

Alumni Surveys as a Data Collection Methodology

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Discussion of alumni surveys, their use and limitations¹

Existing Alumni Survey Datasets

The use of alumni surveys as a data collection methodology for empirical studies of innovation and entrepreneurship is a relatively recent phenomenon. Since limitations of data access have traditionally been a key bottleneck in the progress of systematically understanding the process of the commercialization of new ideas through entrepreneurial firms, it is worthwhile to consider the advantages and disadvantages of this method. By way of introduction, this chapter will first discuss the few existing alumni surveys that have been used to yield insights into entrepreneurship. Through these examples the types of questions that an alumni survey is well suited to answer become more clear. The following section will use these examples, along with the author's own experience with the Massachusetts Institute of Technology (MIT) alumni survey dataset and in designing and executing the first alumni survey overseas, at Tsinghua University (Beijing, China), to discuss the advantages and disadvantages of the alumni survey methodology. The Tsinghua survey is an interesting example since it was designed to allow comparisons with the MIT survey, but also to be an extension and improvement over that survey using the experience of working with the MIT data. In addition, the Tsinghua survey faced the challenges of needing to be translated and tailored to the Chinese context as the first non-U.S. alumni survey. Finally, along with providing the survey instruments, I will offer

¹ We use the term "alumni" throughout to include both male alumni and female alumnae.

some lessons learned that hopefully provide guidance to others interested in developing their own alumni surveys.

Type of Questions Appropriate for Alumni Surveys

The first formal studies of technology-based entrepreneurship were conducted in the 1960s (Roberts, 2004; 1991), and since then most of the academic literature on research universities examines faculty entrepreneurs, university spin-offs, and technology transfer (e.g., Dahlstrand, 1997; DiGregorio and Shane, 2003; Etzkowitz, 1998; 2003; Nicolaou and Birley, 2003; Vohora et al., 2004). The university's entrepreneurial influence can be seen as extending to its students as well. Far greater than the numbers of new ventures founded by university faculty and staff are those created by alumni who received their technical and/or managerial training and exchanged ideas with faculty while at leading research universities. The role of universities in fostering entrepreneurship via students and alumni still needs much systematic analysis, particularly as related to changes over time (Roberts & Eesley 2009).

It is widely recognized that one of the key institutions in the education of world-class technologists and scientists is the research/technology university. Research universities are important institutions not only for educating technologists but also for providing a setting for students and faculty to exchange ideas on entrepreneurial opportunities. In the U.S., alumni from leading research universities are responsible for numerous new ventures. Not only do professors educate students in the classroom and the lab, but the university also provides a social setting for the exchange of potentially valuable commercial ideas among faculty, students, and external visitors/speakers.

Before turning to the MIT and Tsinghua surveys, it may be helpful to look at the other comparable alumni surveys.

Bill Barnett and Stanislov Dobrev (2005) collected a Stanford alumni database by surveying the alumni of the Graduate School of Business in 1997. This survey includes only MBA alumni and they received 5,283 completed (or partially completed) surveys for a response rate of 43 percent.² The dataset includes general demographics, career histories, including job changes, the features of previous job positions and the organizations where they were employed. The authors used interpolation where possible to handle missing values and excluded the rest of the surveys. By this method, only 2,692 surveys were complete. The authors examined the distribution of basic demographic characteristics between the full sample and the final sample after excluding missing cases and found no detectable bias. However, it is still unclear whether there is bias between the final sample and the underlying population. Their theory and data distinguish between self-employment and founding a new organization. One advantage of the dataset is the ability to observe a wide range of entrepreneurial firm ages. This wide variance was important for their questions about how demands from the environment and work roles shift as organizations grow and age. The mean firm age was 7.4 years and the mean employee size was 468.

