

Competition Policy for the Digital Economy

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Abstract

Since the 1980s the promotion of competition and the attendant concept of efficiency have been central tenets of public policy. These concepts have been applied increasingly with little understanding of their significance and meaning. This paper addresses the implications for competition policy of the transformation to a Digital Economy. The transformation should be envisioned as a the consequence of a General Purpose Technology of ICT (rather than as a subset of transactions that take place within the economy as in Government strategy). The continuing change to the Digital Economy necessitates a reframing of the policy prescription, especially on policy to focus on facilitating markets as mediums for information exchange rather than marginal cost pricing outcomes.

Introduction

This paper deals with the concepts of a Digital Economy and of Competition Policy, and poses the question of how the evolution of the former should affect the development of the latter.

The motivation for the paper was manifold, but the immediate trigger were three events. The first were papers presented at the *Contesting Markets Symposium* conducted by the Markets and Society Research Network at the University of Sydney in late 2010¹. These had made the point that the language of competition policy and of the efficiency of markets was used by policy makers in ways that indicated they showed no understanding of the terms.

The second was the Australian Government's *Convergence Review*. The *Framing Paper* issued by the review included the simple sentence;

*More broadly, the encouragement of competition is accepted as a key aim in most of the significant public policy reforms of the last two decades.*²

This statement was made uncritically, and the assumption inherent in it was then used throughout that paper and the subsequent *Emerging Issues Paper*.

At the same time at a seminar on the matters before the convergence review a participant made a comment about not having heard about efficiency and an assertion that we all understood what 'efficiency' meant.

This paper poses the question of whether the issues that have inspired a “convergence review”, which are more broadly those changes encompassed by the term “The Digital Economy”, necessitates a rethink of the essential principles of competition policy.

As such the question is open as to whether the study undertaken here is an exercise in normative economics rather than positive economics. Milton Friedman in his oft cited methodological work asserted that disagreements about economic policy mostly derived from differences in the application of economics as a ‘positive science’.

I venture the judgement, however, that currently in the Western world, and especially in the United States, differences about economic policy among disinterested citizens derive predominantly from different predictions about the economic consequences of taking action – differences that in principle can be eliminated by the progress of positive economics – rather than from fundamental differences in basic values, differences about which men can ultimately only fight.³

In the spirit of that view the paper tries to keep the focus on that question, what does economic science have to tell us about the operation of markets and the efficacy of competition in the Digital Economy.⁴

The paper commences by describing “Competition Policy”, including the history of the concepts, and its economic rationale; including how economic events related to the development of policy.

The paper progresses to describe what we understand by the term “Digital Economy” and contrasts this with the more narrow Government definition. This includes a review of the major impacts of these developments on economic organisation.

The paper concludes by identifying how the ongoing evolution of the Digital Economy impacts on the accepted principles of Competition Policy and hopefully commences the policy debate about our understanding of competition in the 21st century.

Competition Policy

Competition Policy Past and Present

Globally, modern competition policy is traced back to the 19th century and the formation of “trusts” in the United States. Motta notes;

In the second half of that century, the United States experienced a number of events, which resulted in the transformation of manufacturing industries. Perhaps the most important events were dramatic improvements in transportation and communication. The railway extended rapidly throughout the US territory, as did telegraph lines and the telephone services. This entailed the formation of a large single market, which in turn gave a powerful incentive to firms to exploit economies of scale and economies of scope.⁵

The response of business to these developments was to get bigger to realise the benefits, but the creation of a “single market” also increased competition. The

combination of falling costs and increased competition resulted in price wars, firms responded by the formation of trusts and cartels.

The response was the *Sherman Act* of 1890 which prohibited combinations that restrain trade and monopolisation. This was augmented by the *Clayton Act* in 1914 to prohibit mergers capable of reducing competition.

The flavour of Competition Policy changed from the 1970s on. Adoption of public policy approaches that favoured the operation of "free markets" saw a greater reliance on markets themselves and less direct intervention through anti-trust actions.⁶

However, attention started to focus on *regulations* that had the effect of restricting entry to various markets and hence limiting competition. In his "Introduction: A Postscript, Seventeen Years After" to the 1988 edition of his *The Economics of Regulation: Principles and Institutions* Alfred Kahn noted;

*The most dramatic manifestations of the deregulation revolution have, of course, been not in the traditional public utilities but in such structurally competitive industries as airlines, trucking, stock exchange brokerage services, railroads, buses, cable television, oil and natural gas.*⁷

Kahn did not question the appropriateness of regulation of truly "natural monopolies" (those where one firm can produce all the output at any output level more cheaply than two). He recognised that typical distribution networks with high common capital costs often met this criterion.

He noted;

*The first task of public policy, then, is to ascertain for each of these industries the proper scope of natural monopoly, that is, to define the parts of the business where internal economies of scale constitute a strong case on efficiency grounds for permitting only a single supplier. The decision need not be an all-or-nothing one for the entire industry. It may be feasible to permit competition in those branches that are not naturally monopolistic along with, for example, joint ownership or joint utilization of the facilities that are.*⁸

Kahn went on to describe the process that was then underway in the US of recognising that long distance and international calling services could be subject to competition but that local service was still a "natural monopoly".⁹

In the Australian context it was not until 1974 that an effective national competition law was introduced as the *Trade Practices Act 1974*¹⁰. The initial focus of the Act was two fold, various anti-monopolisation and restraints on the exercise of power provisions in Part IV and consumer protection and fair trading provisions in Part V.

Through the 1980s the various deregulatory concepts developing in the US started to influence policy. The then super Department of Transport and Communications was a particular focus for such thought, empowered by both the fact that both airlines and telecommunications were subject to the thinking, and they had a policy engine-room in the Bureau of Transport and Communication Economics.¹¹

The formal statement of a National Competition Policy followed the report of the committee chaired by Fred Hilmer. That report noted;

Competition policy is not about the pursuit of competition per se. Rather, it seeks to facilitate effective competition to promote efficiency and economic growth while accommodating situations where competition does not achieve efficiency or conflicts with other social objectives. These accommodations are reflected in the content and breadth of application of pro-competitive policies, as well as the sanctioning of anti-competitive arrangements on public benefit grounds.¹²

The report went on to note that competition policy was not solely the preserve of Part IV of the TPA, but instead comprised six separate policy elements.

