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Short Bio: Rodolfo Signorino is Associate Professor of Economics at the Law Faculty of the University of Palermo, Italy. His main research interests are in the history and methodology of economic analysis. He has published several papers on Classical and Sraffian economics. He has co-authored some chapters in collective volumes. He is also the main author of a two-volume intermediate textbook, *Istituzioni di Economia Politica (Foundations of Economics)*, Turin: Giappichelli, 2008 2nd edition.

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CHICAGO AND US ANTITRUST: A NOTE ON AN ENDURING LOVE STORY

Since the mid 1980s the Post-Chicago approach to antitrust economics has produced a few game-theoretic models which have challenged many typical Chicago antitrust propositions. Yet, Chicago style antitrust has not yet lost its hold on US antitrust. The paper contributes to the now blossoming literature concerning the puzzle of Chicago persistent appeal. It examines in some detail two issues which previous contributions have thus far neglected to emphasize: *i*) the adoption of the equilibrium end-state notion of competition which is still dominant within mainstream economics and *ii*) the unshaken faith in the resilience of competition *vis-à-vis* Type II Errors committed by antitrust Agencies, provided that government-induced barriers to entry be absent or negligible.

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1. Introduction

Since the second half of the 1980s the game-theoretic, Post-Chicago approach to industrial economics has forcefully challenged many typical Chicago antitrust propositions (Baker 1989). As noted by Hovenkamp (1995),

“game theory becomes most relevant to law and economics when one relaxes the assumption that each participant to a bargaining or litigation process has perfect information, or alternatively, the state has not provided adequate mechanisms for enforcing a particular kind of bargain.”

(Hovenkamp 1995, 347)

In such situations Pareto-*inefficient* Nash equilibria may not be ruled out as theoretical *curiosa*, thus giving ample scope to an active antitrust policy. Yet, many commentators plainly acknowledge that contemporary US antitrust still retains a distinctive Chicago flavor: Hovenkamp (2001) claims that

“a great deal of Chicago antitrust has ‘stuck’ –so much that one gets the impression that for some doctrinal changes there is no turning back. For example, the *per se* rule against vertical non-price restraints or maximum resale price maintenance will probably never be revived, no matter how great the triumph of post-Chicago antitrust.”

(Hovenkamp 2001, 258)

Similar destiny seems to hold for other distinctive Chicago war horses: the emphasis on economic welfare as the *sole* goal of antitrust, the inclusion of an efficiency defence clause within horizontal mergers assessment, the rejection of both the no-fault deconcentration doctrine and the inhospitality tradition towards non-standard business practices (Schmalensee 2008).

Actually, Kovacic (2007) faults the Chicago/Post-Chicago narrative of US antitrust policy as positively misleading and prefers to talk of a double, Chicago&Harvard, helix making the intellectual DNA of modern US competition law for dominant firm conduct. But when this alleged double helix is duly dissected, Chicago genes loom large, as the italicized sentences in the following quotation clearly show:

“Three presumptions embedded in the Chicago/Harvard double helix stand out in the treatment of dominant firms. The first concerns the proper goals of competition policy. Both schools generally embrace an *economic efficiency orientation* that emphasizes reliance on economic theory in the formulation of antitrust rules. [...] The second presumption endorses *the elements of economic theory that favor giving individual firms broad freedom* to select product development, pricing, and distribution strategies. Among other policy implications, this presumption generally disfavors intervention to control the conduct of dominant enterprises. [...] The third presumption demands that courts and enforcement agencies pay close attention to considerations of institutional design and institutional capacity in formulating and applying antitrust rules. Although Chicago School scholars have emphasized such considerations, the insistence that competition policy take account of the limitations of the institutional arrangements of the U.S. antitrust system is perhaps the Harvard School’s main contribution to the Chicago/Harvard double helix.”

Chicago persistent appeal within contemporary US antitrust entails a fascinating exegetical puzzle both for historians of economic thought and antitrust scholars. A few commentators link the vitality of Chicago antitrust to the influence of U.S. neo-liberalism and the imperialistic attitude of the Chicago variant of neoclassical economics (Davies 2010; Nik-Khah and Van Horn 2012; Van Horn and Mirowski 2009; Van Horn 2009). Another strand of literature points to the lack of empirical verification fatally besetting game-theoretic Post-Chicago analyses (Kobayashi 1997; Kobayashi and Muris 2012). Finally, Giocoli (2012) proposes no less than seven plausible solutions to the Chicago persistence puzzle: 1) denial of the question, 2) *laissez-faire* ideology, 3) adoption of a specific notion of market competition, 4) emphasis on long-run equilibria with easy entry, 5) rules' administrability and court's limited economic competence, 6) lack of judicial expertise of Post-Chicagoans and, finally, 7) epistemological fragility of Post-Chicago game-theoretic models.

