes.

Figure 3 also breaks close contacts down by location. In recent weeks, as the number of home visits has risen, close contacts in homes have surpassed those in workplaces and are the primary reason for the overall increase, although close contacts in outdoor locations are also a contributory factor. The SAM data show that when close contacts occur in homes, it is far less likely that individuals are wearing facemasks than when close contacts occur in workplaces.

3. How well are people following public health guidelines?

Self-reported compliance with public health guidelines has declined since early 2021 (Figure 4, left). In the ATS in January, 59% of people gave a maximum 7 response that they 'very much so' follow Department of Health and HSE advice for preventing the spread of the virus. This proportion declined slightly in February and more substantially in March, to 49%. A very similar decline was observed in the SAM data. However, the fall in average scores between January and March has been less pronounced (from 6.4 to 6.2 in both sources). This is because the vast majority continue give responses of at least 5 or above on the 7-point scale (Figure 4, left, top line). Thus, these changes do not mean that a proportion of the population has rejected the public health advice or now has complete disregard for it. Rather, a minority have begun to push the boundaries of compliance more – we say more about the drivers of this change below. Almost everyone continues to report following guidelines to a substantial degree.

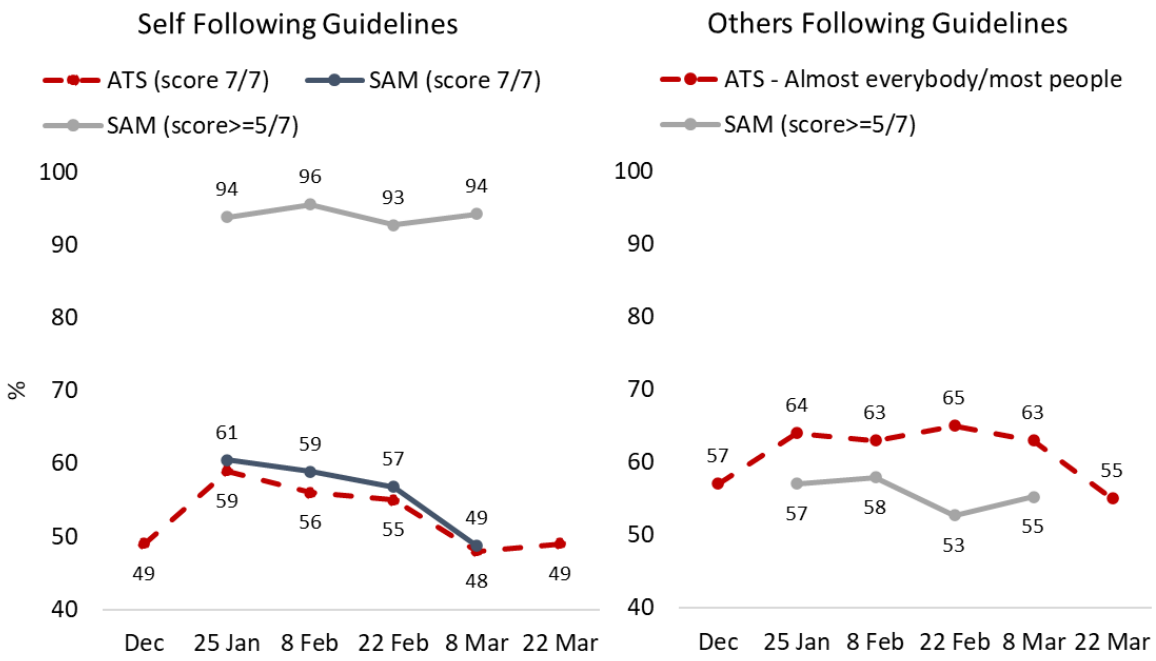

Figure 4. Compliance trends (ATS, SAM). Percentage of respondents responding 7 out of 7 ('very much so') or at least 5 out of 7, on a 7-point scale, in answer to a question asking to what extent they and others "follow the recommendations from the Government to prevent spread of coronavirus".

Self-reported compliance is strongly related to recorded behaviours in SAM, but could nonetheless be overestimated if respondents attempt to paint themselves in a good light. Hence Figure 4 (right), plots people's perceptions of how much others follow the public health guidelines. The ATS asks

specifically about the extent to which others are following social distancing guidelines and shows that, following a peak in February, perceived compliance fell. Responses about how much others are following guidelines in SAM show a minor (not statistically significant) decrease between late January and early March. The overall trend is similar to that for self-compliance.

The difference in level between the grey lines in the left and right panels of Figure 4 gives an indication of a strong misperception that we observe for multiple variables in the SAM data. Individuals generally believe that they are following guidelines more than average, even when they are not. As well as reported compliance, this pattern emerges in relation to how many people from other households individuals meet and the likelihood that they have a close contact. Those engaging in risky behaviour appear not to believe that they are taking more risks than their fellow citizens.

Overall, data on compliance broadly match the pattern in relation to behaviour: there has been some slippage in compliance among a minority in recent weeks.

