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Competition

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COMPETITION¹

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Ever since economics has become an autonomous scientific discipline, competition has been one of its basic concepts. This is true particularly as regards the theory of value: the analysis of competition carried out by a host of late seventeenth – mid eighteenth century authors before Adam Smith, such as William Petty, François Quesnay, Richard Cantillon, Anne Robert Jacques Turgot and David Hume, to mention just a few, provided the crucial breakthrough in order to free the theory of price determination from previous Scholasticist and Middle Ages influences. What clearly emerges from these authors' contributions is the view that competition imposes a discipline on the ebb and flow of market outcomes by enforcing a long-run tendency of market prices towards some definite theoretical magnitudes, subsequently christened as natural prices, prices of production or long-run normal prices. Adam Smith is the great systematizer of the analysis of the concept of competition carried out in the decades before him. Smith's specific contribution was to raise the concept of competition to a "general organizing principle of economic society [...] After Smith's great achievement, the concept of competition became quite literally the *sine qua non* of economic reasoning" (McNulty 1967, pp. 396 – 397). In this light may be read the oft-quoted passage by John Stuart Mill:

Only through the principle of competition has political economy any pretension to the character of a science. So far as rents, profits, wages, and prices are determined by competition, laws may be assigned for them. Assume competition to be their exclusive regulator, and principles of broad generality and precision may be laid down, according to which they will be regulated. (J.S. Mill, 1848 [1973], vol. II, p. 242)

It is not an overstatement to claim that the historical evolution of the concept of competition largely overlaps with that of economic theory itself. This claim may help explain the reason why, in the course of time, the same word 'competition' "has taken on a number of interpretations and meanings, many of them vague." (Vickers 1995, p. 3). Such a situation is not uncommon in the history of economics since other central economic notions like value, equilibrium, distribution etc.

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have undergone through substantive shifts of meaning. Yet, what is peculiar of ‘competition’ is that “the new meaning of competition precludes the old; that the perfect competition of modern analysis is incompatible with the competitive behaviour of the classical and early neoclassical periods” (High 2001, p. xiv). It certainly is paradoxical that

the single activity which best characterized the meaning of competition in classical economics – price cutting by an individual firm in order to get rid of excess supplies – becomes the one activity impossible under perfect competition. And what for the classical economists was the single analytical function of the competitive process – the determination of market price – becomes, with perfect competition, the one thing unexplained and unaccounted for. (McNulty 1968, p. 649)

By drastically simplifying, a tentative and by no means exhaustive taxonomy of the different meanings assumed by the word competition in economics is the following.

Competition as rivalry in a race

Historically, the first notion of competition developed in modern economic literature is that of free or unlimited competition. Competition is here viewed as a kind of rivalry in a race: what is at stake here is to get limited supplies or to get rid of excess supplies: competitors consciously under or overbid each other, that is, make use of prices as their main competitive weapon. The ‘rivalry in a race’ notion of competition is endorsed by almost all the Classical and early marginalist authors, most notably Marshall whose “treatment of competition was much closer to Adam Smith’s than to that of his contemporaries” (Stigler 1957, p. 9). As noted by Richardson (1975), in Adam Smith (but the same holds true for Karl Marx) competition plays a significant role in two very different contexts, which may be termed static and dynamic. The static context is devoted to the determination of market prices, given technology and effectual demands. The dynamic context is devoted to the the explanation of structural change and technological development driven by the process of division and specialization of labor and its relation to the extent of the market:

Smith offers us in effect both a theory of economic equilibrium and a theory of economic evolution; and in each of these competition has a key role to play. (Richardson 1975, p. 351)

Classical economists generally base their analysis of competition on Book I, Chapter VII of Smith’s *The Wealth of Nations*. The data from which the Smithian argument starts are the natural rates of wages, profits and rents which, sectoral specificities apart, basically depend on the conditions of prosperity of the economic system under scrutiny, its “advancing, stationary, or declining condition” (*WN* I.vii.1). The natural price of (re)production of the various commodities springs from the summation of these three elements. The natural price is therefore a magnitude that is not

formed in the market, but that, given some well-specified conditions, may come true in the market. The theoretical importance of natural prices consists in providing the theorist with a clue to the explanation of the dynamic path followed by market prices:

The natural price, therefore, is, as it were, the central price to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it. (*WN* I.vii.15)

In particular, the natural price acts as a sort of a floor for the market price in the sense that the latter cannot remain for long below the former without seriously jeopardizing the reproduction of the commodity in question:

The competition of the different dealers obliges them all to accept of [the natural price]; but does not oblige them to accept of less. [...] The natural price, or the price of free competition ... is the lowest which can be taken, not upon every occasion, indeed, but for any considerable time together ... is the lowest which the sellers can commonly afford to take, and at the same time continue their business. (*WN* I.vii.11)

To study the genesis of market prices and the relationship between market prices and natural prices Smith introduces the concept of *effectual demand* that is “the demand of those who are willing to pay the natural price of the commodity”. It is to be stressed that the match between the quantity brought to the market and the effectual demand determines only the market price of a commodity and not also its natural price. Moreover, “demand” and “supply” are treated by Smith as given quantities and not as functional relationships between price and quantity characterized by well-defined formal properties, as they would be in the Neoclassical theory (Garegnani 1983).

Given the unplanned nature of market economies, at the end of each productive cycle, entrepreneurs may not face in the market a demand able to absorb the whole of their production (at least) at the natural price. This requires the specification of an adjustment mechanism powerful enough to bring about effective convergence to a situation in which the produced quantity coincides with the effectual demand: in the absence of such a mechanism, natural prices would hardly constitute a reliable guide to explain market prices dynamics. In short, the adjustment mechanism envisaged by Classical authors is as follows (see Smith’s famous example of a public mourning which raises the market price of black cloth while sinks the market price of coloured silks and cloth, *WN* I.vii.19). At the end of a productive cycle, the entrepreneur brings to the market a given quantity of produced commodity resulting from the production decisions taken at the beginning of the cycle just concluded. Of course, this quantity cannot be modified to adjust to the demand actually encountered

on the market. Thus, the adjustment variable is constituted by the selling price of the commodity. Smith assumes that, in the presence of a gap between production and effectual demand, a sort of auction starts among the agents that happen to be on (what we today would call the) long side of the market: such agents are prepared to offer higher and higher prices (in case of excess demand) or lower and lower prices (in case of excess supply). Once the market price of any commodity happens to be different from its natural price, this causes an imbalance in the distributive sphere in the sense that the remunerations of those people that have contributed to the production of the commodity prove different from their respective natural values. In the absence of entry/exit barriers and in the presence of market transparency the difference between the market price and the natural price brings about (i) an intersectoral reallocation of economic resources in search of the highest market remuneration and (ii) a variation in the produced quantity of the commodity in the following periods. This process comes to a halt only when the produced quantity and demanded quantity balance in correspondence of the natural price and the market values of wages, profits and rent equal their respective natural values. Therefore, the imbalance in the sphere of circulation (discrepancy between natural price and market price of a commodity) spills over to the sphere of distribution (discrepancy between natural values and market values of wages, profits and rent) and, finally, to the sphere of production (intersectoral reallocation of productive resources and variation in the quantities produced in the following periods).

The assumed tendency of market values towards their respective natural values is based on two assumptions: 1) the owners of the employed inputs consider, besides the outlay costs, also the opportunity costs in their decisions as to where to allocate their economic resources and 2) there are but negligible barriers to the intersectoral mobility of economic resources:

When the price of any commodity is neither more nor less than what is sufficient to pay the rent of the land, the wages of the labour, and the profits of the stock employed in raising, preparing, and bringing it to market, according to their natural rates, the commodity is then sold for what may be called its natural price. The commodity is then sold precisely for what it is worth, or for what it really costs the person who brings it to market; for *though in common language what is called the prime costs of any commodity does not comprehend the profit of the person who is to sell it again, yet if he sell it at a price which does not allow him the ordinary rate of profit in his neighbourhood, he is evidently a loser by the trade; since by employing his stock in some other way he might have made that profit.* [...] Though the price, therefore, which leaves him this profit is not always the lowest at which a dealer may sometimes sell his goods, it is the lowest at which he is likely to sell them for any considerable time; at least where *there is perfect liberty, or where he may change his trade as often as he pleases.* (*WN* I.vii.6, emphasis added)

What above shows that Smith devotes much care to determining natural values and to explaining the gravitation process of market magnitudes to their natural counterparts. The same cannot be maintained as regards the question of market price determination, particularly when the market is outside equilibrium. Taking stock of Smith's sparse hints on this subject it is possible to point out what follows. Where competition is free and industrial secrets absent, price-undercutting starts as soon as at least two competitors are present in the market. This process is amplified by increasing the number of competitors since this fact makes the establishment of a collusive agreement among competitors unlikely:

