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A RESOURCE-BASED THEORY OF MARKET STRUCTURE AND ORGANIZATIONAL FORM

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We argue that combining the insights from both the industrial organization and organizational ecology perspectives is likely to produce value added. We develop a resource-based theory of market structure, where resources pertain to the environmental assets (together forming the resource space) without which a firm cannot operate viably. We propose that the distributive shape of the resource space, together with the presence or absence of exploitation economies, molds market structures in terms of density and concentration. Our theory unifies many unconnected strands of theory in the organization sciences domain.

The issue of market structure figures prominently in firms' boardrooms and societies' courthouses, being a key element in decisions about competitive strategies and antitrust interventions. Indeed, market structure, referring to firms' composition of an industry in terms of their mere number and size distribution, is crucial in understanding the processes and outcomes of competition. An industry's market structure is both a consequence and a determinant of competitive rivalry. The number of firms (density) and their size distribution (concentration) are inextricably bound up with the competitive rules of the game in any industry. Both extreme cases—perfect competition among a large number of small price-taking firms and natural monopoly of a large price-setting firm that single-handedly dominates the market—are self-explanatory in this respect. So, logically, theories of market structure focus on three key issues: (1) What determines market structure features? (2) How does market structure influence competitive behavior (and vice versa)? (3) How does market structure evolve over time?

Two branches of the organization sciences particularly stand out for their production of a large number of theory fragments that deal with such market structure issues. First, industrial organization (IO)—an economic theory of market competition—scholars have developed an impressive stock of knowledge as to the specifics of competitive rivalry under a large variety of circumstances (Schmalensee & Willig, 1989; van Witteloostuijn, 2002). Second, organizational ecology (OE)—a sociological theory of population evolution—scholars have produced an equally impressive number of longitudinal studies on the evolution of a large variety of industries (Carroll & Hannan, 2000; Hannan & Freeman, 1989). As yet, however, an integration of the accumulated body of theory fragments is just starting to emerge through the stepwise buildup of a stock of crossover studies (Boone & van Witteloostuijn, 1995, 2004; van Witteloostuijn, 2000). An example of a cross-fertilizing effort is "ecological" game theory, in which IO's mathematical apparatus is applied to OE issues (van Witteloostuijn, 1998; van Witteloostuijn, Boone, & van Lier, 2003).

By and large, however, IO and OE have been developed separately. Our key argument in this article is that combining insights from both perspectives is likely to produce value added. In this context, a promising integration vehicle is the resource concept. In the domain of organization sciences, the core concept of a number of well-established theories is this very notion of the resource; four notable examples are the resource-dependency theory of the organization (Pfeffer & Salancik, 1978), the resource conceptu-

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alization of niche-width fitness (Freeman & Hannan, 1983), the resource-based view of the firm (Wernerfelt, 1984), and the resource-partitioning framework of OE (Carroll, 1985). Along similar lines, a resource-based theory of market structure and organizational form can be developed, where resources pertain to the environmental assets (together forming the resource space) without which a firm cannot operate viably. Such a resource-based theory will tie together the many strands of theory currently unconnected in the organization sciences domain. Additionally, the resource-based perspective produces a number of new ideas that may prove helpful in future empirical work.

Our general argument is that the characteristics of the resource space, together and in interaction with the presence or absence of exploitation economies (i.e., scale or scope economies), determine firm behavior and ultimately market structure. Different market structures are traditionally described by means of the number (density) and the size distribution (concentration) of firms in the market. These two dimensions of market structure are not indicative, however, of the underlying organizational diversity and types of firms that are likely to prosper under different resource space and exploitation economies conditions. Because markets with otherwise similar densities and concentration levels might hide very different competitive conditions, we also analyze the relative fitness of organizational forms under different resource space conditions, in line with OE's well-established focus on issues of organizational diversity (e.g., see Dobrev, Kim, & Carroll, 2002, 2003). We concentrate on two organizational forms that received much attention in prior OE research: generalist and specialist (Carroll, 1985; Hannan & Freeman, 1977). The joint focus on market structure and relative fitness of organizational forms in equilibrium—the combination that we call "market form" in the remainder of the paper—offers a richer description of the particular market under study than traditionally provided in much IO work. We argue that these market forms are molded by, and intricately related to, the characteristics of the resource space and the presence or absence of exploitation economies in a predictable way.

The stepping-stone of our theory is a typology of four ideal-type market structures, combining the density with the concentration concept. Subsequently, we sequentially deal with the features of the resource space, exploitation (scale and scope) economies, and the characteristics of different organizational forms. Next, we put these theory pieces together to produce an ideal-type typology of resource space/exploitation economies–market structure/organizational form linkages. Figure 1 summarizes the three key building blocks of our resource-based theory of market form.

The contribution of the paper is fivefold. First, we offer a mapping exercise, systematically linking IO and OE insights. Second, we put resource space features center stage in a theory of market form equilibrium (IO) and market form evolution (OE). Third, we enrich IO by introducing the organizational form concept from OE. Fourth, we extend OE by incorporating equilibrium reasoning from IO. Fifth, we offer a theory that provides insight into the structural antecedents of competitive strategy options and the implications for organizational performance. All this, finally, cumulates in a plea for in-depth empirical industry studies on resource-driven industry evolution.

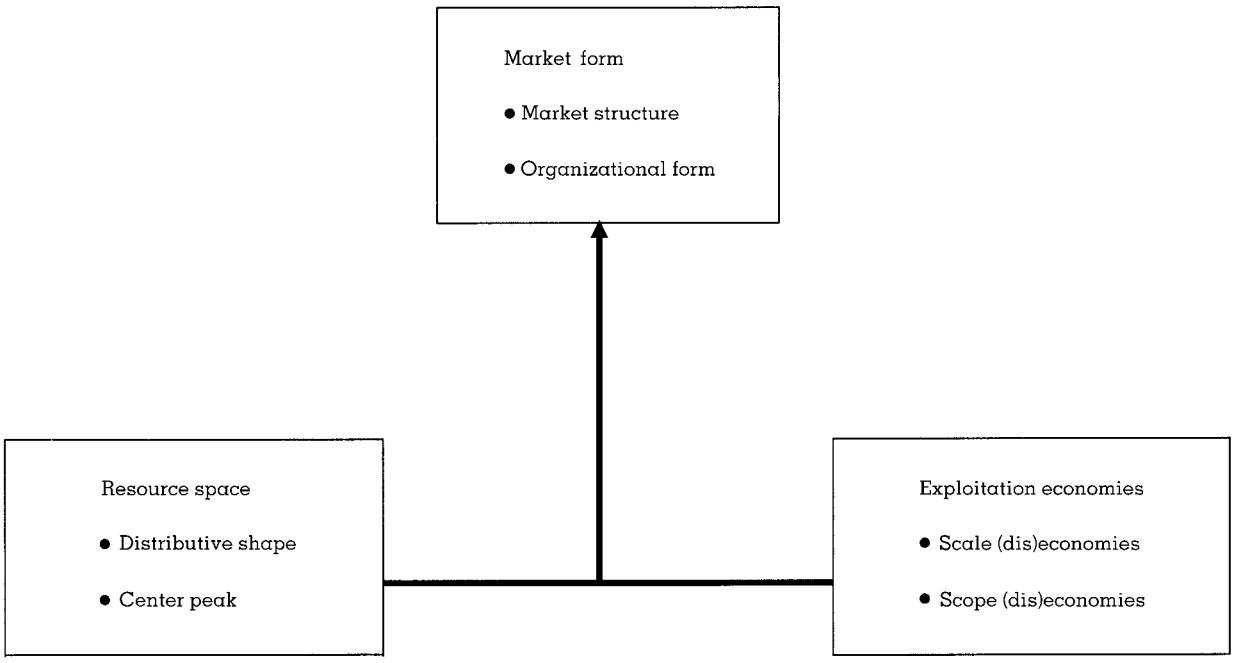
We provide three preliminary remarks. First, the argument below takes the IO- and OE-related perspectives as the stepping-stone for theory construction. Second, in so doing, the impressive stature of both perspectives implies that this article cannot do justice to their detailed richness. In the current context, however, this straw man type of device is instrumental in focusing on the key issues.[1] Third, since IO is full of rather technical jargon that is not easy for noninsiders to comprehend, we explain IO terminology (printed in **bold** in the main text) in footnotes throughout the text.

