

# Non-Response Rates in the Quarterly Labour Force Survey during COVID-19

## A Brief Commentary

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### I BACKGROUND

The Quarterly Labour Force Survey (QLFS) is a cross-sectional, nationally-representative, sample-based household survey, that has been conducted by Statistics South Africa (StatsSA) every quarter since 2008. It is the primary source of detailed, reliable information on the state of the country's labour market.

The QLFS data is well-regarded internationally and in general compares favourably to labour market surveys in advanced economies.<sup>1</sup> This note is focused on documenting the declining response rates in the QLFS during 2020 and 2021, and noting how this affects the precision of the survey estimates, including the derivation of national labour market estimates.

Prior to the pandemic, the QLFS sample included nearly 70 000 individuals, living in approximately 30 000 dwelling units around the country, with data collected by enumerators via face-to-face interviews. However, in late March 2020, lockdown restrictions forced StatsSA to suspend all face-to-face work. Data collection procedures thus changed

from relying on in-person interviews to using 'Computer-Assisted Telephone Interviewing' (CATI), where respondents answered survey questions over the phone.

At the same time, labour market dynamics altered dramatically amidst the pandemic, as just over 2 million people lost their jobs. In addition, the announcement of the first national lockdown in South Africa prompted substantial internal migration in the days before it came into force, significantly changing household composition (Posel & Casale, 2020).

This rapid, unplanned switch to CATI had two major consequences for the QLFS sample:

- Firstly, StatsSA could only interview households for which they already had contact numbers. The result was that in 2020Q2 (the first CATI QLFS) the *initial sampling frame was smaller than before, primarily because not all dwelling units from the previous quarter were contactable*.<sup>2</sup>

<sup>1</sup>Over the last seven years, however, budget cuts and an increasing lack of skilled personnel have begun to impact on the quality of the QLFS data. See: <http://www.statssa.gov.za/?p=12992>; <https://pmg.org.za/committee-meeting/32609/>; Kerr and Wittenberg (2020).

<sup>2</sup>Additionally, amongst those who did have contact numbers, some contact numbers were found to be invalid, and some households indicated that they were no longer residing at the dwelling units they had occupied during 2020Q1.



- Secondly, *among contactable households survey response rates decreased sharply, which significantly reduced the size of the QLFS sample over time.* This was not necessarily unexpected as it is well-documented that response rates from telephonic surveys tend to be much lower than in-person surveys (Szolnoki & Hoffmann, 2013; Keeter, 2015). A further point to note in this regard is that unlike in previous periods where new households are rotated into the QLFS each quarter<sup>3</sup>, the sampling frame for the CATI survey did not change. Put differently, the same

households were re-surveyed every quarter, which may have led to survey fatigue among respondents.

As a result of these changes to the QLFS the size of the sample has plummeted – meaning that the number of individuals upon which the country’s labour market estimates rely has fallen considerably, driven primarily by very low response rates. This negatively affects the accuracy of the survey estimates, and there is also a strong likelihood that it has introduced new forms of bias into the survey that ultimately diminish its reliability.

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## 2 Declining Response Rates in the QLFS: A Brief Discussion

To summarise the changes described above we review the average response rates for the QLFS, and the resultant sample size, over the 2020Q1-2021Q4 period, in Table 1.<sup>4</sup>

In addition, as an example of a key labour market statistic from the data, we calculate the official quarterly unemployment rate, along with the confidence interval and standard error in each case – where both are statistical measures of how precisely the estimated unemployment rate from the sample can be taken to represent the true population unemployment rate.

The standard error indicates how certain we can be that the unemployment estimate is accurate, where a larger error represents greater uncertainty. Similarly, the confidence interval provides a lower and upper bound around our estimate and we expect the true unemployment rate to be within this range – where a larger range equates to less confidence that the estimated value is in fact correct.

In 2020Q1, 66 657 individuals were included in the QLFS sample, a number marginally lower than in previous quarters and most likely due to the lockdown that cut short in-person interviews at the end of March 2020.

However, by the end of 2021, only 39 073 people comprise the full QLFS sample – a decrease of 41% over the period. As the table shows, this is largely a result of plummeting response rates, which immediately fell from 88% in 2020Q1 to 57% the following quarter, and reached a low of 45% at the end of 2021.

