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[Paper presented at the New York University, 2003-06-10,
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Pluralism of Competition Policy Paradigms and the Call for Regulatory Diversity by *Oliver Budzinski*[*]

Paper presented at the New York University, 2003-06-10, and at the Philipps-University of Marburg, 2003-07-02.

Abstract: Contrary to some contemporary arguing, competition economics are 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 goal of antitrust. The paper demonstrates the incompatibilities of different economic competition theories and policy programs. It argues that this pluralism of concepts is both empirically sustainable and theoretically beneficial for future scientific progress. Therefore, no ultimate competition theory can ever be expected. This has to be considered when competition policy systems are designed, especially on the international level. A minimum of decentralization is necessary to maintain regulatory diversity which keeps the system open for theory innovation and changes in business environment.

JEL Classification: L40, H77, B52, L10

Keywords: regulatory diversity, institutional federalism, competition policy paradigms, industrial economics, centralism and decentralism, law and economics, methodology of science

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1. Introduction – The Role of Economics in Competition Policy

It is most obvious that economics is and should be a 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, to learn about the object of competition law and policy one has to address the theory of market competition, for which the labels competition economics, theory of industrial organization, industrial economics, antitrust economics, etc. are also common in economics. Yet, economics has never been the only discipline that analyzes matters of competition policy and, moreover, legal science (competition law, antitrust law) has dominated the debate – and to some extent still does so. The interdisciplinary character of the subject[1] requires the participating legal and economic experts to obtain knowledge about the other field. And although the actual competition policy has been (and is) dominated by legal scientists and practitioners this does by far not mean that competition policy is done without serious economic foundation.[2] However, the call for more economics in competition policy has upraised more intensively since the 1970s and 1980s during the upcoming of the efficiency doctrine in antitrust, especially in the U.S. Currently, the competition policy of the European Union is criticized of neglecting economic theory[3] and there is a vital discussion in the context of the modernization debate whether and how to improve the economic foundations of the European Commission's decisions.[4]

The wished for benefits of rigorous economics as the guideline/overall concept of competition policy include amongst other things (i) the exclusion/reduction of actually or allegedly non-economic goals[5], (ii) clear, simple and non-ambiguous, preferably quantitative criteria for the differentiation between procompetitive/neutral and anticompetitive business arrangements and behaviors, (iii) the facilitation of bringing evidence to the courts, (iv) the exclusion/reduction of political influences[6], and (v) avoiding the difficulties of normative assessments of business arrangements and behaviors by referring to an "objective and unerring science" instead. But what kind of economics shall serve as the theoretical foundation of competition policy? Although *Richard Posner* (1979, p. 925) has claimed the victory of the Chicago School almost 25 years

[1] Other relevant disciplines include business administration and political science.

[2] "Some of the best anti-trust lawyers appear to have a pretty good grasp of economic principles while most active economists in the field of competition policy are well versed in the prevailing legal principles and procedures." *Nicolaides* (2000, p. 7).

[3] See e.g. *Reynolds*/*Ordover* (2002), *Schaub* (2002), and *Ragolle* (2003) as well as *Pflanz*/*Caffarra* (2002), who, though, have a special incentive being advisors of the GE/Honeywell lawyers in their opposition against the Commission's prohibition of this merger.

[4] See among others *Nicolaides* (2000), *Desai* (2002) and *Vickers* (2003). The recent abrogation of three merger prohibition decisions by the European Court of First Instance is often connected to this debate. However, looking more closely at the judgments reveals that the ECFI does not criticize the Commission's concepts to be non-economic but complains about a deficient application of these concepts and about insufficient proves of possible threats to competition.

[5] The spectrum runs from fairness, labor market issues, economic integration, protection of competitors/small business, protectionist interests, and political economic goals up to an "everything but efficiency is non-economic" claim.

ago and concluded that "it is no longer worth talking about different schools of academic antitrust analysis", sustainable and fundamental diversity of economic competition theories and policy paradigms has prevailed.[7] And – as I argue in this paper – it is not only likely but also necessary that theory pluralism will last in the future. Consequently, I like to challenge *Posner*'s assessment – both empirically (section 2) and theoretically (section 3). This discussion, however, is no end in itself but prepares the grounds for conclusions concerning decentralism and centralism of competition policy/policies in a globalizing economy. Therefore, for the purpose of this paper, it is not relevant whether one competition theory is better than another or which ones offer the most promising perspective for future scientific insights. Taking a non-ideological viewpoint instead, I analyze the implications of (i) the factual pluralism of economic competition theories and (ii) the (meta-) theoretical benefits of a vital theory pluralism for the design of competition policy on a supranational or federal level. My main conclusion is that the sustainable and permanent diversity of competition theories represents a powerful argument in favor of decentralism in the debate on regulatory harmonization versus regulatory diversity – one that is neglected in the current debate.

This paper is organized as follows. Firstly, I give an (incomplete) overview on economic competition theories from a non-ideological point of view (i.e. without comparatively analyzing their adequacy). This demonstrates the existing diversity of competition theories and related policy paradigms (section 2). Subsequently, I argue that this is neither due to theoretical shortcomings in economics nor a temporary phenomenon in the course of a selection process towards the ultimate theory/policy paradigm but, instead, a sustainable and never-ending prerequisite of science itself (section 3). Eventually, I demonstrate that this pluralism of competition theories and policy paradigms represents a powerful argument for institutional diversity and decentralism concerning the design of international/federal competition orders (U.S./EU/World) (section 4). Finally, section 5 summarizes the train of thought and the most important conclusions.

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[6] Sometimes economics is seen as a contrast to politics, see *McChesney*'s (1999) „Economics *versus* Politics in Antitrust".

[7] See e.g. *Fox*/*Sullivan* (1987) and *Audretsch* (1988).

2. Theory Pluralism in Competition Economics – An Overview

The following overview can neither be complete nor exhaustive. Although the first paragraphs seem to follow a chronological order, the chapter is not generally organized that way which would be very difficult since many theories emerged and developed parallel. Instead, I try to bundle theories with similar objectives and characteristics. Furthermore, every theory or paradigm consists of sub- and sidestreams that partly deviate from the mainstream. However, I cannot embrace them in the context of this paper, why I most certainly will wrong some of the proponents of the respective theories. To maintain a non-ideological perspective, I limit myself to descriptive reviews of competition theories and their corresponding policy paradigms and waive comprehensive pro- and contra-discussions or evaluations. Instead, I emphasize differences and incompatibilities between different approaches.

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 18th 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).[8] It is regarded as an inherently lively process which, with its rivalry and the mutual incentive and stimulus for the competitors to innovate and improve their performance, is the driving force of the wealth 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 (changes in factor availability, demand, trade with other locations, etc.) and, thus, no coordination of market forces with consequent welfare losses. Smith invented the idea that an "invisible hand" turns the "egoistic" welfare-maximization of individuals – which have no idea/knowledge about common interests or socially beneficial solutions – into social wealth. In this theory, the harmonization of individual interests (the only motivation of market participants) and common interests (in the sense of social wealth) 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 (including better or new

[8] A 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 current relative position within the race is 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).

goods).[9] Contrary to previous notions of economic behavior, the market approach saw freedom of individual economic choice and behavior as welfare-enhancing and competition as the disciplinary force to prevent misdemeanor.

More strongly than the other exponents of classical economics, Smith emphasizes that additional social (moral *and* political) constraints are necessary to reap welfare benefits from market competition. For instance, he was very suspicious about collusion between entrepreneurs[10] and unfair competition. However, he did not suggest an explicit antitrust or antimonopoly policy (which were unknown at this time) and he did not equate competition with a specific market structure, e.g. he explained that competition can also work well in a duopoly, albeit a higher number of suppliers should generally increase the intensity of competition (*Smith* 1776, p. 160). Nevertheless, he advocated a "competition policy" by (i) external institutional arrangements that define property rights, guarantee legal protection for market transactions, protect the freedom of choice and prohibit unfair behaviors, (ii) internal institutional arrangements that reduce unfair behavior by moral rules, and (iii) urging politicians not to follow any suggestions made by entrepreneurs[11]. Generally, in classical economics, the notion of competition remains rather intuitive and close to its semantic understanding.