Edward Lazear (2004) also used this dataset to ask whether entrepreneurs tend to be generalists or specialists by matching the data with student transcripts and looking at

² Lazear (2004) notes that the response rate may have been even higher if one takes into account that some individuals were very old and others may no longer have been alive to receive the surveys. This rate compares well to previous organizational surveys: Kelly and Dobbin (1999) and Dobbin and Sutton (1998) reported 45 percent response rates; Milliken, Martins, and Morgan (1998) reported 18 percent; Lincoln and Kalleberg (1985), 35 percent; and Blau, Falbe, McKinley, and Tracy (1976), 36 percent.

the pattern of their MBA coursework and career history. Dobrev (2005) also uses these data to ask whether there appears to be evidence for social “flocking” behavior in choosing careers in finance or consulting.

Josh Lerner (2009) used Harvard Business School “class cards” that students complete on matriculation to provide data on 6,000 HBS students and the sections that they are in. The students received a survey at graduation where they were asked to indicate the jobs that they are entering, including entrepreneurship. The authors used these data to determine whether being in a section at HBS with former entrepreneurs influenced the likelihood that graduates would become entrepreneurs in their initial jobs after graduation. They find that having entrepreneurial classmates actually deters potential entrepreneurs, but it appears to be true for those HBS alumni who were most likely to fail had they become entrepreneurs. The results indicate a type of screening mechanism for bad business ideas.

Jolly et al. (2009) conducted an alumni survey of Iowa State University alumni.³ They used a proportional random sample and sent surveys to 25,025 alumni (only Bachelor’s degree recipients) and received 5,416 responses. They find that 16 percent of the alumni have started businesses, mostly in Iowa. In addition, they asked questions about founding non-profit organizations as well.

Finally, Ron Burt (2001) collected a survey of women alumni of the Chicago GSB in 2000. Eight hundred alumni responded to the survey and the authors used both a second-wave non-respondent survey of 1,000 non-respondents and the school’s alumnae database to check for non-response bias. The only bias detected was that women no

³ The Iowa State summary report is available here:
http://www.econ.iastate.edu/research/webpapers/paper_13031_09002.pdf

longer in the labor market (retirees and housewives) were less likely to respond to the survey. Burt uses the survey to ask questions about how women use their personal and professional networks.

MIT Survey

In 2001, MIT administered a survey to all 105,928 alumni. The alumni could complete the survey online or return the hardcopy version. Most respondents (85.96%) completed the web version of the survey. This survey generated 43,668 responses. The 7,798 alumni who had indicated that they had founded a company were sent a survey in 2003 and 2,111 founders completed that more detailed survey, representing a response rate of 25.6%.⁴ The survey packet included a personalized letter, signed by the MIT President, the questionnaire, and a postage-paid envelope with address labels. Examining the firm names and founding years, we identified and dropped 44 duplicate observations where multiple cofounders reported on the same firm. Industries covered include aerospace, architecture, biomedical, chemicals, consumer products, consulting, electronics, energy, finance, law, machine tools, publishing, software, telecommunications, other services, as well as other manufacturing. Each founder reported information on up to five firms which he or she had founded up to the date of the survey, yielding a total of 3,698 firm observations. Further details of the survey and descriptive statistics are included in Chapters 3 and 6. Copies of the survey instrument are included in the Appendix.

⁴ Table 7 in Chapter 6 shows *t*-tests of the null hypothesis that the average (observed) characteristics of the responders and non-responders are the same statistically, for both the 2001 and 2003 surveys.

