

**Intellectual Property, Innovation and Competition:  
Towards a Schumpeterian Perspective**

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## **1- Introduction**

In this paper I will address a few crucial issues concerning the relationship among innovation, competition (including competition policies) and intellectual property. Although central to the dynamics of contemporary capitalism, those relationships only now have begun to be explored in a more systematic and theoretical perspective<sup>1</sup>. I will be reasoning from a Schumpeterian perspective, which is a theoretical approach that puts innovation, competition and property rights at the forefront of both economic development (conceived as structural change and systematic productivity gains) and institutional change (For a crash course in Schumpeterian Economics, see Schumpeter: 1942, Nelson and Winter: 1982, Nelson: 1996. For extensions, see Dosi: 2000, Baumol: 2001, Norton: 2001 and Nelson, R, et alii (org): 2004).

The paper aims to be a very preliminary effort to contribute for a better understanding of the interactions among incentives for innovation, competition policies and Intellectual Property (IP) issues under a Schumpeterian perspective and, therefore, towards a more coherent framework within which the discussions of both institutional building and policy design towards Development can proceed<sup>2, 3</sup>

It is structured as follows: the second section introduces the dynamic efficiencies and inefficiencies associated with the establishment of a strong and comprehensive system of IP, from the point of view of fostering innovation and competition by means of innovation. It should be clear to the reader, by the end

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1 See Fischer: 2001 in that regard. This does not imply shortage of work discussing specific issues in what is called “the economics of intellectual property rights”. See Menell: 1999 for an excellent survey on general theories of IP. A very interesting review acknowledging the under researched nature of the theme can be found in Dixon and Greenhalgh (2002). The shortcomings of most of that work are, from our perspective, due to its concentration on “data”, “measures” and “testing” with little attention to the theoretical framework within which they are conducted.

2 Incidentally, it should contribute, as well, to broadening the Schumpeterian research agenda by directing it into a scarcely explored (in the Schumpeterian domain) territory: that of Law and Economics. But see Langlois (2001) for an interesting starting point on that direction.

3 F. Scherer (1994, 1996), has dealt consistently with these issues but, we argue, in a much more Structure-Conduct- Performance approach than in a genuinely Schumpeterian one. The Neo-Schumpeterian legacy has dealt heavily on competition policies (or how to enforce competition) but has been saying very little on the relationship among innovation, intellectual property regimes, business cooperation and abuses of economic power.

of that section, that in a *Schumpeterian environment* there is plenty of room for competition policies to unfold. The third section introduces the *market features approach* as the appropriate analytical framework to deal with competition policies within that perspective. The fourth section picks up the dynamic efficiencies and inefficiencies referred in section two in order to suggest ways to improve the formers and to mitigate the latter's. A few policy and institutional building proposals will, then, be sorted out. The fifth section concludes the paper by suggesting a main policy goal for IP and innovation related issues, namely the promotion and regulation of entrepreneurial success by means of creative destruction management policies and institutions.

## **2 - Intellectual Property and *Dynamic efficiencies and inefficiencies***

To begin with, lets state very clearly that from a Schumpeterian perspective, or in a context of schumpeterian competition, intellectual property rights (IPRs) are strategic weapons and very powerful tools for generating sustained competitive advantages and also both schumpeterian and ricardian rents trough patents, trade secrets, confidentiality contracts, copyrights trademarks and registered brand names (cf. Teece: 2001 and Jolly and Philpott, orgs 2004)<sup>4</sup>. In the evolutionary economics framework it's quite clear that in the absence of legal protection for an invention, the inventor either will have less incentives to innovate or, will try to keep his invention secret, thus reducing, in both cases, the stock of knowledge to society as a whole ( Landes and Posner: p.294).

From an entrepreneurial perspective as well, patents and other IPRs are extremely effective means to reduce uncertainties – and therefore, to ignite animal spirits and long term expectations - trough building *temporary monopolies* around products, processes, market niches and , eventually, whole markets

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<sup>4</sup> Having said that, it is striking how little has been written about this crucial connection, between schumpeterian competition and IPR. And of course I include myself in that loophole. In that regard, legal theorists like Landes and Posner are clearly ahead, in the sense that they are already doing the reverse track. They are using schumpeterian concepts and insights to deal with IPR (cf. Landes and Posner: 2003).

(Nelson: 1996, Burlamaqui e Proença:2003). However, the word *temporary* is crucial here because due to creative destruction and as Schumpeter stated long ago,” a monopoly position is in general no cushion to sleep on” (1942:102). Patent law <sup>5</sup> itself has inbuilt the rationale to stimulate innovation diffusion. It requires, as a condition to grant a patent, that the patent application disclose the steps constituting the invention in sufficient detail to enable readers of the application, if knowledgeable about the relevant technology, to manufacture the patented product themselves. Of course that in order to do it properly (legally) anyone who wishes to replicate a patented product or process will have to negotiate a license with the patentee (Jolly and Philpott: 2004, part 1, Landes and Posner: 294-295).

