

Construction

Quarterly analysis of construction activity

First quarter 2019

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Introduction

This report outlines some of the key findings of the BER's 2019Q1 Construction Survey, including the **FNB/BER Civil Confidence Index** as well as related data.

Summary of 2019Q1¹ construction survey results

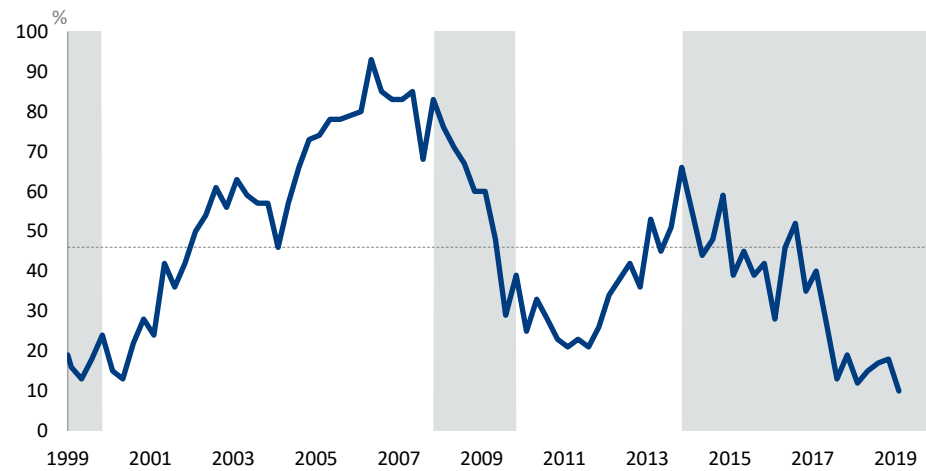
FNB/BER Civil
Confidence Index
lowest on record

Civil construction confidence at a paltry 10 in Q1

The business confidence of civil contractors, as measured by the **FNB/BER Civil Confidence Index**, remained below 20 for the seventh consecutive quarter, registering a level of 10 in 2019Q1 (Figure 1). This is the lowest on record.

Business conditions continued to deteriorate. A net 60% of respondents stated that business conditions were poorer compared to year earlier, slightly down from 68% in 2018Q4.

Figure 1: Civil contractor confidence



Source: BER

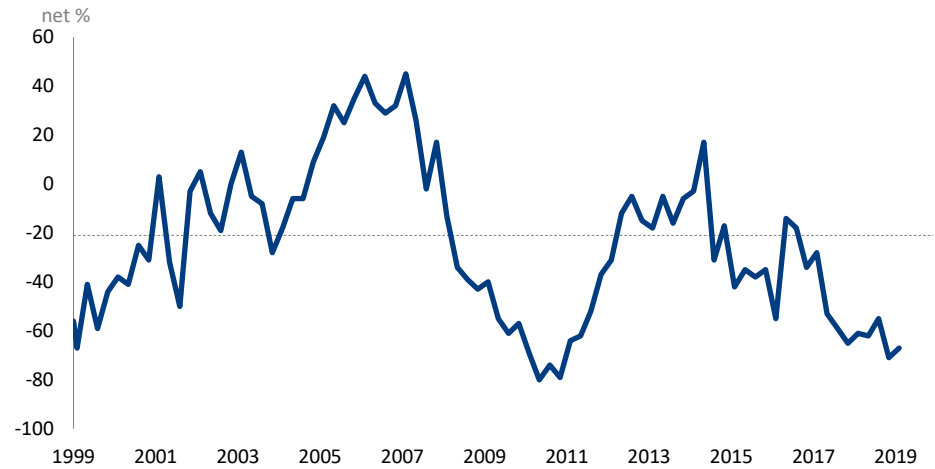
Growth in
construction
work set to
remain benign

The drop in confidence is consistent with the current state of activity. Stats SA revealed a 1.1% y-o-y increase in the real value of construction works, down from 2.3% in 2018Q3. The survey results suggest similar growth, if not somewhat weaker, in 2019Q1. A net 71% of respondents in 2018Q4 stated that

¹ This survey was conducted between 28 January and 4 March 2019

construction activity was lower compared to a year ago, it remained at a similar level (67%) in 2019Q1 (Figure 2).

