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# Monoculture versus Diversity in Competition Economics

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(forthcoming in: Cambridge Journal of Economics)

**Abstract:** Economics rightfully represents the major basis for competition policy. Next to generating knowledge about competition and its welfare effects, the currently popular ‘more-economic approach’ is charged with a number of additional hopes and expectations, leading to a reduction of the ambiguities of real-world competition policy. While this article highlights the benefits of economics-based competition policy, it takes a cautious stance towards excessive expectations in particular regarding the idea that a monocultural, ‘unified’ competition theory as an exact, objective, and unerring scientific approach to antitrust makes normative assessment and generalizations superfluous. In a combination of two lines of argumentation, diversity in competition economics is advocated. Firstly, competition economics is empirically characterized by a considerable pluralism of theories and policy paradigms. This includes deviating views on core concepts like the nature of competition, the meaning of efficiency, or the goals of antitrust. Secondly, it is demonstrated that diversity of theories represents no imperfection of the state of science. In contrast, it is theoretically beneficial for future scientific progress. Therefore, no ultimate competition theory can ever be expected. As a consequence, the ‘more-economic approach’ must be extended in order to embrace diversity. This does not decrease its meaning and importance but instead puts some of the related high hopes into perspective.

**Keywords:** more-economic approach, competition policy paradigms, industrial economics, methodology of science, antitrust

**JEL Classification:** L40, B50, L10, K21

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## 1. The More-Economic Approach as a Unifying Paradigm for Competition Policy?

Without a shadow of a doubt, economics is and should be the major basis of competition policy because, as Diane P. Wood (1999, p. 83) puts it, “antitrust law is designed to protect and facilitate the competitive process itself, and the only way to do that effectively is to understand what one is trying to protect or facilitate.” Thus, in order to learn about the object of competition law and policy, one must address the theory of market competition, for which the labels competition economics, theory of industrial organization, industrial economics, and antitrust economics are also common. Even though this is hardly a new insight, the call for a ‘more-economic approach’ to competition policy has stormed the academic, legal, and political debate recently.<sup>1</sup> Since the history of antitrust policy was not characterized by a ‘non-economic’ approach (Röller, 2005, p. 13), the ‘more-economic approach’ tends to imply more than grounding competition policy on economic reasoning. The additional idea seems to involve having a common economics basis for all antitrust decisions, i.e. a single economic competition theory represents the common background of competition law and policy. Such a unifying ‘monoculture’ of economics-based competition policy is connected to high hopes: next to a (welcomed) better understanding of competition in terms of welfare effects, the wished-for benefits include (i) the exclusion of actually or allegedly non-economic goals<sup>2</sup>, (ii) clear, simple and non-ambiguous, preferably quantitative criteria for the differentiation between procompetitive and anticompetitive business arrangements and behaviors, (iii) the facilitation of bringing evidence to the courts, (iv) the exclusion/reduction of political influences, and (v) avoiding the difficulties of normative assessments of business arrangements and behaviors by referring to an ‘objective and unerring science’ instead.

This paper challenges the ostensible broad picture of a competition economics monoculture on two complementary grounds. Firstly, I demonstrate that economics – defined as the scientific analysis of the economy<sup>3</sup> – is characterized by a number of competition theories and policy paradigms, which are (partly) incompatible in regard to their key concepts and policy implications (section 2).<sup>4</sup> Thus, a common theory does not exist. Secondly, I argue that, from a meta-theoretical perspective, the diversity of competition economics is beneficial and an important prerequisite for ongoing scientific progress and for an ongoing accumulation of insight related to real-world (section 3). Thus, a common theory should not come into play. Eventually, an extended economic approach is advocated, which capitalizes on the diversity of competition economics regarding an economics-based competition policy (section 4).

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<sup>1</sup> See on the more-economic approach among many Vickers (2003), EAGCP (2005) as well as the differentiated analyses by Röller (2005), Christiansen (2006), and Neven (2006).

<sup>2</sup> The spectrum runs from fairness, income distribution, labor market issues, economic integration, protection of competitors, preservation of small business, protectionist interests/industrial policy, and enhancement/maintenance of individual economic and business freedom up to an “everything but efficiency is non-economic” claim.

<sup>3</sup> This has two important implications, (i) economics is understood to be a real science as opposed to an ideal science, and (ii) the term economics is the label for a scientific discipline and not for a specific method or ideology within a discipline.

<sup>4</sup> Note that I do not attempt to provide an evaluative comparison of competition theories, leading to assessments about their comparative qualities, capacities, and adequacies. Taking a non-ideological viewpoint instead, I will emphasize incompatibilities of existing economic theories of competition and their antitrust implications and waive comprehensive pro- and contra-discussions or evaluations.

## 2. Diversity of Economic Competition Theories and Policy Programs

During the approximately 230 years since Adam Smith's (1776) seminal contribution a large number of incommensurable competition theories has been developed (Burton, 1994; Audretsch, 1998; Fox, 2003; Kerber and Schwalbe 2007, para 32-93). It would be impossible to attempt an inclusive discussion. Instead, I select specific theories and groups of theories<sup>5</sup>, which, in my opinion, serve especially well to demonstrate differences and incompatibilities in regard to three important dimensions of competition analysis: (i) the theoretical concept of competition underlying the respective approach, (ii) the meaning of efficiency as a guiding concept, and (iii) the goals of competition policy.

### *2.1 From Classic Theory to Neoclassical Price Theory – A Short Survey of the Predecessors of Modern Competition Economics*

The cradle of economic theories of market competition lies in the Scottish moral philosophy of the 18<sup>th</sup> century. Influenced by the thoughts of *David Hume*, *Adam Ferguson* and the like, *Adam Smith* generated market economics with the publication of "The Wealth of Nations" (1776). The meaning of competition in the classic theory can be described by using the metaphor of a race (Stigler, 1957).<sup>6</sup> It is viewed to be an inherently lively process that, with its rivalry and the mutual incentive and stimulus to innovate and improve, is the driving force of the welfare effects of *Smith's* market system. By reacting and counter-reacting to the competitive behaviors of the interacting agents, the process of competition constitutes the price system and drives the flexibility of relative prices, thereby coordinating the interaction of the market participants. According to *Smith*, without competition there would be no reaction of the market participants to the ever-changing conditions of economic activity and, thus, no coordination of market forces. *Smith* introduced the idea that an 'invisible hand' turns the 'egoistic' welfare-maximization of individuals – who have no idea about common interests or socially beneficial solutions – into social wealth. In this theory, the harmonization of individual and societal interests is secured by two non-economic forces and one economic force: (i) moral rules of society, (ii) an institutional framework for the economy to frustrate criminal and immoral (unfair) modes of market behavior and (iii) competition to maintain the incentive to introduce more efficient modes of market behavior (Smith, 1761, 1776). Contrary to previous notions of economic behavior, the market approach viewed freedom of individual economic choice and behavior as welfare-enhancing and competition as the disciplinary force to prevent misconduct. Generally, in classical economics, the notion of competition remains rather intuitive and close to its semantic understanding.

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<sup>5</sup> Although I attempt to bundle theories with similar objectives and characteristics, every concept presented consists of sub- and sidestreams that partly deviate from the respective mainstream. However, I cannot embrace them in the context of this paper, which is why I most certainly will wrong some of the proponents of the respective theories.

<sup>6</sup> The difference between sports competition and market competition is, however, that in economic competition there is no definite goal, or, in other words, the race never ends. Instead of victory, the race itself represents the 'goal'. Typically, *Smith* limits himself to the analysis of the direction of price changes instead deriving quantitative 'natural' prices. As Clark (1961, p. 24) puts it, "[a]s a prophet of competition, one of the notable things about him was that he said unfinished things about it." See also Smith (1776, esp. pp. 49-50).

With the goal to turn this ‘philosophical’ approach into an exact science, neoclassical economics started to develop in the middle of the 19<sup>th</sup> century. In this era, the contemporary paragon for exact science was physics (Newton’s mechanics). Consequently, the central concepts and methods of neoclassical economics are close analogies to Newton’s theory of forces, including the notion of equilibrium and the use of differential calculus. This allowed for important insights into the working of the market, most importantly the realization that market prices depend on the subjective relative value of goods (the marginal utility)<sup>7</sup> instead being the sum of the (objective, absolute) values of the factors of production included in the goods (which was the classical understanding brought forward by *Ricardo*). This gave birth to *price theory* that developed the standard models of polypoly, monopoly, and oligopoly.<sup>8</sup> Market competition became equated to the equilibrium of a polypolistic market, called *perfect competition*. This concept not only allowed for very important insights and advances in economic theory, it also changed the meaning of the term competition in comparison to classical economics. In terms of Smith’s metaphor, the focus had shifted from the process of the ‘race’ *itself* (in the classical theory) to the result of the ‘race’ (in neoclassics), thereby turning the rival competitive interaction into an anonymous market of price takers.<sup>9</sup> While this new interpretation of the key concept in economics facilitates the mathematical description of markets, it hampers the analysis of dynamic aspects of competition like innovation, mutual learning, or rivalry. Due to the fact that the basic concept of equilibrium is a stationary one (balance, or even equalization, of forces), dynamic and evolutionary aspects of competition, which had been inherent to classical theory, were neglected for a considerable time.

It is important to understand that this shift in the meaning of competition was not intentional in the sense that the classical view was disproved or refuted by neoclassical economics. Instead, the shift was a by-product of the trial to reformulate the classic theory by using methods and concepts that were derived from Newton’s mechanics, thereby, pushing economics as a science closer to the then-ideal of an exact discipline. Therefore, one cannot claim offhand that neoclassical competition theory has outdated and replaced classical competition theory. The ‘new’ understanding, however, while considerably driving the meaning of competition away from its semantic or ‘everyday’ understanding, nonetheless shapes important parts of competition economics until today.

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<sup>7</sup> *Gossen* (in the 1850s), *Menger*, *Jevons*, and *Walras* (all in the 1870s) independently developed this milestone concept, which somehow marks the transition from classical to neoclassical economics.

<sup>8</sup> Important contributors are *Jevons*, *Cournot*, *J. B. Clark*, *F. H. Knight*, *Marshall*, *Bertrand*, *Edgeworth*, and many more. Today, the Price Theory of Competition is the basis of any textbook on microeconomics.

<sup>9</sup> In classical economics *competition is change and interaction* – fundamentally and inevitably. In price theory, competition is *perfect* if interaction is not realized by the competitors and prices and quantities remain constant (in the mechanistic equilibrium of forces derived from Newton’s physics). *Milton Friedman* (1962, pp. 119-120) makes this most clear by emphasizing that “[c]ompetition has two different meanings. In ordinary discourse, competition means personal rivalry, with one individual seeking to outdo his known competitor. In the economic world, competition means almost the opposite [sic!]. There is no personal rivalry in the competitive market place. There is no personal higgling. The wheat farmer in a free market does not feel himself in personal rivalry with, or threatened by, his neighbor, who is, in fact, his competitor. The essence of a competitive market is its impersonal character. No one participant can determine the terms on which other participants shall have access to goods or jobs. All take prices as given by the market and no individual can by himself have more than a negligible influence on price (...).” Interestingly enough, the *impersonality* of the neoclassical market concept has brought forward the *personification* of the market, nowadays common in popular economic discussions, especially in the context of stock exchanges (“the market has done X, the market believes Y”, etc.).

## 2.2 *The Harvard versus Chicago Controversy as a Prelude to Modern Industrial Economics?*

The most famous controversy among vying competition theories is represented by the Harvard-Chicago-controversy, which dominated the largest part of American antitrust (in science and policy) in the second half of the 20<sup>th</sup> century. The starting point was twofold: firstly, the Great Depression raised doubts on the workability of free markets and, secondly, after almost four decades of antitrust practice in North America, the discontent of the rather heroic and unrealistic assumptions of price theory, especially the yardstick of “perfect competition” (homogenous polypoly) had become widespread. This led to a variety of complementary developments, most notably the emergence of a price theory of imperfect competition (‘monopolistic competition’; Robinson 1933; Chamberlin 1933), broadening conventional price theory by the inclusion of product heterogeneity and diversification strategies, and the birth of the concept of workable competition (Clark, 1940), which, complemented by empirical industrial organization<sup>10</sup>, became the dominating competition policy paradigm in the U.S. during the next three decades under the banner of the ‘Harvard School’.

The core idea is that real competition does not meet the conditions of ‘perfect competition’ and need not do so, either, in order to be ‘workable’ in the sense that socially beneficial outcomes can be expected. Imperfections like product heterogeneities, imperfect market transparency, geographical distortions, etc. can be tolerated and, in their combined effects, even improve competition (remedy hypothesis, second-best theorem). Market structure is expected to causally influence competitive and anticompetitive market conduct, with the latter leading causally to better or worse performances of the markets concerning their social outcome – the S(tructure)-C(onduct)-P(erformance)-paradigm. Consequently, competition policy relies predominantly on interventions seeking to establish procompetitive market structures (reduction of industry concentration and barriers to entry; prevention of exclusionary arrangements). Thus, the Harvard competition policy paradigm centers on a market power doctrine. Furthermore, antitrust policy is viewed to be an integral part of the general economic policy strategy and an instrument to approach societally defined goals. So, the Harvard School favored a multigoal approach that can include any type of (desired) goals, for instance, efficiency, consumer welfare, innovation, fair income distribution, freedom, promotion of small business, diversification, protection against unfair competition, protection against market power, international competitiveness, economic integration of regions, promotion of economically backward regions, low unemployment, protection of local jobs, promotion of key industries, sustainable development, etc.<sup>11</sup>

The American variant of workable competition antitrust policy developed in the direction of an intervention-friendly policy. Its heyday in the late 1960s included a most restrictive merger policy (even towards conglomerate mergers), a strong skepticism concerning vertical

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<sup>10</sup> Seminal contributions include Mason (1939), Bain (1956), and Lipsey/Lancaster (1956). A comprehensive overview is provided by Scherer/Ross (1990).

