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1. Introduction

According to Giocoli (2012), “modern economic literature, especially the game-theoretic, so-called Post-Chicago approach to industrial economics, has showed that several Chicago claims, in both [antitrust] theory and policy, are at best only partially correct and, sometimes, utterly wrong. [...] Yet, surprisingly enough, Chicago-style ALE [Antitrust Law and Economics] still dominates case law. Like an old lady whose allure defies age and physical decay, Chicago’s charm looks almost intact among US antitrust enforcers” (Giocoli 2012, p. 1). Conversely, “Post-Chicago analysis has been able to win the day in classrooms, but not in courtrooms” (*idem*, p. 2).

The situation described by Giocoli entails a fascinating exegetical puzzle. Mystery grows as *i*) US antitrust has been deeply influenced by economic theorizing since its very beginnings (Hovenkamp 1988) and *ii*) legal scholars are not unaware of the critical attitude of contemporary Industrial Organization theorists towards Chicago-style economics: see *e.g.* Baker (1989) and Hovenkamp (2001).

The author discusses at length no less than seven plausible explanations to the puzzle of Chicago persistent appeal within contemporary US antitrust. Such explanations may be summarized as follows.

- 1) Denial of the question. The dominant approach in US antitrust is definitely not ‘pure Chicago’: the intellectual DNA of modern US antitrust is a double, ‘Chicago & Harvard’, helix (Kovacic 2007).
- 2) *Laissez-faire* ideology. Chicago school propositions are economic and legal analysis serving a well-defined vision of the ‘world out there’, *i.e.* markets automatically tend to promote efficiency, a vision which, since the 1980s, has displaced alternative points of view, at least in the US.

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The paper has grown out of a discussion of a paper by Nicola Giocoli, ‘Old Lady charm: explaining the persistent appeal of Chicago antitrust’, presented at the IX Storep Conference “Federalism and Integration. The economic thought facing local dimensions and global challenges”, June 1-3, 2012, Padua – Italy. I wish to thank Nicola Giocoli for his stimulating comments. Usual caveats apply.

- 3) Adoption of a specific notion of market competition. Chicago analyses are based on a static notion of competition as an equilibrium end-state, a notion intimately connected with Pareto-optimality properties.
- 4) Emphasis on long-run equilibria with easy entry. Granted capital and labor intersectoral mobility, market competition is able to remedy, in the long-run, any significant antitrust violation.
- 5) Rules' administrability and court's limited economic competence. Unlike its competitors, Chicago approach provides easy-to-grasp rules –judges' and juries' *curricula* usually do not include a PhD in economics!– and easy-to-implement rules.
- 6) Lack of judicial expertise of Post-Chicagoans. Practitioners of post-Chicago game-theoretic approach are not able to produce “relevant and reliable” testimonies to be heard in a US court (*Daubert* rule).
- 7) Epistemological fragility of Post-Chicago game-theoretic models. Post-Chicago game-theoretic approach has, up to now, produced a remarkable and still growing collection of formal models whose distinctive feature is their epistemological fragility. Instead of saying what *must* happen in equilibrium under fairly general assumptions, these models are only able at describing what *may* happen in equilibrium, given highly restrictive and hard to generalize assumptions.

Giocoli's acute rational reconstruction of current US antitrust debate shows that there really is no shortage of plausible explanations to the Chicago persistent appeal puzzle and that each explanation, taken in isolation, is, at best, only partial. As Oscar Wilde would put it, the truth is rarely pure and never simple. Yet, the author seems not to consider all the various explanations he proposes on exactly the same footing. My guess is that, in his view, the most fruitful way to solve the puzzle is to tread along the path traced out by the combined provisions of the last three explanations: see also Giocoli (2010) as concerns predatory pricing.

Before a brief Conclusion, the following two Sections propose a somewhat complementary view: apart from the predatory pricing issue, explanations 3) and 4) –the static notion of competition as an equilibrium end-state and the emphasis on long-period equilibria with easy entry– and their theoretical link lie at the heart of the puzzle solution. In my view, the persistent appeal of Chicago antitrust owes much to the enduring grip of the equilibrium end-state notion of competition within top US Economics Departments and to the (alleged) resilience of market competition, absent entry/exit barriers, in the face of *Type II Errors* committed by antitrust Agencies.

