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**Business surveys in South Africa: testing the ground for internet-  
based surveys keeping the impact on response rates in mind**

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<sup>1</sup> The views expressed in this paper are solely those of the author, and do not necessarily reflect those of the Bureau for Economic Research.

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## Introduction

The information technology revolution is pervasive, influencing all aspects of life. This is also true regarding the conduct of business tendency (BTS) and consumer tendency surveys (CTS). The medium of the Internet is increasingly accessible to the participants of BTS and CTS and it follows that this medium should be engaged in tendency survey methods. The use of the Internet is also seen as a possible solution to the problem of deteriorating response rates in the traditional postal survey (Etter, 2002: 3), albeit that the evidence in this respect is mixed.

There appears to be obvious advantages in using the Internet in conducting BTS and CTS, of which cost savings are arguably the most apparent; the handling of paper questionnaires is eliminated, no postage is required, respondents enter the data directly into the database, questionnaires and reminders are delivered instantly and cost-effectively, etc. However, there are also pitfalls particularly to the extent that "resistance" to the electronic medium and/or access constraints are encountered on the part of households and business executives.

The Bureau for Economic Research (BER) has been conducting BTS since the 1950s. Over all these years the survey questionnaires were mailed to participants who completed and returned them in enclosed return envelopes. This has been and remains the BER's central survey mode. On a practical level this has worked well with no evidence that the particular mode of the survey affected the response rate. Other means have been utilised in order to improve the BER's BTS response rates (see Kershoff, 2002).

However, as noted, it has become imperative to engage the Internet medium. From 1999, when the BER's website was first developed, we started experimenting with Internet-based surveys on a small scale. In 2000, the BER was contracted by the SA Reserve Bank to conduct an inflation expectations survey on behalf of the Bank. From the start, the electronic medium was included as a survey mode; however, the take up was limited and never aggressively marketed. Only a handful of the participants in the financial sector (mainly analysts) participated in the survey via the Internet; mail and fax remained the preferred survey mode by a long shot.

Nonetheless, we feel it necessary to explore the viability of the Internet as a survey mode. To this end, a special survey was designed and included with the BER's regular round of postal BTS during the first quarter of 2005. The survey was of a limited nature and simply designed to establish three pertinent issues regarding the conduct of surveys via the Internet:

- *Firstly*, the participants' *current mode* of response;
- *secondly*, the *preferred mode* of response (i.e. surface mail, fax or the Internet); and
- *Finally*, the *type of Internet access* available to BER participants (i.e. dial-up or local area network, LAN), if at all.

The aim of this note is to report on the results obtained from this special survey and attempt to draw conclusions regarding the future development of Internet-based surveys at the BER. A constant theme in the paper is the impact the development of Internet-based surveys may have on the BER's BTS response rates.

In the first two sections below the main characteristics of the BER's panel of BTS respondents are provided by way of background information, including the details of the special survey. In the subsequent three sections the survey results are discussed by considering the three questions above consecutively. The results are analysed in aggregate, as well as at the regional and sectoral levels, and in terms of firm size groups. In the final section some conclusions are drawn, which will hopefully serve as pointers to the future development of Internet-based surveys at the BER. This is also linked to the experience of other countries in this regard.

### **The BER panel of respondents**

The BER actively maintains a panel of respondents to its quarterly BTS. The survey results are obtained from mailed questionnaires completed by senior executives in the trade (including retail, wholesale and motor trade), manufacturing and building sectors during the last month of every quarter; a financial services survey was also launched in 2002 and more recently, a broader survey in the services sector (2005).

The sample of executives remains the same from one survey to the next. A panel in effect established. The sample is stratified according to main sectoral, regional and size categories. Each firm receives a weighting in relation to turnover or size of workforce to provide for widely differing firm sizes. Participants have to complete a "participant details form" every few years to ensure that they are correctly classified and to provide for changes in turnover. The list of participants is also reviewed every few years to ensure an agreeable representation of the universe.

### **The panel**

The BER sample of business executives in the retail, manufacturing and building & construction sectors amounted to 2900 during the first quarter of 2005 (*see Table 1*). A response rate of close to 35% was obtained, i.e. slightly more than a 1000 responses which could be processed. The response rate varied from 26% in the building & construction sector to 40% in the retail sector. This response rate is below the BER's average experience; during calendar 2004, the response rate averaged 40%, varying from 36% in manufacturing to 43% in retail (see Kershoff, 2005).