Figure 2: Civil contractors, growth in activity

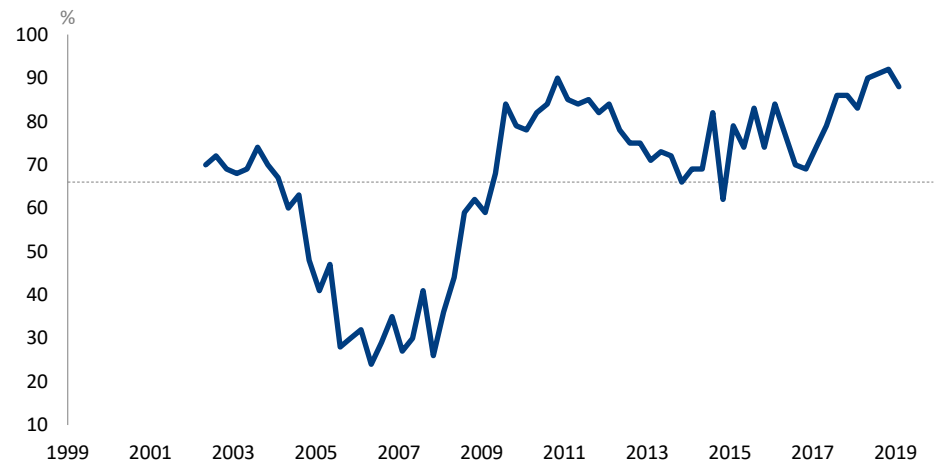


Source: BER

Order books suggest that demand will remain depressed

The rating of insufficient demand for new construction work remained high at 88%, from 92% in 2018Q4 (Figure 3). Public sector infrastructure spending remains under pressure along with the broader fiscal environment. Revised figures from Stats SA show that, since its peak, real capital investment by state-owned enterprises is down 30% and for general government 5% over the same period. This weakness is expected to continue and will weigh on civil construction activity over the medium term. However, private sector investment into civil construction has gained in importance in recent years and may continue to do so, although it is difficult to identify what the main drivers for this will be.

