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The Competitive Advantage of Nations 25 years - opening up new perspectives on competitiveness

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Abstract

Purpose – The purpose of this study is to analyze how The Competitive Advantage of Nations project led by Professor Michael E. Porter has opened up new perspectives on competitiveness of nations and firms for scholars, practitioners and policymakers. With the publication of *The Competitive Advantage of Nations* (CAON) book in 1990, Professor Michael E. Porter opened up a whole new perspective on competitiveness and clusters, including both new research avenues and new perspectives for practitioners and politicians. By questioning the traditional, more static and macroeconomic, views on competitiveness, he opened up for a new model of microeconomic drivers of long-run firm competitiveness. The new conceptual model, the Diamond model, pointed to the importance of healthy rivalry and dynamic clusters, in the proximate firm environment, as central to our understanding of how firms build sustainable competitive advantages in global markets.

Design/methodology/approach – Literature review and conceptual.

Findings – To distinguish between short-term, more static, and long-term, more dynamic competitiveness of firms, and the competitiveness of nations and regions, the paper proposes a conceptualization into three interrelated concepts: competitiveness and innovativeness of firms, and attractiveness of nations and regions.

Originality/value – This paper summarizes 40 years of Professor Porter's seminal research with a focus on the CAON project that began with the 1990 book on *The Competitive Advantage of Nations*. The paper proposes three interrelated concepts to cover issues of competitiveness: competitiveness (firm's static advantages), innovativeness (firm's dynamic advantages) and attractiveness (national/regional advantages).

Keywords Innovativeness, Attractiveness, Clusters, Competitiveness, Diamond model

Paper type Conceptual paper

Introduction

University Professor Michael E. Porter (hereafter MEP) received his PhD 40 years ago in business economics at Harvard University (Porter, 1976). Over the following four decades, he came to develop a stream of seminal conceptual models, typically beginning with the letter "C":

- competition;
- competitive strategy;
- competitive advantage;
- competitiveness;

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- clusters; and
- creating shared value.

Through relentless empirical research and theoretical conceptualization, MEP has covered a wide territory, including several interacting units of analysis leading to several conceptual models, see Table I.

Let us take a quick look at MEP's knowledge journey (for overviews see, Huggins and Izushi, 2011; Magretta, 2012)[1]. Already during his doctoral work during the 1970s, he began to build a bridge across two academic fields: the field of business policy/strategy and the field of industrial organization (IO). It was literally a bridge across Charles River, from the Economics Faculty on the Cambridge side, to the Business School Faculty on the Boston side. This first bridge is symbolized by the Five-Forces model (Porter, 1980). In the work with the Five-Forces model, MEP combined two levels of analysis: the firm and the industry (and adding four other competitive forces surrounding the industry). Through his thesis work, MEP, together with colleagues such as Richard Caves and Michael Spence (Porter and Caves, 1976; Spence and Porter, 1982), added to traditional IO by bringing elements of vertical power structures (as opposed to the IO focus on seller structure), service industries (as opposed to traditional IO focus on manufacturing) and intra-industry differences in firm strategies (as opposed to IO models typically based on homogenous firms inside an industry). Intra-industry differences in strategies were studies through strategic groups delimited by mobility barriers (Caves and Porter, 1977).

A few years after MEP had published his *Competitive Strategy* book (Porter, 1980), he was asked to join President Ronald Reagan's Commission on Industrial Competitiveness. Particularly after the Japanese onslaught, a big debate had emerged in the USA regarding the nation's competitiveness. During the late 1980s and early 1990s, MEP was busy building a new bridge, now between the islands of strategy and economic geography, as symbolized in the Diamond model (Porter, 1990). The Diamond model offered a conceptual model of a system of four interrelated microeconomic drivers: factor conditions, demand conditions, strategy and rivalry and supplying and related industries. The geographical aspect particularly of the fourth box, supplying and related industries, i.e. clusters, was mentioned, but was not put center-stage. Instead, focus was put on the Diamond (at the national scale and in case of larger nations at the regional scale) as a system of the four interrelated drivers in national environment within which firms, and their strategies, are formed and shaped.