It is worth noting that the average QLFS response rate prior to the pandemic has been comparable to those in more advanced economies, such as the United States’ Current Population Survey (CPS) – the country’s primary source of labour market statistics – which has varied between 80% and 90% over the last few years. By way of comparison, the CPS response rate declined to about 70% at the start of the pandemic – a much smaller decrease compared to the QLFS.

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<sup>3</sup> Usually, in each new quarter 25% of the QLFS sample consists of new dwelling units.

<sup>4</sup> The response rate indicates the percentage of individuals who answered the survey and are thus included in the final sample.

# Non-Response Rates in the Quarterly Labour Force Survey during COVID-19: A Brief Commentary

**Table 1: Changes to the QLFS Sample: 2020Q1-2021Q4**

Period	Response Rate (%)	Sample Size	Unemployment Rate	95% Confidence Interval	Standard Error
2020Q1	87.7	66 657	30.14	29.2-31.1	0.47
2020Q2	57.1	47 103	23.29	22.1-24.5	0.63
2020Q3	57.6	47 167	30.78	29.5-32.0	0.64
2020Q4	60.9	48 990	32.50	31.3-33.7	0.59
2021Q1	57.4	45 702	32.57	31.4-33.8	0.62
2021Q2	60.0	53 940	34.37	33.3-35.5	0.56
2021Q3	53.7	43 837	34.86	33.5-36.2	0.70
2021Q4	44.6	39 073	35.26	33.8-36.7	0.75

Source: StatsSA, QLFS (2020Q1-2021Q1), authors' own calculations.

Note: 2020Q2 is the first period based on a full CATI survey. Unemployment rate estimated using sample weights while accounting for the complex survey design, and is restricted to working-age population (15-64 years).

The declining response rate means that a rapidly rising proportion of those included in the QLFS sampling frame did not provide any information to StatsSA and they are thus left out of the final sample. A direct effect of this smaller sample is the increasing value of the standard error, and here this is shown for estimates of the national unemployment rate.

Put simply, over the period the calculated unemployment rate is becoming less precise. This is also demonstrated by the widening confidence intervals. For example, in 2021Q4 the unemployment rate is estimated at 35.26%, but in fact it could reliably be anywhere between 33.8% and 36.7% according to the confidence interval – more than one percentage point higher or lower than the estimated value. Indeed, over the period reviewed here the size of the confidence interval – the gap between the lower and upper bound – has grown by almost 70%.

To illustrate these changes graphically we plot two separate figures. Figure 1(a), shows the changing sample size and response rate over the 2020Q1-2021Q4 period, where the secular decline is clearly apparent. In Figure 1(b), we plot the unemployment rate, and the confidence interval is added to the

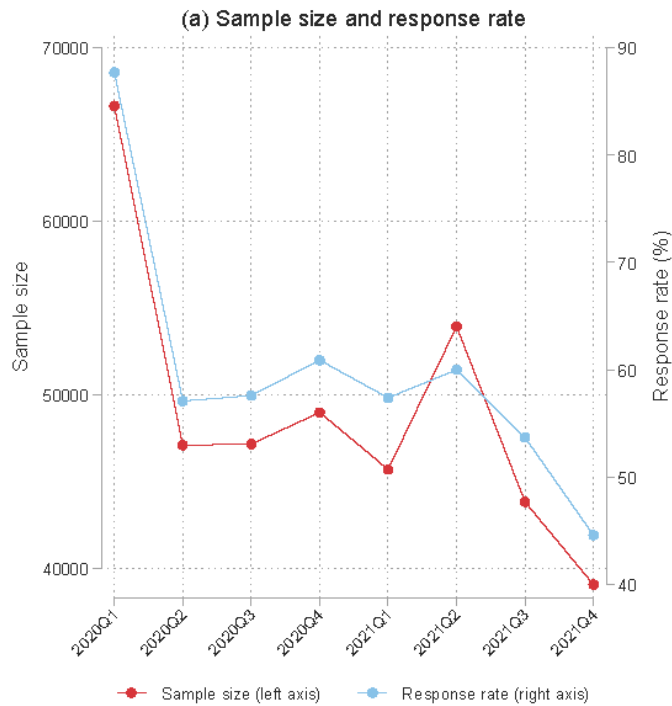
graph (the shaded area around the line), showing how precise the estimates are in each quarter. The gradual widening of the shaded band over time confirms that the level of statistical precision of the estimated unemployment rate is decreasing – a direct result of the trends observed in Figure 1(a).