Policy Element	Example
1. Limiting anti-competitive conduct of firms	Competitive conduct rules of Part IV of the TPA.
2. Reforming regulation which unjustifiably restricts competition.	Deregulation of domestic aviation, egg marketing and telecommunications.
3. Reforming the structure of public monopolies to facilitate competition.	Proposed restructuring of energy utilities in several States.
4. Providing third-party access to certain facilities that are essential for competition.	Access arrangements for the telecommunications network.
5. Restraining monopoly pricing behaviour.	Price surveillance by the Prices Surveillance Authority.
6. Fostering "competitive neutrality" between government & private business when they compete.	Requirements for government businesses to make tax-equivalent payments.

Figure 1: Elements of Competition Policy

It was noted that the imperative for a national policy rested on the acknowledgement that Australia was a single market, that trade-exposed industries faced competition but that the input service firms didn't and that reforms had thus far progressed on a sector-by-sector basis.

In common with the US experience attention focussed increasingly on the five areas that were not the Part IV rules. At the same time the Part IV rules themselves became less effective. In part this was through legislative change (the repeal of the section 49 prohibition on non-cost based price discrimination) and in part through judicial interpretation (the erosion of section 46 on the question of establishing purpose, of establishing the harm to competition) and more generally the difficulty of identifying a market (which in part affects the Metcash decision).¹³

These erosions can be generally summarised as an interpretation that an intervention could only be justified when the basis for the intervention was beyond doubt. Demonstrating that is a particularly high burden, especially when the regulator bringing an action has less information than the firm defending the action.¹⁴

A feature of the public discourse on competition policy in the 1980s and 90s was the extent to which large businesses were discussing the need for competition in other industries. Most notable was the contribution of large firms to the discussion of reform in telecommunications, but equally it was large firms lobbying for banking, transport and energy reforms.

Horwitz has identified in the American context that all these “price and entry” regulated industries are infrastructure industries, and that they all had elements of cross-subsidy. The cross-subsidy creates an incentive to “by-pass” the regulated firm. He noted “In periods of high, sustained inflation, regulation generally exacerbates bypass incentives. The agencies grant the regulated industries price hikes, which, under traditional cross-subsidy arrangements, hit large corporate users proportionately more.”¹⁵

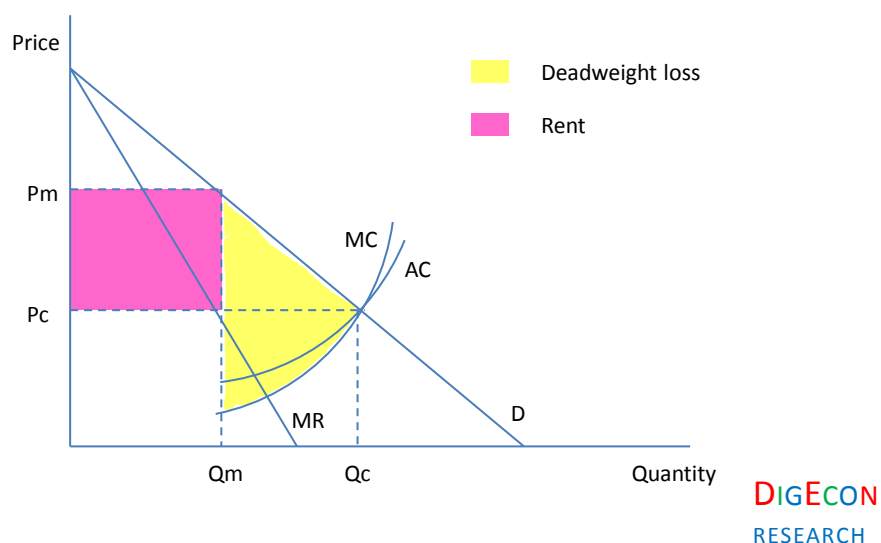
It is interesting to note that the focus of corporate lobbying on “deregulation” today is almost exclusively focussed on “cutting red tape,” which is usually interpreted as a desire to reduce the direct costs of compliance rather than any market opening. In telecommunications, for example, the corporate lobby group ATUG has ceased to operate due to a lack of corporate support.

The Rationale for Competition Policy

Whether competition policy is merely concerned with the anti-competitive conduct of firms, or encompasses the wider issues of regulatory reform, the essential motive is the same.

The unsophisticated version of the argument compares a monopoly to a competitive market and concludes that under monopoly there is a lower output at a higher price than under competition.

The economic cost of monopoly



An issue that varies between jurisdictions is the extent to which the loss of both consumer and producer surplus (total welfare) is the issue, or whether it is the loss of consumer surplus (consumer welfare). The issue gains significance only if there is an associated cost of the policy to be balanced against the welfare gain, or if there is a question of the effect of price discrimination. Perfect price discrimination (which doesn't occur) would see the output of a monopolist being the same as under a competitive market, but the entire surplus is captured by the producer.

The analysis is extended to cases of oligopoly using the Cournot model that argues that as the number of firms increases from one to infinite the price and output values move from the monopoly to the competitive level (technically based on the Herfindahl-Hirschman Index (or HHI) which is the sum of the squares of the market shares of the firms – one in monopoly, zero in perfect competition).

This standard theory has been subject to its own critique, but that is beyond the scope of this paper.¹⁶

Competition is claimed therefore to be more “efficient” than monopoly, or co-ordinated oligopoly. The word “efficient” here is given a formal definition as (potential) Pareto efficiency. Without going into the full theoretical background, this is defined as the point at which no one could be made better off without anyone being worse off provided that the person who is better off could compensate the person made worse off.¹⁷

More generally this is claimed to be only one of three kinds of efficiency said to accrue from competition, allocative efficiency. The other two are productive efficiency and dynamic efficiency.