Throughout the 1990s, MEP made important contributions to link these two levels of analysis: firms and nations (Ketels, 2006). However, a critical intervening variable between nations and firms began to garner increasing interest from both scholars and

Table I.
Unit of analysis, conceptual models and key references

Unit of analysis	Conceptual models	Key references
Firms and business units	Value chain, generic strategies	Porter, 1985
Industries	Five-Forces	Porter, 1980
Clusters	Cluster diamond, cluster life cycle	Porter, 1990, 1998a
Nations and regions	National and regional diamond	Porter, 1990, 2003
Global competition	Global strategy, global configuration and coordination	Porter, 1986, 1998b

practitioners, namely, clusters. Dynamic industry clusters – or "the Silicon Valley effect" – offered particularly favorable conditions for upgrading of firms' competitiveness, entrepreneurship and new firm formation and innovation. The increased "power" of the Diamond in proximate business environments had been brought up in the 1990 book, and the well-established ideas of Marshallian economies (Marshall, 1920) took off in both academic and policy circles. Initiated by the works of MEP (Porter, 1990; Jaffe *et al.*, 1993; Enright, 1998; Tallman *et al.*, 2004; Bell, 2005) and Krugman (1991), a new academic debate emerged. Interestingly enough, both these scholars were extremely proximate when the "rediscovery" took place in the late 1980s, as Paul Krugman was spending his sabbatical on HBS campus, next to MEP.

After the rediscovery, several important debates emerged, one in particular regarding the role of localization versus urbanization, with the rhetorical question, "Who is right, Marshall or Jacobs?" (for an overview, see Beaudry and Schiffauerova, 2009.) The Marshall–Arrow–Romer line of research (MAR externalities; see Glaeser *et al.*, 1992; Chatterji *et al.*, 2013) put focus on knowledge spillovers (Aharonson, Baum, and Feldman, 2007), rather than on Marshall's other cluster effects linked to labor market pooling, lower transport costs and access to specialized inputs. Recent empirical research has shown ample evidence that clusters offer dynamic externalities leading to innovation (Griliches, 1992; Jaffe *et al.*, 1993; Audretsch and Feldman, 1996; Furman *et al.*, 2002).

This cluster focus laid the foundation for MEP's research agenda during the 2000s, which more and more linked to the important role of regions (including the launch of the cluster mapping database), and the role of cluster-based policies (Ketels and Memedovic, 2008) (Figure 1).

While "MEP I" (the gray boxes in the figure above) had focused on strategy and medium-term profit potential stemming from lack of competition, "MEP II" (white boxes) began to focus on long-term competitiveness and firm success built on the innovation capacity of firms driven by intense rivalry. As such, the two models may seem incompatible – and they are, to some extent – partly because they answer very different questions. Managers typically favor the first model, whereas policymakers favor the second. But managers should beware – sustainable profits (through monopolizing industries – a standard recipe in the field of strategy consulting) can kill

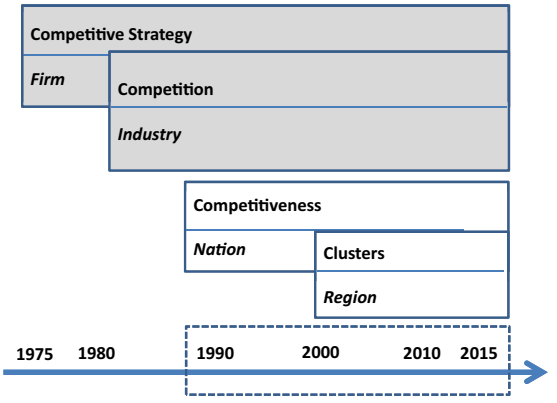

Figure 1.
Summary of MEP's research agenda over four decades (CAON period marked with dotted lines)

innovative capabilities, and over time, products will look more and more like a "Trabant" (Sölvell, 2015), which of course is only competitive in a sheltered setting. We see this over and over again: world-leading and highly profitable companies can and do fail (Christensen, 1997); remember Kodak and Nokia in recent times.

GM was the world's most profitable company for about two decades during the 1950s and 1960s. Then its market share slowly eroded and a US market share of over 50 per cent dwindled to less than 20 per cent, and the company had to be bailed out in 2009. Clearly, to understand this process of losing firm competitiveness, the Five-Forces model is of less use, but by comparing the Diamond models in Japan and the USA from the 1970s and onwards, a pattern emerges, not explaining profits, but explaining long-term survival in global markets. This MEP would argue should be understood as a superior ability to innovate and upgrade competitive advantages among the Japanese auto makers, as driven by tough competitive challenges and demand pressures (Table II).