**Table 1: Composition of the BER panel: 2005Q1**

<b>Manufacturing</b>		<b>Retail</b>		<b>Building &amp; construction</b>	
Food	90	Retail: durable goods	150	Architects	128
Beverages	30	Retail: semi-durable goods	139	Building contractors (incl. sub)	435
Textiles	47	Retail: non-durable goods	229	Quantity Surveyors	180
Clothing	59	<b>TOTAL:</b>	<b>518</b>	Civil Engineers	96
Footwear	13			<b>TOTAL:</b>	<b>839</b>
Wood products	38	Motor trade			
Furniture	45	New & used vehicle dealers	179		
Paper	52	<b>TOTAL:</b>	<b>179</b>		
Printing & publishing	37				
Leather products	8	Wholesale			
Rubber	20	Wholesale: Consumer goods	140		
Chemicals	91	Wholesale: Non-consumer goods	169		
Non-metal minerals	91	<b>TOTAL:</b>	<b>309</b>		
Basic metals	64				
Metal products	81				
Machinery	77				
Electrical machinery	64				
Transport	78				
Plastics	72				
<b>TOTAL</b>	<b>1057</b>				

**Size groups**

Individual responses to the BER's BTSs are weighted, either by turnover (retail & wholesale) or number of employees (e.g. manufacturing). As noted above, a total of 1004 respondents replied to the first quarter 2005 questionnaire. The responses were distributed as follows across firm size groups and broad sectors:

**Table 2: The size & sectoral distribution of the BER respondents (2005Q1)**

<b>Sectors</b>	<b>Number</b>	<b>%</b>	<b>Size groups<sup>1</sup></b>	<b>number</b>	<b>%</b>
Manufacturing	383	38.1	Small	414	46.0
Retail	198	19.7	Medium	318	35.3
Motor trade	79	7.9	Large	168	18.7
Wholesale	125	12.5			
Building & construction	219	21.8			
<b>TOTAL</b>	<b>1004</b>	<b>100</b>	<b>TOTAL<sup>2</sup></b>	<b>900</b>	<b>100</b>

1. The weighting method varies across sectors; in manufacturing, firms with less than 100 workers are regarded as small, 100 – 499 as medium and more than 500 workers as large; in retail, firms with a turnover of less than R1.1 million are regarded as small, R1.1 to R11 million as medium and higher than R11 million as large.
2. Architects and Quantity Surveyors are not classified in terms of size and are excluded from this total.

Manufacturing firms account for the biggest slice of the BER's panel of respondents, i.e. 38% of the total. Manufacturing is followed by retail (28%, if motor trade is included) and building & construction (mainly building contractors and sub-contractors), 22%, and wholesale, 13%. While the absolute sizes of these respondent panels appear to be small at first glance, the tendency data exhibit highly satisfactory fits with the actual reference statistics. We would regard the information obtained during the first quarter of 2005 for the purposes of the current exercise as being representative and therefore reliable (*see the following section*).

The size distribution of the responding firms has remained fairly stable over the past number of years. In the latest survey, 46% of the BER respondents were classified as small companies (i.e. with less than 100 workers in manufacturing, or a turnover smaller than R1.1 million in retail, for instance), 35% as medium sized (between 100 and 500 workers, manufacturing, or a turnover between R1.1 million and R11 million, retail) and 19% as large firms (more than 500 workers; larger than R11 million turnover).

The results were compiled for the total manufacturing sector and across the subgroups indicated in Table 2 above.

### **Regions**

The bulk of the BER respondents reside in the four largest provinces, i.e. Gauteng (35%), Western Cape (23%), KwaZulu-Natal (21%) and the Eastern Cape (11%). The combined contribution of the remaining five provinces is only 10%. In the smaller provinces, the probability of sampling error increases.

**Table 3: Regional distribution of the BER respondents (2005Q1)**

<b>Province</b>	<b>Number</b>	<b>%</b>
Gauteng	352	35.1
Western Cape	230	22.9
KwaZulu-Natal	211	21.0
Eastern Cape	110	11.0
Free State	35	3.5
Other provinces <sup>1</sup>	34	3.4
Northern Cape	32	3.2
<b>TOTAL</b>	<b>1004</b>	<b>100</b>

1. North West Province, Limpopo and Mpumalanga.

### **The special survey: background details**

Since 2000 the BER has experimented with special questions being included in its regular business surveys on an ad-hoc basis, with great success. Effectively, the BER's panel is used to ascertain special information on a once-off basis and we have found the results to be most interesting and reliable<sup>2</sup>. Given this success, we decided to again use the BER's panel of respondents in order to investigate the issue of Internet-based surveys.

<sup>2</sup> Initially (2000Q4) the BER investigated the main drivers of business confidence (as measured by the BER). Since then, this practice was developed further. The BER has, for instance, a contract with the local *Department of Trade & Industry (thedti)* to conduct special surveys in the manufacturing sector every alternative quarter. Six such surveys were conducted since 2002, including research on the fixed investment and employment constraints in SA manufacturing, the impact of the strong rand during 2003/4 on manufacturing exports, as well as surveys to gauge the efficiencies of thedti's services to SA manufacturers.