The quantity of grocery goods, for example, which can be sold in a particular town is limited by the demand of that town and its neighbourhood. The capital, therefore, which can be employed in the grocery trade cannot exceed what is sufficient to purchase that quantity. If this capital is divided between two different grocers, their competition will tend to make both of them sell cheaper than if it were in the hands of one only; and if it were divided among twenty, their competition would be just so much the greater, and the chance of their combining together, in order to raise the price, just so much the less. (*WN* II.v.7)

By contrast, in those markets in which competition is not free (e.g., because of a legal monopoly and/or the presence of a guild, a collusive agreement, a law or a rule that somehow prevents economic agents from allocating their resources in the sector they prefer) or where there are industrial secrets, entrepreneurs voluntarily limit the produced quantity so that the market is left understocked and the market price stays artificially high (see Eatwell 2008, p. 64):

A monopoly granted either to an individual or to a trading company has the same effect as a secret in trade or manufactures. The monopolists, by keeping the market constantly under-stocked, by never fully supplying the effectual demand, sell their commodities much above the natural price, and raise their emoluments, whether they consist in wages or profit, greatly above their natural rate. [...] The exclusive privileges of corporations, statutes of apprenticeship, and all those laws which restrain, in particular employments, the competition to smaller number than might otherwise go into them, have the same tendency, though in a less degree. They are a sort of enlarged monopolies, and may frequently, for ages together, and in whole classes of employments, keep up the market price of particular commodities above the natural price, and maintain both the wages of the labour and the profits of the stock employed about them somewhat above their natural rate. (*WN* I.vii.26 and 28)

Every time that the agents on one side of the market are few (e.g. thanks to an entry barrier artificially created by the law) and able to communicate (e.g. because they operate in the same place such as a town) while the agents on the other side of the market are many and unable to communicate (e.g. because they are scattered in the countryside) the bargaining from which the market price springs will obviously be more favorable to the former. Thus, the relative number of the sellers in relation to the buyers, their relative ability to make a binding agreement and the

presence and significance of entry barriers are the crucial elements determining a market price permanently above its natural level. (On Competition in Classical economists and in Marx, see also Salvadori and Signorino, 2012.)

Competition as a specific market structure

Smith considered free competition as a synonym of a system of natural liberty, an ideal benchmark against which to judge various socio-political arrangements (Aspromourgos 2009, Chapter 5). Therefore, his notion of competition is far removed from the contemporary notion of competition as a specific market structure, alongside pure monopoly, monopolistic competition, duopoly *à la* Cournot, *à la* Bertrand, *à la* Stackelberg etc. In this latter context, the various market structures are defined in terms of well-defined assumptions concerning the characteristics of the goods produced, the technology of production, the elasticity of demand, the number and size of existing firms, the presence, nature and significance of entry and exit barriers, the type of conjectures on rivals' reactions etc. In particular, a perfectly competitive market is characterized by the assumption that each competitor faces a perfectly horizontal demand curve, that is, she takes market price as a parametric datum when she chooses the profit-maximizing quantity to produce. (As noted for the first time by Arrow 1959 and now acknowledged by some current advanced textbook, the price-taking assumption drastically reduces the theoretical domain of the perfect competition model just to equilibrium states. In fact, consumers and producers have no incentive to quote a price different from the ruling market price if and only if the ruling market price is the Walrasian market clearing price: see Mas-Colell *et al.* 1995, p. 314, fn 1 and p. 315.) The price-taking behaviour by each competitor is usually justified by the further assumptions that 1) competitors are so many as to make a collusive agreement unfeasible and 2) each competitor is 'small' in relation to the extent of the market. (Formally, the market is inhabited by a continuum of traders: see Aumann 1964.) As is well-known, the 'negligibility' assumption was first introduced into the economic literature by Antoine-Augustin Cournot in Chapter VIII, 'Of Unlimited Competition', of his *Recherches sur les Principes Mathématiques de la Théorie des Richesses*:

The effects of competition have reached their limit, when each of the partial productions D_k is *inappreciable*, not only with reference to the total production $D = F(p)$, but also with reference to the derivative $F'(p)$, so that the partial production D_k could be subtracted from D without any appreciable variation resulting in the price of the commodity. (Cournot 1838 [1897], p. 90, Cournot's emphasis)