The threefold concept is well accepted in the Australian policy context. It is cited regularly by the ACCC which credits the Hilmer committee. The Hilmer committee in turn credits the submission by Treasury to the the inquiry. The Treasury submission merely makes the assertion without attribution.¹⁸

The concept of productive efficiency was elucidated by Farrell, while the concept of dynamic efficiency is usually attributed to the works of Schumpeter. (Add references) I have been unable to determine the first use of the troika as one support for competition policy.

A simple description of the concepts is;

Technical efficiency occurs when a firm produces the maximum possible output for a given set of inputs;

Allocative efficiency is achieved when resources are allocated to their highest value uses; and

Dynamic efficiency refers to the use of resources so as to make timely changes to technology and products in response to changes in consumer tastes and productive opportunities.¹⁹

The last of these is more problematic to describe formally. A definition that has been used by Funston, and is consistent with definitions used by Gans and by Evans and Guthrie, is that dynamic efficiency occurs when firms make investments at the “socially optimal time” where the latter is “the time at which the net present value of an investment to the community — measured by the sum of producer surplus and consumer surplus — is maximised.”²⁰

This definition relates exclusively to the timing of an investment, but the question of efficiency could equally relate to which investment. (An example of the former would be the decision of a telco to invest in a 2G mobile network, of the latter what standard to choose such as GSM or CDMA.)

The concept is accordingly far less tractable than the other two. More importantly the concept of dynamic efficiency is more frequently used as an argument for non-intervention in the market (including pro-competitive interventions), based mostly

on the fact that no one can actually determine *a priori* the socially optimal timing or choice of investment, though some analysis may be possible after the event.

The Treasury submission also suggested that equity was a basis for competition policy. However the first area considered is equity between producers not consumers and notes that to focus on equity between producers (so that, for example, none fails) will come at an unsatisfactory cost to efficiency.

The submission then notes that the consumer protection parts of competition policy works to equity, and notes that favouring consumer surplus over producer surplus may generate short-term benefits in technical (productive) efficiency but at the expense of allocative and dynamic efficiency. The submission claims to “balance” equity and efficiency concerns by making the former subservient to the latter.

The foundation for competition policy is hence somewhat shaky ground. Its principle support is the concept of allocative efficiency, yet the conclusion that allocative efficiency occurs under competition relies upon assumptions we know that both do not apply and invalidate the conclusion (namely fully informed markets and complete markets).

Writers on microeconomics and public policy will normally emphasise the need to consider equity as an additional consideration not just efficiency. More specifically Friedman (Lee not Milton) notes “the compensation principle can be considered to be antiegalitarian”.²¹ The simplest way to see this is that the preference of the person with more wealth counts more than the preference of a person with less wealth.

However, the purpose of this paper is not to question the worth of competition policy, it is to question how it is applied by policymakers and whether it needs to change with the Digital Economy.

The Digital Economy

Defining the Digital Economy

The idea of an “information society” and “information economy” or the “digital economy” have been with us for thirty years or more.

Trevor Barr in *The Electronic Estate* in 1983 used the first two terms, building on the by then well established literature of a post-industrial society. His conception of the “information economy” tended to be more about the economics of the information industries.²²

An Australian Government report of 1997 titled “The Global Information Economy: The Way Ahead” began “Australia is in a period of major change – a societal revolution based around information and communications technologies. These technologies are becoming crucial to the competitiveness, even survival, of almost every business in every industry.” The report itself was focussed on supporting the information industries themselves.²³

In the current incarnation of the policy agenda the “Digital Economy” is defined as;

*The global network of economic and social activities that are enabled by information and communications technologies, such as the internet, mobile and sensor networks*²⁴.

This definition is as restrictive as would be a definition of an Industrial Economy as the activities that take place in factories. An exercise in economic history however reveals an industrial revolution that took place over an extensive period of time. To describe how the Industrial Economy of 1950 differed from the economy of 1700 one could say;

The Industrial Economy is one in which the means of production, distribution and exchange have been transformed by the application of motors – from steam engines, to internal combustion engines and electric motors.

That covers all the changes in transportation, money (printing presses, high volume mints) and greater agricultural production; as well as the expected consumer goods and factories making textiles and clothes.

The Digital Economy can be similarly described as;

The Digital Economy is one in which the means of production, distribution and exchange have been transformed by the application of information and communication technologies – from the telegraph, to the telephone, the internet and broadband IP enabled networks.

These definitions capture the essence of both motors and ICT as General Purpose Technologies or GPTs; this is the core explanation for their impact on economic growth.

The other benefit of the analogy is to focus on the dimension of time. The revolution is not a sudden one. The industrial revolution stretched over 200 years, and is still happening in developing countries. The ICT revolution begins about the 1830s with the telegraph. The telephone was its next technology in 1870, automated switching of voice and telegraph from about 1900, the electronic computer and data communications from the 1960s, mobile services from the 1980s and IP networks from the 1990s.

The revolutionary step of the 21st century is broadband, and the consequence that the capacity of a communications link is seldom a constraint on the applications that can be considered.

Economic Changes of the Digital Economy

The three main stages of mankind's economic and social evolution, the Agrarian, Industrial and Digital Economies are each accompanied by changes in where economic advantage comes from.

The Agrarian Economy was the discovery of the benefits of specialisation, good artisans made pots and traded them for food from good farmers. A person who is good at something doing more of a similar task is an economy of scope – using the same capability to do more tasks.

The Industrial Economy capitalised on the ability to make productive units bigger, they realised economies of scale (as well as the economies of scope).

