Track Title: Small Business Management

One more time: Why it is important to define the small enterprise

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Abstract

Small and medium sized enterprises (SMEs) are widely recognised as the dominant form of business in economies globally. Although these firms contribute significantly to economic growth, employment and productivity, there are major gaps in the SME research and policy fields. In this paper, we review and summarise the definition of SMEs found in the literature. We then report our analysis of SME definitions used in a sample of 217 papers from 20 academic journals specialising in entrepreneurship and small business management. Almost half of the SME studies used an employment metric definition and just over half used the European Union's upper limit of 250 employees. Surprisingly, this analysis also found 31% of the papers did not provide any definition of SMEs. As these findings signal major problems with current SME definitions, we discuss the importance of having a comprehensive SME definition and propose the development of a new taxonomic SME framework as the next stage of our study. Hence, we highlight the need for a new approach to the definition of SMEs to improve the quality and comparability of SME research and policy in future. This approach will enable a greater focus on mainstream SME rather than just high-growth enterprises.

Key Words: definition, small business, SME, small firm, taxonomy, typology

Introduction

The importance of small to medium enterprises (SMEs) within national economies is widely acknowledged. These firms comprise the overwhelming majority of all businesses within most countries and play a key role in the creation of employment and economic growth (Ayyagari, Beck and Demirguc-Kunt, 2007; OECD, 2010a). Since the publication of Birch's 1979 report on the role of SMEs in job creation, the level of government interest in small business has steadily increased (Birch, 1985). Around the world there are ministerial portfolios and government agencies tasked with the development of policies and support programs for SMEs.

Commensurate with this growth in government interest in SMEs has been a steady increase in the level of academic research into these firms. Since the 1970s research into SMEs has evolved into a sizable field of inquiry supporting numerous academic journals, dedicated research centres, and global organisations such as the International Council of Small Business (ICSB). In the past 15 years the study of SMEs has been overshadowed by the related but distinct domain of entrepreneurship. However, research into small enterprise remains a wide, rich and quite heterogeneous field. While entrepreneurship focuses on the attributes and behaviours of the individuals who create and grow business ventures, small business is more concerned with the characteristics and behaviour of firms of a given size (Breen, 2004).

Despite the importance of SMEs, significant weaknesses remain in the conceptual foundations of the research undertaken in this area (Tan, Fischer, Mitchell and Phan, 2009). One of the most fundamental problems is the paucity of effective definition and classification of what is an SME or small enterprise. There is no universally accepted definition of the SME concept. Different definitions are used around the world with a variety of measures relating to employment, turnover, assets under management and independence of ownership (OECD, 2004). Given the diversity of the SME sector it is probably impossible to develop a single globally accepted definition.

However, although there is unlikely to be an overarching definition of what a small enterprise is, the lack of clarity around the way in which such firms are defined has significant implications for both academic research

and government policy. A lack of appropriate definition impacts negatively on research as it can distort findings (Headd and Saade, 2008). There are so many different sizes and types that unless better definition or definitions of small firms emerge, research is at risk of producing findings that cannot be replicated in further studies, lack external validity and confound comparative studies.

For example, if a biologist wished to study frogs they would need to develop a robust system of defining and classifying what a frog is and how it differs from a snake or a dog. They would also need to classify and define the many different types of frog that exist in order to fully understand them. There are an estimated 4,800 known species of frog, which all share common features that define them as frogs, but with many distinctive differences that make them unique. It would be scientifically unsound to conduct research into frogs without first addressing these fundamental issues of definition and classification.

In the field of small enterprise research, a number of typologies and taxonomies have been developed over the years. However, most focus on specific areas of SME behaviour, or the characteristics of their owner-managers (e.g. Liles, 1974; Preston, 1977; Stanworth and Curran, 1976), Filey and Aldag, 1978; Huppert, 1981; Dunkelberg and Cooper, 1982; Miller and Friesen, 1982; Carland et al, 1984; Marchesnay, 1988; Gartner et al, 1989; Julien, 1990; Rizzoni, 1991; Thompson, 1999). Much attention has also been given to the study of high impact outlier firms. We now have an array of definitions for specific types of firms such as "Gazelles" and "Born Globals" that have spawned their own sub-domains of academic research. Here the key units of analysis are rate of growth or speed of internationalisation.

Many other units of analysis have also been used to study SMEs. These include the level of R&D expenditure (high-tech firms); the age of the business (start-up firms); the type of ownership (family firms); where they are located (home-based businesses), and the purpose for which they were established (social enterprises). Even in these much studied outlier groups there continues to be a lack of adequate definition to guide research. However, when the mainstream SME community is examined, this lack of definition becomes even more pronounced.

