POST-COVID TRAVEL BEHAVIOUR IS AS THE 'OLD-NORMAL'

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ABSTRACT

From early 2020, the COVID-19 pandemic has changed our lives and travel behaviour drastically, especially during the Lockdown period. Many people also expected that it would change our future travel behaviour post-COVID, as it was called: the 'New-Normal'.

A longitudinal survey was conducted to investigate travel behaviour pre-COVID and during several phases of Lockdown, as well as travel behaviour expectations post-COVID. Although this survey was not representative of the South African population, there were interesting observations made about travel behaviour of the respondents. During the Lockdown period, the survey results showed a great reduction in work-related and private trips as compared to the pre-COVID levels. As the Lockdown restrictions eased, travel behaviour recovered greatly, and presently the situation is almost back to 'Old-Normal' levels.

This is also evident from the traffic data in South Africa (and worldwide for that matter), where actual traffic volumes show an almost complete recovery of private car and public transport use, although train passenger volumes are still below the pre-COVID levels, but for different reasons.

Most interestingly are the stated expectations of future travel behaviour in the 'New-Normal'. During the first phases of COVID-19, the respondents expected future travel to be at a 60% level of their pre-COVID travels. However, this expectation shifted overtime to almost similar levels as pre-COVID (80-100%). Apparently, we are moving back to 'Old-Normal' behaviour, despite the intentions we had. This shows that 'stated preference' will not always reflect 'revealed' future behaviour.

1. INTRODUCTION

1.1 Background

From early 2020, the COVID-19 pandemic drastically changed our lives and travel behaviour, especially during the Lockdown period. With working-from-home facilities, and possibly some sustainability awareness, we expected that it would also change our future travel behaviour post-COVID, to what was called: the 'New-Normal'.

To investigate travel behaviour pre-COVID and during several phases of Lockdown, as well as expectations for travel behaviour post-COVID, a longitudinal survey was conducted amongst a selected group of respondents, in the years 2020, 2021, 2022 and 2023.

The survey started as a topic in the author's team's weekly social gatherings held online. In the first months of Lockdown, the staff were trying to find their feet, and with this survey

the author wanted to show that there might be light at the end of the tunnel. The survey was repeated annually, and some interesting observations were made.

At the same time, the author investigated several travel developments in South Africa and elsewhere in the world, to ascertain what changes in public transport travel behaviour could be expected in the short-term during Lockdown, and in the long-term after Lockdown when life would go back to normal.

Now that life is back to normal, the actual 'New-Normal' for travel behaviour is being investigated.

1.2 Objective of This Paper

This paper summarises the results of the travel survey conducted during and after the COVID-19 Lockdown, supported by literature review and traffic data from South Africa. The objective of this paper is to analyse what the 'New-Normal' travel situation would be in relation to the 'Old-Normal' travel behaviour.

In addition, the respondents' travel expectations ('stated preference') for the post-COVID situation is compared overtime and compared with the actual travel situation currently ('revealed preference').

Section 2 gives the set-up of the travel survey, with the results presented in section 3. In section 4, actual traffic data is presented for the situation in South Africa, as well as some worldwide experiences. Section 5 concludes with a summary on the New-Normal and recommendations.

2. COVID-19 TRAVEL SURVEY

During and after the COVID-19 Lockdown, a series of travel surveys were conducted amongst the author's direct colleagues, being part of an international consulting company and working in the urban planning and transport engineering sector advising private and government institutions.

Approximately 20 staff in the national team and local office were approached to complete the survey, and a 100% response was received. The survey was repeated every year around the same month. In year 3 and 4, only 2/3 of the original team were available to participate with some having resigned and others relocated, and the response rate was at about 80% with a total of 10 staff responding to the survey.

Limitations: due to the small sample size, it can be concluded that this survey is not representative for the larger South African population, and also not for the company as a whole. However, there were interesting observations made about the travel behaviour during and after Lockdown.