The Digital Economy goes to the next stage where a variety of network effects occur. These are cases where the value of a product increases the more other people buy it. This can be a direct effect as in the case of a telephone network, or an indirect case in the presence of "demand side economies of scale".²⁵

The demand side economies of scale occur because the higher usage of the first product makes creates an economy of scale in a related product. The increased

range and lower prices of the associated good results in each purchaser of the first good getting a higher utility for each extra user. A simple example is a VHS video-player; the more people have them the more titles will be available to show on them. So the effect on the first market is the same as a direct network effect.

Of course, these effects go along with the economies of scope and economies of scale previously recognised.

This change of the source of value has dramatic implications. At the start of the twentieth century there was a concern about the size of firms – resulting in the US anti-trust agenda, while Germany and Japan accepted cartels. It is asserted by some that this difference was a core source of the USA's economic advantage.

Economic theory of the firm is a contended space. At its extreme market theory assumes atomistic producers who miraculously co-ordinate their activities and don't have "production co-operatives" – be they co-operatives of labour or capital.

The firm is explained as a means of reducing transaction costs. The limits of the size of the firm have historically been created by global regulations, but also by the internal communications task of co-ordination.

The Digital Economy simultaneously creates the opportunity for firms to be larger because of the ability to co-ordinate internally, and smaller because the ICT environment enables firms to utilise information intensive co-ordination to overcome some historic transaction costs.

Both these trends have been evident in the economy. The new "conglomerates" that dominate in a brand driven world, like Nestle, demonstrate there is very little natural limit to firm size. Meanwhile the electronics and automotive industries demonstrate extremely dispersed yet co-ordinated manufacturing structures.

But on top of this simple dichotomy is the impact of demand side economies of scale. Google, eBay, Facebook and Amazon are all examples where these effects result in single firm global dominance.

That dominance is not necessarily permanently guaranteed. As Facebook surpassing MySpace demonstrated a lead can be assailed. These firms each constitute threats to the other – but do we really think the world is better if Facebook supplants Google in search, or Google supplants Microsoft in operating systems? The biggest threat is "congestion" and the same model that Eli Noam proposed for telecommunications the potential for "high value" users to decamp and start their own group.²⁶

However, the dominance is also not merely transitory, and is certainly not without significant power.²⁷

The difficulty with market power derived from network effects is that it doesn't come about through acquisitions as covered by section 50 of the *Competition and Consumer Act 2010*. In the absence of divestiture clauses there is little the law can do about them. As the Europeans have found with anti-trust action against some of these firms, their global nature makes effective enforcement difficult. The cost of a successful action may simply be denying your economy access to the technology or service.

The promise of the Digital Economy is frequently described as "new business models"; the problem is that those models may entrench market power.²⁸ The imagery is of small firms operating on a global scale; the reality is often single global producers.

Changing Competition Policy for the Digital Economy

Relationship between economic affairs and competition policy

Before considering the changes of the Digital Economy, it is worth recalling the relationship between economic developments and policy stances.

The initial American invention of competition policy was a response to the massive change in economies of scale and scope effected by new communications and transport technologies (the telegraph and railway).

The creation of the major US “price and entry” regulatory agencies were part of the New Deal plans following the Great Depression. They were a conscious effort to quell the animal spirits of the economy.

Finally the regulatory reforms of which the Australian National Competition Policy was a part were a reaction to both the impact of stagflation, most notably the impact of inflation on utility prices, and the start of the latest phase of globalisation. The latter, partly fuelled by ICT, was responsible for increasing the trade exposure of many parts of the economy.²⁹

Rediscovering Markets

The theorists and policy makers use a language that “the market” or “markets” are to be preferred to the alternative, which is usually meant to mean centralised control by “the State”. The usage implies the existence of markets outside of any political or social construction.

The concept of a market depends upon the concept of property rights. One person “owns” something and another person “owns” something else and they think they’d both be happier if they traded. That is the underlying concept.

The first observation to make is that “property” (apart from perhaps a nest or cave) only has meaning to human beings. And only human beings have introduced the concept of social enforcement of the property right.

The fact that they are a human construction does not mean that they are the only possible construction. Indeed the earliest forms of social structure were communal. A feature of the earliest engagement of Australian aborigines with the first European settlers was the fact that the indigenes did not understand the idea that the property of the Europeans was not theirs.³⁰

A wide sweep of history can show that various communal models have been as prevalent as markets.³¹

So markets exist as a social construction, and they are enforced by social rules. Simple observation shows that in the real world there are lots of different actually occurring markets all with different rules.³² Some are markets like stock exchanges where transparency of bids, and trades, and “fundamentals” are rigorously enforced. Some are like used car lots that practice price discrimination based on the preparedness of the buyer to haggle. Some are formal auctions, including classic open out-cry auctions or the more fancy combinatorial clock auctions that will be used to allocate the digital dividend spectrum.

The “market” as usually used in public policy is a reference to one specific kind of theoretical market, the one on which orthodox economics is founded. This is a market with a sufficiently large (potentially infinite) number of buyers and sellers that no one individual can affect the price paid in the market. It is a market in which all sellers are offering a homogenous product, and in which all buyers are

only seeking that one product. It is a market in which buyers and sellers are perfectly informed before any transactions about the preferences of each other and in which all trades happen simultaneously.

The creation of an “ideal” is not unusual in science. Theoretical models need to be constrained to use in the circumstances where the assumptions that support them apply sufficiently well to generate the outcome.³³

In public policy this has come to be labelled “market failure”. It creates a theory that markets should be left to operate, but if there is a “market failure” then there is a need for some central action to rectify the “failure”. There exist a number of alternative lists of the different kinds of “market failure”.³⁴

The “market failure principle” concedes too much ground to the validity of markets and has enabled much policy over-reach. As John Kay has noted, “the modern left has invested so much in market failure as its rationale for action, there is a temptation to frame everything they want to do as a response to market failure, however tenuous the basis for this may be.”³⁵

The first of these addresses the fact that market failure as a rationale for regulation validates only economic regulation. Non-economic goals – such as distributional justice, paternalism and community values – are not captured at all.

