Intellectual Property and Trade: Economic Perspectives

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ABSTRACT *Despite the hype, regionalization frequently appears a better description of world market evolution than globalization. There has been convergence among the advanced nations but in other countries there is a mixed record of take-offs, stalls and nose dives. Given these circumstances, it is important that economics is still trying to come to grips with knowledge-based economic activity and has yet to develop the not-so-simple economics of intellectual property. We have to recognize that information is capital and the discrete piece of information lawyers see as the basis of patents is in reality a large, complex information structure, meshing into elaborate networks. Patenting and other strategies to appropriate benefits from innovation may therefore be more successful than has been conceded generally. Implications extend from domestic innovation to world trade and institutional arrangements.*

Keywords: globalization, information economics, innovation, intellectual, patents, property.

> Ultimately, a property system, however conceived, must be measured in terms of broader issues of efficiency, equitability, privacy and freedom.
>
> Wunderlich[1]

Introduction

In 1984 the Industrial Property Advisory Committee (IPAC) reported to the then Minister for Science and Technology, the Hon. Barry Jones, on *Patents, Innovation and Competition in Australia*.[2] The IPAC report was described, as Chairman John Stonier noted in his covering letter, as 'the first review of the Australian patent system from a predominantly economic perspective'. This first might seem quite remarkable, given that the patent system is one of the oldest instruments in the policy armoury. Unfortunately, economic debate about intellectual property, and especially its trade implications, since IPAC days has been sparse[3] This gathering is an attempt to effect change and I hope the workshop articles can stimulate further debate.

Debate is needed. The Information Revolution goes on apace. The most recent issue of *The Economist*[4] I had time to read at all carefully had numerous reminders, e.g.:

- business intelligence services;
- Hong Kong—the world's software piracy capital;
- cable's hold on America. The new FCC chairman, Bill Kennard, touched on the notion that the media are to serve society, not the other way round;

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- virtual publishing; and
- illuminating chips.

Each of these illustrates the importance of information. Patents and other forms of intellectual property embody information. 'Property, itself, can be viewed as an information system of right holders' and 'Information may be a property-object because it is valuable, scarce and appropriable'.[5]

The 'Global' Buzzword

Because we are interested in world trading arrangements, I should like to emphasize that the economic stage setting will sometimes be quite a local matter and at other times international. I hesitate to say 'global' because that word is much misused. Even in a field of particular interest to me personally and one where the hype is insistent upon the global nature of events, namely telecommunications, there is reason to question whether the system embraces the totality in any meaningful way.

At the January 1998 Pacific Telecommunications Conference in Honolulu, Larry Irving, US Assistant Secretary of Commerce and Head, National Telecommunications and Information Administration, extolled the virtues of the Internet—he had used it to do all his Christmas gift shopping—but then went on to concede, as so many others have done, that half the world's population has never made a phone call.

There is other evidence that points in the same direction. Only to a small extent does corporate technological activity in the IT industry (computers, telecommunications and semiconductors) take place abroad and alliances have become increasingly concentrated within major economic regions. Firms are still basically influenced by the social, cultural, technological and competitive conditions under which they were established.[6] A recent study[7] comparing bilateral telephone traffic with trade patterns in the Asia-Pacific region reports progressive Asian integration. This research supports the view that '*regionalization* frequently appears a better description of world market evolution than globalization'.[8]

Enthusiasm for the buzzword should not be allowed to cloud these underlying perceptions of change; perceptions that should not be all that surprising. In terms of incomes, there has been convergence amongst the rich, developed and advanced countries, but the other set of countries show 'a mixed record of take-offs, stalls and nose dives' amounting to 'massive divergence'.[9]

The Not-So-Simple Economics of Intellectual Property

A major problem is that it is not just a failure to bring economics to bear on the roles of information and intellectual property. A recent OECD conference advanced several propositions:

- the production and distribution of knowledge has special characteristics that are not compatible with mainstream economics;
- knowledge plays an important and increasing role in the economy;
- investment in knowledge and knowledge-using capabilities is characterized by increasing returns;
- there is 'a new dynamic between the formation of tacit versus codified knowledge'; and
- the big issues like underdevelopment, increased internationalization and environmental sustainability call for a rethinking of economics, with the focus shifting to knowledge and learning.[10]

Some believe mainstream economics is managing to do just that; others[11] point to quite fundamental obstacles. Meantime, we have a developing information economics and a proliferation of subdisciplines, e.g., economics of IT, standards and intellectual property. While this revision is going on, we have to take care not to claim understanding of what ought be put, at least for the time being, into the 'too hard' basket.

Information economics is viewed in two ways. First, it can be the economics of asymmetric information, as in markets where there is clearly a difference in the information possessed by buyer and seller. Second, there is the economics of information and organization that 'includes information management in organizations, the role of information in the economy, information policy, and information industries such as publishing and broadcasting'.[12] This second view takes in a great deal that bears on trade and intellectual property: technological change, innovation, non-price competition, indivisibilities, competition and efficiency.

We are indebted to Kenneth Arrow, Nobel Economics Prizewinner, for providing both the best-known version of the economics of intellectual property rights and the intellectual underpinning for centralized decision-making to deal with the supposed underinvestment in invention and research.[13]

The production of information—and Arrow was focusing on technological knowledge—took place under uncertainty where moral hazard precluded efficient insurance. The information was costly to produce but copying was cheap. Information, therefore, had the attributes of a public good. There were indivisibilities and pervasive economies of scale. So this appeared to give a clear-cut justification for property rights and make a strong case for publicly-funded R&D.

As tends to happen, the fine print and footnotes were discarded and we found ourselves with arguments for R&D-led growth and recovery policies and new management fads, all blown up to global village scale. Historian Peter Mathias warned that:

> Some present day governments ... have been too impressed by dramatic instances of the latest technology when making judgements about the sources of productivity. ... [S]ome industries ... become invested with a totem or fetish quality, whereby they symbolise in the public mind the fate of the entire economy and become a test of national viability, success against foreign competition, patriotism and even a sort of collective national virility.[14]

As well as airlines, it would seem that the knowledge industry and IT have been put in this category.

Some of Arrow's points that were discarded need to be retrieved. He was making the point that in so far as research and invention are devoted to producing information, an economic analysis of R&D activities has to look to the peculiar characteristics of information viewed as an economic commodity. He acknowledged:

- the enormous difficulties in defining in any sharp way an item of information;
- the purchaser's lack of knowledge as to the value of the information;
- the accumulated knowledge that an incumbent entrepreneur will have gained and the competitive advantage it conferred;
- the inadequacy of legal protection; and
- the interdependence amongst inventive activities.

So new entrants are at a disadvantage. They have less knowledge than the incumbent; they need to make special efforts to get up to speed; and the interdependence between activities, between items or pieces of information may well mean that some parts of the jigsaw puzzles are missing.

The technological ease and low cost of copying was overemphasized; the capability of making competitive use of information was exaggerated. All these added considerations were noted by Arrow but it was the simple economics that became influential. It had greater appeal for government, especially in the US conditions of the 1960s where so much R&D was defence related; for industry; and for the knowledge industry, including universities, in particular, because it justified public funding.

The copier could reproduce at low cost some pages of text but effective use of information was often high cost and in many cases impossible within the time periods entrants might contemplate. Some researchers focus on the serious nature of management problems in mixing together information from outside sources with information from internal sources.[15] Others claim that much technology is so firm-specific it cannot be used elsewhere.[16] So the public good view was misleading. There was not a whole raft of potential users of new technological information. In some cases, especially in small and developing countries, there were no potential users. Taken together, the various obstacles add up to a rather strong caution against adopting the widely prevalent view of information as oil, as simply a low cost, general purpose lubricant.