2.1 Longitudinal Survey

The first survey in April/May 2020 took place 1½ month after the introduction of the Lockdown restrictions (at level 5 and 4). Respondents were confined to working from home, not being allowed to travel to the office, and not even allowed to make private trips other than for groceries or medical reasons. Respondents were asked about their travel behaviour pre-COVID, looking back at 2019, to set a baseline for the Old-Normal travel

situation. Secondly, respondents were asked on their expected future travel behaviour, after the Lockdown restrictions would be lifted: the New-Normal.

A year later, society was still in Lockdown, although with fewer restrictions (at level 1, in between two COVID-19 waves with level 3). An occasional trip to the office was allowed, but only after following strict medical screening, and more social trips were allowed. The survey was repeated in April 2021 to investigate the travel behaviour at that time, and again how the respondents expected their behaviour would be once the Lockdown was over.

Another year later, by April 2022 all Lockdown restrictions had been lifted, although a new minor COVID-19 wave was looming, but by this time most respondents had been vaccinated. In May 2022, the survey was repeated to investigate the actual travel behaviour at that time, and expectations regarding future travel.

Since then, all restrictions remained lifted and there were no new waves of COVID-19 infections in South Africa with life returning to normal. The survey was repeated in March 2023.

As the same group of people were surveyed, it shows both a longitudinal development of the actual travel situation (pre, during, and post COVID-19 Lockdown), and an evolving stated expectation of the respondents' future travel behaviour.

2.2 Survey Questions

All surveys had a similar set of questions relating to: 1/ the respondents' actual travel situation, and 2/ their expectation on future travel behaviour after the COVID-19 situation.

The first set of questions were on their commute to work:

- The mode choice for commuting to work: car, car passenger or lift club, metered taxi or e-hailing, train, bus or minibus-taxi, cycling, walking.
- How often the respondents work from home: never, hardly, 1 day a week, 2-3 days a week, 4-5 days a week.

The next set of questions were on business trips:

- How often business trips were made by plane (domestic or international): never, few times a year, once a month, 2-4 times a month, more often.
- How often business trips were made by car (locally): never, few times a year, once a month, 2-4 times a month, more often.

The last set of questions were on the respondents' private travel behaviour:

- How often private social or holidays trips were made by plane: never, 1-2 times a year, 3-5 times a year, 6-10 times a year, more often.
- How often private trips were made by car: never, few times a year, few times a month, few times a week, almost daily.

The survey was performed online using a Microsoft Forms application, where selected respondents were sent an email with a link to the survey, and an additional reminder email

a week later. The results were gathered anonymously and further analysed with the use of Microsoft Excel.

2.3 Survey Result Presentation

The results of each survey question were weight averaged, and compared to the base situation of actual travel behaviour pre-COVID as index 100%. As the survey has a small sample and is not representative, the results are then rounded.

To compare the different travel purposes, each travel impact is 'translated' into its CO_2 footprint, using high-level assumptions and parameters:

- One commute trip = 2x 20 km, a business car trip = 2x 100 km, a flight = 2x 1000 km.
- The CO_2 footprint for a flight = 0.4 ton CO_2 per 1000 km, car = 0.2, public transport = 0.05, walking or cycling = 0 ton per 1000 km.

3. SURVEY RESULTS

In the sub-sections below, the results of the survey are presented, for commute to work (section 3.1, modal split and working from home), business trips (section 3.2, business flights and car use) and private trips (section 3.3, private flights and car use).

The results presented in this section depict the figures' graphs as a timeline (left to right) of actual travel behaviour overtime (the diagonal graphs in the figures), as well as the stated expected future behaviour investigated at the time of that survey (the graphs in the last column in the figures). The numbers in each of the pie charts indicate the percentage level compared to the base case (2019 as 100%), for better comparison.

3.1 Commute Trips

3.1.1 Modal Split Commute to Work

Figure 1 shows that the respondents mostly use the car to commute to work: 90% as a driver, 10% as a passenger or as part of a lift club; and this has not changed over time. At the beginning of Lockdown, few respondents intended to make use of public transport or cycle to work, but those intentions faded over time.