A final issue to highlight in relation to the increased uncertainty around the estimates from the QLFS during the period under review is how this problem can be even worse for particular sub-national, or sub-group, analysis. The example we have used above – the unemployment rate – is calculated at the national level on the full QLFS sample. But for more disaggregated measures, such as provincial unemployment, estimates will necessarily rely on smaller provincial samples, and where provincial response rates are lower than the national average our estimates will be even less precise.

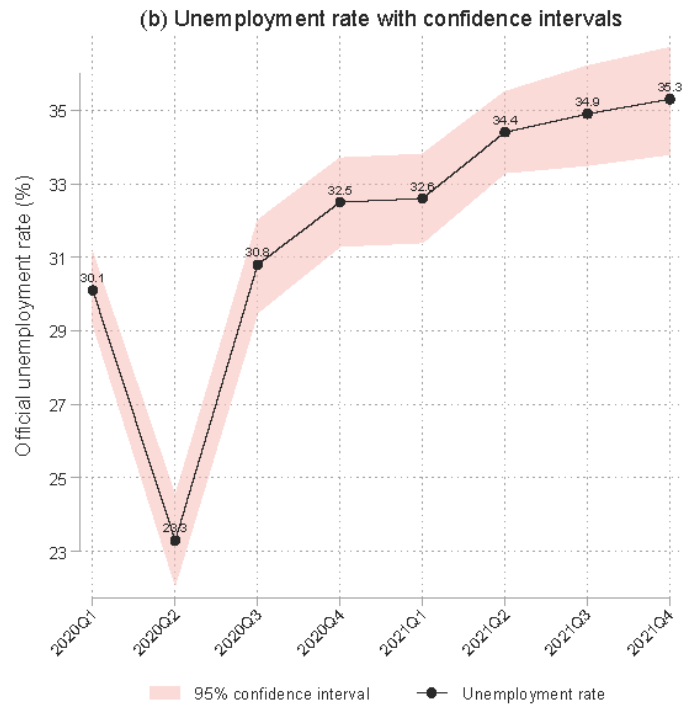
As reported in Table 1, the national response rate in 2021Q4 was 44.6%; however, provincial response rates vary considerably around this average. For example, in Gauteng the response rate in this same quarter was only 23.8%, roughly half the national average, while in the Western Cape it was also below average, at 39.1%. This suggests that labour market estimates for certain sub-groups are even less precise than the aggregate figures in Table 1 suggest. It is for this reason that StatsSA decided not to publish sub-provincial estimates in the latest QLFS release (2021Q4).

At some point, when response rates begin to drop too low, and confidence intervals on estimates become very wide, the credibility and veracity of the estimates will begin to decline. Indeed, it is already fair to say that serious questions can and should be asked about the reliability of the 2021Q4 figures, as the response rate has dropped to below 50% for the first time in the history of the QLFS series.

Figure 1. (a) Sample Size & Response Rates



(b) Unemployment Rate: 2020Q1-2021Q4



Source: StatsSA, QLFS (2020Q1-2021Q1), own calculations.

Note: Unemployment rate estimated using sample weights while accounting for the complex survey design, and is restricted to working-age population (15-64 years).

Overall then, falling response rates have led to considerably smaller sample sizes in the CATI QLFS relative to previous QLFS surveys, and although low response rates alone do not necessarily mean survey estimates are biased, they impact negatively on the precision (or ‘certainty’) of South Africa’s labour market statistics.<sup>5</sup> However, there are also several reasons to be concerned about how the various changes affect the reliability of the QLFS statistics:

- Firstly, it is likely that the sample of contactable, surveyed households included in the CATI QLFS will produce estimates that suffer from some selection bias. This is because the underlying characteristics of ‘telephone’ and ‘non-telephone’ households are likely to be quite different. For

example, pre-CATI QLFS data reveals that individuals in ‘non-telephone households’ are significantly more likely to be unemployed compared to those living in ‘telephone households’.

