

Sustained Competitive Advantage and Complexity: A Configurational Approach

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Abstract: In recent years, Qualitative Comparative Analysis (QCA) has emerged as a research approach to get insight into social science and business complexity. In contrast to the inferential methods that measure the net effect of an independent variable into a dependent variable, the QCA approach uncovers the necessary and sufficient conditions leading to a desired outcome. This paper discusses complexity in social science and business from the QCA perspective. In this regard, there are three streams of literature in strategic management aiming to explain how some firms outperform others: Porter's competitive advantage approach, Barney's sustained competitive advantage perspective, and D'Aveni's temporary advantage. However, the sustained competitive advantage approach suggests that generating economic rents must be understood as a complex phenomenon characterised by three features: i) path dependency (e.g., some resources and capabilities can only be developed over long periods, ii) social complexity (e.g., it may not always be clear how some firms develop some capabilities in short to medium term), and iii) causal ambiguity (e.g., some resources and capabilities cannot be bought and sold in markets). Therefore, this framework draws from a complex (or complexity) process that establishes logical connections between combinations of causal conditions (i.e., resources and capabilities) and a desired outcome (i.e., economic rents). The research methodology for business from the QCA perspective thus may raise some critical questions: How do some firms accumulate and deploy resources and capabilities more efficiently than their competitors to internally (not in markets) acquire and sustain a competitive advantage? And what is the nature of a firm's economic rents? In short, this paper discusses the nature of sustained competitive advantage (i.e., desired outcome) as a complex process (and not as a linear process) in that some firms outperform others, managing and deploying different resources and capabilities (i.e., conditions).

Keywords: competitive advantage; sustained competitive advantage; complexity; configurational approach; Qualitative Comparative Analysis; fuzzy-set Qualitative Comparative Analysis.

1. Introduction

The Resource-based view (RBV) of the firm reveals how complexity may affect the development of sustained competitive advantage among firms that result from three characteristics (Barney, 1991, 1996): social complexity, causal complexity, and history dependence. Indeed, these characteristics featuring the process of developing a sustained competitive advantage imply that resources should be valuable, rare, inimitable, and non-substitutable (Barney, 1991). The concern is to understand the process through which firms profit from strategic resources in a way that is almost impossible for competitors to recognise how a sustained competitive advantage is developed. It is argued in this paper that the process through which firms develop a sustained competitive advantage is a complex process that can be analysed from the perspective of the configurational approach, namely the fuzzy-set Qualitative Comparative Analysis (fsQCA).

In this regard, the fuzzy-set Qualitative Comparative Analysis (fsQCA) allows testing theories based on Boolean algebra and set-theoretic relations, focusing on determining sufficient and necessary conditions for yielding a desired outcome (i.e., sustained competitive advantage). In this sense, firms (i.e., cases) can be compared to each other to study how resources and capabilities contribute to developing a sustained competitive advantage for appropriating rents in markets. It is argued in this paper that the process of developing a sustained competitive advantage is a complex phenomenon that may be focused on from the perspective of the fuzzy-set Qualitative Comparative Analysis (fsQCA).

The paper is organised as follows. The first part briefly discusses the central ideas for distinguishing the concept of competitive advantage and sustained competitive advantage. The second part analyses the problem of

complexity in social science and business, and how the fuzzy-set Qualitative Comparative Analysis (fsQCA) may deal with the complexity problem. Finally, the paper concludes with some remarks.

2. The nature of competitive advantage and sustained competitive advantage

There are three streams of literature in strategic management aiming to explain the nature of competitive advantage (Rodríguez et al., 2015). The first stream of literature concerns Michael E. Porter's notion of competitive advantage (Porter, 1980, 1981, 1985). The second stream of literature of Jay Barney and others emerges as a criticism of Porter's propositions on how some firms outperform others in markets (Barney, 1991; Peteraf, 1993; Rumelt, 1987; Teece et al., 1997; Wernerfelt, 1984). Finally, the third proposition concerns Richard A. D'Aveni and others that explain the nature of temporary advantage in hypercompetitive markets (D'Aveni, 1994; D'Aveni et al., 2010).

Nevertheless, from the tradition of the neoclassical theory, there are three main approaches in the industrial organisation or industrial economics influencing the development of strategic management (Barca, 2003). The first approach concerns the Structure-Conduct-Performance (SCP) perspective of the Harvard School of industrial economics which is mainly associated with Porter's tradition in strategic management. The second approach concerns the efficiency perspective of the Chicago School of industrial economics. Finally, the third approach concerns the game theory approach. However, the Structure-Conduct-Performance (SCP) perspective of the Harvard School was the most influential in strategic management during the decades of the 1970s and 1980s through Porter's work. Since then, Porter suggested that firms may acquire (that is to say appropriate) economic rents when they develop a competitive advantage. However, this idea was the central argument in Porter's work during those decades, revealing the importance of i) market power and ii) a firm's efficiency-building capabilities contributing to developing a competitive advantage (Barca, 2003). Indeed, the Structure-Conduct-Performance (SCP) approach suggests that the imperfect competition model of industrial organisation is an adequate theoretical framework to analyse firms' differentiation in profit performance within industries (Barca, 2003).