As respondents' time is limited, we kept the questions short and simple. An extract from the actual questionnaires of the three special questions included in the 2005Q1 surveys is shown in Table 4.

**Table 4: Special questions included in 2005Q1 BER survey**

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**Special survey on preferred response method**

Optional

**Reason for the special survey**

The BER depends on you to complete and return the questionnaires in order to conduct the business surveys. With this survey, we wish to find what response method you prefer.

**Please tick the appropriate boxes.**

1. At present, how do you return the questionnaire to us?
  - Pre-paid envelope
  - Fax
  - E-Mail
  
2. In future, how would you prefer to respond to the questionnaire?
  - Pre-paid envelope
  - Fax
  - Internet
  
3. How do you connect to the internet at work?
  - No access to the internet at work
  - Via a dial-up service
  - Via a local area network (LAN)
  
4. Any comments? .....

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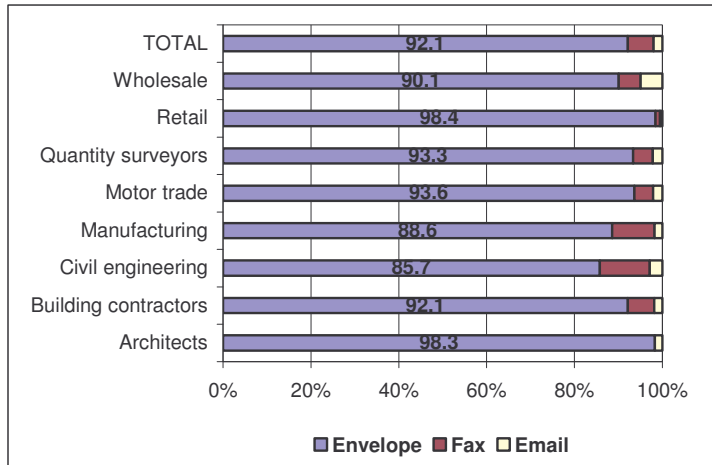
The captured responses were processed across sectors, size and regional groups, as well as for the panel as a whole. The first question was aimed to ascertain the current response method of BER participants, while the second question tested the participants' actual preferences in this regard. The third question was included to establish what the degree of Internet access was. While more detailed questions can be designed, it was decided to commence this investigation with these three pertinent issues. The results are discussed below per question included in the survey.

**Question 1: How do BER participants currently respond?**

It is clear from Figure 1 that BER participants mainly respond via the surface mail. On average 92% of the respondents responded via mail. This could simply be a reflection of the BER's current survey system, which has been in place for many years and it being cost-effective given the generally cheaper labour rates in SA (see Kershoff, 2005: 3).

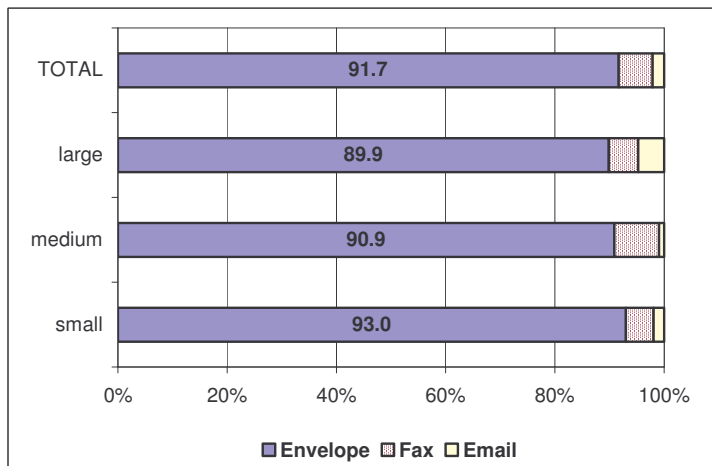
Across the sectors, the use of surface mail varies from 86% in the case of civil engineers to 98% in the case of architects. A significant, albeit still small (10-11%), portion of civil engineers and manufacturers uses the fax machine.

**Figure 1: The current mode of response: sectors**



The results do not change considering size and regional groups<sup>3</sup> (Figure 2 and Figure 3). In fact, there is almost no variation across the size groups – from small to large firms, around 90% of the respondents used surface mail to respond. A small portion of large and medium-sized firms also uses fax or email (9-10%).

