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Pro-Innovation Competition Policy: Microsoft and Beyond*

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Pro-Innovation Competition Policy:

Microsoft and Beyond

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How Should Competition Policy Transform Itself?

Designing the New Competition Policy

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Abstract

While the general principles behind wise competition policy are well understood, their application in particular industries and particular cases calls for careful analytical thinking. That thinking often includes economics. Pro-innovation competition policy can be analyzed using the same general principles as other parts of competition policy. It is important to understand pro-innovation competition policy, because several kinds of innovation are important in the modern economy. Technical innovation is one of those, of course. Another important example is business model or marketing innovation by overseas entrants into individual country markets. In this talk, I examine a recent instance of pro-innovation intervention, the Microsoft case. I draw the (heretofore badly understood) lessons of that case. I use those lessons to think about the main tasks of competition policy, specifically in several areas of potentially pro-innovation competition policy, where economics is particularly important.

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1) Introduction

There is very wide agreement on the guiding principles for competition policy. It should rely on the use of the competitive market mechanism. Government activism should be limited to ensuring that the market mechanism is permitted to work. Competition policy should not be regulatory, attempting to supplant the market competitive mechanism. Instead, it should support the market mechanism. Those principles apply as much to the application of competition policy to innovation as they do in other contexts.

Agreement on those broad principles does not make it obvious what is the appropriate policy action in specific circumstances and cases. Some have tried, and largely failed, to reduce the broad general principles to a specific set of rules and policies that could be applied automatically. Instead, thoughtful and analytical application of the principles is important. Accordingly, there is considerable value to conferences like this one. Scholarly and practitioner discussion of the application of competition policy principles is highly valuable in ensuring high quality policy formation.

The desire to make competition policy analysis simple has led to a false dichotomy. Some posit that “the free market” and government are simply opposites. Any intervention by government is a departure from “the free market,” in this view. In this view, the set of policy interventions which respect competition policy principles is empty. While the view gives very clear policy guidance – never act – the clarity of the guidance is its only virtue.

The assumption that government and market forces are opposites – and it is no more than an assumption – is false. As a result, that assumption offers little help in respecting competition policy principles in actual policy practice. Not all potential competition policy actions are pro-competitive, but it is a mistake to think that all potential competition policy actions are anti-competitive. Competition policy principles do not mean that there is no scope for governmental action. The goal of respecting those principles calls for the hard work of discerning where government action is pro-competitive.

In the area of pro-innovation competition policy, another false dichotomy has sprung up. This is the view that innovation and competition are opposed, so that policy must choose between fostering innovation and fostering competition. This simplistic view is equally false and equally dangerous as a policy implementation guide.

My goal in this paper is to identify the main tasks of competition policy, to focus on the tasks related to innovation, and to begin to explore ways in which carefully applying broad competition policy principles to innovative contexts will lead to better policy formation. I focus on three main tasks, ordinary horizontal competition analysis, monopolization, and limiting anticompetitive government action.

My intention is to write as an economist who analyzes competition and innovation rather than to analyze specific legal rules or policies. That is, I de-emphasize the “how to” aspects, the more formalistic policy analyses and emphasize the “why to.” Starting from the principles of competition policy, I move toward the careful analytic application of those principles. The use of a formalistic or narrowly rule-based approach is usually an error in competition policy formation, especially around innovation. “How-to” should

follow, once you understand “why-to.” Economics forms a crucial part of competition policy formation at that juncture.

I will use a recent example of pro-innovation competition policy, *U.S. vs. Microsoft*, to frame the discussion. In a “why-to” analysis, that case has several advantages. The goals of the case were entirely pro-competitive and entirely pro-innovation at the same time. Examining what such a case looks like is helpful in thinking about future pro-innovation cases.

Competition policy implementation is not simple but a genuinely difficult task. Pro-innovation competition policy is no simpler. In the second half of this paper, I take up a series of challenges I believe competition policy will need to meet in order to be effectively pro-innovation. All of the challenges arise, I believe, in the modern economy with increasing frequency. That is because the main forms of innovation are growing more important. I refer not only to technical innovation, but to business model innovation and to innovative redeployment of existing product or service offerings in more countries.

1.a) Tasks of Competition Policy

Competition policy authorities have three main tasks. All are guided by the same principles, so the “why to” goals are broadly similar. Yet the analysis in specific industries or cases and the role of economics varies correspondingly.

1.a.1) Horizontal Competition Task

One task of competition policy is blocking direct agreements, contracts, or combinations among competitors to reduce competition. These are the “horizontal” cases. By far the most common task for any competition authority, merger review, is of this type. (A far smaller number of matters arise in connection with other forms of agreement among competitors, such as collusion without a merger.) The principles behind merger review are the same as any other competition policy. Seek to interfere with the market process of mergers and acquisitions as little as possible while intervening to avoid mergers that reduce competition.

Most agreements among competitors, whether by merger or otherwise, will not involve innovation in any real way, and thus fall outside the scope of this paper. I focus on agreements among competitors which involve innovation, and call for thoughtful consideration of competition policy action. These include mergers with entrants (including entrants from overseas) and settlement of litigation between competitors by merger or contract, and also some innovation policy areas where agreements among competitors may be procompetitive. I also take up mergers where efficiency gains arise from innovation.

1.a.2) Anti-Monopolization Task

A second, and far less frequent, task for competition policy authorities, is dealing with unilateral efforts by one firm to prevent or reduce competition. These cases are often labeled as “vertical,” since often the mechanisms used by one firm to reduce (horizontal!) competition involve complementors. That is the area in which I find my example, the Microsoft case, so I shall let my policy discussion in that area be largely contained in the discussion of that case.

1.a.3) Damage Control Task

A final task for competition policy authorities is attempting to prevent anticompetitive government action. In the US, this is one of the important roles for the economists working in the competition policy authorities. Consultation with the rest of the government to prevent anticompetitive government action is not easy but it is important. The same holds for consultation when new legislation or new agreements with foreign governments is considered. The motivation for this duty is simple. It is easy for government action in any of a wide number of domains to reduce competition. Seeing the anticompetitive implications of new rules or legislation is something of a specialized task, appropriately given to the competition authority (or even to its economists.) Of course, there are times when the political pressure for anticompetitive policy formation is very strong, so that little can be done.