Figure 3: Civil contractors, insufficient demand as a business constraint



Source: BER

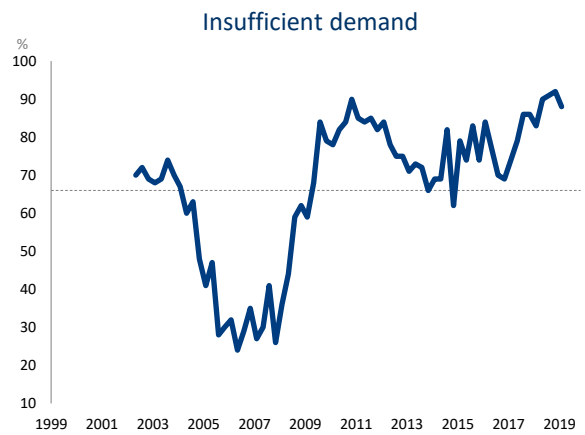
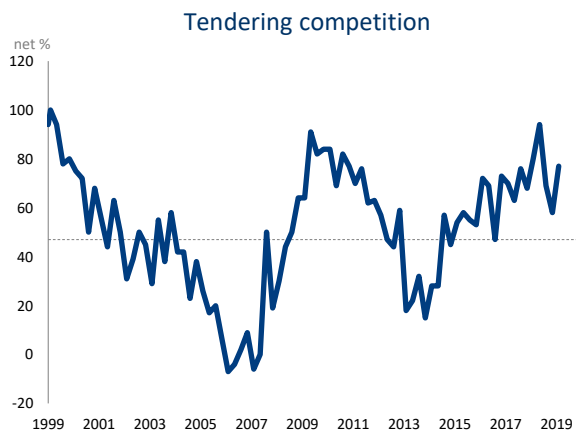
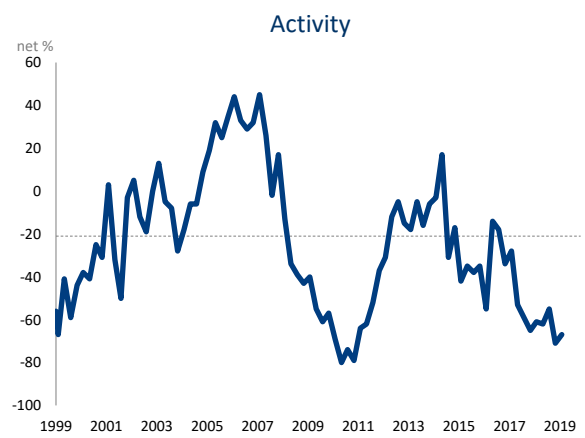
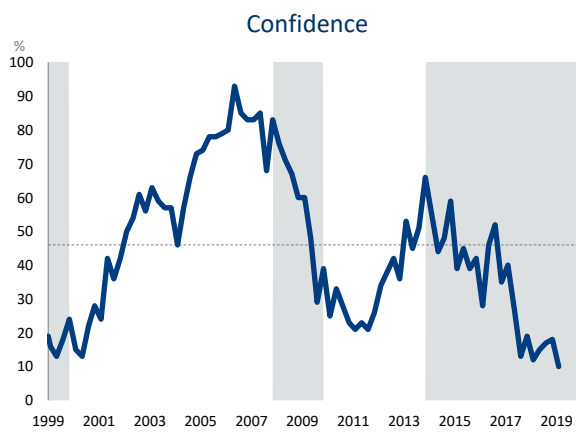
In conclusion

Similarly, growth in construction activity continued to slow in 2019Q1. This is mainly due to the broader fiscal environment which has necessitated spending cuts on infrastructure outlays. However, an improvement in private sector spending on construction works has offset the impact of lower public sector spending to a degree. Nonetheless, confidence, as measured by the **FNB/BER Civil Confidence Index**, fell to an all-time low of 10. This means that 90% of respondents are dissatisfied with current business conditions.

Survey results

Civil construction

Indicator	Unit	$\mu-\sigma$	μ	$\mu+\sigma$	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	18Q4	19Q1	Δ	σ_{Δ}
Confidence	%	24	46	68	27	13	19	12	15	17	18	10	-8	9
Activity	Net %	-56	-24	8	-53	-59	-65	-61	-62	-55	-71	-67	4	16
Tendering competition	Net %	25	50	75	63	76	68	80	94	69	58	77	19	15
Insufficient demand	%	48	67	87	79	86	86	83	90	91	92	88	-4	7



Technical note

Short-term planning is hampered as official (quantitative or numeric) data is released with a time lag. Business tendency survey (BTS) results reveal what happened between the release of the last official figures and the current state of affairs. The survey results not only reveal earlier developments in activity, employment etc. (for which official figures are published), but also provide unique information, such as business confidence, tendering prices, business conditions, constraint indicators and respondents' expectations (or forecast) for the next quarter for which no official figures exist. It is now widely recognised that such subjective individual expectations play a key role in economic developments. Furthermore, the survey results of successive quarters provide a means of tracking cyclical movements, pinpointing trend changes and establishing forecasts.

The survey method

The survey results are obtained from questionnaires completed by senior executives in the trade, manufacturing and building sector during the middle month of every calendar quarter.

The business survey questionnaire contains a small number of questions. These questions are qualitative in nature, e.g. "Compared to the same quarter a year ago, is the volume of building activity up, the same or down?". No figures are requested.