It is also true, and very important to notice, that any reader of the patent application will be free to “invent around” – to achieve the technological benefits of the patent by other means, that is, without simply copying the steps of the patent and , therefore, without infringement. Translated to the evolutionary economics jargon, what the requirement of public disclosure does is to create a situation of incomplete appropriability for the patent holder and, therefore, to reinforce Schumpeter’s insight on temporary monopolies. Summing up, intellectual property rights are sources of dynamic efficiencies can help delivering the schumpeterian positive sum game represented by falling costs, falling prices, positive margins (market power) and increased consumer welfare. IPRs also tends to be particularly costly to protect, that is, their enforcement typically involves high transaction costs (Landes and Posner: 18).

So much for the basics. But the picture can get much more complicated because, as we all know, the devil is in the details. The first observation to make here relates to a point made by an extremely apt – and almost forgotten – analyst in that field: Arnold Plant. As Plant stated in the early thirties, “in the case of physical property, the institution of private property makes for the preservation of scarce goods...in contrast, property rights in patents and copyrights make possible the *creation of scarcity* of the products appropriated... *The beneficiary is*

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<sup>5</sup> Reference here is to American Patent Law.

*made the owner of the entire supply of a product for which there may be no easily obtainable substitute*” (Plant: 1974 [1934]: 65-67. Emphasis added).

Dynamic inefficiencies<sup>6</sup> can easily arise here and that alone leaves ground for competition policies<sup>7</sup> to enter the scene, as we will see shortly.

The second remark concerns the fact that, given the first, that the greater patent protection (and IPRs in general), the smaller the benefit to the patentee’s competitors in terms of “inventing around” or innovating on the shoulders of the patent holder. Given the cumulative nature of the innovation process ( Schumpeter: 1942, part 2), the strengthening of patent protection will certainly increase the transaction costs *for all the innovation chain* and, therefore, will tend to **increase** the level of uncertainty for the “community of innovators” instead of decreasing it. Legal-made dynamic inefficiencies are bound to show in this matter as well. Competition policies surely have a place here too.

The third critical issue to point to is *strategic patenting*, that is, the dimension of business strategy – which is being steadily upgraded in the corporate strategy’s portfolios during the last decade – devoted to apply for patents that the company *has no intention to use* (exploit), but solely to prevent others to profit from it (cf. Varian, Farrel and Shapiro;2004, part 2 and Landes and Posner, 2003: chapter 11). Obviously this is a major source of dynamic inefficiency in the sense that it is a strategy bound to drain the resources from the “labs to the “courts” and also to skyrocket the costs of litigation and, therefore, of innovation. It displays a crystal clear example of what Baumol has called “unproductive entrepreneurship” and lends strength to his arguments on the...

“...variety of roles among which the entrepreneur’s efforts can be reallocated...and some of those roles do not follow the constructive and innovative script conventionally attributed to that person. Indeed, at times the entrepreneur may even lead a parasitical existence that is actually damaging to the economy” (cf. Baumol: 1993, chapter 2, p 25. But see also chapter 4).

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6 Meaning the expected (negative) impact on future incentives for competitors to compete (innovate) and future consumer welfare (See Anthony: 2003, section IV).

7 We will use the term *competition policies* rather than *Antitrust* here due to the outdated connotation of the latter. We will not be discussing trust-busting but a much subtle and complex set of behaviours, institutions and policy tools.

Evidently, this task of “reallocation of entrepreneurship” is a public policy and institutional design one.

The fourth one relates to the relationship between IPRs and the “new economy” (or *digitally renewed economy* as Paul David would precise it)<sup>8</sup> features. In the so-called *new economy industries*, not products or processes alone, but knowledge is the Corporation’s main output or asset. Therefore, intellectual property issues come to the forefront of corporate strategy. Overlapping innovations, rapidly falling average total costs, zero marginal costs, strong network externalities and, therefore, fierce “standards battles” and path-dependence are their hall mark (Shapiro and Varian:1999 ,Best: 2001 ,De long: 2000, Brynjolfsson and Kahin [eds] 2002). One way of seeing these is through the lenses of speeding waves of creative destruction and, potentially, as *more* (not less) acute challenges to competitors. There is an element of truth in that picture, but let us suggest here that creative destruction in a world of increasing returns of scale, learning, and adoption and “winner takes all” markets does not mean anything closer to some idealized form of “perfect competition” or perfectly contestable markets, but the replacement of one (or few) dominant firm (firms) by other (or few others). The replacement of Fairchild by Intel, of Wang and Compaq by Dell and Toshiba, of IBM by Microsoft and so on.