2) Principles of Pro-Innovation Competition Policy

There is universal agreement on two guiding principles.

1. Reliance on the Competitive Mechanism
2. Limits on Governmental Activism

The purposes of competition policy are to support, not to supplant, free market competition. Opening up the analysis to make principle 2, Limits on Governmental Activism, into a policy guide rather than a slogan is difficult but important. I would use the following set of analytical principles to move the discussion forward. *Italics* denote an overly simplistic conclusion.

- 2.a) No Protectionism
- 2.b) No Picking Winners / Central Planning
- 2.c) Competition Policy is Not Regulation
- 2.d) *Don't Do Anything, Don't Learn Anything*

2.a) Government activism has a degenerate form; in competition policy this leads to protecting competitors from competition rather than supporting the competitive process itself. It is very important to avoid this protectionism, principle 2.a).

That is a substantive, not a procedural, policy principle. It is important to gather information about industries and markets by talking with buyers and sellers. It is also important to be tough minded when buyers and sellers (as they inevitably will) advocate certain policies. White papers from, and meetings with, market participants are typically useful if they are focused on facts and information, typically not useful when they are focused on the participants' policy recommendations.

In the political arena, someone will always shout "protectionism" if the competition policy authority has spoken with a market participant and later acted as the participant has suggested or in their interest. Since all policy interventions, and even the failure to intervene, are in someone's interest, there is little that can be done about this. The alternative, of policy formation without becoming informed, is a very bad idea.

2.b) Those who work in government often seek to do good and sometimes seek to gain power. In either case, they may be tempted to decide what is the best outcome for the market and push the market in that direction. Sometimes, scholars, pundits, and government analysts get the idea that they know more than the marketplace. This leads to the desire to calculate, with considerable surety (or at least self confidence) the impact of different policies, and then to choose the one with the best numbers. While sometimes

quantitative methods are highly useful in competition policy, the idea of calculating future market outcomes and picking the best is a snare and a delusion. Well run competition policy is not a form of industrial policy – it is the abandonment of industrial policy as a principle.

For whatever motivation, it is a mistake to pick winners or pick the best outcome, principle 2.b). Especially when innovation is involved, the reason to use the market mechanism is that market outcomes are based on better decentralized information than any such central planning calculation.

2.c) Finally, competition policy is not regulation. Competition policy interventions should be infrequent and should re-instate or preserve market competition rather than manage or direct it. With a few, narrow, exceptions², oversight of ongoing business decisions as part of competition policy is a mistake. Competition policy does not decide that prices are “too high” and make firms lower them; that would be making two mistakes (central planning, followed by regulation.) Instead, competition policy should attempt to intervene in ways that let the marketplace decide what is the right level of prices.

Many are tempted to think of competition policy and economic regulation in the same terms. Indeed, they are studied in the same field of Economics and often in the same course. This is a mistake. Regulatory, industrial policy, or other related thinking in competition policy is too arrogant. Competition policy should think of itself as eager to learn what the market will chose, not as choosing for the market.

There is a great deal of confusion about how to use the guiding principles to make 1, Reliance on the Competitive Mechanism into a policy guide. I put this second, because only after one understands the proper limits of government action in competition policy is it appropriate to discuss this. I focus this discussion on the parts of competition policy closest to innovation.

- 1.a) Future Matters, not the Past
- 1.b) Distinct Competitive Futures
- 1.c) Inventiveness and Incentives Both Matter
- 1.d) *Patents and Copyrights Should be Paramount*
- 1.e) *Competition Policy is Obsoleted by Innovation*

1a) Since the goal of competition policy interventions is to increase the economy’s reliance on the market mechanism, the policy should be forward looking. The role of the past and present status in an industry is to ground the inquiry about what will happen in the future in reality. An intervention should seek to move an industry toward a more competitive future.

For example, if there is about to be substantial entry, or if an effort by incumbent firms to lessen competition would draw new entry, looking only at the current industry participants is an error. The entrants contribute something to the future competitive status. It may be difficult to discern how much they contribute, a topic to which we shall

² The most common exceptions arise when competition policy works next to economic regulation, such as in industries like telephony, utilities, transportation, and so on. When part or all of supply is subject to economic regulation, competition policy needs, at a minimum, to take that into account as a background fact. In those circumstances, some elements of competition policy will likely be connected to the existing economic regulation, while others will represent an effort to separate, sometimes by rules, the regulated from the competitive portions.

return. The same logical point implies that efforts by incumbent firms to raise (or maintain) entry barriers can be problematic. What matters is competition in the future; if entry barriers are low entrants contribute to that, while if entry barriers could be lower entry itself may be a task for the competition authorities.

1b) Hidden below that apparently simple remark are very stark policy analytic requirements. It must be possible that the industry has distinct competitive futures. It must be possible that private action (such as a merger) can steer the industry toward a less competitive future. It must be possible that policy intervention can help the industry toward a more competitive future. It must be possible for policy authorities to learn enough to be reasonably sure that their intervention will help the industry toward a more competitive future. This is inherently difficult, since competition lowers profits and the often most knowledgeable parties, sellers in the market, will not think of increasing competition as “help.”

I.e A number of observers believe that rapid technical change has rendered competition policy obsolete. This is an error, but we should not throw away the parts of it which are right. Rapid technical progress can make it harder for competition policy authorities to understand competitive futures well enough to act, and it can make it harder to act quickly enough to affect competitive outcomes. Neither of those is a bar to intervention, but both can be serious problems in particular cases.

The supposed general argument that competition policy is obsoleted by innovation rests on other arguments. It assumes that innovation success will sweep away current competition problems. A related argument is that the importance of long run competition (such as innovation competition) makes competition policy irrelevant. What both of these arguments miss is that competition policy can support innovation competition itself. There is competition in the long run, and competition in the long run can be impeded or advanced by competition policy.

