ACHIEVING A RESPONSE FROM FAST-GROWING COMPANIES: THE CASE OF SLOVENIAN GAZELLES

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ABSTRACT: *Non-mandatory business surveys generally suffer from low response rates and potential non-response bias. Achieving a response is most problematic in small- and medium-sized enterprises because of their scarce human resources. The problem becomes exacerbated in fast-growing companies – 'gazelles'. The paper addresses the effectiveness of data collection efforts to achieve a response among the top Slovenian gazelles in 2008. We analyse the impact on response rates and data quality. Finally, we look for evidence of non-response bias.*

1. INTRODUCTION

Surveys are a popular method of collecting data in business research. Technological advancements have considerably simplified the researcher's job of reaching the targeted units and recording their answers by offering new data collection modes. Unfortunately, at the same time, the survey-taking climate has worsened. Business complaints about unnecessary administrative burdens are common as regards mandatory business surveys conducted by governmental agencies. It is therefore no surprise that achieving a response is a key methodological challenge of today's non-mandatory business surveys (Dennis, 2003). In entrepreneurship and small business research, mail surveys are still the principal data collection method (Newby, Watson and Woodliff, 2003; Bartholomew, Smith, 2006) although they produce critically low response rates (Dennis, 2003). This also applies to such research conducted in Slovenia.

Research on fast-growing companies is an important area of entrepreneurship and small business research. In Slovenia, this research has been closely connected with annual selections of the best 'gazelle', which have been taking place for over a decade. The selection of the best gazelle in 2008 was accompanied by a mail survey on internal entrepreneurship amongst the top Slovenian gazelles. The survey also supported a methodological study on the effectiveness of efforts made in data collection consistent with Dillman's Tailored Design Method (2007).

The paper is structured as follows. Section 2 briefly describes the gazelles' characteristics and their impact on survey data collection. Section 3 presents current trends in response rates in business surveys and the available methods for reducing non-response and dealing with potential non-response bias. Section 4 outlines the study research design, while Section 5 presents its results. The final section provides conclusions.

2. CHARACTERISTICS OF GAZELLES AND THEIR IMPACT ON SURVEY DATA COLLECTION

Fast-growing companies were called 'gazelles' in the early 1980s by David Birch (1979) to qualitatively distinguish them from other types of companies, such as 'mice' (slow-growing small companies) and 'elephants' (larger companies). Growth is the hallmark of a gazelle company. Nowadays, business gazelles are seen as small- to medium-sized companies with an annual 20% increase in sales and a base revenue of at least USD 100,000. In business terms, this means they are agile enough to avoid hostile takeovers by bigger companies and fast enough to grow revenue faster than they increase their costs, thus becoming profitable as quickly as they become sizable.

The emergence of fast-growing companies and their contributions have added to public policy discussions on the importance of small businesses as an engine of growth in the economy. Although gazelle companies account for between 2% to 10% of small- and medium-sized firms, they contribute more than 40% of all new jobs in surviving companies (St-Jean, Julien and Audet, 2008; Henrekson, Johansson, 2009) and are an important driver of regional restructuring and regional dynamism (Julien, 2007).

The latest Eurostat data show there are 19.7 million companies in the EU-27, 92% of them employ less than ten people, and 99.7% employ fewer than 250 people (Eurostat, 2008). The net employment effects of these European SMEs have been created by '... only a relatively small number of more dynamic and innovative SMEs' (EIMS, 1996) or by European baby gazelles. The most recent research on Slovenian fast-growing companies shows that the 500 fastest growing companies in Slovenia increased their sales by 5.6 times in the period from 2002 to 2007 (Glavič, Krajnovič, 2008). In a larger survey of 5,000 growing companies representing 4.5% of all incorporated businesses in Slovenia, Pšeničny (2008) found that they created 60% of all new jobs in the 2003 to 2007 period and contributed 28% of Slovenian gross domestic product, 4 percentage points more than the net contribution of larger companies.

These findings confirm the importance of gazelles in Slovenia and around the world and the relevance of research in this area. However, the same characteristics that make gazelles a success story may represent a serious obstacle for researchers seeking the co-operation of gazelles for research purposes. Researchers strongly agree that an entrepreneur plays an instrumental role in the growth of their firm since their often unstinting commitment is a necessary (although not sufficient) condition for growth (Davidsson, 1989; Cooper and Artz, 1995; St-Jean, Julien and Audet, 2008). Other important resources include access to capital as a major priority to fund growth. This resource is closely related to access to the human capital needed to develop open and effective relationships with financiers, control processes and costs, and effectively organise resources. Another challenge in acquiring human capital relates to the time available for recruiting and training. Moreover, human capital has been demonstrated in many entrepreneurship studies as the main factor affecting entrepreneurial performance (Stuart and Abetti 1990; Blanchflower and Oswald 1998; Bruderl and Preisendorfer 1998; Cooper et al. 1994; Pennings et al., 1998; Van Praag 2003; Bosma et al. 2004). In the entrepreneurial process, individuals should also have a superior ability to successfully exploit opportunities (Leitão, J., Franco, 2008) and have better entrepreneurial judgment while exploring such opportunities (Colombo and Grilli, 2005). What an entrepreneur does in terms of developing the long-term vision of the company is therefore particularly important (Hartcher, 2003).

