A Qualitative Approach to Evidence-Based Entrepreneurship: Theoretical Considerations and an Example Involving Business Clusters

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Most research in evidence-based entrepreneurship builds on quantitative designs, which is unfortunate because qualitative studies provide a unique contribution to the domain of entrepreneurship. They look at distinctive phenomena in their specific time period and context in one way or another, and can help generate and test new theories. We, therefore, suggest using a systematic synthesis of case studies to aggregate the findings of qualitative research. Moreover, as a first step, we developed an example to demonstrate how this approach can advance evidence-based entrepreneurship. Specifically, we synthesized 13 cases to examine how business clusters increase the performance of firms within clusters.

Evidence is the essence of human knowledge (Rousseau, Manning, & Denyer, 2008)

Introduction

Evidence-based decisions and practice models are increasingly important in entrepreneurship research, a trend that is accompanied by an increasing number of meta-analyses in this domain (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012a). However, the synthesis of scientific evidence in entrepreneurship is clearly biased toward quantitative research, which is unfortunate because, in this way, scientific evidence in the field of entrepreneurship is accumulated by focusing on studies that are based on specific methodologies and epistemological assumptions. However, the field of entrepreneurship is diversified, which

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is reflected by contributions from multiple disciplines, different theoretical perspectives, different and partially incompatible methodologies, and various units of analysis (Davidsson, Low, & Wright, 2001). As a consequence, the field of entrepreneurship is highly fragmented, and there is a lack of agreement on core concepts and definitions of key constructs. Integrating the scientific evidence in entrepreneurship research requires balancing contributions from alternative research strategies (Low, 2001). To account for the diversity of approaches and methodologies used in entrepreneurship, we suggest broadening the area of evidence-based entrepreneurship by accumulating the knowledge that has become available from qualitative case study research.

Specifically, this review introduces the systematic synthesis of qualitative case studies and describes techniques to synthesize qualitative research systematically. The goal of the systematic synthesis of qualitative case studies is to accumulate, organize, and interpret the studies, with the aim of achieving a level of understanding that transcends the results of the individual studies (Campbell et al., 2003; Rousseau et al., 2008). To our knowledge, there is not a single review in the domain of entrepreneurship that has tried to synthesize qualitative case studies systematically. A systematic synthesis of case studies provides multiple contributions to entrepreneurship research. First, the field of entrepreneurship needs to establish scientific evidence about what has been done to identify areas of maturation and areas where more knowledge and strong practice recommendations need to be developed (Chandler & Lyon, 2001; Rauch & Frese, 2006). This is important, particularly as the field of entrepreneurship needs to develop integrated theoretical frameworks. Second, the systematic synthesis of qualitative case studies generates evidence that cannot be generated through quantitative meta-analyses. Case studies provide unique contributions to the field of entrepreneurship, and thereby contribute substantially to knowledge in entrepreneurship research (Perren & Ram, 2004). For example, case studies often provide unique information about specific time frames and contexts. Moreover, case studies often look at reasons behind specific behavior that may not be fully revealed in a quantitative study. Additionally, qualitative case studies can examine study settings that cannot be easily addressed via quantitative designs. Third, although the aim of case studies is often not to generate broad generalizations, the systematic synthesis of case studies can be used to test theories and hypotheses. Thus, when different case studies are collected across a wide variety of contexts, the cumulative results provide estimates about generalizability (Yin, 2003). By accumulating the unique contributions provided by case-oriented studies, our approach bridges the gap between qualitative research and the available case study research to a wider audience. Fourth, while meta-analyses usually attempt to trace results around the true value (Hunter & Schmidt, 2004), the systematic synthesis of qualitative case studies includes techniques that allow investigators to interpret research aiming to create tentative theories of phenomena. The focus of such a synthesis could be on the accumulation across a set of qualitative case studies where the aim is to derive new theoretical insights. In this way, the synthesis itself becomes a study that contributes to the generation of evidence in the entrepreneurship domain.

Thus, we argue that the entrepreneurship domain should develop robust research evidence across methods and different forms of data (including qualitative and quantitative research) to specify whether or not certain effects depend on specific contextual conditions (Pittaway & Cope, 2007; Rousseau et al., 2008). In the following sections, we describe the potential contributions of a synthesis of case studies and the philosophical foundations of our approach, and we explain the most important steps involved in a systematic synthesis of qualitative research before discussing an example as an illustration of such an approach.

The Systematic Synthesis of Qualitative Research: Conceptual Concerns

Evidence-based entrepreneurship is concerned with the systematic synthesis of knowledge based on several sources of information and transcends the findings of individual studies (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012b). Evidence-based approaches have a major impact in medical science, where randomized controlled trials are generally accepted as the most valid source of evidence (Davies & Nutley, 1999). Other disciplines, such as management, have different research traditions and, accordingly, used different methods to establish scientific evidence (Tranfield, Denyer, & Smart, 2003). The field of entrepreneurship has increasingly accepted quantitative meta-analyses as a way of establishing evidence in this domain. While the usefulness of meta-analyses in entrepreneurship has been discussed elsewhere (Frese et al., 2012a; Rauch & Frese, 2006), there are additional methods for establishing scientific evidence that have not been introduced to this area of research. This article focuses on the systematic synthesis of qualitative case studies. Case studies are a type of research that describes a single event or unit of analysis determined by the researcher (Gephart, 2004, p. 458). Systematic syntheses of case study research have been conducted in areas such as healthcare, nursing research, and psychotherapy (Briner & Denyer, 2012). Moreover, in the field of management, some of the most recognized papers on strategic decision making were based on the synthesis of qualitative case studies (Miller & Friesen, 1977; Mintzberg, Raisinghani, & Théorêt, 1976). Thus, the systematic synthesis of qualitative case studies can offer a substantial contribution to the knowledge generated in a given discipline, although to our knowledge it is an approach that has not yet been tried in entrepreneurship research.

We argue that it is important to take case study evidence into account in the domain of entrepreneurship because case studies are able to pursue research questions systematically that are not easily answerable by findings generated by quantitative methods. Through case studies, it is possible to study samples that are extremely small and exclusive because the members of the population are very distinct and critical, for example, Nobel laureates or leaders of a business cluster. Such outliers need to be studied by relying also on qualitative techniques (Zuckerman, 1972). Additionally, case study research often explores underresearched contexts and new concepts that have been studied less frequently. This allows researchers to address and interpret complex and/or unique phenomena embedded in different contexts through an explorative orientation, by making observations, specifying constructs and measurements, and identifying patterns and regularities. Moreover, case study research is useful for examining entire processes, and finally can address the interconnectedness of processes, phenomena, and contexts (Pettigrew, 1997). To summarize, we argue that case studies provide a unique contribution to the area of entrepreneurship, and should therefore be included in evidence-based entrepreneurship.

To include case studies in evidence-based entrepreneurship, we rely on specific assumptions about the nature of inquiries, about how case studies could be synthesized, and about the type of research that is suitable for such a synthesis. First, we discuss the assumptions inherent in our approach.

The Nature of Inquiry That Is Suitable for a Systematic Synthesis of Qualitative Research

Qualitative research in the domain of entrepreneurship is characterized by a host of different approaches that are based on different assumptions about reality, the nature of knowledge, and the extent to which they aim to apply scientific insights to a broader and more general context (Crotty, 1998; Johnson, Buehring, Cassell, & Symon, 2006).

The multifaceted methodologies used in entrepreneurship research to generate knowledge, such as grounded theory (Lopez, Cunha, & Palma, 2009), ethnographic studies (Kodithuwakku & Rosa, 2002), phenomenological studies (Cope, 2011), or narratives (Gartner, 2007), suggest that qualitative research is far away from a shared research paradigm. Moreover, not all these approaches strive for validity and generalization (compare, e.g., Creswell, 2009; Johnson et al.; McKelvey, 2002).

Since we propose synthesizing case studies, we assume that the studies have something in common that can be synthesized. Therefore, we assume that the cases reflect a certain existing reality. However, such a reality does not need to exist in an objective sense or as a part of a material world, but may also include unobservable entities (Lawson, 2009). As long as such entities can be operationalized, they can be studied and synthesized empirically. Moreover, we assume that scientific theories are the best approximations of this reality (McKelvey, 1997). Thus, theory has a relationship to a reality or a meaningful reference that can be studied scientifically. Knowledge derives from many different kinds of evidence that can be captured imperfectly and probabilistically. Thus, investigations do not provide a full explanation of phenomena. Scientific inquiry can make phenomena observable through scientific instruments, and research findings are always subjected to falsification (Dul & Hak, 2008). Since this approach assumes that theory leads to prediction and that theory represents that proportion of reality that is within the scope of the theory, the results of different studies within this scope can be compared and synthesized in an evidence-based approach (Pawson, 2002; Tourish, 2012). Finally, our approach assumes that it is possible to generalize empirical observation to some broader category, other situations, or theory (analytical generalization; Yin, 2003). While new and distinctive concepts and practices are difficult to generalize immediately, qualitative researchers start their field investigation by identifying central organizing ideas (the so-called sensitizing concepts) as points of departure from which to study the data and strive for analytical generalization (from empirical observations to theory building) (Eisenhardt, 1989). The theories become grounded and robust when the researchers verify their findings by looking at the same phenomenon from different angles using different data collection strategies and data sources (Yin). This process of analytical generalization may produce the so-called theories of the middle range (Merton, 1957). With their modesty and inbuilt contingency, these middle range theories are open to generalization. Thus, generalizations are not based on sampling but on logical inferences based on the theoretical model (Johnson et al., 2006). Eisenhardt and Yin have legitimized case studies in this tradition, and they described methods for using case studies for theory building as well as for providing practice evidence.

In summary, our approach to synthesize qualitative case studies builds on certain assumptions of scientific realism (Leplin, 1984; McKelvey, 1998). It is important to note that these assumptions are not shared by all researchers (Creswell, 2009).

