International Symposium by the Competition Policy Research Center, 21st Century COE/ RES Program, Hitotsubashi University and NIKKEI (27 January 2006)

Opening Remarks to Invited Speech Ⅰ

【Opening Remarks】

Dr. Kotaro Suzumura (Director, CPRC, Professor, Institute of Economic Research at Hitotsubashi University)

Good morning. I thank everyone for coming to this international symposium co-organized by the Competition Policy Research Center of the JFTC, 21st Century COE/RES Program Hitotsubashi University, Normative Evaluation and Social Choices of Contemporary Economic System, and NIKKEI.

We are very grateful that so many of you have come. Our given topic for today is "Towards the Effective Implementation of New Competition Policy". As it suggests, today's symposium purports to have a comprehensive examination and discussion on the revised AMA which has taken effect as of the 4th of January, in light of historical and theoretical and international comparative point of view.

Fortunately, we have great guests from John Hopkins University, Professor Joseph Harrington, from European University Institute, Professor Massimo Motta and Professor Matsui from the University of Tokyo. We do have topnotch researchers from US, Europe, and Japan representing theoretical industrial organization theory and the competition policy. We also have topnotch commentators and panelists. We have JFTC Chairman Takeshima, Commissioner Shibata, and the Secretary General of the JFTC, Mr. Uesugi, who will be taking part as either keynote speakers, commentators, or panelists. We do have the most desirable, best range of people, who would discuss those things.

Now that new starting point is marked by Japan's new competition policy, we would like to have a discussion on the designing method for the newly revised competition rule and its implementing process. I know you're interested in the law as well as policy of the competition, so I'm sure that today's symposium will be a source of intellectual stimulus for you, and new fresh information. Well, last year amended AMA has enacted and it had eliminated remaining the inconsistencies in the AMA in the past, and took a important step towards the international harmonization of the basic rules of the competition. It's an epoch making amendment. However, what kind of impact this new competition rule can have upon the overall welfare of public in Japan. Well, there is a newly enforced, strengthened surcharge system as well as new criminal investigation power put on the JFTC and the leniency program introduced for the first time in Japan. So, the impact of this new competition rule really depends on the reaction coming from the players of the competition game. Also there are still certain points left that need to be discussed further in terms of the law as well as the designing of the policy.

In our symposium today, we hope that we can find a hint as to how we could deepen further understanding about the effective implementation of the new competition policy, and how we could make further improvement. We would

like to do this together with you, and hope that this meeting will be a great success. Thank you.

Moderator Kojima
Thank you very much. So we would like to go into the program. We have three separate sessions. First of all, it would be the keynote speech by Mr. Takeshima, the Chairman of the JFTC. The next program would be two invited speeches by Professor Harrington, and Professor Motta. Then in the third session we will go through a panel discussion.

Due to time restrictions, in principle we shall not introduce the full background of our speakers, commentators and panelists. The titles and the background information of those are included in the program distributed to the audience. So, the first session is a keynote speech by Mr. Takeshima, Chairman of the Fair Trade Commission of Japan, with the title of "A New Competition Policy in Japan -To firmly established Free and Fair Competition." This would be a 30-minute keynote speech. Mr. Takeshima, please.

【Keynote Speech】

"A New Competition Policy in Japan -To firmly established Free and Fair Competition-"

Speaker: Mr. Kazuhiko Takeshima (Chairman, JFTC)

(Introduction)

Good morning ladies and gentleman, I'm Takeshima, Chairman of the JFTC. I would like to thank you all once again for coming to this International Symposium co-organized by JFTC-CPRC, the 21st Century COE/RES Program, Normative Evaluation and Social Choice of Contemporary Economic System of Hitotsubashi University, and Japan Economic Journal, Nikkei.

I also would like to thank the guests who have come to attend this symposium from the United States and from Italy: Professor Joseph Harrington from Johns Hopkins University and Professor Massimo Motta of the European University Institute. Thank you for coming. My thanks also go to Professor Matsui of University of Tokyo. As you heard from Director Suzumura, it's very rare to have those three representatives to get together at one time. We are very lucky. They are the topnotch specialists in their own fields, and we are so grateful to have them all together today.

Well, talking about the CPRC, our center was established in June '03. It's very young, less than three-year history. The purpose of establishing the center is interdisciplinary. It aims at academic research based on law and economics, and at a bridge between the practice and the theory. So, staff of the JFTC is also taking part in the activities of the center, but mostly from outside academicians are coming in to conduct various analyses and researches based on a given topic at workshops and so forth.

The CPRC was established also to be a center for transmitting information. Sometimes, like we are doing here today, we invite specialists from both at home and abroad to have a big conference to think more about the significance of the competition policy and to hear the advice.

(Revised Antimonopoly Act (AMA))

As you may know, the amended AMA has been put into force on the 4th of January this year. With this amendment, leniency program has been introduced, the surcharge rates has been increased, right to conduct a criminal investigation has been introduced and the recommendation system was abolished and the cease-and-desist order system has been introduced. So, those are the four major points introduced in the amended AMA. Although a little belatedly, Japan has come into a new stage of competition policy in line with international norm. So, we have come into a new phase for our competition policy in Japan with the amendment. So in this sense, it is very timely that we are having today's symposium under the title "Towards an Effective Implementation of New Competition Policy". Since I have been given the precious time, maybe I could just share with you the thrust behind

the amendment, the goal and the substance of the amended AMA, and lastly I may touch upon the future challenges lying ahead.

First of all, why at this juncture we have chosen to amend the AMA in Japan? To start with, I have always thought that there is no growth without competition. To put it simply, if one avoids competition, no effective production system can be realized, and no efficient provision or service can be realized. In the final analysis, it could obstruct the economic growth and will not contribute to the improvement of living standards for people. It will not be beneficial to the consumers, nor to the business operators as well, because the industries, in which cartels and bid-riggings are common, are bound to go down and decline and disappear. So, fair and free competition which is based on rules is a must for individuals and for companies and for countries alike. Unfair competition needs to be eliminated, but fair and valid competition would be the way to go. It cannot be avoided. That is our view. So, in that sense, recently, maybe I'm deviating from my speech, mass media is now carrying out a story of corporate scandal and irregularities like faking the report about the earthquake-proofness of a building and so forth. So that, some people are throwing questions at the market fundamentalism and at the idea to place the competition first. I don't think so. Of course, rules have to be adequately placed and the checking function needs to be placed properly. However, there is no change in the importance of the competition, the regulatory reform, the deregulation and the competition policy. In that sense, in this juncture, together with the structural reforming policy, the promotion of competition policy is also very important and crucial for Japan.

So, in that light, looking at the current situation of Japan, I would say that, unfortunately there are so many companies who repeat offences of the AMA. Besides, renowned, famous companies are involved in AMA violations cases many times over. Then we cannot claim our situation to be one where fair competition is going on. Why is that we have such reality? There are ones who commit cartels and bid-riggings, believing that those conducts will bring the interest to their companies even when considering possibility of being cracked down by the JFTC. The deterrence from the violation comes from the level of penalty imposed and the probability of being uncovered.

So, in that sense, to exert deterrent power, all these factors making up the overall system need to be reinforced. And from this viewpoint, I mentioned to you the four major pillars for the amended law. The first pillar is the raising of the surcharge rates, which is a strengthened penalty. I wouldn't go into the details, but it will be raised to 10% of the sales of related good or service for the big businesses, which used to be 6%. Also the provision was introduced by which the surcharge rate will be increased by 50% if the company had received an order to pay surcharge within past 10 years. In other words, if that company is a repeat offender, the rate will be raised to 15%. Then it is hard to find the evidence of cartel and bid-rigging, because they are conducted behind closed doors. It's a headache for the authorities.

But despite the situation, what should be uncovered need to be uncovered and its probability and success rate need to be raised. That is why leniency program have been introduced. At last, with this amendment, belatedly Japan was able to introduce its own leniency system. We should raise the uncovering rate for the offences with that. It would be useful for raising the uncovering rate and also suspicions will be mounted within the same cartel members. They never know which cartel member might apply first to the leniency program, making exerting deterrence. Also even if a cartel is formed already, it could unstabilize, and destabilize the cartel as a result of the leniency program.

Well, we have our differences with the western countries although we share the basic notion. So the first three applicants will be applied with the leniency program in Japan. Also, it makes a big difference whether the application come in before or after the start of the onsite investigation by the JFTC. I'm sure that it's going to be a debatable point today.

And the third pillar is the power to conduct criminal investigations. There used to be very pernicious offences which could be accused to the prosecutor general for criminal penalty. In order to do it on the due process, the authority to conduct criminal investigation have been added.