Starting in the middle of the 19th century neoclassical economics developed. One of the most important driving forces was the ambition to turn the philosophically dominated classical theory into an exact science. The that-time 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 mathematics, especially 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)[12] instead being the sum of the (objective, absolute) values of the factors of production included in the goods (which was the classical understanding). This gave birth to *price theory* that developed the standard models of polypoly, monopoly, and oligopoly.[13] Market competition became equated to the equilibrium of a polypolistic market, called *perfect competition*. This concepts allowed and still allows for most

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[9] See *Smith* (1761, 1776).

[10] "People of the same trade seldom meet together (...) but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices." *Smith* (1776, p. 59).

[11] "[T]o narrow the competition, is always in interest of the dealers. (...) The proposal of any new law or regulation of commerce which comes from this order, ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention. It comes from an order of men, whose interest is never exactly the same with that of the public; who have generally an interest to deceive and even to oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it." *Smith* (1776, p. 116). Although *Smith* (ibid., p. 59) sees no possibility to completely prevent collusive attempts by enterprises and business men, he insists on the responsibility of governments to "do nothing to facilitate such assemblies [of dealers]; much less render them necessary." Thus, *Smith* clearly sees a governmental responsibility to protect competition against processes of erosion from the inside.

[12] *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.

[13] 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.

important insights and advances in economic theory but 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).[14] While this new interpretation of the key concept in economics facilitates the mathematical/quantitative 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. And although neoclassical economics has demonstrated in the last decades that it can address dynamic problems like innovation, it always comes as a more or less smooth add-on to a fundamentally stationary concept.

The shift in the meaning of competition was not in that sense intentional 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 that-time ideal of an exact discipline. Therefore, one cannot claim offhand that neoclassical competition theory has outdated and replaced classical competition theory.

The most important competition policy consequence of neoclassical price theory is to push real-world markets as close as possible to the ideal of "perfect competition". There is, however, not one policy school unambiguously correlated to neoclassics. Instead, two fundamentally different attitudes towards competition policy can be (and have been) derived. The more popular stream of thought before the Great Depression (1929-1940s) was that free markets would themselves approach perfect competition conditions without any necessary policy intervention. This is the Laissez-faire-approach of capitalism, believing in *Say*'s law (every supply creates its own demand) and the self-healing market forces leading inevitably towards equilibrium. However, it is also logically stringent to derive a more interventionist policy (and mainstream neoclassical economists like *Oskar Lange*, *Abba Lerner*, and others have argued so[15]): if real-world markets do not fit the conditions of the welfare-optimal "perfect competition", it is the task of

[14] 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 equilibrium). *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 [actually referring to the world of neoclassical price theory; O.B.], 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, 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 XYZ, the market believes UVW", etc.).

[15] Thereby, causing *Hayek*'s address to "the socialists of all parties" in his *The Road to Serfdom.*

policy to bring the markets closer to the ideal.[16] If one remembers the restrictive assumptions underlying the polypoly model (homogenous products, no transaction costs, perfect information and complete market transparency, objectively rational agents, absence of innovation, etc.), it is not difficult to imagine how interventionist such a policy of correcting market imperfections might become.

Nevertheless, neoclassical price theory of competition provides the instruments that the competition theories and their respective policy programs presented in the next three sections (2.2-2.4) all draw on, albeit developing and extending them to form separate competition theories.

2.2 Workable Competition, SCP-Paradigm and Industrial Organization: the Harvard School and its Relatives

The starting point of this bunch of related competition policy approaches was twofold: on the one hand, the Great Depression raised doubts on the workability of free markets and, on the other hand, 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", *Joan Robinson* 1933, *Edward 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[17], became the dominating competition policy paradigm in the U.S. in the next three decades and still is highly influential in most competition policy regimes around the world.

The core idea is that real competition does not meet the conditions of "perfect competition" and need not do so, either, to be "workable" in the sense that socially beneficial outcomes can be expected. Although the homogenous polypoly is still seen as the yardstick, 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). The theoretical core concept is the idea that the market structure causally influences competitive and anticompetitive market conduct, with the latter leading causally to better or worse performances of the markets (concerning their social outcome). This S(tructure)-C(onduct)-P(erformance)-approach became the paradigm of the Harvard School of Industrial Organization. While the theoretical orientation was biased to empirical analysis estimating mathematical correlations between market structure indicators and profit rates, using predominantly industry-wide data, the policy approach focuses on influencing the market

[16] See e.g. the skeptical assessment of *John B. Clark* (1887) concerning the possibility and effects of competition in markets that do not meet the preconditions of polypoly.

[17] Seminal contributions include *Mason* (1939), *Bain* (1956), and *Lipsey*/*Lancaster* (1956). A comprehensive overview is provided by *Scherer*/*Ross* (1990).

structure to promote market conduct that leads to market performance in accordance with the goals of the policy. Harvard School competition policy, thus, relies predominantly on interventions into the market structure, seeking to establish procompetitive market structures. The main working points for competition policy are an increasing market concentration and barriers to entry, both believed to facilitate anticompetitive market conduct. Consequently, the Harvard competition policy paradigm centers around a market power doctrine, whereby the reduction of industry concentration and the prevention of exclusionary arrangements are especially important.

In the concept of workable competition, antitrust policy is seen as an integral part of the general economic policy strategy. This implies that it should serve the same goals as other disciplines of economic policy. These goals are set by society and competition policy as well as economic policy in general is seen as an instrument to achieve these goals – no matter what they contain. Thus, the Harvard School favored a multigoal approach that can include both economic and non-economic goals, for instance, efficiency, consumer welfare, innovation dynamics, flexibility and elasticity of the economy, fair income distribution, freedom, promotion of small business, diversification, protection against unfair competition, diversity of enterprise sizes, protection against market power, international competitiveness, economic integration of regions, promotion of economically backward regions, low unemployment, protection of local jobs, promotion of strategic industries and future technologies, sustainable development, etc.[18]

The American variant of workable competition antitrust policy developed to a very intervention-friendly policy with a heyday in the late 1960s including a most restrictive merger policy (even against conglomerate mergers that are believed to cause anticompetitive cross-market power effects), a strong skepticism concerning vertical integration and agreements, and an active policy against predatory pricing strategies. The attitude towards horizontal arrangements is a differentiated one since especially here procompetitive effects of the synergy of imperfections (remedy approach) can be 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 the increase in international competitiveness have been important goals in most European industrialized economies, maybe with the exception of Germany. The competition policy of the European Union, however, always focused strongly on economic integration to create the Single European Market.

[18] All these economic and non-economic goals have been and still are connected to competition policy in industrialized countries around the world during the last four decades. It is not decisive whether the Harvard School competition economists support all of these goals because according to the more general policy paradigm (*Myrdal*, *Tinbergen*) underlying the Harvard approach policy goals are not subject to science which "only" analyzes how the socially defined goals can be achieved most efficiently. – Interestingly, although most contemporary antitrust economists would agree with me that these goals represent a mixture of economic and non-economic ones, it is very difficult to draw the borderline and to delimitate exactly and theory-based which of these goals are economic and which not – and agreement would most probably be hard to achieve on this subject.