I.d, the proposition that what competition policy really should do is get behind protections for inventors and artists, makes a similar mistake. It posits an opposition between competition and incentives for innovation in the economy. Often, this argument posits loss of innovation as a cost of increased competition, for example in the debate over stronger legal protection for inventors and artists. The problem with this argument is not in raising the question of whether, in some circumstances, competition and innovation are opposed. They are, sometimes. The problem with the false dichotomy is in assuming that they are always opposed. There is no theoretical or empirical support for this position in economics. The essential error in the position is ignoring the possibility of competitive innovation.

The competitive mechanism will be particularly important in long run competition, such as innovation races, under two circumstances. One is when long run competitive *incentives* are important. For example, when each of several firms would work harder on innovation under the threat of competition from other innovators. The other example is when different firms have different ideas or capabilities, so that the long run innovation capacity of a country or the world calls on multiple firms’ innovative efforts.

With those ideas about how the principles can move toward application, I now turn toward a recent application, the Microsoft case. After examining that, I will return to forward looking policy issues.

3) A Recent Example

An incumbent monopolist is threatened by competition as a result of a new entrepreneurial technology. The monopolist makes its own imitative version of the new technology, and introduces it in the market. The market rejects the incumbent monopolist, instead preferring the innovative version of the new technology from the entrepreneur. Encouraged by this market success, a wave of new entrepreneurs brings forth a wide range of distinct products and offerings. The monopolist offers to pay the first entrepreneur not to compete, but is rejected. The monopolist reaches agreements with third parties in the distribution channels who agree not to distribute the entrepreneur's product. Unable to gain widespread distribution, the entrepreneur fails. The wave of entrepreneurship comes to a halt. The threat of competition passes, leaving the monopolist in place.

I begin with that abstract description of *U.S. v. Microsoft* because I seek to make several analytical points about competition policy looking forward. By removing the names of the firms and products, the analytical points are clearly exposed. Three pieces of intellectual baggage have made learning those forward-looking lessons very difficult. The firms involved are household names – the incumbent monopolist, Microsoft, is the most valuable corporation in the world. The products involved are ones we use every day, such as the web browser. There was a highly contested and very public trial. Seeing the forward looking lessons involves putting down that baggage.

The first analytical point may be a surprising one. From the competition policy perspective, *U.S. v. Microsoft* is an extremely dull case. Despite all the controversy and the contentious trial, when you get down to particulars, the case is simple. It is double surprising because the most controversial part of antitrust enforcement concerns a single firm's efforts to prevent competition, so called "vertical" cases.

Using my abstract language reveals why Microsoft was found guilty and why it was so simple.

1. There was an existing monopoly.

In the case of *U.S. v. Microsoft*, the existing monopoly was the Windows operating system.

2. There was a threat to the existing monopoly.

In *U.S. v. Microsoft*, new technologies from the Internet, especially the browser and Java, were the threat. Widespread distribution and use of those technologies threatened to trigger new competition against Windows.

3. The existing monopolist blocked the competitive threat from coming to reality, cutting off the free market.

In *U.S. v. Microsoft*, by far the most important anticompetitive tools were contractual restrictions on PC manufacturers and Internet Service Providers. Formal contracts with PC manufacturers had many features to block widespread distribution of new technologies, including requirements to push Microsoft's less desirable versions, bans on various valuable technical improvements, and so on. Informal but enthusiastically enforced extensions to the contracts banned distribution of competing technology, such as the Netscape browser. Internet Service Providers had to exclusively push Microsoft technology instead of superior alternatives. While there were many other anticompetitive acts, these distribution restrictions were the ones which moved the market away from what free markets would have chosen.

4. The actions undertaken by the monopolist had the goal of blocking competition rather than being acts of competing.

The “efficiency defenses” in which a firm shows that its actions are ordinary efficient business practices rather than attempts to avoid competition are an important part of competition policy. Microsoft’s defense team had little success in arguing that the various contracts had an efficiency defense, largely because the firm’s own documents so thoroughly belied the explanations they brought forward.

Items 1-4 are why the most anti-interventionist appeals court in the United States sustained the government’s case. The Court of Appeals interpreted the US antitrust law banning monopolization in a way that follows the core economic logic of monopoly maintenance cases like *U.S. v. Microsoft*.

A second analytical point arises because points 1. and 2., taken together, imply that there are two possible competitive futures. One possible future has continued monopoly, while the other has more competition. The possibility of different competitive futures is central to competition policy, of course. Only if there are different possible competitive futures is there any logical possibility that private action can reduce competition, or that public action can increase it.

The Microsoft defense team attempted to show that points 1. and 2. were a logical contradiction – that is, they attempted to show that it was not possible that there both be a monopoly and a threat to it. Since that argument is ridiculous on its face, the defense team attempted to bury it in a formalistic use of market definition analysis. They argued that the government’s market definition – which showed what everyone in the economy knows, that Windows is a monopoly – was flawed because excluded the threatening technologies. The problem with this argument is clear when we translate it back from its formalistic language. The argument “proves” that there is no such thing as a monopoly subject to threat of potential entry, a silly conclusion.

The second problem with the defense team’s argument was that it so thoroughly contradicted the business analysis undertaken inside Microsoft the firm to guide strategy. I have reviewed those business analyses elsewhere in detail (cite xxx). Suffice it to say here that much of the internal decision making in the firm about products, markets, technologies, internal organization, and other areas centered on the Windows monopoly and the potential competitive threat posed by the Internet entrepreneurs.

Once the possibility of two competitive futures is established, there remains to be shown that the incumbent monopolist undertook an anticompetitive action. This is the second element of a monopoly maintenance claim. Elements 3 and 4 above demonstrate that the effort of the incumbent monopolist is to change from one potential competitive future to another. That is what is – and should be – illegal.

Many scholars and legal analysts have suggested that antitrust violations in which a monopolist rids itself of competitors (other than by competition on the merits) are very rare. A fringe has suggested such cases are nonexistent. The next analytical lesson of *Microsoft* is that these violations can and do occur in real markets. Indeed, they can and do occur in extremely important markets and technologies, like the personal computer operating system (Windows) and the browser.

Opportunities for effective entry and competition against the Windows operating system are rare. It takes something as potentially disruptive as the widespread use of the

Internet to open up an opportunity. That opportunity was lost due to Microsoft's suppression of competition.