Cournot justifies his 'negligibility' assumption on the basis of two different arguments, one empirical and one mathematical. In fact, he claims that the assumption holds true for "a multitude of

products, and, among them, for the most important products” and “[i]t introduces a great simplification into the calculations” (*ibidem*). While the empirical argument is just stated and left at that, the mathematical argument is at length investigated by Cournot and constitutes the very object of Chapter VIII.³ In fact, the profit-maximizing equation for the competitor k is:

$$D_k + [p - \phi'_k(D_k)]dD/dp = 0$$

where D_k is the quantity produced by the competitor k , p the market price (goods are homogeneous so there is just one market price), $D = D_1 + \dots + D_n = F(p)$ the market demand function and $\phi'_k(D_k)$ the marginal cost function of the competitor k , respectively. The above equation, with some manipulation, turns out to be the familiar marginal revenue – marginal cost equality.⁴ Thanks to the negligibility assumption the above equation boils down to:

$$p - \phi'_k(D_k) = 0$$

which is the price – marginal cost equality of the perfect competition chapter of any contemporary standard textbook.

The notion of competition as a specific market structure has been subsequently refined, among others, by William Stanley Jevons (1871), with his Law of Indifference, Francis Ysidro Edgeworth (1881), with his notion of the field of competition and recontracting, Léon Walras (1874), with his *tatonnement* process and his emphasis on auction markets, Knut Wicksell (1901 – 1906) [1934], with his analysis of returns to scale and optimal dimension of competitive firms, John Bates Clark (1902), with his analysis of the stationary state, and Frank Knight (1921), with his analysis of the relationship between profits and uncertainty. Finally, it has been codified in the course of the

³ Léon Walras too endorses an empirical argument similar to Cournot’s but he defends it at length. Walras is ready to admit that markets best organized from the point of view of competition are auction markets, where there are “stockbrokers, commercial brokers or criers acting as agents who centralize transactions in such a way that the terms of every exchange are openly announced and an opportunity is given to sellers to lower their prices and to buyers to raise their bids” (Walras, 1874 [2003], p. 84); but he insists that his view of competition is not in the least confined to auction markets and he goes on enumerating a series of real world markets where competition works quite adequately, notwithstanding the absence of centralized transactions. And he concludes by saying that: “the whole world may be looked upon as a vast general market made up of diverse special markets where social wealth is bought and sold” (*ibidem*).

⁴ As noted by Magnan de Bornier 1992, with the single notable exception of Section 43 where the famous duopoly model is introduced, Cournot consciously uses p and not D as the independent variable in the maximization problem.

Imperfect/Monopolistic Competition Revolution of the early thirties launched by Richard Chamberlin (1933) and Joan Robinson (1933) and is now standard in contemporary textbooks. (Stigler 1957, Backhouse 1990 and High 2001 provide excellent historical reconstructions of the notion of perfect competition. For a stimulating reformulation of the perfect competition model without price-taking assumption see Makowski and Ostroy 2001.)

Competition as a discovery procedure

Cournot's complaint that economists before him "have not in the least improved on popular notions [on the effects of competition leaving such notions] as ill-defined and ill-applied in their works, as in popular language" (Cournot 1838 [1897], p. 79) may be taken to measure the distance between the Classical and the contemporary notion of competition. Yet, as some commentators have recognized, Cournot's complaint is not groundless: the 'rivalry in a race' notion of competition is very akin to the layman notion of competition (Kirzner 1973, Chapter 3). Should we conclude that the transition from the ancient to the modern notion of competition is nothing but a clear example of progress in economics? The answer to such question is controversial (as is controversial the very notion of progress in economics: see Boehm *et al.* 2002). The 'price taking' notion of competition and the related analysis of different market structures is considered by some economists as a remarkable example of theoretical progress. Yet, a few others have questioned that these theoretical developments imply empirical progress too. For example, Demsetz (1981) claims that the perfect competition model is a valuable tool to understand the working of the price system in a fully decentralized economy; but it is highly unsuited to understand any form of competitive activity. Within the perfect competition model, in fact:

Firms and households increasingly represented mere calculating machines whose inner workings were of little interest. Markets became empirically empty conceptualizations of the forums in which exchange costlessly took place. The legal system and the government were relegated to the distant background by the simple device of stating, without clarification, that resources were "privately owned". [...] [The perfect competition model] also encouraged the neglect of those islands of authority, firms and households, which, by exercising limited authority in a sea of prices, could translate [their] special knowledge into goods and services (Demsetz 1981, pp. 4 – 5 and 6)

Accordingly, Demsetz proposes to rechristen the perfect competition model as the "perfect decentralization model" since it "adds much to our understanding of coordination through price, nothing to our understanding of coordination through authority, and only little to our understanding of competitive actions" (Demsetz 1981, p. 6)