This dataset has been reported on previously (Roberts and Eesley, 2009; Hsu, Roberts, Eesley 2007). Hsu, Roberts and Eesley (2007) analyze major patterns and trends in entrepreneurship among technology-based university alumni since the 1930s by asking two related research questions: (1) Who enters entrepreneurship, and has this changed over time? and (2) How does the rate of entrepreneurship vary with changes in the entrepreneurial business environment? The findings are based on merging the datasets joining MIT alumni and founder information from the 2001 and 2003 surveys (by matching anonymous ID numbers). New company formation rates by MIT alumni have grown dramatically over seven decades, and the median age of first time entrepreneurs has gradually declined from about age 40 (1950s) to about age 30 (1990s). Women alumnae lag their male counterparts in the rate at which they become entrepreneurs, and alumni who are not U.S. citizens enter entrepreneurship at different (usually higher) rates relative to their American classmates. New venture foundings over time are found to correlate with measures of the changing external entrepreneurial and business environment. Details of the survey respondents and additional descriptive data and empirical results are provided in the following chapter as well as Chapter 6. Roberts and Eesley (2009) use these data as well to examine the role of MIT alumni entrepreneurs in the U.S. economy, the types of companies MIT alumni create and the MIT entrepreneurial ecosystem that has contributed to these outcomes.

Tsinghua Survey

Visiting MIT Sloan on a Fullbright scholarship, Professor Delin Yang of the School of Economics and Management at Tsinghua University was informed about the research generated out of the MIT alumni survey. When invited, he responded

enthusiastically about doing a similar survey with Tsinghua University and served as the connection to the Tsinghua Alumni Association. He gained approval and support from them and from the President's office at Tsinghua to implement an alumni survey there.

I took the MIT survey as an initial template and created the initial draft of the Tsinghua survey so that there would be some overlap for comparison between the two surveys. Next, MIT Sloan doctoral student Yanbo Wang and I expanded the Tsinghua survey to include new questions and to tailor it more to the Chinese context. Delin Yang and Yanbo Wang translated the survey into Mandarin Chinese and then the survey was translated back into English by a separate person to verify the translation. The survey was pre-tested with 50 individuals (non-Tsinghua alumni) and found to take too long to complete. We shortened the survey before having the final version printed and entered into the online survey software.

The survey was sent to all Tsinghua University alumni who had an address on record (a total of 30,000 according to the alumni association). Like the MIT dataset, the Tsinghua dataset includes alumni across all schools at Tsinghua. The respondents could mail back the paper copy or complete the survey online. A total of 48.6% of the Tsinghua respondents completed the web version of the survey and the rest sent back the hardcopy. In the initial section, completed by all alumni, a question was asked about participation in founding a firm. Specifically, alumni were asked if they participated in founding a company, "where founding indicates that you were present at the start of the company and other founders would consider you a co-founder." We also asked about privatizing a state-owned enterprise since this is also considered to be "entrepreneurship" in China. Those responding positively to either question were asked to fill out the

Tsinghua Founders Survey section. We also asked a question about whether the individual had gone overseas to work or go to school. Those who responded positively to that question were directed to fill out the “Returnee” section of the survey. The survey packet included a personalized letter, signed by the Tsinghua University President, the questionnaire, and a postage-paid envelope with address labels. A total of 2,966 surveys have been received online and via paper and email (including 718 entrepreneurs).⁵ Of the 2,966, we eliminate (for certain analyses) the 144 alumni who responded from outside of China since changes in policies in China should have less effect on them. The response rate is on the low side.⁶ Fortunately, we have some data on non-respondents to the Founder’s survey and can use these data to test for differences in observables between respondents and non-respondents to reduce the concern for bias. This will be described in more detail below.

We asked 45 questions about prior firm founding history and the entrepreneur’s most recent start-up including: revenues, industry category, work experience, relationships among the cofounders, sources of entrepreneurial ideas, timing and sources of financing events, commercialization strategy changes, causes of failure, exit routes, revenues and number of employees.⁷ This survey was used for Chapter 5 of this

⁵ The results include 963 alumni responses received via the online survey and 2,003 responses received via email or hardcopy.

⁶ Organizational surveys often have low response rates, particularly those of top management members. While low responses rates can introduce bias, we examine specifically whether there is systematic bias in respondent characteristics (Tomaskovic-Devey, Leiter, & Thompson, 1994). Response rates to surveys of managers in China have been in the 30-40 percent range (Peng & Luo, 2000; Tan & Litschert, 1994). In the U.S., response rates for entrepreneur surveys are often lower than those for managers.