4. What factors drive more risky behaviour?

The misperception just referred to may be one factor that broadly influences behaviour. SAM was partly designed to allow researchers to investigate the determinants of specific risky behaviours. Using the sample of 4,000 from the first four rounds of data collection from January 25th to March 8th, statistical models were built to investigate which factors are most strongly related to: how many people individuals met from outside their household, whether they were involved in a social home visit, and whether they had a close contact.[1]

In addition to standard socio-demographic background characteristics (gender, age, educational attainment, etc.), the following psychological variables were tested in the models: confidence in government, engagement with news media, fatigue with restrictions, perceived ease of following restrictions, perceived coherence of restrictions, perceived likelihood of being caught breaking restrictions, self-reported relative importance of preventing spread of the virus versus the burden of restrictions, subjective wellbeing, understanding of Covid-19 transmission (both subjective and assessed via multiple choice questions), worry (about the virus in general).

Of these variables, three turn out to have strong associations with behaviour: how worried people are in general, how coherent (versus contradictory) they perceive the restrictions to be, and how important they judge preventing spread of the virus to be versus the burden of restrictions. The strength of these relationships can be seen in Figure 5. Closely similar results obtain for how these variables relate to the number of people from other households an individual has met up. Worry is consistently the strongest predictor of behaviour, confirming the importance of fear as a motivator.

Both SAM and ATS have recorded a steady decline is worry as case numbers have fallen since January. Given these findings, there can be little doubt that reduced fear of the virus is an important factor in the recent increase in social activity. Around the time of the announcements of the extension to Level 5 and the phased reopening of schools in late February, SAM recorded a fall in the perceived coherence of the restrictions. Although this has mostly recovered in the March 8th data, it may also have contributed to social activity.

An important point surrounds fatigue. The statistical models do not find a significant association between being tired of sticking to the restrictions and engaging in risky behaviours; those who say that sticking to restrictions is very tiresome are not more likely to meet others or have a close

[1] Here we present a descriptive summary. More detailed output is presently being prepared for a paper and can be obtained from the authors upon request.

contact than those who say it is not tiresome. Rather, what matters is the relative importance people place on the burden of restrictions versus the need to prevent the spread of the virus. That is, most the population is willing to act in the public interest, including a majority of those who are most tired of the restrictions. What matters is the willingness to make the trade-off and act selflessly, regardless of how tiring the restrictions are. SAM finds that this willingness has slipped somewhat in recent weeks, contributing to increased social activity.

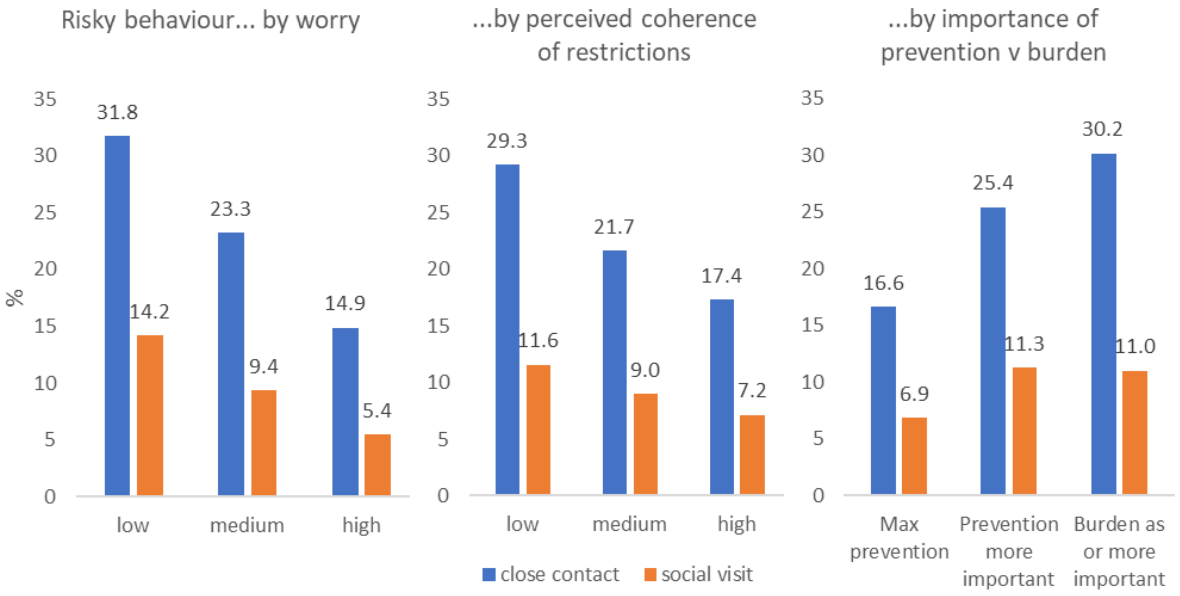

Figure 5. Three key psychological variables (SAM). Charts show the proportion of the population that had a close contact or engaged in a social visit at home during the previous 24 hours. Risky behaviour is most strongly associated with how worried people are in general by the virus. It is also consistently related to how coherent (versus contradictory) people perceive the restrictions to be and how they judge the trade-off when asked directly to compare preventing the spread of Covid-19 against the burden of restrictions.