The Diamond model offering a fundamentally new perspective on competitiveness

As MEP was traveling the world during the 1980s, he experienced different home bases of leading global firms, in Europe, Japan and elsewhere. American industry was argued to be losing competitiveness, and MEP was looking for a new and better model to explain the challenges. He would often start seminars by asking the rhetorical question:

Complementarities	Five-Forces	Diamond
Time frame	Medium (business cycle)	Long-term (10 years or more)
Level of analysis	Industry	Nation and cluster
Primary use	Develop business policy/strategy Industry attractiveness	Develop public policy National attractiveness
Implication for firm	Profit potential	Competitiveness and innovativeness
Geographical scope	Industry boundaries range from local to global	Local/regional focus
Location of firms	Plays no role	Proximity to other cluster actors critical
Main drivers	Static competition	Dynamic competition and collaboration
Type of model	Largely deterministic but room for voluntarism – change industry structure	Largely deterministic but room for voluntarism – change cluster dynamics
Contradictions	**Five-Forces**	**Diamond**
Rivalry	Weak is advantageous	Strong is advantageous
Value chain actors	Weak buyers and suppliers are advantageous	Strong and sophisticated buyers and suppliers are advantageous
Value chain dynamics	Compete for largest share of the pie	Collaborate to enlarge the pie

Table II.
Comparison of the Diamond and Five-Forces models

Why is it that firms in particular geographical contexts develop world-leading positions, while firms based in other geographies do not? Existing theory had many answers to that question, but MEP argued that to explain the failure of GM and the success of Toyota in international markets, one could not rely on such traditional theories of competitiveness; theories using the following logic:

- firms (industries/sectors) with the lowest *price* in international markets win;
- lower price is based on lower *costs*;
- lower costs come from cost of *labor* (low wages), *factor endowments* (e.g. low-cost access to natural resources) and *capital* (low interest rates) – and all these are improved by;
- *lax policy* (subsidies to improve cost positions, low taxes, etc.); and
- *a weak exchange rate.*

If this logic would hold, one should surely find such differences between the US home base of GM and the Japanese home base of Toyota. But these differences were hard to find, see Table III.

So the explanatory variables did not fit empirical reality. The Japanese automakers were not competitive due to lower wages or government subsidies. So if macroeconomic drivers, factor endowments and government policy were not well-suited to explain the relative success of Toyota and relative decline of GM, where should we turn? In this period, there was also a popular "theory" of competitiveness based on notions of culture, and particularly in the early 1980s, the notion of differences in managerial practices. MEP asked himself:

> […] so why is that Japanese firms in industries like processed food, cosmetics, paper products etc, all using Japanese managerial practices, cannot compete in global markets, while firms in automobiles, cameras and factory automation machinery can?

Surely, firms and industries across the Japanese product space would develop very different levels of competitiveness; something the new model would have to pick up.

Clearly, some things differed at the firm level. So what differed: maybe the Japanese automakers had a better technology in the plants? Or they were larger, more or less diversified or more experienced in auto making? Research at the time comparing US and Japanese auto plants would give the general answer no; Japanese auto plants were not more sophisticated than their European or US counterparts (Roos and Altshuler, 1984; Womack *et al.*, 1990) (Table IV).

Competitiveness	Traditional explanations	Do the explanations hold?
Macroeconomic conditions	Capital formation/lower interest rates	NO
	Currency – weak Yen	NO
	Taxes – lower corporate taxes	NO
Factor endowments	Cheaper labor costs in Japan	NO
	Natural advantages (ore, waterways, etc.)	NO
Government policy	Support to auto firms	NO
	State ownership in Japan	NO
	Lax regulation	NO

Table III.
Competitiveness: traditional explanations

However, at the level of quality systems and factory organization, there were large differences, including lean production (for an overview, see Holweg, 2007). And it was not only Toyota that picked up market shares in world markets, but this also went for other Japanese brands such as Nissan, Honda, Mitsubishi and so forth. Something was clearly going on at the Japanese home base of these firms. Scholars studying the US manufacturers pointed more and more to the failure of GM to "reinvent itself", where the firm was argued to had become stuck in an old bureaucracy; the "GM System" (Birkinshaw, 2010).