⁷ In addition to the survey data, the Tsinghua data includes extensive notes from interviews with 42 people (including entrepreneurs, investors, and government officials). The interviews included 26 Tsinghua alumni entrepreneurs, 2 Tsinghua staff (TLO, Science Park), 5 Chinese venture capitalists (VCs), 2 Government officials, 3 Other Chinese entrepreneurs (non-Tsinghua), 2 MIT Alumni (non-entrepreneurs), and 2 Tsinghua alumni (non-entrepreneurs). Unfortunately

dissertation to ask how the institutional environment affects the types of individuals becoming entrepreneurs.

The previous alumni entrepreneurship surveys have primarily been used to ask questions about the factors that lead certain individuals and not others to become entrepreneurs. These factors have included their educational and work history as well as their social networks and the institutional environment they exist in.

Asking questions about the individual choice to become an entrepreneur is natural for an alumni survey since the question requires data on individuals at risk of becoming entrepreneurs. New firm foundings are rare events, making sampling from the population at large difficult and expensive. Sampling from a university alumni population that is likely to experience entrepreneurship limits the generalizability, but improves the odds of obtaining unbiased data in sufficient sample sizes to make inferences.

University Entrepreneurship

There is a large literature on university entrepreneurship, defined in the more narrow sense above to include only faculty or technology from a particular university rather than the entrepreneurial alumni. Anne Miner and colleagues (2006) have a recent review of the research on “university linked start-ups”. There are also a few alumni surveys that have not asked about entrepreneurship specifically, but have asked typically about career histories. There is a tradition of using this methodology to ask other questions.

the interview selection procedure could not be randomized. The Tsinghua Alumni Association set up interviews for us and we specifically asked to talk with high-tech entrepreneurs and some who were not successful. Undoubtedly our interview population is weighted towards more successful entrepreneurs and those whose ventures are more high-tech than the average alumni. In addition, the majority of our interviews were in Beijing, though some were in Shanghai and Xi’an as well.

Advantages and Disadvantages

A survey of alumni has the advantage of being a well-defined population, not selected based on success in entrepreneurship or in traditional employment. Such a survey allows us at least six key advantages over existing datasets. First is the long time horizon in terms of many decades of graduates. The second advantage is having the control over the survey instrument to include measures not available in existing public datasets such as Census data (in our case, this included multiple measures of whether the firm was using an innovation strategy) and third is less success bias than existing datasets which include only firms that have survived, chosen an initial public offering of stock or received venture capital funding. The fourth advantage is having a well-defined, relatively homogeneous set of individuals at risk of entrepreneurship to ask questions about what leads individuals to entrepreneurship. Next, an alumni survey has the advantage of surveying a population with ties to a particular university and that bond is likely to encourage higher response rates than a more anonymous survey. Finally, the alumni survey can be an effective tool for generating data on entrepreneurship outside of the United States or in developing economies. In some cases, it would also provide access to pre-entrepreneurship measures of performance such as grades or honors received from the university.

The number of decades of graduation years covered by an alumni survey results in a very large number of observations and the ability to examine trends over time in education, career histories and entrepreneurship. The MIT and Tsinghua surveys resulted in respondents who graduated in the 1930s all the way up to graduates from 2001 (MIT) and 2007 (Tsinghua). The entrepreneurial alumni founded firms (frequently at a lag after

graduation) but over a similarly large span of decades.

Having control over the survey instrument allows the survey author to tailor not only the independent variables to her/his interests, but also the definition of entrepreneurship. Researchers using existing large scale databases are restricted usually to examining self-employment or defining entrepreneurship as those filing a Schedule C on a U.S. Federal tax return. These very broad definitions blend together doctors and lawyers with their own professional practices with those who have employees and are raising significant external capital for more risky ventures. Alumni surveys allow us to define entrepreneurship more precisely, a feature that is likely to be important if we believe that self-employment differs from what many typically think of as founding a new firm.