And the fourth pillar is the revision of procedures for investigation and hearing examinations. It used to take much longer time in the past to finish a case. That's kind of inevitable, because we examined the existence of cartel or bid rigging first and after the completion of the examination, another hearing procedure followed whether to issue the order to pay the surcharge or not. However because of the change in society, the speedy processing is required. It is true for the competition policy, two and three years are too long. One cannot wait that long, because market order might change during those years. So prompt and expeditious, appropriate processing of the case is necessary.

Based on that viewpoint, recommendation system has been amended, so that the administrative order would be issued together with the order to have the payment of surcharge. But it will not take place all of a sudden. It will be explained in detail to the companies involved in advance, so that companies' view can also be heard, but if it is not convincing then the hearing procedures would begin, but anyway due process has been paid attention to very much.

So I have mentioned the four major pillars constituting the amended AMA, which have enacted and have been put into force. As far as the penalty standard is concerned, maybe we are still being too lax that's what people say comparing it to ones in the western countries' practices. However, I would say that the level of the AMA in Japan would be comparable to that from the western countries.

(To Firmly Established Fair and Free Competition)

In order to have the system become established, we will make efforts accordingly. And I would like to mention three points here.

First point, we must execute the amended law appropriately and very strictly. We will fight strictly not only against cartels by the larger companies but also against unfair trade practices under Section 19 of the Japanese AMA. So, we must deal with problems like unjust low price sales or abuse of dominant bargaining position. Under the current law, surcharges or fines are not to be imposed on those violations, however, at least we should continue to seek improvements of the situation by detecting and exposing them.

The second, a future challenge going forward is international cooperation, including bilateral or multilateral ones. The economy has been globalized and cross border transactions are rising. We cannot avoid the issue of convergence of application or contents of competition laws. It is very important for related national or regional competition authorities to collaborate in issues like international cartels or mergers. The United States and the EU, for example, have daily collaboration works. Japan has not reached that kind of stage, but going-forward, since our law has been amended, we will have to have more specific consultations with the related countries on mergers or cross-border cartels.

We have a bilateral cooperation agreement for antimonopoly enforcement with the USA, the EU and Canada. There are regular bilateral meetings with them and if there are specific cases, we also have a discussion. As we have introduced this leniency program in the case of international cartels; Japan shall become more proactively involved. Because we did not have a leniency system, the involved companies might have reported only to American or European authorities, but going-forward, the situation should change with the fresh leniency program.

In terms of multilateral activities, there are the OECD and the ICN, in which Japan is also a participant. In the case of the ICN, Japan will host the annual conference in the year 2008. In the region of East Asia, competition laws are being established. Many countries have freshly established competition authorities. In, just beside our country, China, they are also reviewing their competition systems. Maybe, soon as this year, in the very near future, they should have a comprehensive competition law framework.

There are a similar system like ourselves already in South Korea, Taiwan, and Indonesia. Under this background, for this first time last year, we took an initiative to invite the top management of East Asian competition authorities. Since the situations are different in respective countries, we suggested that we have an international conference, so that the top management of the authorities could discuss the policies and improve collaboration and coordination. So, we shall continue this kind of

collaboration this year. Whether it is bilateral or multilateral, we shall have to strengthen this kind of cooperation activities.

And lastly, as we amend the law, that doesn't mean we solved all the questions. If it is an empty, just mere formality of having a law would not allow us to fulfill the spirit of the law. When we do have policies, the importance is to raise awareness.

As I mentioned earlier, if the free and fair competition is important for the national life and national economy, not only for the sake of society but also for their own companies and for their own business, people should behave with that awareness in mind. So, in that case, if they know that there is a conduct of AMA violation, they should be cooperative in providing information to the JFTC. That should become the social norm. This awareness relates not only to the private companies which are covered by the AMA of course, but in addition to that there is an issue called government-led-bid-rigging in Japan. Therefore also the governmental officials in charge of purchasing must change the awareness. And also, the consumers should always keep eyes on the possible violations and the players of the market economy from the points that I talked about.

So in that connection, I would like to talk about compliance program. In order to rectify the behaviors of the businesses with amendment of the Antimonopoly Act, the businesses must take initiative to get in place the compliance program and try to enforce the compliance program strictly. And from that vantage point, we are carrying out the questionnaire survey to know the present status of compliance program of the 1700 companies listed on the first section of the Tokyo Stock Exchange. After we receive the responses, we would like to add our input and publish the results. I hope that best practice in the business will be widely penetrated in the Japanese society at large with that.

However, compliance program alone is not enough. It should have detailed rules in the company such as how the information should be conveyed within the business entity if a problematic behavior was found, whether there is any disciplinary action, what are the criteria for disciplinary action etc. Therefore this is not a matter of compliance division only but the management should be involved in order to improve the compliance program in a whole company, and the way to enforce the compliance program.

And since the leniency program has been introduced, if the cooperation is given earlier there is monetary incentive. On the other hand, there is a 50% increase in surcharge to a repeated offender. So if a violative act is not well acknowledged by the company, financial loss would be greater than the past and that is a new structure, and therefore ignorance of violations in the company should be avoided. So I expect that the stricter arrangement about the compliance will be made by the business firms.

And on the part of public sector, there are issues of amendment to the Government-Led-Bid-Rigging Prevention Law and bidding system itself. They say that so called general competitive bidding is preferable, but that idea is very difficult to be penetrated into local government level. Although the situation has changed significantly after the steel bridge case, the major bid-rigging case in 2005, there are issues of protection of Small and Medium-sized Enterprises or giving priority to the local companies. There may be separate allocations for the SMEs and the big enterprises. But within the allocated market, bid rigging should be avoided by any means. And so in that sense, JFTC hopes that the government agency placing order, will review appropriately the bidding system, and the JFTC would like to step up efforts along those lines.

(Closing)

Lastly, the amended AMA has come into force on the 4th of January. But the amendment alone is not sufficient, and so as of today, we really have to review them and from last July, the council on the basic issues of Antimonopoly Act was placed within the Cabinet Office, and they have raised the issues constantly. For instance, whether an administrative fine like the EU alone is sufficient, or whether the criminal penalty should exist with the administrative fine and whether hearing procedures should exist in the current form and what kind of penalties will be needed against unfair trade practices like unjust low price sales or abuse of dominant bargaining position. This advisory council will present an interim report about the issues that they have identified this summer and the final report will be issued in summer next year. So the Japanese AMA issues are ongoing.

So under this juncture, this symposium is very meaningful because we have the speakers from the USA and the EU where they have many experiences in leniency program and cracking down on cartels. We have Professor Harrington of Johns Hopkins University and Professor Motta of European University Institute, also Professor Matsui of University of Tokyo. I hope that very good presentation will be made by the speakers and hope that you'll actively take part in the discussion, so that you learn a great deal from today's experience.

With this, I would like to conclude my speech. I thank you very much for your attention.

Moderator Kojima
Thank you very much Mr. Takeshima. The next program is the invited speeches. There are two invited speeches, one in the morning and another in the afternoon. Each speech should take about 50 minutes followed by a 20-minutes comment from designated commentators.

May I invite our first invited speaker, Professor Joseph Harrington from the Department of Economics at Johns Hopkins University, the discussant, Professor Akihiko Matsui of the Faculty of Economics, University of Tokyo. Professor Harrington, Professor Matsui, would you please kindly come up onto the stage please, thank you.

So, first this is the invited speech by Professor Harrington. The title is the "Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion." Professor Harrington, the floor is yours.

【Invited Speech I】

"Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion"

Speaker: Dr. Harrington (Professor, Johns Hopkins University)
Commentator: Dr. Akihiko Matsui (Professor, University of Tokyo)

1. Invited Speech by Dr. Harrington

(Introduction)

Ohayo gozaimasu. last Wednesday, 11 years ago, Kanji Mimoto, of Ajinomoto sat in a hotel room in Atlanta in the United States. He was attending a meeting of the lysine cartel. In response to a knock on the door, Mr. Mimoto said in a joking manner, "is that the Federal Trade Commission?" It was not, but it was an undercover agent for the Federal Bureau of Investigation, disguised as a hotel employee. The meeting in Atlanta was somewhat unusual, as many global cartels preferred not to meet in the United States because of our stringent attitude towards price fixing. Mark Whitacre, who was an employee at cartel member in ADM[1], but was working as a government informant was only able to convince Mr. Mimoto to meet in the US by proposing that they meet in Hawaii. It seems that few corporate executives can resist the temptation of the golf courses of Hawaii. Having been to Atlanta myself many times, I cannot imagine what they could have possibly offered Mr. Mimoto to get him to go there.