3.1.2 Working from Home

As per Figure 2, before the COVID-19 Lockdown, respondents were mostly working in the office, with 20% of them occasionally working from home. During the first months of Lockdown, they all worked from home full time, but the expectation was that after Lockdown they would return to the office for part of the time.

A year later, 90% of respondents still worked from home almost full time, with the remaining 10% for half of the time. The expectation for future behaviour changed to working from home more, most likely due to the respondents now having adjusted to it and the facilities proved to be good.

However, once most restrictions had been lifted, office management requested the staff to come back to the office full time, as face-to-face interactions would improve the quality of work. As a result, 60% returned to working from the office almost full time, while 20% continued working from home for 1 day a week, and the other 20% working from home

almost full time. The expectation was that all would eventually return to working from the office, with 30% working from home occasionally.

At present, 90% of the respondents are back working in the office, with some flexibility to work from home, but similar to the flexibility available pre-COVID.

Figure 1: Modal split commute to work

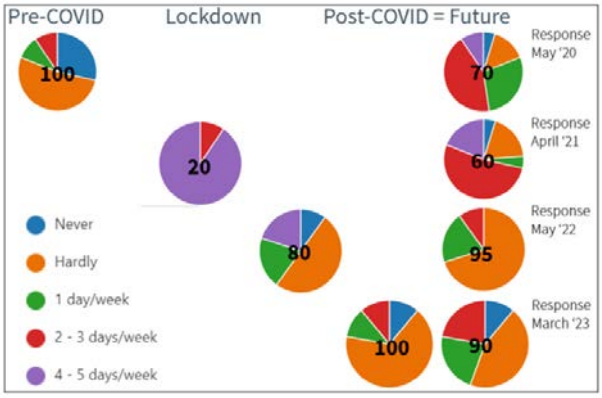

Figure 2: Working from home

The numbers in the pie charts indicate the percentage level compared to the base case (2019 as 100%).

The conclusion drawn from this is that the total commute to work trips dropped during Lockdown, but recovered to a level higher than respondents previously expected it to be in the New-Normal situation. Currently, the respondents' commute to work situation is back to the Old-Normal.

3.2 Business Trips

Pre-COVID, 30% of the respondents were frequent flyers (Figure 3) and 70% were frequent drivers (Figure 4) to meet clients, business partners and colleagues in other offices. During Lockdown, this fell away completely to a mere 5% of previous behaviour. Clients and business partners were also working from home and all contact was via tele/video meetings. These facilities proved to be good, and the respondents' intention was that in the future many such meetings would still be held online, with business flights and car trips reducing to a 40% level or less.

However, once most restrictions were lifted, business travel behaviour picked up to a level higher than previously expected for the future. Currently, the respondents fly even more than they did during the pre-COVID situation, with car travel lagging far behind (but this could also be a reflection of the team's current project portfolio).

Even although few respondents might still be somewhat reluctant to meet in person, and with tele/video facilities proving to be a satisfactory alternative, most prefer to meet in person to talk business. It could even be argued that people now have more interactions, as an intermediate meeting can now be done online and does not necessarily need to wait for the next official meeting requiring a flight or drive.

The numbers in the pie charts below indicate the percentage level compared to the base case (2019 as 100%).