2. Competition as an equilibrium end-state and the (static) efficiency dogma.

Reder (1982) provides the following synthesis of the main working assumptions underlying Chicago economics:

In essence the Chicago View, or what I term “Tight Prior Equilibrium” theory (TP), is rooted in the hypothesis that decision makers so allocate the resources under their control that there is no alternative allocation such that any one decision maker could have his expected utility increased without a reduction occurring in the expected utility of at least one other decision maker. [...] The further assumptions may be summarized as follows: (1) most individual transactors treat the prices of all goods and services that they buy or sell, as independent of the quantities that they transact; (2) the prices at which individuals currently agree to transact are market clearing prices that are consistent with optimization by all decision makers; (3) information bearing on prices and qualities of all things bought and sold, present and future, is acquired in the quantity that makes its marginal cost equal to its price; i.e., information is treated like any other commodity; (4) neither monopoly nor governmental action (through taxation or otherwise) affects relative prices or quantities sufficiently to prevent either marginal products or compensation of identical resources from being approximately equal in all uses. (Reder 1982, p. 11)

The five assumptions on which Reder’s Tight Prior Equilibrium theory is built are, by and large, the same assumptions underlying any text-book model of perfect competition. Such a model incorporates a static notion of competition as an equilibrium end-state *i*) which is dramatically different from other notions of competition that have been elaborated in the economic literature (say, the Classical notion of competition as rivalry in a race or the Neo-Austrian notion of competition as a discovery procedure or the Marxian notion of competition as class struggle *etc.*: see Salvadori and Signorino 2011) and *ii*) which raised to dominance within modern economics since the formalist revolution of the 1950s and thanks to the huge amount of intellectual resources invested in the general economic equilibrium research program (Blaug 1997 and 2003, Ingraio and Israel 1990, Machovec 1995).

Chicago adoption of the static notion of competition as an equilibrium end-state calls the Marshallian roots of Chicago economics into question. As noted by Emmett (2010):

In terms of economic theory, Chicago economics in the post-war period was built on a firm foundation of Marshallian price theory. [...] With its clear focus on economics as an applied policy science, Marshallian price theory provided a small set of tools for use in a wide variety of policy areas to examine the outcomes of specific types of intervention. (Emmett 2010, p. 2)

Similarly, a distinguished Chicago legal scholar, Richard Posner, writes:

it is unlikely that [the members of the Chicago school] regarded even price fixing, let alone oligopoly, as a serious problem. In the classical economic tradition running from Smith to Marshall, the tradition in which the Chicago school operates, a clear recognition of the propensity of sellers to attempt collusion was conjoined with a general indifference

to, and sometimes an explicit rejection of, the desirability of imposing legal sanctions on collusion. This complacency ... rested on the belief that cartels were, first, highly unstable because of the propensity of members to cheat (so long as the cartel was not legally enforceable), and, second, in the long run futile in the absence of substantial barriers to entry. (Posner 1979, p. 932)

(On the role of entry barriers in Chicago antitrust analysis more *infra* in Section 3.) In my view, the self-asserted Classical and Marshallian pedigree of Chicago economics derives from a rational reconstruction of the historical development of competition theory which is questionable, to say the least. According to such a reconstruction, the Neoclassical theory of perfect competition and its Pareto-optimality properties logically derive from the Classical (and Marshallian) notion of free competition and Adam Smith's Invisible Hand metaphor: the latter are but a primitive and formally unstructured versions of the former.² Such a reconstruction has long and deeply influenced many leading mainstream economists: see *e.g.* Chapter 1, 'Historical Introduction', of Arrow and Hahn (1971) and Samuelson (1978). Even Lord Kaldor once claimed that "one can trace a more or less continuous development of price theory from the subsequent chapters of Smith [the fourth Chapter of *The Wealth of Nations*] through Ricardo, Walras, Marshall, right up to Debreu and the most sophisticated of present-day Americans" (Kaldor 1972, p. 1241).³