**Figure 2: The current mode of response: size groups**

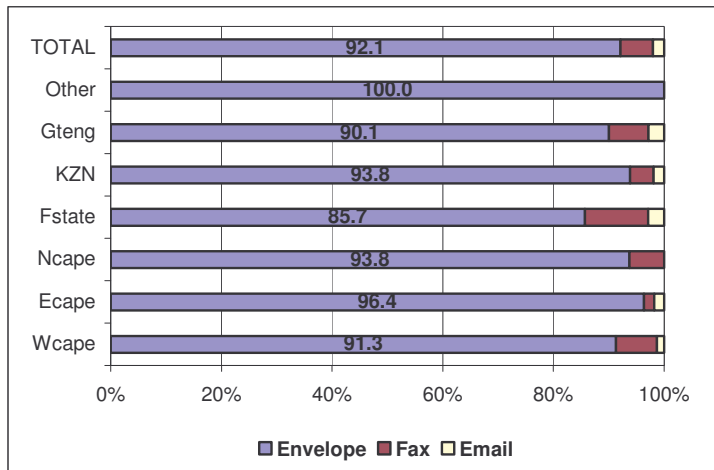


In the various regions, the proportion of the respondents using mail response varies from a low of 86% in the Free State (showing some preference for fax, 11%) to 100% in the

<sup>3</sup> The distribution of responses is slightly different for the size group analysis as architects and quantity surveyors are not weighted and excluded from the size distribution. Nonetheless, the fact remains clear that around 92% of the BER respondents use mail response.

“other provinces” grouping (i.e. Mpumalanga, Limpopo and North West Province) (Figure 3). Except for the Free State, in all the remainder of the provinces mail response exceeds 90%.

**Figure 3: The current mode of response: regions**



The wide use of the postal mode is understandable given the fact that this has been the BER’s survey system for many years. Practitioners in the field saw the arrival of the Internet as an alternative survey mode with the potential to improve dwindling response rates (Etter, 2002). However, a glance at the literature on the subject that has accumulated since shows that this is far from a foregone conclusion and that more research is required. The international experience thus far is certainly not encouraging (*see the final section below*).

It is therefore a useful exercise to gauge the BER respondents’ preferences in this regard; the evidence may shed some light on the potential impact that the development of Internet surveys may have on the BER’s survey response rates.

**Question 2: What is the preferred mode of response according to BER participants?**

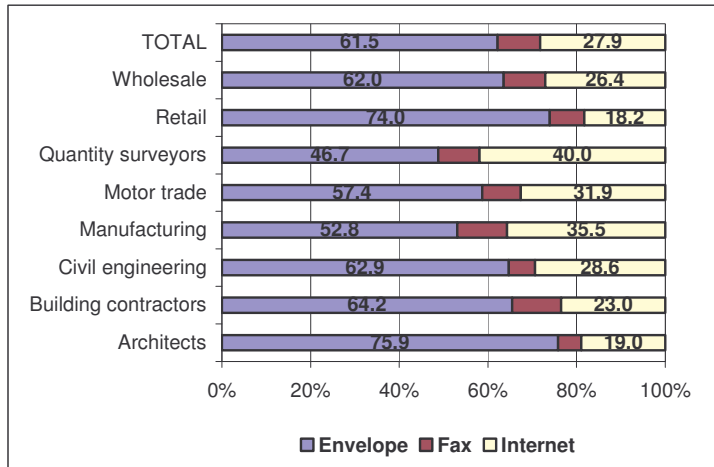
Figure 4 clearly shows that respondents do have some preference for the Internet mode – no less than 28% of the respondents indicated that they would want to respond via the Internet (compared to only 2% of the respondents currently using email).

Across the sectors, Internet preference varies from 18% in the retail sector (the lowest) to 40% for quantity surveyors (the highest). This strongly hints that the BER has to develop its Internet platform in order to provide this choice to its BTS respondents. This option has to be explored in order to possibly improve response rates if close to a third of the respondents on average prefer the Internet.

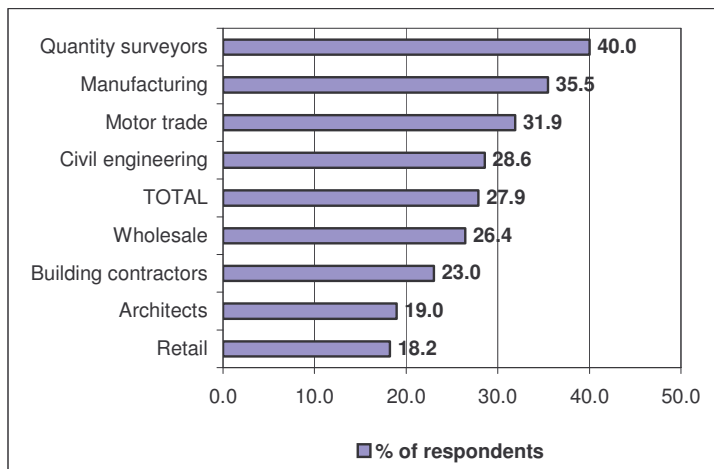
Close to 10% of the respondents prefer the fax machine to respond, i.e. slightly more than the 6% that do so currently. Promoting this option could therefore also have a positive

impact on the response rate, albeit likely to be only marginal. The attractiveness in promoting this mode of response lies in the fact that the fax machine could be an important substitute for those not able to respond online.