The sample of executives remains the same from one survey to the next. A panel is in effect established. The sample provides for the main sectors. The list of participants is reviewed every few years to replace those firms that went out of business or stopped responding during the previous two years with new ones.

To provide for widely differing sizes, each firm in the manufacturing and trade sectors is allocated a weight based on its turnover. Firms in the building sector are not weighted. Participants have to complete a "participant details form" at the time of recruitment and every few years to ensure that their sector classification and turnover (optional) are correct.

The BER conducted its first survey of the manufacturing and trade (i.e. retail, wholesale and motor trade) sectors in 1954. The sector coverage was expanded to the building sector (i.e. main contractors and sub-contractors) in 1969. The BER also took responsibility for a quantitative building cost survey in that year. The breadth of the building survey was expanded on two occasions: 1) architects and quantity surveyors were added in 1986 in order to track developments along the whole building pipeline (i.e. from the initiation to the completion of projects) and 2) civil engineering contractors were added in 1997.

Consult the BER web page (www.ber.ac.za) for more information about the business tendency and building cost survey methods.

Third quarter of 2018 changes in the "Building & Construction" report

Sector classification and geographical results

The BER used to only publish the results for main contractors and sub-contractors, each divided into a residential and a non-residential components. No totals for the residential, non-residential and overall building sector were produced. From the third quarter of 2018 onwards, the BER calculates such totals. For the first time, this sector classification makes direct comparisons between the survey and the official data possible. Previously it was not possible, because no equivalent quantitative time series of main and sub-contractors' activities exist.

Residential building combines the residential main contractors and the residential sub-contractors. Non-residential building combines the non-residential main contractors and the non-residential sub-contractors. The overall total combines the residential and non-residential components. The results for main contractors and sub-contractors are

still included in the report for legacy reasons, but the split between residential and non-residential was discontinued.

From the third quarter of 2018 onwards, the provincial data is calculated at the total building level of aggregation instead of the main and sub-contractor ones. The Eastern Cape was dropped due to its diminishing share.

The original individual responses (the so-called micro data) were used to recalculate historical time series for all the new sectors and the three provinces (Western Cape, KwaZulu-Natal and Gauteng) going back to 1992. To estimate the residential, non-residential and overall building sectors between 1985 and 1991, the residential and non-residential main and sub-contractor time series were weighted. The data prior to 1985 is not available in electronic format.

The selection of time series covered in the tables

From the third quarter of 2018 onwards the BER includes only a selection of variables (time series) and added descriptive statistics in the tables of survey results to assist users with the interpretation.

A factor analysis has confirmed our experience that most of the time series move closely together over time. For instance, business confidence, activity, employment, profitability and constraints exhibit a high positive correlation (co-movement) with one another. There is also a negative correlation with some other variables, such as tendering competition and certain constraints. We have, therefore, limited the number of series covered in the report to those that have historically and according to the functional analysis proved to provide the most unique information and are necessary to obtain a full, balanced view of developments. All the variables are still covered as in the past and the information is available on request, but from the third quarter of 2018 onwards we only focus on the core findings.

This may prevent one from getting side-tracked by too much information and trying to explain results that are not statistically meaningful, such as rationalising differences between two series/variables or only focussing on the last two quarters.

Descriptive statistics provided in the tables

Some of the survey results are quite volatile. This volatility results in a situation where the user does not know how much value to attach to a specific result (i.e. the signalling impact of the results are hampered) because -10, for instance, is a significant result in one case and merely an average in another.

The volatility could be attributed to many factors, such as sector disaggregation, sector heterogeneity, respondent behaviour, survey design or it could merely correctly reflect actual developments or uncertainty. Generally the results at the aggregate (total) level are less volatile than at the disaggregated level (i.e. total building compared to residential sector). The results of heterogeneous sectors, such as those in which only a few firms operate, a few large firms dominate many small firms or widely divergent kinds of activity are covered, tend to be more volatile than homogeneous sectors. Survey design, such as the representativeness of the sample, the number of completed questionnaires (usually below 30) and weighting, could also play a role.

