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Regulation in the New Economy

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REGULATION AND THE NEW ECONOMY

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Abstract

The fundamental theorem of welfare economics asserts that under conditions of perfect competition Pareto efficiency will obtain. This has provided the conceptual basis for the market failure approach to regulation, which focuses on failure to satisfy the conditions for perfect competition as potentially justifying government intervention in markets. The approach is evaluated in the context of a number of key characteristics of the industries of the New Economy. Three areas of regulatory focus are examined: policy approaches relating to competition, intellectual property, and information privacy.

It is apparent that the applicability of the market failure approach is open to question, particularly in regard to competition policy. The exploitation by dominant market players of what may be termed “natural” barriers to entry resulting from some of the characteristic features of the New Economy (scale and scope economies, network effects and consumer lock-in) should be judged in the light of Schumpeterian competition rather than that of neoclassical perfect competition. The difficulty facing regulatory authorities is how to differentiate between situations requiring intervention and those that do not.

The discussion of intellectual property highlights the fact that, in general, government intervention is not necessarily the only or even the best solution to instances of market failure. Finally, the case of information privacy illustrates how the spillover effects of regulatory actions in one jurisdiction can impact on other jurisdictions and necessitate coordination in a globalised economy. The need for countries to cooperate and coordinate their policies is perhaps the key conclusion of the analysis.

1. Introduction

The term “regulation” is usually understood in the economics literature to refer to government intervention in markets, generally for the purpose of correcting a market imperfection or failure. More precisely, it refers to any form of government action to grant or condition the rights of firms to provide goods and services in particular areas of economic enterprise with the purpose of preventing decisions by private agents that would take insufficient account of the “public interest” (see, for example, the definition offered by Stephen Breyer and Paul MacAvoy, 1987).

That government has a duty to safeguard the public interest is a notion that can be traced as far back as 1690 to John Locke in his treatise, “Concerning Civil Government”.¹ The normative view of government espoused by Locke presupposes that governments are able impartially to distinguish between outcomes that are in the public interest and those that are not and, furthermore, are possessed of sufficient information and wisdom to determine the optimal form and level of regulation. This view is not necessarily congruent with the positive approach taken by public choice theory, which argues that, far from acting in the public interest, government may act rather according to the dictates of powerful interest groups. Nevertheless, it is well to bear in mind that some notion of the public interest is meant to be served.

The economic and technological changes being wrought by the New Economy are sometimes compared with those of the Industrial Revolution. However, apart from the rapidity of change this time around, a key difference is that the changes that took place then could be accommodated, with relatively minor adjustments, within the pre-existing legal and economic infrastructures. The changes currently under way affect the nature of competition, and raise questions about the conceptual framework underlying conventional regulation policy. In addition, the global nature of the changes raises jurisdictional issues to a degree not previously encountered. It seems clear that fundamental changes in policy and approach will have to be made this time.

The conventional approach to government intervention in markets, the market failure approach based on the traditional neoclassical model of economics, derives from an insight that can be traced back to Adam Smith’s classic work, *The Wealth of Nations*. The insight, sometimes referred to as the “Fundamental Theorem of Welfare Economics”, is that competitive markets (Smith’s “invisible hand”) deliver Pareto optimal outcomes. This happy state of affairs serves as a benchmark or an ideal to be strived for. However, it is contingent on certain conditions being met. The absence of one or more of these conditions results in varying degrees or forms of “market failure” which may therefore warrant government intervention. Thus, the public interest duty of government within this context may be interpreted narrowly to mean any government action to correct departures from competitive market conditions. This would include, for example, consumer protection to require the provision of information in the case of information asymmetry, and acting to alleviate the problem of spillover effects in the case of externalities. A much wider interpretation of the government’s public interest duty would embrace intervention in anything that may be at odds with prevailing social and/or religious norms, which may well change over

¹ Locke argued, of “the legislative power of every commonwealth, in all forms of government”, that: “First: They are to govern by promulgated established laws... Secondly: These laws also ought to be designed for no other end ultimately but the good of the people.” (Locke, 1690, para. 142)

time or vary from culture to culture (examples here including attitudes towards euthanasia and privacy). Even in these broader cases, an argument based on externalities can usually be brought to bear.

While government intervention is typically carried out through a government instrumentality with authority vested in it by legislation, in practical terms the behaviour of economic agents is shaped by various forms of incentives, disincentives and other constraints. In the context of information and communications networks, these are what Lawrence Lessig (1999b) calls the “architectures” of social norms, the law, markets, and cyberspace. Thus the solution to a problem perceived to derive from some form of market failure does not necessarily lie in government intervention. The bounds of the possible are continually expanding as technology evolves. This is particularly true in the case of externalities or private goods.