Since that meeting in Atlanta, we have witnessed more and more countries adopting aggressive policies to fight collusion, and I'm delighted and honored to be here with you today to discuss the new policy instituted in Japan. With the introduction of a leniency program and an increase in the severity of penalties, the Fair Trade Commission of Japan has been given significant instruments for fighting cartels. I would like to take the opportunity to discuss the role of the antitrust authority in the battle against collusion, and in particular its role in the detection of cartels. I do not have any definitive answers to offer, but hopefully what I am going to say will contribute to the ongoing discussion about how to effectively fight cartels.

In thinking about the process of fighting cartels, it is useful to recognize there are three significant stages. There is the detection of cartels, there is the prosecution of discovered cartels, and there is the penalization of successfully prosecuted cartels. And with regards to each of these stages, let us consider what in practice has been the role of the antitrust authority. If I think about penalization, I would say its role has ranged from moderate in the United States to strong in a country like Japan or the EU, where the government, the antitrust authority, is the sole provider of penalties. Of course, in the United States, in addition to that we have private customer damages.

[1] Archer Daniels Midland Company (A grain dealer in US)

With regards to prosecution, I would say it ranges from moderately strong for the United States to strong for a country like Japan. I mean once again, the antitrust authority is the sole prosecutor of cases. In the US, we have private litigation, in addition to government cases. So, I'd say with regards to penalization and prosecution, the role of the antitrust authority ranges from significant to dominant, but if I look at detection and certainly based on the US experience, I would say its role has been weak. To provide a little additional information for that, here is a quote from the Antitrust Bulletin in 1991, which says, "As a general rule, the Antitrust Division follows leads generated by disgruntled employees, unhappy customers, or witnesses from ongoing investigations. As such, it is very much a reactive agency with respect to the search for criminal antitrust violations." If we look at a classic study based on data going back to the '60s and early '70s[2], they examined 49 Department of Justice price fixing cases for which they were able to identify the source of detection. Only two of those 49 cases, were detection due to an investigation initiated by the Department of Justice[3]. So, one of the primary questions I'd like to discuss today, is can the antitrust authority be more active in detecting collusion? So, let me give a brief overview of my talk.

METHOD OF DETECTION IN 49 CASES[a]

Method	Number of Cases
Grand Jury investigation in another case	12
Complaint by a competitor	10
Complaint by a customer	7
Complaint by Local, State or Federal Agency	6
Complaint by current or former employees	3
Complaint by Trade Association Official	2
Investigation of conduct or performance initiated by Antitrust Division	2
Newspaper account	2
Referred to Antitrust Division by the Federal Trade Commission	2
Complaint by anonymous informant	1
Merger investigation	1
Private suit	1
Total	49

[a] This information was not available for the remainder of the cases in the sample.

[2] Unfortunately there is no more recent study of this kind.

[3] Hay, George and Daniel Kelly, "An Empirical Survey of Price Fixing Conspiracies," *Journal of Law and Economics*, 17(1974), 13-38 (qtd in Harrington, Joseph E. Jr. "Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion," 3. Competition Policy Research Center. Jan. 2006. Competition Policy Research Center. <http://www.jftc.go.jp/cprc/DP/CPDP-18-E.pdf>)

I want to begin with a comparative analysis of leniency programs looking at the US and Japan and to some extent the EU. With regards to design and implementation, and in particular how the design can perhaps influence the incentives of firms to report to the authorities. I also want to look at the question about measurement, how do we go about trying to assess what is the actual impact of the leniency program, and I'll have really very few answers there, but a number of questions. In regards to the comparative analysis, I'll deal not just with the issue of detection, but also the issue of penalization. I then want to broaden the discussion to think about other programs, not just leniency programs, to induce reporting.

And finally, I wanted to talk about the antitrust authority developing concrete programs to go out and discover suspected cases of collusion in the economy.

(Overview of a Corporate Leniency Program)

So let's begin with the design and implementation of the leniency program. If we think about the objectives, we want a leniency program to make conviction more likely, help us discover cartels, to make cartels less stable, reduce their duration, and to make cartels less profitable so as to deter cartel formation. So we want a leniency program to aid in prosecution, detection, desistance, and deterrence.

Now in thinking about the different leniency programs, let us consider the various dimensions of these programs. First there is the criteria for being awarded amnesty and they can differ in terms of at what stage of the process leniency can be received, how many firms can receive leniency, and who is eligible.

Secondly, there is a question of what does it mean to receive leniency. That is, what is the extent of penalties that are waived when one is entered into the program?

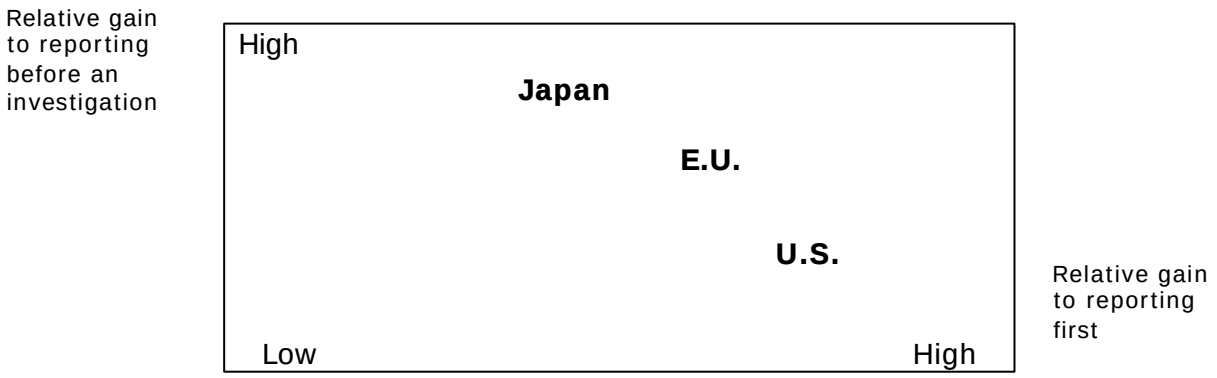
So, let me just very briefly review the leniency programs of the US, EU, and Japan. So, in the US, “full” leniency can be received only by the first firm and it does not matter if the application is before or after an investigation. I put "full" in quotation marks because leniency here means being absolving of all government penalties, but there are still private customer damages, which are typically the more severe financial penalties within the United States. A firm would be liable for triple the amount of the damages they have inflicted upon customers. But due to recent legislation in 2004, a firm that is accepted to the leniency program will be liable only for single damages. Furthermore, those double damages they avoid are shifted over to the other cartel members.

Now there is no partial leniency in the US program, but there is implicitly some form of partial leniency through plea bargaining, but nothing is guaranteed.

With regards to the EU, similarly there is full leniency only for the first firm and like the US the time of the application for leniency does not matter whether it is before or after an investigation. But contrary to the US, they build in partial leniency for multiple firms which can be as much as having 50% of fines are waived.

In Japan, once again, full leniency can be received only by the first firm, but as has been previously noted, it has the unique feature that a firm has to report prior to an investigation. Similar to the EU, there is partial leniency this can be as much as 50% if it occurs before an investigation, but it's capped at 30% if it is after an investigation.

So, to diagrammatically summarize these programs, I have a figure here. On the horizontal axis is the relative gain to reporting first, so that's going to be the amount fines waived if you report first relative to if you report second, and I have the range from low to high.



On the vertical axis are the relative gains for reporting before an investigation, which is analogously the amount of fines waived if you report prior to an investigation relative to reporting after an investigation. So why did I put the US about right there? Because they designed the program to try to accentuate the relative gain to reporting first by having full leniency for the first firm and no guarantee leniency to later firms. But they weaken the relative gain to reporting before an investigation. And indeed the 1993 revision of the program, which was thought to be rather substantive, had the important change that it allowed leniency after an investigation has started.

I put Japan about right there. So, they somewhat moderate the relative gain to reporting first by offering partial leniency, but they accentuate the relative gain to reporting before an investigation, since you can in principle get as much as all fines being waived if it is before, but no more than 30% being waived if it occurs after an investigation. Then we'll put the EU somewhere between them.

So in some sense what I'm about to engage in is a discussion about how the incentives are affected, depending upon where the program lies in that figure. Now when I started to think about this analysis, I realized that how the programs compared in their impact depended very much upon where you are in this whole process, and I could see three relevant stages. There is a no knowledge stage, where the antitrust authority has really no information about collusion and of course no suspicion. Then there is the pre-investigation stage, where the antitrust authority has some information or suspicion, but has not begun investigation. And there is finally the investigation stage.