The idea that an understanding of the actual working of competition requires the abandonment of the perfect competition model has been recently and forcefully advocated by the NeoAustrian and Evolutionary economists (see McNulty 2008 and Witt 2008, respectively). NeoAustrian economists have generally looked at the ‘price taking’ notion of competition with a critical eye since the latter depicts “a state in which all essential conditions are assumed to be known —a state that theory curiously designates as perfect competition, even though the opportunity for the activity we call competition no longer exists. Indeed, it is assumed that such activity has already performed its function.” (Hayek 1968 [2002], p. 13). Accordingly, for the NeoAustrians, competition basically is “a procedure for discovering facts which, if the procedure did not exist, would remain unknown or at least would not be used” (*idem*, p. 9). In the evolutionary scenario, economies are seldom or never in a situation of Walrasian equilibrium. Accordingly, analytical attention is devoted to non-equilibrium processes engendered by the interaction of intrinsically heterogeneous agents, endowed with idiosyncratic informations and bounded rationality. NeoAustrian and Evolutionary economists put great emphasis on the active role of entrepreneurs who strive to get both static and dynamic profit differentials (Kirzner 1997). The former arise from the discovery of arbitrage opportunities, the latter from the process of creative destruction depicted in Chapter VII of Joseph Alois Schumpeter’s *Capitalism, Socialism and Democracy* (1942), namely, the discovery of new consumers’ goods, new methods of production or transportation, new markets, new forms of industrial organization created by capitalist enterprises. From this point of view, the analysis of competition is intimately tied with that of economic development: the two “are isomorphic by virtues of being examples of the phenomenon of economic evolution” (Metcalf *et al.* 2004, p. 59).

Competition and class struggle

While Neoclassical economists (particularly those working within the NeoWalrasian general equilibrium tradition) entertain a notion of competition as an equilibrium end-state where all (intertemporal) opportunities for Pareto-improving resources reallocations among the agents have been fully exploited, Classical, NeoAustrian and Evolutionary economists describe competition as an intrinsically dynamic process of structural change (Machovec 1995, Blaug 1997 and 2003). Yet, notwithstanding their different notions of competition, Classical, NeoClassical, NeoAustrian and Evolutionary economists basically agree in considering a competitive market economy as an economic system which promotes long-run economic growth and social welfare, in short a system assuring full scope to the benign action of the Smithian Invisible Hand. By contrast, Karl Marx and Marxian economists consider capitalism and free markets as a system provoking an increasing

impoverishment of working classes and a concentration of social wealth into the hands of an elite controlling big corporations:

The battle of competition is fought by cheapening of commodities. The cheapness of commodities depends, *ceteris paribus*, on the productiveness of labour, and this again on the scale of production. Therefore, the larger capitals beat the smaller. It will further be remembered that, with the development of the capitalist mode of production, there is an increase in the minimum amount of individual capital necessary to carry on a business under its normal conditions. The smaller capitals, therefore, crowd into spheres of production which Modern Industry has only sporadically or incompletely got hold of. Here competition rages in direct proportion to the number, and in inverse proportion to the magnitudes, of the antagonistic capitals. It always ends in the ruin of many small capitalists, whose capitals partly pass into the hand of their conquerors, partly vanish. Apart from this, with capitalist production an altogether new force comes into play—the credit system. In its beginnings, the credit system sneaks in as a modest helper of accumulation and draws by invisible threads the money resources scattered all over the surface of society into the hands of individual or associated capitalists. But soon it becomes a new and formidable weapon in the competitive struggle, and finally it transforms itself into an immense social mechanism for the centralisation of capitals. (Marx, 1906, VII.XXV.18-19).

(John E. Roemer (1982) provides a modern presentation of how competition partitions society into different classes.) Moreover, Marx emphasized that competition determines a falling rate of profits (Marx, 1909, III.III). As a consequence, capitalist economies are plagued by recursive crises. In modern times this aspect of Marx's contribution has been developed by Baran and Sweezy (1966). The two authors explore the way competition works in monopoly capitalism and argue that the law of the falling rate of profits does not apply to modern capitalism. In particular, they emphasise the role of stagnation, which is only interrupted by violent crises.