<sup>11</sup> All these economic and non-economic goals have been pursued by competition policies in industrialized countries around the world. It is not decisive whether the Harvard School competition economists support all of these goals because according to the underlying more general policy paradigm (*Myrdal, Tinbergen*) policy goals are not subject to science, which ‘only’ analyzes how the socially defined goals can be achieved most efficiently.

integration and agreements, and an active policy against predatory pricing strategies. The attitude towards horizontal arrangements is a more cautious one since procompetitive effects of the synergy of imperfections (remedy approach) were expected, although less likely in the case of hardcore cartels. The European variant differed in respect to a more lenient approach to domestic mergers including vertical integration since the promotion of key industries and international competitiveness represented important goals in most Western European economies, perhaps with the exception of Germany (see below section 2.4). The competition policy of the European Union additionally focused strongly on economic integration to create the Single European Market.<sup>12</sup>

The domination of intervention-friendly policies in the U.S. raised opposition, in particular from the Chicago School. Its competition economics division is represented by famous economists and legal scholars,<sup>13</sup> which share the belief in the efficiency and well-functioning of free markets and the skepticism against regulation and intervention of any kind. In Chicago antitrust economics, price-theoretic models serve as an approximation of the efficiency effects of competition. In the absence of political intervention, free markets will produce welfare results similar to the homogenous polypoly, irrespective of whether the restrictive assumptions of this model are fulfilled.<sup>14</sup> This implies an important feature of Chicago competition economics: efficiency is the sole goal of antitrust policy (in opposition to the multigoal approach). Efficiency gains are proposed if a change in market performance enhances welfare, which is defined as quantifiable changes in consumers' surplus and producers' surplus (neglecting any type of non-quantifiable effects). In doing so, Chicago economics focus on a total welfare standard, i.e. competition policy should maximize the sum of consumers' and producers' rents.<sup>15</sup> Therefore, the Chicago School does not identify a competition problem if consumers' surplus is converted into producers' surplus as long as the net effect is not negative. It is argued that increasing producers' surplus eventually will benefit private households as the producers' shareholders and does not harm the consumers (private households) *per se*. Applying this concept of stationary-allocative efficiency, an anticompetitive impact results if an arrangement between competitors leads to an artificial limitation of output or rise in price (necessary and sufficient condition). Eventually, the Chicago rejection of the Harvard SCP-approach stems from the application of the evolutionary survivor-principle to competition economics (Stigler, 1958). The forces of competition select the market structures, which are most efficient under current circumstances; in a free market inefficient structures cannot survive the competitive selection process in the long run (survival-of-the-fittest).<sup>16</sup> Contrary to the Harvard School, an observed

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<sup>12</sup> For a comprehensive analysis of the development of the EU Competition Policy System see Gerber (1998) and Budzinski/Christiansen (2005) and the references therein.

<sup>13</sup> See for instance the landmark contributions by Stigler (1968), Posner (1971, 1979), Demsetz (1976), Bork (1978), and Easterbrook (1984).

<sup>14</sup> This refers to the „as if“-methodology by Milton Friedman (1953, pp. 19 ff.). See also Alchian (1950).

<sup>15</sup> In Chicago-style analysis, this is sometimes labeled 'consumer welfare', which is somewhat misleading from a theoretical economics-perspective because consumer welfare relates to the change of consumers' surplus only.

<sup>16</sup> Immanently, this comes very close to the naturalistic fallacy (ascribing a positive normative content to a phenomenon simply because of its being) by concluding that if an enterprise becomes dominant on a market, it must be more efficient than its competitors because otherwise it could not have become dominant. Similarly, according to the hardcore Chicago view, an observed market conduct can either be efficient (if it occurs and



change in market structure or conduct, consequently, represents a development towards superior, i.e. more efficient, solutions and not an accumulation of anticompetitive market power. On these basic theoretical grounds, the Chicago School of Antitrust Analysis has produced theory-based efficiency rationales behind mergers, vertical arrangements, predatory pricing strategies, and barriers to entry.

Related efficiency oriented approaches, which somewhat fit into the Chicago world of antitrust economics, include the theory of contestable markets and the political economy approach towards antitrust. Baumol (1982) and Baumol, Panzar and Willig (1982) demonstrated that no competition problem results from (quasi-) monopolies as long as the markets remain contestable, i.e. a “hit-and-run”-entry to reap the monopolist’s profits is always possible. On the one hand, the theory of contestable markets backs the Chicago School by strengthening the meaning of potential competition and, thereby, emphasizing the self-healing forces of market competition in the absence of social barriers to competition. On the other hand, this theory developed very thoroughly the preconditions for the contestability of markets (particularly the problem of sunk costs). Since these preconditions are rather restrictive and rarely matched by real-world markets, the theory of contestable markets also points to the limits of potential competition to heal the inefficiencies of (quasi-) monopolies (Audretsch, Baumol and Burke, 2001). From a politico-economic and public choice perspective, it has been emphasized that real-world antitrust policy is often prone to lobbyism and serves special interests instead of healing actual market failures (with differing vehemence: Baumol and Ordover, 1985; Tollison, 1985; McChesney and Shughart, 1995). For instance, a merger might be prosecuted and eventually prohibited because the responsible politicians and bureaucrats serve the interests of its main competitor who seeks to sustain its supracompetitive profits.<sup>17</sup> Consequently, antitrust policy might cause distortions of competition itself.

Altogether, Chicago-styled competition policy restricts itself to combat horizontal hardcore cartels and prevent horizontal mergers to monopoly. Apart from that, competition policy should avoid intervention into competitive markets. However, things look different if markets are not free and restrictive business practices are protected against the forces of competition through the political sphere. According to the Chicago School, political barriers to competition are an essential condition for most anticompetitive business practices that otherwise could occur only temporarily and would be eroded by market competition. When Chicago started to influence antitrust thinking and policy in the late 1970s (in the U.S.; in Europe much later and by far less dominating), the deregulation and liberalization of markets, in particular of former socially organized industries (like energy, telecommunications, transportation, banking and insurance, etc.), entered the focus of competition policy. At the same time, Harvard-styled active antitrust against private business arrangements was significantly reduced, marking a drastic turn-around of American competition policy – also

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prevails; then it is welfare-enhancing) or inefficient (if it occurs but does not prevail; then an intervention is unnecessary since market forces erode this conduct).

<sup>17</sup> Many proponents of the public choice approach discuss predominantly distorting interests that cause interventions. Of course, lobbyism can also lead to the omission of intervention, for instance if the merging

labeled as the Chicago antitrust revolution. In fact, this revolution predominantly took place without changes in codified law but, instead, via a re-interpretation of the prevailing competition rules (Fox and Sullivan 1987; Kovacic and Shapiro 2000).

### *2.3 Theoretical Industrial Economics in its Post-Chicago Shape: Eventually the Ultimate Competition Theory?*

Theoretical industrial economics has experienced very dynamic developments in the last two decades. Starting in the middle of the 1990s, an increasing number of authors have referred to these – rather heterogeneous – developments under the label of Post-Chicago Economics (e.g. Brodley; 1995; Sullivan, 1995; Cucinotta, Pardolesi and Van den Bergh, 2002). The common general tendency of these approaches is a reduction of the Chicago-optimism about the self-healing forces of market competition and, to some extent, the re-introduction of Harvard-like anticompetitive effects, however, against the background of Chicago-styled free market methodology: Post-Chicago predominantly sticks with the single goal of (allocative) efficiency and reinforces the focus on quantifiable, short-run welfare effects. As it stands, one could be tempted to view Post-Chicago as the ultimate synthesis of the (outdated) Chicago- and Harvard-approaches, overcoming the antipodes by a common methodological framework (game-theoretic oligopoly theory). In this respect, Post-Chicago industrial economics represent the most likely candidate for the unifying theory, which some proponents of the more-economic approach seem to have in mind. Methodologically, Post-Chicago Industrial Economics introduces advanced game theory, linear (and, more infrequently, non-linear) mathematical dynamics, theory-based empirical studies (modern econometrics), and (most recently) experimental economics. The following overview points out some important theoretical developments without any attempt to be inclusive.<sup>18</sup>

*Barriers to entry and entry deterrence:* the Chicago notion of the impossibility of anticompetitive private barriers to entry in the absence of political market barriers is challenged by the theory of strategic market barriers, demonstrating that several deterrence and barrier strategies can be successfully performed in free markets. They include e.g. excess capacity strategy (Dixit, 1980), limit pricing (Milgrom and Roberts, 1982a; Soytas and Becker, 2003), strategic product differentiation (Dixit and Stiglitz, 1977), and contract strategies (Aghion and Bolton, 1987). Additionally, the existing (or deliberate creation) of switching costs for consumers offers scope for strategic entry deterrence (Klemperer, 1995).

*Predatory pricing and other predation strategies:* the impossibility of predatory pricing strategies on free markets is another core concept of the Chicago critique to Harvard. According to the Chicago School, (alleged) predation either leads to efficient outcomes (by displacing less efficient enterprises) or cannot be practiced in the face of perfectly efficient financial markets. Initial insights of game theory supported this view, above all the famous ‘chain store paradox’ (Selten, 1978), demonstrating that credible threats to engage in deficient

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companies successfully lobby for approval to sustain supracompetitive effects in the future or to crowd out a more efficient competitor.

<sup>18</sup> Baker (1999) and Hovenkamp (2002) provide overviews. Since it is virtually impossible to be comprehensive, the quotations in the following discussion should be understood as examples of landmark contributions.

predation strategies among rational players are impossible. However, this becomes shaken by solutions, presented e.g. by Milgrom and Roberts (1982b), Fudenberg and Tirole (1986), or Bolton and Scharfstein (1990).<sup>19</sup> Additionally, the existence of switching costs can contribute to the profitability and feasibility of predatory price wars for market shares. Moreover, most recent experimental/laboratory evidence shows that predation strategies (i) are observable and (ii) lead to negative efficiency consequences (Elliott, Godby and Kruse, 2003).

*Vertical arrangements and integration:*<sup>20</sup> contemporary theoretical developments demonstrate that anticompetitive foreclosure can result from both vertical arrangements and vertical mergers. Confusingly, incentives to engage in anticompetitive vertical strategies occur especially in cases where procompetitive efficiency gains could be expected theoretically.<sup>21</sup> However, recent experimental analysis backs the real possibility of a predominance of anticompetitive effects over efficiency gains (Martin, Normann and Snyder 2001; Elliott, Godby and Kruse 2003).

*Raising rivals' costs and tying strategies:* one of the fundamental lines of argument in Post-Chicago competition economics, which is also relevant for the analysis of vertical restraints, predation and entry deterrence is the concept of Raising Rivals' Costs (RRC) (Salop and Scheffman 1983, 1987; Krattenmaker and Salop 1986). This approach explains a series of anticompetitive modes of behavior as schemes to raise the costs of its competitors, thus opening up a margin to increase its own prices without experiencing compensating cutbacks in output. RRC approaches concern refusals to deal, exclusive dealing, tying, denial of scale economics, involuntary cartels, denial of efficient inputs, etc. Contrary to Harvard and Chicago thought of exclusionary practices, RRC strategies do not attempt to destroy the competitors but to lessen competition, wherefore competition policy against RRC is not directed to protect competitors but to prevent harm to competition. Recent follow-up analysis, for instance, demonstrates how the tying of complementary products can be used to monopolize and to preserve monopoly positions by fending off potential entrants, leading to significant reductions of both consumer and total welfare (Whinston, 1990; Choi and Stefanadis, 2001; Carlton and Waldman, 2002; Nalebuff, 2005; Tirole, 2005) as well as doing harm to future innovation (Fisher, 2001). Perhaps, further research will show that the 'no-competitive-concern' assessment of the Chicago School concerning (static) leveraging has to be complemented by anticompetitive effects of a dynamic leverage theory.

*Coordinated and unilateral effects in oligopoly theory:* the orthodox theory of anticompetitive effects in narrow oligopolies relies on the insight that a decreasing number of participants facilitate explicit or tacit collusion. However, collusion in oligopolies can be very difficult to organize and stabilize (Stigler, 1968) and it remains difficult to prove that mergers in oligopolistic markets lead to anticompetitive effects. Against the background of multistage game theory, modern oligopoly theory provides a more differentiated picture of stable

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<sup>19</sup> See for other recent economic insights that predatory pricing can take place in free markets Brodley/Bolton/Riordan (2000) and Lindsey/West (2003). For a critical position see ten Kate/Niels (2002).