Many entrepreneurship studies in the past have been criticized for including only firms that were currently in existence and thus were the firms that had survived. More recent studies have used the Thomson VentureXpert database of firms funded with venture capital. In contrast with these databases, the MIT and Tsinghua alumni surveys resulted in a sample not selected based on entry or successful entry into entrepreneurship. Alumni surveys offer a methodology that suffers to a lesser extent from the survival bias inherent in prior methods. The MIT and Tsinghua surveys (in contrast with VC databases) include a great deal of variety across both industry sectors (spanning service and manufacturing industries) with varying degrees of technological reliance, firm sizes, operating years and outcomes. Using alumni surveys allows us to capture data on the majority of entrepreneurial firms that never attempt or are not successful in raising venture capital funding.

The fact that the respondents to an alumni survey had very similar educational experiences at a common university allows for some degree of uniformity. This feature is attractive since other methods result in a very heterogeneous sample of individuals and ventures, making meaningful comparisons and analysis more challenging. While such a sample is not necessarily representative of the entire spectrum of self-employment (e.g., Blau, 1987; Carroll and Mosakowski, 1987; Parhankangas and Arenius, 2003), our focus is on the changing nature of entrepreneurship among technically-trained graduates. Responses also can permit comparison between those from the university who followed entrepreneurial paths and those who did not, providing a built-in control group.

Understanding the differences in entrepreneurship associated with premier universities in advanced economies and those in developing economies is important for at least four reasons. First, it informs public policy to understand the relative intensity and types of entrepreneurship. This is important both for policy makers in developing countries as well as those in advanced economies seeing increasing competition on the horizon. Second, international variation helps to inform the debate about underlying drivers of entrepreneurship and the environmental influences on entrepreneurial behavior. Thirdly, differences in country rules, regulations, cultures and histories may well permit analyses of impacts of such differences upon the rate and consequences of entrepreneurial activity. Finally, focusing on entrepreneurial behavior emerging from specific universities helps to inform university administrators regarding relevant factors they may be able to influence to affect entrepreneurship among the students and alumni. However, data on entrepreneurship across countries is rare and has proven difficult to systematically collect.

Drawbacks

The drawbacks of using an alumni survey as a methodology will depend on the precise research question being asked. However, in interpreting the results from alumni surveys, it is useful to keep in mind three data-related issues: representativeness, response rates and self-reporting. The first issue is the extent to which inferences made from particular alumni datasets apply to entrepreneurship in general. The data for this dissertation come from alumni of very prestigious academic institutions in the US and in China. While what happens to these alumni is of interest in itself because of the stature of these institutions, we should consider the ways in which this particular sample may or may not be representative of the general population if effects on the general population is what the research question is attempting to answer. It is important to note that these are alumni and therefore the sample is not limited to those currently associated with these universities or to technology coming from the universities. While these individuals have all passed through these schools for either an undergraduate and/or graduate degree, they have had diverse experiences before matriculation, while at the university, and since graduation. Therefore, while there is no doubt that individuals in the sample are relatively homogeneous in some respects, they are quite different in others.

We do not claim generalizability across the spectrum of entrepreneurial activity; however, we believe that the Tsinghua and MIT samples represent an interesting and important population of individuals. National samples of entrepreneurship may be more representative of entrepreneurship broadly defined, but probably not of technology-based entrepreneurship. Moreover, comparing national samples of entrepreneurship is challenging, as data sampling strategies vary depending on the subject matter of study

(compare, for example studies of self-employment [e.g. (Blau, 1987)] and manufacturing [e.g. (Dunne, Roberts, & Samuelson, 1988)]). With these caveats in mind, we note that there are very few datasets of entrepreneurial activity, especially for technically trained individuals, so in this sense the present study represents a step forward.