Once these three factors are controlled for, the remaining psychological variables listed above are not significantly related to risky behaviour in our models. This does not mean that they do not matter – effects may emerge as sample-size increases – but it does imply that they are less strongly related to behaviour (and perhaps have no impact at all). Many psychological factors measured are also quite highly correlated, making it difficult to tease them apart clearly.

Similarly, we do not find strong relationships between behaviour and socio-demographic background characteristics. Once we control for the above psychological factors and whether individuals work (including involvement in essential work), behaviour is not significantly related to educational attainment, social grade, or household size and composition. There are some relationships of specific behaviours with age and gender, most notably a higher likelihood of close contacts among young adults. Unlike the psychological variables described above, however, gender and age effects are not consistent across different kinds of risky behaviour and may largely reflect differential patterns of work and caring.

In short, engagement in risky behaviour is linked more strongly to individual psychological characteristics than to social background or social group membership.

5. How is personal wellbeing holding up?

Data from the CSO and ATS show that the third wave of infection has had a detrimental impact on wellbeing, with ATS and SAM data recording further declines in wellbeing as Level 5 restrictions have been extended.

The CSO's Impact of COVID-19 Survey (February 2021) found that average life satisfaction was at its lowest since the survey began in 2013. Declines in wellbeing were evident between the periods of Level 5 restrictions in November 2020 and February 2021, with increases in the proportion of people with low life satisfaction (35.6% vs. 41.7%) and who felt downhearted or depressed all or most of the time (11.5% vs. 15.1%). Younger adults (aged 18 to 34) fared substantially worse than older adults on all indicators of wellbeing. They were approximately four times more likely to report feeling downhearted or depressed (20.5% vs. 5.7%) and lonely (18.1% vs 4.6%), all or most of the time.

Data from SAM (pooled from January 25th to March 8th) in Figure 6 shows that when people are asked to compare their current wellbeing to before the pandemic, there is a very strong difference by age. Almost 60% of those aged 18 to 29 report that their mental health has worsened, versus 25% of those aged over 70. Note that this difference is not unique to the youngest adults, but varies linearly across the age range. It could be associated with multiple factors, including restrictions on social activity, increased unemployment, worry about spreading virus, or capacity to adapt to restrictions.

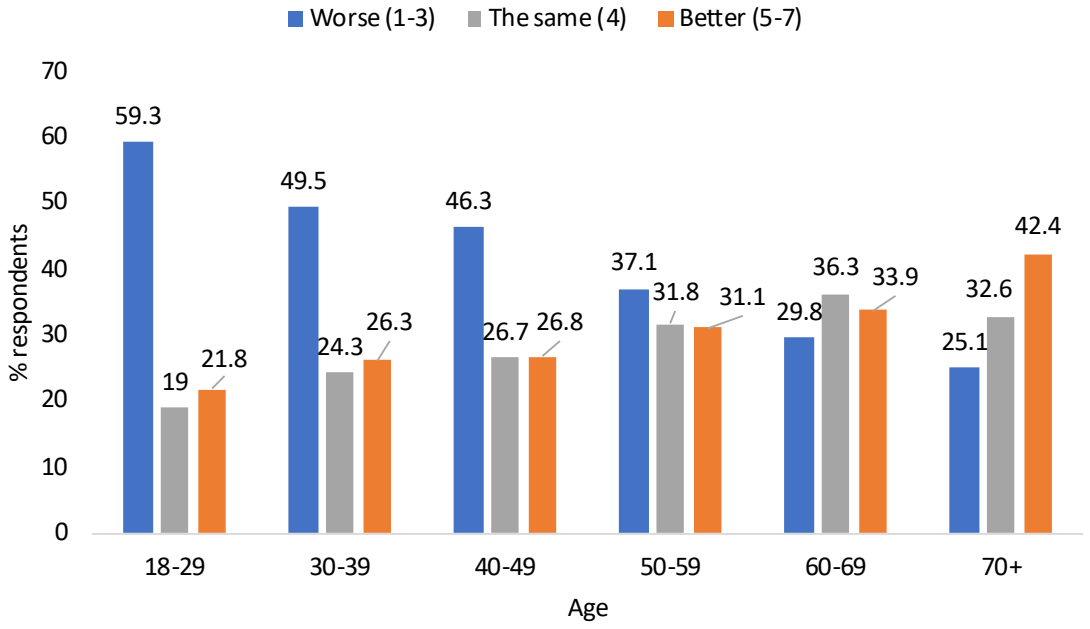

Figure 6. Self-reported mental health compared to before the pandemic (SAM). Response could vary from 1 (very much worse) to 7 (very much better). There is a clear and strong age effect.

The ATS asks respondents about emotions they experienced "a lot of the day" the day before completing the survey. Positive emotions (e.g. enjoyment and happiness) were at their highest in

Summer 2020, when cases were low and there were relatively few restrictions. Reported enjoyment was then at a (pandemic) peak of 51% of respondents. Figure 7 (left) shows more recent data. In early February, enjoyment was reported by 39% - the lowest since March 2020. Despite increasing again throughout late February and early March, as cases fell and weather improved, experience of enjoyment and other positive emotions declined again in late March.