This paper has two primary purposes. The first is to examine the problem of how to define "small enterprise", which we propose as a generic term to describe small businesses, SMEs and related entities. The paper examines the academic literature from the leading journals specialising in small business and entrepreneurship to identify how these firms have been defined. We then propose a framework for approaching the definition of the small enterprise, with recognition of the need to use appropriate definitions for specific situations rather than a single, often simplistic definition. The problem we seek to address with this study is not only related to enhancing the rigour of academic research. It also impacts directly government policy. Effectiveness in developing economic, tax and general business support policies for SMEs cannot be achieved without adequate definition, measurement and comparable statistics (OECD, 2004; Productivity Commission, 2013).

A second purpose of this paper is to address what we believe is an unhealthy and myopic focus within the academic literature towards the high-impact outliers within the small enterprise community. This takes the form of research into the SMEs that are classified as high-tech, high-growth, "Gazelles" or "Born Global". Such firms are entrepreneurial in nature and have the potential to make a high impact if they prove successful. They attract not only venture capital financing, but also academic researchers (Mazzarol et al, 2011). There is now a call by some academics to concentrate only on the "Gazelles" or "entrepreneurial firms" that offer the real opportunities for economic and employment growth, and largely ignore the "Muppets" that comprise the vast majority of SMEs (Nightingale and Coad, 2013).

The problem with this argument is that high-growth SMEs (those with average annualised growth greater than 20% over a three-year period) are estimated to comprise no more than 3% to 6% of all firms by employment and 8% to 12% by turnover. Further, "Gazelle" SMEs (those firms aged less than 5 years with average annualised growth greater than 20% over a three-year period) are estimated to comprise less than 1% to 2% of all firms (OECD, 2010b). Such firms are also highly innovative, and have a substantial level of risk associated with their business models. Seeking to build stable and effective government policy around these firms becomes problematic due the uncertainty that surrounds their development path.

An alternative view is that a policy focus on the "SME Ordinaire" that comprise the majority of small firms may offer a more sustainable and lower risk path to stimulating employment and economic growth (Mazzarol et al, 2011; OECD, 2010a). This requires research that can enhance our understanding of the behaviour of the majority of small enterprises not just the outliers. Rather than dismissing the 98% to 99% of non-"Gazelle" SMEs as stupid "Muppets" (see Nightingale and Coad, 2013), attention should be given to strengthening their level of innovation and growth. However, without appropriate definition and classification such research cannot be effectively undertaken. This paper seeks to address the following research questions:

1. How are SMEs defined in the academic literature?
2. What does this literature suggest might be used to guide the future development of typologies or taxonomies for classifying SMEs?

Literature Review

A review of the academic literature suggests that there is no single, universally accepted definition of a small enterprise (Storey, 1994; Tonge, 2001). Furthermore, it seems that there is not even an agreement as to the identification of how researchers might classify or categorise different types of small firm. Our examination of the literature also suggests, somewhat surprisingly, that the number of academic studies that have attempted to specifically address the definition of small enterprise is relatively small. In fact many academic papers that have focused directly on small enterprises don't always precisely define them, or they use different definitions, which make direct comparisons across studies virtually impossible.

When studies do clearly define their units of study they tend to use the official classification systems provided by governments (e.g. Audretsch, 2002; Al-Qrim, 2005). These typically use quantitative metrics such as employment size, annual turnover or assets under management as measures (APEC, 2002; OECD, 2004). Other studies use unofficial definitions but with quantitative metrics (e.g. Avermaete et al. 2003). There are also many studies that use qualitative metrics, usually of an unofficial nature specific to their particular study (see: Baños-Caballero, García-Teruel and Martínez-Solano, 2010; Autio and Lumme, 1998). These studies can rely on multidimensional quantitative measures depending on the focus of the research. It is less common to find studies that use complex qualitative definitions including several criteria such as structure, range of products, role of the manager (e.g. Appiah-Adu and Singh, 1998).

An additional but quite serious issue is that many official government definitions of small enterprises vary by country or jurisdiction (APEC, 2002; OECD, 2004). This makes an SME in the United States any business with fewer than 500 employees, while the same business in Australia would be one with fewer than 200 employees, or fewer than 20 if considered a small business (APEC, 2002; ABS, 2005; 2013). This lack of consistency in the definition of SMEs across jurisdictions creates difficulties when seeking to undertake meaningful comparisons of research findings from one study to the next.

Our examination of the literature found several studies that have attempted to specifically address the definition of a small enterprise (e.g. Bolton, 1971; Wiltshire, 1971; Beddall, 1990; Brooksbank, 1991; Lattimore et al, 1998; Forsaith and Hall, 2001; Holmes and Gibson, 2001; Tonge, 2001; Breen, 2004; OECD, 2004; Massey, 2005; Murphy, 2005; Kenny, 2013). However, many of these studies were never published in the peer reviewed journals. They were often prepared for government or international agencies and are located in the "grey literature". Such works are typically addressing specific policy issues (e.g. taxation, specific support to investment) and made reference to the lack of clear and shared definitions. These studies called for greater clarity and uniformity in definition, so as to assist in the targeting of policy, legislation and support programs (e.g. Bickerdyke and Lattimore, 1997; OECD, 2004; Clark et al, 2011; Productivity Commission, 2013). A smaller number of papers were unpublished reports that had been commissioned by small business associations or government agencies specifically to define the nature of SMEs and make recommendations for future practice (see Holmes and Gibson, 2001).