The article is structured as follows. The market failure rationale for government intervention is discussed in section 2. Three main categories of market failure are generally recognised: monopoly and market power; imperfect or asymmetric information; and public goods and externalities. These categories have formed the basis in industrialised economies for, among other things, competition policy, consumer protection policy, and intellectual property policy, respectively. These policy areas coincide to a significant degree with three of the key areas of concern in the New Economy. These three areas of concern – competition, intellectual property, and information privacy – are discussed in section 3. This discussion is intended merely to provide an illustrative overview of the approaches that have been taken to regulatory issues, not an in-depth analysis of those topics.

Section 3 also examines in some detail some of the key characteristics of the New Economy and how they have affected and shaped the nature of competition. Although this structure is somewhat arbitrary because many of the issues discussed under the heading of competition policy are pertinent in policy issues relating to intellectual property, for example, and the features of the New Economy obviously will impact on other areas of policy, a structure based on regulatory areas seems appropriate in an article on regulation.

Clearly, the Internet does not have the same boundaries as nation states. In section 4, we look at global aspects of regulation and the need for governments to coordinate their policies. Finally, we conclude in section 5.

2. Market Failure as a Rationale for Government Intervention

The case for regulation based on the market failure approach derives from the insight that competitive markets deliver optimal outcomes and can therefore be seen as an ideal that, while unattainable by and large, can be approximated by a judicious mix of market-oriented policies and government intervention. The conditions for markets to deliver Pareto-optimal outcomes are well known: many buyers and sellers in the market; a homogeneous product; perfect information regarding the availability of goods and services and the state of the technology; freedom of entry and exit by producers; and the absence of “spillover” or external effects. Failure of the market to

deliver competitive outcomes results when any of these conditions is not met to a significant degree, and may therefore warrant government intervention.

Three main categories of market failure have been identified: monopoly and market power; imperfect or asymmetric information; and public goods and externalities. These are now discussed.

Monopoly and Market Power

Market power in its various guises is inconsistent with the competitive ideal of many players on both sides of the market. When it is met, this condition means that no seller or buyer can dictate the terms at which it transacts because it lacks the market power to do so but must take the price as given. Competition among sellers will then push prices down towards marginal costs. As the number of players shrinks, collusive behaviour aimed at capturing economic rents becomes more feasible and, consequently, more likely in the absence of rules preventing such behaviour. The extreme case is the monopolist, who chooses a level of production at which it maximises profits but which is below what would prevail under a competitive equilibrium, and a price that exceeds the competitive level: an inefficient outcome. Departures from competitive conditions in the form of monopolistic situations have been the focus of competition policy in most industrialised economies.

Monopolistic situations can arise for a number of reasons. Existing firms may be protected by high entry costs from competition; or an industry may exhibit the characteristics of a “natural monopoly” – in other words, it may make use of technologies that take advantage of economies of scale so large that they encompass any reasonable projection of market size. In this case, it would appear to make sense for there to be only one producer in the market. Electricity generation is often cited as an example of such an industry. Government has often taken on the task of supplying such goods, or else a strictly regulated private supplier has been allowed to operate. Collusive behaviour, or indeed any behaviour that is likely to inhibit competition among firms, particularly in industries where there are relatively few competitors, is illegal in many countries.

Imperfect/Asymmetric Information

A situation is characterised by imperfect information when economic players do not have full information about a product and/or its market, and are therefore unable to make optimal decisions regarding its purchase. The concept of *transparency* is often invoked in this context. Two aspects of transparency may be distinguished. A product or service is transparent when potential buyers know exactly what it is that they are buying and are able to determine easily how the product or service will be able to satisfy their needs or wants. The second aspect of transparency relates to markets: a market for a product or service is transparent if buyers are able easily to compare the different offerings that are available from different vendors (and their prices) and match them against what they want. To the extent that products or markets are transparent, efficiency is enhanced.

The concept of transparency is closely related to two of the prerequisites for perfect competition, perfect information and homogeneous goods. The link with perfect information is obvious, while homogeneity in goods is a simplifying assumption that does away with the difficulties associated with the need to compare and differentiate

between the offerings of different producers, or the different offerings of any one producer.

A situation of imperfect information often takes the form of one side to a transaction having better information than the other, and is more commonly referred to as the problem of asymmetric information. When one side of a potential transaction has superior information to the other, the latter is disadvantaged and vulnerable to exploitation by the former. Even if both parties stand to gain from transacting with each other, the outcome too often will be that the transaction is not consummated because the disadvantaged party fears exploitation or it is concluded on terms relatively disadvantageous to him. To the extent that government intervention is considered necessary in these cases, particularly in the case of financial assets, the remedy is usually some form of information disclosure requirement.

However, many aspects of the problem of asymmetric information do not require government intervention. Market-based solutions that alleviate the problem are commonly employed. For example, if the information deficit relates to the product or service per se, additional information can be provided by the producer in the form of informational brochures and advertising. If the problem is one of distinguishing between low- and high-quality producers of a product, the ability of a producer to signal to the market in a way that allows this to happen — for example, by offering credible guarantees or warranties — is useful. In addition, industry awards or independent assessors (consumer bodies or commercial) that provide evaluations and comparisons of products by different producers offer a degree of objective evaluation.