From competition theory to competition policy

The fact that different schools of thought attach different meanings to the term 'competition' has obvious consequences at the normative level. To make just an example, consider the case of a firm earning a profit above its opportunity costs. In the perfect competition set-up, such a situation may be explained either as an instance of short-run equilibrium (and thus extra-profits are nothing but transient) or as an instance of a firm endowed with non-negligible market power. Accordingly, an antitrust action is needed to restore perfect competition. On the contrary, in the NeoAustrian or Evolutionary scenario, such a situation may be explained as an instance of a successful entrepreneurial response to changing market conditions or as an instance of a successful innovation and, obviously, no antitrust action is required. In short, the lively debates existing at the policy level as concerns the evaluation of different pro-competitive measures basically derive from the fact that the answer to the question "What public Authorities should or should not do to promote market

competition?” is intrinsically though not always explicitly tied to the peculiar notion of competition assumed to be the relevant one:

A theory which is designed to understand the allocation of given resources to given ends using given means of transformation will be quite different in scope and character to one which is focused on the development of resources, uses and transformations. If the first were the limiting outcome of the second, the different views could be presented as natural complements. But this is not easily reconciled with the fact that the natural outcome of a competitive process is market concentration rather than the dispersal of economic influence. *Depending on the theory one starts from one ends up with quite different perspectives on appropriate competition policies.* (Metcalf 2000, p. 7, emphasis added)

By drastically simplifying, it may be claimed the following. Economists adopting the ‘rivalry in a race’ or the ‘discovery procedure’ notion of competition are usually very prudent before condemning as anti-competitive many of the actions usually taken by competing firms:⁵

When competition is analytically considered as a process, pure integration, mergers and acquisitions, cooperation and alliances may become integral parts of the normal functioning of competitive markets. These inter-firm relations which are perceived as collusion within the traditional vision of competition can be legitimated for some periods and for specific purposes. (Krafft 2000, pp. 1 – 2)

As a consequence, these economists are generally cool towards active antitrust policies. Commenting on the puzzle noted by Stigler (1982), namely the American economists initial lack of enthusiasm towards the Sherman Act, DiLorenzo and High claim:

There is no doubt that economists at the turn of the century looked upon competition as a process of enterprise and rivalry, and that they disapproved of antitrust law. These two views were not merely coincidental. Although viewing competition as rivalry does not necessitate opposition to antitrust law, it surely encourages such opposition. (DiLorenzo and High 1988, p. 432)

By contrast, economists adopting the ‘price taking’ notion of competition and the cognate Pareto-optimality theorems are almost inevitably led to focus on the number and size of competitors in a given market as the two crucial variables which (together with entry barriers) determine the distance between the actual working of the market under scrutiny and the ideal of perfect competition. (As is well-known from elementary microeconomics, given the firm-elasticity of demand, a firm market power, usually measured by Lerner’s Degree of Monopoly Index, is an increasing function of the

⁵ A notable exception are Chicago School economists. As noted by Reder (1982), these economists usually assume that “one may treat observed prices and quantities as good approximations to their long-run competitive equilibrium values” (p. 12) and that “most of what appears to be monopoly is ephemeral, being eliminated by free entry” (p. 15). Thus, within Chicago style of economics, standard (neoclassic) price theory happily coexists with a bold distrust towards active Government intervention into market outcomes.

firm's market share.) As a consequence, these economists are generally favourable to active antitrust policies.

The ebb and flow of US antitrust policy towards predatory pricing may be considered as a fitting example of these opposite attitudes towards competition policy (see Giocoli 2009 and 2010). To put it in a nutshell, if competition is equated with the coexistence of a plurality of competitors within the same market, then a price cutting by an individual firm (the predator) is likely to be considered as a clear manifestation of present and concrete market power and an attempt to drive some (or possibly all) of its competitors (the preys) outside the market. Once the number of competitors is so reduced, the predation story goes, the predator finds no more obstacles to raise its price well above the competitive level and thus capture a significant share of consumers's surplus. From this perspective, the protection of competition goes through the protection of (even inefficient) competitors. (As is well-known, the policy of enhancing competition by artificially raising the number of competitors within a given market has been questioned by Baumol *et al.* (1982): according to the theory of contestable markets, even a single seller-market may be considered as competitive, provided that it is subject to the 'hit and run' competition of external firms.) On the contrary, if competition is viewed as an efficiency-enhancing process, that is, the best mechanism ever devised to allow consumers to enjoy (almost) all the benefits deriving from a superior technology or from a successful innovation, then punishing a price-reducing firm would amount to chill the very essence of competition, as any layman would understand it, that is the effort of every firm to sell cheaper than its competitors.