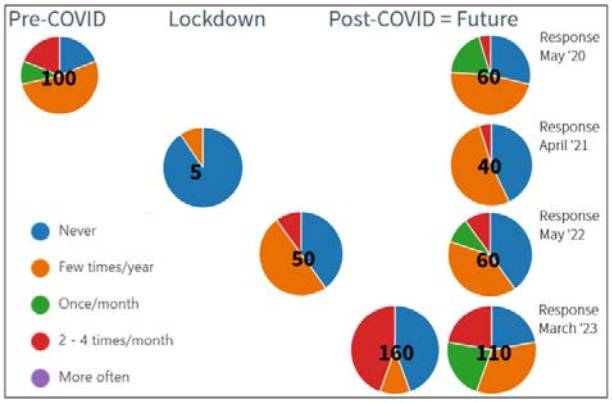

Figure 3: Business air travel

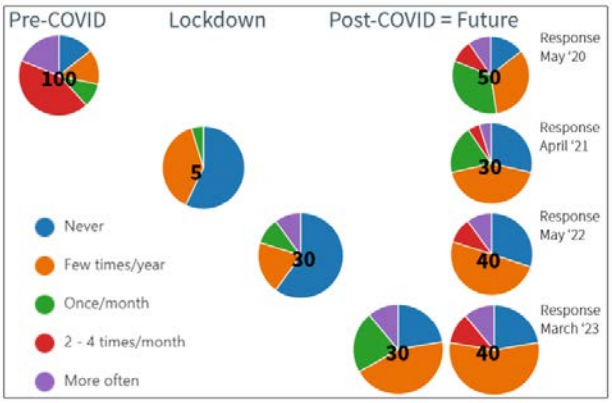

Figure 4: Business car travel

The conclusion drawn is that on average, business travel is resembling the Old-Normal situation However, this could also be impacted by the current location of the respondent's projects and the subsequent need to travel to project meetings.

3.3 Private Trips

3.3.1 Private Air Travel

Figure 5 shows that during Lockdown, there was a reduction in private flights for holidays and social visits (at a 20% level), although this reduction was not as distinct as with flights for business purposes. The expectation was that post-COVID the respondents would fly less (at 60-70% of pre-COVID levels). International air travel restrictions were only completely lifted in 2022, which would have held back international holiday appetite. But now, an increase in the number of private flights is almost on par with previous levels, with a future expectation still somewhat below pre-COVID levels.

3.3.2 Private Car Travel

Considering private car use (Figure 6), the Old-Normal travel behaviour was already back, even before all Lockdown restrictions were lifted. However, the respondents still have some intentions to use the car less.

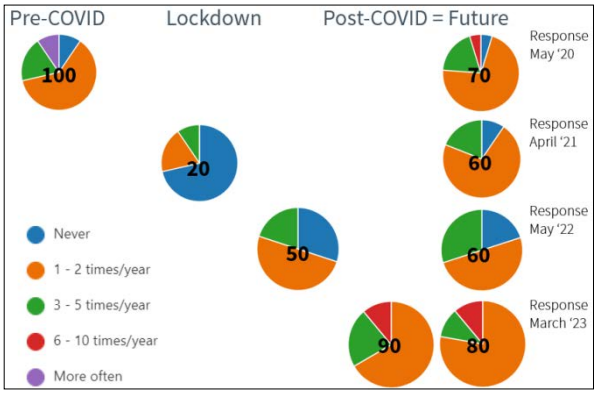

Figure 5: Private air travel

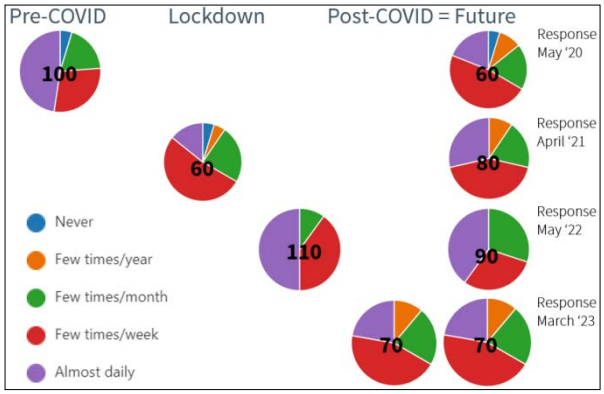

Figure 6: Private car travel

The numbers in the pie charts indicate the percentage level compared to the base case (2019 as 100%).

The conclusion is that private travel behavior is almost back to the Old-Normal.