Another analytical lesson from the Microsoft case is that "vertical" monopolization cases can and do happen. Microsoft's most important anti-competitive tactics involved contracts with sellers of complements, i.e., were "vertical." That will not surprise people who know some economics. It is surprising in the odd context of antitrust policy debates, which had invented an odd pseudo-economics which supposedly ruled out "vertical" cases.

I have de-emphasized, in this review of the narrow policy competition implications of the Microsoft case, two features of the case which have been heavily debated in the law journals. Before I go on to some of the other important lessons from the case for broader pro-innovation policy, let me address the two issues, which I believe are distractions from the main point.

The two distractions might be called the "technical tie" between Windows and the browser and, to be even more narrow and legal-rules oriented, the question of whether tying two products together should be illegal for two different reasons.³

I view these as distractions for very different reasons. The "technical tie" between Windows and the browser came late in the browser war, after the clearly anticompetitive contracts had already done a great deal of harm to the free market process. It seems likely that there were policy questions in the future where the question of intervening turns on deciding questions of technical tying, but they were not central to the finding that Microsoft harmed competition. The question of whether tying should be illegal for two reasons seems to me to be one of those narrow and legalistic questions that distracts attention from the "why to" of antitrust policy. I am not arguing that the "how to" is unimportant. Obviously, it is important to define specific boundaries between the legal and the illegal, to the extent that is feasible.

There are, however, another set of lessons, far broader, which are lost in the close analysis of the "how to." More generally, however, the message of the Microsoft case has been lost by focusing on analysis of the legal rules themselves. Since the case was not much of a challenge to the legal rules – it was very simple and direct application of existing doctrine to find Microsoft harmed competition, that narrow analysis is not as important as the broader one, to which we now turn.

3.a) Lessons for Pro-Innovation Competition Policy

Let me now focus focus on what the Microsoft case tells us about why to undertake pro-innovation competition policy, not how to undertake it. I submit that this is very much the province of Economics, not narrowly of Law. It leads me to review the events debated in the *Microsoft* lawsuit which is very different from the legal view. My view is from the perspective of the economics of innovation.

3.b) Emphasis on the failure of MS to invent the browser

One aspect of the Microsoft case which played only a very small role in the trial but which is very important in its lessons for future policy has to do with the sources of

³ The issue here is whether Microsoft's actions were illegal not only as monopolization, which has the legal structure I have been discussing in points 1—4, but also as an illegal tying contract. The two issues arise under different parts of the Sherman act.

invention. Today, a single firm, Microsoft, is by far the most important worldwide supplier of web browsers. Yet Microsoft did not invent the web browser, nor even commercialize it. Only after the web browser had demonstrated its mass market appeal did Microsoft pay serious attention to it.

The implications for the interaction of competition policy and innovation are clear. Sometimes innovation comes from outsiders. Sometimes, for whatever reason, even very capable incumbent firms cannot see innovative opportunities. In those circumstances, which we might call Schumpeterian, outsiders bring competition or competitive pressure to bear on incumbents.

The example is important. Microsoft is a very capable commercializer of computer technologies. The firm is not inward-looking, thinking only about its own technical direction, but instead very aware of outside technological developments. That such a firm missed something as important as the browser and the widespread use of the Internet suggests a valuable lesson. For society to have a rapid rate of technical progress, we need innovative competition from outsiders as well as innovation incentives for incumbents.

Innovation in the United States has had elements of success by large companies, of course. But it has also had elements of success that were driven by outsiders. It is not just that the browser was invented by students and staffers in a physics-computing laboratory. One of the most important founders of the PC industry, and of its leading firm today, Microsoft, was a college dropout. IBM and Digital Equipment Corporation were not about to invent the PC in 1974, just as Microsoft was not about to invent the browser in 1994.

Competition policy and innovation are not opposed in these circumstances. Low barriers to entry and a level playing field for entrants and incumbents both are the essential goals of competition policy. They support at once competition from innovative outsiders and the return to innovation by outsiders.

3.c) *Emphasis on the browser war*

A second aspect of the Microsoft case which played only a minor role in the trial, but which is very important for policy formation, is the way the “browser war” between Microsoft and Netscape played out.

I have reviewed the history of the browser war elsewhere, so I will not repeat it here. The really important point is this. Innovator Netscape, a startup, was commercializing the browser when imitator Microsoft attempted its own browser as a “strong second.” Despite Microsoft’s formidable advantages as an organization, it was unable to defeat Netscape by improving its own browser or giving it away.

Microsoft’s formidable resources made the browser war highly asymmetric. Microsoft’s Internet Platform and Tools Division was an order of magnitude and a half larger than all of Netscape. Microsoft put many of its best people on the browser, and they did some very good work at the height of the browser war, while Netscape both made some extraordinary strides and some startup mistakes. Microsoft is the best incremental improvement and commercialization firm for software in the world. Despite all those advantages, Microsoft was unable to win the browser war.

Microsoft officials grew more and more frustrated with the inability of their excellent implementation and commercialization capabilities to give them success in the

marketplace. They were reduced to compelling third parties not to distribute Netscape's browser so as, in the words of one Microsoft marketing manager "not to lose all those side by side product comparisons."

A very important lesson here for competition policy is that not only innovation but also competition come from unlikely sources. The best in the world – and Microsoft really is that, in many ways – at the established business can still be inferior, not only in innovation, but also in implementation, to a startup. Most of the startup's advantages came from its head start. In innovation, the ability of a particular firm to move the economy forward is a valuable part of innovative capacity.

Another important lesson is about incentives. When challenged by an innovative technology, an incumbent can gain very valuable incentives from competition. Microsoft's rapid turn to the Internet, and its investment of tremendous resources in Internet technologies, is an example of that. An incumbent firm can also gain the incentive to prevent the competition, which is an incentive not in society's interest. That is a reason competition policy should pay attention.

3.d) *Emphasis on the Outcomes and Innovation Incentives.*

There are two important outcomes from the browser war and the related pattern of anticompetitive acts in the late 1990s. The one that is emphasized for the *Microsoft* case itself is the continuation of the Windows monopoly in place, especially the continuation of high entry barriers. The other, less emphasized there but very important for policy purposes, is the impact on innovation incentives.