Externalities and Public Goods

An externality exists when the activities of economic agents (either producers or consumers of goods or services) are not fully reflected in the market, and there are spillover effects on to third parties not directly involved in the transactions. Externalities can be positive or negative. In the case of positive externalities, the third-party spillover effects are beneficial — that is, the marginal social benefits exceed the marginal private benefits. As a result, goods exhibiting positive externalities will tend to be under-produced because the producer does not appropriate all of its benefits. With negative externalities, marginal social costs exceed marginal private costs: the producer does not bear the full cost of his actions and part of it is borne by third parties. Goods exhibiting negative externalities will therefore tend to be over-produced.

It is important to note that government intervention in one country to correct a market failure can itself have spillover effects in other countries. In the context of an increasingly globalised international economy, this suggests a need for harmonised policies where spillover effects are likely to occur. This point is taken up in section 3.

All goods exhibit to some degree two important characteristics: rivalry in consumption and excludability. To the extent that a good exhibits rivalry in consumption, it can be consumed by only one person at a time; to the extent that it is non-rivalrous in consumption, many people can enjoy the good without affecting the enjoyment of the others. A good is excludable if its owner or producer can exclude anyone from enjoying it; it is non-excludable if the opposite is true. A pure public good exhibits in extreme measure the characteristics of non-rivalry in consumption

(one person’s consumption of it does not diminish the amount that others are able to consume), and non-excludability (no one can be excluded from enjoying it). The property of non-rivalrous consumption implies zero marginal cost to existing users in sharing the benefits of the good with an additional person. Efficiency would dictate that the good be provided at the marginal cost of another person enjoying it, i.e. zero; but at that price it does not pay any private producer to supply it since their investment could never be recovered. At the same time, the non-excludability of public goods implies that the benefits of access cannot be fully appropriated by producers: if someone cannot be excluded from enjoying the benefits of a good, he or she has little incentive to pay for it but will be inclined to “free ride”. There is then little incentive for a private producer to undertake the supply of such a good, which would consequently be undersupplied. Public goods are closely related to externalities; indeed, public goods are considered by some to be special cases of positive externalities.

Not all public goods exhibit the characteristics of non-excludability and non-rivalrous consumption to the same degree. Most public goods typically fall somewhere on the continuum between “excludable” and “non-excludable”, and between “rivalrous consumption” and “non-rivalrous consumption”, and most are what may be termed *impure* public goods. For expositional purposes, it is convenient to consider only the extreme cases at the ends of each continuum, which allows us to categorise goods in a two-by-two matrix (see Figure 1).

FIGURE 1: Pure and Impure Public Goods

	<i>Excludable</i>	<i>Non-excludable</i>
<i>Rivalrous Consumption</i>	Private Good	“Common” Good
<i>Non-rivalrous Consumption</i>	Club Good	Pure Public Good

Source: Adapted from Kaul et al. (1999)

In terms of the supply of public goods, the characteristic of non-excludability is especially problematic. Non-excludability means that the benefits of consumption of these goods are not appropriable by the producer. The degree of excludability of a good, it may be noted, depends on the state of the “technology” that can be deployed to exclude non-paying consumers, or on some property-right demarcation conferred and enforceable by law.

Government intervention to correct a public-good problem may take several forms. The first is to increase the degree of appropriability of the returns to the public good, e.g., in the case of information or knowledge, by various forms of intellectual property rights that recognise and enforce the ownership rights of the creators of information goods. Intellectual property rights regimes typically grant a monopoly to the owners of intellectual property for a limited term, after which the property enters the public domain. The rationale is to restore the incentive to invest resources in producing such goods. This must be counterbalanced on the other hand by the public interest in having access to the good in question, which is typically achieved by restricting the term of the monopoly and the inclusion of “fair use” clauses in the legislation.

A second form of government intervention in the production of public goods is for the government itself to be directly involved in the provision of the good and recovering the investment by charging for it, typically through taxes. However, the government is not necessarily the best or most efficient producer of the good. Therefore a third form of intervention is for government to support private-sector production of the public good by way of either direct grants or subsidies. The most appropriate form of intervention would depend on the position along each of the spectrums a particular good is located. For example, the benefits of some public goods, such as education, are partially appropriable but because of positive externalities they will tend to be underproduced. Subsidies may therefore be more appropriate than outright grants in these cases.

3. Market Failure in the New Economy?

To what extent do the arguments presented in section 2 relate to the New Economy? Are market-oriented solutions more feasible because of lower transaction costs, or have market imperfections become exacerbated so that a greater degree of government intervention is called for? These and related questions are taken up in this section. We focus on three key areas of regulatory concern: competition policy, intellectual property, and privacy.