<sup>20</sup> See Rey/Tirole (1986), Salinger (1988), Ordover/Saloner/Salop (1990), Riordan/Salop (1995) and Riordan (1998).

<sup>21</sup> This implies that if enterprises can increase their profits either by exploring efficiencies or by engaging in anticompetitive strategies, the incentives for the latter are significantly higher.

collusion and collusive effects of mergers in oligopolistic markets. For instance, the folk theorem demonstrates that repeated interaction facilitates and stabilizes collusion in oligopolies. Furthermore, characteristics of markets, in which coordinated effects become plausible, are derived in a detailed way, among them being e.g. homogeneity of products and cost structures, transparency, absence of innovation, stable market environment, or multimarket contact. In tendency, the occurrence of coordinated effects is restricted to homogeneous markets with specific characteristics. However, modern oligopoly theory also discovered a new type of anticompetitive effects of mergers in narrow oligopolies, which particularly occur in heterogeneous markets. The theory of unilateral effects<sup>22</sup> provides a different approach to anticompetitive effects of mergers in product differentiated oligopolies: “Instead of focusing on how a merger could make coordination more likely or more effective, the unilateral theories describe how a merger would make it more profitable for the merged firm to raise price.” (Baker, 1999, p. 189). It is crucial that unilateral effects do not require the other firms in the market to also raise their prices (as in traditional price theory), thus no welfare effects from increased profits of competitors arises. The core idea is that a merger between competing enterprises (A and B) removes one competitor (B) as a competitive constraint, thus, increasing the margin for setting prices for the merged entity for A’s product (in product-differentiated markets). This effect occurs if the demand cross-elasticity of the merging enterprises is different from zero, implying that some parts of the lost sales of A go to B’s product. The anticompetitive effect increases with an increasing substitution elasticity (i.e. the closer substitutes A and B produce, the more severe is the anticompetitive impact). Theoretically, even mergers of enterprises with very low market shares can imply considerable anticompetitive impacts, depending on the elasticities.

*Efficiency rationales behind horizontal and conglomerate mergers:* this subject is closely related to the unilateral effects discussion because efficiencies occurring because of mergers can offset their anticompetitive effects, in particular if they are negligible (because the merging enterprises are not close competitors). Thus, some contributions tend to emphasize the efficiency side of the trade off between allocative inefficiency (market power) and productive efficiency of horizontal mergers (Williamson, 1968), like e.g. the landmark contribution of Farrell and Shapiro (1990). Other recent theoretical reasoning hints at anticompetitive and consumer welfare-reducing effects of horizontal mergers (Elliott, Godby and Kruse, 2003), even in the face of cost efficiencies and free entry (Cabral, 2003), and demonstrate the possibility of an increase of market dominance without any efficiency gains (Cabral, 2002).<sup>23</sup> Lyons (2003) additionally demonstrates that the pure consumer welfare standard is superior (in terms of efficiency and welfare) to the total welfare standard if economies are addressed in which a wide range of alternative merger opportunities exist (namely in large, complex market economies). Recent theory-based empirical evidence finds significant post-merger increases in profits and, at the same time, decreases in output,

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<sup>22</sup> The major theoretical insights are provided by Baker/Bresnahan (1985), Deneckere/Davidson (1985), Perry/Porter (1985), and Werden/Froeb (1994). The initial contribution, however, was Salant/Switzer/Reynolds (1983), denying such types of effects for homogeneous oligopolies.

<sup>23</sup> Note that with heterogeneous markets the delimitation of horizontal and conglomerate mergers can become fuzzy if (i) ‘markets’ represent more or less close substitutes and/or (ii) the substitutability of two dynamic markets increases in the course of time along with technological change (‘growing together markets’).

suggesting that a majority of mergers between large firms decreases efficiency and, instead, reaps gains from market power (Gugler *et al.*, 2003).

Altogether, contemporary industrial economics paint a very heterogeneous picture. Therefore, it is difficult to speak of a Post-Chicago School or a (coherent) paradigm of competition policy since antitrust implications can be derived from a considerable number of concepts and a large variety of models. The claim that there is a broad consensus among industrial economists on fundamental issues of competition theory, which can serve as a basis for an objective ‘scientific competition policy’, has to be rejected. Recent empirical evidence shows strongly deviating opinions between industrial economists concerning a number of core issues like, among others, the importance of predation and entry deterrence, the goals of antitrust policy, the impact and development of industry concentration, and the meaning of the standard oligopoly models (Bertrand- and Cournot-competition) for real-world markets (Aiginger, Mueller and Weiss, 1998; Aiginger *et al.*, 2001). Altogether, the competition policy conclusions are far from providing a general framework/overall concept or a consistent paradigm. Probably, one should not go so far as Fisher’s (1991, p. 207) “second organizing principle” that suggests that “the principal result of theory is to show that nearly anything can happen” but, in any case, the claim that Post-Chicago industrial economics provide a unambiguous manual to the ‘right’ competition policy cannot be sustained.

Nonetheless, Post-Chicago industrial economics have entered practical competition policy both in the U.S. and in the EU (part of the more-economic approach). The focus of analysis increasingly concentrates on short-run price and output effects. With the help of innovative instruments such as merger simulation and econometrics, a quantification of these effects is attempted. The additional information that is provided through these new instruments is without any doubt helpful and contributes to better decision-making. However, the practice also provides indication of some limits. Firstly, case analysis that is based on Post-Chicago industrial economics does not lead to unambiguous results about benefit or harm of a business practice or arrangement. Cases with a high involvement of top industrial economists, like Microsoft (abuse of dominant market position, monopolization) or General Electric-Honeywell (merger), brought about industrial-economic reasoning by these experts with completely contrary results.<sup>24</sup> No consensus on the likely effects was possible even among the experts. Secondly, the use of simulation models and econometric analysis as evidence before the courts emerged as difficult, most prominently in the failure to prohibit the Oracle/Peoplesoft merger despite unambiguous results from the economic analysis (see Budzinski and Christiansen, 2007). In the EU, the standard-of-proof implications of Post-Chicago economic instruments have recently led to curious situation: the Commission refrained from prohibiting the Sony-BMG joint venture because it could not quantitatively prove anticompetitive coordinated effects to a sufficient extent. Following legal action by an association of independent music labels, called Impala, the European Court of First Instance has annulled the Commission’s approval because the Commission has not proved that no anticompetitive coordinated effects result from the merger (see Aigner, Budzinski and

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<sup>24</sup> See Budzinski and Christiansen (2007, footnote 46) for extensive references on both cases and Posner (1999) for a balanced analysis of economic expert witness.

Christiansen, 2006). Obviously, there can be cases in which neither the existence nor the absence of anticompetitive effects can be quantitatively proved to a defined extent. The respective high hopes cannot be accommodated. Thirdly, there is more to competition than quantifiable short-run price and output effects and the neglect of other effects becomes increasingly criticized also within Post-Chicago industrial economics (Scheffman, 2004; Farrell, 2006; Budzinski and Christiansen, 2007).

#### 2.4 Liberal Markets, Market Power, and Competition Order: German Ordoliberalism

In Germany, the Freiburg School of Law and Economics<sup>25</sup> developed a competition theory that both highlights intervention-free markets and offends private market power. The background of its original protagonists was the experience of the creeping transformation of the free market economy of Germany into a predominantly centrally planned economy via an increasing cartelization during the 1920s and 1930s (a process which originated in the 1870s). Total freedom of economic action in competition had been a dominating value and that included the allowance of voluntary arrangements between enterprises, including hardcore cartels, as well as boycotts or collective discrimination as means of interfirm competition. This caused a massive cartelization of the economy and shifted the location of decision-making from the individual enterprise towards industry associations or syndicates that controlled and organized the often market-/industry-wide cartels in the name of its members, thereby, increasingly centralizing economic decision-making. The insight that economic freedom can become incrementally transformed and eventually eroded by unrestrained private action is decisive for the notion of an *ordoliberalism* (*constitutional liberalism*), i.e. the necessity of an institutional framework in order to protect competition from its self-destructing forces.<sup>26</sup> This contrasts *free-market liberalism* (Vanberg, 1999) like the historical *laissez-faire*-approach (but also like the Chicago approach or some streams of the Austrian School). The original proponents of the Freiburg School, like *Walter Eucken*, *Wilhelm Röpke*, *Franz Böhm*, *Alexander Rüstow*, however, also strongly opposed an active/interventionist role of the state in market competition but, instead, directed their attention to the institutional framework of competitive markets, or, as they called it, ‘the order of the economy’.<sup>27</sup>

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<sup>25</sup> For contemporary overviews see Streit (1992) and Vanberg (1998). Recently, a renewed interest in ordoliberal competition economics appears to awaken; see e.g. Cooper et al. (2005, pp. 306-7), Ahlborn/Grave (2006), Bromley (2006), and Hellwig (2006). The historical genesis of ordoliberalism is described by Rieter/Schmolz (1993).

<sup>26</sup> The notion of the limits of freedom where the freedom of others is restricted was particularly important for the original ordoliberalists since prewar Germany had experienced how both the democracy (political freedom) and the market economy (economic freedom) had been eroded because participants had been allowed to use their freedom to discard freedom as such (antidemocratic parties had been allowed to enter parliaments with the intention to abolish them and hardcore cartels and industry-wide trusts had been seen as a legitimate means to ‘win’ market competition – and subsequently abolish it). In order to understand the ordoliberal approach, it is very important to make oneself clear that their concern was how to design a sustainable free society with a sustainable market economy.

<sup>27</sup> Most original work is only published in German, rare exceptions are Röpke (1948, 1960) and Eucken (1950, 2006). Some translated pieces can be found in Ludwig-Erhard-Stiftung (1982). A modern and comprehensive textbook on the ordoliberal approach to economics, including compatible streams of institutional and constitutional economics, is provided by Kasper and Streit (2001). However, Eucken (1952) remains comprehensive for ordoliberal competition policy.

The core concept of ordoliberal competition theory is the idea of the *competition order* ('Wettbewerbsordnung'). A market economy requires a thoroughly designed and continuously policed competition order because market competition inheres a tendency towards self-termination. The market participants, individually, have incentives to incrementally transform the decentralized decision-making of competitive markets into more and more centralized variants (like cartels, megacompanies, syndicates, anticompetitive arrangements, etc.) to alleviate the (individually unpleasant) pressure of competition. Although a competitive market economy allows for a higher welfare-standard for all participants, each individual agent can improve its welfare if it is able to circumvent the competitive pressure (e.g. by arrangements with competitors) or become protected from competition (e.g. by monopoly privileges, tariffs, barriers to entry, etc.) – as long as its interacting agents (e.g. component suppliers, buyers, or producers of substitutional goods) remain under competitive pressure. Without an institutional framework that prevents anticompetitive market behavior (not structure!), processes of perverse selection (Vanberg, 2000) can erode the benefits of competition. Therefore, it is a political task to design and implement an adequate competition order.<sup>28</sup> However, Eucken (1952, 2006) develops a rather comprehensive understanding of competition order, referring not only to antitrust but also generally to the whole institutional framework necessary to preserve market competition from self-termination. The 'competition policy' connected to the implementation and cultivation of the competition order is called *order policy* ('Ordnungspolitik'; institutional policy) – as opposed to *process policy* that describes interventions into the market process itself (like subsidies, price controls, output restrictions, setting of input quantities, etc.). Rules against restrictions of competition are viewed as an integral part of institutional policy.