Thanks to many years of experience the BER knows when a particular result is noteworthy. However, to formalise this and correctly identify signals, we have added some descriptive statistics to the tables. The purpose of these statistics is to indicate the significance of the level or change in each indicator, relative to its own historical pattern.

The unique units of measurement of qualitative surveys

Net percentage (net %)

The responses related to the change in activity, prices, employment, business conditions etc. are presented as a "net percentage" (also called a "net balance" or a "net majority"). If, for example, the percentages of respondents rating building activity as "higher", the "same" or "lower" compared to a year ago are 70%, 10% and 20% respectively, then one can conclude that the majority of participants experienced higher activity. The net percentage is calculated as the percentage of respondents rating "activity" as higher less the percentage rating it as "lower". The percentage rating it as the "same" is ignored. The net percentage in this example is therefore 50%, being the difference between the 70% "higher" and the 20% "lower". A net percentage of -10%, for instance, would indicate a decline in activity compared to a year ago. Take note that this does not mean a year-on-year contraction of 10%. It only means that the activity of a majority of 10% of the respondents was lower compared to a year ago.

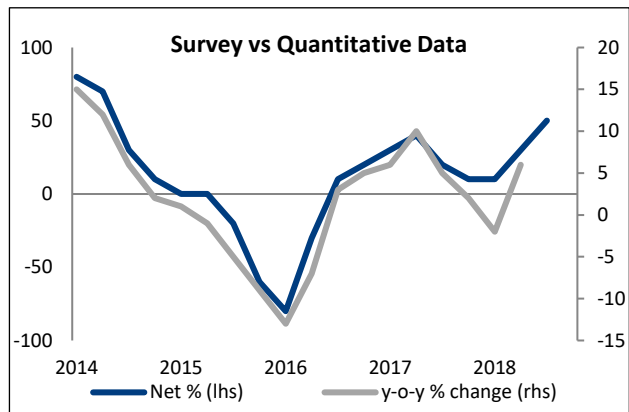
The net percentage, or net balance statistic, can theoretically vary between a minimum of -100 (when all participants replied "lower") and a maximum of +100 (when all respondents replied "higher"). Theoretically a value of zero, therefore, indicates no change, between 0 and 100 reflects a rise (or improvement) and between 0 and -

100 a decline (or deterioration) compared to the same quarter a year ago. The net balance statistic is a diffusion index, i.e. it indicates the degree to which the indicated change is “diffused” (spread) throughout the sample population. It indicates both the direction and size of the change.

Given that it reflects respondents’ estimation of the change in the phenomenon/variable in the current quarter relative to the same quarter a year ago, the net percentage corresponds to a year-on-year percentage change/growth rate in the corresponding/equivalent official data series (see the figure on the right).

Percentage (%)

The responses relating to business confidence and constraints are presented as percentages.



In the case of business confidence, respondents have to rate prevailing business conditions as either “satisfactory” or “unsatisfactory”. The percentage of respondents rating prevailing business conditions as satisfactory is taken as an indicator (proxy) for business confidence. A reading of 10 for business confidence, for instance, means that only 10% of the respondents indicated that they were satisfied. In this example, 90% were, therefore, unsatisfied.

In the case of the constraints, respondents have to rate if a particular issue – for instance, a shortage of skilled labour – “seriously”, “slightly” or “not at all” hampers their activity. Composite constraint indices are calculated by weighting the responses as follows: The answers of respondents rating a particular constraint as “serious” are weighted by 0.67%; “slightly” by 0.33% and “not a constraint at all” are discarded. The results are then multiplied by $100/67 = 1.49$ to convert it to an index that can vary between zero and 100.