The Nature of Synthesis Suitable in an Evidence-Based Approach

Our assumptions about the nature of inquiry suitable for a synthesis of qualitative research affect our understanding of how knowledge should be synthesized (Rousseau et al., 2008). Existing literature reports numerous different approaches to synthesize qualitative research (Denyer & Tranfield, 2006; Dixon-Woods, Agarwal, Young, Jones, & Sutton, 2004; Finfgeld, 2003), which typically rely on core criteria for evaluating qualitative literature: They have to be systematic and organized, transparent and explicit, replicable, and they have to synthesize the results (Briner & Denyer, 2012). At the same time, there are considerable differences between the various approaches. We think that it

Table 1

Methods for Integration of Qualitative Research

Method for integration	Aggregation	Interpretation	Integration
Dominant philosophical foundation	Realism	Relativism	Realism
Data	Quantitative, qualitative case studies, biographies	Qualitative data, narratives, case studies, includes primary researcher interpretation	Synthesizes different methodologies, qualitative and quantitative studies
Techniques for synthesis	Meta-analysis, systematic synthesis of case studies, content analysis, qualitative comparative analysis, cross-case analysis	Meta-ethnography, meta-synthesis, narrative summary, grounded theory	Systematic literature reviews, triangulation, Bayesian meta-analysis
Generalization	Generalizations possible, analytical generalization	Only internal, little interest in generalizations, ideographic interpretation, conceptual generalization	Generalizations possible

is useful to categorize these approaches into three categories: aggregative, interpretative, and integrative approaches (Table 1). Although aggregative approaches have predominantly been suggested to synthesize quantitative research (Hoon, 2013; Rousseau et al., 2008), they also be used to synthesize case studies and biographies. Aggregating case studies is useful in an evidence-based approach because it aims at integrating comparative phenomena across studies, and in doing so generalizing research evidence. Generalizations are necessary in any evidence-based approach. Moreover, aggregative approaches are based on the scientific realism paradigm. The advantage of the aggregative synthesis is that it relies on a systematic and replicable process. Moreover, it is frequently based on well-formulated research questions. Furthermore, the aggregative synthesis of qualitative data often involves the quantification of the information (Christensen & Carlile, 2009). In addition, this approach enables researchers to categorize circumstances and moderator variables. It is also important to note that aggregative studies are not only interested in increasing power through increasing the sample size. In fact, they can contribute to theory testing and theory development (Eisenhardt, 1989; Hak & Dul, 2010). For example, one meta-analysis compared broad and narrow task-related traits, and thereby shifted the focus of the personality approach to entrepreneurship (Rauch & Frese, 2007). The literature discusses different techniques to aggregate research findings. The traditional meta-analysis is the most prominent example of an aggregative approach (Hunter & Schmidt, 2004). However, aggregative approaches are not limited to meta-analyses; there are several other methods that aim at integrating the results of qualitative studies (Dixon-Woods et al., 2004; Larsson, 1993). For example, cross-case surveys, as proposed by Yin (2003), systematically aggregate the findings of individual case studies, and similarly Eisenhardt (1989) has argued for replication of qualitative research. As a matter of fact, these scholars suggest three steps for building evidence from cases: within-case analysis, cross-case pattern search, and replication (Hak & Dul). Finally, qualitative comparative analysis can be used to achieve causal inferences based on a number of cases (Ragin, 1987). Thus, aggregative approaches have been used to synthesize quantitative as well as qualitative research.

Interpretive synthesis aims at developing new interpretations of qualitative study findings that are different from the results reported in individual studies (Noblit & Hare, 1988), which requires the deconstruction and decontextualization of study findings and composing them into new, higher order constructs (Finfgeld, 2003). Studies in this tradition are predominantly nested in a relativistic paradigm and rely on an inductive approach, which means that, in most cases, they do not use a predefined coding system. Interpretative approaches develop concepts and categories from which they develop a theory (Glaser & Strauss, 1967). This type of synthesis relies on qualitative studies, such as case studies and narratives. One of the most frequently used integrative approaches is meta-ethnography (Noblit & Hare). The goal of meta-ethnography is to develop higher order constructs and develop new research questions. Meta-ethnography relies on a systematic process involving the creation of themes and metaphors, the comparison of themes and metaphors across studies, and the reciprocal translation into a higher order interpretation. Meta-synthesis is another example of an interpretative synthesis that relies on an inductive, explorative methodology to synthesize research (Hoon, 2013). These interpretative approaches are less useful for an evidence-based approach, since they do not aim for generalizations but for ideographic interpretations (Creswell, 2009; Finfgeld).

Integrative synthesis synthesizes evidence by combining different data collection methods, for instance qualitative and quantitative research, allowing researchers to overcome the weaknesses inherent in individual methods. An example of an integrative analysis is the Bayesian meta-analysis, where the evidence of different methods is pooled by statistically combining two data sets (Dixon-Woods et al., 2004). In the domain of entrepreneurship research, Pittaway and Cope (2007) combined systematic literature reviews and bibliographic analysis to explore entrepreneurship education. Another study used bibliographic analysis to investigate strategic entrepreneurship (Krauss, Marxt, Filser, & Guieu, 2011). However, in these cases, the aim was not to synthesize qualitative research; instead, the authors produced a qualitative review based on quantitative as well as qualitative data. Moreover, their primary goal was not to review qualitative studies, but rather to provide a thematic analysis of the field. Finally, these kinds of reviews are difficult to replicate because of lacking standardizations of the methodology of the review and contested definitions of quality (Rousseau et al., 2008). For these reasons, we disregard systematic literature reviews (Short, Ketchen, Shook, & Ireland, 2010) for an evidence-based approach.

To summarize, existing literature suggests various methods of synthesizing qualitative case studies. As with any qualitative and quantitative research, the research question and available evidence determine which methodology should be used. In other words, the approach should fit its purpose (Briner & Denyer, 2012, p. 124). We advance the strategy of synthesizing research in an evidence-based approach with the aim of integrating the results of case studies, guiding practice recommendations, and opening new areas for research. Since this type of synthesis aims for generalization, the synthesis needs to build on a realistic scientific paradigm. Moreover, as is common in evidence-based approaches, we suggest that the decisions and steps accomplished through the synthesis should be shared, and thus should be replicable. This type of synthesis requires an aggregative methodology.

The Type of Case Study Suitable for a Systematic Synthesis of Qualitative Case Studies

Aggregative methods require the studies being synthesized to be relatively homogeneous (Rousseau et al., 2008). In particular, case studies have been suggested as being

useful for aggregative synthesis (Jensen & Rodgers, 2001; Newig & Fritsch, 2009). However, the case study methodology reflects relatively multifaceted research approaches in entrepreneurship research, which means that the entity of study suitable to a qualitative synthesis of case studies research needs to be defined more closely. Generally speaking, it is important for the case studies to provide sufficient information to analyze and aggregate the cases. The information must, to some extent, reflect an underlying reality inherent in the case (compare above). This would ideally be accomplished in descriptive case studies (Yin, 2003), but also by case studies that provide an approximation of an underlying reality. Case studies that rely on the interpretations of the researcher and the interaction between the researcher and the case, and on interpretative and constructivistic paradigms, cannot be synthesized in an evidence-based approach. In addition, case studies that can be used for the synthesis can include a description of one unit of observation, they can be part of a publication (e.g., studies including several cases), and they may consist of data from multiple publications (e.g., when a case has been published in multiple outlets). Likewise, case studies may focus on individual entrepreneurs, firms, and organizations, or some broader defined entrepreneurial context (such as clusters, incubators, or regions). Moreover, it is also possible to distinguish different types of cases (Jensen & Rodgers, 2001), for example, snapshot case studies, longitudinal cases studies, pre–post case studies, patchwork case studies (Hawthorne studies), and comparative cases studies. All of these different types of cases are useful entities for the systematic synthesis of qualitative research.

In addition, it is necessary to develop evaluation criteria that ensure that the cases included in the analysis are methodologically sophisticated enough to be included in the systematic synthesis of case studies. However, different types of case studies have developed different criteria for assessing the methodological quality of the cases (Johnson et al., 2006). Some researchers simply apply criteria used in quantitative research to the evaluation of case studies (Gibbert, Ruigrok, & Wicki, 2008). Thus, case studies can be synthesized, provided that the requirements of construct validity (e.g., establish a clear chain of evidence), internal validity (e.g., work with a clear framework), external validity (e.g., strive for generalizability), and reliability (e.g., clarify the research procedures and establish a case study protocol) (Gibbert et al.) are met. However, some scholars relying on scientific realism have developed criteria that are more consistent with the underlying philosophical assumptions, replacing internal validity with credibility (authentic representation, triangulation; Jick, 1979), external validity with transferability (extent of applicability), reliability with dependability (minimization of researcher idiosyncrasies), and objectivity with confirmability (researcher self-criticism) (Johnson et al., p. 138). These evaluation criteria can be readily applied to the cases included in the synthesis.

To summarize, there are different types of case studies that qualify for the systematic synthesis of case study research. In either case, the cases included should be based on a scientific realistic research paradigm (Leplin, 1984). It is useful if case studies included in the synthesis are comparable and homogeneous. The remaining heterogeneity should be accounted for in the cross-case analysis, for example, by coding moderator variables. Finally, it is necessary to develop a quality assessment of each case study to determine criteria for the inclusion in the synthesis.

Description of the Process of Conducting a Systematic Synthesis of Qualitative Case Studies

The systematic synthesis of case studies should involve a methodological approach that makes it possible to share the decisions made at each step of the process. Although

there is a fair amount of literature describing the steps involved when conducting such a review in the areas of management and healthcare (Briner & Denyer, 2012; Finfgeld, 2003; Rousseau et al., 2008), this type of review is new to the domain of entrepreneurship. Moreover, because there are systematic differences between entrepreneurship and other areas, which may affect the review process, our aim is to describe the five steps of systematic synthesis (Thorne, Jensen, Kearney, Noblit, & Sandelowski, 2004): (1) defining a research question, (2) developing criteria for study location, (3) developing criteria for study inclusion, (4) conducting within-case analysis, and (5) conducting cross-case analysis.

As with any meta-analysis, a systematic synthesis of qualitative research starts with a research question, which defines the universe of case study evidence in question (Jensen & Rodgers, 2001). Aggregative approaches typically answer a relatively specific theoretically informed research question that addresses specific constructs, and as such supports operationalization and the selection of primary studies. Thereby, the research question specifies the participants (entrepreneur, owner, or manager) in the study, the level of analysis (firm level or individual level), and the time frame (e.g., before or after the economic crisis). The research question does not need to be in line with the questions addressed in the primary studies. For example, qualitative studies typically have a qualitative research question such as "how do entrepreneurs mobilize resources?" A synthesis of qualitative studies may very well address a quantitative research question such as "are entrepreneurs aligning more resources more successfully?" Question formulation is a complex process requiring attention to issues related to the entrepreneurial effort itself, as well as to the complexities associated with entrepreneurial firms. Therefore, it is useful to ask practitioners as well as entrepreneurship researchers for an assessment and interpretation of the question to avoid developing a poorly specified question and obscuring content-related issues related to the question.