The success of the Netscape browser than the Microsoft one would have lowered entry barriers. It would be far easier for an entrant – such as Linux – to attempt to compete against Windows on individual end users' PCs. While we can be quite certain that, absent Microsoft's violations, entry barriers would have fallen, there is no guarantee that entry would have succeeded. What competition policy should do is support that entry going forward and see if it succeeds. Yet competition policy should not hope that it succeeds. It should form a level playing field, to the extent possible, and let competition go forward.

If Microsoft had not violated the law, or if an effective remedy had been put in place at the end of the *Microsoft* case, entry barriers into the operating system market would be far lower. That would benefit society by making a level playing field for operating system entrants. The level playing field would improve consumers' position in two ways. First, it would give them more of a choice in the operating system market, where there is now an incumbent protected by high entry barriers. Second, it would give much stronger innovation incentives to incumbent *Microsoft*. The threat of entry from Linux on the desktop would, for example, have given Microsoft far stronger incentives to provide decent security in its software. We now suffer from computer viruses (and all the other species of ills) to an elevated extent because Microsoft did not have those incentives.

A second point about innovation incentives comes in the market for complements to the existing monopoly. One of those was the browser. Microsoft now earns the economic return to the browser, for its browser is the dominant one. Yet it was others who invented and commercialized the browsers. Microsoft's successful expropriation of the economic return to the browser, which stems from its monopoly power in the

operating system, is a tax on innovation. It is a private tax, but it lowers the economic return to innovation just as much as if it were imposed by government.

Today, other innovators who would bring out new products like the browser know what Microsoft's policy is, and therefore they know what will happen to the economic return to their innovation. Any complement to Windows which is widely distributed general purpose software and likely to be important to customers will come into the same anticompetitive spot as did the browser. The resulting lowering of innovation incentives is ongoing.

One last outcome of the *Microsoft* case is that the relief obtained by the US government fell vastly short of restoring competition to what it would have been if Microsoft had not violated the law. In the US system, it is (just barely) possible for competition policy to take on a national champion. The US system also uses the courts to make that possible. A defendant who plays for time, and who is extremely lucky, may therefore escape effective sanction even when its actions have harmed competition and innovation gravely.

As a result, innovators in PC software or hardware or in software and hardware that connects PCs to networks must gain Microsoft's approval to proceed. Microsoft encourages them when they are purely complementary, for example, if they make applications which are not general purpose or if the general purpose part of their technology is based on Microsoft's plan for the future. Firms who seek to participate in a distinct, competitive, plan for the future find themselves in need of Microsoft's approval (because of the current PC monopoly) but unable to obtain it (to avoid long run competition).

3.e) *Lessons from Microsoft*

- There is no necessary opposition between competition and innovation.
- There is no necessary opposition between either competition or innovation on the one hand and government innovation on the other.
- There are government interventions which favor both competition and innovation.
- Monopolists do sometimes attempt to limit success of threatening innovations.
- Schumpeterian competition sometimes needs government support.
- An incumbent monopolist may expropriate the return to outsider innovation, lowering incentives to innovate.
- Competition policy can lead to actions which are very difficult politically, very far from serving the interests of domestic national champions.

4) Policy Challenges

4.a) *Nascent Markets and Nascent Competitors*

Let me now turn to another part of pro-innovation competition policy, the assessment of future competition which is still in a nascent state. This is an area in which the use of a formalistic or narrowly rule-based approach can lead to inappropriate policy analysis.

Entry and new competition can be an important force in transforming markets for the benefit of consumers and in transforming a country's or the world's supply capability.

Industries vary in the degree to which they have this kind of competition and in its timing. Some have a threat of entry which is present much or all of the time. Others, the more Schumpeterian ones, have a pattern like we saw in the operating system market, with intermittent threats of epochal entry and new competition. Still others have intermittent threats of entry that shifts out supply (possibly by increasing product variety) to a lesser but still valuable extent.

When competition from entrants is intermittent but important, policy should treat the loss of competition from entrants as a genuine loss of competition.

4.a.1) Mergers with entrants

Sometimes, an existing firm seeks to merge with a potential entrant. Merger analysis is fundamentally forward-looking. When will merger with a potential entrant reduce competition going forward? When that entrant represents a substantial portion of the expected competitive capability of the industry at some time in the future. If there are a large number of equally capable entrants, no individual entrant can play that role.

This can arise in a number of contexts. The potential entrant may be an overseas firm that has not yet sold (m)any units domestically. Will their full scale entry represent a valuable increase in competition in the domestic market? The logical answer is, if there is market power in the domestic market and the overseas entry represents a substantial increase in supply.

Suppose, for example, adapting the overseas product or service to the domestic market is not obvious or simple. Then entry calls for real innovation, innovation of a marketing type. The costs and uncertainty of that innovation mean that successful large scale entry is likely to be intermittent. Of course, if it succeeds, it may be competitively important, perhaps by changing the range of products or business models in the domestic market. Then, when an overseas firm with a successful (overseas) product or service attempts to enter, it represents an important fraction of future domestic competitive capacity. Of course, the overseas product or service is untested in the domestic market. These are circumstances in which a market test is highly valuable.

A similar situation arises when the potential entrant is the inventor of a new technology. An existing firm seeks to merge with them. Suppose that the new technology is better, or at least there is a probability that it is better for many customers. Yet the entrant has not yet done the hard work of building a distribution system, refining and improving the product for a mass market (or for many distinct customers) and so on. The market importance of the product has not yet been tested.

When should we treat such merger with such an innovative entrant as involving a substantial loss of competition in the future? Logically, it is when entry from new technologies is intermittent enough such that any particular one represents an important fraction of total competition going forward. Suppose, for example, a technology intensive industry in which there are “generations” of technology. When a new generation is invented by an entrant, they may seek to enter and compete against the existing firms. Yet this does not happen constantly, and the technical capabilities for Like the Internet-based entrants who sought to compete against Microsoft, the entrants may have very promising but unproven technology. These are circumstances in which a market test is highly valuable.

A formalistic application of existing antitrust rules might look backward and say that these mergers do not change competition. The historical market share of the entrant in each case is zero, so the merger does not change market structure at all. The examples illustrate that such a formalistic approach can be very silly. The entrant has not yet entered, so the use of historical market shares as an indicator of their market importance is uninformative.