- Secondly, these same problems arise in relation to the very low response rates, where households and individuals who choose not to respond are likely to be different from those who do.

Both of these factors will introduce bias into the QLFS sample that is difficult to account for, and may result in a skewed labour market picture.

Ultimately, while StatsSA has taken steps to conduct post-survey adjustments such as

<sup>5</sup> To understand exactly how the high levels of non-response impact on the overall reliability of the QLFS requires more detail about the specific nature of non-response, as well as information on how StatsSA has tried to correct for it.

recalibrating the survey weights to address possible sources of bias, it is unlikely to be sufficient given the extreme labour market disruption brought about by COVID-19. In

particular, we note the large shifts in employment, as millions of South Africans lost their jobs, as well as increased internal migration and its impact on household composition.

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### 3 Conclusion

The use of CATI for the QLFS has now been followed for seven quarters, from 2020Q2-2021Q4. As suggested in this note, the CATI QLFS data appears to suffer some major problems that impact on the ability of the survey to provide precise and reliable labour market information. This is primarily a result of very low response rates, which are likely not randomly distributed. We conclude with a summary of key observations in this regard.

- The COVID-19 lockdown in March 2020 forced a rapid switch to the CATI survey technique, resulting in some dwelling units being de facto excluded from the sampling frame because StatsSA could not contact them telephonically. This likely introduced some bias into the QLFS sample that is difficult to adequately account for using postsurvey adjustment techniques.
- More important, however, over seven subsequent quarters (from 2020Q2-2021Q4) response rates dropped dramatically to reach 44.6% in 2021Q4 – a sample size that was only 60% of the original 2020Q1 sample.
- One clear result of this smaller sample is that labour market statistics are estimated with less precision, and we illustrate this using the national unemployment rate, where increased standard errors and

widening confidence intervals are evident. The national unemployment rate could legitimately be anywhere between 31.4 to 36.7 across the last four quarters of 2021.

- Notably, response rates are even lower than the national average among particular sub-categories in the data. For example, in Gauteng the response rate in 2021Q4 was 23.8%. Such low response rates result in much smaller sample sizes upon which to calculate labour market statistics, and at some point this begins to undermine the credibility of any estimate.
- In addition to low response rates impacting negatively on precision, a dramatically smaller sample due to high non-response can introduce various forms of bias that risk reducing the reliability of the QLFS estimates. For example, there are likely to be substantive differences between those who are likely to pick up a telephone during the day to answer a survey, and those who are not.

Ultimately, the QLFS has always been of a high quality, and indeed a critical source of data on the South African labour market. If the sharp declines in response rates are not remedied this poses a threat not only to reliable labour market research but also to evidence-based policymaking and ultimately to any attempts at optimal economic policy design.

## 4 References

Casale, D. and Posel, D. 2020. Gender and the early effects of the COVID-19 crisis in the paid and unpaid economies in South Africa. National Income Dynamics Study (NIDS) – Coronavirus Rapid Mobile Survey (CRAM) Wave 1 Policy Paper No. 4.

Groves, R.M. 2006. Nonresponse rates and nonresponse bias in household surveys. *Public opinion quarterly*, 70(5), pp.646-675.

Hoffman, D. and Szolnoki, G. 2013. [Online, face-to-face and telephone surveys—Comparing different sampling methods in wine consumer research](#), *Wine Economics and Policy*, 2(2), pp. 57-66. ISSN 2212-9774.

Keeter, S. 2015. Methods can matter: Where Web surveys produce different results than phone interviews. Pew Research Center.

Kerr, A. and Wittenberg, M. 2020. The Post-Apartheid Labour Market Series: Social and Behavioural Sciences. *Research Data Journal for the Humanities and Social Sciences*, 5(1), pp.39-49.

Meyer, B.D., Mok, W.K. and Sullivan, J.X. 2015. Household surveys in crisis. *Journal of Economic Perspectives*, 29(4), pp.199-226.



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