Once the research question has been defined, it guides the search for the type of studies that should be included in the synthesis. Unfortunately, the study location process may be more complicated for qualitative case studies than it is for quantitative studies (Evans, 2002). While major entrepreneurship journals, such as *Entrepreneurship Theory and Practice* and *Journal of Business Venturing*, occasionally publish case studies, qualitative research is not the dominant study design presented in these journals.[1] However, qualitative research is not absent in entrepreneurship literature, but it tends to be published in other outlets, for example, in books and special issues (Gartner & Birley, 2002; Neergaard & Ulhoi, 2007). Moreover, the descriptive titles of many case studies make it less likely to identify them by key word search. Additionally, because the content of abstracts and the index terms being used make it more difficult to identify relevant case studies as compared with quantitative studies (Evans, 2002), the study location process needs to include different databases and a range of different search terms to identify relevant studies (Shaw et al., 2004). Another issue that is relevant to the study location process is the number of studies that should be located and included in the synthesis. Some scholars argue that the full body of evidence, published and unpublished, needs to be included in the synthesis (Briner & Denyer, 2012; Rousseau et al., 2008). This approach has the advantage of, for instance, reducing the likelihood of publication bias. However, this strategy can be overly complex and impede deep analysis. If the synthesis aims to achieve saturated coding categories, theoretical sampling may be an economical way of dealing with complexity (Finfgeld, 2003).

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1. We identified 55 relevant articles using the term "case study" in the title, the abstract, or the key words in both journals.

As with traditional meta-analyses, the criteria for case study inclusion need to be specified (Tranfield et al., 2003). We suggested including criteria regarding quality and comparability of case studies, and moreover suggested to aggregate cases studies with the same epistemological foundation (compare above). In addition to these formal criteria, the scope of the synthesis should be defined in advance, determining which type of studies can be included in the systematic synthesis of the case studies. All criteria for the inclusion and exclusion of studies should be reported to ensure that the results can be replicated.

After deciding which studies to include, they need to be ordered, coded, and categorized. The coding process should be systematic and involve multiple coders (Rousseau et al., 2008). The process starts with the analysis of the individual studies. There are numerous strategies to code the individual studies. On the one hand, syntheses aiming to integrate research findings should rely on standardized coding rules and codes, which are often developed in a deductive way and rely on existing theories. For example, the information could be extracted from the individual cases through content analysis (Krippendorff, 1980). Moreover, content analysis can also be used to translate the qualitative information into quantitative information (Jensen & Rodgers, 2001). In some variants of case analysis, it is possible to code concepts that emerge from the data (Eisenhardt, 1989). The information extracted from the within-case analysis should be described, aggregated, and presented in tables to inform the reader about the results of this process. The results of the analysis may also allocate phenomena to contexts and time points.

Subsequently, the results of the analysis of each qualitative study need to be aggregated to compare and contrast the results at the cross-case level. Again, there are substantial differences in the cross-case synthesis, depending, for example, on whether the aim of the analysis is to integrate or interpret the qualitative studies. Aggregative synthesis would rely on a technique like cross-case analysis to accomplish the goal of study aggregation (Yin, 2003).

An Example of a Qualitative Approach to Evidence-Based Entrepreneurship: Business Clusters in Developing Countries

In this section, we develop an example of a study aggregating case study evidence in the entrepreneurship domain. The aim of this study is not to provide a comprehensive application of a systematic synthesis of case studies, but to investigate a small set of cases as an example and as a first step in developing a synthesis in entrepreneurship research. This study addresses a specific research question. Moreover, it is an aggregative synthesis, integrating knowledge in one domain, and relies on analysis techniques like content analysis and cross-case analysis. At the same time, the study contributes to theory development by integrating two competing theories. Moreover, the study explicitly has the aim to extend the context of cluster research by focusing on six different developing economies, and in doing so generalizing evidence that was initially contextualized. Finally, the synthesis provides a quantification of the qualitative results.

Introduction

The geographical concentration of firms that are involved in related activities and that may work together to improve their performance (Visser & Boschma, 2004) is a phenomenon that goes back to the earliest urban developments. It is an interesting and almost

paradoxical phenomenon that local economies seem to be increasingly important in today's globalized economy (Audretsch, Grilo, & Thurik, 2011; Morosini, 2004). Consequently, a growing number of regions, countries, and cities around the world are establishing initiatives to stimulate the development of business clusters, assuming that clusters have a positive effect on economic development, innovation, knowledge transfer, and firm performance. While this positive effect can be expected from a theoretical as well as empirical viewpoint, several factors, such as different conceptual and operational definitions of clusters, reliance on single case studies, and different levels of analysis, make it difficult to verify valid generalizations (Rocha, 2004).

In this study, we compare the characteristics of business clusters that affect the average performance of firms in a cluster within the specific context of developing economies. Most studies have thus far only analyzed business clusters in specific regions or countries. Our approach uses a single analytic framework to analyze clusters from seven economies, which makes it possible to test whether theoretical propositions about the effect of clusters can be applied to different contexts. While there are many publications studying the effectiveness of business clusters, our approach combines two theories to explain the firm-level effectiveness of clusters: the collective efficiency framework and the global value chain approach. The collective efficiency framework focuses on different levels of joint action, ranging from little cooperative linkages to extensive vertical, horizontal, and institutional linkages (Schmitz, 1995a). While the collective efficiency framework is useful when it comes to describing linkages among firms within a given cluster (internal linkages), it ignores the role of external linkages. External linkages of clusters can be analyzed via the insertion in global value chains, specifically the full range of activities required to bring a product from conception to different phases of production, delivery, and disposal after use (Kaplinsky & Morris, 2001). In this study, we compare the two theories and address the following research question: How does the level of joint action and insertions into global value chains affect the average performance of firms within business clusters in developing countries? Thus, as we suggested above, we address a relatively specific research question that defines the constructs, entity, and context under investigation.

Business Clusters and Performance

The profound interest of the popular literature in business clusters was stimulated by the early work of Marshall (1920), and more recently Porter (1990). Marshall argued that concentrations of businesses in particular localities create local external economies that help firms share knowledge regarding products, markets, and technologies, which in turn leads to valuable innovations. Porter described three effects of business clusters: clusters stimulate the creation of new business ventures, drive innovation, and have a positive impact on productivity. The overall conclusion emerging from relevant literature is that business clusters could have significant advantages for the constituent firms (Audretsch et al., 2011). However, the argument that clusters always have a positive effect on firm performance is not uncontested. There are several examples of clusters of firms performing poorly (e.g., Sato, 2005; Scott, 2005). Thus, it seems that the advantages of clusters depend on the specific characteristics of the business clusters. We argue that the performance of firms in business clusters depends on internal as well as external linkages.

Collective Efficiency and Insertion in the Global Value Chain. The collective efficiency framework describes linkages among firms within a cluster (internal linkages) (Schmitz, 1995a). Two dimensions of the collective efficiency framework explain how businesses

benefit from clusters: external economies and collaboration among clustered firms. External economies provide resources and product-related, market-related, and technological knowledge. To benefit from external economies, clusters consciously need to pursue joint action (Schmitz, 1999a). Thus, the active cultivation of joint action and collaboration affects firm performance positively. Entrepreneurship literature provides different classifications of internal linkages. In the context of this study, we distinguish three types of joint action. First, a local industry is characterized by no joint action. The firms in such a cluster are merely co-located, there are no cooperative linkages and firms may benefit from passive external economies. Second, in local complex clusters, firms cooperate tactically, for example, by outsourcing noncore activities. Finally, in local alliances, firms cooperate strategically and have extensive vertical, horizontal, and institutional linkages.

Internal linkages in clusters should be supported by external actors that connect clusters to global markets. Such external linkages can be described by referring to the concept of the global value chain. A value chain describes the full range of activities required to bring a product/service from its conceptualization, through processes of production to the customer and disposal after use. The insertion into the global value chain stimulates upgrading processes that help improve the performance of firms in a cluster because of enhanced production processes, better products, and extended functions carried out by the firm. Thus, local producers can, for example, learn from global buyers, and as a consequence improve company performance.

While local joint action and insertion in the global value chain improve the performance of firms in clusters, we hypothesize that these are not linear effects, but that the two effects reinforce each other. Businesses achieve the best performance if internal connections are supported by external connections, which provide access to global markets.

Business Clusters in Developing Countries. When looking at entrepreneurship in developing countries, it is important to consider specific issues related to what is a resource-constrained environment. Businesses in developing economies are usually constrained by limited resources, low productivity, small markets, low purchasing power among customers, unfavorable physical and institutional infrastructures, and corruption. All these conditions do not support successful entrepreneurial activity. However, clusters provide an opportunity to overcome these constraints and facilitate business growth and success in developing economies. It is important to note that there are potential differences between business clusters in developing economies compared with more-developed economies. For example, there is evidence to suggest that firms cluster more often in developing economies, compared with more-developed economies. Moreover, there are structural differences between clusters in less-developed economies and clusters in developed economies. Clusters in less-developed economies usually consist of smaller firms that are geographically more concentrated and that are more homogeneous in terms of their economic activities. At the same time, clusters in less-developed economies are more heterogeneous in terms of skills and competencies. Despite these differences, we assume that the theoretical assumptions described above apply to both developed and less-developed economies because clusters provide competitive advantages to businesses within clusters, which in turn is related to business performance.

Method

Study Location. In our general recommendations, we discussed that the study location procedure may aim to locate all relevant studies, or alternatively may be restricted to some

theoretical sampling. Since our research question already restricts studies to a particular context, we decided to attempt to locate the broadest possible array of studies in this context. In order to locate case studies, we used key word searches in ABI/Inform and in Econlit, combining the term "cluster" with "lowly developed economies," "LDC," and "developing country." Furthermore, we examined the databases of institutions that support entrepreneurship in developing economies (World Bank, ILO, UNU-Merit Maastricht, Institute of Development Studies, Institute for Industrial Development Policy, and SNV). In addition, we systematically searched key journals that address entrepreneurship in developing countries: *World Development*, *Entrepreneurship & Regional Development*, *Journal of Developmental Entrepreneurship*, and *Journal of Development Studies*. Moreover, we checked the references of narrative reviews. Finally, we asked experts in the field to name additional clusters we did not identify with the former strategies. Thus, as we suggested in our general recommendations, the study location process involved a range of different strategies to locate cases, exceeding the range of strategies usually used in quantitative meta-analyses (cf. O'Boyle, Pollack, & Rutherford, 2012; Read, Song, & Smit, 2009; Rosenbusch, Rauch, & Bausch, 2013). This procedure allowed us to identify case studies involving 80 business clusters.