Among all resources it seems that the time availability of the entrepreneur is crucial to a venture's success. This needs to be acknowledged by researchers working with populations of fast-growing companies. Given the limited time availability of key respondents, particular attention therefore needs to be paid to motivating respondents to participate and designing efficient research instruments.

3. RESPONSE RATES AND NON-RESPONSE BIAS

As mentioned in the introduction, in entrepreneurship and small business research it is typical to use mail surveys as the main data collection method (Newby, Watson and Woodliff 2003; Bartholomew, Smith, 2006). Authors who attempted to review mail surveys that were published in renowned academic journals came to the unequivocal conclusion that mail surveys produce critically low response rates in the academic setting, even though they based their findings on a different selection of journals.

Baruch (1999) found an average response rate of 56% based on 175 studies published in five leading journals in management and behavioural sciences in the years 1975, 1985 and 1995. He also reported that mail surveys involving top management performed even worse, achieving an average response rate of 36.1%. In an extended re-examination, Baruch and Holtom (2008) calculated an average response rate of 35.7% for 117 studies published in 2000 and 2005 in 17 refereed academic journals utilising data collected from organisations. Cycyota and Harrison (2006) arrived at an average response rate of 34% for executives based on 231 studies in nine top-ranked journals widely cited in management over the period from 1992 to 2003. Dennis (2003) stated that the average

response rate was around 30% based on a review of articles published in 1998 and 1999 in five small journals oriented to business or entrepreneurship. Bartholomew and Smith (2006) found an even lower average response rate of 27% based on 154 studies published in two small business journals over the 1998 to 2004 period.

The problem of non-response in business research seems to be getting worse over time (Baruch, 1999; Dennis, 2003; Cycyota, Harrison, 2006), although it may have stabilised in the last decade (Baruch and Holtom, 2008). There is also growing evidence that achieving a response may be particularly difficult when surveying executives and SME populations. Given that mail surveys of SMEs are almost always sent to chief executive officers due to their knowledge of the firm's strategy and activities, and that SMEs usually have less organisational slack than larger firms, lower response rates do not come as a surprise (Bartholomew, Smith, 2006).

Methodological discussions in business research have thus begun to focus on strategies to increase response rates and the acceptable levels of response rates. Previous studies provide mixed results concerning the effectiveness of strategies aimed at raising response rates. Cycyota and Harrison (2006), on the other hand, warn that some traditional expensive procedures involved in trying to build a social exchange relationship, such as advance notice, follow-up and personalisation, may not work with executives. Their meta-analysis showed that only topic salience contributed to variations in response rates across studies. They therefore propose contacting executives through existing social networks of executives and carefully selecting the topic to appeal to the interest, relevance, timeliness and effectiveness of executives. However, the population of executives in SMEs may have specific characteristics that limit the application of these findings. Some authors suggest they do not respond as either business people or individuals (e.g. Dennis, 2003), while others see them as being similar to the general population (e.g. Alpar, Spitzer, 1989).

In their review of studies of broader consumer and industrial populations, Newby, Watson and Woodliff (2003) report that: (1) attention-seeking strategies were often successful in increasing response rates but varied in their cost-effectiveness (postcard pre-notification being the most cost effective); (2) questionnaire completion was generally successfully promoted by using university sponsorship and anonymity while the colour and form of the questionnaire were not (so) effective; (3) incentives often increased response rates while the promise of survey results appeared ineffective; and (4) questionnaire return usually improved when a follow-up was used in line with Dillman's (1978) Total Design Method. They also replicated some previous findings in their own experiment on a SME population and concluded that telephone pre-notification, payment of a monetary incentive, and a follow-up mailing all increased response rates.

Dennis (2003) similarly concludes that treatments that consistently increase response rates in mail surveys of a business population include follow-ups (or reminders or contacts), financial incentives, a university sponsor and stamped return envelopes. In an

experimental study embedded in a mail survey of small business owners, he found that intense contact is critical for high response rates so he suggests including at least three contacts, though he found pre-notification less effective than a follow-up contact. He also observed that mail surveys achieving high response rates employ mixed mail/telephone modes of data collection. Bartholomew and Smith (2006) also demonstrate the effects of social networks on small firms' decision to complete a survey through a trade association endorsement and regional affiliation. They provide support for the positive effects of pre-notification and the effectiveness of follow-up contact in improving survey response rates from small firms.

While these findings indicate the relevance of social exchange theory and provide support for Dillman's Tailored Design Method (2007), they largely omit a discussion of the validity of the survey results given the low response rates. One problem of low response rates is achieving sufficient statistical power which means that the initial sample sizes need to be considerably larger due to non-response (Cycyota, Harrison, 2006). This can be particularly challenging or even impossible when surveying small business populations. Another problem of low response rates is the risk of introducing selection bias due to non-response. This methodological issue is rarely touched upon in business research because authors either treat it incorrectly (Wright, Armstrong, 2008) or concentrate on acceptable response rates (Hak, 2007). Baruch (1999) and Baruch and Holtom (2008), for instance, suggested using one standard deviation from the averages he found in his study as a norm for future studies, adjusted for specific reference groups. Gendall (2000) recommended 50% as a rough rule of thumb but added that the only sure way to reduce the potential of non-response bias was to increase response rates (Wright, Armstrong, 2008). Response rates are certainly a useful indicator; any major deviation from prevailing response rates calls for examination and explanation. Nevertheless, it is highly unlikely in business research to reach such high levels of response rates that one can ignore the risk of introducing non-response bias.