In this regard, the Structure-Conduct-Performance (SCP) paradigm analyses how some firms outperform others in different market structures and, thus, how to identify the competition forms that can deliver the best efficient resource allocation (Barca, 2003). In the same way, the Structure-Conduct-Performance (SCP) paradigm suggests that economic rents arise because firms in various forms of competition in markets depend on their market power and efficiency-building capabilities (Barca, 2003). Remember that in this approach, structure means markets, conduct means strategy, and performance means profits level. Consequently, this analysis suggests that the Structure-Conduct-Performance (SCP) paradigm aims to reveal the actual connections between structure and firm performance using the strategy adopted by firms. Indeed, this approach has primarily contributed to developing Industrial Economics.

Shortly speaking, from the Structure-Conduct-Performance (SCP) paradigm, it would be possible to explain profit differentiation among firms in any industry under the well-known Porter's five forces model, namely 1) entry of new competitors, 2) threat of substitutes, 3) bargaining power of buyers, 4) bargaining power of suppliers, and 5) rivalry among competitors (Porter, 1980, 1985).

On the other hand, the nature of sustained competitive advantage, framed into the Resource-based View (RBV) perspective, deals with the problem of complexity in strategic management (Barney, 1991). In this regard, the notion of sustained competitive advantage emerged as a criticism of Porter's competitive advantage model (Porter, 1980, 1981, 1985) that aimed to explain why some firms outperform others in competitive markets. Therefore, Barney and others criticise Porter's model of competitive advantage suggesting that a complete explanation of the nature of economic rents must be drawn from the notion of sustained competitive advantage (Wernerfelt, 1984; Teece et al., 1997; Peteraf, 1993; Rumelt, 1987; Kogut and Zander, 1992).

The Resource-Based View approach, alongside the Dynamic Capabilities and the Transaction Costs Theory, offers a different explanation of firm performance. The point in the Resource-Based View is that the strategy for acquiring economic rents must be through a process of developing a sustained competitive advantage. Nevertheless, in opposition to Porter's perspective, the main idea in the Resource-Based View suggests that firms have the possibility of internally (not in markets) and differently managing and deploying their resources and capabilities to acquire and sustain a competitive advantage (Barney, 1991; Wernerfelt, 1984). In the same way as a sustained competitive advantage, for example, the Transaction Costs Theory in this perspective explains how firms can internalise some specific assets to compete successfully in markets (Williamson, 1971, 1979). However, from the perspective of the Resource-Based View, an important assumption in this analysis is that

firms are heterogeneous. This assumption allows for explaining a central problem in strategic management, namely how a firm's persistent profit differentiation can be sustained in markets. Indeed, the nature of this assumption in the Resource-Based View suggests that some firms can accumulate and deploy resources and capabilities more efficiently than others (Wernerfelt, 1984). Consequently, the possibility of developing a sustained competitive advantage should be based on the resources controlled by the firm rather than its products supplied in markets (Wernerfelt, 1984).

It is important to keep in mind that to understand the source of a sustained competitive advantage, the Resource-Based View of the firm suggests that the control and deployment of firm resources must fulfil four attributes (Barney, 1991): resources must be valuable, rare, imperfectly imitable (i.e., subject to unique historical conditions, causal ambiguity and social complexity), and non-substitutable (i.e., able to be exploited by the firm) challenging the environmental explanation of Porter's five forces model. On the other hand, from the perspective of the Transaction Cost Theory, it is important to recall that i) governance (i.e., market, intermediate governance, and hierarchical governance), ii) opportunism, and iii) transaction-specific investment are three key concepts to determine which governance alternative is the best to outperform firm behaviour in specific markets (Barney and Clark, 2007). Indeed, this framework allows explaining how firms internalise strategic assets through alternative forms of governance to develop a sustained competitive advantage.