Selection Criteria. We used case studies conducted by independent research groups. As recommended in the third step of the description of the systematic synthesis of qualitative research, we developed selection criteria specifying the scope of the study (criteria 1–3) as well as criteria ensuring the quality of studies included in the synthesis (criteria 4 and 5): (1) The cases had to define clusters as geographical concentrations of firms that are involved in the same or similar activities, and that may specialize, subcontract, or cooperate. (2) The cases describe clusters in low-income economies, as defined by the World Bank. (3) The cases provide sufficient information to code business performance, levels of joint action, and insertion in the global value chain. (4) The original publication did not use the case to analyze joint action and/or insertion into the global value chain. While this criterion is not necessary for a systematic synthesis of qualitative case studies, we introduced it because we aimed to avoid biases introduced in the original case description, which could occur, for example, when the case description focuses predominantly on joint action (Schmitz, 1995b, 1999a). (5) We validated our data through cross-verification; therefore, we included cases when we had information from at least two sources (Yin, 2003). First, in 12 clusters, we integrated information from different publications to create a more complete picture (Appendix 1). Second, in eight cases, we had access to one "expert" who knew the cluster well and who checked our coding of the cluster characteristics. As with criterion 4, this is not a necessary criterion for a systematic synthesis of case studies, but it allowed us to create a more complete picture of the case (Jensen & Rodgers, 2001). These selection criteria reduced the initial 80 clusters to the 13 clusters coded for the purpose of our study (Appendix 1). Four of the 13 clusters were located in Africa, three in Latin America, and six in Southeast Asia.

Measurement. To extract the relevant information from the individual case studies, we developed a detailed coding scheme in advance, including anchors for the coding. Thus, as we suggested in our general recommendation, we used a deductive approach to analyze the cases. The dependent variable was the average performance of firms within a cluster. We followed the recommendations by Venkatraman and Ramanujam (1986) and differentiated between financial (e.g., profits, overall performance, sales growth, profit growth) and operational performance (including, e.g., competitive advantage, innovation,

improvements in technology, quality, skills levels). Independent variables were the level of local joint action and insertion into the global value chain. The level of local joint action was coded in three categories: (1) local industries with no joint action, (2) local complex with specialization, and (3) local alliance with strategic cooperation. The coding of the insertion into the global value chain was carried out for suppliers as well as buyers. A low level of insertion was coded if external relationships focused only on import or export. A high level of insertion was coded if supplier and/or buyer directly assist in upgrading processes or products. Appendix 1 provides a detailed description of each cluster, the references of the sources used to analyze the cluster, and the data analysis results of our coding efforts.

Data Analysis. The qualitative case study analysis consisted of two main activities. As we recommended, we first performed a separate content analysis of each case. Subsequently, we performed a cross-case analysis (compare step 5 of the general recommendations). First, we developed a case data file for each case, listing the characteristics of the data sources, a case study description that covers general cluster characteristics as well as history, and the relevant information that was found in the literature regarding the concepts local joint action, insertion into global value chains, and the performance of the firms in the cluster. Second, for each case, we developed a data analysis table that systematically organized the information along the three concepts level of joint action, insertion into the global value chain, and performance (compare Appendix 1). Third, we coded the extent of local joint action, insertion into a global value chain, and performance within the cluster, which enabled us to translate the qualitative information included in the data analysis table into quantitative information. The cross-case analysis, finally, was performed by pattern matching and cross-case analysis, as suggested by Yin (2003). To display our results, we created figures that organized the cases along the dimensions of our constructs. Moreover, the quantitative information that was extracted allowed us to perform additional correlation analyses to test the relationships between the independent and dependent variables.
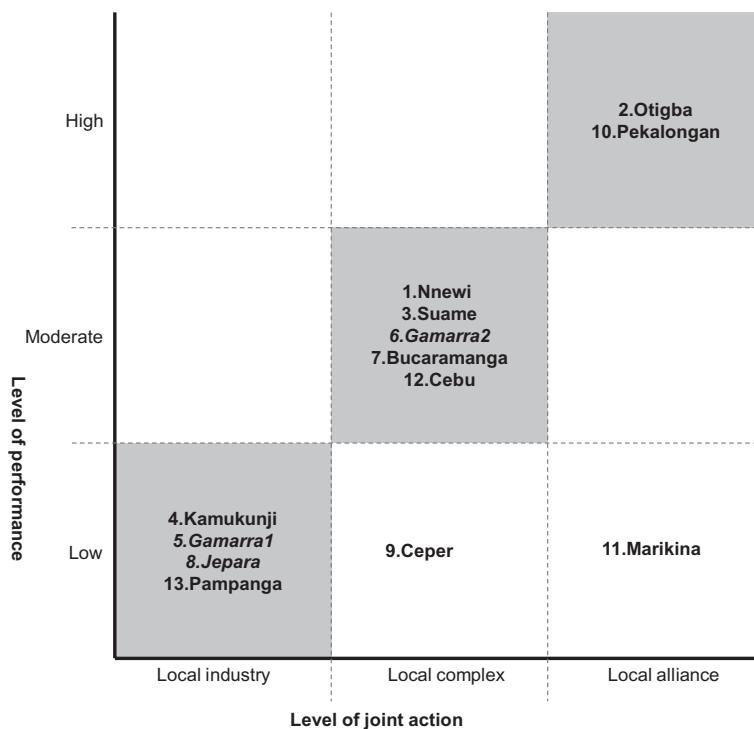
Results and Discussion

Figure 1 presents the results with regard to the relationship between the level of joint action and firm performance. The general trend indicated that the clusters with the highest levels of joint action achieved the highest levels of performance (Otigba and Pekalongan). However, this relationship was not supported for the Marikina cluster, which showed a moderate to high level of joint action, but a low-average level of firm performance. Thus, a high level of joint action is not always associated with high performance.

With regard to the Marikina cluster, its low level of average performance may be due to a lack of external linkages with global value chains (Figure 2). Similarly, the majority of clusters with no insertion into the global value chain also showed low levels of performance—with the exception of the Suame cluster, which showed moderate levels of average performance. At the same time, only two of the five clusters with high levels of insertion into global value chains also showed high levels of average performance. It would appear that insertion into global value chains is a necessary but not sufficient condition for high-average performance levels.

Therefore, we analyzed the combined effect of local joint action and insertion in global value chains on performance (Figure 3), which revealed that the two clusters with

Figure 1

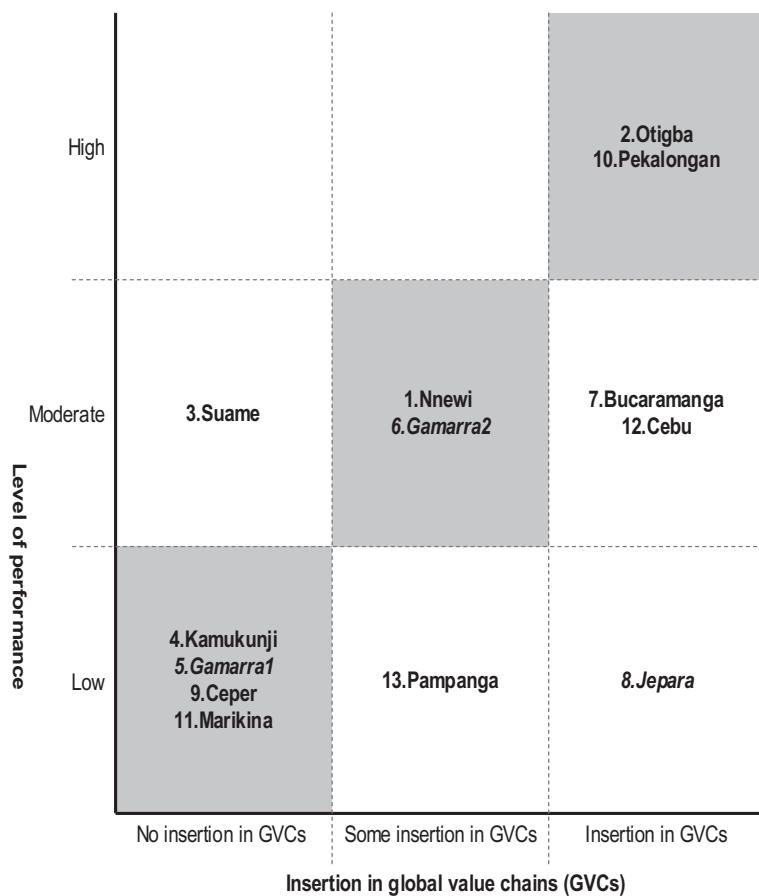Level of Joint Action and Performance

the highest levels of average performance (Otigba and Pekalongan) were characterized both by high levels of joint action and insertion into global value chains. Because all clusters with low-average performance showed low scores in at least one of the two dimensions (joint action and/or insertion in the global value chain), we conclude that the interaction between local joint action and insertion into global value chains is the best predictor of performance of firm within business clusters.

Our qualitative synthesis of cases allowed us to run some quantitative analyses as well, although the sample size is relatively small to expect robust results. The Spearman rank correlation between local joint action and performance was $r = .63$ ($p < .01$), the relationship between insertion in global value chains and performance was $r = .68$ ($p < .01$), and the relationship between a combined index (level of joint action with insertion in the global value chain) and performance was $r = .73$ ($p < .01$).

Our synthesis of qualitative case studies of business clusters suggested three contributions to the literature. First, most existing studies look at the effects of either internal or external linkages of business clusters. Our analysis revealed that the combination of local joint action and insertion into global value chains helps explain the performance of firms in clusters, which means that both internal and external linkages need to be taken into account. Second, our results contribute to the conceptual problems found in cluster literature, which make it difficult to generalize the results (Rocha, 2004).