Similarly, negative emotions were at their lowest in summer 2020 but are now at their highest since the onset of the pandemic. Figure 7 (right) shows that boredom rose from 21% in December and has remained at about 40% since January, matching levels in April 2020. The latest ATS (March 22nd) shows peaks in frustration, anger and despair, with corresponding to declines in hope and happiness.

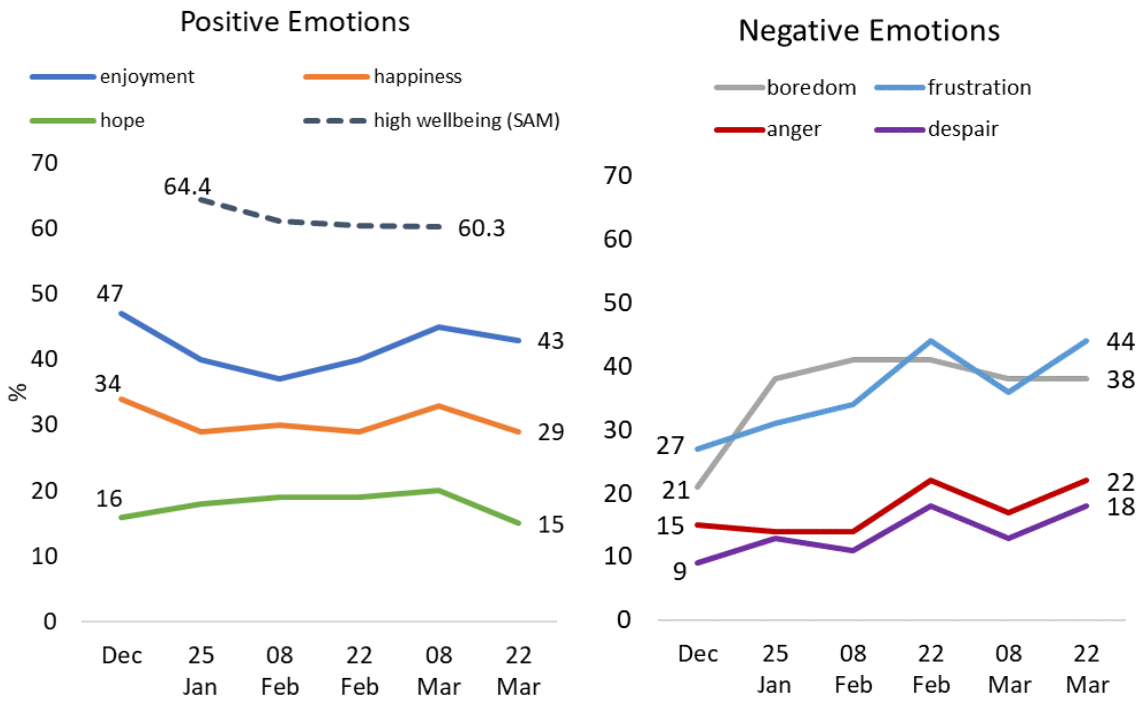

Figure 7. Reports of emotional experience (ATS, SAM). Positive emotions (left) had increased slightly since January but have dropped in late March. Negative emotions (right) have been trending upwards since December. (Other negative emotions recorded in the ATS, including anxiety, worry, stress, sadness, loneliness, fear, pain and intolerance, display broadly similar patterns but are excluded for brevity).

SAM data are included in Figure 7 (left), confirming the decline in wellbeing during this third wave of infection. The proportion rating their recent mental health and wellbeing positively (at 5 or above on a scale from 1 'very poor' to 7 'very good') decreased from 64.4% in late January to 60.3% in early March (data from late March, which shows the most drastic declines in the Amárach data, is not yet available). Supporting the CSO data, young people report significantly worse mental health than

older respondents, with 41.8% of those aged 18-29 giving a high rating for the recent mental health compared to 84.7% of those aged over 70.

6. What are public expectations for restrictions?

There are both short- and long-term expectations for the pandemic. Data from SAM (Figure 8) shows that in the first half of February more than 40% of the population expected restrictions to be eased in March, but that this optimistic view fell away later in the month. During March, there is an expectation among the majority that there will be some easing in April, while most of the rest expect there to be no change; only a few think restrictions will be tightened.