A particular role for the self-termination of competition plays market power, especially in combination with the amalgamation of private and public interests. According to Eucken (1952, pp. 327-36), an expansion of government activities into the economy weakens the ability of the state to withstand lobbyist influences and, thus, the government loses authority. Although the state appears to be more powerful because it participates in many economic activities, in effect, it becomes more and more dependent on the "essential, often decisive, but generally uncontrolled influence of associations of industry, agriculture, and trade, major monopolies and near-monopolies, major companies and unions" (Eucken, 1952, p. 327, my translation). Eventually, public decision-making becomes captured by interest groups, which in turn represents a "new feudal system" (Eucken, 1952, p. 328). In contrast, a strong government restricts itself to the control of the institutional framework (instead of interfering with market processes) and must not transfer/delegate public competences to private interest groups. The importance of the latter stems from self-reinforcing forces of granting competitive privileges or protection from competition to privates: "He who grants the first privilege should know that he strengthens the power and provides the basis from

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<sup>28</sup> Röpke (1949, p. 76; my translation) explains the scope for a positive economic policy: "The first group is represented by arrangements and institutions, which set the framework, the rules of the game and the apparatus of evenhanded supervision, which market competition requires as well as sport competition if it should not degenerate to a desolate brawl. Indeed, a fair, just, and well-functioning competition order cannot exist without a deliberate legal-moral framework and without permanent supervision of that conditions under which competition must take place as genuine performance competition." See additionally Röpke (1960, pp. 30-3, 124-9, 137-41).

which the second privilege will be obtained, and that the second privilege will provide the basis to battle for a third one” (Eucken, 1952, p. 335).<sup>29,30</sup> The increasing danger of lobbyism, which results from private (market) power, is strongly emphasized in ordoliberal theory because it leads to the long-term weakening of the state’s ability to protect competition and, thus, eventually affects more markets than ‘traditional’ market power effects (which are restricted to the affected markets). Different from some Public Choice arguing, ordoliberal competition theory considers not only intervention but also non-enforcement and non-intervention as being motivated by lobbyism in order to protect an existing (asymmetric) power allocation from its devaluation through the competitive process (Vanberg, 1994, 1999, 2000). In addition, contrary to the mainstream of the Chicago School, political market barriers and other anticompetitive privileges are viewed to be a *consequence* of private market power (via lobbyism) instead of a *precondition*.<sup>31</sup>

The ordoliberal competition order is based on six *constitutional principles* and four *regulatory principles*, which are interdependent.<sup>32</sup> Generally, the Freiburg School focuses on the preconditions for sustainable market competition instead of its results (like Post-Chicago industrial economics). The constitutional ones are (i) price level stability, granted by an independent central bank, (ii) open markets (absence of public and private market barriers in national and international trade, absence of any monopoly or other competitive privileges granted to private agents), (iii) private property rights, (iv) freedom of contract, but only in competitive markets and with the exception of contracts, which restrict the freedom of contract, (v) responsibility for economic actions and liability, preferably through the costs-by-cause principle (e.g. skepticism concerning liability limitations in corporations and in cases of insolvency and bankruptcy), and (vi) constancy of economic policy (reliability and predictability to allow for the anticipation of changes in the competition rules; disclaimer of discretionary interventions). Only the fulfillment of all these principles is sufficient to constitute a competition order. However, to keep the competition order working, four additional principles must be acknowledged. These regulatory principles address (i) monopolies (proactive fight against all interfirm arrangements, which tend to restrict or erode competition and/or promote private influence on public policy), (ii) income policy (tax-based social security in case of unindebted inability to yield market income: illness, childhood (including access to education), seniority, etc.), (iii) internalization of external effects, and (iv) anomalies of labor supply<sup>33</sup>. Furthermore, ordoliberal theory distinguishes between

<sup>29</sup> The translation follows Streit (1992, p. 691). See for a similar line of thought Röpke (1960, pp. 141-50).

<sup>30</sup> Modern ordoliberal theory often draws on the insights of constitutional economics to discuss the prospects and conditions of adequate (self-) restrictions of political discretion to give in to private (market) power.

<sup>31</sup> The most important implication is a reversed priority of competition policy. While the Chicago School concentrates on political restraints of competition (as a precondition for stable and socially inefficient private anticompetitive practices), Ordoliberalism predominantly challenges private restraints of competition because private market power facilitates (in the extreme version: only allows for) the striving for anticompetitive privileges and, thus, represents a main factor, which boosts the emergence and persistence of political restraints of competition.

<sup>32</sup> Originally verbalized by Eucken (1952, pp. 254-304; 2006, pp. 231-45), intended as a compendium of contemporary ordoliberal thought. The following brief overview reflects today’s perspective on these principles.

<sup>33</sup> Strictly speaking, Eucken and the others had one specific case in mind. If decreasing wages cause an increase in labor supply because the income of the workers is already close to the subsistence level, price adjustments fail to coordinate supply and demand (because prices keep falling causing even more supply). This dysfunction of



*competition on the merits* (performance competition, ‘Leistungswettbewerb’) and *handicap competition* (‘Behinderungswettbewerb’).<sup>34</sup> While both kinds of competition are about being relatively better than the competitors, competition on the merits tries to absolutely improve one’s own performance (better goods, lower prices, more service, innovation, etc.), whereas handicap competition tries to absolutely deteriorate the performance of the competitors, thereby relatively ‘improving’ their own performance (but without any real/absolute improvement). The target of competition policy is to frustrate handicap competition and, thereby, force the enterprises to concentrate on performance competition. Generally, competition policy should be executed with clear-cut rules that reduce political discretion as much as possible (per-se-rules instead of rule-of-reason). Structural competition policy – aside from preventing monopolies or domination<sup>35</sup> – is not promoted by modern ordoliberalism since neither performance nor handicap competition depends on a specific market structure. To minimize the influence of industry lobbyism and self-interest of governments (e.g. concerning re-elections), an independent competition agency following the paragon of central bank independence is often favored (e.g. Schmidt, 2001).

The example of ordoliberal competition theory demonstrates that the dividing-line between economic and non-economic goals of antitrust policy depends on the theoretical framework and is not self-evident. The constitutional and regulatory principles of the competition order include goals like open markets, economic freedom, responsibility, and internalization of externalities because, in the context of this theory, those are inherently economic issues. According to this approach, pursuing them represents a necessary condition in order to sustain long-term market competition. Moreover, the concept of performance versus handicap competition makes fairness an economic goal of competition policy. While Chicago-style competition theory views anticompetitive *intention* not as an economic goal for antitrust procedures because according to their theoretical framework only output-limiting outcome (irrespective of the intent) is relevant, ordoliberal competition theory views anticompetitive intention in the sense of handicap competition as an important economic issue since it undermines the spirit of competition and leads to inefficient results – particularly in the long-run. The latter emerges in terms of economic performance because it is not necessarily the economically best competitor, who profits, but the most ruthless.

Especially in the 1950s, the Freiburg School was quite influential in German economic policy. For instance, the concept of the Social Market Economy draws strongly on the insights of ordoliberalism. Since the mid-1960s, however, its influence ceased in most parts of economic policy, except of competition policy. Until today, the Federal Cartel Office (Bundeskartellamt) is dominated by ordoliberal ideas. Additionally, ordoliberal ideas have been the second most influential concept (next to adaptations of workable competition concepts) in the formation of an European competition policy (Hildebrand, 2002), although this influence also seems to be ceasing.

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the labor markets can severely aggravate a deflation crisis (like the Great Depression), wherefore in this case – and only in this one – the government should set binding minimum wages.

<sup>34</sup> See Eucken (1952, pp. 247 ff.)

<sup>35</sup> A minimum of structural competition policy – frustrating incontestable monopolies – is inherent to almost every competition policy paradigm.

### 2.5 Innovation, Institutions, and Evolution: Market Process Competition Theories

Austrian market process competition theory was predominantly developed by *Friedrich August von Hayek* (1948, 1968) who explicitly challenged the neoclassical model of ‘perfect competition’ (the equilibrium solution of the homogenous polypoly). By blaming it for excluding almost everything that characterizes real-world competition<sup>36</sup>, *Hayek* attacks the gap between the neoclassical and the semantic meaning of competition. His theory of *competition as a discovery procedure* (Hayek, 1968) views competition as an inherently evolutionary process of rivalry. During this process, knowledge<sup>37</sup> is generated about the needs, options, and potentialities of the other market side and about competitors. This knowledge cannot be obtained otherwise, which is why competition is a process with an unpredictable outcome. The fundamental and never-ending openness is essential since the coordination mechanism ‘competition’ would be completely useless and a waste of resources if the result was or could be known in advance. According to Austrian Economics, the notion of equilibrium is misleading since such an equilibrium will neither be achieved in competitive markets, nor can the nature and features of such an equilibrium be known in advance. Only the factual process of competition leads to the discovery of prices, quantities, consumer benefits, and profit opportunities. Since the competitive interaction increases also the individual knowledge about the market and since individuals are seen as creative agents (instead of the belief that market data is given anonymously), innovation is endogenously promoted.

Due to the paramount meaning of the knowledge problem, Hayek (1975) was very skeptical concerning economic policy interventions into the market process and calls such endeavors a *pretence of knowledge*. Although Hayek himself cottoned on to the ordoliberal concept of institutional policy and market conformal ‘interventions’ in strictly limited cases (to which antitrust rules would belong), the American branch of Austrian Economics derived from the knowledge problem the postulation that even antitrust policy leads to a disturbance of the competitive market process (Rothbard, 1970; Armentaro, 1986; more moderate: Kirzner, 1997). Since antitrust politicians cannot dispose over sufficient knowledge about the

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<sup>36</sup> “[W]hat the theory of perfect competition discusses has little claim to be called ‘competition’ at all and (.) its conclusions are of little use as guides to policy. The reason for this seems to me to be that this theory throughout assumes that state of affairs already to exist which (...) the process of competition tends to bring about (or to approximate) and that, if the state of affairs assumed by the theory of perfect competition ever existed, it would not only deprive of their scope all the activities which the verb ‘to compete’ describes but would make them virtually impossible.” Hayek (1948, p. 92). He (ibid., p. 94) extends this criticism to the general attempt to focus economic analysis on the notion “competitive equilibrium”, i.e. he includes models of monopolistic competition as well as equilibrium theories of oligopoly. Therefore, his critique remains very topical since modern industrial economics predominantly builds upon Cournot- and Bertrand-oligopolies.

<sup>37</sup> According to Hayek (1937, 1945), the wrong treatment of knowledge is the main problem of neoclassical economics. He emphasizes that the individual knowledge of the market participants cannot be centralized other than by the decentralized process of competition. The reason is that knowledge is dispersed and subjective in character, which is why the ‘objective knowledge’ assumptions of the contemporary neoclassics are misleading and the neoclassical paradigm is unable to prove the superiority of the market economy compared to a centrally-planned economy. In the 1940s, leading proponents of neoclassics had to surrender to Hayek but in the meantime orthodox theory has embraced models of bounded rationality and (partly) filled the gap. However, the standard textbook models still are generally systems neutral in the sense that an omniscient central planner (who is attributed no more than the knowledge assumptions of the other market participants) can solve the coordination task as well as competition – but to far lower (transaction) costs.

competitive effects of any arrangement or behavior in a free market, cartels, mergers, and other (allegedly anticompetitive) arrangements are – as long as they are voluntary arrangements between the participants – viewed to be adjustments to the forces of competition in the light of decentralized and dispersed knowledge. Through time, the market itself will discover whether these arrangements benefit the needs of the market participants or not. While some authors plead for a general abolition of competition policy (Armentano, 1986), most proponents want to reduce antitrust to a limited number of per se-rules that stabilize the expectations of the enterprises by (i) drawing a clear-cut line between prohibited (explicitly stated in the law) and permitted conduct (anything that is not explicitly prohibited) and (ii) reduce discretionary competencies of competition agencies as completely as possible. Especially merger control with its case-by-case decisions raises the concern of the Austrians. Furthermore, private enforcement is often preferred over public enforcement of antitrust.<sup>38</sup>

Based upon the theory of economic development by *Joseph A. Schumpeter* (1934), a different market process competition theory has been developed.<sup>39</sup> Similar to Austrian market process theory, competition is viewed to be a dynamic process. The theoretical reasoning, however, is somewhat different:<sup>40</sup> competition is modeled as a rivalry process of creative actions and imitative reactions. The concept of markets as processes of exogenous shocks and subsequent adjustment towards equilibrium is rejected. Instead, the endogenous character of innovation and the disequilibrating forces of market competition are emphasized. The role of the entrepreneur is particularly highlighted. Schumpeterian pioneer entrepreneurs represent disequilibrating forces because they (non-anticipatably) create new products, new production techniques and new modes of organization, thereby, making the previous market conditions obsolete (creative destruction). This initiatory action sets the competitors under pressure and forces them either to react or to leave the market/become marginalized. The creative innovator may well be able to gain profits that are higher than marginal costs (in neoclassical view ‘supracompetitive’ profits) but these innovation rents are not of competitive concern as long as the competitors, albeit with a time-lag, react. This reaction can consist of counter-innovation or, in the short-run, imitative actions dominate since arbitrage entrepreneurs (as equilibrating forces) will attempt to compete the higher profits of the creative. This will erode the innovation rent of the creative entrepreneur, which is very important because the imitative competition sets an incentive for the creative agents to sustain their innovative competencies. Thus, competition serves as the major driving-force of economic progress, development and growth. The interplay of innovation competition (creative entrepreneurs) and adjustment competition (arbitrage entrepreneurs) maintains the competitive pressure on both type of

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<sup>38</sup> Hayek (1967), whose positions towards antitrust changed over time, argues that the combination of nullity of anticompetitive arrangements (without public prosecution) and the private right for multiple compensation for damages might be sufficient. However, the focus on clear-cut rules (securing high legal predictability and certainty) can also lead to more competition policy impact. That is demonstrated by Hoppmann (1972), who derives a general prohibition of mergers from an Austrian perspective.

<sup>39</sup> One landmark contribution is Clark (1961), who escaped the narrow boundaries of the workable competition concept he co-invented almost 20 years earlier. An overview of the numerous German contributions to Schumpeterian competition theories (e.g. by Helmut Arndt, Ernst Heuss, Jochen Röpke and Erich Hoppmann) is provided by Kerber (1994). For international contributions see e.g. Metcalfe (1998) and Langlois (2001).

<sup>40</sup> Although Hayek’s (1968) concept of ‘competition as a discovery procedure’ influenced many of the authors belonging to this approach.

agents and drives the internal dynamics of market economies, bringing about technical progress and increasing wealth.