Some academic papers have also highlighted the difficulties caused by this lack of precision in definition and also their consequences in terms of the validity of results (e.g. Brooksbank, 1991; Murphy, 2005; Ayyagari, 2003; Headd and Saade, 2008). An attempt to categorize the numerous definitions that have been proposed

in the past could lead to a list of definitions using quantitative thresholds, definitions using ad hoc criteria and resulting in typologies, definitions using more complex criteria or methods, like mappings or continuums.

Statistical definitions based on thresholds:

Quantitative definitions tend to be the most common. Government agencies usually require definitions that are measurable and not easily open to subjective interpretation. This is particularly important for regulation and enforcement around taxation or financial assistance programs. However, such definitions do not always provide the level of flexibility and subtly that accurately represents the actual diversity of SMEs, as a firm's identity is not influenced only by a few quantitative measures such as employment size or turnover. Such measures are also context dependent and differ across industries and national jurisdictions.

Table 1 lists the official definitions used across many of the countries that comprise the Asia-Pacific Economic Cooperation (APEC) zone. As can be seen, there are a range of measures used to define SMEs with a wide range of employment sizes. This makes comparative studies of SMEs across these countries difficult. The lack of consistency in how SMEs are defined and measured has negative impacts on research and policy (OECD, 2004). However, as the OECD observed:

> "The evidence gained from the strategy questionnaire clearly shows that the diversity and richness of SME characteristics, political strategies and economic conditions are unlikely to ever yield a commonly used and accepted definition of SMEs. This may also be unpractical from an analytical point of view." (OECD, 2004; 12)

To alleviate this problem the OECD (2004) proposed that member nations agreed on common size-classes for defining SMEs and an alignment of metrics (e.g. employees or financials). There should also be a common agreement over size-classes for different industry sectors. Their preferred model was that developed by the European Union (EU) which classified firms by employment, turnover, assets and level of autonomous ownership. Of these, the size of the firm's employment base was the most important measure.

Table 1: Main elements of the definitions of SMEs in APEC for statistical purposes

	employees	n	capital	assets	sales	production capacity
Australia	200	yes				
Brunei Darussalam	100	ns				
Canada	499	yes			▲	
Chile	200	ns			▲	
China	500	no		▲		▲
Hong Kong, China	100	yes				
Indonesia	100	yes		▲	▲	
Japan	300	yes	▲			
Korea	300	yes				
Malaysia	150	ns			▲	
Mexico	500	yes				
New Zealand	19	yes				
Peru	19	ns				
Philippines	200	yes		▲	▲	
Russian Federation	500	ns				
Singapore	100	yes		▲		
Chinese Taipei	200	yes	▲		▲	
Thailand	200	ns		▲		
USA	499	yes				
Viet Nam	200	yes	▲			

Source: - APEC 2002, p. 2

The EU definition of an SME classifies firms into micro, small and medium. Micro-firms have fewer than 10 employees and annual turnovers and assets of less than €2 million. Small firms have between 10 and 49 employees, and less than €10 million in annual turnover or assets. Medium sized firms have between 50 and 249 employees, with annual turnover below €50 million, and assets of less than €43 million. All SMEs should be autonomous in their ownership (OECD, 2004; EC, 2014).

Another quantitative approach considers allocating similar proportions of firms to the 4 main categories (micro, small, medium and large). With this proportional approach, scholars including Storey (1994) and Cameron and Massey (1999) have defined the small firm's category as having 95% of the businesses. The rationale for this system assumes that the proportion of firms is broadly similar, irrespective of country. Further, this means that each country develops a definition that suits their needs. However, this approach has disadvantages as the 'cut-off' sizes in terms of employees will vary across countries and may also change over time as economies grow.

Typologies:

One of the first steps to clarifying otherwise complex and multidimensional concepts is to build categories. As a result the small business literature is full of propositions of different typologies and classification systems aimed at identifying and describing different kinds of SME. For example, D'Amboise and Muldowney (1988) proposed a classification system based on five criteria considered important to understanding SMEs. These were the firm's task environment, its organisational configuration, the characteristics of its management team, as well as its success or failure, and the age of the business. A more general approach was proposed by Julien (1990) who identified four typologies based on the firm's: governance, strategy, maturity and sector of activity. Table 2 provides a list of papers identified in the literature that offer various typologies based on classifications associated with strategy, growth, market sector focus and innovation.