Translating to our specific concern, it means that the ability of Corporations to combine first movers’ advantages with trade secrets, patents, copyrights, brand loyalties and network externalities may grant them *too secure monopolistic positions in their markets despite their low rate of (radical) innovations and not because of it*<sup>9</sup>. The role for competition policies needs no

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8 Cf. David in Brynjolfsson and Kahin [eds] 2002, p 85.

9 See Landes and Posner somehow reluctant recognition of that point (pp 395-6). The case of Microsoft itself can be used to illustrate the point. The lack of breakthroughs **technological** innovations, or radical quality-price improvements, is notoriously known in Microsoft. It’s well known that the “Windows” model was copied from Apple’s user interface – and that itself is a second-hand *theft* from Xerox PARC – as well as the tremendous lack of perception, by the company, of the internet potential until the success of Netscape was obvious. It’s also known that the differences between the versions of Windows and Office that I’m using right now although “new” display very pale improvements in relation to their 1998 predecessors.

comment here. It's obvious. The normative framework within which they should take place, on the contrary, is not. We will surface it in the fourth section below.

The fifth point to be made here, and probably the more *global* one, refers to the tensions arising between the new approach to patent protection as it shows up in WTO's-TRIPs agreement, and the increased reliance on innovation and technological achievements by National Development Strategies. If we go back to the argument of innovation as a cumulative process where cutting edge knowledge and *know how* rests on previous ones, and of patents and IPRs in general as "fences" erected to protect them it's not difficult to figure out, depending on the institutional design within which IPRs are handled, the tension and potential trade-off between the private ( the domain of Corporations) and the public ( The domain of public interests and public policy) dimensions of IPR rules. This is backbone of the argument about the so called "second enclosure movement" which is now subject of an intense debate (cf. Benkler: 2003, Evans: 2005, Technology Review: 2005, Vol 108, N<sup>o</sup> 6). According to Evans ...

"There are really two halves to the second enclosure movement. The defensive side focuses on intensifying the enforcement of protected monopoly rights to exclude others from using information that has been defined as private property. The offensive side of the agenda involves taking information that has been considered part of 'nature' or the commons cultural and informational heritage of humankind and transforming it into 'private property'. If both halves are successful, the 'second enclosure movement' would constitute a *global re-distribution of property* comparable to the eradication of the commons that ushered in agrarian capitalism in Western Europe 300 years ago" (2005:2. emphasis added).

Once more, big sources of *global* dynamic inefficiencies can be perceived and, therefore, a sizable window for competition policies to step in.

Lastly it is mandatory to underline the crucial role of the institutional structure – or institutional design – within which the IPRs are enforced. That is, not the *rules as such* but the legal enforcement apparatus at hand, the state structure by which it is supported and the sort of public bureaucracy available to perform the prescribed duties. It is well known in the literatures on institutions and

economic sociology that these are crucial elements in determining the degree of success any regulatory system (such as IPRs) can achieve (Evans: 1995, Dobbin [ed]: 2004, Smelser and Swedberg [eds]: 2005 and Nee and Swedberg [eds] 2005 for excellent discussions on this theme). Jaffe and Lerner's thoughtful and provocative work on the recent changes in the U.S patent system (Jaffe and Lerner: 2004) will serve us in our discussion of the relationship between its institutional design and the problems related to the promotion of innovation and "productive entrepreneurship" (section 4 below).

Summing up the discussion so far, the common denominator among the arguments discussed above is that given both the complexity and diversity involving the relationship among innovation, patents and IPRs in general, a *one size fits all* prescription does not look as the best way to handle the matter ( see Fischer , 2001 for a similar line of reasoning).

### 3 - Competition Policies and the *Market Features* approach

Competition policies are the regulatory devices used to build a competition- enhancing environment and to steer corporation's behaviour into pro-competitive strategies<sup>10</sup> . They have to be framed against some sort of theoretical background. The most commonly used is the market failure's approach<sup>11 12</sup> . Our departing point here will be the rejection of that approach to

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10 In the sense, as the U. S Supreme Court has stated ( in a very schumpeterian fashion) , of legitimately acquiring competitive advantages trough superior performance ( as displayed by superior products, processes, business acumen or historic accident ( Anthony;2003 section III)

11 Interestingly enough, the whole new wave of intellectual property *claims is* about **extending monopoly positions and market power** (the right to patent generic knowledge, business models etc. cf. Merger: 2003, Coriat, Cimoli and Primi: 2005) to leading firms and, therefore, to protect them from... competition (or, to put it in the mainstream language: they are designed to create or reinforce.... market failures.).