This analysis is not always pro-intervention. Consider this third case, which involves the merger of two existing competitors where an examination of the current market would lead to the view that the merger substantially lessens competition. Yet there is an unblocked potential entrant, such as one from overseas or one with a good new technology not yet widely in use. The new competition from the new entrant is uncertain. Just as loss of uncertain new competition in the future can be a loss of competition, uncertain new competition can mean that a current merger lessens competition by less than it appears.

Another issue that arises with entrants is potential merger efficiencies. While arguments from merging parties about efficiencies are often speculative, the particular circumstances of an entrant may make efficiencies arguments right. For example, a technology-based entrant may seek to use the distribution network of the existing firm, its merger partner. In principle, these can be real efficiencies. Similarly, the overseas firm may seek to use the distribution network of a domestic firm. Evaluating these efficiencies arguments carefully is hard work.

The two situations, entrant with new technology and overseas firm with overseas product, share features that make conventional merger analysis very difficult. First, the competition is in the future, prospective. If we look only at the existing market, or the existing domestic market we miss elements. That leaves competition policy with a real problem, which is how to gauge the competitive significance of potential future competitors. This is more difficult than actual competitors. Looking for a simple rule, such as never opposing mergers with potential competitors, or never counting potential competitors as constraining market power, does not seem an adequate solution. The increasing importance of technology based entrants in innovative industries and overseas entrants with innovative marketing strategies or business models means that the problem matters for competition policy practically.

The problem is not conceptual but factual. Conceptually, merger analysis is about competition in the future. Conceptually, there should be more interventionist merger policy when the important future competitor is part of the merger, and less interventionist merger policy when the important future competitor is not part. Thus the problem applies symmetrically to intervention – and to nonintervention. Future competition that actually will arise is competition, either way.

The factual problem is that potential entrants and nascent entrants make the past a poor indicator of the future, if by the past we mean market structure in the year before the merger. That does not mean that the merger analysis should be un-analytical or without factual foundation. There are a number of enquiries to undertake, depending on available information. Are market participants, whether competitors, suppliers, or customers, treating the potential entrant as real? What has been the role of similar entry in other times or in other places? These are all enquiries which can be pursued. They call for hard economic analysis, not for formalist application of rules. Changes in the economy

in the direction of more technology based entry and more globalization mean we will have to learn how to make these enquiries.

4.a.2) Other Horizontal Issues

Another set of horizontal issues that arise in innovation contexts are somewhat different from static contexts. In static contexts, competition policy tends to be suspicious of agreements among competitors. They may reduce competition. Indeed, agreements among competitors in general provide an opportunity to reduce competition, and the profit incentive to reduce competition is there.

In innovation contexts, certain agreements among competitors may be pro-competitive. For example, industry-wide standard setting for interface standards may increase competition on each side of the standard. It is important in such cases that the nature of the agreement not exclude new competition. It is also important that it not include disguised mechanisms for setting prices or quantities at the firm level. The real point, however, is that in certain technical innovation circumstances, competition policy authorities may have little choice other than tolerating some agreements among competitors, focusing attention on limiting the anticompetitive impact of those agreements rather than on trying to avoid them altogether.

One context in which it has been suggested that agreements between competitors can be pro-competitive is settlements of litigation. Competitors may be (notably in the litigious US) locked in litigation, only to settle the litigation by either (1) merging or (2) otherwise contracting to settle the litigation in ways that limit the degree to which one or both may compete.

One defense that is suggested for such settlements is that litigation is costly, and the agreements save resources in the courts. Competition policy authorities should view that argument with great skepticism. While it is true that saving the courts' resources is a valuable social goal, there will be other ways to achieve those savings other than by letting one or both competitors determine one another's prices, quantities, innovation, marketing mix, and so on. The settlement of the case should not come at the expense of consumers.

A special case – perhaps the only special case – in which that general argument does not apply is the settlement of patent litigation. In that case, it is conceivable that the settlement restricts competition no more than the outcome of the litigation would have. Consider the case where patents held by one of the firms would have permitted it to exclude the other from production. Then a merger between the two may be a merger to monopoly, but it is a merger to legal, patent-protected monopoly. Of course, the settlement of the litigation makes it impossible to know whether the patent does permit the first firm to exclude the second. The issue was disputed in the litigation, but not resolved.

A particular form of these settlements has emerged in litigation between pharmaceutical firms in the US and so-called “generic” entrants. A generic entrant produces a copy of a drug, entering when the patent protection, if any, held by the pharmaceutical firm ends. A complex of special patent laws and drug regulations makes determining when the patent ends uncertain in many cases, and the degree to which drugs are protected by patents varies as well. Thus, there is sometimes patent litigation

between the incumbent pharmaceutical and the generic entrant, if the entrant has come in while the incumbent believes it still has patent protection.

Settlements of these cases often involve large payments to the generic entrant. That is not a typographical error. Settlements of these lawsuits often involve large payments to the injuring party from the injured party. The settlements also determine the conditions under which the entrant may enter, that is, the settlements are a contract between competitors which determine how much one may compete. Competition policy should view such settlements with great suspicion.⁴

4.a.3) Firms Enlisting Governments to Limit Competition

One of the permanent duties of the competition policy authorities in the US is consultation with the rest of the government to prevent anticompetitive government action. The motivation for this duty is simple. It is easy for government action in any of a wide number of domains to reduce competition. A government agency may be captured, in the sense that it implements rules intending to block competition, or it simply may not be aware of competition concerns.

Traditional examples come from regulatory contexts. For example, a safety regulator might enact product-design rules to protect consumers from injury. If the domestic industry contributes to the writing of those rules, certain of their details may limit competition. For example, technicalities in the rules may make it very difficult for importers to comply while domestic firms can easily comply. Alternatively, if the industry's most successful firm helps the government write the rules, technicalities may make it very difficult for any other competitor to comply. Such rules protect the industry from competition whether or not they protect consumers from injury.

Another traditional example comes from close relationships between government agencies and specific firms. In the US, many of the examples arise in the defense sector. Departments of Defense have a strong bent to planning, and when they come into contact with the economy, that sometimes turns into a strong bent toward central planning. The problem, however, is perfectly general. The government (or near-government, such as banks in some countries) entity which works closely with an industry may not have perfect cost-minimizing incentives and thus may not necessarily seek an industry structured in a competitive manner.