3.1 Monopoly and Market Power: Competition in the New Economy

The use of the neoclassical model of perfect competition as the benchmark against which actual cases are to be evaluated is increasingly regarded as problematic. Most writers are generally agreed on the view that competition in the New Economy resembles not so much the neoclassical model of perfect competition as the Schumpeterian model. In contrast to the neoclassical model, which assumes that technology is static and focuses on optimal equilibrium market conditions, the Schumpeterian concept of competition is a dynamic process driven by relentless and revolutionary innovation. In this environment, the old is constantly being replaced by newer and better innovations in a process of “creative destruction”. This raises questions about the appropriateness of the conceptual framework underlying conventional competition policies.

It is useful at this point to examine more closely some of the key features of the New Economy and study how they impact on issues of concern to regulatory authorities.

3.1.1 Features of the New Economy and Effects on Competition

A number of key features of the New Economy both characterise its industries and shape the nature of competition. Four interrelated features in particular may be identified: a heavy reliance on information and communications technology (ICT); the key role played by information as both an input and the final product of its industries; the cost structure of information goods; and the global reach of the New Economy. These are now discussed in turn.

Reliance on ICT

The first feature is the heavy reliance of the industries of the New Economy on ICT, in part a result of the rapid advances in that technology. The extraordinary rate of innovation and progress that has occurred in ICT in recent decades has led to equally dramatic declines in the quality-adjusted cost of information processing and communication. Computer programs today are an order of magnitude more sophisticated and powerful than those of just a decade ago, and businesses and households increasingly rely on them to carry out routine functions. In communications, the Internet and mobile and other forms of communications technology have spread to every corner of the globe. Indeed, the use of ICT now permeates almost every aspect of developed economies around the world.

The impact on competition is significant. The widespread use of ICT, and the sheer economic logic to develop common standards and interoperability among different systems to enable “inter-connectivity” between them means that network effects are pervasive.

Network effects refer to the benefit or value derived by a consumer over and above the value received in the absence of other users of the good. The latter, the standalone value of the good to the consumer in the absence of other users, has been termed the “autarky” component; the former, the value derived by the consumer from being part of the network of users, is the “synchronisation” component (Liebowitz and Margolis, 1998). Metcalfe’s “law”, which states that the utility or value of a network is in direct proportion to the square of the number of participants in the network, conveys something of the power of network effects: the value of the network to users grows at a rate far in excess of the number of users.

When network effects are large, the synchronisation component is a large proportion of the value derived by a consumer from a product. Two types of network effects may be distinguished (Liebowitz and Margolis, 1998). *Direct network effects*, sometimes referred to as economies of scale in consumption, are generated directly through the number of users of a particular product on its value to an individual user. Telephones and fax machines are typical examples of goods exhibiting direct network effects. With a small number of users, the value of a fax machine to an individual is limited; as the number of users increases, so does the value to the user because the potential use of the machine goes up. While network effects are observed in goods that do not necessarily have a direct connection with ICT, it is in ICT-related applications that they are arguably most marked. *Indirect network effects*, which may be termed economies of scope in consumption, occur when the value of a product increases as other products related to its use are developed. In other words, as the network size increases, so does the number of complementary products available to members of the network. The greater popularity of the Windows-based personal computer over the Mac is partly attributable to the fact that Microsoft worked harder to encourage developers to write software applications for Windows.

The existence (some would say prevalence) of network effects in the New Economy has important implications for the nature of competition. Because networks take time to build up to “critical mass” (i.e., become widespread enough to be economically viable), producers that are sufficiently ahead (in both time and appeal to the market) of the competition with a new product or application will be able to acquire the

necessary critical mass to exploit economies of scale. Economies of scale are common among information goods. Once network effects kick in, new entrants to that segment of the market will be confronted with a daunting barrier to entry as consumers are presented with plenty of incentives to join or remain part of the dominant network, and very few to be part of the “new boy’s club”. Network effects, where they exist, are therefore an important source of “first-mover advantage”.

This in turn may imply in an impoverishment of choice for consumers, or worse. For while an individual consumer may prefer the intrinsic features of one product over those of another, he or she may still opt for the latter because of the superior network benefits it offers. If sufficient numbers of people feel the same way, the dominant firm will grow even more at the expense of its competitors, some of whom may be forced to exit the market. There may therefore be an inherent tendency for one firm’s product or technology to dominate, and in the absence of some aspect of a competing product that appeals sufficiently to consumers to offset this, the result will tend to be a “winner take all” or “winner take most” outcome, with the winner becoming the de facto standard-setter in the industry. The market will then find itself locked in to one particular standard or technology. Even if this does not happen, the outcome could be that competition is less vigorous than it might otherwise be and there is less opportunity for experimentation and, consequently, diversity in the market.

Role of information

The second feature of the New Economy is the dominant role played by information or knowledge. This is significant in an evaluation of regulatory issues because, as Joseph Stiglitz has pointed out, markets for information are different in important ways from markets for other commodities (Stiglitz, 1999a,b). As noted earlier, the economic case for government intervention in markets has traditionally been based on correcting instances of market failure, or departures from the conditions for perfect competition. But, as Stiglitz (1999b) observes, each piece of information, almost by definition, is different from every other piece of information, so that the prerequisite of goods homogeneity for a competitive market is violated.