2.3 Efficiency Doctrine, Contestable Markets, and Public Choice: the Chicago School and its Relatives

In the 1950s, economics and particularly economic policy were dominated by intervention-friendly theories and programs that ascribed to the state the task of stabilizing the otherwise "chaotic" and inherent unsteady market economies: both Keynesianism in fiscal and monetary policy and the Harvard School in competition policy came to popularity as a lesson of the Great Depression that eroded the believe in the self-healing forces of free competitive markets.[19] This domination raised opposition and the most successful stream emerged at the Chicago University. The Chicago School covers almost all fields of economic theory and policy, for instance, it challenged the Keynesians in macroeconomics with monetarism (*Milton Friedman, Allan H. Meltzer, Karl Brunner*, etc.; since the 1950s) and the theory of rational expectations (*John F. Muth*), founding new orthodox macroeconomics (*Robert E. Lucas, Robert J. Barro, Thomas Sargent*, etc; since the 1970s), set landmarks in different particular economic theories like economics of information or property rights (*George J. Stigler*, *Harold Demsetz*, etc.), and generated an imperialism of economics, referring to the attempt to model very field of social science on the basis of rational cost-benefit calculations including such things like family, drug addiction, and divorces (*Gary S. Becker*, etc.). With the oil price crisis of the 1970s, their influence on economic policy started to increase and, in the 1980s, Chicago economics sometimes even superseded Keynesianism in representing the dominating economic policy paradigm, especially in the U.S. ("Reagonomics") and UK ("Thatcherism").

The competition economics division of the Chicago School developed within the substream of Chicago Law and Economics and was, contrary to the other branches, represented by economists and legal scholars (*Robert Bork*, *Harold Demsetz, Frank H. Easterbrook*, *Richard A. Epstein, Richard A. Posner, George J. Stigler*, etc.).[20] They share with the other branches the belief in the efficiency and well-functioning of free markets and the skepticism against regulation and intervention. Nonetheless, antitrust has always been considered to be one of the rare areas where some social regulation is necessary, but to a far less extent than proposed by the Harvard School, which is deemed to be interventionist and competition-restricting by keeping the innovative and creative market agents in leading-strings.

Chicago competition theory relies on two pillars that are not inevitably/evidently compatible with each other: neoclassical price theory and an evolutionary survivor principle. Price theory is seen as a tool for theoretical analysis with the homogenous polypoly as the yardstick and the monopoly as the opposite. However, Chicago antitrust economics do not focus on a specific market structure as an equivalent/guarantee for competition, contrarily, the SCP-paradigm of the Harvard School is explicitly rejected. Instead, the price-theoretic models serve as an approximation of the efficiency effects of competition. In the absence of political intervention,

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[19] However, although Keynesianism and the Harvard School share some similar basic beliefs and are widely complementary and compatible, there is no common origin of these two distinguished streams of economics.
[20] See the landmark contributions by *Stigler* (1968), *Posner* (1971, 1979), *Demsetz* (1976), *Bork* (1978), and *Easterbrook* (1984).

free markets will produce effects similar to the homogenous polypoly case, no matter whether the restrictive assumptions of the neoclassical model are fulfilled.[21] This implies two important features of Chicago competition economics: efficiency as the sole goal of antitrust (in opposition to the multigoal approach) and the compatibility of different market structures (and conducts) with efficient market competition. The first claim is derived directly from price theory. Efficiency gains are proposed if a change in market performance enhances welfare, whereby the maximum possible welfare is represented by the "perfect" competition case. The notion of welfare, however, is – analogously to the term efficiency – not so unambiguous, even in the strict world of neoclassical economics where welfare effects are reduced to quantifiable changes in consumers' surplus and producers' surplus (excluding both immaterial/non-monetary aspects of welfare and problems of wealth/income distribution among the households). Although it is often called 'consumers' welfare' (implying a concentration on the change of consumers' surplus), Chicago economics focus on a total welfare standard since, according to their competition theory, competition policy should maximize the sum of consumers' and producers' rents, i.e. that changes in welfare distributions between the group of consumers and the group of producers are not relevant in their analysis. Therefore, contrary to the Harvard School, 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 since increasing producers' surplus eventually will benefit private households as the producers' shareholders and, thereby, does not harm the consumers (private households) *per se*.

The dynamic/evolutionary perspective on market structures, which is in fact incompatible with a strict notion of neoclassical equilibrium economics, stems from the application of the evolutionary survivor-principle to competition economics (*Stigler* 1958). The forces of competition select the market structures that are most efficient under current circumstances; in a free market there is no possibility for inefficient structures to survive the competitive selection process in the long run (survival-of-the-fittest).[22] An observed change in market structure or conduct, consequently, represents a development towards superior/more efficient solutions as long as the changes take place on free markets. Contrary to the Harvard School, the Chicago School interprets changes in market structures (like concentration processes) not as an accumulation of market power but as an increase in efficiency (e.g. due to economies of scale or scope, network effects, etc.). Similarly, market behavior that the Harvard School classifies as an exploitation of market power is seen to be efficiency enhancing. On these basic theoretical grounds, the Chicago School of Antitrust Analysis has developed a multitude of specific theories demonstrating efficiency

[21] This refers to the „as if"-methodology by *Milton Friedman* (1953, pp. 19 ff.) that is generally common in Chicago economics. See also *Alchian* (1950).

[22] The Chicago School 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 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).

rationales behind mergers, vertical arrangements, predatory pricing strategies, barriers to entry, etc.

Consequently, Chicago competition policy concentrates on horizontal hardcore cartels and horizontal mergers with a very severe addition of market shares. Apart from that, competition policy should avoid intervention into competitive markets. Particularly vertical arrangements and integration, allegedly predatory strategies, and conglomerate effects are not on the agenda of a Chicago antitrust program. However, things look different, if markets are not free and if restrictive 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 practices that – without political protection – could occur only temporarily and would be eroded by market competition. Therefore, the most important feature of Chicago competition policy is the deregulation and liberalization of markets to allow the competitive forces to unfold. The ongoing wave of liberalization and deregulation of former socially organized industries (like energy, telecommunications, transportation, banking and insurance, etc.) may be the biggest merit of the increasing influence of Chicago economics since the 1980s.[23]

The theory of contestable markets developed since the early 1980s and specialized on the character of potential competition that plays a vital roles in Chicago competition economics by disciplining monopolists who are forced to behave as if they were in a competitive market since otherwise they have to fear market entrants that would erode the monopoly. *William J. Baumol* and others (*Baumol* 1982; *Baumol*/*Panzar*/*Willig* 1982) demonstrated that no competition problem results from monopolies as long as the markets remain contestable, i.e. that a "hit-and-run"-entry to reap the monopolists 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.[24] 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 very restrictive and rarely matched by real-world markets, the theory of contestable markets also demonstrates the limits of potential competition to heal the inefficiencies of monopolies or dominant market positions (*Audretsch*/*Baumol*/*Burke* 2001).

Another particular aspect of the Chicago approach is in the center of the Virginia School[25]. They extend the Chicago skepticism against regulation and intervention by doubting if antitrust policy is useful at all. The notion of market failure (hardcore cartels, persistent monopolies) as a reason

[23] However, there were a lot of other theoretical and political streams and programs that advocated in favor of liberalization during the 1960s in the U.S. Nevertheless, the surpassing political influence of the Chicago program, both in regards to ideas and concerning academics involved as government advisers, during the Reagan administration, might justify to credit them with the successes of deregulation.

[24] Therefore, no specific policy programs aside from the Chicago approach are usually attributed to this theory.