Somehow the Japanese auto manufacturers had developed capabilities and resources far more sophisticated than their US counterparts. In the end, this would translate to both cost advantages (for smaller cars in the order of 10 per cent) and differentiation advantages (increased mileage and quality of the product). This would go for Toyota but also for Nissan, Honda and the other car manufacturers. During the 1980s, US auto firms put on a very strong lobby in Washington that led to severe trade barriers for Japanese car imports. This only led to the Japanese carmakers setting up plants in the USA and transplanting their capabilities, into unknown territory in the South; not the old cluster in Detroit.

By using the Diamond model, MEP would point to factors such as quality and specialization of factor conditions, fierce rivalry in the backyard of Japanese auto makers, sophisticated buyers and access to dynamic clusters of interlinked industries (Porter *et al.*, 2000). The notion of competitiveness was now turned into a dynamic one, emphasizing tough policy, factor disadvantages (expensive energy, expensive steel input, etc.) and meticulous demand specifications (spotless finish of the product, fuel efficiency, safety features, etc.).

Even if firms and nations are totally different economic agents in the world economy, MEP showed that there were important linkages between the two. Regions and nations offer framework conditions within which firms develop their strategies. Thus, firms are dependent on the quality of human capital, the science base, sophistication of buyers, etc. Firms in dynamic microeconomic environments tend to outcompete firms from less dynamic bases – read clusters – as they meet in the global marketplace. This is obvious when comparing firms based in countries with different levels of economic wealth, but MEP's research also showed large differences in performance among firms based in different advanced nations (e.g. the USA and Japan) and different regions within a particular nation (e.g. Massachusetts and Alabama).

Table IV.
Competitiveness: explanations at the firm level

Competitiveness	Firm-level explanations	Do the explanations hold?
Firm characteristics	More modern plant technology in Japan	NO
	Firm size, scope, experience	NO
	Factory organization (Kanban, Lean, Quality circles)	YES, but why?
	Resources and capabilities	YES, but why?
	Product quality	YES, but why?
	Management models	YES, but why?

Clusters and further action for research

The emergence of the Diamond model and the emphasis on clusters led to new political and corporate agendas, and opened up new research avenues. For our scholarly agendas around cluster dynamics, today there are still many "gaps" to be filled. Here are a few examples of where we hope to see more research published in our peer review journals:

- What really explains knowledge spill-overs, so critical for the innovation process in clusters? How and when do these spill-overs really come about? What are good measures of cluster dynamics? And how can policy stimulate the process?
- What explains the persistence of agglomerations and clusters? How do clusters renew themselves? Are there typical cluster life cycles in different types of industries?
- How much is cluster dynamics about production of knowledge/innovation as opposed to attraction and assimilation of knowledge/innovation created elsewhere?
- How do processes of parallel prestigious rivalry and cooperation in clusters play out in different national settings?
- How much of cluster effects can we actually measure? In terms of productivity, innovation output, economic growth (e.g. jobs, sales, export), new firm formation and so on?
- How can we explain the variety and distinctiveness of geographically bounded industrial clusters that are observed in different case studies?
- Why do particular types of technologies tend to thrive in particular localities?
- Researchers on clusters can also gain from looking into related disciplines that are addressing issues around innovation and the role of the national/regional context: territorially embedded institutional networks, national systems of innovation, regional systems of innovation, learning regions, social networks and city dynamics.

On the empirical side cluster, researchers can benefit from using spatial point data (level of firms or plant subunits) instead of data drawn from predefined regions (e.g. postal code/municipality/administrative region/state/nation), to study true agglomerations (Protsiv, 2012).

Conclusion: competitiveness, innovativeness and attractiveness

The concept of competitiveness is used in many different ways by different stakeholders: politicians, practitioners and academics. MEP showed through his impressive empirical work in *The Competitive Advantage of Nations* (CAON) project that traditional views on competitiveness could not account for differences in firm competitiveness. Yet, he continued to use the denomination "competitiveness", sometimes with the addition of "sustainable", which is closer to his work. The use of "Competitive Advantage of Nations" never really caught on, and the notion of "competitive advantage" has firmly stayed with the level of firms.