Within this approach, market competition cannot be equated with a specific market structure, wherefore structural competition policy is generally refused. Although monopolies are a market conformal part of structural dynamics in competition, not every monopoly is competitive. Barriers to entry can be erected to fend off creative or adaptive entrepreneurs and slow down dynamic competition. Therefore, two different kinds of monopolies have to be distinguished: efficiency monopolies and power monopolies.<sup>41</sup> While the first represent no harm to dynamic competition, the second constitute a reason for antitrust intervention. Particularly problematic are monopolies that are protected by political barriers to competition. However, contrary to the Chicago School, market process theory does not deny the possibility of private barriers to competition. The stronger case for competition policy in comparison to the Chicago School results from the fact that even the short-run incontestability of markets affects the dynamics of competition significantly and leads to sclerotic markets. Once a market has become sclerotic, self-reinforcing mechanisms tend to stabilize this defection. The negative welfare impact tends to be more severe in this view because the missing incentive to innovate, albeit temporary, reduces the benefit of positive spill-overs on other markets, which can result from innovation, and, thus, the anticompetitive effect (in terms of reduction of potential welfare) is not limited to the sclerotic market. Some proponents of market process competition theory argue that long-lasting oligopolies with a reduced number of enterprises reduce the incentive to compete and facilitate barriers to competition since the fact that the agents on such a market know each other mutually very well advantages a 'mood of cooperation' (as opposed to Hoppmann's 'spirit of competition', which is fundamental to rivalrous interaction).

Both market process competition theories claim that the concept of 'efficiency' is not so clear-cut as it appears to be when efficiency is understood as stationary-allocative efficiency. Market process competition theory draws on innovation competition instead of price competition, applying a concept of dynamic efficiency. Both concepts can be complementary, e.g. power monopolies reduce both stationary-allocative and innovative efficiency as well as economies of scale improve both types of efficiency. Nevertheless, there also can be significant trade-offs, e.g. if growing company size or increasing (supracompetitive) profits reduce stationary-allocative efficiency but improve dynamic efficiency (because major innovation become financially feasible).<sup>42</sup> Another example is provided by network industries: monopolies may be stationary-allocatively efficient but, at the time, they may be dynamically inefficient because they lose the incentives to innovate. Therefore, there is a case for regulation of essential facilities in this theory. The following concept of evolutionary competition adds another efficiency concept: adaptive efficiency.

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<sup>41</sup> Note that the classification does not refer to the genesis of the monopoly (i.e. whether it resulted from innovation or from market power). Only relevant is the current status of the monopoly concerning its contestability.

<sup>42</sup> This is the content of the so-called Neo-Schumpeter-Hypotheses I & II. More than 30 years of empirical research, however, did not produce much support for them.

The theory of competition as a genuine evolutionary process integrates many of the elements of Austrian and Schumpeterian market process theory.<sup>43</sup> Additional ingredients are modern concepts of rationality, drawing from a cognitive-theoretic foundation of human (economic) behavior.<sup>44</sup> Competition is viewed as a permanent process of the creation of fallible and situative knowledge. On the basis of their imperfect and subjective interpretation of their (business/economic) environment, agents in markets (enterprises, individual consumers, etc.) develop hypotheses about promising modes of conduct. The developed hypotheses vary significantly among the agents because due to the construction and working principles of the human brain each interpretation of ‘reality’ is unique and differs quantitatively (incomplete information due to limited cognitive capacities) and qualitatively (distorted information due to the interpretative character of the cognition process) from each other (Budzinski, 2003, p. 216). Carrying out their individual hypotheses in competition, the agents experience feedback from the competitive interaction with other agents which leads to mutual learning and improvements of their economic knowledge. This knowledge, however, remains fallible because (a) it depends on the specific situation (and becomes deficient/obsolete when the situation changes, e.g. because of reactions of the interacting agents) and (b) the process of learning from experience and observation itself is an interpretative (and, therefore, fallible) process. Thus, competition endogenously and permanently induces changes in market conduct, be they creative/innovative or adaptive/conservative, and evolutionary dynamics (*indeterministic change*) is the key feature of this approach. Consequently, core concepts of neoclassical economics, like equilibrium, lack any meaning in such a genuine evolutionary context where evolution is inherently and inevitably driven by the interaction of (subjectively-rational) agents with bounded and interpretative expectation, decision and choice abilities.

This kind of evolutionary competition theory is still lacking an established competition policy agenda. However, since market structures are endogenous, a SCP-oriented competition policy does not seem to be compatible with evolutionary competition theory. Since the competitive process can develop deficient paths like lock-ins, perverse selection or other pathologic characteristics, the call for *laissez-faire* is also not supported by this approach. Which path of development the evolutionary process of competition of a specific market eventually takes, depends sensitively on the institutional framework. The latter represents an incentive scheme for the market agents because it devaluates specific modes of conduct (Wegner, 1997) and, thereby, (i) reduces the complexity of the individual economic environment (in doing so enabling the agents to behave purposefully) and (ii) offers room for political design and ‘intervention’<sup>45</sup>. Since there can be no market without an institutional framework and the knowledge problem prevents the identification of ‘the’ optimal one, there inevitably remains

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<sup>43</sup> See e.g. Röpke (1977), Vanberg/Kerber (1994), Kerber (1997, 2006), Wegner (1997), Metcalfe (1998), Budzinski (2003, 2004b), and Kerber/Saam (2001).

<sup>44</sup> See e.g. Vanberg (1994, 2004), Kahneman/Tversky (2000), Kahneman (2003a, 2003b), Budzinski (2003), Kaisla (2003), and Egidi/Rizzello (2003). With the 2002 Nobel Prize awarded to Daniel Kahneman, this branch of economic theory will probably gain even more interest and importance in the next years.

<sup>45</sup> In this context, the ordoliberal differentiation between a policy to design the institutional framework without influencing directly the market process (*institutional intervention*) and a policy that directly intervenes into competitive market coordination (*process intervention*) might develop new importance. An evolutionary-ordoliberal approach would probably aim to limit policy competencies to institutional interventions.

some competency for (competition) policy and politicians/agencies – despite of skepticism about policy interventions in general.<sup>46</sup>

The scope of an antitrust policy program corresponding to evolutionary competition theory could be *adaptive efficiency*, i.e. the preservation or improvement of the markets' abilities to evolve in the future. If the *evolutionary capabilities* of competitive markets remain high, sclerotic phenomena (be they rooted in private market power or in distorting institutional arrangements) can be avoided and incentives for creativity and innovation are preserved. However, adaptive efficiency as the goal of competition policy implies a more important role for diversity. Diversity of agents (enterprises, consumers, etc.) means that more hypotheses are tested in competition and both more knowledge is produced and knowledge is adapted faster to changing environments. Parallel experimentation with different solutions to economic problems/hypotheses about market opportunities boosts the process of knowledge-creation in comparison to sequential experimentation in monocultures<sup>47</sup> (Kerber, 1997, 2006; Kerber and Saam, 2001). Obviously, conflicts can occur between stationary concepts of allocative, business, or dynamic efficiency and evolutionary adaptive efficiency: an allowance of a (quasi-) monopoly on the grounds of business or (potential) innovation efficiency can reduce adaptive efficiency because alternative paths and hypotheses become excluded and the trajectory of the market is narrowed, perhaps thereby frustrating the seeds of future welfare-enhancing problem solutions or profit opportunities (to cope with changes in business and market environment that cannot be anticipated today). A systematic meaning of diversity as a possible driving-force for competition as well as an independent element of consumer welfare is largely neglected in other competition theories (Leary, 2001; Farrell, 2006).

### **3. Pluralism of Competition Policy Paradigms – Evidence of Incapacity, Temporary Imperfection within a Selection Process, or Sustainable Imperative of Science?**

Section 2 identifies a considerable diversity of competition economics. Particularly in regard to the core concepts recalled at the beginning of section 2, significant incompatibilities must be diagnosed. (i) The theoretical concept of competition differs between the anonymous state of balanced forces (equilibrium), SCP-schemes, dynamic processes of rival interaction and knowledge-creating, evolutionary processes. (ii) The meaning of efficiency embraces very different concepts such as stationary-allocative vs. dynamic vs. adaptive efficiency. (iii) The positions regarding the goals of antitrust policy differ between e.g. 'competition as an instrument to realize any political and social goals', 'efficiency as the sole goal of competition policy' (but which concept of efficiency?), 'economic freedom and open markets', etc. Furthermore, it seems difficult and highly questionable to draw an unambiguous dividing-line between economic and non-economic goals of competition policy.<sup>48</sup>

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<sup>46</sup> It cannot be discussed in this paper whether institutional competition may represent a solution to this problem. See, instead, Kerber and Budzinski (2004) for a competition policy focused analysis.

<sup>47</sup> If there is any mutual learning due to experimentation in monocultures at all, it can be only sequential.

<sup>48</sup> No doubt, there are very good and convincing reasons to exclude income distributions from the goal of competition policy. However, to denounce it as a non-economic goal seems strange because if income distribution does not belong to the economics discipline, i.e. income distribution would not be a matter of the

In summary, there is no common economic theory of competition and, consequently, no competition economics monoculture. A ‘natural’ basis for an unequivocal, ‘scientifically-true’ antitrust policy cannot be derived. However, what is the assessment of this existing theory pluralism in competition economics? Does it represent some deficiency and, therefore, provide an argument against an economic backing of competition policy procedures?

### *3.1 Incapacity of Competition Economics?*

One could argue that the existing theory pluralism simply represents overwhelming evidence for the *incapacity of competition economics*. As such, the question whether pluralism in competition economics represents a ‘case of wasteful competition’ can be discussed (Laband and Tollison, 2003; van Dalen and Klamer, 2005). According to this view, a monoculture focusing on the right theory would avoid waste and yield beneficial outcomes. Pluralism is merely a result of a rent-seeking game by scientists, seeking to maximize their common budget. However, it remains unclear how the right theory can be identified and whether the mere existence of concurring paradigms represents a sign of their deficiencies, leading to a call for a scientific revolution in the field.

One consequence for competition policy could be to totally abandon antitrust intervention in order to avoid political distortions, which could result from interventions on the basis of insufficient theories. However, not to intervene also represents some kind of intervention, albeit, a more indirect one: the abandonment of any intervention conserves and politically approves existing distortions and power distributions. Methodologically, this dilemma can only be solved if the process could start from a virgin situation, i.e. without any history.<sup>49</sup> Unfortunately, this (ahistorical) scenario is not available in the real world of competitive markets.

Interpreting theory diversity as an incapacity opens up more questions than it answers and eventually remains superficial. In order to deepen the analysis, the process of theory generation and selection must be considered, asking whether the alleged ‘waste’ contributes to the workability of the scientific process (van Dalen and Klamer, 2005). Along this line, diversity can be viewed as a resource pool serving some kind of best theory harmonization (section 3.2), which implies it is necessary on the way towards an eventually beneficial monoculture, or an eigen-value can be ascribed to diversity (section 3.3).

### *3.2 Selection of Superior Theories*

Theory pluralism can be assessed being a *temporary imperfection* on the avenue towards the ultimate, ‘right’ competition theory. According to this view, the present pluralism of

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economy, this would afford a strange definition of economics which would drive a lot of areas of economic research out of the discipline (can there be welfare economics without the matter of income distribution?).

<sup>49</sup> Only if the initial situation has no history it can be free of distortions. As soon as the status quo has a history, it is path-dependent and carries with it the tracks of past power asymmetries, distortions, persistent (institutionalized) inefficiencies, etc. From an ideologically neutral perspective, it cannot be claimed that further intervention would inevitably increase the distortionary impact, e.g. an intervention like a reform of property rights during the transition process from a centrally planned to a market economy could probably be assessed to reduce distortions.

competition policy paradigms will be overcome by a scientific selection process that incrementally rules out inferior theories in favor of the eventually most superior one. The underlying idea is a concept of continuous improvement of scientific knowledge, which implies that new theories are generally better (i.e. representing improved knowledge) than older ones (Putman, 1975). This notion is very common within the discipline although the mechanisms, which are believed to drive the selection process, differ significantly. Drawing on the paragon of natural sciences, many proponents believe that economic reality will select the most appropriate theory whereas others believe that theoretical rigor (drawing on the paragon of ideal sciences like mathematics) to be the best selection mechanism. While the latter would expect theoretical convergence to appear through intrascientific quality control (e.g. refereed journals)<sup>50</sup>, the former would focus on comparative evaluations of the performance of markets and economies with differing institutional frameworks and policy programs. The concept of institutional and policy convergence by some sort of competition of competition policies (Kerber and Budzinski, 2004), leading to the self-organizational selection of the best rules and policies, which allows for feedback conclusions concerning the adequateness of the underlying competition theories, certainly represents an example. Additionally, the best practice approach of the International Competition Network (ICN) belongs to this train of thought (Budzinski, 2004a): the presently applied competition policy paradigms, theories, techniques, instruments, etc. are currently analyzed and subsequently compared according to their performance. The idea is to identify best practices and spread them to the ICN members, thus implementing a process of best-rule-harmonization. The common denominator of these approaches, however, is the opinion that there is a diversity reducing selection process of theories, eventually leading to the identification of the best competition theory and policy paradigm.