Indeed the idea of distributional injustice to the extent that certain groups will be excluded from a market is sometimes incorrectly described as “market failure”. But they are really the consequence of the market working. Policies to ensure “universal access” are policies designed to counter working markets.

But it is the second problem that interests us here. “Market failure” is ultimately a poor public policy construct because every real-world market falls short of the ideal of the theoretical market, and hence can be claimed to “fail.”

One of the great champions of markets in the Post War era, Friedrich Hayek, contrasted the market with the alternative of collectivist action. For Hayek the problem of creating a rational economic order was the inability for a central agency to obtain the data necessary to make decisions. For Hayek, “The economic problem of society is a problem of the utilization of knowledge which is not given to anyone in its totality.”³⁶

He continues;

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them.

...

Fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people in the same way as subjective values help the individual to co-ordinate the parts of his plan. ...

Hayek emphasises the role of markets as means to communicate information about preference.

This distinction has been recently picked up by Kay in his 2009 Wincott Lecture. He states that in their approach to markets, economic researchers and policy-

makers have focused too much on the role of prices as signals to guide resource allocation ... the role they play in equilibrium analysis. He claims this is at the expense of two possibly more important elements – markets as a process of discovery and markets as a mechanism for the diffusion of political and economic power.³⁷

In public policy we need to accept that the reason for preferring markets is because of the process of information disclosure (discovery) and empowerment they offer, not because of the static efficiency outcome that the theoretical model describes.

The consequence is therefore to not imagine there is a perfect market and we only adjust for identified failure; instead policy needs to acknowledge that all markets vary from the ideal and that the ways they vary are constructed by social rules, including Government regulations.

The “market” of orthodox economic theory never exists. Regulating for market failure is a poor policy construct as it knows no bounds since all markets “fail”, and it does not admit of the need for social regulation where the way the market works would result in social injustice.

Ideas for reform

However, markets are a preferable model of economic organisation over central planning because of their ability to work to transmit information (a function they are actually presumed not to have in the standard theory).

The focus of public policy needs to be on designing markets to achieve the objectives of facilitating discovery and constraining the exercise of power.

This results in a number of other consequences.

Firstly where there is a monopoly infrastructure or essential service or facility the first goal of regulatory intervention should be to get the communication that would normally flow through the price system to actually occur. Too much of price regulation uses the quantity demanded as a given rather than the outcome of an interplay between a seller and a buyer.

This ultimately is the failure of “access price” regulation. The policy approach should be adjusted to creating iterative ways for prices to be determined rather than by the specification of price.³⁸ The analogy here is the “book build” process that accompanies a typical Initial Public Offer of shares in a listed company.

The biggest issue however that is Digital Economy related is the pervasive presence of network effects and the prospect that markets can “tip.” Competitive entry to rectify the tipping can be protracted.

In markets where such effects have otherwise existed access arrangements have been used. The difficulty of such arrangements has been the issue of regulated pricing. Hence the importance of developing market mimicking actions to support “access arrangements” so that it is possible to enforce market opening measures without creating price setters.

As the central thesis is that the Digital Economy creates greater potential for suddenly developing monopoly, a reconsideration in the Australian context of a general divestiture power is warranted. It is worth noting that this was considered but dismissed in the Treasury submission to the Hilmer committee.

Finally, there is a worthwhile discussion to be had about the scope of various intellectual property rights. There is actually a very vibrant policy debate being waged by the Gen Ys and the Millennials about the scope of intellectual property. These are positions best represented by the Pirate Party but they generally question the right to copyright and software licences and see it as a conspiracy by corporations against citizens.

At a more fundamental level New Growth Theory identifies “spillovers” from technological change as the real source of economic growth. This contrasts with the “incentive” theory that the ability to capture the value of an invention is the source of creativity.

The reality probably lies somewhere between the two extremes. To get into slightly more fanciful territory, the standard model of incentives to invest assumes likelihood of success functions that look “normal” whereas the reality is that these functions are actually fat tailed – they contain rare but significant “outliers.”

One can think of this a bit like regulating intellectual property using a “resource rent tax” model. You get intellectual property protection up to a certain pay-off limit, but after that point the property becomes public domain.

Conclusion

My policy ideas are not necessarily the right ideas; nor are they by any measure the only possible ones. However, the economics of production are increasingly changing due to changes in ICT. Our concept of competition policy should be opened up for debate about the consequences.

¹ Seminar program at http://sydney.edu.au/arts/research/documents/markets_and_society/Contesting_Markets_Program1.pdf

² Australian Government, Department of Broadband, Communications and the Digital Economy *Convergence Review: Framing paper*. April 2011.

³ Friedman, Milton 1953 ‘The Methodology of Positive Economics’ in *Essays in Positive Economics*. Chicago Press

⁴ For a more complete discussion on the normative/positive distinction see the appendix to David Havyatt *Submission to the ACCC on “Telstra – Structural Separation Undertaking*. September 2011 Available at <http://www.digecon.info/docs/0051.pdf>

⁵ Massimo Motta *Competition Policy: Theory and Practice* 2004.

⁶ More generally, three distinct phases of policy can be identified. The ‘Structuralist School’ which focussed on the structure-conduct-performance paradigm, the ‘Chicago School’ that moved the focus from structure to conduct (and hence a focus on actions that lessened competition rather than *per se* exemptions) and the ‘Industrial Policy School’ which argues for Government support of strategic sectors. See Greg Murtough and Ruth Thomson *International cooperation on competition policy: An Australian perspective* Productivity Commission 96/15 AGPS Canberra 1996

⁷ Alfred Kahn *The Economics of Regulation: Principles and Institutions* 1988 (first published in two volumes 1970-1971). (P.xv)

⁸ *ibid.* P. 124/II

⁹ This process eventually resulted in the initial 1984 break-up of AT&T into the long distance company and the various Regional Bell operating Companies (RBOCs). The subsequent 1996 Act was actually motivated by the lobbying of the RBOCs who wanted to enter long-distance markets. The Act established as a condition of such entry that the RBOC had given access to the unbundled elements of the service. This “unbundling”

subsequently became a global model for unbundling access to copper pairs for data, though the original US model had been focussed on voice. (Note: Reed Hundt's *You Say You Want a Revolution* is the definitive account of the lead up to that Act).