Now in comparing these programs and just discussing how they affect firms' incentives to report, there is one theoretical construct which will be useful, and this is to think about the coordination game faced by the cartel members. So, here each firm is contemplating whether or not to apply for leniency. In a coordination game, you can have two solutions. One is where no firm reports, i.e. each firm remains quiet, because they anticipate the other firms are going to do so, and they expect to avoid discovery if the cartel has not been discovered, or if it has been discovered they anticipate the case failing. So, that could be a stable solution. But there is always a report solution, where all the firms race to report to the authorities, and the reason why is because they expect the other firms to do so, and they would rather be the firm to receive leniency.

Now, when you put those solutions in the context of a dynamic situation then you're faced with somewhat of a waiting and racing game. Each firm initially is holding off applying, but if they think its imminent that other firms will apply, they'll jump in and try to preempt them. And so one of the policy challenges is to induce firms to stop waiting and start racing. So, we'll come back to this again, as we go through the analysis.

(The No Knowledge Phase)

So, let's start with the no knowledge phase. The antitrust authority has no information, no suspicions about collusion, and this is obviously, the pertinent phase when you're thinking about the leniency program as a device for the discovery of cartels. Here the programs really don't vary very much. Leniency is automatic or near automatic and it's full to the first firm. So there is not much to discuss in terms of comparative analysis here. The only point I'll make is that it is important to keep in mind that existing leniency programs may be inadequate to induce spontaneous reporting, by which I mean firms report when there are no suspicions among the antitrust authority. When you think about the waiving of fines as an inducement, that is a rather weak inducement if the firms expect to be able to continue colluding if they did not report. So, these are costs to reporting here, which is the foregone profits.

Furthermore, there are the penalties imposed on an employee who reports. He may suffer penalties within the firm. Those penalties will not be waived.

So there is an issue about whether the incentives are strong enough to induce firms to report when there is no information. So, we should not lose sight of this fact and we should try to develop programs with stronger incentives. Certainly rewards have been raised as an option but are rather controversial. I know of no country that has them, but I think the broader point is to recognize that when we really want to induce discovery then we're looking at the leniency program operating effectively in the no knowledge phase; and for that phase, it's not clear that the incentives are strong enough.

I think where the leniency programs are more effective is in the pre-investigation phase. Here we want to stop collusion, which may still be ongoing. We want to also deter future collusion by maximizing penalties, so that this industry and other ones can see that industries are severely penalized if they collude. And with the leniency program, you face a basic trade-off. When you provide that leniency, you are weakening the penalties, and that will tend to promote cartel formation. But there is a very big benefit, which is that it is more likely you're going to extract penalties from the other firms. That trade-off will continually come into play as we analyze leniency program.

So there are two races within the pre-investigation phase that we want to discuss. One is the race among cartel members, and this is what's driven by that differential leniency between being first and being second, something that the US program seeks to emphasize, and is somewhat moderated in programs with partial leniency.

So, there is always kind of benefits and cost with any sort of policy. The benefits with offering partial leniency is that you have more evidence. I think the question that we want to look at is: What the value is of each of these witnesses? The first firm that comes forward surely is of tremendous value. The second firm is very likely to have high value as well, particularly if there is no concrete evidence; the second firm can corroborate the testimony of the first firm. But I think the real question here is: What is the value of the third firm? And that's an open question and something we want to analyze as the program is implemented.

The cost of providing leniency is that it weakens that incentive to be first. It weakens the incentive to have the race and it can induce firms to engage in more waiting.

There is a second race though, which is between the cartel members and the antitrust authority, and this is driven by the differential leniency between reporting before or after an investigation. The Japanese policy provides a large differential. And so this race becomes really quite important, and this is one that is really not that significant in the US.

Now I think there are many benefits to having that differential between before and after investigation, but the one I want to emphasize and talk a bit about in just a moment is that it provides a very strategic role for the antitrust authority during the pre-investigation phase. The cost though is that the power of the leniency policy is greatly reduced once the investigation starts. This is significant in the case of Japan as just 30% of fines are waived, and furthermore there is no differential between being first, second and third, and it's that differential that induces a race, and the lack of it that induces firms to wait.

(The Pre-Investigation Phase (With Suspicion of Collusion)

Let me talk about this pre-investigation phase and managing it. This is, I think, a critical phase for the Fair Trade Commission of Japan, because of the fact that once an investigation is launched, the power of leniency program is significantly reduced.

Let me put forth two thoughts for people to consider. One is to think about the antitrust authority approaching individual cartel members, and encourage them to apply for leniency. That is one could wait for the companies to come to the authorities or the authorities can go to the companies and encourage them to apply. And I can see at least two benefits from that.

One benefit is that, if there is a policy whereby the antitrust authority goes to firms and a firm realizes that they're not being approached then they may be concerned that the authority is approaching some other firm, which may make them inclined to apply themselves for leniency so as to preempt that other firm. Secondly, it allows the antitrust authority to have some influence over who receives more leniency. And I think ideally we want more leniency to go to smaller firms. One reason, which is more of a minor reason, is that it means collection of more fines. A more significant reason is that it means proportionately more fines for the larger firms, and it's typically the larger firms that initiate the collusion, and we want to penalize that particularly strongly.

A second thought regards the timing of the start of an investigation. Here we are in the pre-investigation phase. There are some suspicions about collusion, but investigation has not begun. I think this is a very important time, given the Japanese policy, because of the fact that leniency is greatly reduced once an investigation starts. It's then a matter of trying to think about how to use that time wisely. One thought is that there may some situations in which it could be worthwhile to preannounce the starting date of an investigation. Doing so provides a well defined window of amnesty, and that could compress the race among the cartel members and induce them to come forward. There is obviously a cost, which is one loses the value of a surprise company raid

(Omnibus Question)
The last point I'd like to discuss related to the design and implementation of leniency program is what's called the Omnibus Question. After the US Department of Justice conducts an interview with a witness under the leniency program, they ask them the following question. "Do you have any information relating to price fixing, bid rigging and similar activities with respect to other products in this industry or in any other industry?" If they fail to answer the question truthfully this means loss of amnesty and possible prosecution for perjury.

There has been a number of well documented cases in which the Omnibus Question has been an important source of detection, and we know that there are a number of firms which participate in cartels in multiple markets. And in some cases, these have been discovered through the Omnibus Question.

Now if I think about the power of the Omnibus Question in the US, I think its incentives very much lie at the individual employee level, not at the corporate level. Revealing collusion in other markets contributes financial harm to the company. But at this stage in the process where the employee is under the leniency program, I believe the employee's interests are not well aligned with the company. That employee may have been demoted, he may have been fired, and they're more concerned with protecting their own individual amnesty and staying out of prison and avoiding individual fines. So, I think the incentive is very strong here for an employee to answer truthfully.

The real question is "Can the Omnibus Question work in Japan?" Because of the lack of individual penalties it's not obvious the logic will work. Furthermore, it's unclear what the employees' status is within the company. Looking at the lysine case, it did not appear the employees of Ajinomoto were seriously harmed, in which case then their interest might still be well aligned with company interest. But I wonder whether individual penalties come into play on the issue of perjury. The broader point I want to raise is that the Omnibus Question is something which is probably the primary source of detection through a leniency program within the US, and the question is "Can we get some form of that working within Japan?"

(Measuring the Impact of a Leniency Program)
So let me turn to the measurement of the impact of a leniency program. So we've put a leniency program into place. It's very important that we assess its impact. Has it achieved the desired objectives? What has worked, what has not? How can we improve it?

Now, there is no doubt that the specifics of a leniency program impact its usage. If we look at the US experience, they put in their original leniency program in 1978. They then received about one application per year. It was significantly revised in 1993. Thereafter, they received about two applications per month, so that the '93 revision clearly had a big impact on usage. The

EU also had a similar experience with their revision. They had a program introduced in 1996 and in six years we see only 16 applications a year. But since the revision in mid 2002 until mid 2005, they received 140 applications.

So there is little doubt that the leniency program and its specific features can impact usage. The real question is, well, what is success here? Is success measured by usage? And it's really not. Success is measured by the rate of collusion in the economy. We ultimately want to know how leniency programs increase the probability of successful prosecution, increase the probability of detection, reduce the average life span of a cartel, reduce the number of cartels. This is ultimately what we want to learn.

Here we run into a fundamental data problem in trying to answer those questions. Let's think about trying to address the question of, how has the leniency program impacted the amount of collusion in the economy? When we think about having to observe the population of cartels and seeing what has happened to it after the introduction of a leniency program.

The problem, of course, is that collusion is illegal so cartels hide themselves. We never observe the population of cartel; we observe the population of discovered cartels.

You can run into the following inference problems. Let's suppose the leniency program is indeed working, but we don't know that and this is what we're trying to determine through this empirical exercise. Let us suppose it is indeed working. If we hold fixed number of cartels and the leniency program has increased the rate of detection, then we'll observe this in the number of discovered cartels. That would be a fine measure. The problem, however, is this high rate of detection might have induced fewer cartels to form. So in response of the leniency program, fewer cartels form and we discover them at a higher rate. The impact on the number of discovered cartels is ambiguous. The leniency program could be working but yet there is no measurable impact on the number of discovered cartels.