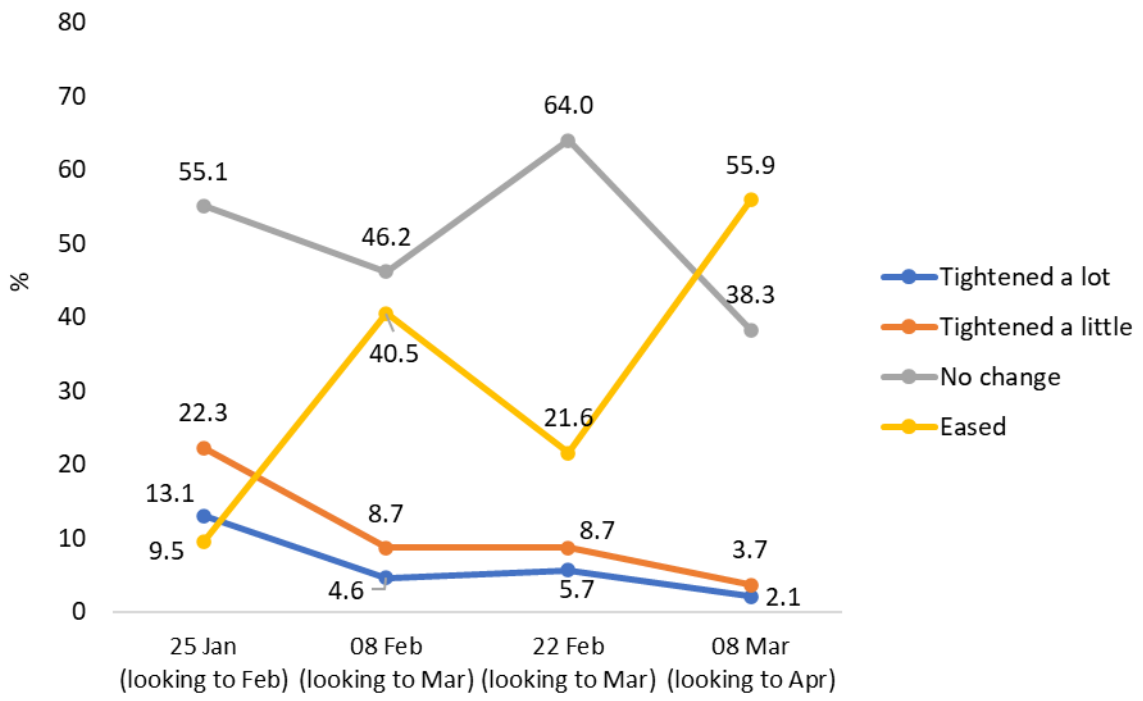

Figure 8. Short-term expectations (SAM). In each round, participants are asked about their expectations for restrictions in the following month.

Even if Level 5 restrictions are lifted, CSO data from February recorded that nearly two-thirds of people expect that they will be re-imposed again before the end of the year. SAM data reveal that most people think that restrictions will last another 9-12 months, with a large proportion expecting it to be between December 2021 and November 2022 before life returns to normal (Figure 9). Less than 1 in 10 believe restrictions will be fully lifted in the next 3 months.

The CSO data also record a large shift in expectations for international travel. In November 2020, 1 in 2 believed that their next international flight would be in 2021, but by February 2021 that had dropped to just 1 in 6. Most people now think that their next international flight will not take place until 2022.

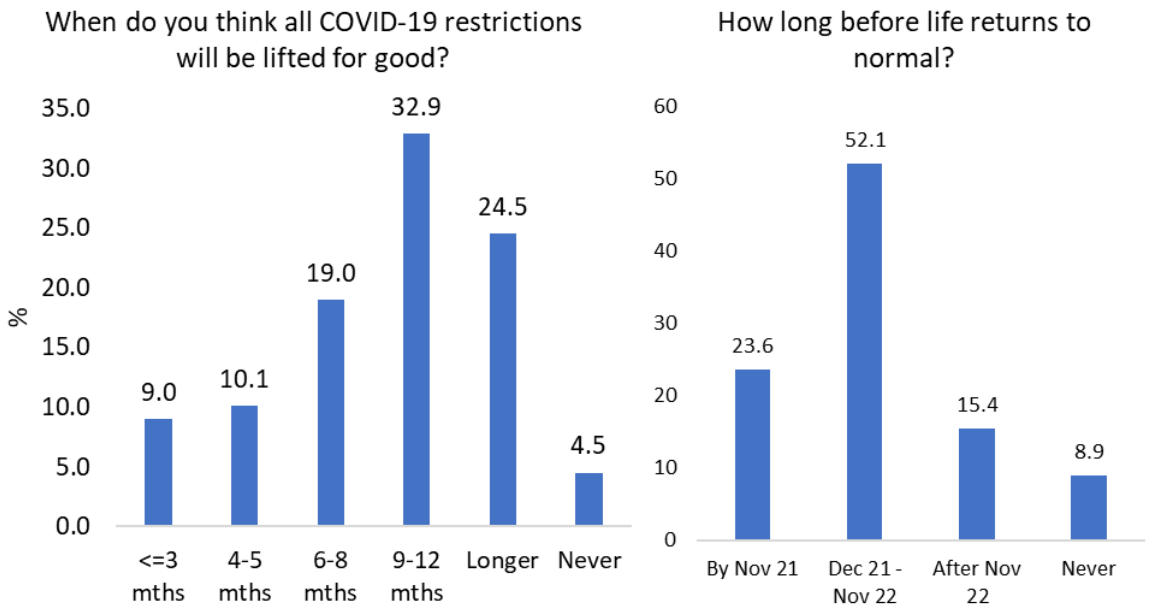

Figure 9. Expectations for lifting restrictions and life returning to normal (SAM).

7. What is the public's opinion on re-opening?

Public opinion about the level of restrictions and whether Ireland is opening at the right pace is mixed and is not straightforward to measure, as it depends on how the question is asked. Figure 10 plots a range of responses from ATS.