The popular opinion that high standards for rigorous theoretical analysis will inevitably cause a convergence of views on antitrust issues and cases so that – in the course of time – deviating evaluations of trained (expert) economists will diminish has an interesting implication. The idea that an unambiguous expert consensus would be a natural consequence of deepened (quantitative) modeling reveals an underlying assumption about the understanding of real world evolution. It can only be true in a deterministic world in which quantitatively-predictive models are more than simplifying heuristics of real-world cases. Instead, in order to allow for a homogenizing convergence towards the truth, these models have to provide an exact (true) description/explanation of reality. In a non-deterministic world (which is not following some foreordination), models cannot be an exact copy of reality<sup>51</sup> but simplify things in order to isolate specific effects. However, if this is true, the discretionary scope to apply such models to real-world cases remain inevitably high enough to allow for deviating interpretations and conclusions. If an exact quantitative replication is impossible, there are always a number of models that represent specific features of the world but are more or less similarly distant from

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<sup>50</sup> For analyses (with differing results) see e.g. Peters/Ceci (1982), Laband/Piette (1994), Armstrong (1997), Frey (2003) and Grösche/Schmidt/Seidl (2007).

<sup>51</sup> Mathematical chaos theory offers a method to create models, which – albeit being purely deterministic – include some important features of indeterministic phenomena. However, they are rarely used in competition economics and, most generally, do not allow to derive that kind of unambiguous policy conclusions which drives the convergence process.



the real case. By developing these models (or even by developing only one of them), thereby imperfectly approaching reality, scientists have an open menu of different directions at their disposal and due to this create divergent views.

The ideal of an economic consensus, which allows for ‘objective’ solutions of antitrust cases, remains impossible in an indeterministic world and illusionary even in a deterministic world.<sup>52</sup> The participating economists (and lawyers) neither have the interest, nor incentives to create a consensus. The opposite experts (may it be the defendant’s or the plaintiff’s) are paid for developing scientific ‘evidence’, which proves the other side’s experts wrong – and do not have incentives to search for the truth.

### 3.3 A Sustainable Role for Theory Pluralism

Drawing on modern contributions to the metatheory of science leads to another way of dealing with theory pluralism. Diversity of competition theories can be regarded as a *sustainable imperative of science* instead of a temporary phenomenon or an evidence of incapacity. Real sciences (like economics) develop by testing theories and hypotheses on reality, thereby weakening theories with little or doubtful explanatory power and strengthening the ‘better’ ones. Until that, this is perfectly compatible with the notion of temporary imperfections on the way to the truth. However, the selection process is both incomplete (*Karl R. Popper*) and imperfect (*Thomas S. Kuhn*), making the disposability of alternative theories a sustainable and fundamental characteristic instead of a temporary imperfection.

According to *Popper* (1959, 1962, 1972), scientific progress is characterized by a fundamental asymmetry: theories can only be proved to be false but never to be true. Empirical evidence can only refute/disprove theories but never prove them. Therefore, all scientific knowledge remains preliminary and fallible at every time. Irrespective of the numbers of supporting evidence, it can never be scientifically excluded that the next experiment represents a counter-example and proves the theory at least situationally wrong.<sup>53</sup> *Popper’s* legacy implies that there cannot be an ultimate theory; instead, scientific progress is a never-ending process. A competition theory that has proven perfectly suitable until today can be set to refutation by tomorrow’s empirical evidence. Concerning social sciences, this argument becomes reinforced by the inherent evolutionary character of social interaction: contrary to physics, the environment of economic analysis changes over short period of times, i.e. that the object of analysis endogenously produces changes in its working mechanisms, underlying patterns and performances. This can render good theories obsolete. Social science theories are not only fallible due to previously undiscovered empirical evidence but,

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<sup>52</sup> See also with regard to science in general Andersen, Barker and Chen (2006, pp. 170-3).

<sup>53</sup> Originally, *Popper* believed that the refutation of a theory is always definite because one counter-example should be sufficient to prove a theory wrong. However, although this appeared to be suitable for natural sciences, it did not fit for social sciences in which any real-world theory represents a small part of a complex system of interacting effects. Thus, in social sciences, counter-examples can result from an inseparable overlay of another effect. Furthermore, in the face of modern quantum theory in physics, it seems doubtful whether the unambiguousness of counter-examples can be unexceptionally upheld in natural sciences.

additionally, due to previously non-existing evidence that is (permanently) created by the object of analysis itself.

The paradigm theory of scientific progress (Kuhn, 1962, 2002; Andersen, Barker and Chen, 2006) waters down the case for continuous improvement of scientific insights even more. Not only is scientific knowledge always and inevitably fallible, beyond it, the process of the selection of ideas as such is imperfect and does not always select the better theories. Instead, disciplines of science are most of the time characterized by the domination of a specific paradigm that molds the questions actually asked, the methods applied, and the answers deemed acceptable as well as defines the common world-view, the basic (often implicit) assumptions, etc. These common values influence how reality is perceived and shapes the resulting theories since “the empirical world can be known only through the filter of a theory; thus, facts are theory-laden” (Wilber, 2003).

This paradigm, the contemporary orthodoxy, is persistent, i.e. that other approaches might be neglected even if they produce new knowledge. According to Kuhn (1962, 2002), a paradigm is able to become dominant because it possesses superiority concerning the research on a specific group of problems that are contemporarily very urgent and not sufficiently addressed by other theories. However, once a paradigm dominates, path-dependencies and lock-ins arise. Scientific resources including manpower concentrate on orthodox research because that offers the best possibilities for careers and further resources. This is reinforced by a growing monoculture in the education of students and young scholars, so that knowledge about alternative approaches becomes neglected and devastated irrespective of its future potentials. Since careers, prestige, success and resources are bound to the domination of the paradigm, this can become combined with active defense strategies of the proponents to deter heterodox scientists and their ideas (e.g. by refusing to publish them in journals or by an orthodox appointment policy, etc.). If the paradigm grows older, its capacity to solve scientific problems usually begins to decline because the problems, which fit well into its explanatory framework, are exploited and neglected problems (that do not fit well into the paradigm) grow in relative importance. Thus, the combination of explanatory power, self-reinforcing effects and defense policy that keeps the paradigm dominating tends to incrementally shift to the defense side over time, resulting in slow downs of scientific progress or even net regress due to the obstruction of non-orthodox research. Eventually, the paradigm will fall and be replaced by a new one. However, this can take a significant time in which theories, which may be obsolete and which cannot claim to have become selected because of their superiority, dominate. During this time, scientific knowledge is shaped by the common worldview of the paradigm and its associated value judgments. Scientific research within a paradigmatic “research programme” is limited to alterations of the “protection belt” of supplemental theories and assumptions which leave the hard core untouched (Lakatos, 1970).

After all, the contemporary metatheoretical insights (Chalmers, 1990, 1995; Andersen, Barker and Chen, 2006) that (i) there cannot be anything like an ultimate paradigm and (ii) the

dominating paradigm at a specific time need not consist of superior theories<sup>54</sup>, render a convergence of competition theories towards some sort of an ultimate competition theory seems not only improbable but inadequate. Since (i) there cannot be an ultimate knowledge on market competition and (ii) the selection process is imperfect, a lock-in to one overall dominating theory does not represent scientific progress but, instead, the frustration of progress in knowledge. Instead of theory pluralism, a monoculture of competition economics would represent an inefficient state of the discipline since the output (production of new ideas, theories) is restricted.<sup>55</sup> Therefore, sustainable pluralism of competition theories is an imperative for science and no temporary problem on the path to the ultimate solution. This assessment is perfectly compatible with the (temporary) dominance of one competition theory paradigm. However, it cannot be claimed that a dominating paradigm represents the ultimate theory and, thus, renders theory pluralism obsolete. Such a claim has to be refused because it would confuse the ‘victory’ or domination of a scientific paradigm with scientific advancement, which would be a variant of the natural fallacy (i.e. deriving a *normative* assessment from a *positive* fact).

#### 4. Capitalising on Diversity: Towards an Extended Economic Approach

As the analysis in this paper demonstrates, diversity of theories, research programs, and policy concepts in competition economics is both an empirical fact (section 2) and a theoretically desirable phenomenon (section 3). Therefore, it remains improbable that (i) “non-economic” goals can be unambiguously excluded from competition policy since different competition theories define different dividing-lines between ‘economic’ and ‘non-economic’. The justification of goal(s) of antitrust policy demands referring to a specific competition theory instead of referring to ‘economics’ in general. For the same reasons, (ii) economic analysis cannot provide non-ambiguous, ultimate, non-challengeable (quantitative) criteria for the delimitation of competitive and anticompetitive practices and arrangements on a case-by-case basis. Even if one theory *pretends* to be able to provide this, it must be kept in mind that the superiority of this theory over concurring ones cannot be derived scientifically. (iii) A facilitation of bringing evidence to the courts cannot be expected either (see in particular section 2.4). Similarly, (iv) it remains unclear how politicians can be prevented from instrumentalizing economic theory to serve their interests, given the inevitable discretionary scope for specifying and interpreting models. Eventually, as any social science, (v) economics is not and cannot be an ‘objective and unerring discipline’, wherefore the need for normative assessments of business behavior and its difficulties cannot be avoided.

However, the pessimistic assessment of the high hopes connected to an unifying ‘monoculture’ of economics-based competition policy does not imply a decreasing role or importance of economics in competition policy. Contrary, the influence of economics should

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<sup>54</sup> According to Lakatos (1978), who combines lines of argument by Popper and Kuhn, the superiority of paradigms (research programmes) can only be evaluated historically. Comparative assessments (in regard to superiority) of contemporary or future research programmes are not possible in a scientific way.

<sup>55</sup> It is important to emphasize that output restrictions occur both quantitatively and qualitatively since research activities are channeled to a narrow program by the dominating paradigm. Instead of exploring a wide amount of paths to new insights, only a few parts that are very near to each other are explored.

be rather increased in tendency. An *extended economic approach* broadens the use of economics beyond the case-by-case assessment of (anti-) competitive arrangements and practices. Economics can and should be used to shape and interpret competition rules, for instance regarding the degree of rule-differentiation between per se rules and rule of reason (Christiansen and Kerber, 2006), as well as to guide the institutional design of antitrust procedures, including issues, like the allocation of jurisdictional competence (Budzinski, 2006) or the mix of public and private enforcement, which are neglected in the current ‘more-economic approach’. Furthermore, such an extended economic approach capitalizes on competition economics diversity in three (interrelated) ways. First, it is aware that the insight from economics can merely provide a knowledge base for a political decision about competition rules according to the preferences of the principal(s). Each society must make the final normative assessment about what modes of behavior should be allowed/prohibited in market competition. Economics tells the probable price of specific competition policies (in terms of welfare gains or losses) – and it should tell it loud and clear – but society might be willing to pay that price for the good of societal goals. Second, a competition policy system should stay open for alternative and new competition theories. As there can be no ultimate theory, it is important to maintain resonance ability for new developments in economic theory - either within specific paradigms or regarding alternative ones. This is additionally supported by the evolutionary character of market competition, endogenously generating innovation, including such on anticompetitive arrangements and behavior. The creativity of the interacting agents (individuals and enterprises) is not anticipatable and – from time to time – requires novel responses from competition policy. Third, eventually, a note of caution is emphasized. Since economic knowledge is fallible and subject to alternative, partly incompatible theories, antitrust decisions should be made in favor of securing future competition – in particular in case of doubt. A cautious competition policy, respecting the diversity of competition economics and the fallibility of social science knowledge, will tend to policies that keep markets open and the future capabilities for competition high. This is particularly important if the effects of a merger, cartel, or allegedly abusive behavior for the future are not clear. Instead of ‘penalizing’ the party that bears the burden of proof, such cases should be decided against the background of imperfect knowledge and on a basis of caution: better protecting or accomplishing the channels for future competition than following the short-term interests of merging/cartelizing parties, their stakeholders, or rivals.

### References

- Andersen, H., Barker, P. and Chen, X. 2006. *The Cognitive Structure of Scientific Revolutions*, Cambridge, Cambridge University Press.
- Aghion, P. and Bolton, P. 1987. Contracts as Barriers to Entry, *American Economic Review*, Vol. 77, 338-401.
- Ahlborn, C. and Grave, C. 2006. Walter Eucken and Ordoliberalism: An Introduction from a Consumer Welfare Perspective, *Competition Policy International*, Vol. 2 (2), 197-217.
- Aiginger, K., McCabe, M., Mueller, D. C. and Weiss, C. 2001. Do American and European Industrial Organization Economists Differ?, *Review of Industrial Organization*, Vol. 19 (4), 383-405.