Table 2: Synthesis of the literature review on typologies

Typology classification	Papers
Typologies based on strategy and orientation	Liles (1974); Stanworth and Curran (1976); Filey and Aldag (1978); Dunkelberg and Cooper (1982); Miller and Friesen (1982); Carland et al (1984); Thompson, (1999)
Typologies based on growth	Greiner (1972); Basire (1976); Churchill and Lewis (1983)
Typologies based on the specificities of the market addressed by the firm	Preston (1977); Huppert (1981)
Typologies based on innovation	Tidd (2001); Mazzarol and Reboud (2009); Jones-Evans (1995); Autio and Lumme (1998).

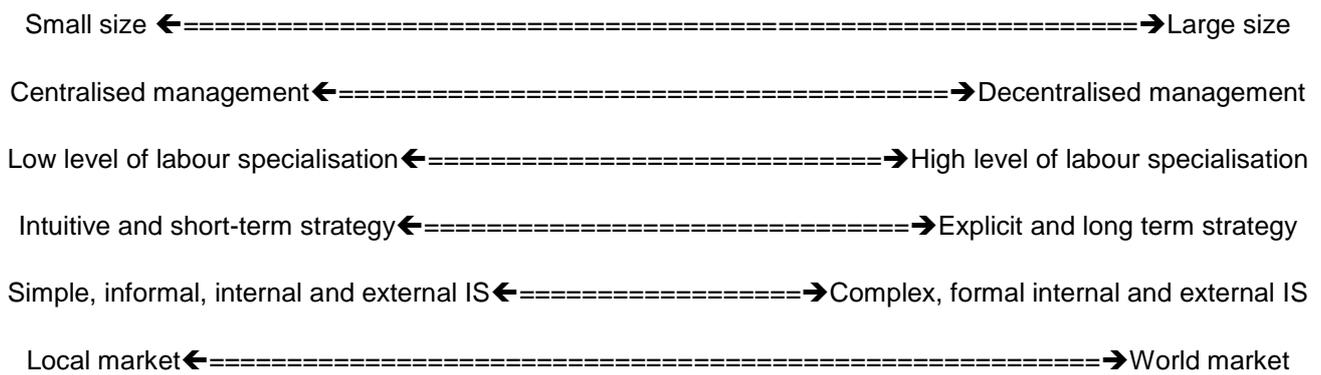Source: Based on Mazzarol et al. (2011)

Mapping:

In an attempt to adopt a different approach, Tan *et al.*, (2009) offered an even more complex classification system for new ventures that maps the business on two dimensions with key questions of "is it a business?" and "can you keep it?" A "model venture" would have high "B" (Business) and high "K" (Keep) scores, while a "research project" would have low "B" and "K" indices. The "lifestyle small business" venture falls somewhere in the middle of this matrix, while the "hobby" has high "K" but low "B" scores. As a venture screening tool this is potentially useful, but less so for a general classification system for SMEs.

Continuums:

The complexity of classifying SMEs has led some authors to adopting continuums using separate categories. For example, Julien (1990) adopted this approach, although he noted that this was still too simplistic a system as the continuums are not always linear and as there are thresholds along the evolution of the SME and sectoral differences. Figure 1 illustrates the continuum classification system proposed by Julien (1990).

Figure 1: Classification based on continuum

Small size ⬅==➡Large size

Centralised management⬅=====================================➡Decentralised management

Low level of labour specialisation⬅==============================➡High level of labour specialisation

Intuitive and short-term strategy⬅===============================➡Explicit and long term strategy

Simple, informal, internal and external IS⬅==================➡Complex, formal internal and external IS

Local market⬅==➡World market

Source: Julien (1990)

Taxonomy:

Doty and Glick (1994) suggest that typologies have proven popular in management theory due to their ability to provide parsimonious frameworks that allow complex organisational forms and relating these to different organisational behaviours. However, they caution that many typologies are too simplistic. They also discuss the difference between classification schemes, typologies and taxonomies. The first two of these concepts refer to methods where organisations are categorised into mutually exclusive and exhaustive groupings defined by clear decision rules. By contrast typologies refer to interrelated "ideal types" that have been conceptually derived. Typologies do not require strict rules of categorisation, instead they:

> "...identify multiple ideal types, each of which represents a unique combination of the organisational attributes that are believed to determine the relevant outcome(s)." (Doty and Glick, 1994: 232)

Undoubtedly the most precise system of classification is taxonomy. While typologies are often developed from a theoretical perspective, taxonomy is derived from empirical observations of the phenomena being examined. Taxonomy is commonly used in science to classify phenomena and this technique is a key component in the biological sciences. However, although they offer more precision taxonomy are also more complex and less parsimonious than typologies, and generally take more time to develop.

Our literature review identified several taxonomy with relevance to SMEs. The first of these is Pavitt's (1984) study of innovation in UK firms. This was based on a longitudinal database of about 2,000 innovations that had been commercialised from 1945 to 1979. Although its focus was on innovation and commercialisation in UK firms, the size of the sample drawn for the study and the fact that it was longitudinal provided a solid foundation upon which to build the taxonomy. The study was subsequently updated with additional data over time (Pavitt, Robson and Townsend, 1989). As noted by Archibugi (2001), the approach taken by Pavitt was rigorous and helped to inspire significant research and policy activity. It also challenged the more popular approach to classifying firms and industries based on their level of R&D intensity (e.g. low, medium and high R&D intensive or "tech" firms).