The methods for assessing non-response bias that have been used in household surveys can also be applied to the business context. Groves (2006) puts these methods in five classes and evaluates them as follows:
- The easiest method refers to comparing response rates across subgroups. Its main limitation is that the variables used for delineating subgroups may not be the only correlates of response propensities and survey variables.
- A more informative method uses frame variables or supplemental matched variables that are available for both respondents and non-respondents. The method can provide estimates of non-response bias concerning these variables, which can serve as an indirect indication of non-response bias in the survey variables. The main limitations concern the lack of information on survey variables and the quality of frame and external variables.
- When similar estimates from other sources exist (e.g. census, government surveys), these can be treated as a gold standard for comparison purposes. The biggest limitations relate to the absence of key survey estimates and to residual errors in these sources.

- Non-response follow-up studies focus on variation within the existing survey based on the assumption that non-respondents are more similar to hard-to-get respondents than easy respondents. The main limitations stem from the questionable validity of assumption and the lack of information on remaining non-respondents.
- Another method contrasts alternative post-survey adjustments for non-response (e.g. propensity models and weighting class adjustments). If adjustments based on very different assumptions lead to estimators of a similar magnitude, this provides more confidence in the survey conclusions. Yet if such convergence is not present, the method suffers from the lack of a gold standard due to untestable assumptions.

Given that each method has its strengths and weaknesses it is wise to use multiple approaches to assess non-response bias (Groves 2006). This is consistent with recent recommendations by Baruch and Holtom (2008) to conduct and report several non-response bias tests in business surveys. In particular, good methodological practice requires that surveys not only focus on increasing response but also on gathering information on the process of collecting survey data and on non-respondents (e.g. Billiet et al., 2007).

In summary, low response rates in surveys used in the context of business research provide an impetus for research on increasing response rates and detecting non-response bias. The research on increasing response rates has started to grow but the same cannot be said for research on non-response bias. In addition, to the best of our knowledge no methodological research specifically addresses fast-growing companies. This paper thus aims to answer the following research questions:

1. Does making a high level of effort in data collection from gazelles in the form of intensive contacts pay off in terms of response rates and data quality?
2. Is there any evidence of non-response bias given the presence of non-response?

The next section presents the research design used to answer the research questions.

4. RESEARCH DESIGN

A survey on internal entrepreneurship in top Slovenian gazelles took place in 2008. It chiefly collected information on internal entrepreneurship based on a questionnaire developed for corporate entrepreneurship by Ireland, Kuratko, Morris (2006). The survey's sponsor was the organiser of the Gazela project, namely a major publisher in Slovenia.

The survey sample consisted of 512 of Slovenia's fastest growing companies that were selected using the following standard criteria: total revenue growth rate, revenue profit growth rate, capital profitability growth rate, assets profitability growth rate, and profit per employee growth rate. Additional quantitative indicators included the index of a company's survival probability and the DaBeg index (see Birch, 1979). The DaBeg index is a particularly interesting index of dynamic growth given that it encompasses absolute and relative employment growth to the size of a firm. The financial criteria were supplemented by qualitative data such as the extent of corporate social responsibility activities

performed by a company, the future development vision of a company and so on. We also collected some other information on the regional dispersion of companies.

The survey questionnaire was designed in close co-operation with a subject-matter and questionnaire design expert and as strictly as possible followed the design principles for self-administered questionnaires promoted by Dillman and his colleagues (Dillman 2007; Jenkins, Dillman, 1997; Redline, Lankford, 2001). It was pretested in three cognitive interviews using a combination of think-aloud and retrospective probing. The final questionnaire had seven pages of questions, totalling around 150 questions. It was printed on coloured paper with white spaces for the answers and featured the university's crest and the logo of the Gazela project on the first page of the questionnaire. The expected completion time of 40 minutes was noted in the introduction. The deadline for returning the survey was also given. The correspondence bore real signatures and was personalised, namely addressed to the chief executive officer whose name was available in the GV-IN business database for most of the gazelles. In less than six percent of cases, only the function was used because the name had not been registered.

To answer the first research question, an experiment was designed to check the effect of making a high level of effort in data collection from gazelles on response rates and data quality. A high level of effort referred to intensive contacts and attempted to comply with Dillman's recommendations conditional on operational constraints (see Table 1). The experimental group, hence, mainly followed Dillman's Tailored Design Method (2007) which involves a simultaneous focus on all aspects of survey design that seem likely to influence response rates and quality (Dillman, 2008). The control group was only exposed to some elements of this method, namely a well-designed survey questionnaire that was considered a non-negotiable minimum standard for achieving good quality survey answers.