The New Economy has different implications, however, for product and market transparency. With relatively unprocessed information products such as news items, product transparency can be extremely high, to the point where it poses a problem for the vendor who wishes to charge for it but is unable easily to communicate the nature of what he is trying to sell without giving it away for nothing. At the other end of the spectrum, with highly processed, “higher-level”, products like multi-function software packages, product transparency can be very low. These issues are not much different from the ones faced by the more traditional industries and no government intervention has been deemed necessary for them. The impact of online activities on product and market transparency remains to be seen.

While product and market transparency are related – comparisons between different vendors’ products are more easily made if the products themselves are transparent – market transparency in general is arguably higher in the New Economy because of the ease with which information about vendors and their offerings and prices can be obtained and disseminated by consumers. Market transparency, because it allows consumers more easily to assess product and price differences, can be expected to increase competition. On the other hand, increased market transparency also implies

improved information flows between producers. Since this means that defections from tacitly collusive agreements are more easily detected, particularly in oligopolistic markets, increased market transparency could result in *more* tacit collusion between producers and consequently dampen price competition.

Internet commerce, particularly business-to-consumer (“B2C”), is fraught with problems of asymmetric information, giving rise to consumer suspicion and mistrust of retailers and other businesses on the web. Indeed, lack of trust is commonly cited in surveys of Internet users as a significant disincentive against their transacting on the web. This mistrust has several dimensions, including the concerns of consumers about the confidentiality of personal information provided to web merchants, concerns over whether a product purchased over the Internet will live up to its claims, and concerns over whether rectification can be reasonably sought and achieved in the event that something goes wrong in the ordering process. The global nature of the Web may serve to deepen these concerns. For example, how credible or enforceable are warranties provided by a Web merchant located half-way around the world?

The Cost Structure of New Economy Industries

The third feature of the New Economy is the cost structure that information goods tend to exhibit. Although the development costs of information goods are often very high, the marginal cost of producing an additional unit tends to be very low. Many goods (films, some software packages) require large fixed costs of development, although subsequent copies can be turned out at negligible marginal cost. This means that there are economies of scale in industries exhibiting this kind of cost structure, which in turn translates to a form of first-mover advantage for the firms that are able to build up sufficient market mass to take advantage of the scale economies. On the other hand, entry costs in some sectors of the New Economy are dramatically lower than the corresponding costs for their physical-world counterparts: for example, the operating costs of web-based businesses can be much lower because of savings on fixed costs. Firms that only operate online bear lower costs because of savings in terms of the rental of office space, administration and other operating costs.

Competition will therefore tend to increase and firm size to decrease because entry costs and fixed costs of operation are lower. Other kinds of fixed or entry costs, however, may increase. For example, new online firms may find it necessary to invest heavily in building a reputation or brand.

In addition, there are widespread economies of scope arising from the digitisability – the conversion of text, images and sounds into a sequence of zeros and ones – of information. (Indeed, Carl Shapiro and Hal Varian have defined information as “anything that can be digitised”.) This has meant that information expressed in different media can be just as easily manipulated, customised and repackaged by computers at low cost. Products created for a particular market can be repackaged with other material, or modified and customised for other markets and uses at low cost, allowing the fixed costs of development of the initial products to be spread more widely. The presence of economies of scope would tend to reinforce the tendency towards greater concentration and less competition.

Global Reach

The fourth feature of the New Economy is its global dimension and reach, due in large part to the development and widespread diffusion of the network infrastructure known as the Internet. The widespread use of ICT means that the fact that information or knowledge² is not easily constrained by the boundaries imposed by geography and politics is even truer today than it has ever been at any time in the past. The codification of information or data means that information can be transmitted almost costlessly around the world. This has led Stiglitz (1999a,b) and others (see Kaul et al. 1999) to argue that, unlike most public goods whose benefits are limited geographically, knowledge is a global public good.³

Most public goods are geographically limited, parks and libraries being examples. With information, however, which is amenable to being transmitted across vast distances via the use of ICT, the traditional barriers of geography or national borders pose no difficulty. The global public good nature of information means that the standard prescriptions for public goods may not be completely effective in addressing the market failure without coordination or harmonisation of national policies.

3.1.2 Policy and Regulatory Implications

Two apparently contradictory conclusions would seem to arise from the foregoing. First, dramatically reduced entry and transaction costs will tend to attract more entrants, many of which will be small start-ups. We would therefore expect competition to be more intense.

Second, there are several sources of first-mover advantage that suggest that the most fleet-footed and innovative of these small and medium-sized enterprises will grow into large firms that will come to dominate their industries. The sources of first-mover advantage include the existence of network effects, economies of scale, and consumer lock-in (by which customers are “locked in” to the products they have selected because of the high cost of switching over to the products of rival firms). These will tend to translate into high effective entry barriers to any aspiring rivals and, coupled with economies of scope, would suggest a higher degree of concentration within industries and less competition.