Pavitt's (1984) taxonomy was built on four primary categories: i) supplier dominated; ii) production intensive; iii) science-based; and iv) scale intensive firms. Later he added a fifth category, information intensive firms (Pavitt, 1990). Although taxonomy can be static in nature with strict rules of classification, Archibugi (2001) suggests that Pavitt's (1990) approach has the potential to also be used dynamically. It does this by including the trajectories that a firm's technologies will potentially follow.

Garnter, Mitchell and Vesper (1989) proposed a taxonomy for new business ventures. This taxonomy was developed from a survey of 106 individuals in Canada and the United States who had recently launched a

new business start-up. It produced eight specific types of new business venture classified by four dimensions: i) the individual characteristics of the founder; ii) the organisational characteristics of the business; iii) the characteristics of the task environment; and iv) the characteristics followed in start-up process. Rizzoni (1991) also offered a taxonomy of technological innovation in small firms. This identified six distinct types classified by eight dimensions. However, unlike the work of Pavitt (1984; 1990) or Gartner et al (1989), this work was not developed from any empirical foundation and is more a typology than taxonomy.

A further taxonomy of innovative small firms was proposed by de Jong and Marsili (2005) who sought to build on the work of Pavitt (1984; 1990). Using a sample of 1,234 Dutch firms and a multi-stage, multivariate data analysis, they identified four categories of firm which they described as "supplier-dominated", "specialised suppliers", "science-based" and "resource-intensive". This study supported Pavitt's earlier work and showed the importance of empirical data of what small firms actually do. Also found was a taxonomy of small firms engaged in the commercialisation of technology with six categories of firm (Libaers and Hicks, 2007).

Methodology

We conducted a systematic review of research into SMEs published in the leading specialist academic journals between 2008 and 2014. A multi-stage methodology was followed, which built on the approach originally developed by Webster and Watson (2002). However, citations of and within the final set of papers were not explored separately. The first stage involved the selection of a list of academic journals identified as focusing specifically on small business and entrepreneurship. Commencing with an initial list of 45 journals we ranked them according to their impact factors and the ranking system used by the Australian Business Deans' Council (ABDC), which classifies journals into four categories (A*, A, B, C) in relation to their impact factors.

The second phase consisted of searching each one of these titles within via the "OneSearch" information system developed by the University of Western Australia, which offers access to a wide range of online sources including Scopus, OneFile, SciVerse ScienceDirect, SpringerLink, Wiley Online Library, INFORMS, JSTOR and many more. We deliberately restricted the search criteria to papers published between 2008 and 2014 in order to cost effectively capture a sample of the most recent work. Each journal was searched using the key words "small business" or "SME" within the title, abstract or keywords. For some journals with an excessive number of results for those terms, the search was reduced to the term "SME" within just the 'title' in order to develop a subset of the most relevant papers for that journal. Any journal that didn't contain papers with these criteria was excluded, along with several titles that were not accessible to the original source via the online search system. A short list of 20 journals was produced.

The third phase consisted of examining each paper directly and reading the contents to identify how the authors had defined SMEs or small businesses. Articles that were literature reviews or studies seeking to define and classify SMEs were excluded from the set. This resulted in a total of 217 papers. The methodology section was located within each paper and scanned for a definition of SME. If none was found in the methodology section, the article was searched for the words "defined" or "definition". The data for each paper was then entered into excel spreadsheet and coded for further analysis.

Data entered for each paper comprised: authors; year; title; journal; Volume; Issue; Pages; Abstract; keywords; SME definition; SME definition type; Sample Size. Under "SME definition type" we classified definitions under the following categories: "Size: employees", Size: mixed", "Size and Independence" (European Commission definition), "Other", and "No definition". The category "Sample Size" refers to the number of SMEs studied in the case of quantitative research papers. Table 3 lists the 20 journals and 217 papers.