The traditional definition of competitiveness builds on the cost structure of an economy/sector in a nation in comparison with competing economies, and thus the exchange rate plays such an important role. Lower costs of capital, land, labor and often

lax policy, relative to competing nations, lead to improved competitiveness. This is of course a static comparison across locations. And true enough, firms in particular nations/regions gain in competitiveness due to favored access to factors of production and lower costs, leading to static advantages. In some industries, such as international trade of bulk wine or many raw materials, these drivers are extremely important for the competitiveness of involved firms. But at the same time, as firms gain from these static advantages, the pressure to upgrade and innovate weakens, and thus the dynamic long-term advantages are less likely to materialize. To get a grip on these phenomena, we propose to use three interlinked concepts:

- competitiveness;
- innovativeness; and
- attractiveness.

If we begin by making a distinction between units of analysis, firms compete in international markets and nations/regions can be more attractive as places to do business, to live, to study and so forth. Hence we link the concept of competitiveness to firms and attractiveness (quality of life, research infrastructure, etc.) to nations and regions. Second, we suggest that the competitiveness of firms be divided into static advantages and dynamic advantages; the former referred to as competitiveness and the

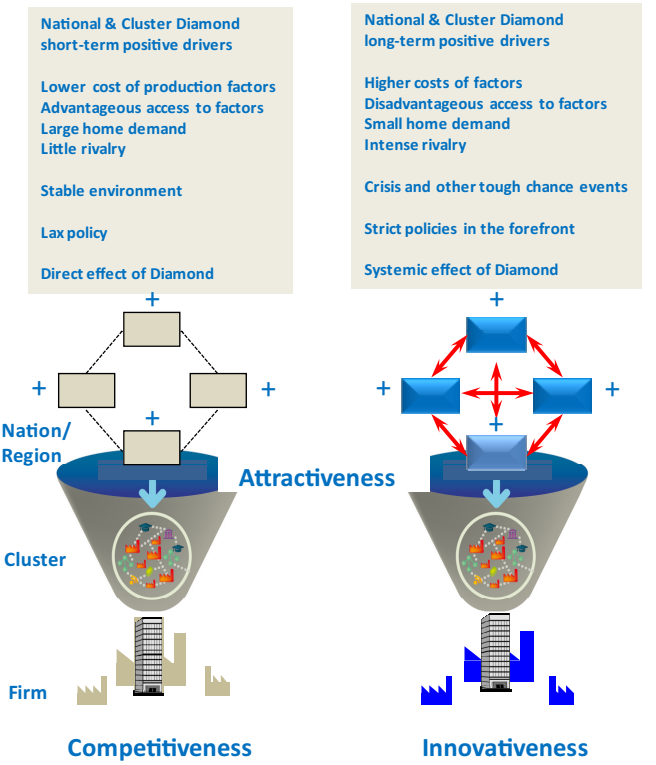

Figure 2.
Competitiveness, innovativeness and attractiveness

latter to innovativeness. Competitiveness is then driven by "a static superior Diamond" and innovativeness by a "dynamic Diamond as a system of four interacting factors" (Figure 2).

So why is it, as MEP puts it, that firms based in particular geographies develop into world leaders, while firms based in other geographies do not? This question is at the heart of MEP's work – linking firms and firm strategy to the surrounding environment, ranging from more fundamental regional endowments to cluster strength and dynamism. Through four decades of research and through the CAON work, MEP built a solid foundation for academics, practitioners and policymakers to develop superior strategies and agendas for regions and nations.

The concepts rest on five pillars:

- *competitiveness* of firms and the role of *productivity*;
- the role of *innovation* and continuous upgrading of *competitive advantage* among firms;
- the role of the *microeconomic business environment* – the *Diamond* – in shaping firms;
- the particular role of *clusters* in shaping incumbent firms, new firm formation and attraction of multinational firms; and
- the prosperity of *regions and nations* in both developed and developing parts of the world.

As often has been the case with MEP's research, he brilliantly connects different levels of analysis and adds complicating factors, which goes against the dominant research logic of simplification and often unrealistic assumptions to facilitate "clean" models. Thus, his conceptual models – often beginning with the letter C – have created such a profound imprint on both thinking and action across our societies.

Note

1. This section does not describe Professor Porter's important works in the fields of redefining health care systems, distressed inner cities, corporate philanthropy or creating shared value.

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