[25] See e.g. *Tollison* (1985), *McChesney*/*Shughart* (1995), and *McChesney* (1999).

for competition policy interventions becomes contrasted by the danger of government failure. Instead of a correction of market failures, competition policy interventions will enlarge the inefficiencies and, furthermore, sustainably damage the long-term self-healing forces of competitive markets. The Virginia School draws on the insights of new political economics and public choice theory and claims that every government intervention is subject to lobbyistic influence and serves special interests at the expense of general welfare. For instance, a merger can be prosecuted and eventually prohibited because the responsible politicians and bureaucrats serve the interests of its main competitors who want to sustain their supracompetitive profits.[26] However, well before the emergence of the Virginia School, the discriminating and discretionary (non-) enforcement of competition rules has been intensively discussed in trade theory, e.g. concerning the allowance of export cartels, the creation of 'national champions', or the acceptance of anticompetitive domestic mergers and arrangements to block foreign market entry or to prevent take-overs by foreign companies.

2.4 Strategic Behavior, Experimental Evidence, and Innovation Markets: Theoretical Industrial Economics and its Post-Chicago Developments

Theoretical industrial economics has experienced a very dynamic development in the last two decades. Starting in the middle of the 1990s, an increasing number of authors has referred to these – rather heterogeneous – developments under the label of Post-Chicago Economics.[27] The common general tendency of these approaches is an increasing differentiation of analysis, reducing the Chicago-optimism on the self-healing forces of market competition and, instead, demonstrating that considerable anticompetitive effects can occur on free markets and restrict competition for considerable periods, leading to significant losses of welfare. In doing so, Post-Chicago theory applies the Chicago-notions of (allocative) efficiency and welfare (as the sum of consumers' and producers' surplus). Nevertheless, it is difficult to speak of a Post-Chicago School or a (new/coherent) paradigm of competition policy since fundamental value assumptions, methods, and results differ largely. Moreover, although a majority of these analyses point to an underestimation of private anticompetitive practices in the Chicago program, some results also support specific results of the Chicago School. Methodologically, Post-Chicago Industrial Economics broadens price theory by introducing 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 attempting to be inclusive:[28]

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[26] Most proponents of the Virginia approach discuss predominantly distorting interests that cause interventions. Of course, lobbyism can also lead to the omission of intervention, for instance if the merging companies successfully lobby for approval to gain supracompetitive effects in the future or to crowd out a more efficient competitor, etc.

[27] See e.g. *Brodley* (1995), *Sullivan* (1995), and the chapters in *Cucinotta*/*Pardolesi*/*Van den Bergh* (2002).

[28] Overviews provide *Baker* (1999) and *Hovenkamp* (2002). Since it is virtually impossible to be comprehensive, the quotations in the following discussion should be understood as examples of landmark contributions. The following aspects are partly interrelated.

- ***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. the excess capacity strategy (*Dixit* 1980), limit pricing (*Milgrom*/*Roberts* 1982a)[29], strategic product differentiation (*Dixit*/*Stiglitz* 1977), and contract and network strategies (*Aghion*/*Bolton* 1987).

- ***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 efficient financial markets. First insights of game theory supported this view, above all the famous "chain store paradox" (*Selten* 1978), demonstrating that even credible threats to engage in deficient predation strategies among rational players are impossible. However, this becomes shaken by solutions to the chain store paradox, presented e.g. by *Milgrom*/*Roberts* (1982b), *Fudenberg*/*Tirole* (1986) or *Bolton*/*Scharfstein* (1990).[30] Moreover, most recent experimental/laboratory evidence shows that predation strategies (i) are observable and (ii) lead to negative efficiency consequences (*Elliott*/*Godby*/*Kruse* 2003).

- ***Vertical Arrangements and Integration***:[31] 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.[32] However, recent experimental analysis backs the real possibility of a predominance of anticompetitive effects over efficiency gains (*Martin*/*Normann*/*Snyder* 2001; *Elliott*/*Godby*/*Kruse* 2003).

- ***Raising Rivals' Costs and Tying Strategies***: one of the fundamental lines of argument in Post-Chicago competition economics that is also relevant for the analysis of vertical restraints, predation and entry deterrence is the concept of Raising Rivals' Costs (RRC).[33] 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 deal with refusals to deal, exclusive dealing, tying, denial of scale economics, involuntary

[29] Most recently, *Soytas*/*Becker* (2003) have demonstrated that entry deterring limit pricing strategies are evolutionarily stable, i.e. they can survive in dynamic markets.

[30] 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).

[31] See *Rey*/*Tirole* (1986), *Salinger* (1988), *Ordover*/*Saloner*/*Salop* (1990), *Riordan*/*Salop* (1995), *Riordan* (1998), and, with a special focus on essential facilities, *Langlois* (2001).

[32] 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.

[33] See *Salop*/*Scheffman* (1983, 1987) and *Krattenmaker*/*Salop* (1986).

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, demonstrate how the tying of complementary products can be used to monopolize and to preserve monopoly positions by fending off potential entrants, both leading to reduction of consumer and total welfare (*Choi*/*Stefanadis* 2001; *Carlton*/*Waldman* 2002) as well as doing harm to future innovation (*Fisher* 2001). Maybe, 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.

- ***Unilateral Effects and Oligopoly Theory***:[34] 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.[35] Modern oligopoly theory provides a more pessimistic picture of collusion and mergers in oligopolistic markets. On the one hand, the folk theorem demonstrates that repeated interaction facilitates and stabilizes collusion in oligopolies.[36] On the other hand, the theory of unilateral effects 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 allow 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.

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[34] See *Baker* (1999, pp. 188-191) and *Hovenkamp* (2002, pp. 19-21). Major theoretical insights that represent a precondition for the development of these theories are provided by *Deneckere*/*Davidson* (1985).

[35] Antitrust authorities have to prove that a concrete merger increases the probability of anticompetitive coordination on the respective market. Since collusive behavior is only one of a multitude of possible behavioral patterns in oligopolies, e.g. one alternative being fierce competition, Chicago economics have challenged the prohibition of mergers that 'only' increase some sort of an oligopolistic dominance.

[36] While the assessment of *Stigler* and others relies on one-shot game theory, the modern results are derived from dynamic game theory.

- ***Mergers and Market Dominance***: in this field, the results of Post-Chicago approaches are especially heterogeneous. A number of contributions support (at large) 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*/*Shapiro* (1990). Other recent theoretical reasoning hints to anticompetitive and consumer welfare-reducing effects of mergers (*Elliott*/*Godby*/*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).[37] Recent theory-based empirical evidence finds significant post-merger increases in profits and, at the same time, decreases in output, suggesting that a majority of mergers between large firms decreases efficiency and, instead, reaps gains from market power (*Gugler*/*Mueller*/*Yurtoglu*/*Zulehner* 2003).

- ***Innovation Markets***:[38] increasingly interest is also paid to the role of innovation in competition economics. This is a domain of market process theories of competition (see infra section 2.6) but industrial economics have also addressed this subject more closely since the 1990s. Although the results are quite heterogeneously, the general line of thought argues that the specific dynamics of innovation markets and new technologies (particularly in the "new economy") require a more cautious approach to antitrust interventions than in traditional industries. For instance, monopolistic positions can be eroded more quickly and more effective because new competition need not occur in terms of market entrants. Instead, new technologies creating new markets that make the monopolized one obsolete are far more likely to occur than in traditional industries.

Altogether, contemporary industrial economics show a very heterogeneous picture. Competition policy implications can be derived from a considerable number of concepts.[39] The claim that there is a broad consensus among industrial economists on fundamental issues of competition theory that can serve as a basis for a '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.[40] Altogether, the competition policy conclusions are far from providing a general framework/overall concept or a consistent paradigm. Maybe, 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 Chicago claim that

[37] Negative welfare effects of conglomerate mergers are derived by *Tan*/*Yuan* (2003).
[38] See *Jorde*/*Teece* (1990), *Gilbert*/*Sunshine* (1995) and, more critically, *Audretsch*/*Baumol*/*Burke* (2001). *Fisher* (2001) and *Langlois* (2001) identify severe antitrust issues especially in innovation markets.
[39] Additionally, there is a vast literature that does not allow to derive policy recommendations due to real-world incompatible model frameworks.
[40] See *Aiginger*/*Mueller*/*Weiss* (1998) and *Aiginger*/*McCabe*/*Mueller*/*Weiss* (2001).

industrial economics provide a unambiguous manual to the 'right' competition policy cannot be sustained – even if competition economics is reduced to theoretical industrial economics.