Alternatively, the fact that there is no effect on the number of discovered cartels might indicate the fact that the leniency program is not working and it had no effect. This is the challenge we face when we think about measuring the impact of the leniency program.

This is a question that I have thought about and I have engaged in some preliminary research, which I want to briefly convey here today. But once again, I want to make a broader point that we need to think about how to measure the impact of these programs.

What this research suggests is that the effectiveness of the leniency program may be reflected in the duration of discovered cartels. The prediction is that, if the leniency policy is working then cartel duration should be longer in the short term after the implementation of the leniency program, but it'll actually

be shorter in the long run. So, if the leniency program is working, we ought to be discovering cartels that were of longer duration in the few years afterwards, but in the long run to be of shorter duration.

Let me explain the logic behind that result. Suppose the leniency program is indeed a more aggressive policy as perceived by the firm. They see this as an effective policy. Well, then there are some cartels that had been existing but were just really marginally stable, that will now collapse. They realize that it's not stable to continue because of the leniency program. Those cartels then disappear; they escape discovery by the fact that they no longer collude. What we're left with is a remaining population of cartels, ones with more stable traits, which means they tend to be of longer duration. These are the ones now that are available for discovery. If the leniency program is indeed working, it's going to result in the discovery of cartels of longer duration, in the short run. In the long run what happens is cartels that form after the start of the leniency program will tend to be of shorter duration just because the leniency program tends to destabilize cartels. This is going to be an indirect way to try to get out the efficacy of leniency program.

And my point here is probably more a call to both government and academia to try to work together to figure out ways in which to measure the impact of leniency programs, and more broadly, antitrust programs.

(Expanding the Domain of Leniency Programs)

Let me now turn to the second of my three topics. This is concerning broadening the domain of leniency programs. When you think about a leniency program, the whole idea is to induce those with the best information to come forward and provide that information; in that case it's the cartel members themselves.

A next logical step is to think about programs that induce other individuals who have valuable information about collusion, and I can think of three candidates. There are the buyers, the employees of the colluding firms who are not themselves, involved in the conspiracy, and competing firms who are not actually part of the cartel. So, let me consider each one of those and see to what extent there might be some room for policies that would encourage them to come forward.

First of all, buyers. Of course, in many cartels the buyers are not final consumers like you and me, they are industrial buyers. These industrial buyers have very good information about prices and other market data, and there are many reasons to think that they could become suspicious about collusion. They might observe prices rising, yet they don't see demand or cost factors to rationalize those price increases. Or they might notice that some suppliers are no longer willing to bid for their business which would be part of a customer allocation scheme. Or they might notice that firm's prices are now much more coordinated. They tend to change prices within a few

days of each other, while before that wasn't the case. So there are many situations where buyers could become suspicious that a cartel has formed.

Now the question here is that if a buyer suspects, don't they have enough of an incentive to come forward to the authorities and report their suspicion? However, there is some reason to think that the incentives aren't strong enough, and it's worth trying to engage in policies that promote those incentives more. There clearly is a benefit from them reporting. If there is indeed a cartel, and their reporting results in its eventual collapse, they'll benefit through lower input prices. But there is also a cost. In any sort of buyer/seller relationship, there is room for cooperation. Contracts are incomplete and so there is a basis for cooperation between a buyer and a seller. The risk here is that the buyer, by reporting the seller, might harm that cooperative relationship. Furthermore, it may not be costless to put together a convincing case to the authority. They simply can't just call up and say, "We think there is collusion there," they need to provide some sort of sound rationale for the authorities to pursue it.

Furthermore, there is reason to think that there is going to be free-riding among the buyers, which will lead to underreporting. If you think about these costs, they are incurred only by the buyer who actually reports. They are the ones that might suffer the soured relationship with the seller. So that buyer incurs the cost, but all the buyers will reap the benefit, which are lower input prices. That's just the situation where we think there'd be under provision of effort, in this case reporting of suspected collusion. So, it's natural then to think about financial rewards for buyers at both the individual and company level so as to encourage them to provide well-documented suspicions. Furthermore, a reward scheme would serve to at least partially replicate the use of private customer damages in the US, which is generally perceived to have worked well.

Let me turn now to a second class of individuals who might have information about collusion, which are uninvolved company employees such as sales representative. For a number of these cartels, the collusion was among higher level executives. The sales representatives were not part of the collusion, but they have very good information which could lead them to suspect there is collusion. They obviously know the prices. They also might be instructed not to compete aggressively through either being told not to bid for certain companies' business or are told not to deviate from the price list even if they might lose the business.

Furthermore, administrative staff could become suspicious because of certain expenses or their superior personally handling certain appointments. So there are a number of reasons why uninvolved company employees might become suspicious.

Let me emphasize this point by providing quotations from two European Commission decisions. The first one was the fine arts auctions cartel, and it

was stated in that decision that, Sotheby's submits that some of its personnel commented that they had a feeling that the introduction of the fixed vendor's commission structure may have arisen out of some sort of understanding with Christie's. Such suspicions were supported by the fact that London had given strict instructions not to depart from the published commission structure and to monitor and report to senior management any discounts offered by Christie's in contravention of its published rates.

In the carbonless paper cartel it was stated that "A Sappi employee admits that he had very strong suspicions that two fellow employees had been to meetings with competitors." He recollects that they would come back from trade association meetings with a very definite view on the price increases that were to be implemented, and that they were relatively unconcerned by competitor reactions.

So, these are two cartels in which there were uninvolved company employees who were suspicious, and there are probably many more.

The real challenge here is motivating these employees to come forward. If they make these accusation and they're not substantiated, there are all sorts of ways in which they can be punished within the firm. And even outside of explicit punishments, they might consider it as being disloyal to the company in coming forward. One proposal I will put forth, and it's simply for discussion, is to think about designing a policy whereby not only an individual benefits by coming forward but also the company. We could talk about the financial rewards to the employee, but I want to emphasize more the idea that, if an uninvolved company employee does come forward that the antitrust authority then approach the company and offer them full leniency under the usual conditions. In doing so this employee has provided some benefit to the company.

The third class of individuals who ought to have information about collusion but are not themselves involved in the cartel are non-cartel competitors. They'll get information about competitors' prices. They'll observe their behavior. Once again, there are lots of reasons to think why they might become suspicious when there is indeed a cartel.

The real question is, is there a role for policy here, and I'm going to come to the conclusion that I don't think there is. I can think about two scenarios that could emerge. One is that the non-cartel member is significantly benefited by the collusion. If their competitors are willing to restrict supply and raise price, this firm can benefit a lot. They can undercut the collusive price, experience a nice increase in demand and nice increase in profits. It will be difficult to induce them to report when they'd be foregoing all that financial gain.

A second scenario is quite different. This is where the non-cartel firm may be significantly harmed by collusion. If we go back to the study I mentioned

in the very beginning about detection, the fact is 20% of those 49 cartels were detected by virtue of a complaint by a non-cartel competitor. What was going on there is that the cartel was acting anti-competitively with respect to that firm. They were trying to induce them to restrict their supply and not take advantage of the fact that some firms were restricting supply by buying up input, engaging in selective price wars and other types of activity. Here the non-cartel firm is being significantly harmed, and they would have powerful incentives to reporting suspicions to the authorities in order for this aggressive behavior to end. So, the incentives there seem to be pretty strong; there wouldn't seem to be a need for policy.

Now, the final point I'll make here and then I'll go on to my third topic is to note that programs that would induce buyers, uninvolved company employees, and anyone not involved with the cartel but who might be suspicious about collusion to come forward are very complementary to leniency programs. As I said before, I think leniency programs are best in the pre-investigation phase when there are some suspicions about collusion, and may not be effective in the no-knowledge phase. But if buyers or uninvolved company employees come forward, it shifts it from the no-knowledge phase to the pre-investigation phase, and that's when leniency programs can be most effective. So, the fact that there is a leniency program in place makes the case for these other programs even more compelling.

(Screening)
Let me turn now to the third and final topic that I'd like to cover today.

What we want to think about is developing a more active role for the antitrust authority to go out and find industries where there may be collusion, something which I know is not done in the US and with other countries for which I'm familiar. Though I should say, there have been varied attempts in the past, none recently to my knowledge, but it has been considered and at least at those times it was not pursued.