3.4 Impact on CO_2 Footprint

Many of us had the hope that the COVID-19 Crisis would also spark a change in our travel behavior and with that, on the impact on the environment, of which the CO_2 footprint is one metric (although 'transport' is generally responsible for a mere quarter of the world's total CO_2 footprint).

In the beginning of the Lockdown period, the respondents indeed traveled much less (the total being at a 20% level), and their intentions were to almost halve all travel, mostly for work- and business-related trips at 40%; less so for private trips at 70% of pre-COVID levels. However, the stark reality is that the old behavior is creeping back in, with no change in commuting behavior, a varied change for business travel, and with little to no change in private travel.

The fact that current business flights are at a much higher level than previous, has an adverse impact on the CO_2 footprint, despite the fact that other trip purposes are somewhat lower. The total CO_2 footprint of the respondents is currently 20% higher than pre-COVID.

It is important to note that the CO_2 footprint is very much impacted by flights, as 1 single flight would equal approximately 50 daily commute trips, or working from home 1 day a week for a full year.

4. TRAFFIC DATA

Although the survey was far from representative of the entire population, the conclusions are in line with other studies and actual traffic data. This section presents mobility data from South Africa (Presidency SA, 2021). Additionally, worldwide data was analysed comparatively (Our World in data, 2022), and with data for several European countries in more detail (Netherlands Ministerie, 2022), comparing the transport situation during and after Lockdown with the pre-COVID situation in 2019.

4.1 Car Travel

The traffic volumes on the South African roads dropped to a 20-40% level during April 2020, compared to the same month in 2019, but were already back at 85-100% of the pre-COVID levels at the end of 2020 (Presidency SA, 2021).

Our World in Data (2022) has compared actual Google travel data with an average base of the first 5 weeks of 2020 (pre-COVID as 100%). For the South African situation, that base level could be influenced by the annual Christmas holiday period, which generally extends into mid-January, hence the average base level itself might have been too low. Still, for all travel purposes one can see a deep dip in travel at the start of COVID-19 Lockdown (April 2020) to an average 30% level; and all travel purposes recovering to an equal level of 120-140% (this apparent growth of +30% on average might be the impact of the lower January base level). The fact that those recoveries are all aligned would indicate that life is back to the Old-Normal.

Per travel purpose:	Apr 2020	Oct 2022, compared to pre-COVID Jan 2020
• Workplace	30%	120%
• Grocery, pharmacy	50%	140%
• Retail, Recreation	25%	120%
• Public Transport	20%	130%

However, peak congestion levels are still somewhat lower. The Johannesburg TomTom Index pre-COVID was at a 70% level in commuter peaks, indicating that a car trip would take 70% longer in the commuter peaks compared to a free-flow situation. During Lockdown, the TomTom Index in the peak hours was below 30%. In 2022, this Index increased to 50-60% (TomTom, 2023).

Also, in selected European countries, traffic is back to pre-COVID levels (95-105%), with peak congestion somewhat lower around 80% (Netherlands Ministerie, 2022).

This could indicate that there might be a slight shift in the detail of travel behaviour by avoiding the congested peaks, as some workers are now somewhat more flexible, starting to work from home and travel to the office after the peak congestion, or working from home completely and making other private trips during the day.

4.2 Public Transport travel

Nationally, public transport (PT) levels are almost back to normal, with minibus-taxi and bus ridership having recovered to 80-100%. Train ridership, however, is still very low, for other reasons (Presidency SA, 2021). Most of the South African PT market consists of ‘Captive’ users, who do not have a private car available, so there is no alternative mode available for their transport needs. Additionally, their jobs generally have minimal opportunity to work from home. Therefore, it can be explained that Captives are back to the Old Normal behaviour.

On the other side, Gautrain ridership (the ‘Choice User’ market) is roughly at half of the pre-COVID levels.