References

- Arrow, Kenneth J. (1959), 'Toward a theory of price adjustment', in M. Abramovitz (ed.), *The Allocation of Economic Resources*, Stanford: Stanford University Press, pp. 41 – 51.
- Aspromourgos, Tony (2009), *The Science of Wealth. Adam Smith and the framing of political economy*, London and New York: Routledge.
- Aumann, Robert J. (1964), Markets with a Continuum of Traders, *Econometrica*, **32** (1/2), 39 – 50.
- Backhouse, Roger E. (1990), 'Competition', in John Creedy (ed), *Foundations of Economic Thought*, Oxford: Basil Blackwell, pp. 58 – 86.

- Baran, Paul A. and Paul M. Sweezy (1966), *Monopoly Capital. An Essay on the American Economic and Social Order*, London and New York: Monthly Review Press.
- Baumol, William J., John C. Panzar and Robert D. Willig (1982), *Contestable Markets and the Theory of Industry Structure*, New York: Harcourt Brace Jovanovich.
- Blaug, Mark (1997), ‘Competition as an end-state and competition as a process’, in Mark Blaug, *Not Only An Economist. Recent Essays by Mark Blaug*, Cheltenham, UK and Brookfield, US: Edward Elgar, pp. 66 – 86.
- Blaug, M. (2003), ‘The formalist revolution of the 1950’s’, *Journal of the History of Economic Thought*, **25** (2), 145 – 156.
- Boehm, Stephan, Christian Gehrke, Heinz D. Kurz and Richard Sturn (2002), *Is there Progress in Economics? Knowledge, Truth and the History of Economic Thought*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Chamberlin, Edward H. (1933), *The Theory of Monopolistic Competition: A Re-orientation of the Theory of Value*, Cambridge (Mass.): Harvard University Press.
- Clark, John B. (1902), *The Distribution of Wealth: A Theory of Wages, Interest and Profits*, New York: Augustus M. Kelley.
- Cournot, Antoine A. (1838) [1897], *Researches into the Mathematical Principles of the Theory of Wealth*, English translation by Nathaniel Bacon, London: Macmillan.
- Demsetz, Harold (1981), *Economic, Legal, and Political Dimensions of Competition*, UCLA Economics Working Paper n. 209.
- DiLorenzo, T.J. and J.C. High (1988), ‘Antitrust and Competition, Historically Considered’, *Economic Inquiry*, **37** (3), 423 – 435.
- Eatwell, J. (2008), ‘Competition, Classical’, in Steven N. Durlauf and Lawrence E. Blume (eds), *The New Palgrave Dictionary of Economics*, Second Edition, Volume 2, London: Macmillan, pp. 63 – 67.
- Edgeworth, Francis Y. (1881), *Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences*, London: Kegan.
- Garegnani, P. (1983), ‘The Classical Theory of Wages and the Role of Demand Schedules in the Determination of Relative Prices’, *The American Economic Review*, **73** (2), 309 – 313.

- Giocoli, N. (2009), When Low is No Good: Predatory Pricing and the History of Antitrust Economics (Part I). Available at SSRN: <http://ssrn.com/abstract=1412808>.
- Giocoli, N. (2010), Games Judges Don't Play: Predatory Pricing and Strategic Reasoning in US Antitrust. Available at SSRN: <http://ssrn.com/abstract=1676095>.
- Hayek, Friedrich A. (1968) [2002], 'Competition as a Discovery Procedure', *The Quarterly Journal of Austrian Economics*, **5** (3), 9 – 23.
- High, Jack (2001), 'Introduction. Split Personality: A Brief History of Competition in Economic Theory', in Jack High (ed), *Competition*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. xiii – xlv.
- Jevons, William S. (1871), *The Theory of Political Economy*, London: Macmillan.
- Kirzner, Israel M. (1973), *Competition and Entrepreneurship*, Chicago and London: University of Chicago Press.
- Kirzner, I.M. (1997), 'Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach', *Journal of Economic Literature*, **35** (1), 60 – 85.
- Knight, Frank H. (1921), *Risk, Uncertainty and Profit*, New York: Houghton Mifflin.
- Krafft, Jackie (2000), 'Introduction', in Jackie Krafft (ed), *The Process of Competition*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 1 – 9.
- Machovec, Frank M. (1995), *Perfect Competition and the Transformation of Economics*. London and New York: Routledge.
- Magnan de Bornier, J. (1992), 'The "Cournot-Bertrand Debate": A Historical Perspective', *History of Political Economy*, **24** (3), 623 – 656.
- Makowski, L. and Joseph M. Ostroy (2001), 'Perfect Competition and the Creativity of the Market', *Journal of Economic Literature*, **39** (2), 479 – 535.
- Marx, K. (1906). *Capital*, vol. I, Chicago: Charles H. Kerr & Co. English translation by Samuel Moore and Edward Aveling of *Das Kapital*, vol. I, Fourth Edition, edited by F. Engels, Hamburg (1890): Meissner. Also available in <http://www.econlib.org/library/YPDBooks/Marx/mrxCpA.html>. In the text quoted as part number, chapter number, paragraph number.