Now in thinking about how one could go about looking for markets where there may be collusion, I want to stress the 'may'. The idea here is to find industries that may be worthy of close investigation. One approach to that is called the structural approach, and I'm referring to this whole process as screening. So, a structural approach would identify markets with traits conducive to the formation of a cartel, which have been identified theoretically and to some extent empirically, and if you want details you can see the wonderful book[4] written by Massimo Motta on competition policy. Some of these factors are fewer firms, more homogenous products, less volatile demand, and more excess capacity.

A structural approach will then identify industries with these types of characteristics. My sense is that this approach probably isn't going to be

[4] That would be "Competition Policy. Theory and Practice" (2004. Cambridge University Press).

very effective. And the reason why is that it's going to generate too many false positives, that is, the screen is going to say that their cartel is there, and in most cases there is not. And you'll see why I come to that conclusion.

Let's imagine the ideal market for collusion: two firms, homogenous products, stable demand, no large buyers, excess capacity and so forth. And certainly in a country like the US, and I would think most countries, in practice probably only a small fraction of such markets would have a cartel, and that's based upon what we do know about the extent of collusion in the economy. And the reason is that there are just many omitted variables to the ones that I've listed, that affect whether or not there is collusion.

To put it in game-theoretic terms, for any market there are multiple equilibria some of which involve collusion, some not. And there are many factors which we really don't understand that determines which equilibrium firms are at. So, I don't think a structural approach is going to be very fruitful.

A very different approach to screening is a behavioral approach. When you think about the structural approach, it's based upon data about the industry which suggest why a cartel might form. A behavioral approach is based upon the actual data generated by a cartel if there is indeed a cartel. Now there are two broad approaches that I can think of to behavioral screening, one is you go out and try to find evidence of the means of coordination. This would be evidence of direct communication. In some sense, a leniency program is an example.

An alternative behavioral screening approach is to identify the end result of that coordination: prices, quantities, and other market data. And that's the approach I want to discuss today.

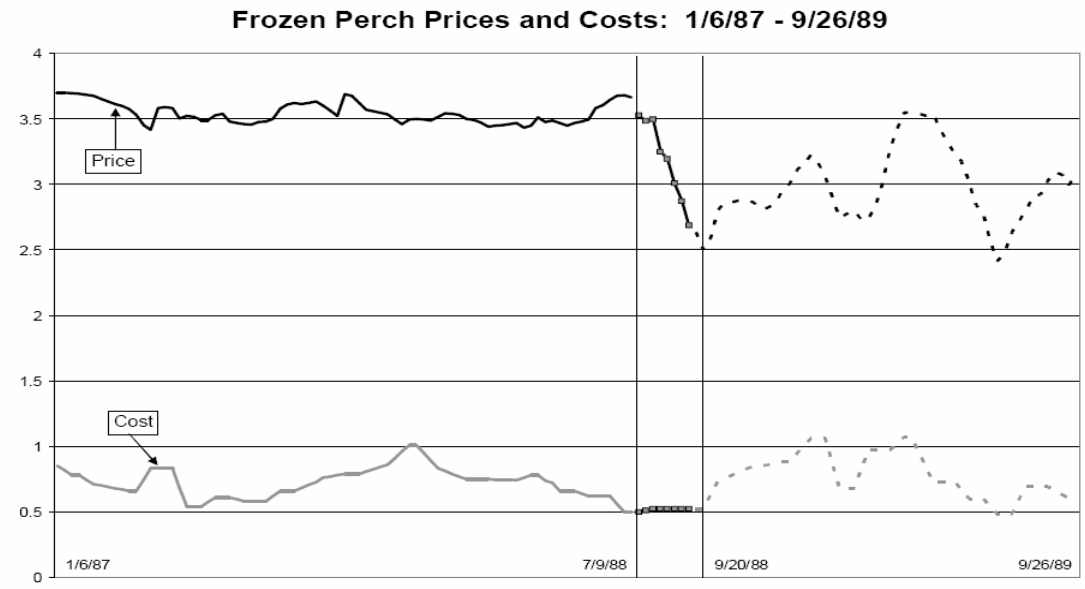
So if we think about having the antitrust authority use a behavioral screening approach, you know, using market data such as prices and quantities, I can think of three criteria that we'd want to have satisfied if we'd engage in that. So here I'm thinking about engaging in it systematically and ubiquitously; wherever data is available, we monitor that industry.

The first criterion is that the screen should only use prices or market shares, or other easily available data. I mean if the screen is very data intensive then it's not going to be useful for many markets. A second criterion is that the screen should be routinizable so that it can be conducted with minimal human input. If we're going to have to put in a lot of effort to build a model screening for every industry, once again, we're not going to be able to screen many industries. So it should be simple and generic. And the third is that the screen should be difficult for the cartel to avoid, because if it's easy then the screen is just going to fail through a little bit of a strategic behavior by the cartel.

Now in terms of behavioral screening methods, I'm going to talk about two of them today, which are fairly broad. One is to try to identify collusive markers, and the second approach is to identify a structural break in the market data generating process.

In terms of identifying collusive markers, here I think are some examples. These examples are properties of market data, which are more consistent with collusion than competition. They can be consistent with competition, but they are, I would say, stronger evidence that there is collusion. So, it'd be like the firm's market share is strongly negatively correlated over time – a firm has an abnormally high market share today then it has an abnormally low market share tomorrow, and there is a number of collusive schemes which generate that property. Or a second collusive marker will be that market shares are highly stable or prices are strongly positively correlated across firms, and the final one is that the variance of the price is low.

And let me talk a little bit further about that one and give you a concrete example. Some work that I've conducted with Joe Chen, who is on the faculty at the University of Tokyo, shows that a cartel will have a much lower price variance than a competitive industry. And to make this a bit more concrete, let's look at a recent cartel in the US, which was of frozen perch, which is a type of fish [Figure below][5]. And what we have here is a price series on the top, running over time from January '87 to September '89 and the cost series, marginal coss, on the bottom.



[5] Abrantes-Metz, Rosa M., Luke M. Froeb, John Geweke, and Christopher T. Taylor, "A Variance Screen for Collusion," FTC Bureau of Economics Working Paper No. 275, March 2005 (qtd. in Harrington, Joseph E. Jr. "Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion," 37. Competition Policy Research Center. Jan. 2006. Competition Policy Research Center. <http://www.jftc.go.jp/cprc/DP/CPDP-18-E.pdf>)

There are three time periods demarcated here. The first one is a period of collusion, the middle one is the transition from collusion to competition, and the final one on your right is the competitive stage. So, if you look at this time series on price, we can see indeed that the price series is much more stable when firms were colluding then when they were competing. This is the type of evidence that one would look for. The idea there would be you look at something like the price variance such as an average price variance what one may be able to come up with, and where it is low relative to some sort of benchmark then this would potentially suggest closer inspection of that industry.

Let me further note here and with the cost series that, the cost cannot explain this difference between the variability of price before and after, during collusion and after collusion.

A second behavioral screening approach would be to try to find a structural break in the market data generating process. The whole purpose of collusion is that it should affect the price generating process. If the collusion doesn't affect that then it's not going to affect firm profit, and there is no point in doing it. So, this change in the price generating process due to collusion is something that can in some instances be abrupt and certainly, in principle, detectable. It can be associated with the formation of a cartel, but also the demise of the cartel, just as we saw on the previous figure for frozen perch.

So here we're looking for whether or not average price has changed, whether the relationship between a firm's price and cost has changed, whether the relationship among firms' prices have changed, whether the variance of price has changed, whether the variance of market share has changed. We are looking for a change here, some sort of change in the data generating process.

Once again to make this a bit more concrete, let's look at the case of collusion among NASDAQ market-makers. A market here was a market for security, such as Intel or Microsoft. The firms were the market-makers, the ones buying and selling the security. This is data from a study by Christie and Shultz [Figure below][6]. If we look at the horizontal axis, which is day relative to switch at time zero was the time at which a collusive practice was adopted by the firms. The series plotted is the bid-ask spread, which we can just effectively think about as the price cost margin. And if you look at this, there is a very clear break at the time at which they adopted the collusive practice, and I can't help but think that if this market had been screened that this collusion would have been picked up. Instead it was accidentally found years later by in fact these two scholars, Christie and Schultz.