MARKET STRUCTURES

Leaving the well-known industry boundary issue aside, the structure of a market refers to the number and size of the firms that supply a well-defined set of (in)tangible products to a client group. Basically, market structure is defined by market concentration and organizational density.

[1] We focus here on theory. Schmalensee (1989) and Baum (1996) are just two examples of reviews of the impressive stocks of empirical evidence in IO and OE, respectively.

FIGURE 1
A Resource-Based Theory of Market Form



Concept 1 (market concentration): Market concentration pertains to the relative importance of the mass (i.e., aggregated size) of the larger firms in a market.

Concept 2 (organizational density): Organizational density refers to the number of firms in a market.

Market concentration relates to the (non)skewness of the firm size distribution by, for example, measuring the aggregated market share of the top four firms in a market (the so-called C_4). Organizational density is simply the total number of firms, unweighted for their size, in a market. Clearly, IO and OE are highly complementary, since scholars of both have been and still are studying issues of concentration and density, albeit by applying different theoretical lenses.

Ignoring the many hybrid variants, four ideal-type market structures can be distinguished by dichotomizing both market structure features in high and low categories. Additionally, the IO theory associates market structure with firm conduct (van Witteloostuijn, 1992). The combination of market structure and firm conduct specifies the competitive rules of the game (Scherer & Ross, 1990). For example, in the symmetric duopoly setting with product homogeneity and unbinding productive capacities, cutthroat **Bertrand competition**[2] (i.e., price-setting rivalry) is likely to emerge. Under such circumstances, potential clients are only interested in low prices, since the products offered by both duopolists are identical. Then, tit-for-tat price undercutting will determine the rules of the competitive game,

[2] **Bertrand competition** is one of the two best-known game-theoretic models, the other one being Cournot competition. With Bertrand competition, the assumption is that firms compete by setting prices, rather than quantities (Cournot). A well-known benchmark case of competition is Bertrand rivalry with perfect product homogeneity and nonbinding productive capacities. With perfect product homogeneity, only price matters to the demand side of the market. That is, a customer buys from the cheapest producer, even for infinitesimal price differences. As a result of nonbinding productive capacity, each firm can potentially serve the whole market as a monopolist. Basically, with these assumptions in place, even a Bertrand duopoly will feature cost prices and zero profits in equilibrium, as a result of tit-for-tat price-undercutting behavior.

TABLE 1
Four Ideal-Type Market Structures

	Density	
Concentration	**High**	**Low**
High	*Dual* market structure (fringed oligopoly)	*Concentrated* market structure (pure oligopoly)
Low	*Fragmented* market structure (perfect competition)	*Uniform* market structure (monopolistic competition)

provided that each producer has sufficient production facilities to serve the whole market as a monopolist. Table 1 lists the four ideal type market structures, with the IO-derived rules of the game in parentheses.[3]

1. *Dual* market structure. Dual market structures feature a market center with large (dominant) generalist firms that tolerate a small-firm specialist market fringe. The OE-related resource-partitioning framework (Carroll, 1985) emphasizes the scale-driven competition for the market center, whereas IO's modeling of **escalating commitment**[4] (Sutton, 1991) focuses on the differentiation-oriented rivalry among dominant oligopolists (Boone & van Witteloostuijn, 2004).
2. *Concentrated* market structure. Concentrated market structures are associated with oligopoly (and, in the extreme, monopoly) industries in which a limited number of large firms strategically compete for the attention of the industry's demand side. The game-theoretic analysis of **oligopolistic behavior**[5] is modern IO's core (Tirole, 1988), involving a virtually uncountable number of instances of specific-case modeling (van Witteloostuijn, 2002).
3. *Fragmented* market structure. Fragmented market structures are typical for the classic case of perfect competition, which features a large number of small price-taking firms that seek survival in homogeneous product industries. **Perfect competition,**[6] which has been generalized as the *n*-firm case of **perfect contestability**[7] (Baumol, 1982), is the traditional benchmark case in economics' **general equilibrium theory**[8] (Novshek & Sonnenschein, 1987).

[3] Clearly, concentration and density are not totally independent. Two examples may illustrate this. First, with density (n) being 1, the C_1 index is 100 percent by definition. Second, with firm symmetry, the Hirschman-Herfindahl index (which is the sum of squared market shares) is $1/n$.

[4] **Escalating commitment** is a type of competitive behavior that is explored in dynamic game theory. In its simplest form, this is modeled in a two-stage game. In the first stage, firms decide on whether to sink an investment in, for example, advertising or R&D. In the second stage, given the investments of the first stage, firms compete in the product market, setting either prices (Bertrand) or quantities (Cournot). The first-stage investment game is said to escalate if the end result is an overinvestment such that the associated sunk cost can only be viably carried by a small number of firms.

[5] **Oligopolistic behavior** refers to the strategic interaction among a limited number of larger firms. In this case, the firms are large enough to directly influence the market, which implies a deviation from perfect competition and contestability. Hence, firms anticipate and react directly to what (they expect) rivals (will) do. Market concentration is high and organizational density low. Modern game theory has been and still is extensively applied to model oligopolistic behavior, assuming that oligopolists primarily compete with quantities (Cournot) or prices (Bertrand). The basic model is extended by adding a wide variety of complexities (e.g., asymmetric information, R&D investment, or multimarket collusion).

[6] **Perfect competition** is the traditional benchmark of neoclassical economics. With perfect competition, many small firms are subject to auction-like *tâtonnement* processes that determine equilibrium quantities and prices at the market level. That is, all firms are too small to have any direct influence in the marketplace. Market concentration is very low and organizational density very high. Firms passively decide on the quantity they bring to the market. Assuming free (i.e., costless) entry and exit, the result is zero-profit prices, which maximize static welfare.

[7] **Perfect contestability** generalizes perfect competition by developing an argument that produces zero-profit price outcomes, irrespective of organizational density. The argument relies heavily on the free entry assumption. Even a monopolist will be forced to set zero-profit prices in the face of a dominant threat of free entry. If equally efficient clones are hanging in the wings, incumbent firms cannot engage in any form of monopolistic behavior, because this will trigger devastating hit-and-run entry. Basically, this is the extreme case of Bertrand competition, but now with potential rather than established competition. The key assumption is that sunk cost is zero, implying costless exit—and, hence, a dominant threat of hit-and-run entry.