**Figure 4: The preferred mode of response: sectors**



**Figure 5: Preferring the Internet as mode of response: sectors**

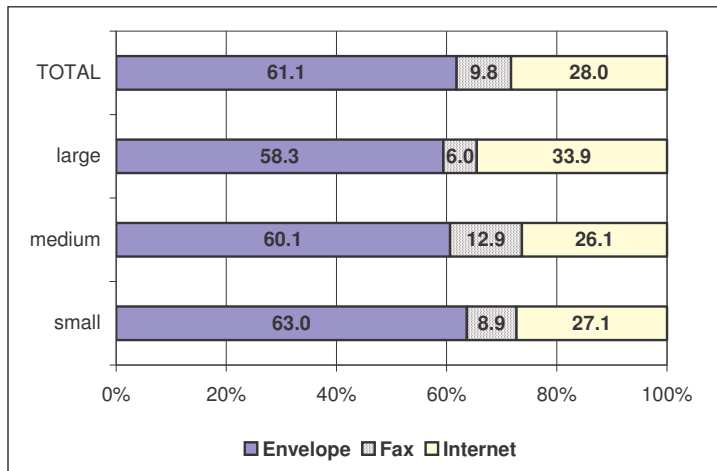


However, another striking result from the second question is the fact that more than 60% of the respondents indicated they prefer the pre-paid envelope to respond (Figure 4); responding by mail is clearly the most popular method. However, this may be a reflection of "habit persistence" (*"this is how I have become accustomed to responding to the BER's surveys and this is the way I like it"*). This underscores the point that, while it is necessary to develop the BER's Internet platform, it will be a mistake to implement the Internet mode too aggressively.

The option of mail response has to remain in place. This could have complicating administrative implications. As much as three quarters of the retail and architect respondents

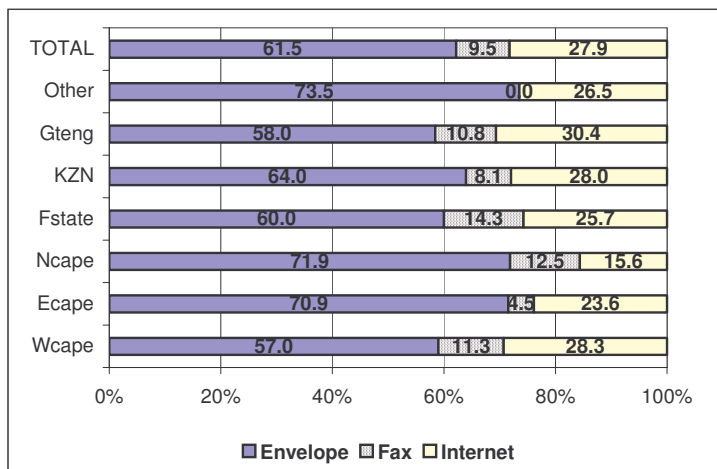
prefer the prepaid envelope to respond and close to two thirds in building & construction and wholesale (Figure 4). The lowest preference for responding by envelope is found amongst quantity surveyors, i.e. 47%, which is still a high proportion. Ignoring this fact, risks damaging the response rate in these sectors.

**Figure 6: The preferred mode of response: size groups**



The larger firms have a stronger preference (34%) for the Internet compared to smaller firms (27%) (Figure 6). This can possibly be linked to the type of Internet access, discussed in the following section. This agrees with the international experience – see the final section below. Medium-sized firms showed some preference (13%) for the fax machine.

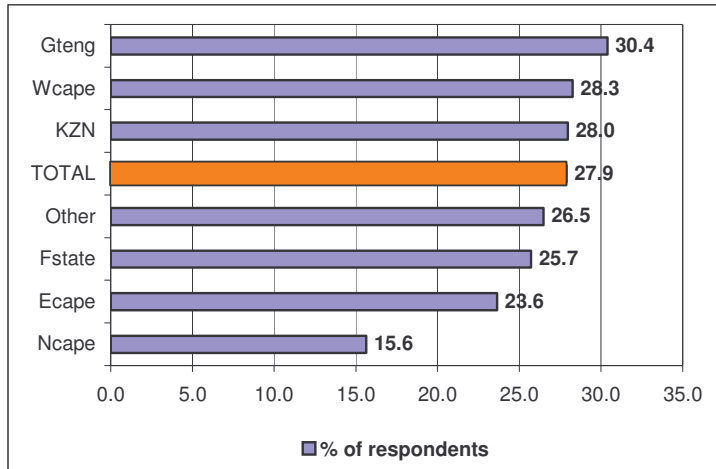
**Figure 7: The preferred mode of response: regions**



Across the regions, the proportion of the respondents preferring the Internet varies from a low of 16% in the Northern Cape to a high of 30% in the largest province, i.e. Gauteng (Figure 7). The Western Cape, KwaZulu-Natal, the Free State and “other provinces” also showed

a relatively high preference for the Internet (26-28%). Preference to use an envelope varies from a low of 57% in the Western Cape to a high of 74% in the “other provinces”. There appears to be a significant variance in the preference of the fax machine – from zero in the “other provinces” to 14% in the Free State.