2.5 Liberal Markets, Market Power, and Competition Order: German Ordoliberalism

In Germany, the Freiburg School of Law and Economics[41] developed a competition theory that both highlights intervention-free markets and offends private market power. Its origins go back to the times of the Third Reich where a group of economists, legal scholars, and social scientists that once had been affiliated to the University of Freiburg worked for the re-implementation of a liberal society and economy.[42] Their background of experience were the creeping transformation of the free market economy of Germany into a predominantly centrally-planned economy during the previous decades. Initially, freedom of economic action in competition had been the dominating paradigm and that included the allowance of voluntary arrangements of any kinds 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 during the 1910s and 1920s and shifted the location of decision-making from the individual enterprise towards associations or syndicates that controlled and organized the often market-wide/industry-wide cartels in the name of its members. The insight that a free market economy can become incrementally transformed into a centrally-planned economy by allowing cartels to take-over and increasingly centralize economic decision-making (from individuals to markets to industries to the whole economy) is decisive for the notion of an *ordoliberalism* (*constitutional* liberalism), i.e. the necessity of an institutional framework protecting competition, as opposed to a *free-market liberalism* (like the laissez-faire-approach of the late 19th and early 20th century, but also like the Chicago approach or some streams of the Austrian School).[43] The original proponents of the Freiburg School like *Walter Eucken*, *Wilhelm Röpke*, *Franz Böhm*, *Alexander Rüstow*, etc., however, also strongly opposed the that-time fashionable consequence of favoring 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" (in the language of modern economics: the institutional framework of the economy).[44] Following the economic knowledge of their time they originally drew on neoclassical price theory but in a rather eclectic/heuristic manner. Under the influence of *Friedrich August von Hayek*, who succeeded *Walter Eucken* in the Freiburg faculty, Austrian Economics-styled market process theory entered ordoliberalism and replaced price theory.

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[41] For contemporary overviews see *Streit* (1992) and *Vanberg* (1998). The historical genesis is described by *Rieter*/*Schmolz* (1993).

[42] Some of them emigrated in the 1930s, others stayed in Freiburg – and in contact with the emigrants. Most of the work had to be done secretly.

[43] The fundamental differences between ordoliberalism or constitutional liberalism and free-market liberalism is thoroughly analyzed by *Vanberg* (1999).

[44] Most original work is only published in German, rare exceptions are *Röpke* (1948, 1960) and *Eucken* (1950). Some translated pieces can be found in *Ludwig-Erhard-Stiftung* (1982). However, *Eucken* (1952) is most comprehensive for ordoliberal competition policy.

However, the specific idiosyncrasy of ordoliberalism (instead of free-market liberalism) became even strengthened by the Hayekian input (although the (American) Austrian School itself drew very different conclusions, see section 2.6). *Hayek*s successors in Freiburg, especially *Manfred E. Streit* and *Viktor J. Vanberg*, together with many other German economists and legal scholars[45] have contributed to the body of ordoliberal theory that is sketched hereafter. 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 middle of the 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. And ordoliberal ideas have been second most influential (next to adaptations of workable competition concepts) in the formation of an European competition policy (*Hildebrand* 2002), although this influence seems to cease presently.

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.[46] Therefore, it is a political task

[45] Among many others: *Erich Hoppmann*, *Ernst-Joachim Mestmäcker*, and *Wernhard Möschel*. Also the faculty of the Department of Economics of the Philipps-University of Marburg represents a center of ordoliberal thought, starting with *K.P. Hensel*.

[46] Modern ordoliberal theory has adapted important insights of constitutional economics (*Buchanan* 1987, 1990) which is very compatible (although less policy-oriented) with ordoliberalism – although they do not share common origins. In constitutional economic terms, one can say that a contract to preserve competition is necessary on the constitutional level which limits contractual freedom on the individual level (exclusion of anticompetitive contracts) but in doing so, it enables a sustainable individual freedom to participate in competition (since this individual freedom cannot become restricted by others using their individual freedom to form cartels, etc.). The notion of the limits of freedom where the freedom of others is restricted was particularly important for the original ordoliberalists since the 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 at all (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). For understanding 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. – There is an interesting theoretical implication in the ordoliberal approach that economic theory currently is reinventing: restrictions

to design and implement an adequate competition order.[47] However, *Eucken* (1952) has a rather comprehensive understanding of competition order, referring not only to antitrust but 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"; nowadays also called 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 cartels, etc. are seen as an integral part of institutional policy.[48]

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. 327-336), an expansion of government activities into the economy weakens the ability of the state to withstand lobbyistic 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 interests groups what represents a "new feudal system" (*Eucken* 1952, p. 328). Contrary, a strong government restricts itself to the control of the institutional framework instead of interfering with market processes and – most importantly – 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 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).[49,50] Contrary to most other competition theories (like the Harvard School), ordoliberalism emphasizes the increasing danger of lobbyism that results from market power because this can lead to the long-term weakening of the ability of the state to protect competition and, thus, in the long run affect much more markets than "traditional" market power effects (that are restricted to the respective market and, maybe, a low number of related markets). Completely contrary to

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(institutions) can have an *enabling function* (*Budzinski* 2000), i.e. only if some modes of performance are excluded, the individuals are free to participate in the competitive economy.

[47] As *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 that framework, that rules of the game and that 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. 30-33, 124-129, 137-141).

[48] For a modern and comprehensive textbook on the ordoliberal approach to economics, including compatible streams of institutional and constitutional economics, see *Kasper*/*Streit* (2001),

[49] The translation follows *Streit* (1992, p. 691). See for a similar line of thought *Röpke* (1960, pp. 141-150).

[50] 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.

the Chicago School, political market barriers and other anticompetitive privileges are seen as a *consequence* of private market power (via lobbyism) instead of a *precondition*.[51]

The ordoliberal competition order is based on six *constitutional principles* and four *regulatory principles*, which are interdependent.[52] All the principles are seen to be essential to sustain market competition. 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 that 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 have to be acknowledged. These regulatory principles address (i) monopolies, (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[53].

Concerning the first regulatory principle that represents competition policy in a narrower sense, the ordoliberal approach is very hostile towards monopolies because they abolish competition and bring about power to lobbyism. Therefore, monopolies should be frustrated and, if they occur, disintegrated. The same is true for cartels, with exception of arrangements that demonstrably promote competition (e.g. by increasing the alternatives for consumers). Mergers are to be attacked if they lead to a dominating market position and enterprises that achieve a dominant position (for other reasons) and are not factually contestable are to be broken up. If a monopoly or a dominant enterprise cannot be prevented or disintegrated, an abuse control shall secure that it does not use its position to frustrate competition. The general goal of antitrust is that ordoliberal competition policy should protect individuals from restraints of their freedom to compete.

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[51] The most important implication is a reversed priority of competition policy. While the Chicago School concentrates on public/political restraints of competition (as a precondition for stable and 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 public/political restraints of competition.

[52] Originally verbalized by *Eucken* (1952, pp. 254-304), intended as a compendium of contemporary ordoliberal thought. The following brief overview reflects today's perspective on these principles; see e.g. *Broyer* (2001).

[53] 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 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.

Ordoliberal theory distinguishes between *performance competition* ("Leistungswettbewerb") and *handicap competition* ("Behinderungswettbewerb").[54] While both kinds of competition are about being relatively better than the competitors, performance competition 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" the 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. These behavioral competition policy is central to ordoliberalism and should be executed by 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/domination[55] – is not promoted by modern ordoliberalism since neither performance nor handicap competition depend 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 favored (*Schmidt* 2001).