It should be stressed that the static notion of competition as an equilibrium end-state finds its philosophical *raison d'être* within a scientific research program which has been largely dominant within microeconomics, at least up to the blossoming of non-cooperative game theory in the 1980s: I refer to the Neoclassical Program of Situational Determinism (Latsis 1972). The various equilibrium outcomes described by the economic models elaborated within such a program (perfect competition, pure monopoly, monopolistic competition and classical oligopoly models) are but variants of what Latsis calls "single-exit or straightjacket situations", that is "situations where the obvious course of action (for a wide range of conceptions of rational behaviour) is determined *uniquely* by objective conditions (cost, demand, technology, numbers, etc.)" (*idem*, p. 211, emphasis added). The Neoclassical Program of Situational Determinism is surely appealing for economically-minded legal scholars: while open-ended economic situations allow, as an unintended by-product, ample scope to discretionary, poorly-predictable, choices by antitrust Agencies, single-

² As to the Classical origins of the Marshallian notion of competition Stigler (1957) writes: "Marshall as usual refused to float on the tide of theory, and his treatment of competition was much closer to Adam Smith's than to that of his contemporaries. Indeed, Marshall's exposition was almost as informal and unsystematic as Smith's in this area." (Stigler 1957, p. 9)

³ More recently, writing from a moral philosophy perspective, Evensky (2005) has argued for the existence of two different men both called Adam Smith: a "Chicago Smith" and a "Kirkaldy Smith". See also Medema (2010).

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exit economic situations lead to highly predictable judicial outcomes and thus turn out to be consonant with a basic principle of legal theory: legal certainty and the rule of law **[Insert quotation on legal certainty]**.

As is well-known, a one-to-one correspondence is established between competitive equilibrium and Pareto-optimality, once the existence of (at least) one vector of (Walrasian) market-clearing prices and equilibrium quantities is formally demonstrated and once the validity of the two Fundamental Theorems of Welfare Economics is accepted. Obviously, to win the day in courtrooms that much is not enough: two more steps are needed. First, judges and juries must be persuaded to reject any antitrust analysis which does not strictly derive from a tight application of orthodox price theory:

in the 1950's and early 1960's, industrial organization, the field of economics that studies monopoly questions, tended to be untheoretical, descriptive, "institutional", and even metaphorical. Casual observation of business behavior, colorful characterizations (such as the term "barrier to entry"), eclectic forays into sociology and psychology, descriptive statistics, and verification by plausibility took the place of the careful definitions and parsimonious logical structure of economic theory. The result was that industrial organization regularly advanced propositions that contradicted economic theory. [...] Twenty years later, the position is dramatically changed. Partly as a result of George Stigler's attacks on the intellectual foundations of traditional industrial organization and partly as a result of the growing sophistication of economic analysis, the traditional industrial organization is becoming discredited in academic circles. *The Chicago school has largely prevailed with respect to its basic point: that the proper lens for viewing antitrust problems is price theory.* (Posner 1979, pp. 928 – 929 and 931 – 932, emphasis added)

Second, judges and juries must be persuaded to reject any antitrust analysis pursuing different goals than static efficiency:

The life of the antitrust law [is] bad economics and worse jurisprudence. The economics consists of a woefully unsophisticated theory of the means by which firms can gain monopolies, or at any rate injure the competitive process and so injure consumers, by attacking or foreclosing their rivals. The jurisprudence ... consists of the notion that under existing antitrust statutes the courts may properly implement a variety of mutually inconsistent goals, most notably the goals of consumer welfare and small business welfare. Together, these ideas are creating a broad trend of policy directed less to the interest of consumers in free markets than to the interest of inefficient producers in safe markets. [...] *My thesis is that existing statutes can be legitimately interpreted only according to the canons of consumer welfare, defined as minimizing restrictions of output and permitting efficiency, however gained, to have its way.* (Bork 1967, p. 242, emphasis added)

To sum up. The logic of Chicago-style antitrust may be reconstructed by means of a syllogism based on one major premise, competitive equilibria exist and are Pareto-optimal, and two minor premises, antitrust policy must be fully consistent with orthodox price theory and antitrust policy must pursue uniquely static efficiency.