**Figure 8: Preferring the Internet as mode of response: regions**



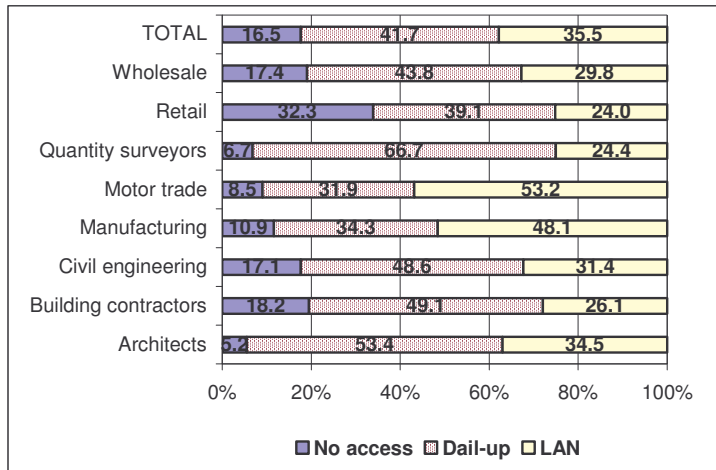
To some extent the survey mode currently used could be a determinant of the respondents’ preference, particularly in the case of the postal mode; on the other hand, the preference for the Internet is significantly higher than currently allowed for by the BER survey system.

It follows that the BER needs to develop its Internet platform to accommodate respondents wishing to use this mode of response. However, the change over has to be gradual, due to both a strong “habit persistence” factor and, secondly, possibly an outright preference for the pre-paid envelope. It is not clear how respondents’ preferences will change once Internet-based surveys are introduced. *Currently, Internet access (around 80%) far exceeds the respondents’ preference to respond via the Internet.* This is an interesting fact and is explored further below.

**Question 3: BER participants’ access to the Internet**

Figure 9 shows that more than 80% of the BER’s respondents have Internet access; 54% of these respondents’ access to the Internet is via a dial-up connection (i.e. 42% of the total number of respondents) and 46% via a local area network (LAN) (36%). As only 28% prefer the Internet mode to respond, the implication is that a large proportion of the respondents with Internet access still prefer the surface mail or fax machine to respond. This could be interpreted as some form of resistance to the electronic medium and ties in with the preferences revealed in the responses to question 2 above.

**Figure 9: BER participants' access to the Internet: sectors**



However, it is also apparent that not everybody has access to the Internet – more than 16% of the respondents reported this. In the retail sector, the problem is more acute as close to a third of the retail respondents have no access to the Internet; on the other extreme, only 5% of the architects do not have Internet access. It is interesting to note that up to 76% of architects prefer the envelope to respond, even though Internet access is so wide (95%)<sup>4</sup>.

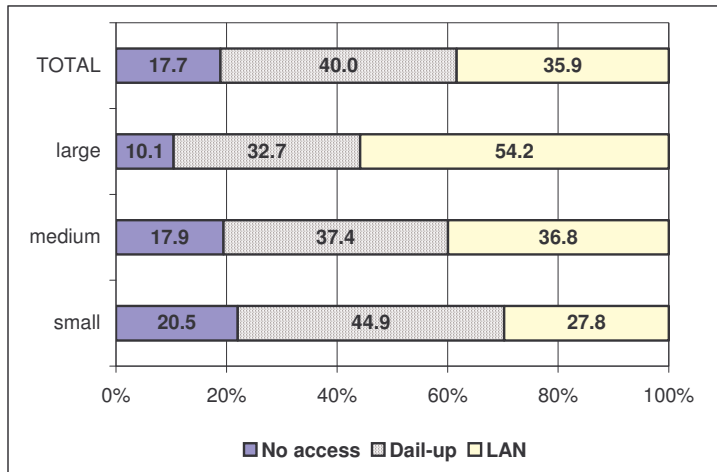
This is a somewhat extreme reflection of the more general point that there clearly is some resistance to using the Internet. This may partly be the case due to such a large proportion of access being via a dial-up connection, which is known to be slow in South Africa. Furthermore, from the respondent's perspective, it is cheaper to respond via a supplied return envelope compared to using the Internet.

Figure 10 clearly shows that Internet access is less of a problem for large firms (only 10% does not have Internet access) than for medium (18%) and small firms (21%). Furthermore, small firms' Internet access is mainly via the slow and cumbersome dial-up connection (57%), whilst the opposite is true for large firms (60% LAN). The implication is that an Internet survey platform will clearly advantage the large firms and could affect response rates negatively in the case of small and medium-sized firms, which will bias the results.