Throughout the pandemic, one average, the public has wanted a more cautious approach to controlling the virus, but during the current protracted period of Level 5 restrictions that picture has altered. The top left panel of Figure 10 shows that the most common response (37%) to a direct question is that Ireland is trying to return to normal at about the right pace. Since the middle of 2020 and into January 2021, substantially more people believed that Ireland was trying to go to fast than too slow. This gap has now narrowed and even marginally reversed: combing the categories, 34% now believe Ireland is opening too slowly versus 29% too quickly. The top right panel of Figure 10 confirms that the proportion wanting more restrictions has simultaneously fallen, although data collected in late March shows a slight increase as case numbers have begun to edge up again, from 32% on 15 March to 37% on 22 March.

During the long period of Level 5 restrictions, while the proportion of the population who believe that the Government's response is too extreme has grown, especially following the extension of Level 5 announced in February, it remains a fairly small minority. As of 22 March, the bottom left panel of Figure 10 shows this is just 1-in-5, versus 4-in-5 who believe the Government's response is either appropriate or insufficient, with an even split between them. A question specific to social distancing measures reveals that most people support the current measures and, while the gap has narrowed, a larger proportion think they are too weak than too strong.

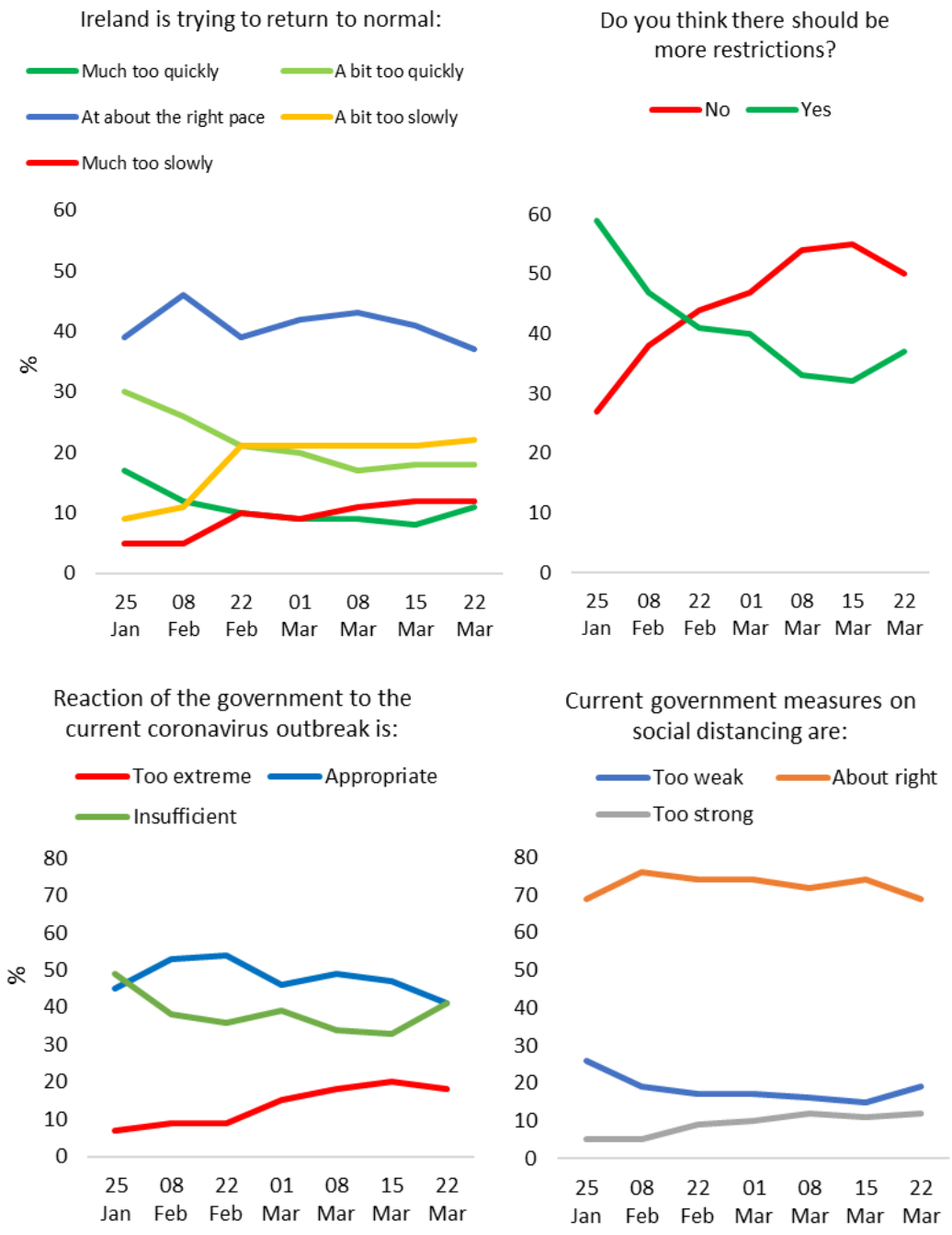

Figure 10. Opinions on the Government response (ATS).