This apparent contradiction can be resolved by observing that many industries exhibit what can roughly be characterised as a phased pattern of development. As Andrew Graham (2001) has noted, regarding an important and growing part of the New Economy:

² Information and knowledge are obviously not the same thing. In particular, information needs to be internalised before it becomes knowledge – recognised in the conceptual distinction often made between explicit knowledge and tacit knowledge (see, e.g., Nonaka, 1994). In the context of the New Economy, however, the transmission of information is the crucial process that enables many of its markets to function and thrive. For this reason, authors in this area often use the terms information and knowledge interchangeably, or they qualify it. Quah (2001), for example, refers to “codifiable knowledge”.

³ Stiglitz (1999a) identifies four others: international economic stability, international security (political stability), the international environment, and international humanitarian assistance. Some authors (Kaul et al. 1999, Sandler 1999) suggest that the concept of a global public good should be extended beyond purely geographical notions to encompass inter-generational aspects.

[T]he Internet appears to be moving through phases that bear a resemblance to those of earlier technological revolutions (such as the discovery of electricity). In broad terms, the first phase is dominated by pure research (often taking place in universities or in research institutes with public funding). In the second phase, when the original discovery has been made, but no one knows exactly how to use it, all kinds of experiments are made. This second phase is particularly suited to small firms and venture capital. Many new firms are born but a great many fall by the wayside. In the third phase the market consolidates and large firms with their superior marketing facilities and worldwide reach take the lion's share. (p.157)

Thus, the entry of smaller-sized enterprises and increased competition is consistent with what Graham calls the second phase, while the dominance of industry sectors by large firms is consistent with the third phase he describes. It is the latter which poses particular challenges for regulatory authorities. In this environment, characterised by Schumpeterian competition driven by the process of "creative destruction", industries tend to be dominated by market leaders. These market leaders, so the argument goes, have attained their dominance by virtue of innovations that allowed them to leap-frog over the previous leaders. The fear of being themselves overtaken in this way by new upstarts is what keeps the market leaders relentlessly innovating. Schumpeterian competition, the ascendancy of the most innovative, dramatically levels the playing field for smaller entrepreneurial firms. A smaller firm that is able to produce a radically new and innovative improvement over an existing product or process has the potential to usurp the position of the dominant firm(s). These firms therefore pose a continual threat to the dominant firms as they constantly strive to innovate.

However, the dominance of the market leaders, once achieved, is maintained by exploiting entry barriers such as those described above and by exercising their market power, two features that traditionally have raised the hackles of regulatory authorities. The Schumpeterian competitive process rewards firms that are able to identify and capitalise on opportunities more quickly than their rivals, and attain a position of market power, albeit temporary, over their rivals. If this is an accurate description of what is happening, the restrictive practices of dominant firms may in fact reinforce the process of creative destruction, by enhancing the incentives to innovate and achieve dominance, and eventually bring about their own demise. As Harold Demsetz (1973) pointed out in a much-quoted passage, "To destroy such power when it arises may very well remove the incentive for progress. This is to be contrasted with a situation in which a high rate of return is obtained through a successful collusion to restrict output; here there is less danger to progress if the collusive agreement is penalized." The conundrum facing the authorities is therefore how to distinguish between situations that require intervention and those that do not.

However, while many writers argue that the process of Schumpeterian competition will operate in general to maintain the flow of innovation and therefore serve the public interest, whether it does so in fact is essentially an empirical issue, and is by no means a view that is universally accepted. Stiglitz (1999b), for example, has argued that:

... Schumpeter's conjecture, that a succession of entrants would provide competitive discipline, [is] not in general true. Even small entry costs could

result in large monopoly power, with not only prices being maintained high, but with the pace of innovation far slower than under competition.

He goes on to sound a note of warning for policymakers:

As we move into the “knowledge economy” just as the new technologies provide greater scope for the suppression of competition, the consequences may be more adverse... [T]he kind of creativity that is essential for the knowledge economy requires the engagement of the mind. Organizationally, small new enterprises often have provided more fertile ground for this kind of creative engagement than do large established bureaucracies. Many of the most important innovations have originated in these small enterprises. These firms typically begin with a number of disadvantages, such as lack of access to inexpensive capital. If, in addition, there are artificially created market (anti-competitive) barriers then the pace of innovation may well be slowed.

3.2 Externalities and Public Goods: Intellectual Property Rights and the New Economy

The central role of information in the New Economy, and the public-good nature of many information goods, highlights the importance of intellectual property rights (IPRs) as a solution to this particular public-good problem. IPRs confer a limited-term monopoly as an incentive for innovative and creative activities to be undertaken. While it is not possible to quantify the extent of the deadweight losses resulting from monopoly pricing, it is apparent that they vary across industries, product categories and technologies. These negative social effects are attenuated by various limitations placed on the property rights. By devices such as limits on the scope and duration of the rights conferred, as with patents and copyright, and fair use provisions in the case of copyright, intellectual property laws attempt to strike a balance between private incentives and the public interest of ensuring a degree of access to the results of such innovative investments.