2.6 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 everything that characterizes real-world competition[56], *Hayek* attacks the gap between the neoclassical and the semantic meaning of competition (see above section 2.1). His theory of "competition as a discovery procedure" (*Hayek* 1968) both goes back to the classical roots of competition theory and extends them in an evolutionary manner. *Hayek* sees competition as an inherently dynamic (better: evolutionary) process of rivalry. During this process, knowledge[57] is

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[54] See *Eucken* (1952, pp. 247 ff.)

[55] A minimum of structural competition policy – frustrating incontestable monopolies – is inherent to almost every competition policy paradigm, maybe except of the (hardcore proponents of the) Virginia School who wants to abolish antitrust altogether.

[56] "[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 (like Cournot- and Bertrand-'competition' in oligopoly price theory). Especially therefore, his critique is still very topical since modern industrial economics predominantly builds upon Cournot- and Bertrand-oligopolies.

[57] 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 otherwise than by the decentralized process of competition. The reason is that knowledge is dispersed and subjective in character 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

generated about the needs, options, and potentialities of the other market side and about competitors. This knowledge cannot be obtained otherwise, 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 complete wastage of resources if the result was or could be known in advance. According to Austrian Economics, the notion of equilibrium is misleading since neither such an equilibrium will be achieved in competitive markets nor the nature and features of such an equilibrium can 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 believing market data to being anonymously given), innovation is endogenously promoted.

Due to the paramount meaning of the knowledge problem, *Hayek* was very skeptical concerning economic policy and interventions into the market process. He calls such endeavors a "pretence of knowledge" (*Hayek* 1975). 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 antitrust policy, too, represents a pretence of knowledge and, generally, a disturbance of the competitive market process.[58] Since antitrust politicians cannot sufficiently know about the competitive effects of any arrangement or behavior in a free market, especially in a dynamic perspective, there is simply no basis for intervention. Cartels, mergers, and other (allegedly anticompetitive) arrangements are – as long as they are voluntary arrangements between the participants – adjustments to the forces of competition in the light of decentralized and dispersed knowledge that central regulators simply do not dispose of. Through time, the market itself will discover whether these arrangements benefit the needs of the market participants or not. Consequently, the rejection of any structural competition policy is common sense within the Austrian School. 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 disbeliefs of the Austrians. Furthermore, private litigation is often preferred to public enforcement of antitrust.[59]

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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.

[58] See especially *Rothbard* (1970) and *Armentano* (1986) but also only a little more moderate *Kirzner* (1997).

[59] *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.

Based upon the theory of economic development of *Joseph A. Schumpeter* (1934), a different market process competition theory has been developed. Its contributions and contributors cover several decades (beginning in the 1950s) and countries.[60] Similar to Austrian market process theory, competition is seen as a dynamic/evolutionary process. The theoretical reasoning, however, is somewhat different:[61] 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 (if the innovations were successful) 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 (according to neoclassical theory "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 counterinnovation but, more often, in the short-run, imitative actions dominate since arbitrage entrepreneurs (as equilibrating forces) will try to compete the higher profits of the creative by supplying very similar ideas, products, techniques, etc. 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 keep being creative and innovate again. Thus, competition serves as the major driving-force of economic progress, development and growth. The interplay of innovation competition (by creative entrepreneurs) and adjustment competition (arbitrage entrepreneurs) maintains the competitive pressure on both type of 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. Similar to the theory of contestable markets, the proponents of this competition policy program argue that 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 distinguished: efficiency monopolies and power monopolies.[62] While the first represent no harm to dynamic

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[60] 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).

[61] Although *Hayek*'s (1968) concept of 'competition as a discovery procedure' influenced many of the authors belonging to this approach.

[62] 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.

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 that 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" that 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 within the Chicago School. Efficiency in neoclassical price theory originally was static allocative efficiency and this is what most neoclassical models are all about – implicitly or explicitly. 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 allocative and innovative efficiency and economies of scale improve both types of efficiency. But there also can be significant trade-offs, e.g. if growing company seize or increasing (supracompetitive) profits reduce allocative efficiency but improve dynamic efficiency (because major innovation become financially feasible).[63] Another example is provided by network industries: monopolies may be allocatively efficient but, at the time, they may be dynamically inefficient because they lose the incentives to innovate. Therefore, there is a case for some minimum regulation of essential facilities in this theory. The following concept of evolutionary competition adds another efficiency concept that overcomes the stationary character of allocative efficiency and some interpretations of innovative efficiency (innovation-market analysis): adaptive efficiency. It is not the purpose of this paper to evaluate the different concepts of efficiency concerning their theoretical content, applicability, etc., but the mere existence of such different concepts of one of the core concepts of competition policy demonstrates the fundamentality of theory pluralism in competition economics.

The theory of competition as a genuine evolutionary process integrates many of the elements of Austrian and Schumpeterian market process theory.[64] Additional ingredients are modern/alternative concepts of rationality, drawing from a cognitive-theoretic foundation of

[63] 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.

[64] See e.g. *Röpke* (1977), *Vanberg*/*Kerber* (1994), *Kerber* (1997), *Wegner* (1997), *Metcalfe* (1998), *Budzinski* (2000, pp. 165-174, 2003a), and *Kerber*/*Saam* (2001).

human (economic) behavior.[65] 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* 2003a, 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, may they be 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 unambiguously 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"[66]. Since there can be no market without an institutional framework and the knowledge problem prevents the identification of "the" optimal one, there inevitably remains

[65] See e.g. *Vanberg* (1994, 2003), *Kahneman*/*Tversky* (2000), *Kahneman* (2003), *Budzinski* (2003a), *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.

[66] 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 become a 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.[67]

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 (may they be 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[68] (*Kerber* 1997; *Kerber*/*Saam* 2001). Obviously, there can be conflicts between allocative, business, or dynamic efficiency and adaptive efficiency: an allowance of a monopoly (or something very close to it) 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, maybe 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 is largely neglected in other competition theories.[69]

[67] It cannot be discussed in this paper whether institutional competition may represent a solution to this problem. See, instead, *Kerber*/*Budzinski* (2003) for a competition policy focused analysis.

[68] If there is any mutual learning due to experimentation in monocultures at all, it can be only sequential.

[69] From a more practical perspective, *Leary* (2001) emphasizes the importance that a variety of suppliers and products as a genuine factor (i.e. irrespective of price and output quantity effects) for consumers' welfare.

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

The previous chapter clarifies the current status of economic competition theory, identifying a considerable diversity of theories and related policy paradigms with significant incompatibilities among them – both in terms of theory and policy implications. This includes a number of core concepts of competition economics like the *meaning of efficiency*, the *nature of competition* and the *goal of antitrust* policy which are all far from unambiguous and clear-cut. But what is the assessment of this review of competition economics?

3.1. Incapacity of Competition Economics?

One could argue that it simply represents overwhelming evidence for the *incapacity of competition economics*, pointing to the necessity of new and more research efforts.[70] One consequence for competition policy could be to totally abandon antitrust intervention to avoid political distortions that 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.[71] Unfortunately, this scenario is not available in the real world.

3.2. Selection of Superior Theories

A more sophisticated and less destructive perspective treats theory pluralism as a *temporary imperfection* on the avenue towards the ultimate/right competition theory. According to this view, the present pluralism of competition policy paradigms will be overcome by a scientific selection process that rules out inferior theories in favor of the most superior one. The underlying idea is a concept of continuous improvement of scientific knowledge that implies that new theories are generally better (i.e. representing improved knowledge) than older ones. This notion is very common within the discipline although the mechanisms that 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 other believe that theoretical rigor (drawing on the paragon of ideal sciences like mathematics) to be

[70] This seems to be the complaint by *Desai* (2003/2004).