Figure 2

Insertion into Global Value Chains and Average Level of Performance
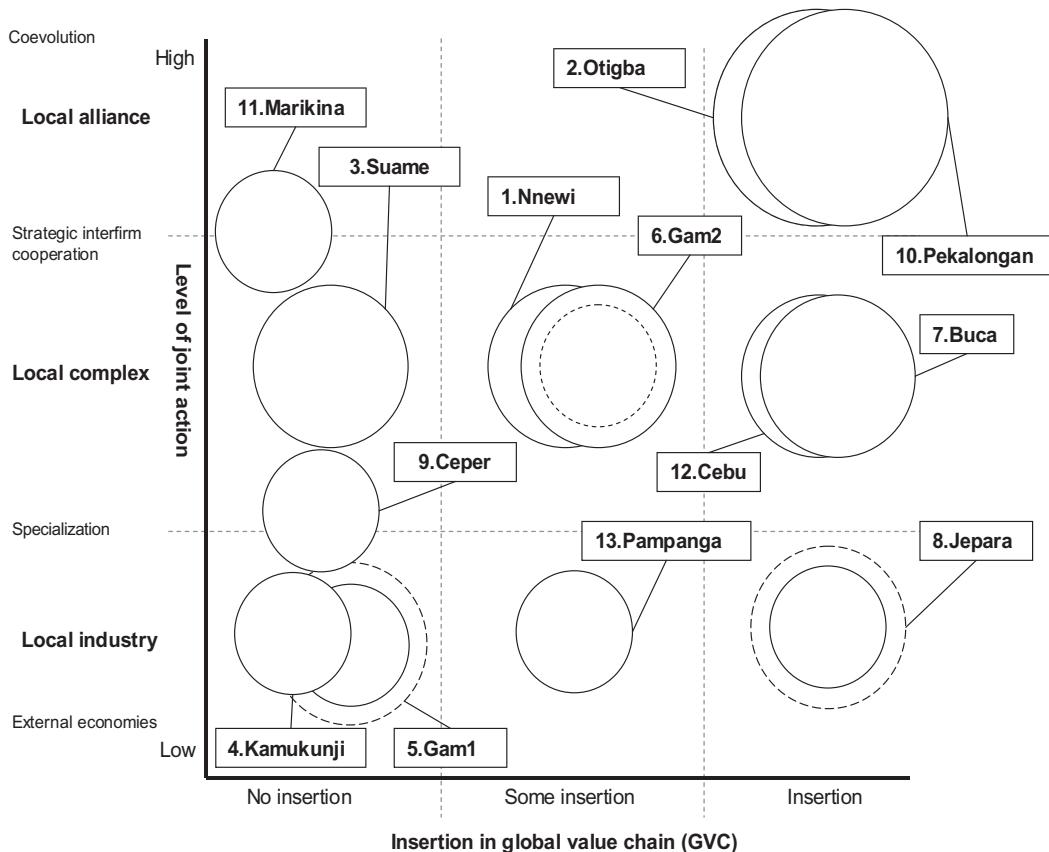
For example, relying on single case studies contextualized research findings. With our systematic synthesis of case studies, we showed that generalizations are indicated. Third, our study focused on clusters in developing economies. Most approaches to business clusters were developed in the Western world, as were the two frameworks we used to study the performance of business clusters. We showed that the results can be generalized beyond specific economic contexts. Thus, business clusters provide an opportunity to overcome the environmental constraints that businesses face in less-developed economies.

Our study has some limitations that suggest avenues for future research. The first issue is related to the question of causality. It is possible that the high performance of clusters leads to increased joint action in a cluster. Moreover, it may be easier for clusters that perform well to establish external linkages compared with clusters performing less well. Due to our design, we were unable to test the causality of the reported relationships. However, our analysis of the Gamarra cluster indicated that joint action and insertion into global value chains improved subsequent performance. Such causality

Figure 3

Cross-Case Analysis of Relationship Between Insertion into Global Value Chains and Level of Local Joint Action Within Cluster and Level of Performance Within Cluster

N.B. The third dimension in this graph, the average performance level within a business cluster, is indicated by the size of the circles. The three possible values (low, moderate, high) are equivalent to the three circle sizes (small, medium, large). For three clusters, the longitudinal element is indicated by the dotted circle, that is, the former performance level.

issues can be addressed very well in a synthesis of qualitative cases studies, for example, by synthesizing pre–post case studies (Jensen & Rodgers, 2001). Second, our analysis was based on secondary data, which may be biased by the intentions of the original authors. We tried to minimize such biases by relying on multiple sources for each case description, and moreover we verified our coding by involving experts familiar with the original clusters. Third, we did not test for moderator variables that could affect the results. For example, the stage of cluster development and the type of industry may affect internal and external linkages. While the limited number of cases included in our analysis made it difficult to address such moderator variables, this type of analysis is very possible in a systematic synthesis of qualitative research, and thus opens avenues for future research.

Since the synthesis aimed for generalizations, our results can be used by institutions interested in enterprise development because we provide information about areas useful for intervention. Entrepreneurs may benefit from the results because they provide guidelines for useful cooperation with other enterprises. Finally, we provide suggestions on how to promote entrepreneurship in less-developed economies.

General Discussion

While evidence-based entrepreneurship is becoming increasingly accepted in the field of entrepreneurship, it is predominantly based on evidence drawn from quantitative studies. However, scientific knowledge in entrepreneurship is not restricted to quantitative research. Important concepts like network structure (Elfring & Hulsink, 2007), effectuation (Sarasvathy, 2001), and research into business clusters (as demonstrated above) have been developed and advanced through qualitative research. We argue that the cumulative evidence of a discipline includes knowledge from multiple sources of quantitative as well as qualitative evidence (Rousseau et al., 2008). Thus, evidence-based best practices need to include qualitative research. In the present contribution, we developed the systematic synthesis of qualitative research and provided an example of such an approach.

Theoretical Implications

The systematic synthesis of case study research provides several implications for entrepreneurship research. First of all, the field of entrepreneurship needs to develop inventories about established knowledge in the field. While the field of entrepreneurship has advanced considerably in the last two decades, more and more studies have begun to focus on a vast number of different subjects and theoretical frameworks (Davidsson et al., 2001; Low, 2001). This development leads to an increasing fragmentation of the field. However, any discipline has to build evidence in areas of maturation and map scientific evidence in order to provide practical recommendation. For example, our synthesis of case studies revealed that clusters positively affect the performance of firms in a cluster. Such established evidence also suggests points of departure for future research. In general, the field of entrepreneurship predominantly uses quantitative studies, and consequently meta-analysis to establish such scientific evidence. Thus, there is a dominance of quantitative studies in the field, possibly because research designs and methods continually improved in quantitative entrepreneurship research, increasing the legitimacy of this type of research (Crook, Shook, Morris, & Madden, 2010). However, 9.5% of articles appearing in entrepreneurship journals can be classified as case studies (Chandler & Lyon, 2001). We argue that this type of research needs to be considered in evidence-based entrepreneurship. Case study research can be increasingly valuable to a discipline, if the cases involved motivate an interesting research question, if they inspire new ideas, and if they illustrate concrete examples of constructs (Siggelkow, 2007). At the same time, we assume that it is inevitable for case study research to increase methodological practices to increase its legitimacy in entrepreneurship research, including, for example, the use of secondary data and triangulation, the description of coding procedures and of the analysis, and detailed information about quality concerns. Guidelines that are well understood by editors and reviewers have been described by Eisenhardt (1991) and Yin (2003).

Second, a systematic synthesis of qualitative research can test theories and concepts that have been developed in the field of entrepreneurship. New theories are introduced in conceptual papers or may have emerged from case study research. About 30% of the papers published in the domain of entrepreneurship are conceptual in nature (Chandler & Lyon, 2001). However, rather than introducing more and more new concepts and theories, entrepreneurship research needs to test these theories rigorously to establish what we know and, based on that knowledge, to identify areas for future inquiry (Low & MacMillan, 1988). The synthesis of qualitative case studies provides the tools necessary to achieve such evidence.

Third, the systematic synthesis of case study research contributes to theory development, and thus can go beyond just summarizing scientific evidence. For example, cases can be synthesized with the aim of developing or enhancing the conceptualization of constructs. Moreover, a synthesis can compare competing theoretical assumptions, for example, with regard to whether the relationship between human capital and performance is better explained by opportunity costs or by learning theory. In addition, a systematic synthesis of case studies could compare the relationship between constructs, such as the relationship between network characteristics and innovative activities. Our illustrative example attained this type of contribution by integrating two different frameworks used to explain the effects of business clusters.

Finally, a systematic synthesis of case studies allows researchers to develop new theories or to adjust existing theories. While we suggested developing specific coding categories in a deductive way, and thus specifying specific categories in advance, the coding system should be flexible enough to allow new categories to emerge through the case analysis (Eisenhardt, 1989). Thus, the systematic synthesis of qualitative case studies can have different aims, from describing phenomena to developing and testing theories.

Limitations

We are aware that applying a systematic synthesis of case study research to entrepreneurship requires additional considerations to exploit the full potential of such a synthesis. A first issue is the question of whether or not it is legitimate to synthesize qualitative research. Epistemologically speaking, qualitative research is not always suitable for an evidence-based approach. We argued that case studies that build on scientific realism are suitable for a synthesis. However, case study research often involves interaction among the researcher, the data, the context, and the interpretation, and often focuses on a relativistic paradigm. While there are techniques available to aggregate this type of research (Campbell et al., 2003), these approaches are not primarily designed to provide generalizations, and thus are not suitable for an evidence-based approach. Other qualitative research, however, aims at replicating results and making them accessible to practitioners. In this way, our approach contributes to this type of qualitative research by making the results of this research accessible to a wider audience.

Second, the systematic synthesis of case studies aggregates the evidence from different case studies that look at phenomena from different angles and contexts, and that use different sources of information. As a consequence, the synthesis loses the ideographic information inherent in individual case studies. Thus, the generalizations are achieved at the expense of unique phenomena studied in individual case studies. Therefore, it is important to build in contingencies in the analysis that are theoretically indicated. Given that there are sufficient cases available, this could be achieved by coding and analyzing subsets of cases.

Third, the systematic synthesis of qualitative research is not a homogeneous approach. We advanced a specific synthesis of qualitative case studies. However, there are a number of different techniques available to synthesize different types of qualitative research, and they all have different strengths and weaknesses (Dixon-Woods et al., 2004; Rousseau et al., 2008). For example, they are vulnerable in varying degrees to variations in the study design.