The globalisation of the international economy, together with the development of technologies that have dramatically lowered the cost of making or accessing illegal copies of products protected by IPRs, has prompted some to argue for the strengthening of IPRs. This should be regarded with caution, as it is generally recognised that IPRs that are too extensive can be counter-productive and stifle innovation. An important question in this context is: are there alternative, preferably market-based, solutions to the problem of non-appropriability that do not involve government intervention and negative social effects? Apart from IPRs, the problem of non-appropriability in many information goods, including some that have traditionally been protected by IPRs, is amenable to other solutions, although these may have consequences that are not necessarily in the public interest. For example, Soon-Yong Choi, Dale Stahl and Andrew Whinston (1997) discuss the use of marketing strategies such as converting goods to multiple-use, time-dependent products, customising products, and providing frequent updates to discourage the reselling of goods by consumers. Gallini and Scotchmer (2001) discuss, among other things, the use of “fluid contracting” to increase the efficiency of policies that are otherwise sub-optimal, but note at the same time that contracting can also be used to support anti-

competitive behaviour.⁴ Lessig discusses problems associated with the use of technology (what he calls “code”) to enhance the excludability of information goods like digital music, books and videos. Fundamental policy issues are involved when the scope of the *effective* property rights that have been thus demarcated go beyond what was originally envisaged by the law.

3.3 Consumer Protection: Privacy and the New Economy

An important aspect of the problem of asymmetric information in the New Economy, particularly in B2C Internet commerce, relates to the concerns of consumers about the confidentiality of personal information provided to web merchants and other parties. This mistrust constitutes a significant barrier to the development of Internet commerce. In most consumer surveys, privacy concerns are at the top of the list of reasons why people do not transact more on the Web.

That there are several aspects to privacy is evident from the range of definitions which have been applied to the concept. The first aspect, which appears to be the most commonly used sense in which the term is used, is that of seclusion, or “[t]he quality or state of being apart from the company or observation of others” (Webster’s Third New International Dictionary, 1966 ed.). Until recent times, the concept has been associated with the idea of physical privacy. However, electronic surveillance and other related technologies have made it possible to “snoop” on individuals (and organisations) remotely, so that it is possible to be apart from the company of others but not from their observation, necessitating the extension of the concept. The aspect most applicable and relevant to the New Economy is that of informational privacy, or the right of individuals to control the flow of information about themselves (Posner, 1978; Laudon, 1996), and the discussion here will be addressed primarily to this aspect.

One reason for the urgency of the current debate over privacy lies in the fact that the factors that have afforded people a degree of privacy in the past, such as physical distance and the cost of snooping, are being eroded or circumvented by the Internet and associated technologies to a significant degree. At one end of the range of views are those who regard privacy as akin to a human right. It has been argued that there are evolutionary roots to the desire for privacy, that there is a psychological need for it, and that people cannot thrive without it (Hirshleifer, 1980). Others have argued that it is an artifact of modern Western culture, pointing out that more “primitive” societies have always exhibited extremely low levels of privacy (Posner, 1978, 1979). While this short summary does not do justice to the complexities of the debate, it provides an indication of the range of views on the topic. What is relevant here is that, whatever the origins of the demand for privacy, it is something that is desired and valued by individuals, although the value that is put on it may vary across and even within cultures.

⁴ Another solution, “voluntary cooperation”, has been described by Graham (2001) as follows: “[T]he public good aspect of information on the Internet, plus the community of interest that it has generated, appears to have been particularly effective in inducing the writers of software to share their results in the interest of the common good.”

Two points are pertinent. First, if privacy is a good then, even if it is an intermediate or “instrumental” one (Posner, 1978), reducing the availability of it reduces social welfare. Second, if there are differences in cultural preferences regarding the optimal degree of privacy, then strengthening effective privacy rights in one jurisdiction must, in the international economy, have spillover effects on other jurisdictions that cannot be ignored.

In terms of the market failure model, a situation of asymmetric information in which a company does not disclose to customers its policy, if any, regarding personal information collected from them, imposes costs on the customers in the form of checking and ongoing monitoring activities to assess the risk that the company might misuse the information they provide in the course of the transaction. The company, in other words, is able to internalise any gains from selling or otherwise utilising the personal information while at the same time externalising any negative effects from doing so. Two outcomes are possible once a preliminary assessment of the risk has been made by the customer: the customer may assess the risk as “low” and proceed to deal with the company; or she may assess it as excessively high and decide not to complete the transaction. It is apparent that a stronger privacy regime would improve efficiency in this situation. The question is how such a regime should be delivered.