- Aiginger, K., Mueller, D. C. and Weiss, C. 1998. Objectives, Topics and Methods in Industrial Organization during the Nineties: Results from a Survey, *International Journal of Industrial Organization*, Vol. 16 (6), 799-830.
- Aigner, G., Budzinski, O. and Christiansen, A. 2006. The Analysis of Coordinated Effects in EU Merger Control: Where Do We Stand after Sony/BMG and Impala?, *European Competition Journal*, Vol. 2 (2), 311-336.
- Alchian, A. A. 1950. Uncertainty, Evolution, and Economic Theory, *Journal of Political Economy*, Vol. 58, 211-221.
- Armentano, D. T. 1986. *Antitrust Policy: The Case for Repeal*, Washington/D.C., The Cato Institute.
- Armstrong, J. S. 1997. Peer Review for Journals: Evidence on Quality Control, Fairness, and Innovation, *Science and Engineering Ethics*, Vol. 3 (1), 63-84.
- Audretsch, D. B. 1988. Divergent Views in Antitrust Economics, *The Antitrust Bulletin*, Vol. 33 (1), 135-160.
- Audretsch, D. B., Baumol, W. J. and Burke, A. E. 2001. Competition Policy in Dynamic Markets, *International Journal of Industrial Organization*, Vol. 19 (5), 613-634.
- Bain, J. S. 1956. *Barriers To New Competition*, Cambridge, Mass.
- Baker, J. B. 1999. Developments in Antitrust Economics, *Journal of Economic Perspectives*, Vol. 13 (1), 181-194.
- Baker, J. B. and Bresnahan, T. F. 1985. The Gains from Merger or Collusion in Product-Differentiated Industries, *Journal of Industrial Economics*, Vol. 33 (4), 427-444.
- Baumol, W. J. 1982. Contestable Markets – An Uprising in the Theory of Industry Structure, *American Economic Review*, Vol. 72 (1), 1-15.
- Baumol, W. J. and Ordover, J. A. 1985. Use of Antitrust to Subvert Competition, *Journal of Law & Economics*, Vol. 28 (2), 247-265.
- Baumol, W. J., Panzar, J. C. and Willig, R. D. 1982. *Contestable Markets and the Theory of Industry Structure*, New York.
- Bolton, P. and Scharfstein, D. S. 1990. A Theory of Predation Based on Agency Problems in Financial Contracting, *American Economic Review*, Vol. 80 (1), 93-106.
- Bolton, P., Brodley, J. F. and Riordan, M. H. 2000. Predatory Pricing: Strategic Theory and Legal Policy, *The Georgetown Law Journal*, Vol. 88 (8), 2239-2330.
- Bork, R. H. 1978. *The Antitrust Paradox*, New York.
- Brodley, J. P. 1995. Post-Chicago Economics and Workable Legal Policy, *Antitrust Law Journal*, Vol. 63 (2), 683-695.
- Bromley, D. W. 2006. *Toward an Ordnungstheorie: Volitional Pragmatism and Economic Institutions*, manuscript presented at the University of Heidelberg, Albert-Ludwigs-University of Freiburg, Friedrich-Schiller-University of Jena, Martin-Luther-University of Halle-Wittenberg, Humboldt-University of Berlin, and Philipps-University of Marburg, 2006.
- Budzinski, O. 2003. Cognitive Rules, Institutions, and Competition, *Constitutional Political Economy*, Vol. 14 (3), 215-235.
- Budzinski, O. 2004a. The International Competition Network: Prospects and Limits on the Road towards International Competition Governance, *Competition and Change*, Vol. 8 (3), 243-266.
- Budzinski, O. 2004b. *An Evolutionary Theory of Competition*, <http://ssrn.com/abstract=534862>.
- Budzinski, O. 2006. An Economic Perspective on the Jurisdictional Reform of the European Merger Control System, *European Competition Journal*, Vol. 2 (1), 119-140.
- Budzinski, O. and Christiansen, A. 2005. Competence Allocation in the EU Competition Policy System as an Interest-Driven Process, *Journal of Public Policy*, Vol. 25 (3), 313-337.

- Budzinski, O. and Christiansen, A. 2007. The Oracle/PeopleSoft Case: Unilateral Effects, Simulation Models and Econometrics in Contemporary Merger Control, *Legal Issues of Economic Integration*, Vol. 34 (2), 133-166.
- Burton, J. 1994. Competition over Competition Analysis: A Guide to some Contemporary Economics Disputes, pp. 1-23 in Lonbay, J. (ed.), *Frontiers of Competition Law*, London, Wiley.
- Cabral, L. 2002. Increasing Dominance with No Efficiency Effect, *Journal of Economic Theory*, Vol. 102 (2), 471-479.
- Cabral, L. 2003. Horizontal Mergers with Free-Entry: Why Cost Efficiencies May Be a Weak Defense and Asset Sales a Poor Remedy, *International Journal of Industrial Organization*, Vol. 21 (5), 607-623.
- Carlton, D. W. and Waldman, M. 2002. The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries, *Rand Journal of Economics*, Vol. 33 (2), 194-220.
- Chalmers, A. F. 1990. *Science and its Fabrication*, Milton Keynes, Open Univ. Press.
- Chalmers, A. F. 1995. Ultimate Explanation in Science, *Cogito*, Vol. 9, 141-145.
- Chamberlin, E. H. 1933. *The Theory of Monopolistic Competition*, Cambridge.
- Choi, J. P. and Stefanadis, C. 2001. Tying, Investment, and the Dynamic Leverage Theory, *Rand Journal of Economics*, Vol. 32 (1), 52-71.
- Christiansen, A. 2006. The More-Economic Approach in EU Merger Control, *CESifo Forum*, Vol. 7 (1), 34-39.
- Christiansen, A. and Kerber, W. 2006. Competition Policy with Optimally Differentiated Rules Instead of "Per se Rules vs. Rule of Reason", *Journal of Competition Law and Economics*, Vol. 2 (2), 215-244.
- Clark, J. M. 1940. Toward a Concept of Workable Competition, *American Economic Review*, Vol. 30, 241-256.
- Clark, J. M. 1961. *Competition as a Dynamic Process*, Washington D.C., Brookings Institution.
- Cooper, J. C., Froeb, L. M., O'Brien, D. P. and Vita, M. G. 2005. A Comparative Study of United States and European Union Approaches to Vertical Policy, *George Mason Law Review*, Vol. 13 (2), 289-308.
- Cucinotta, A., Pardolesi, R. and Van den Bergh, R. (eds) 2002. *Post-Chicago Developments in Antitrust Law*, Cheltenham, Edward Elgar.
- Demsetz, H. 1976. Economics as a Guide to Antitrust Regulation, *Journal of Law and Economics*, Vol. 19, 371-384.
- Deneckere, R. and Davidson, C. 1985. Incentives to Form Coalitions with Bertrand Competition, *Rand Journal of Economics*, Vol. 16 (4), 473-486.
- Dixit, A. 1980. The Role of Investment in Entry-Deterrence, *Economic Journal*, Vol. 90 (1), 95-106.
- Dixit, A. and Stiglitz, J. E. 1977. Monopolistic Competition and Optimum Product Diversity, *American Economic Review*, Vol. 67, 297-308.
- EAGCP. 2005. *An Economic Approach to Art. 82, Report of the Economic Advisory Group for Competition Policy for the European Commission*, DG Competition, Brussels [http://europa.eu.int/comm/competition/publications/studies/eagcp\\_july\\_21\\_05.pdf](http://europa.eu.int/comm/competition/publications/studies/eagcp_july_21_05.pdf).
- Easterbrook, F. H. 1984. The Limits of Antitrust, *Texas Law Review*, Vol. 63 (1), 1-40.
- Egidi, M. and Rizzello, S. 2003. *Cognitive Economics: Foundations and Historical Evolution*, Università di Torino Working Paper 04/2003.
- Elliott, S. R., Godby, R. and Kruse, J. B. 2003. An Experimental Examination of Vertical Control and Cost Predation, *International Journal of Industrial Organization*, Vol. 21 (2), 253-281.
- Eucken, W. 1950. *The Foundation of Economics – History and Theory in the Analysis of Economic Reality*, London.

- Eucken, W. 1952. *Grundsätze der Wirtschaftspolitik*, Tübingen, Mohr Siebeck.
- Eucken, W. 2006. The Competitive Order and Its Implementation, *Competition Policy International*, Vol. 2 (2), 219-245.
- Farrell, J. 2006. Complexity, Diversity, and Antitrust, *The Antitrust Bulletin*, Vol. 51 (1), 165-173.
- Farrell, J. and Shapiro, C. 1990. Horizontal Mergers – An Equilibrium Analysis, *American Economic Review*, Vol. 80 (1), 107-126.
- Fisher, F. M. 1991. Organizing Industrial Organization: Reflections of the Handbook of Industrial Organization, *Brookings Papers on Economic Activity*, Vol. 1991 (1), 201-225.
- Fisher, F. M. 2001. Innovation and Monopoly Leveraging, pp. 138-159 in Ellig, J. (ed.), *Dynamic Competition and Public Policy*, Cambridge.
- Fox, E. M. and Sullivan, L. A. 1987. Antitrust – Retrospective and Prospective, *New York University Law Review*, Vol. 62, 936-968.
- Fox, E. M. 2003. “We Protect Competition, You Protect Competitors”, *World Competition*, Vol. 26 (2), 149-165.
- Frey, B. S. 2003. Publishing as Prostitution? Choosing Between One’s Own Ideas and Academic Success, *Public Choice*, Vol. 116, 205-223.
- Friedman, M. 1953. *Essays in Positive Economics*, Chicago: Chicago University Press.
- Friedman, M. 1962. *Capitalism and Freedom*, Chicago: Chicago University Press.
- Fudenberg, D. and Tirole, J. 1986. A ‘Signal-Jamming’ Theory of Predation, *Rand Journal of Economics*, Vol. 17, 366-376.
- Gerber, D. J. 1998. *Law and Competition in Twentieth Century Europe: Protecting Prometheus*, Oxford: Clarendon Press.
- Grösche, P., Schmidt, U. and Seidl, C. 2007. The Performance of Peer Review and a Beauty Contest of Referee Processes of Economics Journals, *Conferences in New Political Economy*, Vol. 24, forthcoming.
- Gugler, K., Mueller, D. C., Yurtoglu, B. B. and Zulehner, C. 2003. The Effects of Mergers: An International Comparison, *International Journal of Industrial Organization*, Vol. 21 (5), 625-653.
- Hayek, F. A. von 1937. Economics and Knowledge, *Economica*, Vol. 4 (1), 33-54.
- Hayek, F. A. von 1945. The Use of Knowledge in Society, *American Economic Review*, Vol. 35 (4), 519-530.
- Hayek, F. A. von 1948. The Meaning of Competition, pp. 92-106 in von Hayek, F. A. (ed.), *Individualism and Economic Order*, Chicago, Chicago University Press.
- Hayek, F. A. von 1967. The Constitution of a Liberal State, *Il Politico*, Vol. 32 (1), 455-461.
- Hayek, F. A. von 1968. Competition as a Discovery Procedure, pp. 179-190 in von Hayek, F. A. (1978, ed.), *New Studies in Philosophy, Politics, Economics and the History of Ideas*, Chicago, Chicago University Press; first published in German: *Der Wettbewerb als Entdeckungsverfahren*. Kieler Vorträge, Neue Folge 56, Kiel 1968.
- Hayek, F. A. von 1975. The Pretence of Knowledge, *The Swedish Journal of Economics*, Vol. 77 (4), 433-442.
- Hellwig, M. 2006. Effizienz oder Wettbewerbsfreiheit? Zur normativen Grundlegung der Wettbewerbspolitik, pp. 231-268 in Engel, C. and Möschel, W. (eds.), *Recht und spontane Ordnung*, Baden-Baden, Nomos.
- Hildebrand, D. 2002. The European School in EC Competition Law, *World Competition*, Vol. 25 (1), 3-23.
- Hopmann, E. 1972. *Fusionskontrolle*, Tübingen: Mohr Siebeck.