12 For a clear exposition and of that approach as well as to a public-choice oriented critique of it, see: Mitchell and Simmons: 1994, part 1. Both the Chicago Scholl and its heir, the public-choice perspective, have pioneered the criticisms to that approach by trying to show that most of what was presented by market failures turned to be children of Government failures. But their root is neo-liberal in the sense that they stick to the notion of a self-regulated market and with the perfect competition model as its "proof". Ours will be, instead, an evolutionary -institutionalist based rejection, and will leave spacious room for the "role of state" in forging competition policies (See Burlamaqui: 2000 for a more general discussion of that matter) .

public policies as one who ends up adding more confusion than clarity to the matter<sup>13</sup>. Market failures in relation to what available evidence? The perfect competition model should be the answer. Being so, **all** markets are robust in market failures...They should, therefore, be all subjected to *corrections*. But then, another tricky question arises: market failures' corrections according to what blueprint? The perfect competition model, again. But where can we *find* empirical evidence to support that model's relevance for public policy usage (although there is plenty to reject it)? Or, how can we "test" this model in order to be assured of its efficiency (has anyone ever heard of an *actual* measurement of a pareto-optimum)? It doesn't get us too far....<sup>14</sup>

In its place, we will submit a **market features approach**. By market features approach we mean an analytical perspective concerned with and taking into account institutional diversity, sector specificities, distinctive dynamics both in their technological and industrial dimension, as well as in its regulatory and legal aspects and differentiated degrees of market power as the backbone of any market's actual workings. It's a conceptual framework whose main advantage is that it does not *fight* the empirical evidence but rather accommodates it. It does not provide us with a one *size fits all receipt* but with analytical flexibility instead. And, in our specific subject, it opens space for both sector specific competition policies and for differentiated intellectual property rules.

Interestingly enough, *the idea* of a market features approach is not new. It comes from that undeservedly neglected tradition that unites scholars such as George Shackle and Ludwig Lachmann, a tradition that could very well be labelled as *Austrian Keynesianism* (See Lachmann: 1986 and Vaughn:1994 on

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13 The paper by Nelson, Dosi, Cimolli and Stiglitz given at the IPD meeting in Rio ( March,17-18) makes the same point but does not pursue, in that work, an alternative departure point. (Nelson et alii: 2005, p 2-3).

14 After all, the perfect competition model *should* be an ideal type, in the weberian sense of the concept: a construct that accentuates certain properties *found in reality* and exaggerates them for purposes of organizing and making sense of the empirical data. That means that the construct should be **abstract but empirically relevant**. The problem is that none of the core hypothesis of the model – perfect information, product homogeneity, free entry and exit (absence of sunk costs), price taking behavior (absence of market power) absence of increasing returns and tendency towards equilibrium – are *found in reality* thus making the model useless either for positive or normative usage (something that Frank Hahn, for instance, spelled out several times in his works. See Hahn: 1984).

that matter). The specific idea of a market's taxonomy comes from Lachmann's last book in his discussion of markets as economic processes embedded in institutions. As Vaughn explains it, Lachmann argues that...

“Instead of examining the world through the lens of the ‘market’ we need to develop ideal types of *particular kinds of markets*: assets markets versus production markets, fix-price versus flex-price markets, markets dominated by merchants versus markets dominated by salesmen. Such distinctions will make a difference as to how markets adjust to change” (Lachmann: 1986,128 apud Vaughn; 1994,159, emphasis added).

This was a brilliant insight, but it was left more or less as it was first submitted. For our concerns, it offers as a very promising *alternative* departing point both for positive and for normative purposes. In that vein, some further elements to be used in “mapping” market features are:

- Concentration measures and market leaderships ,
- Degree of technological complexity (measured by the ratio of R&D to sales),
- Rate of innovation ( measured by number of patent and copyrights granted versus new products actually being marketed),
- Patenting strategies ( patents earned versus patents actually used – or effectively licensed plus degree of litigation involving patent claims),
- Price behaviour (price's movement *in time*. Decreasing, increasing, stable?),
- Profits made by the leading firms and their evolution,
- Regulatory apparatus embedding the market or sector under, concern ( standards, requirements, frequency of government stepping in...),
- legal characteristics ( enforcement mechanisms at hand, type of contracts used, penalties..)