[71] 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.

the best selection mechanism. While the last would expect theoretical convergence to appear through intrascientific quality control (e.g. refereed journals), the first 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[72], 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. Also the best practice approach of the International Competition Network (ICN) belongs to this train of thought (*Budzinski* 2003b; *Todino* 2003): 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 around 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.

3.3. A Sustainable Role for Theory Pluralism

However, drawing on contributions to the metatheory of science, another way of dealing with theory pluralism emerges. 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/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.[73] *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

[72] See the literature quoted in *Kerber*/*Budzinski* (2003).

[73] 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, a 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.

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, 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) pours even more water into the wine of continuous improvement of scientific insights. Not only is scientific knowledge always and inevitably fallible, beyond it, the process of the selection of ideas itself 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).[74]

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), a paradigm is able to become dominating 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. But 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 refuting 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 that well fit into its explanatory framework exploited and neglected problems (that do not fit well into the paradigm) grow in 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 but this can take a significant time in which theories dominate which may be obsolete and which cannot claim to have become selected because of their superiority. During this time, scientific knowledge is shaped by the common world view of the paradigm and its associated value judgments that allow only for theories that are coherent with the dominating paradigm to contribute to scientific progress. After all, this demonstrates that not

[74] On the relation of subjective world-view molded theory building and rational action see *Budzinski* (2003a).

only there will never be an ultimate theory but the dominating paradigm at a time need not consist of the most superior theories.

Drawing on the insights of the metatheory of science[75], 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.[76] Therefore, sustainable pluralism of competition theories is an imperative for science and no temporary problem on the way 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).

[75] Further supporting evidence can be drawn from the theories of knowledge which point to fundamental cognitive limits and inescapable subjective distortions of human knowledge acquirement and processing. See the literature quoted in *Budzinski* (2003a).

[76] 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.

4. Theory Pluralism and Regulatory Diversity – A New Argument in Favor of Federalism and Decentralism

4.1. Openness for Innovation and Evolution

Since pluralism in competition theories and policy paradigms is neither a shortcoming of science nor a temporary selection problem, its implications for the design of competition regulation cannot be neglected. The main consequences include the importance for any system/regime of competition policy to remain capable to evolve and open for innovation. This is to be considered concerning two dimensions:

(i) *Theory Innovation*: Scientific progress will produce new competition theories and policy paradigms as well as new evaluations of existing ones. There will be no point in time where we can assume to have full and ultimate knowledge on competition and best practices/best rules etc. can only and always be nothing more than temporary assessments (currently most appropriate practices/rules) that are permanently challenged by new insights. Therefore, the system must remain open to theory innovation (and derived policy innovations).

(ii) *Anticompetitive Practices Innovation*: The environment in which competition policy takes place will keep evolving and this is a never-ending, endogenously driven process. The human agents that interact on markets are creative and innovative. This includes the creation of new/innovative anticompetitive modes of behavior. Since future types of anticompetitive behavior/arrangements cannot be completely anticipated by competition authorities and law makers, the system needs capacity to be responsive, i.e. to react to new challenges imposed by innovative business behavior to restrict competition.

The demands for *openness, evolutionary capacity* and *error tolerance* of competition policy systems that are derived here are particularly important for the international scale. A closed (monocultural/monotheoretical and stationary) competition policy system on a national level can be compensated by the parallel effective existence of other national competition policy regimes that are based on other theories or, at least, offer channels for alternative knowledge to influence antitrust policy. However, this clearly counts more for small countries than for large ones (like the U.S.) or even confederations of states (like the EU).[77] On an international or even worldwide scale, the renunciation of evolutionary capacity, openness to innovation and, thereby, error tolerance would pose the most serious problems in a dynamic perspective. Therefore, the call for a minimum of regulatory diversity that derives from the pluralism of competition theory

[77] Thus, the perspective of this paper provides arguments in favor of state antitrust enforcement in the U.S. and of decentralization in the EU competition policy system.

and policy paradigms as a sustainable imperative of competition economics is particularly important in the ongoing discussion on the design of an international competition policy regime.[78]

Openness of a competition policy regime manifests itself in the existence of multiple channels/paths through which theory, institutional and policy innovation can be injected into the system and subsequently diffuse/spread out within it. There is quite a number of elements that can provide/sustain diversity within the regime/system and, thus, grant dynamic error tolerance and increase/preserve the evolutionary capacity of the system.

4.2. Institutional Diversity

The most obvious possibility to allow for different competition theories to influence parts of the (complex) competition policy system is to decentralize rule-making competencies. This describes the current state of the international competition policy 'system'[79] where numerous countries each have their own competency to design and implement their own competition rules and pursuit their own competition policies. Next to such a horizontal institutional diversity there can be a vertical institutional diversity whereby a federalist structure of the jurisdiction is a precondition. For example, in the U.S. antitrust system, the federal level has capacious rule-making competencies but the states also have limited competencies to design their own competition rules – although, however, most states have copied the federal antitrust laws. Another example is provided by the EU where the member states have generally much more sovereignty concerning rule-making since the EU actually is a confederation of sovereign countries. Therefore, the member states have the competency to design their own competition rules that can deviate from the EU level. Originally, this competency was used substantially but, in recent years, a lot of countries have reformed their competition rules to adjust them to the EU rules.[80] In the current modernization process of the EU competition policy system, the European Commission attempts to centralize the rule-making competency by trying to make the national competition agency apply the EU rules instead of their own, thus trying to marginalize the meaning of national competition laws.

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[78] For the state of the discussion see *Budzinski* (2002, 2003b), *First* (2003) and *Fox* (2003).

[79] One can doubt, however, whether this fulfills the requirements of a system, i.e. having closer interconnections between the elements of the system than between the elements and the environment of the system.

[80] However, in the last novel of the German "Law against Restrictions of Competition" (Gesetz gegen Wettbewerbsbeschränkungen, GWB), the German legislator refused to adapt the European system of a general cartel prohibition with the definition of specific conditions for exemptions (e.g. consumer surplus or impossibility of procompetitive solutions) and, instead, stuck to the German system of a general cartel prohibition supplemented by a listing of specific types of cartel exemptions (e.g. specific kinds of standardization cartels or small business cartels). In the area of vertical arrangements, the sixth novel even increased the gap and with the new exempting central marketing of sports from antitrust (e.g. the German football league), it even introduced a new field of rule-conflict with the EU level.

4.3. Enforcement Diversity I: Horizontal and Vertical Issues

Even if the competition rules are harmonized, new ideas can be injected and flexibility to new developments in market competition can be sustained if at least the enforcement of the uniform competition rules is decentralized.[81] The application of different competition theories need not necessarily be manifested in differing competition laws. Most of the legal terms like "substantial lessening of competition" (SLC) or "creation or enhancement of a dominant market position" (DMP) do not prescribe the economic theoretical background that is used in actual competition policy. If, for instance, a specific theory of leveraging is applied or rejected to evaluate the GE/Honeywell merger does not depend on whether SLC or DMP is the prohibition criterion of merger control. I think it is not unfair to claim that the U.S. antitrust authorities would not have challenged the merger even if they had applied EU competition law and, reading the very elaborated judgment of the Commission on GE/Honeywell, it is very clear that they consider this merger to substantially lessen future competition on the respective markets.