- Marx, K. (1909). *Capital*, vol. III, Chicago: Charles H. Kerr & Co. English translation by Ernest Untermann of *Das Kapital*, vol. III, edited by F. Engels, Hamburg (1894): Meissner. Also available in <http://www.econlib.org/library/YPDBooks/Marx/mrxCpC.html>. In the text quoted as part number, chapter number, paragraph number.
- Mas-Colell, Andreu, Michael D. Whinston and Jerry Green (1995), *Microeconomic Theory*, New York: Oxford University Press.
- McNulty, P. (1967), 'A Note on the History of Perfect Competition', *The Journal of Political Economy*, **75** (4), 395 – 399.
- McNulty, P. (1968), 'Economic Theory and the Meaning of Competition', *The Quarterly Journal of Economics*, **82** (4), 639 – 656.
- McNulty, P. (2008), 'Competition, Austrian', in Steven N. Durlauf and Lawrence E. Blume (eds), *The New Palgrave Dictionary of Economics*, Second Edition, Volume 2, London: Macmillan, pp. 61 – 63.
- Metcalf, J. Stanley (2000), 'Competing Concepts of Competition and the Evolution of Competition Policy in the UK', paper presented to the Workshop on Regulation and Governance, University of Philippines.
- Metcalf, J. Stanley, R. Ramlogan and E. Uyarra (2004), 'Competition, innovation and economic development: the instituted connection', in Cook, Paul, Colin Kirkpatrick, Martin Mingue and David Parker (eds), *Leading Issues in Competition, Regulation and Development*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 58 – 91.
- Mill, John Stuart (1848) [1973], *Principles of Political Economy: With Some of Their Applications to Social Philosophy*. New York: Augustus M. Kelley.
- Reder, Melvin W. (1982), 'Chicago Economics: Permanence and Change', *The Journal of Economic Literature*, **20** (1), 1 – 38.
- Richardson, George B. (1975), 'Adam Smith on Competition and Increasing Returns', in Andrew S. Skinner and Thomas Wilson (eds), *Essays on Adam Smith*, Oxford: Oxford University Press, pp. 350 – 360.
- Robinson, Joan (1933), *The Economics of Imperfect Competition*, London: Macmillan.

- Roemer, John E. (1982), *A General Theory of Exploitation and Class*, Cambridge, Ma: Harvard University Press.
- Salvadori, Neri and Rodolfo Signorino (2012), The Classical notion of competition revisited, *History of Political Economy*, **44**(10).
- Schumpeter, Joseph A. (1942), *Capitalism, Socialism and Democracy*. London: George Allen & Unwin.
- Smith, Adam (1976), *An Inquiry into the Nature and Causes of the Wealth of Nations*, 1st edn 1776, Vol. II of *The Glasgow Edition of the Works and Correspondence of Adam Smith*, edited by R.H. Campbell and A.S. Skinner. Oxford: Oxford University Press. In the text quoted as *WN*, book number, chapter number, section number, paragraph number.
- Stigler, G.J. (1957), 'Perfect Competition, Historically Contemplated', *The Journal of Political Economy*, **65** (1), 1 – 17.
- Stigler, G.J. (1982), 'The Economists and the Problem of Monopoly', *The American Economic Review*, **72** (2), 1 – 11.
- Vickers, J. (1995), 'Concepts of Competition', *Oxford Economic Papers*, **47** (1), 1 – 23.
- Walras, Leon (1874) [2003], *Elements of Pure Economics or The Theory of Social Wealth*, London: Routledge.
- Wicksell, Knut (1901 – 1906) [1934], *Lectures on Political Economy*, two volumes, London: Routledge.
- Witt, Ulrich (2008), 'Evolutionary Economics', in Steven N. Durlauf and Lawrence E. Blume (eds), *The New Palgrave Dictionary of Economics*, Second Edition, Volume 3, London: Macmillan, pp. 67 – 73.