[8] **General equilibrium theory** is the mathematical analysis of a complete set of markets—complete in the sense that this set of factor and product markets is assumed to represent the economy as a whole. The focus of general equilib-

4. *Uniform* market structure. Uniform market structures are characteristic of **monopolistic competition**[9] (Hotelling, 1929), which implies that a countable number of nondominant firms differentiate their products in order to obtain sustainable positions in industries with quality- and/or taste-sensitive clients. Under the umbrella name of **horizontal**[10] or **vertical product differentiation**[11] rivalry, a large number of specific cases of monopolistic competition have been analyzed (Eaton & Lipsey, 1989).

RESOURCE SPACES

Market structure and firm conduct are codetermined by the underlying features of environmental resources. This does not imply that determinism rules the business world altogether. For example, which firms are bound to flourish and which resource-exploiting devices are coming to the fore are both largely a matter of managerial discretion. However, this voluntarist element leaves intact the observation that overall market structure patterns are the product of the boundaries imposed and the opportunities offered by environmental resources. If this type of resource-based reasoning is applied to the four ideal-type market structures, a general resource-based theory of market structure emerges. First, however, before such mapping exercises can be performed, we need to develop ideal-type resource spaces on the basis of key features of environmental resources. For our current purpose, we focus on the following features of the environmental resource space: (1) whether the resources are homogeneous versus heterogeneous and (2) whether the resource distribution has a center or not.

> *Concept 3 (distributive heterogeneity and homogeneity): The distribution of environmental resources may be dispersed so that different niches can be observed, or it may reveal a concentration of similar resources (distributive heterogeneity and homogeneity, respectively).*
>
> *Concept 4 (resource space center): When resources are heterogeneous, the distribution may or may not reveal a single peak or multiple peaks, implying that niche sizes are unevenly distributed or of similar size, respectively.*

A revealing example of the distributive feature of the environmental resource space is located at the market's demand side. On the one hand, if buyers focus on price differences only, then product homogeneity—and, thus, environmental resource homogeneity—rules the market. IO examples of product homogeneity theories of market rivalry are perfect competition, cutthroat Bertrand oligopoly, and perfect contestability (Baumol, Panzar, & Willig, 1982). In OE, generalist competition for the market center comes closest to this type of rivalry (Carroll, 1985).

On the other hand, if buyers discriminate among different products according to nonprice features, then product heterogeneity—and, thus, environmental resource heterogeneity—determines the rules of the competitive game. IO the-

rium theory is on issues of social welfare. The key contribution of general equilibrium theory is that linkages across markets are taken on board. For example, what is the impact on welfare if one market is liberalized into perfect competition while other markets maintain imperfectly competitive structures?

[9] **Monopolistic competition** emerges if firms offer products that slightly differ in terms of their location in product space, implying an assumption of imperfect product homogeneity. As a result, monopolistic competition deviates from perfect competition because each firm can benefit from local monopoly power. Monopoly power is limited, though, by competition from neighboring rivals. The degree of monopoly power depends on the distribution of demand and supply over product space, as well as cross-product elasticities.

[10] **Horizontal product differentiation** games deal with issues of product variety competition. In such games, product varieties are assumed to be different, but not so different that they do not compete for the same type of demand. A horizontal product differentiation game is associated with two key assumptions. The first one specifies the set of potential products and the costs associated with producing any of them. The second defines the distribution of customers, defined by their income levels and product preferences. Together, both assumptions drive the outcome in terms of equilibrium products and prices.

[11] **Vertical product differentiation** games deal with quality competition. That is, the assumption is that firms offer the same product, differing from one firm to the other only with respect to quality. This implies that if two firms offer this product at the same price, customers will buy the highest-quality one. If customers differ in their willingness to pay, then different price-quality combinations will survive in equilibrium.

ories of product heterogeneity rivalry are all in the realm of horizontal or vertical product differentiation competition (Eaton & Lipsey, 1989), the classic cases being Hotelling's model (1929) of ice outlet competition on a sunny beach and Lancaster's (1979) *n*-dimensional conceptualization of product space. In OE, Carroll's (1985) resource-partitioning theory is a nice example, assuming a unimodal (or multimodal) resource distribution with a peak (or peaks) and a tail (or tails).

Of course, though, the distribution of resources is not restricted to demand and product features, as is clear from the emphasis on social structures in the OE-related literature. For instance, the distributive characteristics of supply-side productive capital (e.g., in terms of human labor, physical equipment, and raw material) are equally important. Take the illustrative case of the auditing industry (Pennings, Lee, & van Witteloostuijn, 1998). In this professional services industry, the survival chances of any firm are highly dependent on the human capital features of the auditing associates and partners, implying that the human capital distribution in the labor market shapes market structure evolution (Maijoor & van Witteloostuijn, 1996).

By combining the environmental resource distribution features described in Concepts 3 and 4, the three ideal-type resource spaces presented in Table 2 and Figure 2 emerge, again putting aside the many hybrid cases. Additionally, for the sake of simplicity, we restrict our discussion to unidimensional resource spaces (for multidimensional examples, see Péli & Nooteboom, 1999, and Boone, Carroll, & van Witteloostuijn, 2002). That is, for the sake of clarity, both resource space features are dichotomized into their discrete counterparts.[12] Note that homogeneous resource spaces cannot have a center by definition. This is why NA appears in the middle column of Table 2.

1. *Condensed* resource space. A condensed resource space (Figure 2a) is characterized by a high concentration of similar resources (homogeneous resources). An example is the natural gas market, where buyers have undifferentiated preferences for gas for use in cooking, electricity, or heating.
2. *Rectangular* resource space. A rectangular resource space (Figure 2b) is composed of a set of dissimilar resource pockets or niches without a dominant center. An example is the Chinese or Indian carryout market, where each carryout counter serves a small local market defined by geographical distance.
3. *Tailed* resource space. A tailed resource space (Figure 2c) features a relatively resource-abundant center of similar or related resources, surrounded by tails of dissimilar and relatively scarcer resources. An example is the American beer brewing industry, consisting of a large market center of consumers of mass-produced beer and smaller pockets of demand for a variety of specialty beers.

TABLE 2
Three Ideal-Type Resource Spaces

Distribution	Center	No center
Distributive homogeneity	NA	*Condensed* resource space
Distributive heterogeneity	*Tailed* resource space	*Rectangular* resource space

NA = not applicable, since a homogeneous resource distribution has no center by definition.