Table 3: Academic journals reviewed with papers on SMEs published 2008-2014

Journal Title for 20 journals	Code	ABDC ranking	Number of papers reviewed
Entrepreneurship: Theory and Practice	ETP	A*	1
Journal of Business Venturing	JBV	A*	3
Entrepreneurship and Regional Development	ERD	A	7
International Small Business Journal	ISBJ	A	58
Journal of Small Business Management	JSBM	A	19
Small Business Economics	SBE	A	54
Strategic Entrepreneurship Journal	SEJ	A	3
Technovation	TECH	A	7
Economics of Innovation and New Technology	EINT	B	4
Entrepreneurship Research Journal	ERJ	B	2
International Journal of Entrepreneurial Behaviour and Research	IJEBR	B	13
International Journal of Innovation Management	IJIM	B	2
Academy of Entrepreneurship Journal	AEJ	C	4
International Entrepreneurship and Management Journal	IEMJ	C	6
International Journal of Entrepreneurship and Innovation	IJEI	C	1
International Journal of Innovation and Technology Management	IJITM	C	7
Journal of Applied Management and Entrepreneurship	JAME	C	1
Journal of Research in Marketing and Entrepreneurship	JRME	C	13
Journal of Small Business Strategy	JSBS	C	1
Small Enterprise Research: The Journal of SEAANZ	SER	C	11
			(N = 217)

Note: A* and A denotes high impact, B and C denotes lower impact

Results

The 217 papers extracted from the online databases were examined and grouped according to how they defined the concepts "SME" or "small business". Table 4 lists the findings from this analysis where the nature of the definition, number of papers and indicative examples of each definition are listed. It can be seen that the most common unit of measure for defining SMEs was the size of the firm's employment. Just under half (46%) of all papers examined used employment as their point of definition. The most common approach used was the European Union's (EU) upper limit of 250 employees, which 55% of the papers that used an employment metric adopted. The second most common employment metric was an upper limit of 500 employees, which was found among papers from the United States or using US SME samples. This is in keeping with the official US definition of an SME. However, there was a wide variety of employment size definitions used, ranging from less than 9 employees to less than 791 employees.

In addition to employment size there were a number of other definition categories used. These included annual turnover in sales, size and ownership structure of the business, and a mixed metric of employees, turnover and assets. This was the second most common approach with 13% of all papers using this method. As shown in Table 4, a wide variety of different mixed-metric systems were applied. The EU approach with employment, turnover and assets was a popular model, but other systems were found that drew on various government systems of defining SMEs.

Table 4: Definitions of SMEs found in the academic papers

Definition	N	Metric	N	Example of definition
Not defined	67			"employed between 38 and 62 people".
Employees[1]	100	<9	1	"less than 25 partners".
		<20	1	"Only firms with 100 employees or less were included in the sample. We excluded larger firms, which might have access to multiple types of financing."
		<25	1	
		<50	3	"Used the Spanish government definition similar to the EU. Micro <10 employees; small 10-19 employees; medium 20-99 employees, large >100 employees."
		<75	1	"The companies with less than 150 and more than five fulltime employees were categorized as SMEs and 300 companies were selected randomly."
		<100	9	
		<150	1	"We adopted the European Union definition that defines an SME as a company with a maximum of 250 employees."
		<200	5	
		<250	55	"Small businesses are constituted by 100 or fewer employees and medium-sized businesses ranging from 101–200 employees."
		<260	1	"Only single businesses, small- to medium sized companies were included in the sampling frame (i.e., 50 to 500 employees)."
		<300	1	
		<500	20	"Note that throughout this article SMEs are defined as firms with less than 250 employees. Specifically, we shall define micro-firms as those with less than 10 employees; small firms as those with more than nine employees but less than 50; and medium firms as those with more than 49 employees but less than 250."
		<791	1	
Turnover	3			"Annual sales in the $500 thousand to $1 million range."
				"...annual turnover less than €43 million..."
Mixed	28			"Number of physician fulltime equivalents (FTEs) being less than 50. Additionally, all firms had annual net revenues of $44 million or less, which falls under the established cut off of $50 million for SMEs."
				"Austrian government definition of SMEs, Small <7.3m euro turnover, <3.65m euro assets, <50 employees; medium <29.2m euro turnover, <14.6m euro assets, <250 employees."
				"NACE 2002 definition 2.6m euros annual turnover and 5-70 employees."
				"EU definition <250 employees, <50m euro turnover, <43m euro assets, independent firm <25% equity held by other firms."
				"SMEs: (1) total assets less than or equal to £11.4 million; (2) annual turnover less than or equal to £22.8 million; (3) total number of employees fewer than or equal to 250."
				"Since returnee-owned firms are a recent phenomenon in China, we limited the sample to small and medium enterprises (SMEs), according to the official Chinese definition, where an SME has fewer than 300 employees and a total value of sales below 5 million RMB."
				"A firm is considered to be a SME if it exceeds no more than one of the following criteria: (i) average number of employees equal to 50, (ii) yearly turnover (excluding VAT) equal to 7.3 million EUR, and (iii) total assets equal to 3.65 million EUR. Firms exceeding more than two criteria, or firms with an average number of employees higher than 100, are classified as large firms."
				"Firms were homogeneously stratified according to five different industrial sectors (Construction, Engineering, Food, Textile-Clothing-Footwear, and Wholesale trade), number of employees (1-20, 21-50, and more than 50 employees), and level of sales (0-250 thousand Euro, 250-500 thousand Euro, 500 thousand to 2.5 million Euro, 2.5-5 million Euro, 5-7.5 million Euro, and finally more than 7.5 million Euro)."