A second issue is possible response bias. For example, graduates who started a company but were unsuccessful may well not have reported these failed firms, either by omitting them from their responses or by not participating in the study at all. We also have the same individual reporting on themselves, the firm, and also the firm's performance. Alumni surveys as they have been implemented so far have the disadvantage of collecting data from only one founder. While that founder might offer some information on the other founders, it is preferable in future surveys to ask for contact information for the other founders. The co-founders can then be sent a survey in a second survey wave that would allow the collection of information from them as well as verification of the initial founder's responses. Next, there is the issue of self-reporting. Older respondents, especially those who have started multiple companies, may display a memory bias in which some companies, possibly those which were relatively unsuccessful, are not reported. This may lead to the appearance that younger entrepreneurs are starting more (though less successful) firms on average. Similarly, if cultural attitudes toward entrepreneurship have indeed changed over the years, younger entrepreneurs may have been more likely to respond to the survey and to indicate that they had founded a firm. Older entrepreneurs may also have been less likely to respond to a university survey due to the sheer number of years since their time as a student if such alumni ties weaken over time.

The potential drawback of response bias can be anticipated and addressed both by using methods known to reduce response bias and by assessing response-bias and using statistical approaches (such as weights) to correct for it. One approach to assessing non-response bias involves extrapolation. This method is useful when trying to determine the direction of bias and a survey of non-respondents or archival methods cannot be conducted (Lehman 1963, Donald 1960, Pace 1939, Rogelberg, Luong). It rests on the assumption that individuals who respond less readily resemble non-respondents, so a common method is comparing characteristics of respondents who answered quickly with those who answered following a reminder or stimulus at a later time. Response bias is explored more systematically for the MIT and Tsinghua surveys in Chapter 6.

We have already seen from the existing examples of alumni surveys that this method is often used to ask questions about career dynamics. One drawback of this methodology is in testing theories of career dynamics that operating through social exchange or population ecology. In this case, there is a need to balance between the necessity of collecting complete population data to account for both “leaders” and “followers” in social processes and the time and expense required to gather such data (Dobrev, 2005). If the alumni sample is truly representative of the underlying alumni population on all dimensions that are of theoretical importance, then this is less of an issue.

Although one limitation of alumni survey data is that it is typically cross-sectional in the sense of coming from a survey given at one point in time, on the other hand our MIT and Tsinghua respondents graduated from the university and founded companies over an impressive span of time. There is also no reason why alumni surveys could not

be performed annually to form a panel data structure, with the caveat that there may be selection issues in terms of who elects to stay in the survey for multiple years.

Finally, alumni survey data balances these drawbacks with the strong advantage of generating a representative sample of alumni not selected based on entry (or successful entry) into entrepreneurship. The university alumni sampling methodology imposes some desirable homogeneity on certain dimensions, such as levels of human and social capital relative to more general but more heterogeneous samples of entrepreneurs. However, there may be a trade-off between the higher rates of occurrence of entrepreneurial events in certain alumni populations and sufficient variation in certain social attributes of individuals. The extent that this drawback is a concern will depend on the specific research questions, the alumni sample, and the social attributes being hypothesized about.

One final difficulty common to alumni surveys that can be dealt with but should be anticipated is that there is temporal right-censoring in that we cannot know who of the more recent graduates will become entrepreneurs (or repeat entrepreneurs if we are examining that) or how their firms will perform at later stages of their existence. This right-side censoring is especially an issue given the frequently long lag from graduation to first firm founding, as well as the potential long lives of the new companies that are founded. Similar difficulties are encountered with research on insurance and medical malpractice where there is a long lag between an event and the resolution of a court case. We use statistical methods in the regression analyses to adjust our estimates for this right-censoring.

Lessons Learned

The design and implementation of the Tsinghua survey is an improvement and

extension of the MIT survey. Many lessons were learned through the experience of the MIT alumni survey that were incorporated into the Tsinghua survey. Further lessons were learned from the extension of the alumni survey methodology into the international context with Tsinghua University. The Tsinghua dataset is one of the first systematic large-scale records of high-tech entrepreneurial activity in China.