¹⁰ In original form at http://www.austlii.edu.au/au/legis/cth/num_act/tpa1974149/

¹¹ See S. G. Coronos (Ed) *Competition policy in telecommunications and aviation* Federation Press 1992

¹² Hilmer report *National Competition Policy: Report of the Independent Committee of Inquiry*. August 1993. AGPS. P. xvi

¹³ It is notable that the repeal of s49 was a recommendation of the Hilmer Committee itself. The discussion of the basis of the repeal includes the claim "The committee considers that price discrimination generally enhances economic efficiency" P.79

¹⁴ The Dawson Review of 2003 only considered the TPA itself, not competition policy in general. See <http://tpareview.treasury.gov.au/content/home.asp>

¹⁵ Robert Horwitz *The Irony of Regulatory Reform: The Deregulation of American Telecommunications* Oxford University Press 1989. (P.7)

¹⁶ An interested reader might wish to read Steve Keen and Russell Standish 'Profit maximization, industry structure, and competition: A critique of neoclassical theory' *Physica A* 370 (2006) 81–85. An error in this was noted by Paul Anglin 'On the proper behavior of atoms: A comment on a critique' *Physica A* 387 (2008) 277-280. This is corrected in Russel Standish and Steve Keen 'Rationality in the Theory of the Firm' 2011 available at http://arxiv.org/PS_cache/arxiv/pdf/1101/1101.3409v1.pdf. A longer exposition of the history of the concept can be found in Steve Keen and Russell Standish 'Debunking the theory of the firm—a chronology' *Real-World Economics Review* Issue no. 53, 26 June 2010 pp 56-94 available at <http://www.paecon.net/PAEReview/issue53/whole53.pdf#page=56>. On a related theme my paper to the CPRF 2010 outlined the proposition that competition has had no impact on retail prices.

¹⁷ The idea that a market is Pareto efficient was established by the "first theorem of welfare economics" as established by Arrow, Kenneth J. and Gerard Debreu (1954). "Existence of a Competitive Equilibrium for a Competitive Economy". *Econometrica* 22 (3): 265–90 1954. This relies on strong assumptions that "markets exist for all possible goods, all markets are in full equilibrium, markets are perfectly competitive, transaction costs are negligible, there must be no externalities, and market participants must have perfect information". Greenwald, Bruce and Joseph E. Stiglitz. ('Externalities in economies with imperfect information and incomplete markets. *Quarterly Journal of Economics* 101: 229-264. 1986.) demonstrated mathematically that, in the absence of perfect information or complete markets (i.e. where there are externalities), outcomes will generically be Pareto inefficient.

¹⁸ See the Hilmer report (*op cit*) and the *Treasury Submission to the National Competition Policy Review* Treasury Economic Paper No 16. 1993 .

<http://trove.nla.gov.au/work/10042077> .The ACCC/AER Working Paper No. 2 'Evaluating Infrastructure Reforms And Regulation: A Review Of Methods' August 2010 provides a more complete summary at P. 37 and following. However it too fails to find a source for the trilogy see <http://www.accc.gov.au/content/item.phtml?itemId=943318&nodeId=4e4611234637b699ecd9ea5a3c4374ec&fn=Evaluating%20infrastructure%20reforms%20and%20regulation%E2%80%94working%20paper%20no%202.pdf> .

¹⁹ This version is based on Box 1.1 in Productivity Commission 96/15 (*op cit*) at P.2

²⁰ Kris Funston *Issues in Access Pricing: Investment and the Fair Rate of Return for a Regulated Monopoly* PhD Thesis ANU 2003 He cites Gans, J.S. (2001), 'Regulating Private Infrastructure Investment: Optimal Pricing for Access to Essential Facilities', *Journal of Regulatory Economics* 20 (2): 167-89. And Evans, L. and G. Guthrie (2002), 'Efficient Price Regulation of Networks that have Sunk Costs: Should Caps be Based on Historical or Replacement Cost', New Zealand Institute for the Study of Competition and Regulation (ISCR) Inc., paper available at http://www.iscr.org.nz/documents/replacement_or_historical_cost1.pdf

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- ²¹ Lee S Friedman *The Microeconomics of Public Policy Analysis* Princeton University Press 2002 (P.176)
- ²² Trevor Barr 1983 *The Electronic Estate* Penguin 1985.
- ²³ The Information Industries Taskforce *The Global Information Economy: the Way Ahead.* Commonwealth of Australia July 1997
- ²⁴ Australian Government *#au20: The National Digital Economy Strategy* Canberra 2011 Available at www.nbn.gov.au
- ²⁵ This is the term applied by Katz and Shapiro in *Information Rules*
- ²⁶ See Eli Noam in the introduction to *Telecommunications in Europe.* (I think)
- ²⁷ For the Google case see Scott Cleland *Search and Destroy: Why you can't trust Google Inc*
- ²⁸ A longer discussion at this point would engage with the fallacy of the "long tail" Suffice to say that long-tail theorists always sample from the upper end of the distribution at which a Zipf curve of a Pareto distribution is indistinguishable from a log-normal distribution.
- ²⁹ Note there was a significant difference between the US and Australian reforms of the 1980s and 90s. The American reforms were exclusively about removing price and entry controls. In Australia some of these controls had been exercised by Government ownership (price rather than entry controls). Privatisation that accompanied the reforms was in part fuelled by the competition concerns (level playing field) but also by a rhetoric on technical efficiency (or X-efficiency).
- ³⁰ Inga Clendinnen *Dancing With Strangers: Europeans and Australians at First Contact* Text Publishing 2005.
- ³¹ See Roger Osborne *Civilisation: A New History of the Western World.* Pimlico 2007...
- ³² See John McMillan *Reinventing the Bazaar: The Natural History of Markets* for examples.
- ³³ For example, the simple explanation of how billiard balls collide (conservation of momentum and energy) does not take into account friction on the ball in the air and loss of energy at collision (in both heat and noise). But we accept the explanation because it has good predictive power. At a more practical level the same calculations are used to assess motor vehicle collisions. But there are plenty of occasions where the model is useless. These include the movement of sub-atomic particles, the movement of stars, or the movement of charged bodies in a magnetic field.
- ³⁴ Types of market failure these include the existence of market power, the presence of externalities (including the case of "public goods") and information asymmetry. To these can be added a concept of "friction"; the costs inherent in undertaking search and transactions that is usually excluded from the model.
- ³⁵ John Kay 'The Failure of Market Failure' *Prospect Magazine* Issue 137 1 August 2007. At <http://www.prospectmagazine.co.uk/2007/08/thefailureofmarketfailure/> behind a paywall. Republished in *Beyond New Labour: The Future of Social Democracy in Britain* Patrick Diamond and Roger Liddle (Eds) (<http://trove.nla.gov.au/work/28495907>)
- ³⁶ Freidrich Hayek 'The Use of Knowledge in Society' *American Economic Review* Vol 35 No 4 September 1945 519-30.
- ³⁷ John Kay 'The Future of Markets' *Economic Affairs* March 2010
- ³⁸ An earlier presentation at the conference where tis paper was presented involved a discussion of "CVC" charges by NBN Co and this is suggested as an example of failure by the need to specify a price rather than a way to determine a price.