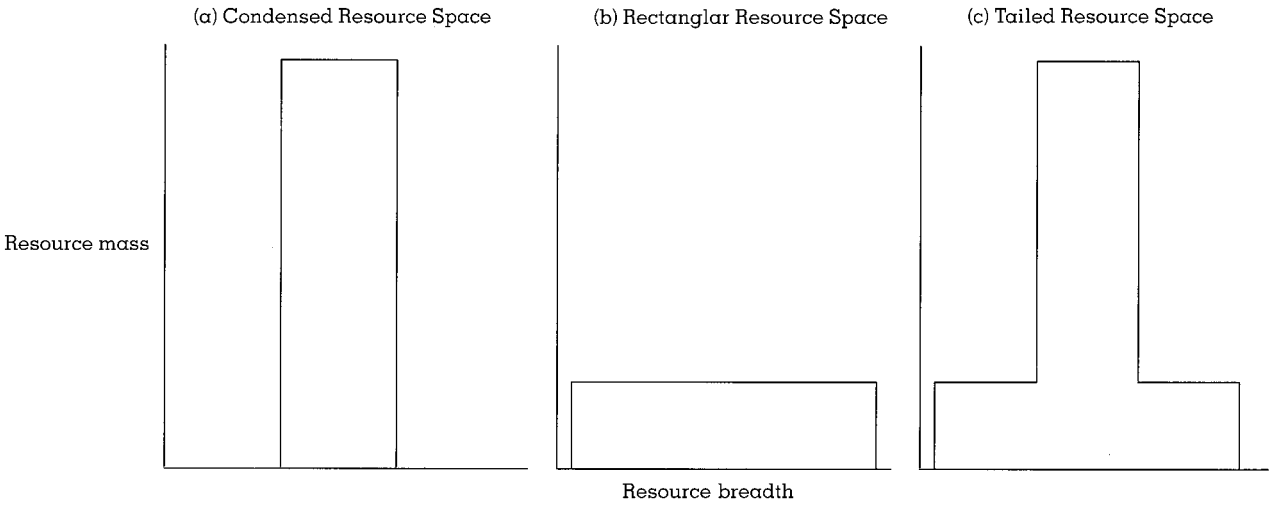
EXPLOITATION ECONOMIES

In IO terminology, the environmental resource space is the demand side that is to be exploited or served by the supply side, which comprises organizations that occupy viable locations in this resource space. A crucial supply-side feature is the benefit and/or cost of resource exploitation (Teece, 1980), particularly scale and scope (dis)economies.

> *Concept 5 (scale economies and diseconomies): The exploitation of environmental resources may or may not permit firms to benefit from cost-economizing or revenue-generating large-scale production of a single product.*

[12] An obvious candidate for specifying the theory's resource space characterization in greater detail is resource space mass and how this relates to equilibrium firm density. Market size (or, in OE terminology, *carrying capacity*) imposes an upper bound on the resource space's exploitation potential, which subtly interacts with the minimum efficient scale in determining market structure.

FIGURE 2
Condensed, Rectangular, and Tailed Resource Spaces



Concept 6 (scope economies and diseconomies): The exploitation of environmental resources may or may not permit firms to benefit from cost-economizing or revenue-generating large-scope production of a multiproduct portfolio.

Scale and scope (dis)economies may derive from regulatory, positional, or technological (dis)advantages. Scale cost economies are determined by cost advantages that come with the large-scale development (R&D scale), production (manufacturing scale), and selling (marketing scale) of a single product, where learning economies derive from cumulative size over time (in whatever [combination of] functional activities). An example of a scale benefit is market power: a firm that size-dominates the market can sustain high price-cost margins by taking a **Stackelberg leadership**[13] role (von Stackelberg, 1932). Scope economies pertain to the benefit and/or cost advantages that are associated with the combined production and selling of a portfolio of different products. A scope cost advantage is, for instance, any cost reduction that comes from the multiproduct sharing of input resources (such as shared raw material and production machinery). A benefit advantage from scope may be, for example, derived from (1) multimarket branding by transferring a strong brand name from one market or product to the other, (2) joint R&D that generates new process technologies or product features that spill over from one market or product to the other, or (3) the competition-dampening threat of mutual forbearance (van Witteloostuijn & van Wegberg, 1992).[14] OE adds sociological mechanisms to standard IO-type sources of exploitation diseconomies, such as conspicuous consumption (Carroll, Dobrev, & Swaminathan, 2002) and network status (Podolny, 1993), that constrain a firm's capacity to extend its activities successfully into the market's periphery.

Baumol et al. (1982) introduced a sophisticated IO cost theory. Their so-called contestability (or sustainability) analyses nicely unravel the consequences of scale and scope (dis)economies in single and multiproduct facilities. In this context, a key concept is the **minimum efficient**

[13] **Stackelberg leadership** is a variant of oligopolistic behavior where one of the firms is the first mover. That is, in the illustrative case of a duopoly, the market leader *i* decides on prices (Bertrand-Stackelberg) or quantities (Cournot-Stackelberg) before follower *j* does so. Then, leader *i* decides while taking *j*'s profit-maximizing reply into account. Modern Stackelberg models endogenize leadership, analyzing which firm will turn into a leader given the rules of the game and the features of all firms.

[14] Clearly, the exploitation (dis)economies notion is closely related to the IO concepts of entry barrier, sunk cost, and strategic commitment (van Witteloostuijn, 1992).

scale or scope (MES).[15] The MES defines the firm's overall scale (or scope) of operation at which the total unit cost of developing, producing, and selling the (portfolio of) product(s) is minimized. In a resource-based interpretation, therefore, scale (dis)economies pertain to the cost-benefit structure of exploiting a bundle of similar resources (e.g., producing a single product), whereas scope (dis)economies refer to the cost-benefit features of operating a set of different resources (e.g., producing a variety of products). Clearly, a subtle tradeoff may arise if different exploitation (dis)economies introduce opposing forces (Bulow, Geanakoplos, & Klemperer, 1985).

An illustrative case is the production and marketing of natural sugars and artificial sweeteners. From the demand side, the potential of scope economies hints at the combined marketing of sugars and sweeteners, since both products satisfy related utilities (the taste for sweetness). From the supply side, however, the food processing of sugar beets or canes is completely different from the chemical production of artificial sweeteners, which may produce cost disadvantages in the spheres of production and R&D. Only by assessing the precise nature of both opposing forces can the overall MES be determined.[16]

ORGANIZATIONAL FORMS

Based on the widths of their niches or market postures, two generic organizational types are distinguished within OE: generalist and specialist (Carroll, 1985; Hannan & Freeman, 1977). This typology of organizational forms is particularly interesting for the present resource-based theory, since it classifies organizations on the basis of the strategies they use regarding resource utilization and positioning in resource space. A specialist organization occupies a narrow niche in resource space by tailoring products or services to a small range of very specific customer tastes (Carroll, 1985; Hannan & Freeman, 1977; Péli & Nooteboom, 1999). In IO, the typical firm in the product differentiation literature is a specialist (Thisse & Norman, 1994). The many brew pubs in the American brewing industry are good examples of specialists. Other examples are high-premium car producers, such as Bentley and Rolls Royce, which basically offer a limited range of models targeting the very well off. A generalist organization, in contrast, aims its products or services at a broad range of consumer tastes in the market, being the counterpart of the specialist in niche-width theory (Freeman & Hannan, 1983). Such organizations basically want to build market share and maximize market reach.