What above shows that there really is no shortage of plausible explanations to the Chicago persistence puzzle. The aim of this paper is not to add a fresh candidate to the list but rather to examine in some detail two issues which previous contributions have thus far neglected to emphasize: *i*) the adoption of the equilibrium end-state notion of competition which is still dominant within mainstream economics and *ii*) the unshaken faith in the resilience of competition *vis-à-vis* Type II Errors committed by antitrust Agencies, provided that government-induced barriers to entry be absent or negligible.

The structure of the paper is as follows. Sections 2 and 3 analyze the equilibrium end-state notion of competition and the Chicago emphasis on long-period equilibria with easy entry, respectively, and show how their theoretical link may shed some light on the Chicago persistence puzzle. Section 4 concludes.

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

In an oft-quoted paper on the evolution of Chicago economics, Reder (1982) provides the following synthesis of Chicago main working assumptions:

“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, 11)

The five assumptions on which Reder’s Tight Prior Equilibrium theory is built are, by and large, the same assumptions underlying the text-book model of perfect competition. Such a model incorporates a very specific notion of competition, competition as an equilibrium end-state, which is dramatically different from other notions of competition that have been elaborated by different schools of economic thought, *e.g.* 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.* (Salvadori and Signorino 2011). The equilibrium end-state notion of competition has raised to dominance within mainstream economics since the formalist revolution of the 1950s, thanks to the huge amount of intellectual resources invested into the Walrasian general equilibrium research program (Blaug 1997 and 2003; Ingrao and Israel 1990; Machovec 1995).

Chicago adoption of the equilibrium end-state notion of competition calls the alleged Marshallian roots of Chicago economics into question. Emmett (2010) claims that

“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, 2)

Similarly, Posner maintains that

“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, 932)

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 primitive and formally unstructured versions of the former. 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 a distinguished non-mainstream economist such as Nicholas 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, 1241). Recent literature witnesses a growing awareness of the various methodological and analytical differences underlying these two notions of competition. As specifically concerns Chicago economics and its antitrust implications, Evensky (2005) has argued for the existence of two different men both called Adam Smith: a "Chicago Smith" and a "Kirkaldy Smith". In the same vein Medema (2010) has analyzed the role played by George Stigler in the construction of a 'Chicago Smith' whose political economy is consistently founded upon the universal principle of self-interest and is consciously targeted at a conclusive demonstration of the efficiency-enhancing properties of a *laissez-faire* market economy. Finally, Medema (2011) has detailed a 'tale of two transitions': one transition goes from the Old Chicago price theory of Frank Knight, Jacob Viner, and, later, Milton Friedman to the new hard-nosed rational choice approach of Gary Becker and is viewed by Medema as a necessary condition for the second transition, that from the early 'law and economics' literature to the contemporary 'economic analysis of law'.

The notion of competition as an equilibrium end-state finds its philosophical *raison d'être* within the neoclassical program of Situational Determinism (Latsis 1972). The economic models elaborated within such a program (perfect competition, pure monopoly, monopolistic competition and classical oligopoly models) propose different equilibrium outcomes which turn out to be 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 behavior) is determined *uniquely* by objective conditions (cost, demand, technology, numbers, etc.)" (Latsis 1972, 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-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 (Scalia 1989).

As is well-known, the two Fundamental Theorems of Welfare Economics establish a one-to-one correspondence between Walrasian competitive equilibria and Pareto-optimality. 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. The following quotation from Posner (1979) exemplifies Chicago view of antitrust analysis as a strict application of 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, 928 – 929 and 931 – 932, emphasis added)

Second, judges and juries must be persuaded to reject any antitrust analysis pursuing different goals than economic efficiency. This was Bork’s life-long mission:

“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, 242, emphasis added)

What above shows that the imposing structure of Chicago-style antitrust is founded on one theoretical statement, perfectly competitive equilibria exist and are Pareto-optimal, and two normative statements, antitrust policy must be fully consistent with orthodox price theory and antitrust policy must pursue the exclusive goal of economic efficiency.

This reconstruction of Chicago antitrust 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. It is right at this juncture, when actual competition within a given market is unable to deliver the perfectly competitive outcomes, that the easy-entry argument comes to rescue Chicago-style antitrust. As noted by Reder (1982),

“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*”.