The line of reasoning sketched above is wide open to an obvious criticism. Chicago scholars are perfectly aware of the actual existence of non-perfectly competitive market structures in the 'world

out there': the perfect competition model and its Pareto-optimality properties are just a theoretical benchmark. My reply is that it is right at this juncture, when actual competition within a given market is unable to deliver the perfectly competitive outcomes, that potential competition comes to rescue Chicago-style antitrust:

Chicago concedes that monopoly is possible but contends that its presence is much more often alleged than confirmed, and receives reports of its appearance with considerable skepticism. When alleged monopolies are genuine, they are usually transitory, with freedom of entry working to eliminate their influence on prices and quantities within a fairly short time period. [...] Normatively, Chicago economics says monopoly is bad; positively, it says it is of infrequent occurrence and limited impact. *As I interpret it, the TP view is that most of what appears to be monopoly is ephemeral, being eliminated by free entry.* (Reeder 1982, p. 15, emphasis added)

3. Long-run equilibria with easy entry and the faith in market resilience

In the opening page of *Barriers to New Competition* (1956), Bain writes:

The investigation was made because of two beliefs: (1) that most analysis of how business competition works and what makes it work have given little emphasis to the force of the potential or threatened competition of possible new competitors, placing a disproportionate emphasis on competition among firms already established in an industry; (2) that so far as economists have recognized the *possible* importance of this "condition of entry", they have no very good idea of how important it actually is. (Bain 1956, p. 1, Bain's emphasis)

Within the Structure-Conduct-Performance paradigm which dominated Industrial Organization theory in the pre-Chicago era, entry barriers were just one of the various elements which make up the structure of a given market –the other elements being the number and size of incumbent firms, scale and scope economies, product differentiation *etc.*: entry issues were thus confined in the chorus line within antitrust concerns stemming from poor market performance. By contrast, with the advent of the Theory of Contestable Markets potential competition and entry issues play the role of *prima ballerina* in competition analysis:

The crucial feature of a contestable market is its vulnerability to hit-and-run entry. Even a very transient profit opportunity need not be neglected by a potential entrant, for he can go in, and, before prices change, collect his gains and then depart without cost, should the climate grow hostile. (Baumol 1982, p. 4)

Provided that conditions for market contestability obtain (particularly, absence of sunk costs and inertia of incumbents' price reaction) potential competition is a perfect substitute for actual competition in the oligopoly case and a perfect substitute for State price regulation in the natural monopoly case:

In the case of contestable markets, potential entry or competition *for* the market disciplines behavior almost as effectively as would actual competition *within* the market. Thus, even if operated by a single firm, a market that can be

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readily contested performs in a competitive fashion. (Bailey 1981, p. 178, Bailey's emphasis. See also Gilbert 1989, pp. 111 – 112)

The contestable markets theory is described by its proponents as nothing but a theoretical benchmark, as much as the perfect competition model (Baumol 1982, p. 2), but its leverage on applied research should not be underrated. As noted by Gilbert (1989), “the Chicago school theory of markets is a weak form of the contestable markets hypothesis. Whereas entry barriers are non-existent in perfectly contestable markets, they play a minor and temporary role in the Chicago School.” (Gilbert 1989, pp. 112 – 113) Therefore, starting from the very definition of the concept of entry barriers (such as in Stigler 1968, Chapter 7), downplaying the role of the latter in real-world market competition is central within the Chicago narrative.

Provided that markets are (at least) workably competitive, the Chicago approach to ALE may be defended as fully consistent with the goal of minimizing the social costs deriving from courts' mistakes. Let me explain. As is well-known, for any given amount of available evidence, a trade-off exists between a *Type I Error* (false positive, the conviction of an innocent) and a *Type II Error* (false negative, the acquittal of a culprit). Any legal system must choose the appropriate standard of proof and thus choose whether it is socially preferable to minimize either *Type I Errors* or *Type II Errors*. As to antitrust concerns, a *Type-I-Errors*-minimizing antitrust system tends to deliver under-deterrence, that is, to show a high degree of leniency towards the use of market power by big business. Hence the Efficiency Paradox highlighted by Fox (2009):

Many influential supporters of antitrust as efficiency, including jurists, presume that what business does is efficient and what government (antitrust enforcement) does is usually inefficient. Consequently, today, we face the Efficiency Paradox: Modern antitrust (I assume *arguendo*) is meant to help us reach efficiency. However, by trusting dominant firm strategies and leading firm collaborations to produce efficiency, modern U.S. antitrust protects monopoly and oligopoly, suppresses innovative challenges, and stifles efficiency. (Fox 2009, p. 77)

Conversely, a *Type-II-Errors*-minimizing antitrust system tends to deliver over-deterrence, that is, to show a high degree of leniency towards inefficient competitors and, thus, to produce a “chilling effect” on the competitive process. Hence the Competition Paradox, such as that reported by Bork in his famous 1978 book.