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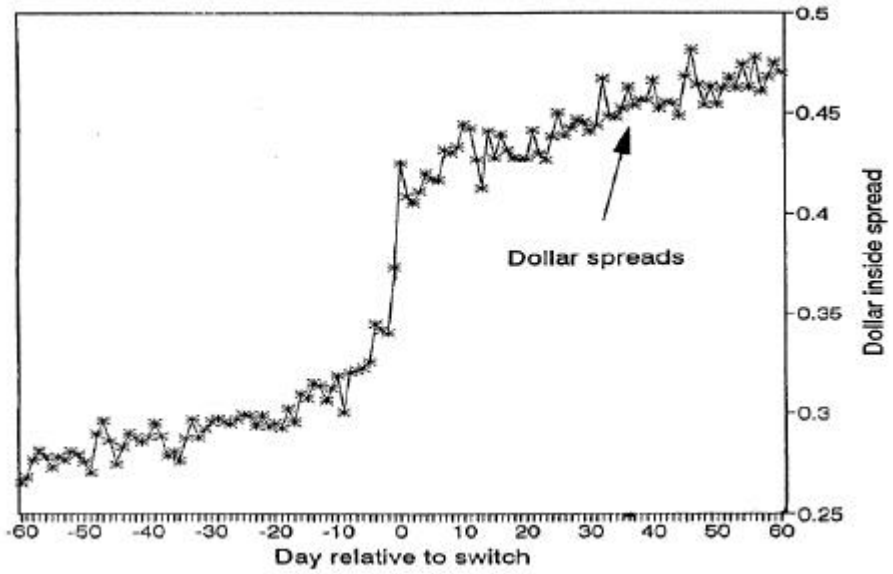
[6] Christie, William G. and Paul H. Schultz, "The initiation and Withdrawal of Odd-Eighth Quotes Among Nasdaq Stocks: An Empirical Analysis," *Journal of Financial Economics*, 52(1999), 409-442 (qtd in Harrington, Joseph E. Jr. "Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion," 38. Competition Policy Research Center. Jan. 2006. Competition Policy Research Center. <http://www.jftc.go.jp/cprc/DP/CPDP-18-E.pdf>)



Now someone might ask, why bother to engage in screening when there is a leniency program? Well, as I said, I think leniency programs are much more effective when there are some suspicions about collusion; that is the firms recognize that the antitrust authority has some information. I think that's when the leniency program really is effective; not so much in the case where the firms believe that the antitrust authority has no information of suspicion. So anything that moves the antitrust authority from the no knowledge phase to the pre-investigation phase is something which is going to help the leniency program be more effective, and that's just what screening could do.

So once again, as I described before, screening and leniency programs are very much complements. The value to screening is going to be much greater with the leniency program in place. It may not be necessary that a full fledged investigation finds collusion, as long as you create suspicions; this could potentially induce firms to come forward under a leniency program and you've achieved your objective.

So let me put forth two thoughts or suggestions about screening, which are directed as much at the US as any country. One is to think about screening government procurement contracts, which actually they did in the US back in the 1950s but they discontinued it for some reason. The reason I propose it is that it's a case where the data is easily available.

A second one which is a bit more, I would say, controversial and it is something I just thought of in preparing for this talk, is to think about screening past offenders. We know that recidivism is a serious problem. A

recent speech by Suwazono[7] found that more than 10% of the Japanese cases involve firms that had been previously sanctioned for collusion.

Here the idea would be to use a behavioral remedy in addition to penalties. Behavioral remedies are quite common with other antitrust practices. A behavioral remedy here would be that they have to provide the price data to be monitored and then one could periodically cross check this with the buyers as to authenticate its validity.

(Conclusion)

Let me conclude by summarizing these suggestions and I really do put these humbly forth for discussion.

Just to summarize what I've been saying, one wants to really think carefully about managing the pre-investigation phase. The design of the Japanese program is such that the differential leniency between before and after the investigation is so large as to give them a powerful instrument. The idea is how what is the most effective way to use it.

A second one, and it is probably a call to academia more than anywhere else, is to think about how we can measure the impact of a leniency program, and more broadly antitrust programs on the rate of collusion in the economy. That's going to be important, in particular when we want to think about making policy improvements. Third is to develop programs to encourage buyers and uninvolved company employees to report when they have valuable information that we want to take advantage of.

Fourth, think about screening government purchases for collusion. Fifth, think about having a behavioral remedy of requiring past offenders to provide price data in the markets where they're found colluding, but also other markets.

And finally, let me say that the antitrust authority dearly is a detector, a prosecutor and penalizer of cartels. I think it can also be an important collector and disseminator of information about cartels. And, as I'd say, this is a point I would particularly direct towards the US Department of Justice, which has not been very strong in this regard. We need to understand cartels a lot better, and the antitrust authority has valuable information, information valuable to the academic community that can be used to develop better collusive markers, develop better screening methods, and if we think about an interaction between the antitrust authority and academia and with an exchange of information, I think we can make much more progress in understanding cartels and with that knowledge we can then more effectively battle cartels.

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[7] Mr. Suwazono, the then director of Planning Office, Economic Affairs Bureau, JFTC Secretariat made the presentation before APEC Competition Policy Deregulation Group on May 24, 2005 at Jeju, Korea. The presentation material is available at http://www.jftc.go.jp/e-page/policyupdates/speeches/index.html.

So in concluding, I appreciate the opportunity to speak with you and I wish the Fair Trade Commission of Japan success when it comes to detecting and penalizing cartels. Arigatou gozaimasu.

Moderator Kojima
Professor Harrington, thank you very much for you presentation. So, we would now like to invite our discussant Professor Matsui. Professor Matsui you have 20 minutes for your comments.

2. Comments by Dr. Akihiko Matsui

Now in the paper of Dr. Harrington, of course behind this there is enormous volume of paper, and Professor Harrington has performed a very accurate analysis, and therefore, I believe that there is nothing I can add, contribute further so to be honest I do not know what to comment. And so was already discussed, in Japan we have come very close to the western design. Even though, of course, there are the differences between Japan and the western countries, comparative study has been made possible. And Dr. Harrington has already done this kind of comparative study, and I think that was very timely and so with the happy surprise I would like to express my the admiration to you.

And so, in response to his presentation, actually I have very few points to add to his presentation, and rather what I would like to do this morning is to take this opportunity to share with you the Japanese present status and historical process, that's what I would like to touch upon. Then, on the point which was not covered by Dr. Harrington I'd just like to share with you some of the game theory to supplement that point. And lastly I would like to make a final comment.

(The status of cartel in Japan)
First of all, I would like to share with you the history and the present status of the Japanese Antimonopoly System. As we know, in mostly around 1960s, the Japan was called heaven for cartels and as you can see from the figures what is most important among them is legal cartels. Then, for instance, in 1963, 1002 of the permitted cartels, i.e. legal cartels, were existed. They were legal, defined as legal cartels. And around half of them came from manufacturing sector and that represented 28% of the total shipment. So Japan deserves the name heaven for cartels.

And in addition to that, illegal cartels were also equally abundant in Japan under those circumstances. In essence, if you just throw a stone you hit the cartel. So, it was very easy to suspect the existence of cartels under those circumstances. In the page four of the slides Professor Harrington used, if I remember correct, he showed that two out of 49 cases were detected by

antitrust division of the Department of Justice[8]. Well I cannot find any equivalent figure but in same period, there are the number of cased which was first detected by JFTC and detected by complaints [Figure below]. So of course the latter is higher but it also shows that almost 40% of the cases have been actually detected by JFTC. So, this is quite different from the US case.

	New investigation (※1)	detected by JFTC (※2)	complaint (※3)
FY1963	41	13	28
1964	34	13	21
1965	148	54	94
1966	96	41	55
1967	104	44	60
1968	138	63	75
1969	111	29	82
1970	132	44	88
1971	98	44	54
1972	116	44	72
Total	1,018	389	629

※ 1 # of cases investigation started in the corresponding fiscal year
※ 2 # of cases detected by JFTC (AMA45-4)
※ 3 # of cases investigation started based on the report from public (ibid 45-1)
Source: JFTC annual reports

Since these are the cases which were detected by the JFTC, of course this can be just tip of the iceberg and there are many which have not been detected. So, under those circumstances what people started to do is to think about a certain norm or conventions that must be introduced.