In fact, enforcement diversity is an important source of competition policy diversity in the U.S. antitrust system (which is exactly the reason why it is currently challenged by a number of authors). The U.S. antitrust system consists both of horizontal enforcement diversity, namely the concurrent competencies of the Federal Trade Commission (FTC), the DoJ Antitrust Division and several sector-specific regulatory agencies with antitrust competencies (e.g. the Federal Communication Commission, the Federal Energy Regulatory Commission, etc), and vertical antitrust diversity, namely the state attorneys general competencies to pursuit any antitrust case that effects their state. Recently, the Microsoft case and the tobacco cases have been fueled by state antitrust enforcement and, in doing so, injected different economic competition theories into the prosecution process. In the EU, there is almost no horizontal enforcement diversity[82] with the European Commission having a monopoly but vertically there is considerable diversity through the enforcement rights of the national competition agencies. Contrary to the rule-making competencies, the EU attempts to further decentralize enforcement competencies in the current modernization process, for instance, by handing over more cases to national agencies that fulfill the criteria for applying EU laws[83] (provided that the national agencies apply EU law instead of their national laws).

4.4. Enforcement Diversity II: Enforcement Systems and Agency Types

Different enforcement systems can also provide a different spectrum of channels for diversity within a competition policy regime. The *court system* offers opportunities to inject theories to a

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[81] This is also supported by the models of *Head*/*Ries* (1997) and *Neven*/*Röller* (2000) that demonstrate with modern industrial economics techniques that centralized rules and decentralized enforcement still lead to incoherent merger control decisions in different countries.

[82] The ‚almost' refers to the general exemption of agriculture from the enforcement of EU competition rules. Furthermore, there is a discussion about creating sector-specific regulatory agencies (e.g. concerning energy markets) on the European level which could also split some enforcement competencies in the future.

[83] 'Community dimension' defined by turnover thresholds in merger control and 'interstate trade clause' in cartel policy.

variety of groups of agents. Next to the government attorneys who file the law suit, the defenders can bring other theories to the judge to legitimate their actions, joint plaintiffs might inject additional theories, and the judge himself can appoint independent experts. Some authors (e.g. *Kovacic* 1992) believe that the court system offers the major channels for new antitrust theories (next to state enforcement) and, therefore, keeps the U.S. antitrust system open for theory innovation (e.g. concerning the turnaround in reasoning from Harvard School to Chicago School in the late 1970s and the 1980s). In the EU, the courts play a different role since they 'only' come into action if an enterprise sues the Commission because of its decision. However, the recent repeals of merger prohibitions by the European Court of First Instance shows that the role of the courts cannot be neglected.

In general, the EU competition policy system is predominantly characterized by the *administration system*. Competition agencies analyze possible violations of competition rules and are empowered to impose fines and define sanctions on the violators without consulting a court. Of course, the punished enterprises/agents have the right to sue for repeal. Irrespective of possible advantages in other respects, the administration system offers less channels for the injection of competition theories since it falls under the discretion of the competition agency which competition theory and policy paradigm it applies and the prosecuted enterprises will most probably not have the chance to equitably present deviating theoretical evidence. Moreover, the role of the courts can be limited if they have to decide on the objection of the prosecuted enterprises on the grounds of the theories applied by the agency.[84] On the other hand, constitutional constraints can limit the theory monopoly of the competition agency, e.g. by implementing a commission of scientific experts that periodically review the theory competence of the agency or by creating an (government-) independent competition agency that has less incentives to monopolize on competition theories. And, of course, enforcement diversity by horizontal and vertical variety (see above b) can provide an additional openness of the system.

Eventually, the *system of private litigation* offers possibilities to open up a channel for diversity of theories. The enforcement of competition rules by private agents, most often either vertically related (consumers, reseller, component suppliers, etc.) or competitors of the prosecuted enterprise, includes very heterogeneous groups of agents that probably will rely on a variety of competition theories and policy approaches. Private litigation has an important meaning in the U.S. antitrust system. In the EU, private litigation does not play a significant role in cartel or merger policy enforcement until now but it has some regional importance in the enforcement of rules against unfair competition (e.g. delusive and untrue advertising, defamatory actions against competitors, incorrect price marking, etc.).

[84] Thus, they can only come to the conclusion that the agency did not applied its theories correctly or did not considered all the relevant facts but it can not rule out theories applied by the agency or inject new ones into the proceeding.

4.5. Limits of Decentralization

The fundamental and sustainable pluralism of competition theories and policy paradigms is a strong argument in favor of regulatory diversity and decentralism of competencies. This points to the benefits of decentralized competition policy regimes that are characterized by a high degree of openness to new ideas and a high degree of responsiveness to environmental change. Altogether, competition policy systems need evolutionary capacity to be sustainably able to cope with future challenges and to provide error tolerance, i.e. the avoidance of lock-ins to inferior paths of competition policy. However, the implications of theory pluralism on the centralization and decentralization of regulation are analyzed isolated in this paper. They provide a strong argument for decentralization but other arguments and their implications have to balanced with this effects if recommendations for the actual design of an international competition policy regime shall be made. Those other aspects include (non-inclusively) regulatory coherence, transaction costs, externalities and spill-overs, principal-agent-relations, and many more.[85] It is the contribution of this paper to emphasize the implication of theory pluralism in competition economics, providing an additional argument pro-diversity and pro-decentralism and, thereby, promoting federalism in antitrust.

[85] See *Kerber* (2003) for an elaborated analysis of those factors.

5. Conclusion

In the upcoming discussion about the design of the international competition policy system questions of centralization and decentralization of competences and institutions play an important role. The same is true for the reform debates in regard to the U.S. antitrust system (questioning the value of state antitrust enforcement) and in regard to the EU competition policy system (aiming to decentralize enforcement competencies while centralizing rule-making competencies). In the literature, a lot of arguments pro and contra centralization and decentralization are discussed (see section 4.5.). This paper presents an additional and widely neglected argument in favor of decentralization: the factual existence and beneficial effects of theory diversity. However, this represents 'only' one out of many arguments that are important to scrutinize the degree of centralization and decentralization of complex institutional arrangements and, therefore, this paper cannot draw general conclusion about the necessary balance between centralizing and decentralizing forces

While the general line of argument can be applied to almost all fields of (supranational) regulation, this paper deals only with competition policy. On the one hand and probably more than other fields, competition policy has always been influenced by economic theory. And, on the other hand, competition economics as a discipline has been molded by competing schools of thought. Finally and contrary to most other disciplines, a winner has been proclaimed – at least in the U.S.: the Chicago School of Antitrust Analysis. However, as this paper shows, the domination of a theory or policy paradigm does not imply its superiority because the scientific process cannot be a perfect selection mechanism. Therefore, theory pluralism remains an imperative of efficient science. Instead, a scientific monoculture can be viewed as a sign for deficiencies. Moreover, the empirical picture of competition economics reveals considerable and prevailing pluralism of theories and policy agendas. Different opinions about core concepts of competition economics are identifiable both in different competition theories and in the minds of competition economists. This hampers hopes that competition economics would provide an unambiguous, quantitative standard to decide antitrust cases. Instead, the real-world of antitrust remains complex. The main lesson for the design of competition policy systems is that they require some degree of openness and decentralization to reflect the diversity of theories and to be able to cope with future challenges. Both the evolution of business behavior (including anticompetitive practices) and theory development can best be addressed if diversity has an explicit and sustainable role within the competition policy system. Thus, theory pluralism represents an argument in favor of decentralization and diversity and promotes efforts (i) to develop an international competition policy system without marginalizing the national laws and authorities, (ii) to preserve an independent role for state antitrust enforcement in the U.S. antitrust system, and (iii) to prevent further centralization of competition policy competencies in the EU.

Next to the general attitude towards regulatory monoculture or diversity, the design of a competition policy system offers a variety of points of departure for the inclusion of diversity and

openness. Institutional diversity can be complemented or substituted by enforcement diversity since the interpretation of competition rules is often more important for the use of economic theory than the rules itself. Furthermore, the choice of the enforcement system (court system, administration system, private litigation; degree of independence of competition authorities) offers opportunities to integrate openness and evolutionary capabilities into the system.

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