The most important examples of firms enlisting governments to protect them from competition come from international economic policy. Outside of a few sectors, international treaties limit explicit protectionism through tariffs. This means that a wide variety of different government actions will be sought to limit international competition. These can be financial policies, regulatory policies, land-use policies, any of a wide variety of policies which might help established domestic industry at the expense of blocking international competition for domestic consumers' business.

When competition policy officials consult with the rest of the government in the hopes of enhancing competition, they should have high hopes but realistic expectations. Sometimes, the political pressure in favor of anticompetitive regulation is very strong, and little can be done to prevent reductions in competition through government action. At other times, however, the problem arises because the regulatory or procurement

⁴ The payments to the entrant grow more and more complex, often involving a number of different licenses and products. This does not make them less suspicious.

agency is unskilled in competition analysis or does not anticipate that a technical proposal from business may include hidden reductions in competition. In those circumstances, consultations from pro-competition colleagues elsewhere in the government can be quite helpful and effective.

4.b) Patents, Copyrights and Competition Policy

One area of firms seeking government protection from competition is growing in importance in recent times. That is government protection of inventors and artists through, for example, patents and copyrights. This area is important enough, growing rapidly enough, and badly enough understood that it merits serious treatment.

Like other governmental actions, protections for inventors and artists serve a valuable public function. Their goal is to encourage the invention of new technologies and the creation of new works by giving exclusive rights to the inventor or creator. The first problem arises because the scope of this protection may be overbroad as granted by the government or may be subject to influence by the protected inventor or creator.

4.b.1) Scope of Protection

Why can competition policy be involved in the protection of inventors and creators? Exclusive rights, by their very nature, are closely linked to market power. The right to exclude rivals from production granted to an inventor or creator, if it is overbroad, can create market power beyond what is needed (or was intended) to encourage invention and creation. Some protections for inventors and creation also grant the right to exclude rivals from further invention and creation. These legal protections can create market power in the short run (by blocking rivals from production) or the long run (by blocking them from invention.) If the legal protections are not entirely given and exogenous, firms may seek to change their scope or their strength.

That is where the competition policy authority comes in. Just as with any other protection from government, patents and copyrights may confer market power either through oversight on the part of the government, through capture, or through manipulation by firms.

Since legal protection for inventors and authors takes the form of awarding them some right to exclude other firms, and since the goal of competition policy is encouraging competition, there is an inevitable tension between the two bodies of policy. Many conceptualize the tension as head-on conflict, and assign to competition policy the goal of favoring competition at the expense of innovation. This is an error. The conflicts arise when the scope of the market power is too great, or when the incompleteness of property rights puts incentives in the system to use partially endogenous legal rights to increase the scope.

4.b.2) Scope, Complements.

Economic analysis shows that it is difficult to design legal protections for the inventors of complements. For example, suppose that we are trying to design legal protections for both inventors of a general purpose technology and of its applications. The economic return to a system which consists of both a GPT (such as a PC) and an application (such as applications software) is divided between both sellers. Giving more market power by stronger protection to one seller can lower the return to the other.

Sometime legal protection from the government goes even farther and permits inventors in one of the complementary technologies to control technical progress in the other. This can arise because that this the legal scope of the protection, or because that is its practical scope in the marketplace.

An especially problematic area is the control of interfaces between the GPT and the applications. For example, Microsoft exerts control over the interfaces between its Windows operating system and many complements, including PCs and applications software, and, now that networked computing is so important, servers. Microsoft routinely asserts the right to direct and control technical progress on the other side of the interface, that is, by its complementors. Competition policy authorities are entirely correct that that control is anti-innovation as well as anti-competition.

The granting of legal rights that let one complementor block innovation by another complementor is an example in which we should not think of the conflict between competition in the short run and innovation in the long run. This is, on its face, a conflict between innovation and innovation. It has implications for competition policy authorities when they seek to undertake pro-innovation competition policy.

The conflicts between the legal protections for complementors' invention can be overcome by private contract in some circumstances. That is, even if the government has originally misallocated protection, contracts among the complementors can reallocate it to the efficient locations. There are three important limitations on this argument. The first is when the transactions costs of contracting are high, in the broad sense economists use that phrase. The second is when market power, or some other force, means contractual reallocation does not move the economy toward efficiency. (Providing the legal right to direct the innovative activities of other firms to a firm with market power is a recipe for trouble.) The third is when the legal protections are incomplete property rights. We shall return to the third point in a moment.

4.b.3) Scope: Improvements

Economics has recently come to understand (thanks largely to the work of Suzanne Scotchmer) that this same analysis, based in complementarity, applies to earlier inventions and later improvements. Using an early invention and a later improvement together may make a better product than if they are used separately. Strengthening the formal legal protection for early inventors or creators does not necessarily increase the incentive for innovation overall. It increases the incentive for early inventors, but can decrease it for later ones. Similarly, legal rights for early inventors to control the inventive actions of later inventors can create a drag on innovation. An original inventor may, for example, seek to block an improvement by another firm, saying it violates the patent associated with the original invention. Of course, the full analysis of complementarity applies. Contracts among earlier and later inventors could overcome any problem of rights allocation (subject to the same three limitations as above.)

4.b.4) Incomplete Property Rights

Legal scholars tend to label patents, copyrights, and related government protections as "intellectual property rights." The second area of problems for competition policy arises because that is something of a misnomer. These legal

protections have some but not all of the attributes of property rights in the sense that economists use that term.

The economic definition of a property right is the exclusive right to determine how a specific resource is used. The right must be anonymous, that is, it must be the same right who ever owns it. The trouble arises, for patents and copyrights, at “exclusive,” “anonymous,” and “specific.” The purpose of having property rights in the economy means that those modifiers must hold in a strong sense in non-obvious circumstances.