Within the IO-inspired strategic management literature about industry analysis, specialists might be thought to pursue a *focus* business strategy, whereas generalists would have a *broad* competitive scope (Porter, 1980). It should be recognized that a generalist strategy could be accomplished in two ideal-type ways: through a single-product or multiproduct strategy. Single-product generalists do not customize their offer to specific client segments in the market but, rather, focus on making a single standardized product or service with a broad appeal. In IO, this type of generalist is omnipresent in single-product oligopoly theory (van Witteloostuijn, 2002). Multiproduct generalists concentrate on tailoring their output to the specific requirements of different segments. In IO, this type of generalism is reflected in the multimarket or the **multiproduct oligopolist**[17] (Bulow et al., 1985). Staying in the brewing industry, it is fair to say that Anheuser Bush and Heineken come close to the ideal-type single-product generalist. Renault (automobile industry) and

[15] **Minimum efficient scale or scope (MES)** is defined with reference to the production function. In the single-product case, the MES is the lowest production volume at which total average cost per unit of production is minimized. Then, the MES is determined by the absence or presence of scale economies or diseconomies. In the multiproduct case, the MES is the lowest production volume for a set of products at which per-unit cost is minimized. Here, the MES follows from the nature of scope (dis)economies.

[16] This type of reasoning is central to the large body of literature on diversification, a seminal IO contribution being Berry's (1975).

[17] A **multiproduct oligopolist** is a firm that produces a set of products that are connected through synergetic demand and supply considerations. On the demand side, the products may be complements or substitutes. On the supply side, the products may decrease or increase total costs if their joint production is associated with scope economies or diseconomies, respectively. Depending on the features and strategies of competitors, these issues determine the multiproduct oligopolist's profit-maximizing product portfolio.

GlaxoSmithKlein (pharmaceutical industry) are good examples of multiproduct generalists.

The distinction between these two types of generalists is not only important for theoretical reasons but also in clarifying the confusion in the literature regarding the very definition of generalists (Boone & van Witteloostuijn, 2004; cf. Hannan, Carroll, & Pólos, 2002a,b). What is clear from the literature is that the generalism-specialism distinction refers to the extent of variance in resource utilization (i.e., niche width: Hannan & Freeman, 1977; Dobrev et al., 2002). The confusion results from the fact that, depending on the industry setting, scholars have sometimes equated generalism with (supply-side) multiproduct strategies, whereas in other cases their single-product counterparts have been studied, without explicitly treating the differences and similarities between both types of generalists. For instance, in the automobile industry studies (Dobrev, Kim, & Hannan, 2001; Dobrev et al., 2002), generalism is defined as technological niche width, operationalized as the range of engine capacity in terms of horsepower across all models produced by a firm at a given point in time (multiproduct case). In the American brewing industry case (Carroll & Swaminathan, 2000), however, the large mass-producing brewers are considered to be generalists (single-product case). What unifies these cases, in our view, is that both types of organizations maximize their market reach by trying to cover a broad niche (i.e., niche width). The difference is that they use different strategies to accomplish this: product segmentation through differentiated products vis-à-vis appeal maximization with standardized products.

Because the multiproduct generalists straddle different market segments, some might prefer to refer to this form as *polymorphist*. Indeed, in Hannan and Freeman's original contribution, polymorphists are defined as a special type of generalism where different organizations confederate to form an "amalgamated holding company" (1977: 955). Similarly, polymorphists in Usher's (1999) framework are multiunit organizations with locally adapted products and services. We, however, think that, in this article, adding another ideal-type form would unnecessarily increase complexity for two reasons.

First, the theoretical boundary of our resource-based perspective is a single market/industry by definition. Within such a narrow setting, generalism and polymorphism are both defined in terms of niche-width coverage and, therefore, are not qualitatively different. Specifically, polymorphism is only an extreme case of generalism. Examples of such extreme cases are Inbev and Toyota. The former, which calls itself the "world's local brewer," combines the mass production of pilsner beer with the craft of brewing an impressive number of locally adapted specialty beers and, as a result, literally covers the whole market. Toyota has a similar strategy, marketing cars for the low- to high-end niches of the market, including the luxury segment with Lexus. When one studies multiple markets/industries, it might be more useful to distinguish generalists from polymorphists. In that case, polymorphism could be equated with diversification.

The second, more pragmatic reason is that in prior empirical work, as mentioned above, both types of generalism have been used interchangeably. For the sake of clarity and continuity, we prefer to follow this tradition. Combining both dimensions (single-product versus multiproduct operation and narrow versus broad niche width) produces a four-way typology of organizational forms relating to resource utilization and product portfolio strategies: single-product and multiproduct specialists and generalists, as presented in Table 3.

Although the distinction between single-product and multiproduct specialists is theoretically less important, it is obvious that specialists too can opt for a multiproduct strategy. A good example is the flexible job shop type of organization making products adapted to specific consumer specifications.

TABLE 3
Four Ideal-Type Organizational Resource Strategies

	Product	
Niche	**Single**	**Multiple**
Narrow	Single-product specialist	Multiproduct specialist
Broad	Single-product generalist	Multiproduct generalist

MARKET FORMS

Before putting the pieces of the resource space/exploitation economies–market structure/organizational form linkages together, we introduce three theoretical constraints that limit the number of possible linkages. Specifically, these constraints a priori exclude combinations that are unlikely to occur for theoretical reasons.

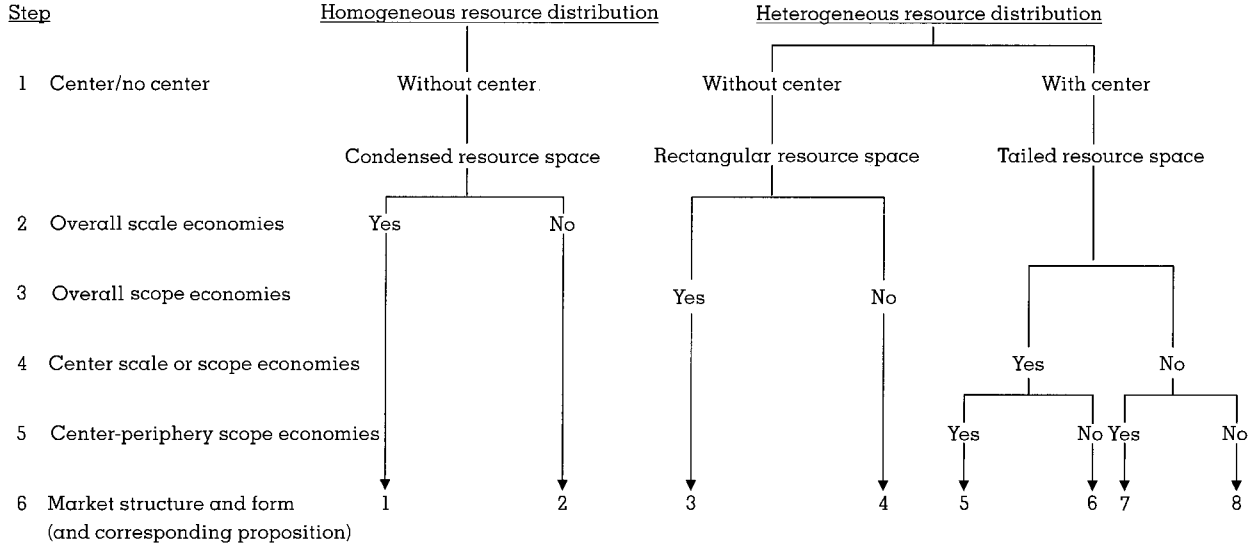
> *Constraint 1 (resource homogeneity): In a homogeneous resource space, high resource similarity sets limits on an organization's portfolio breadth to the extent that scope economies are beyond reach.*
>
> *Constraint 2 (resource heterogeneity): In a heterogeneous resource space without a center, high resource dissimilarity sets limits on an organization's size to the extent that scale economies are beyond reach.*
>
> *Constraint 3 (tailed resource space): Center-periphery segmentation only occurs in tailed resource spaces, with a single peak or with multiple peaks.*

Constraint 1 states that meaningful scope economies can only arise if the resource space features sufficient heterogeneity. Therefore, we can exclude scope economies in the case of a condensed resource space. Otherwise, the multiproduct or multiunit organization comes with pointless and costly complexity that is not reflected in resource space segmentation (Hannan & Freeman, 1977). Conversely, Constraint 2 underscores that it is unlikely to have meaningful scale economies when the resource space features a rectangular distribution. The reason is that reaping scale economies requires standardization, which is not feasible when the resources are heterogeneously distributed, without relatively large market pockets with similar tastes. Constraint 3 makes explicit that a market center–market periphery distinction only emerges if the resource space features a (single or multiple) peak-tail structure, implying an uneven distribution of resource mass (Péli & Nooteboom, 1999).