These, of course, do not exhaust the possibilities of *mapping*, but they allow for a much more realistic – although possibly less elegant (but we are not in the fashion business here) – assessment of their differentiated workings and as to how they are likely to adjust (or give rise) to change. That perspective still has to be properly developed, but it will enable theory to be relevant and useful from the point of view empirical reality – and policy. It is also in line, for instance, with the

recent findings by Carlton and Gertner in their NBER working paper on Intellectual property, Antitrust and Strategic Behaviour (WP n° 8976, 2002) where they state that " Only detailed study of the industry of concern has the possibility of uncovering reliable relationships between innovation and industry behaviour" (2002;p 30). There is clearly a very promising theoretical road to be travelled here. Let us close this section by saying that under a schumpeterian perspective, the market features perspective should be the departing point for the discussion of competition policies.

#### **4- Market Features, Competition Policies and Intellectual Property Rights**

The *market features approach* delineated above has as its policy counterpart a **market shaping** perspective. The main idea here is that it is possible - and desirable – to (through institutional building, legal change and administrative guidance) re-design market features as well as regulatory mechanisms and proceedings in order to pursue the major, schumpeterian, policy outline of **promoting and regulating entrepreneurial success**. Within that approach, the main proposition we will submit is that the theory of schumpeterian competition is the most adequate one to allow for the simultaneous treatment of competition policies and intellectual property issues.

The general rule under which both should be articulated is the **promotion of innovation plus the assurance of its diffusion**, and this implies, again, simultaneously, **promoting and regulating** entrepreneurial success. This pair of words, promoting and regulating, is crucial, in the sense that both the private and the public sides of competition policies and of institutional designs should be addressed.

From that angle, competition policies should be based on market features and should use, extensively, market shaping devices in order to perform **creative destruction management**, meaning to shape markets in order to reduce dynamic inefficiencies and increase dynamic efficiencies coming from schumpeterian competition, a form of competition that, as we pointed out, has

intellectual property rights as its one of its core *weapons* and competitive conflicts as one of its main outcomes. From the corporations' perspective, competition policies should *not* be about harassing "bigness" or preventing "market power", but about preventing "too secure monopolies", and especially those not based in – and thriving on - superior technological performance as shown by the "SFCB combo"<sup>15</sup> .

More concretely, competition policies should shape markets and drive corporations towards establishing research coordination, pushing cooperative standard's setting, preserving multiple sources of experimentation, monitoring patent pools, establishing differentiated patent and copyrights lengths and severely punishing both "unproductive patenting" behaviour and attempts by corporations to close markets trough creating their own proprietary closed systems (See Carlton and Gertner: 2002, for a similar line of reasoning).

Having that in mind, we will try to address more specifically the, difficult, question of how to use competition policies to deal with the dynamic inefficiencies we pointed out in the second section above. Regarding the first one, Plant's argument on patents making the beneficiary ... "*the owner of the entire supply of a product for which there may be no easily obtainable substitute*", it's a serious one. If we think of a clever, but not radical, innovation (for instance, Post it ® from 3M) it should not raise major concerns from competition policy-makers, but what if it is a general purpose technology *in embryo* ( for instance the new genetic engineering research tools or a particular DNA sequence) ? Then Plant's point would hold completely and the granting of the patent would create a very substantial monopoly for the owner, and potentially prevent others from exploiting it – that is, to slow its diffusion.

Those examples highlight the importance of the market features approach– including its technological dimension as underlined. In cases like the ones involving general purpose technologies the IPR policy should be much more rigorously examined and carefully handed. A possible "tool" for dealing with that would be, for the Government, to claim a *golden share* in the IPR system

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15 Smaller, Faster, Cheaper, Better.

(especially patents and copyrights but including trade secrets) by which it would be able to convert a property right previously granted<sup>16</sup> into a *general public license* should the owner refuse, after establishing his first mover advantage<sup>17</sup>, to behave cooperatively, that is to license it broadly and fairly.

*Summing up: Radical innovations and, especially, general purpose technologies should be subjected to a special IPR regime where Government's administrative guidance should be able, if needed, to "shape" the market towards a more competitive institutional design (practically: in the direction of monopolistic competition but away from too secure – even if temporary – monopolies).*

This brings us to our second point, which is closely related to first, referring to the strength of the protection granted. We then observed that given both the complexity and diversity involving patents and IPRs in general, a *one size fits all* prescription does not look as the best way to handle the matter. The 20 years length of a patent (or of the rules governing copyrights and registrations) is certainly not a "scientific established outcome" (Landes and Posner). It is, rather, a *convention*. That is to say, it is an institutional-legal construct that, as such, can very well be questioned and changed. On the other hand, as Jaffe and Lerner adduce –and very much in line with the market features approach – "In the world of theoretical patent analysis it is easy to show that the attributes of patent protection should vary depending on the characteristics of the technology" (p 203).

But hey then expose several reasons why this differential treatment approach would not work in practical terms (pp.203-205). The difficulties to deal with technologies – classify them and quantify their impact empirically – plus the political lobbying by corporations (to get special treatment) are the main

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16 That is, a *legally enforced* temporary monopoly.