TABLE 1: *Timeline for the experimental groups*

Date	Control group No treatment = Single contact	Experimental group Treatment = Intensive contacts
7 July		Advance letter
15 July	Questionnaire Return envelop	Questionnaire Return envelop
29 July	DEADLINE	DEADLINE
4 August		Thank you/Reminder letter with the web option
8 August		Accompanying letter with the web option Substitute questionnaire Return envelop
13 August		Start of two-week telephone follow-up

We randomly assigned the gazelles to two groups; the experimental group was intensively contacted (n_E = 216), while the other served as a control (n_C = 215). The experiment

did not comprise all surveyed gazelles. Some gazelles (n_A = 81; hereinafter 'the additional group') were expected to be highly involved in the selection activities, giving interviews to journalists from the sponsoring publisher prior to running the survey. Potential candidates for these interviews were not treated as part of the experiment due to the possible interference of the interviews with our treatment. Our decision was based on the assumption (or fear) that the respondents would not react to research contacts after the journalist contacts because they would be fed up with contacts in general. Nevertheless, this group was expected to be more motivated to participate in the survey because of their greater involvement. In addition, they were intensively contacted the same way as the experimental group.

Table 2 presents some basic characteristics of these groups and the sample as a whole. We can see that the fastest growing companies were mainly micro businesses in the services sector from regions with high GDP p.c. A comparison of the average and median values for relative measures indicates positively skewed distributions of companies. The most extreme discrepancy can be observed for exports per employee due to the fact that some companies did not export at all.

TABLE 2: *Basic characteristics of the groups and the sample*

		Control group	Experimental group	Additional group	Sample
Basic structures		(n_C = 215)	(n_E = 216)	(n_A = 81)	(n = 512)
Size		100.0%	100.0%	100.0%	100.0%
Micro		64.2%	75.0%	43.2%	65.4%
Small		21.4%	17.1%	35.8%	21.9%
Medium & Large		14.4%	7.9%	21.0%	12.7%
Region by GDP p.c.		100.0%	100.0%	100.0%	100.0%
Low GDP p.c.		29.3%	24.1%	25.9%	26.6%
High GDP p.c.		70.7%	75.9%	74.1%	73.4%
Main activity		100.0%	100.0%	100.0%	100.0%
Industry		30.7%	33.8%	49.4%	35.0%
Services		69.3%	66.2%	50.6%	65.0%
Relative performance and cost measures (€)		(n_C = 212)**	(n_E = 214)**	(n_A = 81)	(n = 507)**
Revenue	*M**	580,776.3	607,364.9	280,003.6	543,946.6
per employee	*Me*	280,364.3	219,996.3	162,291.6	213,068.7
Export	*M**	229,080.3	171,672.2	181,135.0	201,198.3
per employee	*Me*	26,350.6	23,249.6	37,515.7	26,350.6
Value Added	*M**	60,297.0	61,924.2	44,185.6	58,409.8
per employee	*Me*	40,448.7	36,975.5	39,176.7	39,651.3
Labour costs	*M**	23,168.6	22,405.6	20,639.7	22,442.5
per employee	*Me*	20,110.8	19,370.8	19,556.9	19,795.1

Note: * Average by company.
** It was impossible to calculate relative measures for three businesses in the control group and two businesses in the experimental group because they had no employees.
Source: GV-IN, authors' calculations

To answer the second research question, we matched the survey data with financial indicators and other information available in the GV-IN business database and selected a set of three crucial questions to use in the telephone follow-up with non-respondents. These three questions are typically used in the assessment of an organisational culture that facilitates the development of corporate entrepreneurship. One of them tried to capture general satisfaction with growth of the company's net worth on a scale from 1 to 5, whereby 1 means 'not at all satisfied' and 5 'completely satisfied' (hereinafter labelled 'satisfaction with growth'). The other two questions differentiate between entrepreneurial and non-entrepreneurial companies on a scale from 1 to 5, whereby 1 means 'completely disagree' and 5 'completely agree'. Companies that nurture corporate entrepreneurship typically score below average on an item that measures the company's proclivity for innovating ('My company favours a slow and cautious approach to introducing new products and services in comparison to its competitors'; hereinafter labelled 'cautious approach') and above average on an item that shows individuals' entrepreneurial potential is sought and nurtured ('Employees who introduce innovative projects are compensated with rewards that are not part of the company's classical reward system'; hereinafter labelled 'employees' compensation').

The implementation of the telephone follow-up was somewhat different in the experimental and control groups. The telephone follow-up in the experimental group aimed at motivating respondents to answer the survey and resorted to these three questions if the request to answer the survey was rejected. The telephone follow-up in the control group was conducted after the experiment was finished and only aimed at collecting answers to these three questions.