Competition Policy for the Digital Economy

Paper presented by David Havyatt to the Communications Policy and Research Forum

8 November 2011

Motivation and Structure

- The concepts of “competition” and “efficiency” are used by policy makers with little understanding.

More broadly, the encouragement of competition is accepted as a key aim in most of the significant public policy reforms of the last two decades.

Convergence Review Framing Paper

- Methodology – Positive rather than normative.
- Structure
 - What is competition policy?
 - What is the Digital Economy?
 - How does competition policy need to change?

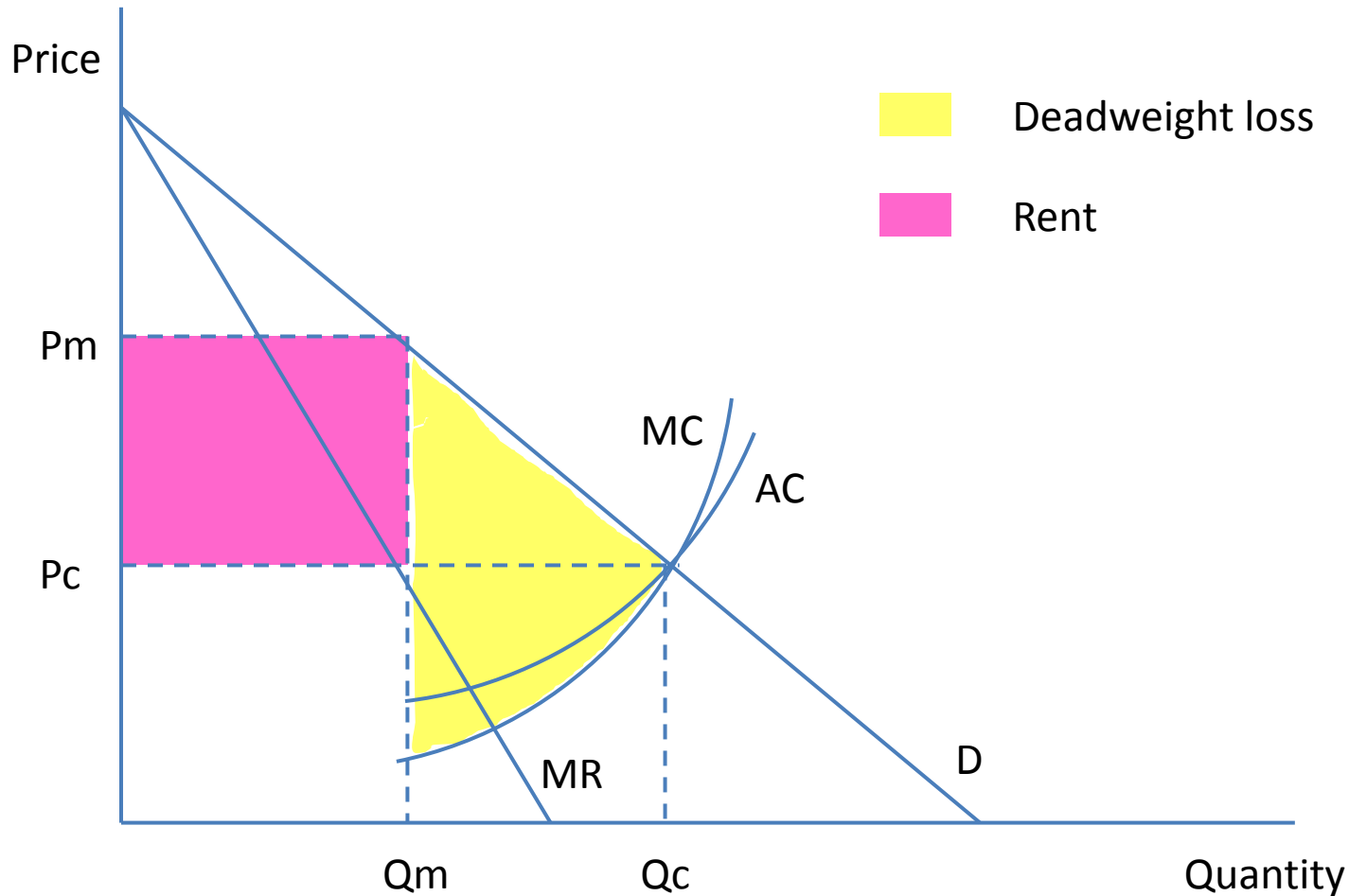
Competition Policy Past

- US “anti-trust model” in response to increased size due to economies of scale and of scope.
- US “regulatory” model following depression – “price and entry” regulation.
- Deregulation following oil price shocks in mid 1970s.
- Australia – last formal statement Hilmer report.