17 Meaning: being able to recover his costs, establish his a robust competitive advantage, enjoy a sizable profit stream **but not** being able to exclude others from using and inventing around his innovation or prostrate its diffusion. Taking as an example the Microsoft case, the battle shouldn't be about "breaking" the company. The *golden share* would allow the Government to force Microsoft to publish its source code. An open code would quickly get cleaned up and improved, consumers would benefit and new entrants would probably show, helping ignite the innovation race and dislodging Microsoft from its monopoly position but preserving the company's market power and ability to innovate.

arguments submitted by the authors. We are in partial agreement with them as to having pure technological considerations serving as the basis for policy, as well as to the “rent-seeking” dangers surrounding any sort of differential treatment. But let us note that differential treatment is the core of both technological and industrial policies, regardless of where they are crafted, for instance South Korea, China, Ireland or the U.S. That is: they *can* work.

To be less abstract on the matter, let us propose this broad *guideline* for competition policies: **many sizes under the same rule**. By this we offer the following line of reasoning. The length and broadness of patent protection – as well as innovations protected by copyrights – should be linked to the disbursements in R&D made or to be made<sup>18</sup> by applicants. Being so, big research budgets (in relative terms to the company’s size) would, in principle, qualify better than “historical accidents” to earn legitimate protection. The same rule allowing for different sizes. ....<sup>19</sup>

As to the third source of dynamic inefficiencies referred above, *strategic patenting*, it should be dealt with in a somewhat Ricardian way: earned but unused patents should be classified as fertile but not cultivated pieces of land in an environment structurally constrained by scarcity. They should be taxed, and progressively so. After an initial *launching period* break, each year of idleness in the commercialization of the patent should give rise to a severe fine whose exact amount should be figured out by specialists in the field, but could very well be a (increasing) percentage of the patentee sales or assets. Rigorous ? Yes, but patents and IPRs in general are subjects of public interest. Too important to be left to markets and lawyers to judge. Besides, the competition policy we are pointing to should discourage the sort of unproductive entrepreneurship that Baumol has been talking about for more than a decade, a type of *legal*

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18 R& D expenses as a percentage of the applicant’s sales or assets. Assuming that those R&D intensive industries are also the one bearing more fixed and sunk costs. Plus, near future *planned* expenses tied to the “birth” of an innovation or technology should be in the contract granting the rights and their actual production the enabling mechanism to conclude the exam. Otherwise, *patent pending* would be a sort of “reasonable doubt” *provisio*.

19 A very difficult emerging theme here is the protection to be given to traditional knowledge, DOC issues and related others. We acknowledge its importance but will not deal with that in that paper.

*entrepreneurship* that turns law firms into very big and profitable corporations but with zero impact on the economy's real productivity. It would, to sum up; help to trigger the "relocation of entrepreneurship" – from courts back to labs – discussed, and claimed, by Baumol.

The fourth point outlined (in section 2 above) relates to the relationship between the "digitally renewed economy" and intellectual property issues, and particularly to the risk of *winner takes all markets* outcomes or, from the point of view of corporations, of the occurrence of locking competitors out due to the combination of increasing returns, network externalities, path-dependency and stronger IPRs protection (cf. Varian, Farrel and Shapiro: 2004, Carlton and Gertner: 2002). Competition policies here should pursue, very aggressively if needed, public subsidization of standards development, cooperative standard's setting, stimulus to (instead of restriction on) on research joint ventures and other forms of research coordination (Carlton and Gertner:2002: 3-7) and venture capital financing to multiple sources of experimentation (Bartzokas and Mani, eds: 2004). A "less kind, less gentle patent system" as Jaffe and Lerner put it (2003) where patents turn to be much harder to get and relatively easier to *share* would also be very helpful in that vein.

The fifth issue raised above concerns the recent wave of strengthening IPRs and its connection to a potential "second enclosure movement". This movement is seen by the so-called "progressive IP lawyers", software programmers and a sizable number of social and natural scientists of various extractions as a recipe for global monopoly. One that is likely to stifle innovation at the same time it concentrates wealth (See Moglen: 2003, Benkler: 2003 and Evans: 2005). On the basis of this argument there is an emerging alternative being articulated by some of those groups called "the new commons". As Evans has aptly put it, this alternative is "attractive both because of its distributional implications and because of its potential for raising the rate of innovation and value creation" (2005:3). The basis of the "new commons comes from a redefinition of "ownership": from the focus on the right to exclude to the focus on the right to distribute (disseminate).