Worldwide, PT and train ridership is between 60 and 100% of pre-COVID levels. PT recovery could be lagging (compared to car recovery) as the traffic congestion situation is still somewhat lower than pre-COVID, hence for many Choice Users the private car alternative is somewhat favourable. Also, there was a subjective health concern amongst PT users of getting infected in crowded PT vehicles and stations, although the actual infection clusters related to PT were a mere 1% (Presidency SA, 2021). The expectation is that as soon as congestion increases and health concerns fade, PT ridership will be back to previous levels.

4.3 Air Travel

A relatively small numerical share of travel is by air, but these trips have a large impact on the CO_2 footprint. ACSA (2022) data indicated a decline during COVID-19 Lockdown to a 0 to 30% level. Currently air travel is around 75% of pre-COVID levels, with domestic travel having recovered better than international. IATA (2022) expects air traffic to recover to previous levels in the year 2024, with the recovery within the African air markets a year later, and then increasing as per previous trends.

4.4 CO_2 Impact

At the beginning of Lockdown, the worldwide CO_2 emissions were at 90% of the pre-COVID levels, with the transportation share even lower at 70%. Currently however, the total global CO_2 emissions are at a 100-105% level, with transportation at 90-100% (Netherlands Ministerie, 2022). Despite all good intentions, the world does not seem to be able to reduce CO_2 emissions.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 The New-Normal is Almost Equal to the Old-Normal

Commuting to work is back to normal. Most of the respondents are back in the office to have face-to-face interactions with colleagues. However, work is flexible and occasionally one would work a day from home; but this already was the case pre-COVID. Also, the mode choice for commuting has hardly changed, which is 90% by car and 10% as a car passenger or as part of a lift club. The fact that the respondents do not use public transport, although the team advises clients to plan for public transport, is worth a separate survey.

Interestingly, business flights have increased to 160%, while business car trips are still at a 40% level compared to pre-COVID. This is probably attributed to the team's current project portfolio, which are in different geographic locations, as compared to the 2019 situation. The fact that respondents travel when needed, indicates that regular face-to-face contact with clients and business partners is very beneficial, with additional discussions held via tele/video meetings. As business flights have a great impact on the CO_2 footprint, this has also a great impact on the environment.

Our private trips are almost back to normal. Apparently, social contacts with family and friends cannot easily be replaced by tele/video meetings, nor can holidays. The private flights are still lagging with regards to full recovery, as until recently there were still many restrictions in place.

In total, the COVID-19 situation saw a deep dip in the previous growth trend for travel, but levels are already back, or will soon be back, and the growth trend will continue. The New-Normal seems to be merely a delay of the Old-Normal.

Apparently, humans are a social species and need interaction with others, either at the workplace, business, or private. Even though few might still be somewhat reluctant to meet in person, and tele/video facilities prove to be a satisfactory alternative for work meetings, most prefer to meet in person to talk business. Education proved to have a negative impact on the learning abilities of students, although online learning added some value for others. Holidays and social gatherings cannot be replaced by online activities!

Similarly, humans seem to be conservative, and change in behaviour is not happening easily, not even after such a big disruption as the COVID-19 Crisis.

5.2 Stated Preference Does Not Always Forecast Future Revealed Behaviour

It is interesting to see how the respondents expected to behave in the unknown future. After the first months in COVID-19 Lockdown, the respondents expected long-lasting

impact on their future travel behaviour, both commute (at 70%), business (50-60%) and private (60-70% of pre-COVID levels).

After a year, working from home became familiar, with good facilities for tele/video meetings. Because of this new way of working, the respondents expected even more impact on future travel behaviour: commute (at 60%) and business (30-40%), although no further change for private travel (60-80% of pre-COVID levels).

However, once restrictions were eased, the expectations of future travel behaviour also eased: commute (at 90-100%), business (40-60%) and private (60-90%). And in many cases, the respondents' actual travel behaviour already exceeded the previous stated future expectations.

And now that all restrictions have been lifted, the respondents expect their future behaviour to be fairly similar to the pre-COVID situation.

This shows that 'stated preference' is not a good indicator for future revealed behaviour.

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