8. Do the public want the Covid-19 vaccine?

Multiple data sources suggest a high level of Covid-19 vaccine acceptance. Because survey questions differ slightly in wording and available response categories it is not straightforward to compare across different studies. Figure 11 reports data from three sperate studies: the ATS on March 22nd, SAM on March 8th, CSO, February 2021. (Differences in questions mean that this comparison should not be used to infer anything about trends, which are considered below; it aims only to inform on absolute levels). We have created 3 categories to harmonise: the unsure/probably/don't know

category is for those who express any doubt about whether they will take the vaccine, even those who say they probably will. Across all data sources only around 5% of people say they do not want to take the COVID-19 vaccine. An important point to note is that there is still a significant proportion who have not completely made up their mind.

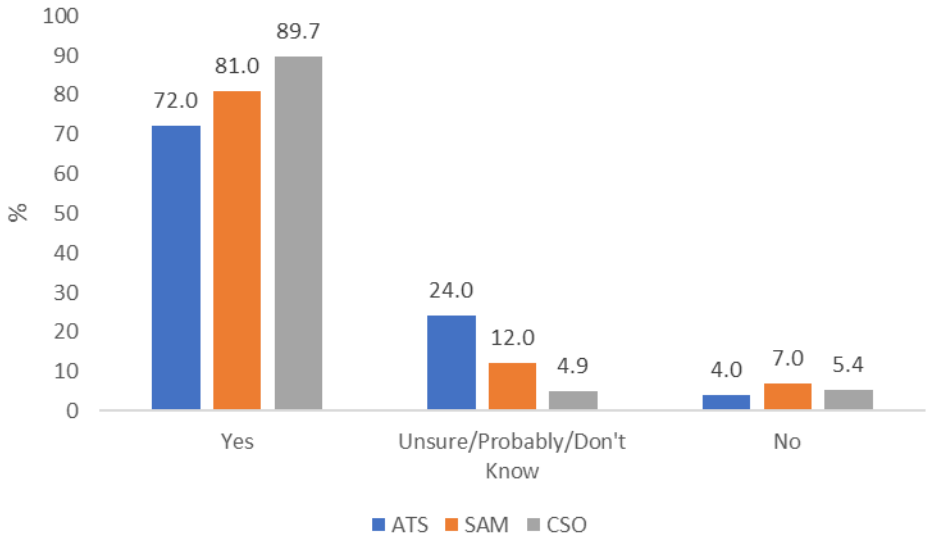

Figure 11. Vaccine acceptance levels from three separate studies (ATS, SAM, CSO).

Figure 12 plots trends over recent weeks. While the numbers intending to accept the vaccine have only varied slightly since January and survey data are understandably noisy, there is a discernible upward trend in willingness to take the vaccine that is a continuation of the pattern from late 2020. However, there was a small decrease in the percentage reporting that they would definitely take the vaccine on March 15th (from 72% to 67%), following news about the temporary halting of the AstraZeneca vaccine. The figure recovered immediately the following week. Some caution is required here, as fluctuations almost as large have been seen at previous points, but the implication may be that ongoing news stories about vaccine safety are potentially still influential in Ireland's vaccination programme.

The most common reason for not getting the COVID-19 vaccine are concerns about possible side effects. SAM data shows that those who follow the latest news about COVID-19 in Ireland (e.g. daily cases), are more likely to want the COVID-19 vaccine. CSO data from February also found that, in February, almost 1 in 2 of those who want to take the vaccine reported being very worried about having a long wait before getting vaccinated.