The MIT alumni founder dataset was designed and executed before my arrival at MIT by a committee that included staff of the MIT Alumni Association, their consultant who was an economic geographer, Professor Edward B. Roberts and David Hsu (who at the time was a post-doc at MIT Sloan). The fact that such a large group with diverse interests was designing the survey led to some difficulties and frustrations from a research point of view. A size constraint that was imposed on the survey instrument forced the omission of many questions preferred by the academic researchers. The Tsinghua survey improved on this dimension since we had complete control over the survey design. The MIT survey was also performed in two waves while the decision was made to conduct the Tsinghua survey in a single wave. The advantage to first surveying all alumni and then sending a separate survey to founders is that the overall size of the initial survey instrument is reduced, providing a higher response rate. The disadvantage is that there is a large drop-off in respondents between the first and second waves.

After beginning to work with both the MIT and Tsinghua datasets, it has become apparent that we lack data that the literature has presented as important. For example, we do not have parental or family background information, including parental careers, religion or wealth. We do not have good measures of the skills or variety of roles played by the alumni prior to their becoming entrepreneurs. We also lack information on

cognitive characteristics of the entrepreneurs, opportunity costs they might have perceived in becoming entrepreneurs, and information on their motivations in starting their firms. These deficiencies constrain our areas of current analyses while providing good opportunities for future research direction. For the present dissertation chapters, we regard these factors as unobserved, and to the extent that they are randomly distributed between founders and non-founders, the regression estimates are consistent. There is an inherent trade-off, common to all survey methodologies between asking more questions, thus lengthening the survey, and obtaining a higher response rate.

The experience of designing and implementing the Tsinghua survey also resulted in lessons on doing alumni surveys in an international context.

Comparison with other methods of generating entrepreneurship databases

The other methods for generating entrepreneurship databases have tended to rely on surveying existing small or young firms, leading to survivorship bias, or utilizing secondary data sources such as the U.S. Census, the Longitudinal Business Database, or the Dun & Bradstreet database of private firms. These large-scale databases have an advantage in being generally representative and having a large number of observations. However, they typically define entrepreneurship as self-employment.

The Global Entrepreneurship Monitor used adult population surveys in one of the only cross-national surveys of entrepreneurship. However, the GEM survey used “the widest possible definition of entrepreneurship” and has been faulted for the varying implementation of the surveys differing across countries.

The Dun & Bradstreet database has been used for entrepreneurship since it is one of the only public databases covering private firms. However, it gives little information

on the founding team or the entrepreneurial process. The Kauffman Firm Survey (KFS) used the Dun & Bradstreet database as a sampling frame to conduct yearly waves of surveys to ask much more detailed questions about the founders and their ventures. This is an exciting database that should yield answers to many questions in the coming years. The KFS screened 32,500 sampled businesses (the response rate was 43%) to identify 4,930 eligible new businesses which have been followed up with to form a unique panel dataset (Ballou et al, 2007; Barton and DesRoches, 2007).

The Stanford Project on Emerging Companies (SPEC) sampled by firm, not founder (e.g., Baron, Burton and Hannan, 1996). The sampling criteria were that the firm was founded between 1983-1995 and had at least 10 employees at the time of the interview. Due to this size constraint, they have a success-biased sample, however the data have been useful in multiple studies that have asked questions about the relationship between the founding team, work history, and new firm fundraising or outcomes such as an initial public offering.

No research methodology is perfect and each has its own advantages and drawbacks. Thus, it is important to choose the correct methodology for the question being asked. Until now, alumni surveys as a methodology to ask questions about the transition from employee to entrepreneur and about the entrepreneurial process have been a growing research approach that is likely to continue in the coming years. Alumni surveys offer several attractive properties, including the ability to relatively cheaply and systematically gather entrepreneurship databases both in the U.S. and abroad.

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