Combining Constraints 1 to 3 with Tables 1 to 3's typologies provides the basis of a resource-based theory of market form. The theory connects resource space features to market structures and organizational forms in six steps, which produces eight cases of equilibrium market forms. This six-step model is provided in Figure 3.

Condensed resource spaces (Cases 1 and 2) are associated with concentrated or fragmented market structures. With resource homogeneity and scale economies (Case 1), on the one hand, a limited set of large firms will occupy a market in which price competition dominates over prod-

FIGURE 3
Six-Step Model with Eight Cases



uct differentiation. The key to competitive success is the exploitation of scale economies through installation of large-MES facilities. In the extreme, this may result in a **natural monopoly.**[18] Often, depending on the relative magnitudes of the demand curve and MES, Bertrand-like oligopolies emerge (Baumol et al., 1982). That is, if the size of the market on the demand side is small vis-à-vis the supply side's MES, only a limited number of oligopolists can operate viably. Examples are many mineral mining markets, where issues of cost, scale, and price dominate competition.

> *Proposition 1: If the market's demand side is characterized by a condensed resource space and if the market's supply side features overall scale economies, then large single-product generalists will prevail in equilibrium in a concentrated market structure.*

With resource homogeneity and scale diseconomies (Case 2), on the other hand, the market structure is fragmented, since a large number of small firms serve the market in the absence of a large-MES technology. This is the classic case of perfect competition or high-density perfect contestability (Baumol et al., 1982). Here, scale diseconomies prevent firms from growing large so that a large number of firms compete for customers on the basis of price only, given product homogeneity. An example is the taxi market in large cities.

> *Proposition 2: If the market's demand side is characterized by a condensed resource space and if the market's supply side features overall scale diseconomies, then small single-product generalists will prevail in equilibrium in a fragmented market structure.*

Note that in both ideal-type Cases 1 and 2, the sustainable firms in equilibrium are all efficient replicas of each other.

Rectangular resource spaces (Cases 3 and 4) produce concentrated or uniform market structures, depending on whether scope economies are present. If scope economies are present (Case 3), on the one hand, such economies can be reaped by those organizations that straddle the pockets of demand. Here, multiproduct generalists are likely to flourish, outcompeting local specialists because of their cost advantage, where the optimal multiproduct portfolio depends on the nature and size of the scope economies, as explained in the multiproduct oligopoly version of perfect contestability theory (Baumol et al., 1982). Under such conditions, large multiproduct generalists can benefit from shared benefits (e.g., brand names) or costs (e.g., efficient overhead) to outcompete their specialist counterparts. An example is supermarket chain competition in the shopping mall market.

> *Proposition 3: If the market's demand side is characterized by a rectangular resource space and if the market's supply side features overall scope economies, then large multiproduct generalists will prevail in equilibrium in a concentrated market structure.*

If scope economies are absent (Case 4), on the other hand, the dissimilar resources cannot be combined in multiresource facilities without exploitation sacrifices. That is, the different resource pockets are all associated with unique MES entities, while the combination of different resource sets comes with scope diseconomies. The result is competition for sustainable positions by searching for local (quasi-)monopolies. This type of rivalry is related to monopolistic competition (Eaton & Lipsey, 1989), localized competition (Baum & Mezias, 1992), and niche packing (Péli & Nooteboom, 1999), the market being occupied by tightly packed single-product specialists. In other words, the so-called biological compression hypothesis applies in rectangular resource spaces without scope economies. This hypothesis says that competition usually acts to reduce the array of habitats or patches used by a species (MacArthur & Wilson, 1967). The result is that every organization eventually specializes to serve niches with minimal overlap with other niches. A classic example is Hotelling's (1929) case of the spatial distribution of ice-selling outlets on a sunny beach.

> *Proposition 4: If the market's demand side is characterized by a rectangular*

[18] **Natural monopoly** may emerge in a market without government protection. For this to happen, the market's demand curve must cross the monopolist's cost curve in or at the left-hand side of the MES. That is, total demand is so small and/or scale economies are so large that only a single firm can viably operate in the market.

resource space and if the market's supply side features overall scope diseconomies, then small single-product specialists will prevail in equilibrium in a uniform market structure.

Tailed resource spaces (Cases 5 to 8) are associated with widely diverging outcomes, the equilibrium market structure depending on the specific features of scale and scope economies within and across different market segments. For the sake of brevity, we focus only on scale/scope economies in the market center (yes or no) and center-periphery scope economies (yes or no), ignoring the presence or absence of exploitation economies in the periphery. Hence, in this paper, multiproduct specialists are not considered. Case 5 is a concentrated market structure where the presence of exploitation economies throughout the product space allows firms to develop very broad niche-width strategies, in the extreme resulting in a multiproduct generalist monopoly. This is multiproduct oligopoly perfect contestability theory (Baumol et al., 1982), again, although now focusing on the case where the size of the niches for different products differs considerably. Here, the multiproduct generalist is able to reap both scale or scope economies in the market center, as well as scope economies throughout the center-periphery product space. So, multiproduct generalists now can offer a product portfolio with which they can reach all corners of the resource space, living in the best of both worlds. An example is the motorcycle industry, in which manufacturers tend to produce a wide range of horsepower (cc) models.

Proposition 5: If the market's demand side is characterized by a tailed resource space and if the market's supply side features center exploitation economies and center-periphery scope economies, then large multiproduct generalists will prevail in equilibrium in a concentrated market structure.

A particularly interesting case is the dual market structure (Case 6). Here, generalists, with their strategy of maximizing market reach, gravitate toward the center of the market because of the presence of exploitation economies. This induces tough size-based escalation of competition for dominance in the market center. During this process, pockets of demand in the market periphery are ignored. As a result, the center of the market, on the one hand, will be dominated by large scale-exploiting, single-product generalists (in the case of center scale economies) or scope-driven, multiproduct generalists (in the case of center scope economies) that benefit from the large-MES advantages that can be exploited in the market center. In the market periphery, on the other hand, small single-product specialists will occupy the local pockets of resource space that the dominant generalists fail to exploit because of the absence of center-periphery scope economies. Here, a dual market structure will emerge in which concentration and density are positively correlated. Two similar theories exist explaining the process toward such dual market rivalry (Boone & van Witteloostuijn, 2004): OE's resource-partitioning theory (Carroll, 1985) and IO's investment escalation or sunk cost theory (Sutton, 1991).