We expected there may be some variation in response rates across typical economic subgroups by size, main activity and level of regional development. In particular, we expected higher response rates for larger companies because they have more organisational slack than SMEs.
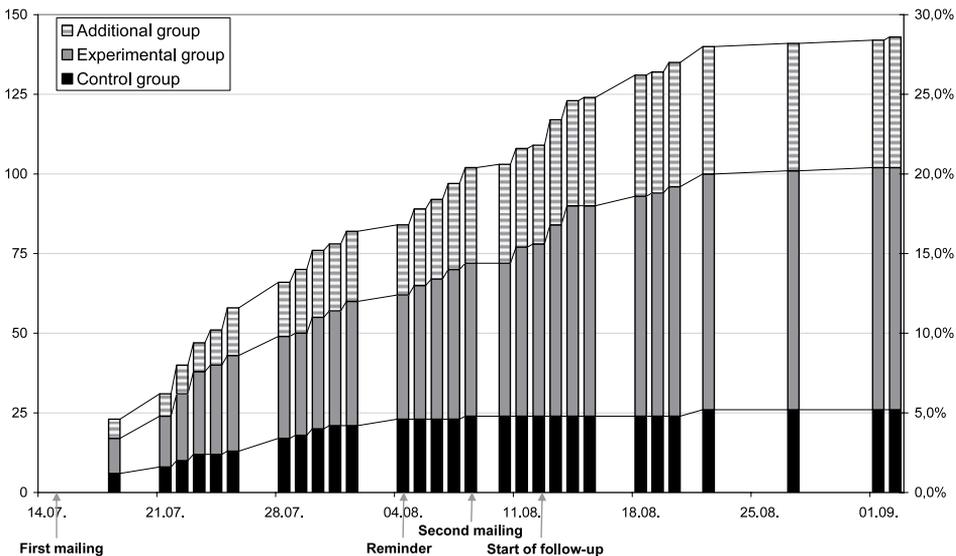
5. RESULTS

151 out of 512 eligible gazelles returned the questionnaire. Two of them were eliminated for their lack of identification information and six were treated as non-respondents for further analyses because of the high item non-response (less than 50% of closed-ended items were answered). Therefore, gazelles that provided a partial response (50-80% of closed-ended items were answered) or a complete response (at least 80% of closed-ended items were answered) were considered respondents and taken into account in the calculation of response rates according to the maximum standard AAPOR measure RR6. The overall response rate was thus 27.9%.

5.1 Experimental results

The experiment yielded the expected results, as is also seen in Figure 1 when we compare the black control group (26 responses out of 215, yielding a response rate of 12.1%) and the grey experimental group (76 responses out of 216, yielding a response rate of 35.2%). The difference in response rates is due to the intensive contacting strategy (see Table 1) and is statistically significant ($p = 0.000$). Even if we compare responses by August 4 (a response rate of 10.7% in the control group and 18.1% in the experimental group), we obtain a statistically significant difference ($p = 0.030$). In this case, the difference is only due to the advance letter.

The differences in final response rates between the control and experimental groups are also significant for subsamples of the kind of economic activity (services: 13.4% and 32.9%, $p = 0.000$; industry: 9.1% and 39.7%, $p = 0.000$) and level of regional development (regions with high GDP p.c.: 13.8% and 36.6%, $p = 0.000$; regions with low GDP p.c.: 7.9% and 30.8%, $p = 0.002$). As far as size is concerned, the difference is significant for micro and small units (micro: 13.0% and 35.8%, $p = 0.000$; small: 6.5% and 32.4%, $p = 0.002$). For medium and large units the difference is not significant probably because of their small number (11 gazelles) but it is in the same direction (16.1% and 35.3%, $p = 0.131$).

FIGURE 1: *Cumulative number of valid responses and response rates by day and experimental group*

Source: Authors' calculations.

Apart from the experimental results, the additional group achieved the highest response rate (41 responses out of 81, yielding a response rate of 50.6%) although it received the same treatment as the experimental group. We can only speculate that the difference

may arise from the selection procedure used by journalists from the sponsoring publisher to determine candidates for their interviews or from greater involvement in activities of the Gazela project (including free promotion) also having a beneficial effect on survey participation.

The contacts after the deadline also offered the option to answer the questionnaire online (noted as 'web option' in Table 1). This option was less exploited than expected; it generated 10.5% of total responses in the experimental group and 19.5% in the additional group, thus contributing 3.1 percentage points to the overall response rate of 27.9%. It is disappointing that this option did not even produce one complete response.

Data quality is a complex concept and various approaches can be used to assess it. This article focuses on the issue most critical to data quality in the present case, i.e. non-response, which consists of unit and item non-response. Given that response rates already showed the extent of unit non-response, the quality of data was assessed using a very simple measure, i.e. item non-response (see Table 3). The highest data quality was achieved in the control group; those who decided to fill in the questionnaire based on a single contact provided a complete response in 96.2% of cases. Nevertheless, the experimental group contributed a considerably larger share of complete responses, i.e. 53.3%, as opposed to the 20.8% of complete responses contributed by the control group. It is therefore possible to conclude that intensive contacts served as a sufficient motivational tool to provide a complete response for at least one part of the experimental group while some respondents took the line of least resistance and filled the questionnaire out quite sloppily.

TABLE 3: *Data quality of questionnaires returned by the groups*

n_{RETURN} = 149	Control group	Experimental group	Additional group	Total
Non-response[1]				
% within non-response	0.0	83.3	16.7	100.0
% within group	0.0	6.2	2.4	4.0
Partial response[2]				
% within partial response	4.3	52.2	43.5	100.0
% within group	3.8	14.8	23.8	15.4
Complete response[3]				
% within complete response	20.8	53.3	25.8	100.0
% within group	96.2	79.0	73.8	80.5
Total				
% by groups	17.4	54.4	28.2	100.0
% within group	100.0	100.0	100.0	100.0

[1] Less than 50% of closed-ended items were answered or there was a lack of identification information.
[2] 50-80% of closed-ended items were answered.
[3] At least 80% of closed-ended items were answered.
Source: Authors' calculations.