Fourth, there are a number of methodological challenges that need to be addressed when developing this approach to entrepreneurship further. For example, entrepreneurship research needs to develop methodological standards for evaluating qualitative research and the systematic syntheses of qualitative research. As with quantitative meta-analyses, the process of the systematic synthesis of case-oriented research could be performed by a team, which could be used to evaluate the consistency of the study location process, the coding process, and the synthesis of the information (Campbell et al., 2003). Moreover, there should be a clear set of quality criteria to assess each study before including it into the synthesis (Jensen & Rodgers, 2001). An additional quality assessment should address each of the steps of a systematic synthesis: an explicit purpose, a systematic approach to study location, explicit criteria for study inclusion, a comprehensive within and cross-study analysis, and a clear interpretation of the findings.

Finally, aggregating the findings of qualitative research is a complex and challenging matter. For example, the judgments required for finding and extracting the relevant information from qualitative studies are relatively complex, and this process requires a deep understanding of the language and methodology used in a given field. Additionally, all these decisions need to be documented and shared.

Future Research

We believe that there are a number of areas in entrepreneurship research that would benefit from a systematic synthesis of case studies. For example, there is a continuing debate in the domain of entrepreneurship about the definition of the concept of opportunity. While some authors define opportunities as situations that are recognized by individuals (Eckhardt & Shane, 2003, 2013; Shane & Venkataraman, 2000), others claim that opportunities are created (Alvarez & Barney, 2007). Both approaches build on a realist epistemology (Alvarez & Barney). Moreover, there are a number of case studies that evaluate opportunity recognition (Duxbury, 2012). A systematic synthesis of such case studies can provide an overview of the empirical evidence, and thereby contribute to the debate on the origins of business opportunities.

Moreover, complex topics that cannot be easily addressed by quantitative inquiries can benefit from a synthesis of qualitative case studies. For example, existing literature on business models is concerned with a complex phenomenon that explains how firms create value for their customers (Magretta, 2002). While there is agreement in the entrepreneurship literature that business models are an important construct, the literature is fragmented and characterized by different conceptualizations of the construct (George & Bock, 2011). A systematic synthesis of case studies on business models could help develop the conceptual boundaries of the concept across case studies. In addition, such a synthesis could investigate the consequences of business models. For example, a business model should affect how firms recognize and exploit existing opportunities. Moreover, providing value for customers should have positive effects on firm performance.

Finally, the notion that entrepreneurial behavior is embedded in contexts can be systematically addressed in this type of review. Such contexts are usually described explicitly in qualitative studies, and therefore a systematic synthesis can account for such

contextual conditions. For example, some authors argue that opportunity exploitation is associated with uncertainty (Knight, 1921). A qualitative synthesis could examine whether uncertainty affects the proposed relationships. Another avenue could be the examination of a process-based view in entrepreneurship (Baron & Markman, 2004). In this case, to examine the antecedents and consequences of entrepreneurial behavior, the synthesis needs to achieve an interpretation of the evolution of phenomena over time. Similarly, a systematic synthesis of qualitative research could work with conditional validation and causality, and in doing so identify necessary and sufficient conditions.

Conclusions

In this study, we have argued that evidence-based entrepreneurship needs to synthesize case studies as well. This is important for two reasons. First, the systematic review of case-oriented research in entrepreneurship helps generate knowledge in the field. This evidence is not restricted to what we know, but it can also uncover issues that we do not know yet and that need further examination. Second, a systematic review of qualitative research in entrepreneurship provides knowledge that is contextualized in the sense of what works for whom and under which circumstances (Denyer & Tranfield, 2006). As such, evidence-based entrepreneurship makes knowledge accessible to practitioners and provides strong implications for actions and behavior. To summarize, our approach contributes to evidence-based entrepreneurship, which should synthesize knowledge and generalizations relying on multiple methods and designs (Rousseau et al., 2008).

Appendix 1: Data Analysis Table

	1. Nnewi (Nigeria)	2. Otigba (Nigeria)	3. Suame (Ghana)
Used studies: — Study 1 — Study 2 —	a) Bräutigam (1997) b) Oyelaran-Oyeyinka (1997, 2001, 2004) c) Uzor (2004) d) Abiola (2006a) e) ProInvest (2005)	a) Oyelaran-Oyeyinka (2006) b) Abiola (2006b)	a) Adeya (2006) b) Obeng (2002) c) McCormick (1998) d) ProInvest (2005)
Cluster characteristics: — Activities — Roots	Different branches of motor spare parts In the 1960s/early 1970s, with a marketplace specialized in motor spare parts	Computer hardware and software trade and production Early 1990s, starting with sales of components and equipment	Metalworking, mechanical engineering, and vehicle repair services 1920s/1930s
— Further characteristics	Place: Nnewi, Nigeria, urban Firms and workers: About 510 firms, with estimated workforce of 10,000; 10–15 larger companies (2005)	Place: Lagos, Nigeria, urban Firms and workers: More than 5,000 MSEs, more than 10,000 employed, approx. 8 employees per firm (2006)	Place: Kumasi, Ghana, suburbs, rural Firms and workers: Between 10 and 15,000 micro-firms; total workforce more than 80,000 (2005)
Local joint action: — Horizontal linkages	→ Moderate level, *local complex* — Cooperative competition (a) — Joint import of raw materials (c) — Sharing of equipment, technicians, transportation costs, and information (c) — Joint financing and advertising (c) — During last years the horizontal linkages did not increase very much (a)	→ High level, *local alliance* — Unusually high cooperation — High level of subcontracting — Cooperative competition — All firms cooperate with each other via associations — Joint marketing, quality improvement, information exchange, advertising, and warehousing — Free flow of price information, technological support, and market information	→ Moderate to high level, *local complex-alliance* — Some horizontal specialization within the cluster (a, d) — Extensive horizontal subcontracting (c) — Some examples of (strategic) horizontal cooperation, like a cooperative for mechanics to purchase and share equipment (d) — Little contact between larger and smaller firms (c)
— Vertical linkages	— Relationships developing with suppliers — Extensive cooperation with domestic buyers on quality improvement — Vertical backward subcontracting is yet to emerge (b)	— Considerable vertical linkages — Extensive cooperation with suppliers — Cooperation with buyers	— Main input is scrap metal, sold by several traders *within the cluster area* (d) — Presence of some vertical links with engineering firms (a, c) — Strong vertical bilateral linkages between garages and metal workshops; joint production (c)
— Institutional linkages	— Several institutions employing multilateral activities (e.g., trade fairs and training)	— CAPDAN very important as association for security (with police), for fight against piracy (with Microsoft), for traffic problems (with city council) — Other associations for lobbying on national level — Financial institutions entered the cluster	— Significant number of institutions involved in the development of the cluster (a, d) — ITTU (Intermediate Technology Transfer Unit), a technical support and consulting unit, fosters technology upgrading (a, d) — Training courses for workers given by institute (a, d)
Global value chains: — Upstream	→ Unbalanced, *some insertion (upstream)* — Much reliance on and cooperation with suppliers from abroad (esp. Taiwan) — More than 50% of firms is importing more than 80% of their machinery	→ *Insertion* — Many import linkages with firms in Asian countries — Import of foreign-branded computer products from companies like IBM — Joint venture agreements with firms from developed world	→ *No insertion* — Just some importing of raw materials (new steel) (d)
— Downstream	— 25% of firms are engaged in limited export activities to other African countries — Very low level of cooperation — Weak export position	— Approx. 50% of firms export to foreign countries — Share of exports increased year after year (mostly to Western Africa) — Enhanced cooperation with global buyers, esp. on information exchange, quality improvement, and joint marketing	— Mainly focused on domestic markets (d) — Still evidence of (informal) sales to customers from neighboring countries (a, b, d)

Appendix 1: Continued

	1. Nnewi (Nigeria)	2. Otigba (Nigeria)	3. Suame (Ghana)
Performance: — Financial — Operational	→ *Moderate performance*: quite well operationally, not outstanding financially — Few indications, no evidence of positive changes in real incomes — Indirect: the average capacity utilization rate is 20% above national average — Job creation: both before and after 1996 the cluster performed well on this indicator — However, most growth (after 96) is caused by foreign technical staff — Outstanding resistance of the firms in the Nnewi cluster to the Nigerian economic crisis in the 1980s and early 1990s	→ *High performance*: sketchy on financial performance, clear on operational perf. — Direct: turnover and profitability increased during past years — Indirect: increasing export rate — Increasing export rate points to constant quality in products and processes — High job creation rate, mostly for unskilled local people — Ongoing growth of the cluster (entrepreneurial culture) — Unique knowledge presence	→ *Moderate performance*: quite well operationally, not well financially — Fall in demand for most firms and also many went out of business, despite growing market and good technological capabilities (c) — 1984: 40,000 workers; 2002: 80,000 workers; projections: growth to 100,000 workers (b) — Average growth rate of number of workers of 8% (b) — Adoption of relatively complex technologies and machines (a) — "Suame Magazine has grown to become the largest informal manufacturing area in Ghana and one of the biggest in the whole of West Africa" (d: 39)

	4. Kamikunji (Kenya)	5. and 6. Gamarra (Peru)	7. Bucaramanga (Colombia)
Used studies: — Study 1 — Study 2 —	a) McCormick (1998) b) ProInvest (2005) c) Kinyanjui (2006)	a) Visser (1999, 2000) b) Alosilla (2002)[†] c) La Republica, 26/01/05 and 26/11/06[†] d) Bezdin (2005)[†]	a) Pietrobelli and Barrera (2002) b) Pietrobelli and Rabellotti (2004) c) Giuliani et al. (2005)
Cluster characteristics: — Activities — Roots — Further characteristics	Metalworking (large variety) Around 1985 Place: Nairobi, Kenya, suburbs (urban) Firms and workers: over 2,000 micro-firms, total employment between 3,000–5,000 (2005)	Garments Roots in 1945 Place: Lima, Peru, urban area Firms and workers: Around 14,000 shops; 20,000 entrepreneurs; 90,000 workers; total annual turnover of 800 million U.S. dollars (2004)	Garments Mid 1970s Place: Bucaramanga, Col., semi-urban area Firms and workers: 1,600 firms, mainly SMEs, no big firms, average employment: 37, average 20 customers per firm (1995)
Local joint action:	Low level, *local industry*: some indications of moving upwards	Until 1995: → Low level, *local industry* Between 1995 and 2006: → Moves toward moderate level: *local complex*	Moderate level, *local complex* — Index of JA: medium (b, c)