Care must be taken when making inferences from the constraints indices given that the list of constraints (issues) remains unchanged over time. Each constraint ought to be analysed relative to its own historical performance rather than comparing the ratings of the different constraints at a specific point in time. The latter inference would be more appropriate if respondents had to list all issues hampering their activity at a particular point in time and rank them in order of their impact.

Theoretically, the confidence and constraints series can vary between a minimum of zero and a maximum of 100. A value of zero would reflect an extreme lack of confidence/no limitation at all and 100 extreme confidence/complete limitation. These results reflect respondents’ evaluation of the phenomenon/the survey variable in respect to that specific survey quarter, i.e. not relative to some period in the past or future.

Descriptive statistics in the tables

Three-quarter centred moving average (smoothed)

Some series show erratic/volatile movements, i.e. data jumps around quite a bit between consecutive quarters. In such cases, it is necessary to smooth these movements over a longer period to obtain a general trend. Another case where we added moving averages is when the correlation between the survey results and the corresponding reference series is low or non-existent.

Three-quarter centred moving averages (3qdma) were selected in order to not disturb turning points too much, e.g. the moving average of 17Q4 is calculated as the average of 17Q3, 17Q4 and 18Q1, that of 18Q1 is calculated as

the average of 17Q4, 18Q1 and 18Q2 etc. In order for the smoothed series to run up to the last unsmoothed data point, the last smoothed data point is only the average of two quarters, namely the previous and current quarter.

When a smoothed series is added, it is prudent not to attach too much value to the unsmoothed results of a particular quarter, but rather to evaluate it in its historical context.

Seasonal adjustment (SA)

In theory, the time series ought to display no seasonal patterns because respondents are instructed to compare the current quarter with the same one of a year ago (e.g. they have to compare the current Festive Season or wet/dry winter period with the same time a year ago). However, in practice, some series nevertheless reveal seasonal patterns, probably because some respondents incorrectly compare the survey quarter with the one directly preceding it. In such cases, a seasonally adjusted series (i.e. where such seasonal variation is eliminated with X12 ARIMA) is added.

Average (μ)

The neutral level of the time series for the two measurement types, net percentage and percentage, is 50 or zero respectively. The long-term average (mean) is often not equivalent to this neutral level. In such cases, it is more useful to evaluate the current results relative to such a long-term average than the neutral level.

One standard deviation below ($\mu-\sigma$) and above ($\mu+\sigma$) the average

The standard deviation indicates the common variation in or dispersion of the values. Data points falling between one standard deviation below and above the average could be regarded as common. Any data point falling outside these ranges, therefore, displays statistically significant variation.

Change (Delta: Δ)

This statistic indicates the change in the results of the latest quarter relative to the preceding quarter.

Volatility (standard deviation of the deltas: σ_{Δ})

This statistic indicates the volatility of the quarter-on-quarter change. If the size (regardless if it is an increase or decline) of the change is greater than the standard deviation of the deltas, then it displays a statistically significant variation.

Conventions and aids provided in the charts

Shaded areas

Indicates cyclical downturns as demarcated by the South African Reserve Bank. Users need to take note that the business cycle could have already reversed course towards the end of the period covered in the chart, but usually we wait until the bank determines a turning point before changing the shaded areas.

Solid vs. dotted horizontal (X) axes:

A solid line indicates the theoretical mid-points of 50 or zero respectively, while a dotted line indicates the long-term average (mean). Also see the section on the "average" above.

Normalised scale

Time series data is normalised (standardised) when one wishes to observe the co-movement among indicators with different units of measurement, say for instance, between a diffusion index (confidence) and the growth rate in a volume index (GDP growth). Normalisation converts both series to the same scale (unit) by subtracting the long-term average from each series and dividing it by its standard deviation. This ensures that one compares “apples” with “apples” when making a visual inspection and not mistakenly identify co-movements or deviations that different scales could produce.