5.2 Assessment of non-response bias

Tools for increasing response rates may have an impact on non-response bias. Our question was therefore whether our experiment brought in similar or different gazelles and which consequences this may have for variables of interest. We compared respondents in the experimental group (n_{RE} = 76) with those in the control group (n_{RC} = 26) by size, main activity, level of regional development and some key questions including those used for the non-response follow-up. The only statistically significant difference was found for satisfaction with profitability (p = 0.013). Respondents in the experimental group were somewhat less satisfied with profitability than respondents in the control group. Some other differences were too small to be statistically significant but here we note their directions. Namely, the experimental group had relatively more respondents from larger companies and industry; respondents in the experimental group were slightly less satisfied with different aspects of growth (revenue growth, growth of the company's net worth, potential for growth). The comparison of respondents in the experimental and control groups did not detect differences in internal entrepreneurship based on the two questions differentiating between entrepreneurial and non-entrepreneurial companies.

In the next step, we compared the response rates across various subgroups. These did not statistically differ by size, main activity or level of regional development even though they were slightly higher for industry, a higher level of regional development and larger companies but the problem remains that the response rates are very low.

We also studied variations within the survey by comparing early and late respondents with regard to size, main activity, level of regional development, some relative performance and cost measures (revenue per employee, exports per employee, value added per employee and labour costs per employee) and some key questions including those used for the non-response follow-up. Early respondents are those who had replied by August 4 when a reminder was issued while late respondents are all those who replied later. The comparison did not reveal significant differences, possibly because of a confounding variable, namely summer holidays. It only shows that slightly more small businesses tended to be late compared to micro and larger businesses and that late respondents scored slightly higher on relative performance and cost measures.

In addition, we used a telephone follow-up to obtain a response to three key questions from non-respondents. Altogether, we achieved item response rates of 49.4% on satisfaction with growth, 48.6% on a cautious approach and 45.7% on employees' compensation. No significant difference between the respondents and non-respondents was detected in these key survey variables, as shown in the confidence intervals for the mean in Figure 2. Non-respondents to the survey who agreed to provide answers to these questions were slightly less satisfied with growth of the company's net worth, more cautious when introducing new products and services compared to competitors and compensated employees less for innovative projects. This indicates that the suc-

cessfully interviewed non-respondents were slightly less inclined to internal entrepreneurship than respondents. Nevertheless, caution in interpretation is needed because answers to these key questions came from somewhat different response situations in the experimental and control groups (due to different aims of the telephone follow-up) and because we still have no information about approximately half of the initial sample.

FIGURE 2: *Confidence intervals (95%) for the mean in three key survey questions followed up among non-respondents*
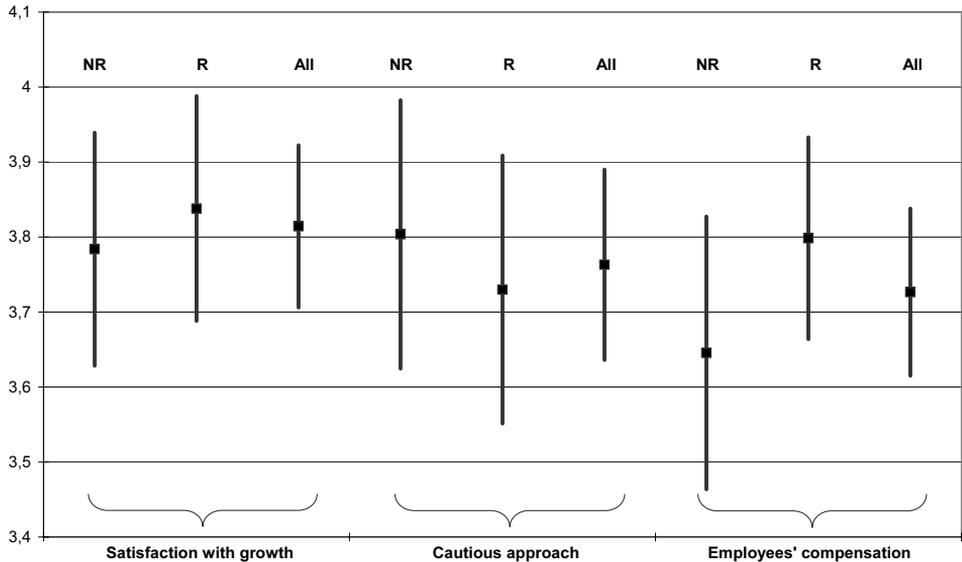
R = Respondents
NR = Non-respondents who provided answers to three key survey questions
All= Respondents and those non-respondents who provided answers to three key survey questions
Source: Authors' calculations

Even more informative may be the comparison of respondents and non-respondents concerning the supplemental variables available in the GV-IN business database. The results in Table 4 show that the respondents tend to have higher averages in value added and labour costs, both per employee, even though they create less revenue and exports per employee. This is consistent with the observation from Figure 2 that respondents tend to be slightly more inclined to internal entrepreneurship, namely creating value added by introducing new products and services and compensating employees for that. Still, no significant difference between the respondents and non-respondents was detected in these variables or in structures by size, activity and region.