The key idea here is that once property rights are redefined along the lines pioneered by the open source software movement community, a much more egalitarian redistribution of intangible assets and a more powerful rationale to foster innovations will be able to emerge. This rationale is one that unfolds from the characteristics of the *networked information economy* -- an economy of information, knowledge, and culture that flow over a ubiquitous, decentralized network. In that environment, as Benker remarks, productivity and growth can be sustained in a pattern that differs fundamentally from the industrial information economy of the twentieth century in two crucial characteristics. First, non-market production can play a much more important role than it could in the physical economy. Individuals working *alongside corporations* – and not corporations alone – can make a real difference in generation of innovative solutions and productivity gains (Benkler: 2003, 1)<sup>20</sup> Second, radically decentralized production and distribution, whether market-based or not, can similarly play a much more important role by increasing the diversity of ways of organizing production and consumption and, therefore, by increasing the sources and possibilities for multiple forms of experimentation.

This is clearly a global issue and – both because of that, and also due to the under theorized relationship between competition policies and intellectual property rights – a very difficult one to handle. It will certainly require an active involvement of governments in helping the development of open source systems and towards more *general public licenses oriented* intellectual property rights regimes. It will also require international cooperation, both very turbulent matters from a power-politics perspective. Nevertheless, the recent decisions by IBM and Nokia , for instance, to put part of their patents in the public domain suggests that there is perhaps more room for maneuver than that the skeptical analyst would expect.

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20 And he adds that one can clearly see that , for instance, by noticing that most of what we do on the Internet runs on software produced by tens of thousands of volunteers, working together in a way that is fundamentally more closely related to a community than to a hierarchical big corporation standing alone.

Finally, there is the issue of the, crucial, role of the institutional structure – or institutional design – within which the IPRs are enforced. This brings us to Jaffe and Lerner discussion of the recent institutional-design changes in the U.S patent system and its deleterious effects on innovation<sup>21</sup>. Their story unfolds around two fundamental changes in the legal-institutional foundations of the system. The first in 1982 was a change in the process by which patent cases were handled. From then on, instead of the twelve regional courts of appeal, one single, specialized, appeals court began to process all the requests: The Court of Appeals for the Federal Circuit (CAFC). This, per se, could have been a positive change, injecting homogeneity in a potentially fragmented system. This actually happened, but it also happened that those were the years of the *Japanese challenge, of America's lost competitiveness, of Reagan's extreme pro-business policies*. And apparently this was reflected in the new court's way of interpreting patent law “to make it easier to get, easier to enforce patents against others, easier to get large financial awards from such enforcement, and harder for those accused of infringing patents to challenge the patents' validity” (Jaffe and Lerner: 2004, 2-11).

The second change dates from the early nineties when the Congress modified Patent and Trademark Office's (PTO) financial basis, turning it into a profit-centre, a service agency whose costs of operation should be covered by the fees paid the patent applicants – or its *clients* (ibid). Together these two changes made a huge impact. According to the authors, they transformed a formerly efficient institution in its commitment to foster and protect innovation into a lawyers' paradise, and a very powerful generator of unproductive entrepreneurship and, therefore, into a severely dysfunctional institution. In order to be “efficient” the PTO started to examine - and grant – as many patents as it could, regardless of the quality and reliability of the examination process, to be able to “survive”. Between 1983 and 2002 the patents granted increased from about 62,000 /year to 177,000/year. The number of patent applications has also

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21 Why do we want to illustrate that point with the U.S system? Simply because it is the most powerful patent system in the world and also the most likely to be mimicked by “emergent economies”.

ballooned. There have reached the figure of about 350,000 per year for 2002-2003 (Jaffe and Lerner, 11). The share of patent cases tried before juries also skyrocket: from less than 3 percent between 1940 and 1959 to roughly 70 percent in 2000<sup>22</sup> (Jaffe and Lerner, 123).

In analytical terms what has happened was the replacement of a quasi-weberian bureaucracy by a new public management (NPM) inspired institutional design in order to “regulate” a crucially important part of knowledge management<sup>23</sup>. The results were dismal in the sense that they reinforced the incentives towards *strategic patenting* and patent litigation (which consumes literally billions of dollars) without any clear impact in innovation inducement or on the rate of innovation (see Noll: 2004 on that issue). To wrap up the point, we could say, paraphrasing Solow that the benefits of stronger patent protection and increased room for *strategic patenting* have failed to show up, except in the big patent portfolio holders’ licensing revenues, and in the dedicated law firm’s balance sheets.... On the sort of detailed institutional re-design which ought to be done in order to improve *patent quality*, we will point the reader to the excellent discussion by Jaffe and Lerner.