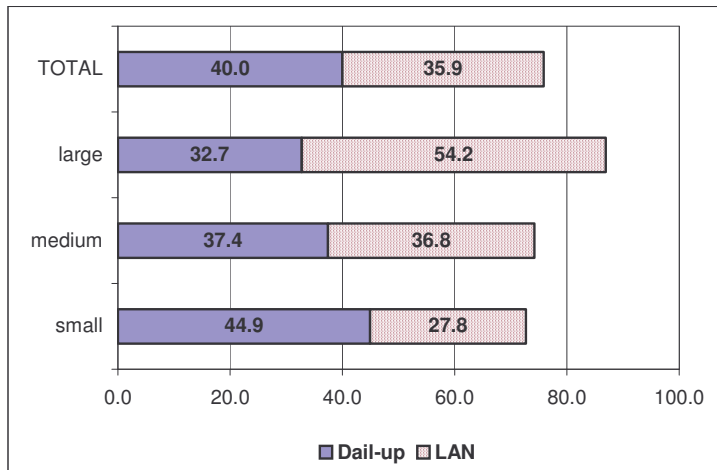
In respect of the regions, Internet access is enjoyed by 85% of the respondents in the Free State (the highest) and only 66% in the respondents in the Eastern Cape (the lowest) (Figure 12). The lack of Internet access in KwaZulu-Natal (20%) also appears to be a more serious problem compared to the other provinces.

<sup>4</sup> It is interesting to note that The Swiss Institute for Business Cycle Research (KOF) found a substantially weaker response rate (53.9%) in the Internet survey compared to the postal survey (77.1%) of architects & engineers (Etter, 2002: 7).

**Figure 10: BER participants' access to the Internet: size groups**



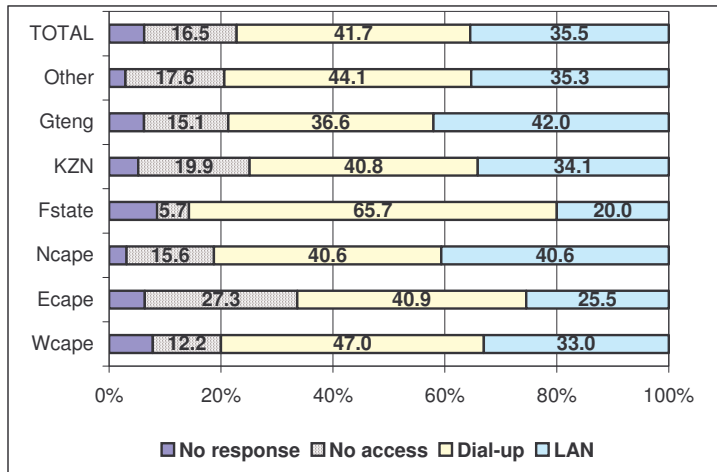
**Figure 11: Access to the Internet: firm size groups**



LAN connections vary considerably across the provinces: only 20% of the respondents in the Free State have LAN connections to the Internet, compared to 42% of the respondents in Gauteng. Most of the Free State's Internet connection is via dial-up (77% of those that have access).

The results therefore point to regional disparities, which could lead to mal-distributed response patterns should the Internet mode, for instance, be implemented too aggressively. A lack of access and dial-up, instead of LAN, Internet connections probably explain a large part of the BER participants revealed preference to respond via mail. While the Internet is clearly emerging as a preferred mode of response, this process may take time to mature. This is an important factor to bear in mind, particularly considering the possible impact on BTS response rates when implementing the Internet survey mode.

**Figure 12: BER participants' access to the Internet: regions**



### Conclusion

While more than 90% of the BER's respondents to its 2005Q1 business surveys responded via a return envelope supplied with the mailed questionnaire, close to 30% of the respondents would like to respond via the Internet. This fact in itself confirms that it is necessary to develop the BER's survey system in order to accommodate those that wish to respond via the Internet. However, regarding this development, the special survey also points to a number of pertinent issues in the South African context:

- Both the lack of Internet access, as well as possible "resistance" to the electronic medium restricts the possibilities in this regard. Resistance is reflected in the fact that whereas more than 80% of the respondents have access to the Internet, only 28% indicated that they prefer this mode of response<sup>5</sup>. The process is likely to evolve slowly over time as Internet access expands and respondents' willingness to participate via the Internet improves; habits do not change easily.
- Smaller firms in particular appear to have more serious problems with Internet access (no access or dial-up rather than LAN connections). Internet preference is also lower in the case of smaller firms. A third of retail firms do not have Internet access. Resistance to the Internet is therefore not only an issue of habit persistence, but could also be linked to practical difficulties, particularly amongst smaller firms.
- There are regional disparities regarding Internet access, which is a factor to consider in maintaining the integrity of the regional representation of responses. This point also applies regarding the sectoral and size stratification of the survey sample.