— Horizontal linkages	— Horizontal joint action is somehow present (a) — Some cooperation among wheelbarrow producers; joint purchasing and welding (b) — No evidence of further emerging cooperative linkages (b) — Few variations of products (c) — Presence of informal groupings of firms making similar products, difficulties because of a lack of standardization (a, c) — Some bilateral exchange of tools and equipment (a)	— Outsourcing of production when firms cannot handle a large order (a) — Outsourcing of services that require special skills (a) — Horizontal specialization: diversification (a) — Group of firms work together for one customer, offering different quality/designs (a) — Machinery is innovated in strong cooperation with small local workshops (a) — Interaction within business community increases (a) — Cooperation between complementary firms much higher than between firms with same products (a) — Jointly organized trade fairs (together with Chamber of Commerce) (a)
— Vertical linkages	— Before 1995: low level of vertical specialization (a) — Before 1995: no vertical cooperation with suppliers or other parties (a) — Vertical (job) specialization is totally absent, all firms produce everything alone (a) — Linkages with domestic suppliers and buyers are purely market-based, no cooperation or technical assistance (b) — Vertical joint action is entirely missing (a)	— Strong inter-firm associative attitude not yet developed (a) — No vertical specialization: +80% of firms carry out entire process internally (a) — No strong division of labor (a) — No strong backward linkages because of fear of loss of control and authority (a)
— Institutional linkages	Before 1995: — no cooperative institutional linkages (a) Between 1995 and 2006: — 1995: five initiatives to form associations (a) — 2002: voice of businessmen in Gamarra is hardly heard due to organizational weaknesses (b) — 2005/2006: important role for the Coordinating Committee (CEG) in Gamarra (c) — 2005: department of production very intimately tied to formation of good practices and training in Gamarra (d) — Limited business association activities (b) — The Kamukunji is more a self-help organization than a business association (b) — Government supports the cluster since the end of the 1980s (e.g., building of sheds) (c) — Government and association organize annually an exhibition and skill development programs — However: "most of the 20 case studies do not pay membership fees or attend meetings when they are scheduled," the entrepreneurs do not trust the government (c: 12) — Lack of links between the cluster and learning institutions (c)	— Strong inter-firm associative attitude not yet developed (a) — Successful attempts to set up business association: e.g., Cotexon, set up joint procurement of raw materials, which led to price stabilization and increased competitiveness (a) — Several national associations have offices in the cluster → leads to flow of information (a) — Sectoral association failed due to individualistic behavior (a) — Active Chamber of Commerce — SENA offers labor training and other services (a) — Should be further developed, still showing the "youthfulness of the cluster" (a)
Global value chains:	Until 1995: → No insertion Between 1995 and 2006: → Some insertion	→ Insertion — Presence of mainly global chains (b, c)
— Upstream	— Firms in cluster mainly use superior Pyma or Tanguis cotton varieties (only grown in Peru) (a) — Mainly local supplies (b) → No insertion	— More than 80% of fabrics used for production is imported, mainly from United States (a) — Formation of Cotexon (joint importing) decreased dependency on intermediaries (a) — Most enterprises obtain technologies from local subsidiaries of global machinery providers
— Downstream	— In 1990s: firms in the Gamarra cluster are not internationally competitive (some of them tried to export, none of them with success) (a) — In 2000s: more and more international markets are gained (United States, Venezuela, Ecuador, Chile, Bolivia) (c) — In 2006: self-imposed reduction of exports to Ecuador and Chile to be able to cover domestic demand (c) — Almost only local market (b) — A few linkages with some foreign (informal) customers (mainly from Uganda and Rwanda), but only market-based without cooperation (b, c)	— Majority of output is exported (18 of 25 surveyed firms, exported more than 60% of their output) (a) — Main export markets: United States and Latin America (a) — New export markets: Saudi Arabia, Hong Kong (a) — Foreign buyers helped firms in the cluster to upgrade their technologies (a)

Appendix 1: Continued

	4. Kamikunji (Kenya)	5. and 6. Gamarra (Peru)	7. Bucaramanga (Colombia)
Performance:	→ *Low performance*: could improve	Until beginning of 1990s: → *High performance* (because of external economies) After liberalization: → *Eroding performance* Between 1995 and 2006: → *Signs of increased performance*	→ *Moderate performance*: better than other garments clusters but not impressive
— Financial	— Estimates say it is unlikely that the total turnover exceeds 10 million U.S.$ (approx. 5,000 U.S.$ per firm per year) (b) — Unofficial data: 80% of wheelbarrows and 75% of metal boxes in Kenya are made in the area (c)	— Until 1990, annual growth in domestic sales (a) — After 1990, more international competition (a) — In 1993, significant performance gap on average gross sales between clustered and dispersed firms (a) — In 1994, performance gap on average gross sales between clustered and dispersed firms has almost disappeared (sales erosion of 27% between 1993 and 1994) (a) — Expected sales growth between Christmas period in 2005 and 2006 is 20 to 25% (c) — Recent increase in demand due to higher prices (c)	(No data could be found)
— Operational	— Slow production processes (b) — Low quality of products (b) — Little technological development (except wheelbarrow production) (a, b) — Kamukunji is a large petty commodity cluster which realizes only a few of the potential benefits of clustering	— In 1993, clustered firms experienced higher employment growth, average wages, and less unpaid family labor than dispersed firms (a) — Recent increase in demand due to higher quality (c) — More and more (international) markets are penetrated (c)	— The clusters appear to be better equipped to face international competition than other garment clusters in Colombia (a) — The culture within firms in the cluster is progressive and dynamic (a) — There are examples of start-ups in the cluster (a) — Some product and process upgrading, but below average (over 40 cases) (b, c)

	8. Jepara (Indonesia)	9. Ceper (Indonesia)	10. Pekalongan (Indonesia)
Used studies: — Study 1 — Study 2	a) Sandee et al. (2002) b) Loebis and Schmitz (2005) c) Sandee et al. (2000) d) Indonesia Matters, 09-01-06	a) Sandee et al. (2002) b) Sato (2005) c) Perry (2005)	a) Sandee et al. (2002) b) Tambunan (2006)
Cluster characteristics: — Activities — Roots	Furniture Long history, dating back to precolonial times. Modern cluster since the 1980s	Metal casting (both final and intermediate production) The colonial times, based on supplying equipment to sugarcane farmers	Textiles (wide range) Long history

	Place: Central Java, Jepara, rural area	Place: Central Java, rural area	Place: Central Java, rural area
— Further characteristics	Firms and workers: 3,500 firms; 57,000 employees; mainly small firms, but also more than 100 firms with close to 100 workers (2000)	Firms and workers: close to 332 firms; 3,875 employees; most firms less than 20 employees (late 2001)	Firms and workers: 18,650 firms; more than 131,000 workers; mostly small firms (2000)
Local joint action:	→ Low level, *local industry*	→ Low-moderate level, *local industry-complex*	→ High level, *local alliance*
— Horizontal linkages	— Horizontal cooperation inhibited because of distrust between firms (use of illegal wood) (a, b)	— "Except for passive search and reach effects of clustering, both passive and active externalities (…) seem to be limited in Ceper" (b, p. 160) — Low level of horizontal specialization (b) — Little evidence of joint procurement, marketing, recruitment, and so on (b) — Large producers own all equipment, smaller firms rent specific services from the larger firms (a) — Smaller firms make use of a common service facility (Unit Pelayanan Teknis) for receiving orders and buying inputs (a, b) — Linkages with firms outside the cluster were preferred above ties to neighbors (c)	— Strong horizontal specialization (a) — Group of strong local entrepreneurs are active in both production and marketing (a) — Collaboration among producers to standardize prices, quality, employment conditions, etc. (a) — Informal meetings to discuss important issues (a) — Multi-tier subcontracting networks (a) — Leading/pioneering firms take the lead and other firms follow (b) — Marketing is responsibility of wholesalers that sell the textiles to stores throughout Indonesia (a) — Multi-tier subcontracting networks (subcontracting production to home workers) (a)
— Vertical linkages	— Existence of subcontracting networks with specific parts of furniture production being contracted to specialized small firms and craftsmen (a)	— Top-layer firms are engaged in subcontracting (a, b) — Development of labor specialization is limited (b) — Larger and smaller firms have a clear preference to sell directly to nearby markets outside the cluster (a, b, c) — The relationships of firms with their largest order provider tends to be long term (b) — Vertical information sharing, provision of working capital, and stimulation of technology progress, can be found (however to limited extent, and with wide variations) (b)	
— Institutional linkages	— Direct government support played limited role (a) — No cooperative, some associations (a) — Regular complaints about the negative role of the government (too much control and bad management of wood supplies: illegal logging) (a) — Dilemma for government: assisting small firms can result in support of illegal logging, but it leads to employment and income (b)	— Active government promotion by providing technical support and developing common service facility (a) — However, government support is lowly evaluated (b) — State-sponsored cooperative for small firms (a) — More advanced firms with subcontracting linkages seems to be able to absorb knowledge from institutions; other firms more difficulties (b)	— No formal association: trust is high between producers and workers (a) — Women's cooperative gives female home workers access to small amounts of working capital (a) — Government support by providing technical support (a) — Government erected a local wholesale market to be used by local small firms (a) — State enterprises are active in cluster (a)
Global value chains: — Upstream	→ *Insertion* — Local supplies combined with some imports (a)	→ *No insertion* — Limited imports of spare parts and components (a)	→ *Insertion* — For long involvement with Javanese, Arab, and Chinese-Indonesian producers and traders (a) — Some of its inputs are imported (a)
— Downstream	— Extensive exporting networks (a) — In 2000, Jepara furniture was exported to 68 countries (a) — Many global buyers established their own their own factories in Jepara (mainly joint ventures): these buyers link the demand in the West to production in cluster (a) — Foreign buyers determine technology upgrading, creating and financing new units (a) — Relationships between SMEs and foreign buyers are not really collaborative (b)	— No direct participation in exporting (indirectly: Ceper products are used in products that are exported) (a) — Foreign assistance is lowly evaluated compared with domestic assistance (b)	→ *Insertion* — For long involvement with Javanese, Arab, and Chinese-Indonesian producers and traders (a) — 40% output is exported (a) — Foreign buyers are more and more involved in development of export trade since the crisis (1997–98) (a) — The export network encompasses many countries, prominent African presence (a) — Extensive overseas trade networks (b)