Facets of Competition Policy - Hilmer

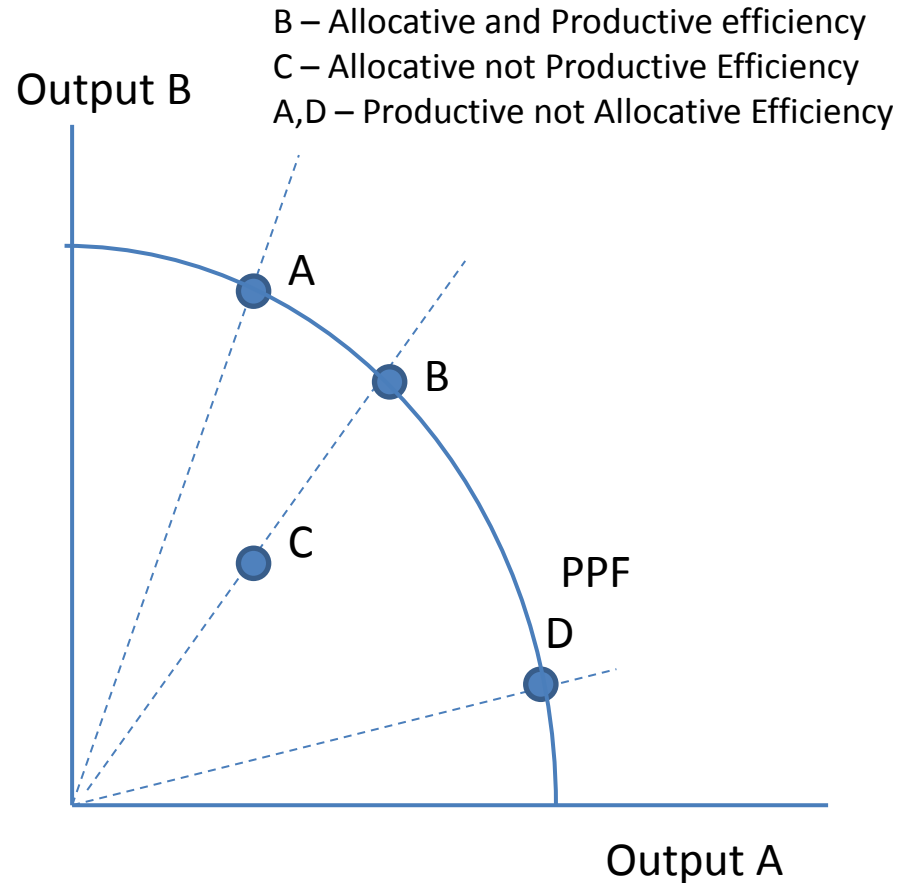
Policy Element	Example
1. Limiting anti-competitive conduct of firms	Competitive conduct rules of Part IV of the TPA.
2. Reforming regulation which unjustifiably restricts competition.	Deregulation of domestic aviation, egg marketing and telecommunications.
3. Reforming the structure of public monopolies to facilitate competition.	Proposed restructuring of energy utilities in several States.
4. Providing third-party access to certain facilities that are essential for competition.	Access arrangements for the telecommunications network.
5. Restraining monopoly pricing behaviour.	Price surveillance by the Prices Surveillance Authority.
6. Fostering "competitive neutrality" between government & private business when they compete.	Requirements for government businesses to make tax-equivalent payments.

The economic cost of monopoly



The Trinity of Efficiency

- **Productive (Technical) efficiency** occurs when a firm produces the maximum possible output for a given set of inputs;
- **Allocative efficiency** is achieved when resources are allocated to their highest value uses; and
- **Dynamic efficiency** refers to the use of resources so as to make timely changes to technology and products in response to changes in consumer tastes and productive opportunities.



Equity and Efficiency

- Equity is made subservient to efficiency
- The Pareto principle with the compensation principle is inherently anti-egalitarian
- The principles assumed about markets do not apply
- Dynamic efficiency inherently unmeasurable

Defining the Digital Economy

- Government definition

The Digital Economy is the global network of economic and social activities that are enabled by information and communications technologies, such as the internet, mobile and sensor networks

- Alternative Definition

The Digital Economy is one in which the means of production, distribution and exchange have been transformed by the application of information and communication technologies – from the telegraph, to the telephone, the internet and broadband IP enabled networks.

- The revolution isn't sudden and we are in its late stages.

Impact of the Digital Economy

- Industrial Economy – increase in economies of scale and scope
- Digital Economy – more of those plus direct and indirect network effects
- Reduced limits on the size of firms yet greater ability to co-ordinate
- Markets that tip to single provider dominance – Windows, Facebook, Google, iTunes
- Market power accrues without reviewable “transactions” – i.e. mergers

Economic Events and Competition Policy

- Events have triggered changes in policy
 - Scale and scope economies from telegraph and railroad -> US anti-trust doctrine
 - Depression -> New Deal “price and entry” regulators
 - Oil shock stagflation -> deregulation
- Digital Economy developments
 - New issues of scale and scope, including network effects
 - Greater opportunity for market based organisation
 - Scale achieved organically

Rediscovering the market

- Markets are social constructions
- Markets are information processors

If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. ...

Fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people in the same way as subjective values help the individual to co-ordinate the parts of his plan. ...

Frederick Hayek

Possible Policy (re)considerations

- Focus of policy should be on market design
- Price regulation suppresses the information flow of demand (preference)
- More widespread access arrangements, e.g.
 - To “Woles” warehousing and distribution, or to their shelf-space
 - To “interconnect” to a network – e.g. Facebook interfaces
- Divestiture powers not linked to prior merger
- Limitations on Intellectual Property rights

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