TABLE 4: *Basic characteristics of the non-respondents, respondents and sample*

		Non-respondents	Respondents	Sample
Size of a group		$n_{NR} = 369$	$n_R = 143$	$n = 512$
Relative performance and cost measures (€)		$(n_{NR} = 364)$**	$(n_R = 143)$**	$(n = 507)$**
Revenue	M*	582,499.1	445,813.1	543,946.6
per employee	Me	237,814.9	195,087.2	213,068.7
Export	M*	207,956.8	189,840.4	201,198.3
per employee	Me	30,121.4	21,761.5	26,350.6
Value Added	M*	57,950.7	59,578.5	58,409.8
per employee	Me	39,386.8	42,170.5	39,651.3
Labour costs	M*	21,959.8	23,671.2	22,442.5
per employee	Me	18,744.9	21,348.9	19,795.1

Note: * Average by company.
** It was impossible to calculate relative measures for five businesses in the non-respondents group because they had no employees.
Source: GV-IN, authors' calculations

If we can assume that internal entrepreneurship is positively correlated with value added and labour costs per employee, then it is possible that the survey results are biased to some extent. In such a case, internal entrepreneurship may actually be less present in Slovenian top gazelles than the survey results show.

Finally, we attempted to model response propensity using available supplemental variables but were unsuccessful, the reason most likely being the lack of statistical power. We also could not compare the survey estimates with similar estimates from other sources because such estimates do not exist.

6. CONCLUSIONS

Response rates of mail surveys in business research have been falling to critically low levels. The actual response rate level is often context-dependent and changes over time (Dennis, 2003). Our expectations that the problem of low response rates may be exacerbated when surveying chief executive officers in fast-growing companies (which are often SMEs) were confirmed. Only one subgroup that was highly involved with the sponsor's project and had been intensively contacted managed to reach a 50% response rate. The lowest response rate of approximately 12% was observed for a subgroup that only received one mailing with the questionnaire.

The experiment was aimed at raising the response rate in the population of gazelles, which may be especially challenging compared to the general business population or even compared to SMEs. In addition, summer time may not be a good time for conducting surveys. The intensive contacting strategy produced a significant increase in the response rate overall and across various subgroups although its implementation re-

quired some compromises (e.g. the start of the data collection depended on preparation of the gazelles' list, the timeline depended on operational activities and the availability of chiefs, the letter accompanying the substitute questionnaire used scanned signatures instead of real ones etc.). The conclusion on the effect of the experiment on data quality is somewhat less clear-cut. The intensive contacting strategy resulted in more partial responses and some questionnaires with high item non-response but still produced more than double the number of complete responses.

Given the high levels of non-response, the risk of introducing bias in survey results is particularly prominent. We performed several analyses to assess non-response bias but we found hardly any statistically significant difference. Statistical testing has in fact been criticised in the context of academic business surveys because of the small subgroups and consequent lack of statistical power (Wright and Armstrong, 2008). That is why we reported the differences we observed even though they were not all statistically significant.

The early respondents thus scored slightly, although not significantly, higher on relative performance and cost measures and came relatively less from small as compared to micro and larger companies. The response rates did not differ across the various subgroups but they were all very low. The experiment seemed to have mainly brought in similar gazelles except for their satisfaction with profitability. Respondents in the experimental group were significantly less satisfied with profitability than respondents in the control group. They were also slightly, albeit not significantly, less satisfied with different aspects of growth.

By conducting an intensive follow-up on three key questions with non-respondents we managed to reach, altogether, around half of the gazelles. Successfully interviewed non-respondents were slightly, although not significantly, less inclined to internal entrepreneurship than respondents. Consistent with this is the comparison of the respondents and non-respondents on performance and cost measures suggesting, albeit not significantly, that non-respondents compensated their employees slightly less and created slightly less value added while achieving higher revenue and exports per employee.

To summarise, this study contributes to methodological research on business surveys by specifically addressing fast-growing companies. Investing a high level of effort in collecting data from this population paid off in terms of considerably increasing the response rates and providing sufficient data quality. Further research should look into the effects of other design and questionnaire characteristics (e.g. the sequence of contacts, the length and content of the questionnaire). In addition, there was hardly any statistically significant evidence of non-response bias. This could mean that gazelles represent a fairly homogeneous group with respect to variables of interest and non-response bias is less likely to occur. Yet it could also mean that we were unsuccessful in detecting this bias given some indications that non-respondents may be less inclined to internal entrepreneurship. It is possible that we did not manage to attract considerably different gazelles with our experiment and telephone follow-up, we should have taken other variables of

interest into account, or that other supplemental variables (e.g. respondents' characteristics and other company characteristics) should have been collected and used. This should be considered in future research.

REFERENCES

AAPOR (The American Association for Public Opinion Research) (2008), "Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys, 5th edition",Lenexa, Kansas: AAPOR.

Alpar, Paul and Daniel M. Spitzer Jr. (1989), "Response behavior of entrepreneurs in a mail survey," *Entrepreneurship Theory and Practice* 14 (2), 31-44.

Bartholomew, Susan and Anne D. Smith (2006), "Improving survey response rates from chief executive officers in small firms: The importance of social networks", *Entrepreneurship Theory and Practice* 30 (1), 83-96.

Baruch, Yehuda (1999), "Response rate in academic studies – a comparative analysis", *Human Relations* 52 (4), 421-38.

Baruch, Yehuda and Brooks C. Holtom (2008), "Survey response rate levels and trends in organizational research", *Human Relations* 61 (8), 1139-60.