Appendix 1: Continued

	8. Jepara (Indonesia)	9. Ceper (Indonesia)	10. Pekalongan (Indonesia)
Performance:	→ Formerly high performance, currently rapidly *declining performance*	→ *Low performance*	→ *High performance* (somewhat sketchy)
— Financial	— Jepara cluster was responsible for growth of furniture exports from U.S.$3.8 million (1989) to U.S.$97 million (1996) and U.S.$147 million (1998) (c) — In 1998, Jepara had a 40% share in total Indonesian furniture exports (a) — Between 1996 and 2000, the number of exported containers increased from 200 to 2,000 per month; however, at the end of 2002 this has decreased with 40% (a) — Since 2004, export sales decreased with 10% per year to just 112 million U.S.$ in 2006 (d) — Export margins for the bigger firms decreased by 20% or more between 2000 and 2003 (b) — The declining exports of Jepara mirrors the nationwide average increasing furniture exports (d)	— Comparative advantage of Ceper gradually decreased (demand decreased, lost markets to other metal casting clusters) (a) — Not able to maintain its good performance (a)	— In general, sales increased since 1998 (a) — In particular, export sales increased (significantly) since 1998 (a)
— Operational	— Between 1997 and 2002, the number of production units increased from 2,439 to 3,700 (b) — Between 1997 and 2002, employment increased from 38,264 to 58,210 workers (b) — Between 1997 and 2002, workers earnings increased substantially (estimated, with 10–15% per year between 1997 and 2002) — Wages in this cluster are above the minimum, but not the highest in the area — Complaints about quality (due to too rapid growth) — Skills not sufficient to fulfill international demand — Infrastructural problems (due to too rapid growth) Problems: — use of illegal raw materials → illegal logging of extremely young trees (cost-saver) — foreign buyers demand certified wood, but the certification is suspended because the state lost control over the timber trade → Boost based on the devaluation and depreciation of currency → Lack of cooperation, therefore, unable to deal with problems	— In the late 1990s, Ceper accounted for almost a third of Indonesia's annual metal cast production (c) — Between 1998 and 2001, the number of workers decreased from 5,000 to 3,875 (a) — In 1997, cluster contained 340–350 firms (b) and in 2001, the cluster contained 332 firms (a) — Ceper decreased in size, while other metal casting cluster expanded (a) — Recent attempts to upgrade technologies failed (a)	— Number of firms increased by 29% since 1998 (a) — Employment increased by 20% since 1998 (home workers increased) (a) — Increasing sales caused more workers to start new enterprises (a)

	11. Marikina (Philippines)	12. Cebu (Philippines)	13. Pampanga (Philippines)
Used studies:			
— Study 1	a) Scott (2005)	a) Beerepoot (2004)	a) Beerepoot (2004)
— Study 2		b) Beerepoot (2005a) c) Beerepoot (2005b)	b) Beerepoot (2005a) c) Beerepoot (2005b)
Cluster characteristics:			
— Activities	Shoe industry (cheap, low-quality shoes)	Furniture (outdoor, antique reproduction, and lifestyle)	Furniture
— Roots	Beginning of the twentieth century	In the 1950s	Late 1940s, closely related to nearby U.S. military bases
— Further characteristics	Place: Philippines, Marikina, urban area Firms and workers: 248 firms, mostly small-sized, some larger with hundreds of employees (2004)	Place: Philippines, Metro Cebu, urban area Firms and workers: around 303 firms and 45,000 workers (1999); many small firms; some larger; largest around 2,750 workers	Place: Philippines, Pampanga, province (rural) Firms and workers: around 376 firms, most of them with less than 10 workers (1999); 10,000 people employed (2002)
Local joint action:	→ *Local complex*, starting to move to *local alliance*	→ *Local complex* → "Cluster benefits from some dynamic cluster advantages" (c, p. 173)	→ *Local industry* → "Cluster depends on static cluster advantages" (c, p. 173)
— Horizontal linkages	— Presence of "tightly-wrought webs of social interaction" — Firms subcontract the demand that exceeds their own capacity — Strong sense of own identity and distinctiveness (e.g., own shoe museum in the city) — Collective attempts to improve the cooperative bases of production — Several cooperatives owned by the (small) firms, providing loan facilities, reduced costs of purchasing, own (collective) brands, etc. — Benefiting from economies of scale by forming small supply consortia — However, still some distrust and progress should be made to establish a culture of collaboration and joint political action — Ingredients present, but still no real culture of collaboration	— Horizontal specialization of firms occurs — Cooperation initiatives within the cluster (formation of network relations) — However, no intensive (strategic) cooperation between firms; independency is higher valued — Little loyalty of larger manufacturers to small manufacturers (upgrading of small firms not a goal for the larger firms) — Decreasing trust between employers and workers → results in more outsourcing	— Firms are very specialized horizontally: entire streets are specialized in specific products — No network relations, only transactions — Heavy competition between subcontractors because they have to bid for orders from exporters — Some subcontractors formed small groups to cooperate and help each other (sharing equipment, training, etc.) — Cooperation between exporters is almost absent
— Vertical linkages	— Production via vertically disintegrated firms — Specialized tasks are subcontracted to independent workshops — Many standard component are brought in — Even the larger firms regularly subcontract batches of work — Threatened predominantly by the increasing import of parts from China	— Many raw materials are sourced from other Philippine islands — Degree of outsourcing between direct exporters and subcontractors differs per subsector — The production process is more and more split up into several small tasks that are outsourced to subcontractors and/or homeworkers — Little trust between contractors and subcontractors, but network relations emerging	— Production process is split up into different stages for different firms; extensive use of subcontractors — No network relations, only transactions: subcontractors are not rewarded for their loyalty to their exporters, and there is hardly any exchange of information

Appendix 1: Continued

	11. Marikina (Philippines)	12. Cebu (Philippines)	13. Pampanga (Philippines)
— Institutional linkages	— Presence of "associational and institutional infrastructures" — PFFI (Philippine Footwear Federation Inc.): broad cross-section of shoe manufacturers in Marikina, representing the cluster in domestic and foreign forums, provide cluster with consultancy services and training programs — League of Filipino Shoemaker aims to ensure that imports do not evade the remaining tariff regulations — Philippine Footwear Academy: provides training courses, technical advice — Leather Footwear Industry Master Plan (1996): governmental study about current weaknesses, with the aim to promote and foster the cluster — Specific legislation by government to promote the development of the cluster — Active participation of the local government	— Early 1970s: government and international donor organizations started to pay attention to the cluster — Trips to foreign furniture fairs were organized by government — 1974: establishment of furniture trade association in Cebu and trade support organizations in Manila — 1991: first own international furniture exhibit organized in cluster — Most exporting firms are registered with the Board of Investment, which gives them various incentives like 6 years of tax holiday and low import duties — Strong presence of business associations, local government, and training institutes → facilitates information exchange and upgrading processes — Association CFIF very active, but still weak on lobbying	— No strong local business association that stimulates joint initiatives — Present associations are ineffective and lack common initiatives — The "Furniture City" (where firms can rent production space) failed (wrong location) — Well-equipped training center is not in use because of lack of expertise and funding — There is a craftsmen school; however, it is not well functioning
Global value chains:			
	→ *No insertion*	→ *Insertion* — "the furniture exporters (. . .) are also part of an international value chain" (e, p. 54)	→ *Some insertion*
— Upstream	— Larger firms imported their machinery from countries like Taiwan and Italy	— Several raw materials (e.g., wood) are imported from countries like New Zealand and Malaysia — Knowledge is imported via foreign links (e.g., German consultants for training)	— No data (suppose domestic supplies)
— Downstream	— Only for domestic markets (intense competition with other countries, mostly China) — Firms in the cluster never been incorporated into significant cooperation with foreign buyers: "capacity for export activity is notably underdeveloped" — Links to global value chains are totally absent — Recently some manufacturers started to reach to global markets by participating in international trade fairs	— 1982: British furniture company started an establishment in the cluster (antique reproductions), still active in the cluster → fostered upgrading (training, attracting new foreign buyers) — After 1982: more and more foreign buyers began to buy from firms in the cluster (following British pioneer) — Around 175 firms export directly to foreign markets — Several foreign buyers have agencies inside the cluster — Own international furniture exhibit (3,097 foreign buyers visited it in 2002) — Main export markets: United States (62%) and Japan (9%)	— Via initial sales to U.S. military, direct exports to the U.S. market became possible — Currently, domestic market most important and preferred — Around 110 exporting firms — No foreign buyer agents in the cluster — Attempt to set up international furniture exhibit, with little success: only 861 foreign buyers in 2003
Performance:	→ *Low performance*	→ *Moderate performance* (high compared to total Philippine furniture industry)	→ *Low performance* (especially exporting, but growing)

— Financial	— Very low profitability margins	— Cluster managed to enter the higher quality, better prices foreign furniture market — Cebu cluster exports increased between 1998 and 2002 with 14%: from 210 million U.S.$ to 241 million U.S.$ (total Philippine furniture industry with 30% between 1996 and 2000) — The wooden furniture sector in Cebu showed impressive growing export sales (from 24.7 million U.S.$ in 1998 to 2001.3 million U.S.$ 2002: 270% growth) — As an estimation, a firm in Cebu exports between 750,000 and 800,000 U.S.$ per year (2002)	— As an estimation, a firm in Pampanga exports almost 120,000 U.S.$ per year (2002) — Pampanga cluster exports increased between 1996 and 2000 with 163% (total Philippine industry with 30%), and between 1998 and 2002 with 15%
— Operational	— The industry is in great disarray, uncertain future — The cluster lost the worldwide competition battle from direct competitors from clusters in Brazil (Sinos), China, or Mexico; most notably with regard to attracting the attention of overseas traders and buyers — Number of firms declined rapidly: 513 in 1994 to 248 in 2004 — Much dissatisfaction with quality of locally made inputs	— On average approx. 148 workers per firm — The cluster made a shift toward better quality during last decades (e.g., greater recognition of local designs in international shows and magazines). — Dynamic entrepreneurial environment where many firms start operations, but also many firms close — Cluster managed to become less dependent on rattan furniture production → rattan is subjected to quick changes in demand — Chinese threats (Cebu firms have a much lower productivity rate) — The cluster still has a reputation for unreliability in deliveries — The Cebu cluster is heading for difficult times, but it has survived other crises in the past 25 years (experiencing similar problems as 25 years ago)	— On average, approx. 26 workers per firm — Quality too low to satisfy foreign demands

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