The mechanism by which property rights support economic efficiency is indirect. With property rights, resources can be directed to high value uses by trade. The essential idea of property rights is that buyers and sellers in a potential contract of any level of complexity know who owns what -- in all contingencies -- and thus move resources efficiently to the right uses.⁵

That purpose tells us why “exclusive,” “anonymous” and “specific” must have sharp definitions. Property rights are incomplete when the exclusive right to use a resource is lessened if there is a transaction involving the resource, or if the strength of the right to use the resource changes if the ownership of the resource changes. Property rights are incomplete when there are multiple rights and the rights are partially overlapping. Related problems arise in connection with the evolution of property rights over time (especially when efficient use of the property rights involves sinking costs.) Property rights that may move as a result of government action ex post a transaction are incomplete property rights.

The reason I adduce these ancient definitions of property rights is merely to point out that modern “intellectual property rights” fall short of being property rights in the economic sense. It is often uncertain what legal rights are conferred on an intellectual property holder in the sense of to what specific things exclusive rights are granted, the strength of the legal rights is often dependent on who holds them, and the resolution of what the scope of the legal rights is often delayed into the future.

Are patents and copyrights property rights? The specific resource they would give exclusive control to is an invention or creation. There are two problems. First, the scope is often unclear at the time of invention or creation. Rights overlap with those of other complementary inventors and creators, including future improvers. It is important to emphasize that some degree of this overlap is not anyone’s fault. It is difficult to clearly define the boundary between what is invented and created today and what will be invented and created tomorrow. Nonetheless, the overlaps are there.

Second, rights to control inventions and creations are often uncertain because it is difficult to forecast with a high degree of precision how courts will enforce them. To be complete property rights, they would have to make clear to all interested parties specifically what the scope of the protection is, and specifically what the scope of protection for other inventors and creators will be. That clarity would have to be available at the time of invention or creation – the time when contracting is most valuable.

In practice, patents and copyrights give the patent holder the right to bring a lawsuit against an alleged infringer. The lawsuits are expensive for the participants, running into the millions of dollars, and difficult to resolve for courts, with the

⁵ There are, of course, limits to this argument, including externalities and perpetuities.

proceedings sometimes taking years to resolve. Before these lawsuits are completed, it is not known who controls the right to use what resource. Property rights are incomplete.

Efforts by inventors and creators, and by those who might wish to contract with them, might overcome these practical problems. For example, clarifying who has what rights early on, at the time inventor might seek to contract with others, is potentially valuable. These efforts run into difficulties. Patent and trademark offices are understaffed (certainly so in the US) and not eager to work with outsiders who would like to understand the precise rights which have been allocated. “Opposition” systems, by which outsiders object to patents and get clarification early are different across different countries, but nowhere really clarify rights. Rules about the revelation of information about patents often leave secret what has been claimed until the patent is granted. While this protects the privacy of inventors who are not going to get a patent, it reduces the amount of information in the broader economy about legal rights. Other aspects of information revelation are incomplete as well. Legal rights to the same invention in different countries can vary considerably.

The effect of all of these elements – each of which has a real justification – is to make property rights incomplete. At the moment a new inventor or creator would like to contract with others, and society would like contracts to go forward, property rights in a specific invention are highly incomplete. Adding certainty to complete them is very difficult at that key moment.

The clearest conflict between competition policy and legal protection for inventors or artists arises when the scope of property rights is unclear. Creators who have one legally protected right may seek to gain other property rights in ways that limit competition. A creator may, for example, seek to expand the scope of their protection to cover substitutes for their product in order to lessen competition. Or, they may seek to expand the scope of their legal protections to complements in order to earn rents associated with the complements or, sometimes, to reduce competition. The general label that sweeps all these phenomena together is actions by creators to expand the scope of their legal protection. It is particularly important to consider this when the scope of the legal protection awarded to an inventor or a creator is not given and exogenous, but instead depends on actions they might take or on their market position, such as lobbying governments or bringing lawsuits.

The same uncertainty limits the ability of the private economy to contract around limitations on patents. Uncertainty about the scope of legal rights is a transaction cost in contract, unless all parties in the economy have the same, objective, estimate of the probability that a given legal right has a particular scope.

Unfortunately but not surprisingly, much of the recent difficulty with resolving the scope of legal protections and making them clear at the time of invention arises in connection with the economy’s newest and most technologically vibrant areas. Trouble arises in areas like patentability for living organisms, database patents, software patents, patents for tools and for the objects the tools make, business methods patents, and so on. Further, several of the most important modern innovative industries, such as information technology and biotechnology, are general purpose technologies that undergo continued improvement over a long period of time. That brings the problem of protection for general purpose technologies and for applications, and the problem of protection for early

inventors and for later inventors of an improvement, right to the fore. The most important areas are areas of incomplete property rights.

That gives rise, naturally, to conflicts between competition policy and legal protections for inventors and creators. Protection for inventors and creators, if it takes the form of very clean property rights, can be an example of wise government policy. Like all other government regulations, “intellectual property” policy can also be subverted for anticompetitive ends. It is no more than the latest example of regulation to be so subverted. Protection for inventors and creators is the latest arena in which firms have sought to use the services of governments in order to reduce competition.

I mentioned above that it is important and sometimes useful for competition policy authorities to consult with the rest of the government to prevent anticompetitive government action. One of the most important, and least successful, of these during the Clinton administration (in which I served) concerned legal protection of inventors and creators. Pro-competition, pro-innovation forces inside the US government had little success in affecting those laws. The very strong political alliances forged by Hollywood, for example, meant that the anticompetitive and anticonsumer elements of such protectionist statutes as the Digital Millennium Copyright Act were deliberate political choices.

5) Conclusion: Innovation’s and Competition’s Future

There remain a number of difficult tasks for pro-innovation competition policy. Innovative entrants from overseas have long met entry barriers in the private economy and protectionist rather than pro-competitive responses from governments. Today, in many domains, innovative entrants from the world of the future are often blocked by the same forces. Permitting competition rather than protecting particular competitors is the goal of competition policy. The example of the largest competition policy action in recent times, the *Microsoft* case, shows us that pro-innovation competition policy is possible. There are instances when existing firms seek to raise entry barriers, and competition policy can oppose that. I have suggested three areas of competition policy in which valuing innovative entry and competition is a practical and immediate reality. There remains much work to be done, and I appreciate the opportunity today to contribute to that effort in Japan.