While most countries have based their privacy and data protection laws on the 1980 OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data, these guidelines may be regarded as starting points in the treatment of privacy. Peter Swire (1997) has identified three approaches to privacy. The market-based approach is based on the rationale that companies that do not provide the level of privacy desired by consumers will suffer the consequences in the form of lost business. Market forces, it is argued, will deliver the optimal degree of privacy. In the presence of the market failure outlined earlier, however, the market cannot be expected to deliver such an outcome.

The second approach is one based on industry self-regulation, whereby industry bodies formulate voluntary codes of conduct relating to privacy practices which are then implemented by firms in the industry. Enforcement of the code and the adjudication of disputes may also be carried out by an industry body. Until recently, self-regulation has been the approach favoured by the U.S., where the Federal Trade Commission (FTC) developed voluntary guidelines for companies to adopt for their web sites.

The third approach is based on government enforcement of rules defined by the law. The European Union (EU) declared its commitment to this approach through its Directive on Data Protection of 1995, which set a deadline of October 1998 by which all 15 member states of the EU were obliged to introduce legislation that satisfied the minimum requirements set out in the Directive. The EU Directive essentially aimed to harmonise national privacy laws in the European Union (Dholakia and Zwick, 2001). Importantly, it prohibits the export of data from the EU to countries that do not offer adequate protection for the data. As a result, a number of countries, including Australia and Canada, introduced privacy legislation to conform to the EU requirements.

In the U.S., a “safe harbour” framework was developed to accommodate the EU requirements; this arrangement was approved by the EU in July 2000. Under this framework, participating US companies agree to comply with the safe harbour’s requirements and are deemed by the EU to have satisfied the EU requirements. The US position relating to privacy in fact moved closer to the EU one after two surveys conducted by the FTC in 1998 and 2000 indicated that the vast majority of web sites failed to meet FTC guidelines for adequate privacy protection. Proposals were put before Congress to consider sweeping privacy legislation but this stance was subsequently reversed in October 2001, in part as a reaction to the September 11 attacks. US companies currently continue to operate under the safe harbour framework.

4. Global Aspects of Regulation

Cross-border spillovers in the New Economy pose challenges in a world organised into separate jurisdictions of nation-states. In addition, the low cost of moving a business from a jurisdiction that it no longer finds congenial to its interests to another one can encourage “regulatory arbitrage”, and induce countries to compete with one another in reducing their regulatory oversight of economic activity conducted from within their jurisdictions. While this is not necessarily a bad thing, it is clear that a coordinated approach to harmonising rules, if not common rules, is highly desirable. In the longer term, it might be expected that the lower cost of regulatory arbitrage will tend to produce, for example, more similar corporate tax regimes and investment incentives in different jurisdictions.

Nine key areas in electronic commerce that require international cooperation were identified by the U.S. Department of Commerce, in a report entitled “A Framework for Global Electronic Commerce” dated July 1997. These areas were: customs and taxation; electronic payment systems; a “Uniform Commercial Code” for electronic commerce; intellectual property; privacy; security; telecommunications infrastructure and information technology; content; and technical standards.

Indeed, there is widespread support for initiatives to formulate common rules and approaches on a global level. Multilateral and regional organisations have given high priority to cooperation in electronic commerce. These include the Organisation for Economic Cooperation and Development (OECD), the World Trade Organisation (WTO), the Asia-Pacific Economic Cooperation forum (APEC), and the UN Committee on Trade and Development (UNCTAD). Examples of initiatives and agreements reached include the UNCTAD Model Law for electronic commerce, on which several countries have based their own legislation, and the World Trade Organisation (WTO) Agreement on Trade-Related Intellectual Property Rights (TRIPS), which was signed by 125 member states, and constitutes a major step in the direction of the formulation of global trade rules.

5. Summary and Conclusions

The fundamental theorem of welfare economics asserts that under conditions of perfect competition Pareto efficiency will obtain. This has provided the conceptual

basis for the market failure approach to regulation, which focuses on failure to satisfy the conditions for perfect competition as potentially justifying government intervention in markets. The approach was evaluated in the context of a number of key characteristics of the industries of the New Economy. Three areas of regulatory focus were examined: policy approaches relating to competition, intellectual property, and information privacy.

It is apparent that the applicability of the market failure approach is open to question, particularly in regard to competition policy. The exploitation by dominant market players of what may be termed “natural” barriers to entry resulting from some of the characteristic features of the New Economy (scale and scope economies, network effects and consumer lock-in) should be judged in the light of Schumpeterian competition rather than that of neoclassical perfect competition. The difficulty facing regulatory authorities is how to differentiate between situations requiring intervention and those that do not.

The discussion of intellectual property highlighted the fact that, in general, government intervention is not necessarily the only or even the best solution to instances of market failure. Finally, the case of information privacy illustrates how the spillover effects of regulatory actions in one jurisdiction can impact on other jurisdictions and necessitate coordination in a globalised economy. The need for countries to cooperate and coordinate their policies is perhaps the key conclusion of the analysis.

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