Billiet, Jaak, Michel Phillippens, Rory Fitzgerald, and Ineke Stoop (2007), "Estimation of response bias in the European Social Survey: Using information from reluctant respondents", *Journal of Official Statistics* 23 (2), 135-62.

Birch, D. (1979), *Job Generation Process*, Cambridge, MA: Joint Center for Neighbourhood and Regional Development, MIT.

Blanchflower, D, Oswald, A. (1998), "What makes an entrepreneur?", *Journal of Labor Economics* 16, 26-60.

Bosma, N., Van Praag, M., Thurik, T. and Wit, G. (2004), "The value of human and social capital investments for the business performance of startups," *Small Business Economics* 23, 227-236.

Colombo, M., Grilli, L. (2005), "Founders' human capital and the growth of new technology-based firms: A competence-based view", *Research Policy* 34, 795-816.

Cooper, A., Gimeno-Gascon and Woo, C. (1994), "Initial human and financial capital as predictors of new venture performance", *Journal of Business Venturing* 9, 371-395.

Cooper, A.C., Artz, K.W. (1995), "Determinants of satisfaction for entrepreneurs", *Journal of Business Venturing* 10, 439-457.

Cycyota, Cynthia S. and David A. Harrison (2006), "What (not) to expect when surveying executives: A meta-analysis of top manager response rates and techniques over time", *Organizational Research Methods* 9 (2), 133-60.

Davidsson, P. (1989), "Entrepreneurship – and after? A study of growth willingness in small firms", *Journal of Business Venturing* 4, 221-226.

Dennis Jr., William J. (2003), "Raising response rates in mail surveys of small business owners: results of an experiment", *Journal of Small Business Management* 41 (3), 278-95.

Dillman, Don (2008), "Errors galore. Comment to Wright and Armstrong: The Ombudsman: Verification of Citations: Fawlty Towers of Knowledge?", *Interfaces* 38 (2), 133-34.

Dillman, Don A. (2007), *Mail and internet surveys: the tailored design method* (2nd ed.), Hoboken, N.J.: Wiley.

Eurostat (2008), Summary indicators - employment size classes for EU25/EU27. Structural Business Statistics – main indicators. http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,45323734&_dad=portal&_schema=PORTAL&screen=welcomeref&close=/data/icts/sbs/bd&language=en&product=EU_MAIN_TREE&root=EU_MAIN_TREE&scrollto=228. consulted on October, 29th 2008.

Groves, Robert M. (2006), "Nonresponse rates and nonresponse bias in household surveys", *Public Opinion Quarterly* 70 (5), 646-75.

Hak, Tony (2007), "The theory-testing questionnaire business survey has passed its expiry date. What is the alternative?", In *Proceedings of the Third International Conference on Establishment Surveys, ICES-III, Montreal, Canada.* Alexandria, VA: American Statistical Association.

Hartcher, J. (2003), "Gazelles and mice," *Australian CPA.* 73, 34 – 36.

Henrekson, M., Johansson, D. (2009), "Gazelles as job creators: a survey and interpretation of the evidence", *Small Business Economics*, DOI 10.1007/s11187-009-9172-z.

Ireland, R. Duane, Donald F. Kuratko, and Michael H. Morris (2006), "A health audit for corporate entrepreneurship: innovation at all levels: part II," *Journal of Business Strategy* 27 (2), 21-30.

Jenkins, Cleo R. and Don A. Dillman (1997), "Towards a theory of self-administered questionnaire design", In *Survey measurement and process quality*, Lars E. Lyberg and Paul P. Biemer and Martin Collins and Edith de Leeuw and Cathryn S. Dippo and Norbert Schwarz and Dennis Trewin, Eds. New York: Wiley-Interscience.

Julien, P.A. (2007), *A theory of local entrepreneurship in the knowledge economy,* Cheltenham, UK: Edward Elgar.

Leitão, J., Franco, M. (2008), *Individual entrepreneurship capacity and performance of SMEs*, Munich: MPRA Papers University Library of Munich.

Newby, Rick, John Watson, and David Woodliff (2003), "SME survey methodology: Response rates, data quality, and cost effectiveness", *Entrepreneurship Theory and Practice* 28 (2), 163-72.

Pšeničny, V. (2008), *5000 malih je ustvarilo velik del rasti,* Posebna izdaja Gazela. Ljubljana: Dnevnik, d.d.

Redline, Cleo D. and Christopher P. Lankford (2001), "Eye-movement analysis: a new tool for evaluating the design of visually administered instruments (paper and web)", In *Proceedings of the Survey Research Methods Section*. Montreal: American Statistical Association.

St-Jean, E., Julien, P.A., Audet, J. (2008), "Factors associated with growth changes in 'gazelles'", *Journal of Enterprising Culture* 16, 161 – 188.

Stuart, R., Abetti, P. (1990), "Impact of entrepreneurial and management experience on early performance", *Journal of Business Venturing* 5, 151-162.

Van Praag, C. (2003), "Business survival and success of young small business owners: An empirical analysis", *Small Business Economics* 21, 1-17.

Wright, M. and J. S. Armstrong (2008), "The Ombudsman: Verification of Citations: Fawlty Towers of Knowledge?", *Interfaces* 38 (2), 125-39.