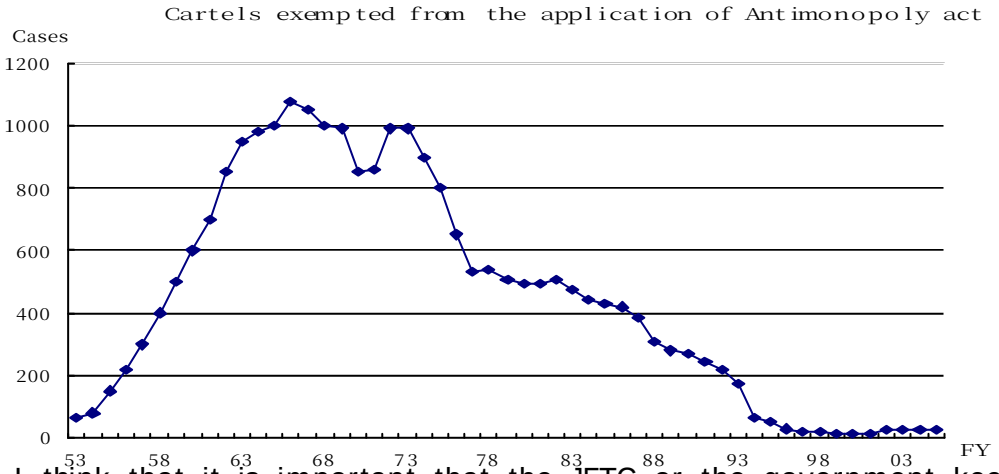
(Norms and Conventions about Cartels)

For instance, since there are a large number of legal cartels, there is, so to speak, a sense of permission, i.e. the feeling that the cartels are permitted. So it is not surprising that people think "even though there are a lot of legal cartels why not ours" or "since everybody does it, it must be okay, the cartel". So, that sense prevails. And so that type of norm cannot be ignored. Even if we exclude them as conventions, the cartels have been existing as a convention. I think it is Professor Harrington's expertise and so I don't think

[8] See page 11.

there is nothing I can contribute. But if people think about the repeated game, for instance, there is a well known folk theorem. There are some equilibrium, such as one to achieve the competition and another to achieve the cartel. So, the equilibrium selection problem occurs, i.e. what kind of equilibrium is made. Well but, under the very permissive culture to allow for the cartel, it is natural that people select the colluding equilibrium rather than selecting one for the competition.

And against what I am calling here, norm-oriented collusion or cartels, norm-oriented blocking measures must be taken. Then what is the most important and has been progressing the most among other measures including the revision of the law is to try to reduce the number of legal cartels. which was the first step to address the problem. And another thing was to support the system where there is a norm that to follow the rule of the market, or should I say game, and to abide by the rule of the game is good for them. And as for the first one, not only JFTC but the government agencies concerned and also the political sector have been making the great endeavor to reduce the number of legal cartels. And at its peak, it was towards the end of 1960s to the early 70s that there were about 1000 legal cartel [Figure below]. But there was the revision of the law. Then the number of legal cartels have been reduced, and as of the last year, it is reduced to 24 the cartels.



So I think that it is important that the JFTC or the government keep on showing that such a legal cartel has been almost non-existent and the cartel itself is considered to be per se illegal. This kind of attitude or position needs to be strongly shown to the business community.

(Equilibrium Selection Problem)

So, after 1970s I think this reduction of the legal cartels has given impact, favorable impacts, and we have gradually been catching up with the United States in this regard. However, this is confined to the reduction of legal cartels. And what is quite problematic nowadays is illegal cartels. So, how we track down the unlawful cartels and how to track them, I think this measure alone is not sufficient obviously.

So, once again, we would like to look at the equilibrium selection. This is somewhat theoretical point. Although this is Professor Harrington's expertise, for that reason perhaps he skipped this. So just to complement his point, allow me to talk about this.

This is the equilibrium selection problem. As you know, the industry where cartels are often concluded or established, they play the game within the same market, since it is the ongoing business. That might be the face-to-face arrangement or not. They play the game within the same market, so among those players there is repeated offense or repeated violation. So, as I mentioned earlier, what kind of equilibrium should be realized or selected, whether that is a competitive equilibrium or collusive equilibrium, which selection is made, I think that is a quite important issue.

And as I already mentioned, a norm plays a important role of cartel. The norm-oriented cartels are likely to sustain because there is a permissive culture that there is nothing wrong about the cartels. And so since we are the colleagues in a cartel, it's nothing wrong to cooperate. So that kind of norm matter insisting collusion. But also even we consider rational players, there are the competitive equilibrium as well as collusive equilibrium. So it is required for the JFTC the challenge to reduce the collusive equilibrium as much as possible and to switch this to competitive equilibrium.

So, I hope that you bear with me to understand this chart [below]. I think many of you know the game of the prisoner's dilemma. Well, the other day the Livedoor scandals were under the public attention. There it is said that prior to the arrest of the executives, Mr. Miyauchi[9] for instance, he said that Mr. Horie[10] was not involved in the scandal. However, it is also said that after their arrest and questioning started, as you know now in the newspaper et cetera, there was the instruction from Mr. Horie. The questioning has changed his attitude. This is the good example of prisoner dilemma. Well, C here indicates "cooperation" and the firm's collusion in the case of the prisoner's dilemma is just to keep silence. There the two suspects were questioned. And if both keep silence, for instance, then 10 are the gains given for both of them.

	C	D
C	10, 10	2, 12
D	12, 2	4, 4

And D here indicates "defection" which means to betray the other party. So defection from the view point of competitive policy is that the competitive

[9] Ryoji Miyauchi, former financial director of Livedoor Co., Ltd.
[10] Takafumi Horie, former representative director of Livedoor Co., Ltd.

stance is taken. In that case 4, 4; and the 10 and 10 versus 4 and 4, so here the gain from D-D is much lower. And what counts is diagonal box such as the D-C and C-D. And now, suppose that the one party deviate while the other party keeps silent that makes confession. So that the sentence of the deviating prisoner is reduced and he gets 12, and the one who stick to the commitment goes through the heavier penalty 2. That is his gain is only 2. So, that is a feature of prisoner's dilemma. And, C-D is just the other case.

And so, I hope this may never happen to me though, if the questioning is carried out for the criminal investigation under the once in a life circumstance, for instance; if we are under the questioning either to make confession or to cooperate with investigative authority to give the information under that circumstance, I might take an action to confess or to cooperate with the authority. However, in an actual business through transaction is taken place every day. So, under those circumstances, the situation changes of course.

This is quite technical issue though, there is a strategy called "grim trigger strategy". This means the cooperation continues as far as the cooperation continues. Then if at certain point there is the betrayal, which is the competition, then they move to a competitive stage from then on. So, if the grim trigger strategy is taken and if both continue to follow this strategy, they both would get 10 each, if you just recall the chart that I gave. On the other hand, if one defect the cooperation and move on to the competition, he would get 12 at that period. From that point of view, you may think that moving to competition seems to be more advantageous. But because the relations are repeated, again it comes back to the lower competition situation. So, the point is reduced to 4 each. So, there is the gain 2, but because the one party betrays the other party, then there is a loss of 6 after that period.

And so, in this case if you consider the benefit for the future, the collusion or cooperation seems to be the better approach for the parties.

The leniency program and antimonopoly act cannot totally root out the incentive for collusion and detection rate itself is not very high according to the statistics. And therefore it may be very difficult to make the collusion gain lower than the competition gain. However the gain resulting from collusion can be reduced. For instance, if there is Antimonopoly Act, the gain from CC combination would be reduce to 6, 6 because of the probability of detection by the competition authority. In that case, there is a reduction of incentive in collusion. And then on top of that, the leniency program is introduced. We do not know whether it is 100% effective unless it is actually operated. But for instance the if the firm decides to shift into the competitive state, it might gain some from the leniency program. If you think of this situation under the repeated game, even if the collusion is considered since the gain is as low as 6 and when defection is implemented, the gain afterwards is 4. The loss afterwards can be minimized and therefore can reduce incentive for collusion with those programs.

	C	D
C	6, 6	2, 12
D	12, 2	4, 4

And of course, with this program we are not able to totally eliminate collusion, but it is very important to let them take a root, a norm or belief that the competition is good for the society and we should move to that equilibrium. Through this, we are able to establish the firm norm toward the competition. And so, in this regard, leniency program is not 100% effective, but it is the incentive to shift to the competition or such culture. I think this is quite helpful in this regard.

(Implication to the cartel regulation)

And so lastly, I'd just like to share with you very simple comments and final conclusion. On the defection from the cartel, it is often considered in the theory that one single company only defects. However, I think it is interesting to think about the possibility of joined defection. If it is so, at the post-investigation, for instance, it is going to be 30% for three companies each and I think that can be more significant if the joint defections are introduced. And also, the comment on that paper[11] by Professor Harrington and Dr. Chen. If this scheme becomes successful, and if the JFTC starts introducing this, I am wondering that there is incentive for the firms to fluctuate the price on purpose. And that needs to be taken into account to establish the program. As we open the same game, we have to avoid that situation definitely.

And this is just absolute last comment. The EU and the United States, both have two kind of competition authorities, one at the federal level and another at state level in the US and the EU Commission and National competition authority in the EU. And I think there is a quite good attention among those other players to proceed with the pro-competitive policy. And in Japan, I think we should create some other agencies which can maintain the very good attention to stimulate pro-competitive policy. So, thank you very much. That's all for my comments.

Moderator Kojima

Professor Matsui, thank you very much for the comment. This is the end of the morning program. Please thank our guest speaker and discussants. Thank you very much.

[11] See page 24.