However, we would like to add a couple of comments to theirs referring not specially to the U. S system, but to more general remarks concerning institutional design. **The first** is that it is our perception that patents and intellectual property in general is too important nowadays to be left to lawyers and juries, and a single PTO lead us to suggest that they should rather be restructured, institutionally speaking in the form of a ***transversal regulatory agency working in coordination with the existing ones, were field experts from sectoral agencies but trained in patent and IP analysis would be the examiners***. Judges and courts ( but not juries) should be the “last resort” in those matters, not the first.

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22 On the problems of relying in trials by juries in patent cases, see pp 123-126 of their book.

23 As Drechsler aptly sums it, NPM is the transfer of business and market principles and management techniques from the private into the public sector, symbiotic with and based on a neo-liberal understanding of state and economy. The goal, therefore, is a slim, reduced, minimal state in which any public activity is decreased and, if at all, exercised according to business principles of efficiency. NPM is based on the understanding that all human behavior is always motivated by self-interest and, specifically, profit maximization (cf. 2005, 1).

**Secondly**, that this agency should be structured along “weberian lines”, which are a set of offices in which appointed civil servants operate under the principles of merit selection, expertise, hierarchy, the division of labor, exclusive employment, career advancement and legality. This type of rationality – Weber’s key term – would increase speed, scope, predictability, and cost-effectiveness. (Weber 1922: esp. 124-130, Drechsler: 2005). Although checks and balances structured as *embedded autonomy mechanisms* should be added to that picture in order to avoid excessive bureaucratic insulation (cf. Evans: 1995), the *weberianess* of the design ought to be preserved.

## 5- Conclusion

The policy-institutions framework resulting from the discussion above should be flexible and pragmatic, and should have **creative destruction management – or the promotion and regulation of entrepreneurial success** – as its main goal. In its *competition policies dimension*, it should be *not anti-bigness* but anti unproductive entrepreneurship (Baumol: 1993 and 2002), pro-efficiency but not *libertarian* ( in the “Chicago School” sense of letting the market, almost always, take care of its own problems) and, especially, it should be *pro-cooperation*, leaving room for business networks to thrive and for state sponsored administrative guidance’s initiatives. It should also engineer policies towards the development of multiple sources of experimentation and should allow room for industrial and technology policies without jeopardizing its own core theoretical assumptions.

In its *intellectual property dimension*, it should **not** point to a “one size fits all” institutional design<sup>24</sup> and should **not** pursue the *maximum protection of*

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24 It should **not**, therefore, be framed, as Coriat, Cimoli and Primi indicate in a just released paper, as an American “export”: It is essential to note that recent (dramatic) changes in IP law have been strongly embedded in the specificities of an American patent law that is predicated on a *common law* regime wherein the essential criterion for patentability is the “utility” the invention is deemed to have. Utility, a property that refers to products of “useful arts”, basically involves industrial and commercial advances enabled by this invention. Under these conditions, in our opinion the aforementioned change was in fact that suddenly it was enough to relax or change the meaning of the word “utility” for non-patentable areas to become patentable. (Coriat Cimoli

*monopolistic rents* as both the U.S PTO and the WTO seem to be doing, but to search for the *minimal common denominator*, allowing for institutional and technological diversity and distinctive developmental strategies. It should take into account the asymmetries in the distance to the “development frontier” among countries and regions echoing Joseph Stiglitz’s recent, and wise, remark that “Intellectual property is important for sure, but the appropriated IPR system for an emerging country is different from the IPR system best fitting already developed nations” ( Stiglitz: 2005, my version back to English. LB)<sup>25</sup> .

None of these *policy prescriptions* will be achieved without a huge dose of “strategic state action” and most of them will require a high degree of international cooperation. Uneasy tasks therefore. Nonetheless, the expected result, to which this paper intends to be a small contribution, will be a theory-policy framework linking Schumpeterian competition and competition policies to market features and intellectual property rights’ management which will allow room for catching-up initiatives and to the (re) construction of development strategies in order to reverse the dismal picture shown in Coriat, Cimoli and Primi (2005: p16):

“To sum up, weak institutional and personnel capabilities in intellectual property systems’ management, reduced capacity of negotiating intellectual property rights and regime domain and the existence of monopolistic markets where regional enterprises and economic agents perform at the lowest levels of international hierarchies, depict an displeasing scenario where Latin American and Caribbean countries have weak negotiation powers in terms of intellectual property, scantily use the windows of opportunities that current agreements offer and suffer of structural weakness in terms of capacities of proposing regionally-tailored changes in the rules’ games in order to support domestic technological and innovation capabilities”

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and Primi : 2005, p 4).

25 One of main reasons for that – although certainly not the only one – being the fact that the big pharmaceutical companies perform obscene price discrimination among nations (cf. Varian, Farrel and Shapiro;2004, p52) and almost always refuse to engage in poor and emerging countries’ public policies oriented towards health-care .

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