Resource-partitioning theory focuses on the importance of scale economies in the market center, which trigger escalation of competition among single-product generalists. The core of the theory predicts that competition for the market's center among large scale-driven generalists opens up opportunities for small differentiation-oriented specialists to occupy the deserted periphery outside the market's center. This implies that the theory tells two related but different stories of competitive rivalry (Boone et al., 2002, 2004). The first story relates to the familiar argument about oligopoly-like rivalry in a product homogeneity market with a large MES. In such an environment, the search for scale increases market center concentration up to the point where the scale advantages are fully exploited by installing large-MES facilities. The second part of the resource-partitioning story pertains to what happens in the market periphery. The assumption is that the large center generalists cannot exploit the differentiation opportunities in the market periphery without cost sacrifices, which implies the assumption of center-periphery scope diseconomies. Such scope diseconomies may result from a variety of disadvantages, from reputation bottlenecks to stretching costs (Carroll et al., 2002). By competitive necessity, the center's generalists must leave the fringe to small-MES peripheral specialists. This implies that the specialists' perfor-

mance in the market periphery is enhanced by the toughness of the generalists' rivalry for the market center. An example is the brewing industry, where national generalists compete against local brew pub and microbrewery specialists (Carroll & Swaminathan, 2000).

The investment escalation story emphasizes the alternative role of scope economies in market center rivalry. By heavily investing in advertising and/or R&D, the leading oligopolists seek to establish brand recognition in the market center. The heavy investment in objective (through R&D) and/or subjective (through advertising) product quality has to be recouped by conquering a large market center share. In fact, this implies that the high-mass center of the resource distribution is segmented into niches, where multiproduct generalists struggle for dominance. So, again, surviving generalists are large market players, although for different reasons, since competition for the market center is now driven by multiproduct differentiation (scope) rather than single-product cost efficiency (scale). As the large leading market center oligopolists (multiproduct generalists) accumulate impressive investment expenditures, the small following firms are left behind to supply the price-sensitive market fringe with low-priced noninvestment products. Overall, then, the investment escalation story is the mirror image of the resource-partitioning argument (Boone & van Witteloostuijn, 1995, 2004). An example is the frozen food market, with premium-price/high-quality multiproduct generalists and low-price/low-quality single-product specialists (Geroski & Vlassopoulos, 1991).

> *Proposition 6: (a) If the market's demand side is characterized by a tailed resource space and if the market's supply side features center scale economies and center-periphery scope diseconomies, then large single-product generalists and small single-product specialists will prevail in equilibrium in a dual market structure; (b) if the market's demand side is characterized by a tailed resource space and if the market's supply side features center scope economies and center-periphery scope diseconomies, then large multiproduct generalists and small single-product specialists will prevail in equilibrium in a dual market structure.*

In Case 7, organizations are able to benefit from center-periphery scope economies, but not from center scale economies. As a result, firms cannot develop and sustain a large market share in the market center. Given center-periphery scope economies, firms will try to build a small market share in the center, together with a position in the periphery. The end result is a uniform market structure with small multiproduct generalists that straddle, to a limited extent, the center and periphery with multiple products. This is a special case of multiproduct oligopoly theory with small-MES technologies (Baumol et al., 1982). An example is the market for bicycles, where many smaller multiproduct firms are producing both general-purpose and small-niche bikes.

> *Proposition 7: If the market's demand side is characterized by a tailed resource space and if the market's supply side features center exploitation diseconomies and center-periphery scope economies, then multiproduct generalists will operate in a uniform market structure.*

Finally, Case 8, without any exploitation economies, is similar to Case 4, except that the market structure will be much more fragmented than the uniform structure emerging in Case 4. This is because many identical small-MES firms will eventually locate in the center, raising organizational density ceteris paribus. This case resembles the *n*-firm variant of vertical differentiation games (Sutton, 1998), where competition evolves around quality differences. An example is a local building market, where many smaller firms offer the service to build houses that differ in terms of price and quality, either in the center or the periphery.

> *Proposition 8: If the market's demand side is characterized by a tailed resource space and if the market's supply side features center and center-periphery exploitation diseconomies, then small single-product generalists or specialists will operate in a fragmented market structure.*

ENDOGENIZING THE THEORY

Firm conduct (and so the voluntarist dimension) may enter into the resource-based story of market form through two routes. First, firms may seize the opportunities coming from the market's resource space features. In this case, the resource space features (and, thus, market structure) are still *exogenous* to the market. Here, many underlying real-world mechanisms are easy to imagine: distributive shape changes at the demand side are driven by history-dependent shifts in tastes (e.g., the impressive penetration of television has dramatically changed the nature and pace of consumer trends, changing the nature of the newspaper); many supply-side exploitation economies arise from public investment programs in technology (e.g., without NASA products, the aircraft industry would have taken a different course); and resource space mass and, thus, market size or carrying capacity increase all the time as a result of population and/or wealth growth (e.g., in the Western world, supermarket chains would be nowhere without the wide spread of prosperity). Of course, with such exogenous shifts in resource space features, market structures change accordingly.[19]

Second, firms may change resource space features through strategically investing in resource space shape and mass, as well as scale and scope economies. Here, resource space and exploitation economies' features (and, thus, market structures and organizational forms) are *endogenous* to the market, implying that an assumptional boundary of the theory is endogenized. Of course, this feedback mechanism abounds in IO and OE studies. In IO, this is particularly clear from the reciprocal firm conduct–market structure causalities in IO's structure-conduct-performance framework (Scherer & Ross, 1990) and the crucial sunk cost (irreversible investment or strategic commitment) notion(s) in modern IO's **game theory**[20] (Tirole, 1988). In OE, resource-partitioning theory offers an example (Carroll, 1985), since there the argument is that the investment in scale by generalists in the market center triggers entry by specialists in the market periphery (Boone et al., 2002, 2004).

A number of examples may illustrate this argument. First, the distributive shape of the resource space is heavily influenced by the firms' investment in advertising or R&D (Sutton, 1991). That is, by manipulating customers' perception (advertising) or introducing new products (R&D), firms can give birth to resource space niches (or even whole resource spaces) that target existing demand-side utilities differently (e.g., airplanes offer another way of long-distance travel, rather than cars, ships, or trains) or create new demand-side needs (e.g., internet technology brings a wide range of new products to the market).[21] An OE-related example is implied by niche-packing theory (Péli & Nooteboom, 1999). Here, an argument is that entry emerges if the number of product features increases. So, if a firm introduces a product innovation that adds a new characteristic (e.g., safety issues in the car industry), then density is likely to increase as a consequence of an entry wave.

Second, many firm-level R&D programs are designed to increase exploitation economics by focusing on process technologies (Schmalensee & Willig, 1989). For example, by improving prevailing or inventing new production technologies, many firms have been able to move the MES upward. Similarly, organizational innovations (e.g., American divisionalization and Japanese leanness) may push the MES forward. In IO, studies of market-level innovativeness

[19] In empirical work these exogenous shifts are generally taken on board by introducing a carefully selected set of time-dependent dummies or covariates (either by plugging in ad hoc time dummies or by incorporating recognizable historical shock or trend variables such as political turmoil and GDP measures).