- A return envelope remains the preferred mode of response. This may (partly) reflect the fact that this has been the BER's survey mode over all the years. It may change in future as resistance to the electronic medium breaks down and Internet connections improve. However, as emphasised in this paper, this process is likely to be a slow one and this needs to be borne in mind with the development of the BER's survey system. Particularly retailers, wholesalers and building contractors have a strong preference for the return envelope. Ignoring this reality risks damaging the survey response rates in these sectors.
- The overall preference for fax returns is relatively small, with less than 10% of the respondents preferring this mode. In some sectors and regions (and specifically for medium-sized firms) the preference for the fax mode is above average (albeit still low overall, i.e. below 15%). This suggests limited scope for using the fax machine as a substitute for those respondents that cannot respond online.

In all, while postal surveys are more popular at the present point in time, it remains imperative to develop Internet-based surveys. However, from the analysis above, it is evident that a mixed survey mode has to be followed – basically all three modes should be available to the respondents, i.e. a return envelope, fax and the Internet. This increases – rather than reduces – the administrative burden, as well as possibly the cost burden (at least initially) in contrast to the promise of an Internet survey mode.

Parallel systems have to be run while the conversion takes place over time. A too rapid/aggressive move to the Internet clearly risks damaging the BER's response rates. In fact, the rationale for implementing Internet surveys should be to improve response rates (at least to justify any additional administrative burden). More research is required in this regard.

### **Results confirm the international experience**

The results from the BER special survey tend to agree with what has been taught by international experience regarding Internet-based surveys: in short, this development has to be considered with the necessary circumspection.

The response rates in Internet surveys have not lived up to expectation and are, in fact, lower compared to postal surveys (Vehovar quoted in Etter, 2002: 3 and Etter's own analysis of the Swiss Institute for Business Cycle Research's (KOF) mixed survey mode experience). Etter also quotes Kaiser (2001), finding that apart from unit non-response, item non-response is more widespread in the case of Internet surveys compared to postal surveys and that small firms, in

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<sup>5</sup> It is interesting to note that The Swiss Institute for Business Cycle Research (KOF) also recorded a 28% Internet participation rate in 2001 (and increasing slowly) at the time of the introduction of Internet-based BTS at the Institute. Participants have the option to continue with the postal survey (Etter, 2002: 4).

particular, participate less in Internet surveys. The BER's investigation into its respondents' preferences clearly supports the finding in respect of small firms.

Given the results from the BER investigation, it should be expected that response rates will deteriorate in the event of a too rapid switch to Internet-based surveys. As the implementation of parallel/mixed-mode surveys has cost implications, this can only be justified if it promises to improve response rates. It follows that the development of Internet-based surveys should be handled with the necessary care. In this regard, the experience of the KOF is instructive (Etter, 2002):

- The response rate in the Internet survey is substantially below that in the postal survey across all sectors (and sample permutations) covered by the KOF BTS. According to Etter, a key reason for the poorer Internet survey response rate is the fact that Internet respondents more easily forget to complete the questionnaire than postal respondents. Special attention is required to up the response rate in the Internet survey (e.g. email reminders).
- While large firms tend to have a better response rate compared to small firms in the postal survey, this difference in response is more pronounced in the case of the Internet survey, which confirms the findings of Kaiser (2001) and the current analysis.
- Etter finds some evidence of differing response behaviour between Internet and postal respondents.
- In respect of some questions (in the manufacturing questionnaire) there appears to be statistically (and graphically) significant differences in the net balance statistics between the Internet and postal surveys<sup>6</sup>. However, on the whole the net balance results correlated closely.
- On the positive side, and contrary to Kaiser's (2001) findings, item non-response was higher for postal surveys (in manufacturing) compared to the Internet survey; however, item non-response was generally no problem.

The BER's response rates already tend to be on the low side in terms of international experience. It is therefore critical that the implementation of Internet based surveys be handled with the required care, particularly in view of the international experiences in this regard and the imperative to maintain/improve survey response rates. Despite the obvious advantages linked to Internet surveys, dangers lurk: poorer response rates, lack of Internet access, resistance to the electronic medium, varying regional, sectoral and size group characteristics between Internet and postal respondents, etc.

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<sup>6</sup> This appears to be specifically the case in respect to questions regarding judgments about stock levels (Etter, 2002: 21).

While there is clearly an emerging preference for Internet-based surveys amongst the BER's sample of respondents (28% of the current respondents), the aim should be to exploit this preference in a way that the obstacles listed above are overcome. Satisfactory response rates and quality BTS and CTS results remain the bottom line.

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