While there are big differences between, say, a mechanical device, software and a plant variety, we must not neglect what they have in common: each involves the production of information. R&D, technological development, requirements analysis and medical diagnosis are all information production processes and they shade into many other forms of experimental behaviour.[17] This has been obscured by a focus on technological characteristics, on the sources of information, the information actors themselves, and upon the channels of communication. We lack a taxonomy of information built upon a comprehensive list of characteristics that recognizes the structural and sequential relations within information. We commonly use this approach in dealing with capital like machines and buildings. Surely we should be adopting the same approach with another kind of capital: information or knowledge.

World Trading Arrangements

How does all this link with trade and institutional arrangements. First, it is very difficult to challenge the proposition that the patent system works in favour of those countries selling technology rather than the buyers of technology; and these are categories that tend to fit with 'advanced countries' where convergence is taking place, on the one hand, and 'the other set of countries' with 'the mixed record of take-offs, stalls and nose dives'. Second, there is need for coordination over and above that provided by the market.[18] However, institutional arrangements to provide the coordination have both advantages and disadvantages.

In IPAC days some thought mention of capture theory bordered on the scandalous. Times and terminology have changed; we now see papers referring to 'endogenous economic regulation'.[19] Even if this theme remains unpopular in some quarters, I see no reason to believe the international setting is immune to such influence. As international economics has merged with industrial economics, analysis of the working of international agreements and negotiations should take into account the size distribution of countries, their balance of trade in technology, and their competence in these international processes of information handling and reaching agreement.[20]

From an Australian perspective or from the perspective of other small or developing countries, participation in these processes should be approached, not in a warm glow of hopes of unlimited gains from free trade, but in terms of the hard reality that explains how:

> ...one country, the US, was able to persuade more than 100 other countries that they, as net importers of technological and cultural information, should pay more for the importation of that information.[21]

Unanswered Questions

There are many unanswered questions but I should like to think that these viewpoints might help shape some answers. Let me list some of my personal priorities.

1. First is the term *intellectual property*. 'This is a broad term used to describe the wide range of rights that are conferred by the legal system in relation to *discrete items of information* that have resulted from some form of human intellectual activity' (author emphasis).[22] The value of information, its transferability and appropriability, turn on the neglected structural relations within information. Rather than discrete items, we are dealing with batches and flows. Here economists and lawyers alike come up against the difficulties of creating a dynamic, evolutionary analysis; an analysis that requires an element of story-telling rather than formulation as an optimization problem.[23]
2. The need for administrative simplicity has favoured lumping together diverse ranges of subject matter or kinds of information. New categories have been created in response to new waves of technological innovation. The result is many boxes that do not reflect a consistent pattern of economic effects. We are still in need of a classification based on the economic characteristics of information. Information economics is moving in that direction.[24]
3. I believe more attention to employee rights is warranted. Employees play a vital role in information processes. Karl Marx judged bureaucracy's hierarchy to be 'a hierarchy of information. The top entrusts the lower circles with an insight into details, while the lower circles entrust the top with an insight into what is universal, and thus they mutually deceive each other'.[25] These problems, on the one hand, and the positive contribution of employees to both business intelligence and organizational capital, on the other hand, should be sufficient justification for employee rights being seen as an integral part of the innovation process.[26]
4. The parallel importation issue remains. We have seen an attempt to address this in one specific situation: CDs; and we have seen the predictable reactions of the various parties.[27] Surely, there must be a logic that applies more widely?
5. This leads directly to what is, to my mind, the most important issue: to use the euphemism, 'endogenous regulation'. If, as Lahore argued back in IPAC days, the key issues are economic and policy-related, not legal,[28] it seems both an analytical and a policy failure if we cannot do better in defining a public or national interest. The information economics approach tries to make a contribution by focusing on what is known by the actors on the economic stage, as well as the 'what they like' and 'what they possess' base on which mainstream economics has been built.

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