Size & ownership	6			"An SME is defined as a firm with less than 250 employees; not being controlled for more than 25% by firms that are not SMEs; having an annual turnover of less than 50 million euro and/or a balance total inferior to 43 million euro (EU definition of an SME)." "SMEs were defined as: having greater than 5 and less than 250 employees; and being standalone enterprises (i.e. not subsidiaries of larger entities)." "As this study involves Swedish SMEs, the definition will be the European definition, fewer than 50 employees and not a subsidiary of another business."
Other	13			"Two selection criteria were used: organizations were required to have 11 or more employees; and organizations needed to have been in business for at least five years. Using these criteria allowed us to omit micro-sized and start-up firms from the sample. (Size and Age)." "...initial investment less than 10 million rupees..." "Age of firms was 3-10 years old." "According to the IASB, small and medium-sized entities are those that publish general purpose financial statements but do not have public accountability." "The exploratory paper draws upon a "pre credit crunch" survey of 400 small and medium-enterprises (SMEs), a large random stratified sample of Barclays' SME clients." "The sample was selected from the population of the ARDAN-Valencian Community database, excluding the energy sector and microbusinesses (firms with fewer than 10 workers), which includes a total of 3,394 registered firms."

[1] Some papers were inclusive and others exclusive of the upper boundary (e.g. up to 249 employees or up to 250 employees). For the purpose of this classification there was no differentiation between these two methods of accounting.

Perhaps the most surprising finding was that 31% of the papers we examined provided no definition of SME at all. Despite a direct search through each paper within the introduction, methodology and abstract sections, we failed to find any evidence of a definition for the SMEs that they were researching. It should be noted that these were papers that had undertaken quantitative research into SMEs using these firms as their sample. The absence of any definition seems like a major omission from peer reviewed papers. Further, this lack of definition of the primary subject under investigation was found across all levels of journal from the "A-league" to the "C-league".

Discussion

In this paper we set out to answer two research questions. The first focussed on how SMEs are defined in the academic literature. The second examined what the literature suggests might be useful to guide the future development of typologies or taxonomies for classifying SMEs.

In relation to the first question, the findings from our review of 217 papers from the most recently published SME research suggests that little has changed in how we define SMEs despite the call for a more systematic and uniform approach by groups such as the OECD over a decade ago (OECD, 2004). Our examination of 20 prominent academic journals in the field of entrepreneurship and small business management suggests that academics are not following any clear or consistent pattern in how they define SMEs. Most use employment size as their key metric and this is often influenced by their country of origin and the classification systems used by governments in those countries. In this sense, the most common approach was to adopt the EU definition.

However, there are still many idiosyncratic approaches being adopted and our analysis of these papers shows that the definition of what an SME is remains quite loosely treated within most published research. The somewhat eclectic nature of how SMEs are being defined within this research field, and the surprisingly high proportion of papers that have no definition, should be a cause for concern. For example, if we consider our biology study outlined in the paper's introduction, it would be nonsense for a Biologist studying frogs to conduct research without specifying the type of frog they were investigating. Further, it would be surprising if

they were to get their research published in leading journals if they did not provide such definition and classification. Yet it appears that this is not the case for academic research into SMEs where eclectic definitions or no clear definition seem to be widely regarded as acceptable practice.

In relation to our second research question, the findings from our review of the published SME research suggest that the diversity of SMEs and how many governments seek to define them makes it difficult to find a single common definition. Despite this we believe there should be no room for complacency. This lack of consistency in how SMEs are being defined makes it problematic that the findings from much of the academic research can be readily extrapolated beyond the study itself, and that much caution should be taken in seeking to draw comparisons across studies. From a research and policy perspective this is not acceptable.

The most common definition being used is that of the EU's classification system. This offers a comprehensive breakdown into micro, small and medium sized enterprises, and offers employment, turnover and asset metrics, as well as a measure of autonomous ownership (OECD, 2004). However, we believe that while this is currently the best available definition, there remains a need for a framework that can assist in the classification of small enterprises based on the observation of what such firms actually do. In this regard we view the work undertaken by Pavitt (1984; 1990) to be a useful benchmark for future research. Prior research on the nature of small firms has accentuated the differences in their characteristics from large firms (Bolton, 1971; Welsh and White, 1981; Gibb and Scott,1985; D'Amboise and Muldowney,1988). As far back as 1959, Edith Penrose noted that small and large firms are as fundamentally different from each other as a caterpillar is from a butterfly (Penrose, 1959; Massey, 2005). Hence, it is very important to develop a definition that reflects the behaviour and practices of small businesses.

In developing his taxonomy of innovation, Pavitt (1984) drew on a large, longitudinal of firms collected via the Science Policy Research Unit (SPRU) at the University of Sussex. The availability of this database and the overall quality of the data it contained enabled a detailed examination of how firms behaved over time. Its size and complexity permitted a more robust classification system to be developed than might have been possible with the small, cross-sectional studies that are commonly found in the academic literature. Pavitt's aim was to develop taxonomy that not only described the behaviour of firms, but also offered a system for predicting behaviour and a framework for policy analysis (Archibugi, 2001).