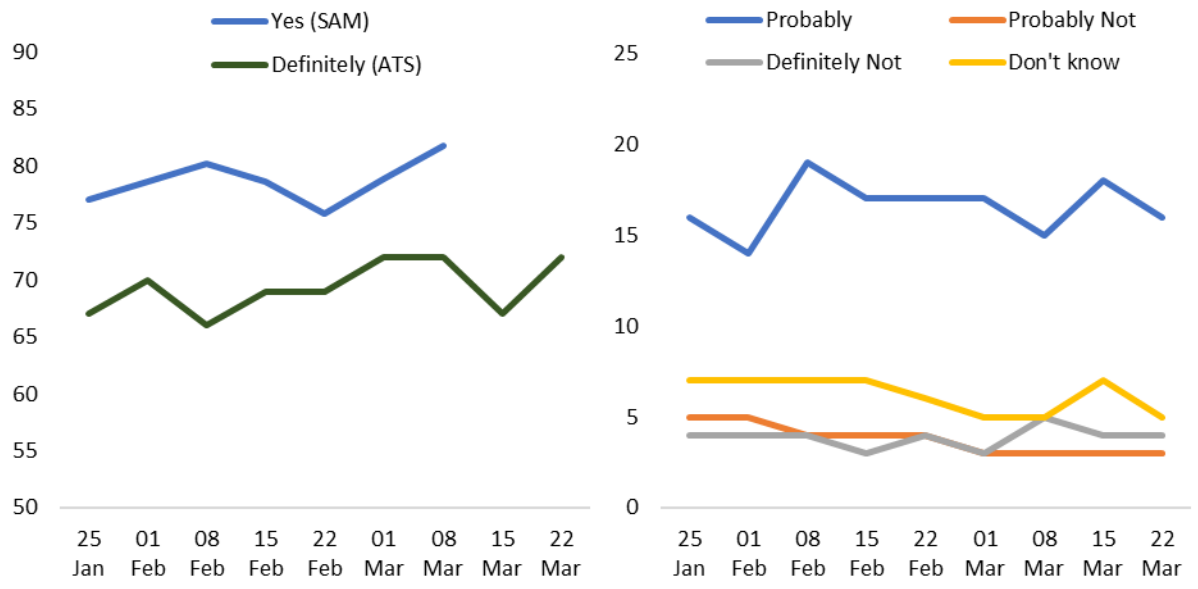

Figure 12. Intention to take the COVID-19 vaccine over time. (Note the different scales on the vertical axes of the two charts)

Discussion

The organisation of this paper into sections based on research questions is intended to allow readers to look directly at a concise version of the latest relevant evidence. Given this, the main findings will not be summarised again here in the Discussion. Rather, we use this space to make some important points that apply across different sections.

Firstly, there is a danger when looking at population trends to view changes in proportions and averages as indications of "where the public is at". In the context of the behavioural response to Covid-19, this is a mistake. Most of the key variables that we discuss in the body of this paper are highly skewed, with many responses at extremes, e.g. the high proportion of people not meeting up with anyone from other households, the high proportion engaging in social visits, the large majority that value preventing the spread of the virus over the burden of restrictions, etc. Most of the changes that we report are due to minorities of individuals changing their behaviour, while the majority continue to persevere under Level 5 restrictions as before.

Secondly, even though the increases in social activity and declines in compliance are small in proportional terms, they translate into substantive changes in the risk of transmission. For instance, while it is not possible to be precise, given the accuracy of sample measures of small proportions, the increase in home visits that we report here probably translates into more than 150,000 additional home visits in Ireland every day. It is very likely that this behaviour change is linked to the faltering in the downward trend of case numbers in recent weeks, after the long decline from mid-January. Some of this change may not yet have appeared in the case numbers. If and when some restrictions are lifted in April, efforts to communicate the negative impact of home visits may be vital.

Thirdly, it is important to distinguish how people feel from how they behave. The behavioural data show that, on average, people are tired of restrictions and are experiencing low wellbeing, but they also show that these are not the main drivers of behaviour. Continued recognition of and support for the sacrifices that the majority of people are making is likely to help people to sustain their behaviour.

Fourthly, there remain systematic misperceptions among the public and within public debate. Generally, people believe that others are more active than they in fact are. Similarly, despite the widely reported difficulties associated with the extension of Level 5, there remains broad support for the more cautious approach to containing the virus undertaken since the surge following Christmas. Making efforts to correct such misperceptions may be beneficial.

Finally, we have reported previously on how the public has typically taken a long-term view of the pandemic and how long it is likely to have an impact on their lives. Given the optimism associated with the vaccine, providing timeframes for vaccination where possible and emphasising progress in the vaccine programme are likely to be important in helping people to cope with the ongoing hit to their wellbeing.

Appendix – Data Sources

Amárach Tracking Survey (ATS)

Throughout the pandemic, Amárach Research have conducted a weekly Public Opinion Tracking Survey for the Department of Health. The sample is approximately 1,600 each week. A quota-based system is used to match the socio-demographic characteristics of the sample to the national adult population based on Census figures. Data are then weighted to further improve the match. Responses are collected from Amárach's SmartPoll panel, which is an online panel of 6,000 adults throughout Ireland, regularly refreshed through recruitment. Panellists receive text messages and email invitations to complete surveys via phone, tablet, laptop or desktop computer. Results are published at https://www.gov.ie/en/collection/6b4401-view-the-amarach-public-opinion-survey/.

Social Activity Measure (SAM)

The Social Activity Measure (SAM) is a behavioural study that records the public response to the risk of Covid-19 infection over time. The study aims to offer insight into where and how risks of Covid-19 transmission arise. The research was designed by the BRU in consultation with the Department of the Taoiseach, which funds the study. Every two weeks, a nationally representative sample of 1,000 people aged 18 and over is recruited from one of two pre-existing online panels. The data recorded is completely anonymous. Respondents are asked neutral, factual questions about activities outside the home, followed by a series of questions that probes psychological factors associated with behaviour, attitudes and experiences during the pandemic. Results are published at https://www.gov.ie/en/collection/a7ee4-see-the-results-of-the-social-activity-measure-behavioural-study/.

Central Statistics Office (CSO)

The Central Statistics Office (CSO) have undertaken a series of surveys to measure the impact of COVID-19 on Irish society. The data referenced in this report were taken from the Social Impact of COVID-19 Survey November 2020 and February 2021. A nationally representative sample of people aged 18 and over living in private households in Ireland took part in the Labour Force Survey in 2019. A sub-sample of 1,585 people who had taken part in that survey and who had provided an email address answered questions for the COVID-19 survey in November 2020, and a similar sample of 1,621 in February 2021. Results are published at https://www.cso.ie/en/releasesandpublications/ep/p-covid19/covid-19informationhub/.