Provided that antitrust enforcers may safely assume that new firms entry “would be timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern” (US Horizontal Merger Guidelines 2010, §9, p. 28), then the socially optimal choice is a

Type-I-Errors-minimizing or Chicago-style antitrust system.⁴ The reason is that potential market competition is able to redress *Type II Errors* much better than *Type I Errors*.

Let's build a concrete example to elucidate the point (see Monti 2007, p. 18). Smith and Brown, two medium-sized US firms which produce the same commodity (say, widgets) in a moderately concentrated market, plan to merge into the big-sized firm Smith&Brown. The planned horizontal merger involves an increase of the Herfindahl-Hirschman Index of more than 100 points and thus raises significant competitive concerns. The two merging firms report to the US antitrust Agencies that significant merger-specific efficiencies would be generated by the proposed merger. Thus, according to §10 of the US Horizontal Merger Guidelines (2010), the merger should not be challenged. Assume that the planned merger is actually efficiency-enhancing but the Agencies prohibit it: the potential increase of efficiency is lost forever, as market competition is not able to redress the *Type I Error* committed by the Agencies. Conversely, assume that the planned merger is definitely not efficiency-enhancing but the Agencies allow it. The big-sized firm, Smith&Brown, will likely exploit its increased market power and earn a supra-competitive profit for a while. But, in the long-run, new firms entry will redress the *Type II Error* committed by the Agencies.

Once more, the logic of Chicago-style antitrust may be reconstructed by means of a syllogism. The major premise concerns new firms entry: entry is timely, likely, and sufficient to counteract the competitive effects of concern. The two minor premises are: *i*) antitrust policy must be fully consistent with orthodox (contestable markets-like) price theory and *ii*) antitrust policy must pursue uniquely static efficiency. In my view, the above syllogism provides a plausible answer to Giocoli's main question: "why Post-Chicago analysis has been able to win the day in classrooms, but not in courtrooms?" I leave the final word to Sullivan (1995):

The basic justification for turning to post-Chicago is that Chicago analysis yields too many false negatives. Too many practices that, if analyzed with greater particularity, would be found harmful to competition pass through the Chicago screen. Post-Chicago, while reducing that risk, inevitably increases the reciprocal risk-that conduct actually harmless will be found to be unlawful. (Sullivan 1995, p. 680)

⁴ While originating from the context of horizontal mergers assessment, the tripartite requirement of likelihood, timeliness and sufficiency for entry issues have by now being adopted by a few US courts in other types of antitrust cases: see OECD Competition Committee (2005, p. 233). Similarly, the EU Horizontal Merger Guidelines state: "When entering a market is sufficiently easy, a merger is unlikely to pose any significant anti-competitive risk. Therefore, entry analysis constitutes an important element of the overall competitive assessment. For entry to be considered a sufficient competitive constraint on the merging parties, it must be shown to be *likely*, *timely* and *sufficient* to deter or defeat any potential anti-competitive effects of the merger." (EU HMG 2004, §68, p. 185, emphasis added).

4. Final remarks

As any graduate student in Industrial Organization theory knows, in a perfectly competitive market no firm has any market power, while in less-than perfectly competitive market structures a dominant firm or a cartel of firms may exercise a considerable and persistent market power *if and only if* capital and labour intersectoral mobility is hindered or nullified. Obviously, no serious antitrust concern may arise in the absence of firms actually making use of (consistent and persistent) market power. As a consequence, courts looking for static efficiency as their Holy Grail and guided by their faith in (formerly!) orthodox price theory will likely be unwilling to repudiate Chicago-style antitrust, provided that potential competition may be trusted to perform its magic.

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