(Reder 1982, 15, emphasis added; see also Shepherd 1990)

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

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 confined in the chorus line within antitrust concerns stemming from poor market performance. By contrast, with the advent of the contestable markets theory 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, 4)

Whenever the conditions for market contestability obtain, 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 (Bailey 1981; Gilbert 1989). Though the contestable markets theory is described by its proponents as nothing but a theoretical benchmark, as much as the perfect competition model (Baumol 1982, 2), 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, 112 – 113). Accordingly, starting from the very definition of the concept of entry barrier (Stigler 1968, Chapter 7), the Chicago antitrust narrative is keen to downplay their role in real-world markets and to blame

government misguided policies whenever significant and persistent restrictions to capital and labor intersectoral mobility are detected.

From a methodological perspective, the weak form of the contestability hypothesis –actual entry is easy– adopted by the Chicago school theory of markets is functional to a defense of Chicago antitrust as being fully consistent with the goal of minimizing the social costs deriving from courts' erroneous rulings. 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 (2008):

“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 ... 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 2008, 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 what may be christened a Competition Paradox such as that highlighted by Bork in his 1978 celebrated book.

Assume that antitrust enforcers believe that new firms' entry into a given market is “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, 28). Then, the socially optimal choice is a Type-I-Errors-minimizing, Chicago-style, antitrust system.ⁱ The reason is that new firms' entry is able to redress Type II Errors much better than Type I Errors. This point was raised by Judge Frank Easterbrook as early as 1984:

“A fundamental difficulty facing the court is the incommensurability of the stakes. If the court errs by condemning a beneficial practice, the benefits may be lost for good. Any other firm that uses the condemned practice faces sanctions in the name of *stare decisis*, no matter the benefits. If the court errs by permitting a deleterious practice, though, the welfare loss decreases over time. Monopoly is self-destructive. Monopoly prices eventually attract entry. True, this long run may be a long time coming, with loss to society in the interim. The central purpose of antitrust is

to speed up the arrival of the long run. But this should not obscure the point: *judicial errors that tolerate baleful practices are self-correcting, while erroneous condemnations are not.*"

(Easterbrook 1984, 2 – 3, emphasis added)

The above argument on the asymmetric long-run competitive effects of erroneous courts' rulings is still played as a trump card by scholars who sympathize with the Chicago School approach to antitrust: see *e.g.* Kobayashi and Muris (2012, 155).

An example may be helpful to elucidate the Chicago perspective on the relationship between easy entry and courts' rulings. 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. If the Agencies trust the merging report, the merger is not challenged in accordance with §10 of the US Horizontal Merger Guidelines (2010). Assume that the planned merger is actually efficiency-enhancing but the Agencies do not trust the merging report and thus actually prohibit the merger: the potential increase of efficiency is lost forever, since the workings of competition is not able to redress the Type I Error committed by the Agencies. Conversely, assume that the planned merger is not efficiency-enhancing but the Agencies allow it anyhow. The resulting big-sized firm, Smith&Brown, will likely exploit its increased market power, raise its price above the competitive level and earn supra-competitive profits for a while. But, in the easy entry scenario, such a conduct by Smith&Brown induces new firms to enter the market and undercut it. Hence, in the long-run, new firms' entry will redress the Type II Error committed by the Agencies, restoring the full working of competition.

Once more, the logic of Chicago-style antitrust may be reconstructed by means of one positive statement –in the absence of government-induced barriers to entry, depicted as the most relevant form of entry barrier, new firms' entry in the long-run is able to counteract the main antitrust offences which may be attributed to dominant incumbents– and two normative statements, antitrust policy must be fully consistent with orthodox (Chicago school) theory of markets and antitrust policy must be concerned to minimize the social costs stemming from courts' erroneous rulings. Whether or not a disproportionate focus on Type I Errors has led Chicago (and US) antitrust to overshoot the mark (Rubinfeld 2008), Chicago persistence *vis-à-vis* Post-Chicago challenge owes much to courts' assessment over the presence and significance of the various possible forms (technological, strategic, government-induced *etc.*) of entry barriers in real-world markets and

courts' assessment over the balance to be struck between the social costs involved by Type I Errors and those involved by Type II Errors. As noted by 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.”

(Sullivan 1995, 680)

4. Conclusion

As any graduate student in Industrial Organization theory knows, in a perfectly competitive market each and any firm has zero market power, while in less-than perfectly competitive market structures a dominant firm or a cartel of firms may enjoy a substantial *and* persistent market power whenever capital and labour intersectoral mobility is impeded. Obviously, no serious antitrust concern may arise in the absence of firms actually making use of substantial *and* persistent market power. As a consequence, courts looking for efficiency as their Holy Grail and guided by their unshaken faith in the workings of long-run competition will likely be unwilling to repudiate Chicago-style antitrust.

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ⁱ 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 Policy Roundtables (2005, 233).