- Hovenkamp, H. 2002. The Reckoning of Post-Chicago Antitrust, pp. 1-33 in Cucinotta, A., Pardolesi, R. and Van den Bergh, R. (eds.), *Post-Chicago Developments in Antitrust Law*, Cheltenham, Edward Elgar.
- Kahneman, D. 2003a. A Psychological Perspective on Economics, *American Economic Review*, Vol. 93 (2), 162-168.
- Kahneman, D. 2003b. Maps of Bounded Rationality: Psychology for Behavioral Economics, *American Economic Review*, Vol. 93 (5), 1449-1475.
- Kahneman, D. and Tversky, A. 2000. *Choices, Values, and Frames*, New York, Sage.
- Kaisla, J. 2003. Choice Behaviour: Looking for Remedy to Some Central Logical Problems in Rational Action, *Kyklos*, Vol. 56 (2), 245-262.
- Kasper, W. and Streit, M. E. 2001. *Institutional Economics – Social Order and Public Policy*, Reprint, Cheltenham, Edward Elgar.
- Kerber, W. 1994. German Market Process Theory, pp. 500-507 in Boettke, P. J. (ed.), *The Elgar Companion to Austrian Economics*, Aldershot, Elgar.
- Kerber, W. 1997. Wettbewerb als Hypothesentest – Eine evolutorische Konzeption wissenschaftenden Wettbewerbs, pp. 29-78 in von Delhaes, K. and Fehl, U. (eds), *Dimensionen des Wettbewerbs – Seine Rolle in der Entstehung und Ausgestaltung von Wirtschaftsordnungen*, Stuttgart, Lucius & Lucius,.
- Kerber, W. 2006. Competition, Knowledge, and Institutions, *Journal of Economic Issues*, Vol. XL (2), 1-7.
- Kerber, W. and Budzinski, O. 2004. Competition of Competition Laws: Mission Impossible?, pp. 31-65 in Epstein, R. and Greve, M. S. (eds.), *Competition Laws in Conflict - Antitrust Jurisdiction in the Global Economy*, Washington, D.C., AEI Press,.
- Kerber, W. and Saam, N. 2001. Competition as a Test of Hypotheses: Simulation of Knowledge-generating Market Processes, *Journal of Artificial Societies and Social Simulation*, Vol. 4 (3), 1-34.
- Kerber, W. and Schwalbe, U. 2007. Economic Foundations of Competition Law, forthcoming in Säcker, F. J., Hirsch, G. and Montag, F. (eds), *Competition Law: European Community Practice and Procedure*, London, Sweet & Maxwell,.
- Kirzner, I. M. 1997. Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach, *Journal of Economic Literature*, Vol. 35 (1), 60-85.
- Klemperer, P. 1995. Competition when Consumers have Switching Costs, *Review of Economic Studies*, Vol. 62 (2), 515-539.
- Kovacic, W. E. and Shapiro, C. 2000. Antitrust Policy: A Century of Economic and Legal Thinking, *Journal of Economic Perspectives*, Vol. 14 (1), 43-60.
- Krattenmaker, T. G. and Salop, S. C. 1986. Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price, *Yale Law Journal*, Vol. 96 (2), 209-293.
- Kuhn, T. S. 1962. *The Structure of Scientific Revolutions*, Chicago.
- Kuhn, T. S. 2002. *The Road Since Structure: Philosophical Essays 1970-1993*, Chicago, Chicago University Press.
- Laband, D. N. and Piette, M. J. 1994. Favoritism versus Search for Good Papers: Empirical Evidence Regarding the Behavior of Journal Editors, *Journal of Political Economy*, Vol. 102, 194-203.
- Laband, D. N. and Tollison, R. D. 2003. Dry Holes in Economic Research, *Kyklos*, Vol. 56 (2), 161-173.
- Lakatos, I. 1970. Falsification and the Methodology of Scientific Research Programmes, pp. 91-196 in Lakatos, I. and Musgrave, A. (eds.), *Criticism and the Growth of Knowledge*, Cambridge: Cambridge University Press.
- Lakatos, I. 1978. *The Methodology of Scientific Research Programmes*, Cambridge, Cambridge University Press.



- Langlois, R. N. 2001. Technological Standards, Innovation, and Essential Facilities: Towards a Schumpeterian Post-Chicago Approach, pp. 193-228 in Ellig, J. (ed.), *Dynamic Competition and Public Policy*, Cambridge.
- Leary, T. B. 2001. The Significance of Variety in Antitrust Analysis, *Antitrust Law Journal*, Vol. 68 (3), 1007-1022.
- Lindsey, R. and West, D. S. 2003. Predatory Pricing in Differentiated Products Retail Markets, *International Journal of Industrial Organization*, Vol. 21 (4), 551-592.
- Lipsey, R. and Lancaster, K. 1956. The General Theory of Second Best, *Review of Economic Studies*, Vol. 24 (1), 11-32.
- Ludwig-Erhard-Stiftung (ed.) 1982. *Standard Texts on the Social Market Economy: Two Centuries of Discussion*, New York, G. Fischer.
- Lyons, B. R. 2003. *Could Politicians Be More Right Than Economists? A Theory of Merger Standards*, EUI Working Papers, RSC 2003/14, San Domenico di Fiesole.
- Martin, S., Normann, H.-T. and Snyder, C. M. 2001. Vertical Foreclosure in Experimental Markets, *Rand Journal of Economics*, Vol. 32 (3), 466-496.
- Mason, E. S. 1939. Price and Production Policies of Large-Scale Enterprise, *American Economic Review*, Vol. 29 (1), 61-74.
- McChesney, F. S. and Shughart, W. F. (eds.) 1995. *The Causes and Consequences of Antitrust: the Public-Choice Perspective*, Chicago.
- Metcalf, J. S. 1998. *Evolutionary Economics and Creative Destruction*, London.
- Milgrom, P. and Roberts, J. 1982a. Limit Pricing and Entry under Incomplete Information, *Econometrica*, Vol. 50 (2), 443-466.
- Milgrom, P. and Roberts, J. 1982b. Predation, Reputation, and Entry Deterrence, *Journal of Economic Theory*, Vol. 27 (2), 280-312.
- Nalebuff, B. 2005. Tied and True Exclusion, *Competition Policy International*, Vol. 1 (1), 41-53.
- Neven, D. J. 2006. Competition Economics and Antitrust in Europe, *Economic Policy*, Vol. 21 (48), 742-791.
- Ordover, J. A., Saloner, G. and Salop, S. C. 1990. Equilibrium Vertical Foreclosure, *American Economic Review*, Vol. 80 (1), 127-142.
- Perry, M. K. and Porter, R. H. 1985. Oligopoly and the Incentive for Horizontal Merger, *American Economic Review*, Vol. 75 (1), 219-227.
- Peters, D. P. and Ceci, S. J. 1982. Peer-Reviewed Practices of Psychology Journals: the Fate of Published Articles, Submitted Again, *Behavioral and Brain Sciences*, Vol. 5, 187-195.
- Popper, K. R. 1959. *The Logic of Scientific Discovery*, New York, Basic Books.
- Popper, K. R. 1962. *Conjectures and Refutations: The Growth of Scientific Knowledge*, New York, Basic Books.
- Popper, K. R. 1972. *Objective Knowledge: An Evolutionary Approach*, London, Clarendon Press.
- Posner, R. A. 1971. A Program for the Antitrust Division, *The University of Chicago Law Review*, Vol. 38, 500-536.
- Posner, R. A. 1979. The Chicago School of Antitrust Analysis, *University of Pennsylvania Law Review*, Vol. 127 (4), 925-948.
- Posner, R. A. 1999. The Law and Economics of the Economic Expert Witness, *Journal of Economic Perspectives*, Vol. 13 (2), 91-99.
- Putman, H. 1975. The Meaning of "Meaning", pp. 131-193 in Gundersen, K. (ed.), *Language, Mind, and Knowledge*, Minneapolis, University of Minnesota Press,.
- Rey, P. and Tirole, J. 1986. The Logic of Vertical Restraints, *American Economic Review*, Vol. 76 (5), 921-939.

- Rieter, H. and Schmolz, M. 1993. The Ideas of German Ordoliberalism 1938-45: Pointing the Way to a New Economic Order, *The European Journal of the History of Economic Thought*, Vol. 1 (1), 87-114.
- Riordan, M. H. 1998. Anticompetitive Vertical Integration by a Dominant Firm, in: *American Economic Review*, Vol. 88 (5), 1232-1248.
- Riordan, M. H. and Salop, S. C. 1995. Evaluating Vertical Mergers: A Post-Chicago Approach, *Antitrust Law Journal*, Vol. 63 (2), 513-568.
- Robinson, J. 1933. *The Economics of Imperfect Competition*, London.
- Röller, L.-H. 2005. Economic Analysis and Competition Policy Enforcement in Europe, pp. 11-24 in Van Bergeijk, P. and Kloosterhuis, E. (eds.), *Modelling European Mergers: Theory, Competition Policy and Case Studies*, Cheltenham, Elgar.
- Röpke, J. 1977. *Die Strategie der Innovation*, Tübingen, Mohr.
- Röpke, W. 1948. *The Social Crisis of Our Time*, Chicago.
- Röpke, W. 1949. *Civitas humana – Grundfragen der Gesellschafts- und Wirtschaftsreform*, 3<sup>rd</sup> edition, Erlenbach-Zürich.
- Röpke, W. 1960. *A Human Economy – The Social Framework of the Free Market*, Chicago.
- Rothbard, M. N. 1970. *Man, Economy, and State – A Treatise on Economic Principles*, Los Angeles, Nash Publishing.
- Salant, S. W., Switzer, S. and Reynolds, R. J. 1983. Losses from Horizontal Merger, *Quarterly Journal of Economics*, Vol. 98 (2), 185-213.
- Salinger, M. A. 1988. Vertical Mergers and Market Foreclosure, *Quarterly Journal of Economics*, Vol. 103 (2), 345-356.
- Salop, S. C. and Scheffman, D. T. 1983. Raising Rivals' Costs, *American Economic Review*, Vol. 72 (2), 267-271.
- Salop, S. C. and Scheffman, D. T. 1987. Cost-Raising Strategies, *Journal of Industrial Economics*, Vol. 36 (1), 19-34.
- Scheffman, D. 2004. *Whither Merger Simulation?*, <http://www.ftc.gov/speeches/other/040129scheffman.pdf>.
- Scherer, F. M. and Ross, D. 1990. *Industrial Market Structure and Economic Performance*, 3<sup>rd</sup> edition, Boston.
- Schmidt, A. 2001. *Non-Competition Factors in the European Competition Policy: The Necessity of Institutional Reforms*, CeGe-Discussion Paper 13, Göttingen.
- Schumpeter, J. A. 1934. *The Theory of Economic Development*, Cambridge/Mass.: Harvard University Press.
- Selten, R. 1978. The Chain Store Paradox, *Theory and Decision*, Vol. 9 (1), 127-159.
- Smith, A. 1761. *The Theory of Moral Sentiments*, Glasgow.
- Smith, A. 1776. *The Wealth of Nations*, Glasgow.
- Soytas, U. and Becker, K. G. 2003. Is Limit Pricing Evolutionarily Stable?, *Journal of Evolutionary Economics*, Vol. 13 (3), 281-288.
- Stigler, G. J. 1957. Perfect Competition, Historically Contemplated, *Journal of Political Economy*, Vol. 65 (1), 1-17.
- Stigler, G. J. 1958. The Economies of Scale, *Journal of Law and Economics*, Vol. 1 (1), 54-71.
- Stigler, G. J. 1968. *The Organization of Industry*, Homewood, Ill. (Irwin).
- Streit, M. E. 1992. Economic Order, Private Law and Public Policy: the Freiburg School of Law and Economics in Perspective, *Journal of Institutional and Theoretical Economics*, Vol. 148 (4), 675-704.

- Sullivan, L. A. 1995. Post-Chicago Economics: Economists, Lawyers, Judges, and Enforcement Officials in a Less Determinate Theoretical World, *Antitrust Law Journal*, Vol. 63 (2), 669-681.
- Ten Kate, A. and Niels, G. 2002. On the Rationality of Predatory Pricing: the Debate between Chicago and Post-Chicago, *The Antitrust Bulletin*, Vol. 47 (1), 1-24.
- Tirole, J. 2005. The Analysis of Tying Cases: A Primer, *Competition Policy International*, Vol. 1 (1), 1-25.
- Tollison, R. D. 1985. Public Choice and Antitrust, *The Cato Journal*, Vol. 4 (3), 905-916.
- Vanberg, V. 1994. *Rules and Choice in Economics*, London, Routledge.
- Vanberg, V. 1998. Freiburg School of Law and Economics, pp. 172-179 in Newman, P. (ed.), *The New Palgrave Dictionary of Economics and the Law*, Vol. 2, London, Macmillan,.
- Vanberg, V. 1999. Markets and Regulation: On the Contrast Between Free-Market Liberalism and Constitutional Liberalism, *Constitutional Political Economy*, Vol. 10 (3), 219-243.
- Vanberg, V. 2000. Economic Constitutions, Protectionism, and Competition among Jurisdictions, pp. 364-385 in Galeotti, G., Salmon, P. and Wintrobe, R. (eds.), *Competition and Structure – The Political Economy of Collective Decisions*, Cambridge,.
- Vanberg, V. 2004. The Rationality Postulate in Economics: Its Ambiguity, its Deficiency and its Evolutionary Alternative, *Journal of Economic Methodology*, Vol. 11 (1), 1-29.
- Vanberg, V. and Kerber, W. 1994. Institutional Competition Among Jurisdictions – An Evolutionary Approach, *Constitutional Political Economy*, Vol. 5 (2), 193-219.
- Van Dalen, H. P. and Klamer, A. 2005. Is Science a Case of Wasteful Competition?, *Kyklos*, Vol. 58 (3), 395-414.
- Vickers, J. 2003. Competition Economics and Policy, *European Competition Law Review*, Vol. 24 (3), 95-102.
- Wegner, G. 1997. Economic Policy From an Evolutionary Perspective – A New Approach, *Journal of Institutional and Theoretical Economics*, Vol. 153 (3), 485-509.
- Werden, G. J. and Froeb, L. M. 1994. The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy, *Journal of Law, Economics, and Organization*, Vol. 10, 408-426.
- Whinston, M. D. 1990. Tying, Foreclosure, and Exclusion, *American Economic Review*, Vol. 80 (4), 837-859.
- Wilber, C. K. 2003. Ethics in Economic Theory, *Post-Autistic Economics Review*, Vol. 20 (1), [http://www.btinternet.com/~pae\\_news/review/issue20.htm](http://www.btinternet.com/~pae_news/review/issue20.htm).
- Williamson, O. E. 2000. The New Institutional Economics – Taking Stock, Looking Ahead, *Journal of Economic Literature*, Vol. 38 (3), 595-613.
- Wood, D. P. 1999. The Role of Economics and Economists in Competition Cases, *OECD Journal of Competition Law and Policy*, Vol. 1 (1), 82-104.