This approach appears to provide a comprehensive method for the development of a classification system for SMEs. There are currently a number of longitudinal datasets that may be used for the development of SME taxonomy. One example is the Business Longitudinal Database (BLD) developed by the Australian Bureau of Statistics (ABS). The BLD in its current form was created in 2007 and seeks to track the behaviour of firms over a five-year time period via a series of panels (ABS, 2013b). This type of longitudinal panel data can be a useful foundation for the creation of taxonomy. The BLD has a fairly comprehensive list of variables relating to industry sector, size of firm by employment, turnover and assets, as well as ownership structure, export activity, innovation and use of technology.

This project is important not only to enable SME research to build on a credible, consistent and coherent framework in future, but also to provide a platform of reliable evidence to inform SME policies around the globe. In the absence of appropriate evidence, the development of SME policies and programmes is likely to be ad hoc and succumb to pressures to follow the 'fads and fashions' of policy making. Without detailed analysis this can lead to policies and programmes which are incongruent, as well as the indiscriminate adoption of ideas that do not necessarily fit the context (Gibb, 2000). There are currently many different approaches to SME policies in countries around the world (Stevenson and Lundström, 2001, 2002; Parker, 2002; OECD, 2010a) and no single recipe for SME success given the different contextual factors in each country (Massey and Ingley, 2007). However, Dennis (2011a/b) has contributed four different typologies which enable comparison of the impacts of public policies on SMEs and entrepreneurial firms.

Conclusions

As no universal definition exists and may be very difficult if not impossible to create, there needs to be agreed criteria for defining firms within particular contexts (e.g. financial turnover for taxation or profitability studies, employee numbers for HR or industrial relations, and R&D investment for innovation studies). As we have

noted earlier in this paper, there has been little active interest displayed by academics to define and classify SMEs, other than a few of the high impact outliers such as the "Gazelle" or "Born Global". However, this lack of consistency in how SMEs are defined, or the absence of any recognizable definitions, cannot provide a robust scientifically sound foundation for small business research.

Our study highlights the need for a new approach to defining SMEs and proposes the creation of an evidence-based taxonomic framework for SMEs in the future. While we have identified a major flaw in the field of SME research and policy, we have also presented a plan to address this problem in future. Hence, we have shown that the "emperor has no clothes" regarding the SME definition, but we have also provided a "set of new outfits" to resolve this issue in future.

Our project aims to contribute a framework of SME definitions that can be used to guide such research or policy usage. We believe it is very important for researchers and policy makers to reach a consensus on how small enterprises can be classified within specific contexts. Our preliminary work is of an exploratory nature and we anticipate that in further research we will develop and test the framework initially using datasets available from government statistical repositories.

This project has significant implications for future research, policy and practice. We have reported in this paper only on the analysis of definitions from this sample of SME research from key academic journals. Further analysis of these papers will consider the topics examined within these studies to provide an overview of current research themes in the SME field. In a recent New Zealand study, Clark et al. (2014) have reported on the development of SME research categories and the need for academic research to be made 'visible' for use by policy makers. As most academics operate in discipline-based communities (e.g. marketing, international business, accounting, information systems), they typically publish and/or present most of their research within journals/conferences of their own specialist field. Hence much of the SME-based research is not obvious or easy to find by other scholars or policy makers. Furthermore, as the intellectual expertise and SME publications (including reports and presentations) are mostly 'hidden', this resource is not necessarily able to be utilised or add value to policy/practice.

In terms of SME policy implications, the lack of a common definition for SMEs makes it difficult to draw comparisons of findings from different studies and contexts. Given the scale and significance of SMEs in most countries around the globe, the ability to customise SME policies and programmes is very important to target scarce resources. This project aims to contribute to improved national outcomes by enabling direct comparisons of relevant SME research. By addressing the SME definition problem and encouraging comparative evaluation of SME policies and programmes, the value of SMEs will be highlighted and they will become much more 'visible' players in the national economic agenda for growth, productivity and employment.

With limited resources to invest in SME programs, many governments are choosing to focus on improving the macro-environment for doing business for all firms by simplifying regulations and providing information, management tools and training. The assumption is that economic and regulatory policies that suit business generally also benefit small businesses. This approach normally allows for a relatively small number of specific initiatives targeting specific groups of firms such as high-growth firms e.g. "Gazelles" and "Born Globals". While these firms are quite readily identified, they are rare and, as discussed earlier, they are quite different from mainstream small enterprises or "SME Ordinaire". Our proposal to create a taxonomy for SMEs will enable policy makers to identify and target other groups of SMEs which represent far larger proportions of firms and can potentially contribute significantly in aggregate to the national economy, wealth creation and employment.

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