The Resource-Based View of the firm allows including in the same analysis the possibility of heterogeneous firms in terms of resources and capabilities they control and deploy characterised by a high degree of uncertainty. This principle implies two other characteristics for explaining firm performance: causal ambiguity and social complexity (Barney, 1991; Rumelt, 1984). Indeed, the Resource-Based View of the firm substitutes the typical neoclassical assumptions assumed by Porter's model for heterogeneity and imperfect mobility, resulting in a more comprehensive explanation of barriers to entry, barriers to mobility, and barriers to imitation as the primary sources of sustained competitive advantage (Barney, 1991). The main argument in this study is thus that the source of complexity when explaining a sustained competitive advantage lies in some feedback effects, time delays and nonlinearities influencing firm performance. In the same way, strategic decisions contribute to creating resources and capabilities through a process characterised by i) path dependency (e.g., some resources and capabilities can only be developed over long periods, ii) social complexity (e.g., it may not always be clear how to develop some capabilities in short to medium term), iii) causal ambiguity (e.g., some resources and capabilities cannot be bought and sold) to explain the importance of asset specificity and supply inelasticity as a source of sustained competitive advantage (Barney, 1991). In this regard, the notion of sustained competitive advantage emerged as a criticism of Porter's model and, therefore, as a more comprehensive explanation of the nature of rents. It is worth saying that Richard A. D'Aveni and others (1994, 2010) argue that in hypercompetitive markets, economic rents could only be explained as a result of temporary advantage development.

In short, from the discussion of the nature of competitive advantage and sustained competitive advantage, the analysis of profitability among firms was primarily focused on two critical questions. The first question concerns on what is the nature of rents. And, the second question is how firms may appropriate rents. That is to say, the analysis of the nature and appropriability of rents. Or, in other words, raising two questions: how do some firms persistently outperform their market competitors? and what is the nature of firms' economic rents when developing their market activities? The first question concerns the possibility of firms creating a sustained competitive advantage. The second question inquiries about the nature of rents earned by the firm (e.g., Ricardian rents due to differentiation in quality that might be observed in some resources, monopoly rents due to firm ownership of some resources, or Schumpeterian rents due to the innovative position of some firms in markets) (Keyhani et al., 2015; Mahoney and Pandian, 1992; Makadok, 2001). It is important to mention that monopoly rents are primarily associated with Porter's concept of competitive advantage, Ricardian rents and Schumpeterian rents are primarily associated with Barney's concept of sustained competitive advantage, and Schumpeterian rents are primarily associated with D'Aveni concept of temporary rents.

Finally, it is important to keep in mind that the Resource-Based View of the firm is today a broader theory in that there are a lot of important authors and contributions to developing this approach. For example, Oliver Williamson (1971, 1979) with the Transaction Cost Theory, contributed to understanding how firms internalise strategic resources to acquire an economic rent. In the same way, Diericks and Cool (1989), Peteraf (1993), Rumelt (1987), and Wernerfelt (1984) contributed to getting insight into the nature of sustained competitive advantage. Or, the works of Helfat (1997), Prahalad and Hamel (1990), and Teece, Pisano and Shuen (1997) enhanced this analysis with the theory of dynamic capabilities. Shortly speaking, the discussion on the sustained competitive advantage (or the competitive advantage) is about how and when firms can develop an advantage to appropriate rents, namely in markets or when they make strategic decisions for producing.

However, in this presentation, it is argued that the Qualitative Comparative Analysis (QCA) approach in research (also known as a Configurational approach in social science and business) is a suitable method to inquire about complexity, and thus, in strategic management and business, on the nature of sustained competitive advantage and rents.

In this regard, from an empirical perspective, the debate on the nature of competitive advantage also implies inquiring about appropriate research methods that allow getting insight into how a competitive advantage is developed and the nature of rents. As you know, the problem here is that when a sustained competitive advantage is developed, traditional research methods (i.e., inferential statistics) are challenging to apply because data is not available or the context in which this information is generated changes rapidly (and thus data is not comparable!).

3. QCA research methods and complexity

As it was discussed in the previous section, the Resource-Based View model in strategic management has adopted a different perspective to explain the nature of rents and, thus, the nature of sustained competitive advantage. In the Resource-Based View model, resources are valuable, rare, inimitable, and non-substitutable. In addition, this approach suggests that the nature of a sustained competitive advantage is based on three crucial principles: i) the notion of causal ambiguity, ii) the notion of social complexity, and iii) the notion of path dependency (Barney, 1991, 1995). Indeed, the first two principles, taken together, imply that the process from which a sustained competitive advantage is developed follows a complex process. Furthermore, this principle is highly important in the strategic management analysis when defining strategic decisions if firms want to be successful in markets. Furthermore, from the Resource-Based View perspective, the analysis of a sustained competitive advantage implies that some resources are idiosyncratic to the firm as they result from being valuable, rare, inimitable, and non-substitutable (Barney, 1991, 1996). For example, inimitability in the Resource-Based View model results from three characteristics: i) social complexity, ii) causal ambiguity, and iii) history dependent.