[20] **Game theory** is the conceptual and mathematical toolkit for the study of interaction among parties—or players—with conflicting interests. In modern IO, equilibria are calculated by applying game-theoretic concepts, such as the Nash equilibrium, to analyze competition. A Nash equilibrium is defined (in the two-player context) as the pair of strategies from which neither player deviates because a unilateral change of strategy does not produce a payoff improvement. That is, each player i's strategy x is his/her best reply to rival j's strategy y in the sense that x maximizes i's payoff, given j's strategy y (where $i,j = 1,2$ and $i \neq j$). This concept and its many extensions are used to analyze a wide variety of games, assuming different rules (e.g., finite or infinite horizon) and structures (e.g., the number of players and the type of information regime).

[21] The opposite may occur as well. For example, a network investment reduces the demand side's distributive resource heterogeneity by restricting product variety through imposing an incompatibility cost (Katz & Shapiro, 1985).

abound, linking market structure features to firms' R&D strategies (van Cayseele, 1998).

Third, the size of market demand may increase as a result of product advertising or regulation lobbying efforts (Boone & van Witteloostuijn, 1995). For instance, the public good nature of many advertising programs implies that an individual firm's promotion investment or a joint industry-level campaign may well raise industry demand as a whole.

THE NEXT STEP

A resource-based theory of market form may tie together the fragmented theory pieces that have been developed in the organization sciences domain. In this article a typology of three ideal-type resource spaces has been linked to similar classifications of market structures and organizational forms. This exercise has produced an integrated perspective on market form in which different pieces of theory can be nicely compared and combined in order to produce a list of ideas and propositions as to the resource space–exploitation economies–market structure–organizational form linkages.

Table 4 summarizes the core of a resource-based theory of market form. With the limited number of three ideal-type classifications of market structures, resource spaces, and organizational forms, different theory pieces nicely fit into the resource-based puzzle. Note that the lists of competitive rules and theory pieces only present representative examples. It is clear that the information on organizational forms in equilibrium (column 4 in Table 4) allows one to identify the true market form (column 6) underlying the market structures presented in column 3.

Additionally, we briefly discussed the need to endogenize the assumptional boundaries of the theory by integrating the firm conduct–resource space interplay in future work. The preliminary exercise of endogenizing resource space changes and exploitation economies we presented above illustrates how resource-based reasoning may be applied to move the theory

TABLE 4
The Eight Cases Summarized

Case Number	Resource Space	Market Structure	Organizational Form in Equilibrium	Theory Fragment	Market Form
1	Condensed	Concentrated	Large single-product generalists	• Bertrand and Cournot oligopoly • Natural monopoly	Concentrated single-product oligopoly
2	Condensed	Fragmented	Small single-product generalists	• Perfect competition • High-density perfect contestability	Fragmented single-product contestability
3	Rectangular	Concentrated	Large multiproduct generalists	Multiproduct oligopoly	Concentrated multiproduct oligopoly
4	Rectangular	Uniform	Single-product specialists	• Lancasterian location games • Monopolistic competition • Niche-packing theory	Uniform single-product competition
5	Tailed	Concentrated	Large multiproduct generalists	Low-density perfect contestability	Concentrated multiproduct contestability
6	Tailed	Dual	• Multiproduct generalists and single-product specialists • Single-product generalists and single-product specialists	• Investment-escalation theory • Resource-partitioning theory	• Dual multiproduct fringe oligopoly • Dual single-product fringe oligopoly
7	Tailed	Uniform	Small multiproduct generalists	Vertical differentiation games	Uniform multiproduct competition
8	Tailed	Fragmented	Small single-product generalists and specialists	Special case of 4	Fragmented single-product competition

Note: We assume market size to be equal across cases, ceteris paribus.

beyond the ideal-type equilibrium-oriented classification schemes.

Resource-based reasoning suggests that the key to understanding market structure evolution is to dig deeper into the underlying processes of resource space changes (cf. Boone et al., 2002). Such changes may be endogenous or exogenous to the market. For sure, we are still far from such a full theory of market structure evolution. However, the resource-based apparatus may help put the scattered evidence in perspective. In this context, the ideal-type resource space–exploitation economies–market structure–organizational form linkages reflect the equilibrium targets from or toward which markets evolve: much IO involves the study of equilibria, whereas OE is primarily concerned with dynamic processes. The resource-based theory of market form provides a list of resource space–exploitation economies–market structure–organizational form linkages that offers a stepping-stone for predicting market structure changes and organizational form fates from resource space movements or exploitation economies changes, which may be either imposed exogenously or induced endogenously. By the end of the day, however, unraveling the many thinkable evolutionary paths is an empirical matter.

Of course, this article's argument offers just the first step in the development of a full-blown resource-based theory of market structure and organizational form. We have not addressed several important issues. First, one complication relates to the device of inventing typologies with ideal-type cases on the basis of simple two-dimensional characterizations, which is very helpful in the process of developing and communicating a theory. Apart from the ideal-type resource distribution–exploitation economies–market structure–organizational form triangles, many hybrid cases can be observed in the business world. For example, many observers claim that modern IT implies that the classic scale-versus-scope dilemma is history by now. How do the scale-scope forces work out in high-technology industries? Additionally, market concentration, organizational density, distributive shape, and exploitation (dis)economies have all been explored by measuring continuous proxies in a wide variety of industry studies. Here, though, the eight-cases typology and the underlying resource features may guide formulation of the hypotheses and interpretation of the findings.

Second, much organization sciences work is dominated by the quest for an ultimate explanation of organizational performance. For example, IO has a long history of studying the determinants of firm profitability, whereas the core of OE is devoted to explaining organizational survival. A key question, therefore, is how the eight ideal-type market forms relate to the issue of organizational performance (longevity and profitability). For instance, what determines the performance of different firm categories (e.g., small versus large) in different market structure regimes? It is clear that the resource-based perspective provides a useful framework for hypothesis generation. For instance, in the dual market case (Case 6) we expect that both size (in the market center) and specialization are important determinants of firm performance simultaneously (Boone et al., 2004). In addition, generalist scale competition and resulting concentration will enhance specialist performance in tailed resource spaces, as has been confirmed in many empirical settings (Boone et al., 2002; Carroll & Hannan, 2000). Take another market setting. In heterogeneous resource distributions without a market center (Case 4), we expect that, following the principle of competitive compression, firms will do well to minimize niche overlap and to limit the range of their product portfolio. Such elaborations illustrate what the value added of the resource-based perspective may prove to be in the theoretical and empirical arenas.

To explore the full potential of the resource-based theory of market form, empirical studies into the underlying (changes in) environmental resource space features in a wide range of industries are particularly promising (for an example, see Boone et al., 2002). The proof of the theoretical pudding is, after all, in the empirical eating. In this context, there is a need to focus on a wide range of differently structured industries, taking on board measures of resource space changes. Fair enough, the data needed for a full-fledged test of the theory are indeed difficult to collect. In the organization sciences domain, detailed time-series data about environmental resource space features are the exception rather than the rule. Ideally, the data set should contain detailed information as to the distribution of environmental resources (at the industry level) and the exploitation (dis)advantages

(scale and scope) of their operation (at the firm level) over a prolonged time period. The likely reward of this demanding but challenging empirical research agenda, however, is a deepened understanding of market form evolution.

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