This explanation reveals that a sustained competitive advantage draws from a complex (or complexity) process for developing such an advantage. Thus, the point here is to understand this process through which firms profit from strategic resources in a way that is almost impossible for competitors to recognise how a sustained competitive advantage is developed. Interesting, in the explanation of the nature of a sustained competitive advantage in the Dynamic Capabilities approach, neither the firm nor competitors frequently do not know how a sustained competitive advantage is developed (Teece et al., 1997).

In this regard, it is argued in this analysis that the Qualitative Comparative Analysis (QCA) approach is an adequate research method to deal with complexity in strategic management. Qualitative Comparative Analysis (QCA) seeks to establish logical connections between combinations of causal conditions and an outcome (Mendel and Korjani, 2013). For example, Parente and Federo (2019) offer the essence of the Qualitative Comparative Analysis approach suggesting that complexity in management sciences could be treated from the QCA perspective: “[The] purpose of this paper is to critically reflect and offer insights on how to justify the use of qualitative comparative analysis (QCA) as a research method for understanding the complexity of organisational phenomena, by applying the principles of the neo-configurational approach.” (Parente and Federo, 2019). Indeed, the Qualitative Comparative Analysis (QCA) perspective can only make sense if the phenomenon of interest has two features (Oana et al., 2021): i) it is plausible to frame it in terms of set relations, and ii) it is plausible to frame it in terms of causal complexity.

The characteristics of Qualitative Comparative Analysis (QCA) research imply that i) it is oriented toward explaining an outcome, ii) it is case-oriented, iii) it has a set-theoretic foundation, and iv) it is approached to modelling causal complexity. In this way, Parente and Federo (2019) explain how complexity is guided by three principles: conjunctural causation, equifinality, and asymmetry. Conjunctural causation refers to an outcome occurring from the interdependence of multiple conditions (or it considers that a single condition is frequently insufficient and must be combined with another to achieve the desired outcome). Equifinality concerns the possibility of multiple pathways leading to the same outcome (or it considers more than one sufficient (but not necessary) condition to produce an outcome). Finally, asymmetry means that attributes “found to be causally related in one configuration may be unrelated or even inversely related in another” (or knowing the causes of an outcome does not necessarily imply that the opposite outcome is equally known) (Meyer et al., 1993). These principles are at the core of QCA analyses when complexity is considered. Hence, when using the Qualitative Comparative Analysis (QCA) approach in strategic management analysis, it is possible to compare and examine

cases with different sets of causally relevant conditions to identify the decisive configurations and thereby unravel causal complexity by capturing the three principles before, namely conjunction, equifinality, and asymmetry (Ragin, 2008).

Indeed, the Qualitative Comparative Analysis (QCA) approach tests theories based on Boolean algebra and set-theoretic relations, focusing on determining sufficient and necessary conditions for yielding the desired outcome (i.e., sustained competitive advantage). In so doing, the Qualitative Comparative Analysis (QCA) approach uses two parameters to measure the necessary and sufficient conditions for achieving the desired outcome (Parente and Federo, 2019): consistency and coverage. Consistency measures the extent to which the terms of a solution are a subset of the result (i.e., a measure of fit among different conditions comprising a configuration yielding an outcome), and coverage indicates the proportion of cases that take a particular path to obtain a specific outcome (Parente and Federo, 2019).

On the other hand, the research questions typically raised in Qualitative Comparative Analysis (QCA) research are focused on causes-of-effects type (vs. effects-of-causes) that ask for the reasons why certain phenomena occur. Finally, Qualitative Comparative Analysis (QCA) undertakes any research following three precise steps (Oana et al., 2021): before the Analytical Moment, during the Analytical Moment, and after the Analytical Moment. Before the Analytical Moment, the task to develop is the research design (i.e., the definition of truth tables, set membership, calibration, gathering raw data, case selection, and definition of conditions) (Oana et al., 2021). During the Analytical Moment, the necessary and/or sufficient conditions are defined (i.e., superset or subset) (Oana et al., 2021). Finally, after the Analytical Moment, the tasks are diagnostics and checking the robustness of the results (Oana et al., 2021).

4. Conclusion

The paper analysed the process of developing a sustained competitive advantage from the perspective of the Resource-based View (RBV) of the firm. From this perspective, resources controlled and deployed by the firm are valuable, rare, inimitable, and non-substitutable (Barney, 1991). Also, from this perspective, the process through which a sustained competitive advantage is developed is characterised to be a complex process (i.e., social complexity, causal ambiguity, and history-dependent). These features suggest the need for applying an adequate methodology to get insight into these phenomena. It is argued in this paper that fuzzy-set Qualitative Comparative Analysis (fsQCA) methods may contribute to revealing the nature of the complex processes when developing a sustained competitive advantage by firms.

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