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Nagoya University

Graduate School of Law

Doctoral Thesis

An Empirical Study of Law Governing Cartels and Leniency Program to Combat Hardcore-cartel in Thailand

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1. Problem Statement and Background

Hardcore cartels are very harmful types of anti-competitive conducts as they allow firms to exert market power and artificially restrict competition and increase prices, thereby reducing welfare. Cartels however generally occur in oligopolistic market structure which only a few sellers offer similar or identical products. By creating cartel, producers in theory can increase their price and raise illegal profits because this form of collusion make firms gaining market power to control the market price and quantity. In other word, cartels generally behave similarly to monopoly to earn more profits.

Thailand's economic structure in various industries is oligopoly with few players with high market share within market e.g. hospitals, airlines, oil and gas, telecommunication, power producers etc. There were cartel cases claimed to the OTCC from 1999 to 2018, accounted for 30 cases covering various market industries particularly in everyday-consumption goods (e.g. cement manufacturing, polyethylene manufacturing, film industry, rubber industry, fisheries etc.) and services. Although there are few cases claimed to Thailand's competition authority, the figure shown is actually not represented that Thailand is the country with a low cartel rate. There are two main rationales underlying this matter. Firstly, competition enforcing mechanism has been distorting by political economy whereby competition institution has been influenced by business sectors and political power. Secondly, there were obstacles to find direct evidences to prosecute hardcore cartel conducts.

According to Thailand's Trade Competition Act 1999 section 27 and Trade Competition Act 2017 section 54, hardcore cartels are subject to criminal sanction both in terms of punitive fine and imprisonment and therefore carry a very high standard of proof -- "*proof beyond reasonable doubt*" in accordance with section 227 of Thailand's Criminal Procedural Code. Nevertheless, direct evidences in hardcore cartel cases e.g. minute of meeting details of agreement, voice record, witnesses who know agreement etc. are very difficult to find in practice unless competition authority gets corporation from insiders or through the use of leniency program.

Detecting and prosecuting cartels are very difficult in practice as evidences themselves are hindered among cartel members. Competition authorities globally thus have been facing difficulty to crack down cartel without cooperation of insiders. Leniency program thus has become very crucial tool to assist competition authority to obtain direct evidence with the help from insiders in an exchange of privileges either in the form of immunity or reduction of surcharge or criminal sanction. However, different leniency models achieved

different level of success. This is due to the facts that there are various factors supporting an effectiveness of leniency program e.g. high risk of being detected, severe sanction, predictable liabilities, transparency and clear criteria etc., whilst empirical economic studies show that there may be adverse effect of leniency program if it is too lenient.

This research aims to provide middle to long term projection with empirical evidences on how to combat hardcore cartel effectively in Thailand with concentration on cross-dimensional issue of law governing cartel and leniency program. The research will analytical insight the main characteristics of Thailand's anti-cartel regime, uniqueness of economic and cultural environment as well as awareness and perception of business sectors as a prospective applicants, lawyers, stakeholders, competition law experts etc. toward law governing cartel and leniency policy in Thailand. It is undisputed that one anti-cartel policy and leniency model may be suitable and successful in one jurisdiction while it is less functional or not so successful in another. Thus, it is essential to firstly investigate and draw an attention toward such issues before analytical insight into different world-leading anti-cartel policy and leniency model theoretically as well as their underlined legal justifications. After the theoretical legal research in combination with an empirical test, this research will provide the final conclusion on what should be done to combat hardcore cartels effectively with mechanisms that suit the legal, economic, and cultural environment of Thailand.

2. Key Research Questions

This research aims to answer the principal research questions on

1. What is an economic harm of hardcore cartels and who harms by this cartel conduct?

2. Whether immunity or reduction of surcharge or jail term granted affects incentive of cartelists to apply for the settlement policy?

3. Whether there is a justification to implement leniency program in Thailand? And, how to develop current settlement policy in accordance with Section 79 of Thai's Trade Competition Act B.E.2561 (2017) to be the full leniency program?

4. Do any characteristics of Thailand's socio-economic and political factors affect anti-cartel regime and leniency program enforcement? And, are there any difficulties or problems encountered in practice which may affect an application of leniency program in Thailand?

5. How to create incentive for cartelists to do the self-report, while balancing between sanctions and leniency policy (not to be too lenient and lead pro-collusive effect)?

3. Approaches of Research Intervention

This research will combine two main research methods to support each other: theoretical and documentary analysis and empirical research.

Firstly, concerning theoretical and documentary analysis, the author analyzed a wide range of primary and secondary documentation to examine the rationale, main objectives, and key characteristic of anti-cartel regime, social and economy in Thailand toward the historical evolution and investigate the impetus and possible impact for leniency program in Thailand in comparison with experiences with both leniency policy, design, and enforcement practice in the US, EU, and Japan. EU, Japan and the US have been chosen because their successful extensive history in enforcing leniency program. In addition, Thai's Trade Competition Act section 27 in relation to anti-cartel provision is also heavily influenced from the EU's Treaty of Rome article 101 (formerly article 81) and the US's Sherman Act section 1 via Japan's Antimonopoly Law. To examine the rationale, main objectives, and key characteristic of anti-cartel regime, social and economy in Thailand, researcher will get through parliamentary debate papers, journals, books, and articles. In order to identify impetus and likely impact for leniency program, the researcher will review documents in three countries (the US, EU and Japan), particularly focusing on development of leniency design and policy and their characteristics.

Secondly, empirical legal research methodology is employed through the combination of quantitative and qualitative methods. The data in this section is primary data and was collected by the author during the period from 2017 to 2019.Concerning quantitative survey, the author conducted survey by allocating questionnaires during 2017 and 2018 from the total sample population of 936 people, focusing on three main areas including (i) the public's attitude and acceptability of settlement program and leniency policy; (ii) the public's attitude

toward privileges granted**;** and (iii) quantitative analysis to test whether privileges granted either in terms of waiver or reduction of surcharge or waiver/ reduction of imprisonment term has any effect upon cartelists' decision to cooperate with the state. Variables are tested via logistic regression model. According to Krejcie & Morgan's table to determine sample population size, the collected sample populations are over 663 and research result represents population's perception with confidence interval level of 99 percent with the margin of error about 4 percent.

Regarding quantitative survey, the author conducted self-completion survey both online and paper forms distributed among sample research groups. Survey questions are divided into two types : (i) questions aim to test public opinion about law governing cartel and settlement program, and (ii) questions aim to test relationship between quantitative independent variables --percentage of surcharge applied and reduction of jail terms granted and dependent variable—the decision to apply for settlement or future leniency. Thus, the second set of questions aims to test the hypothesis whether two independent variables (level of administrative surcharge applied and reduction of jail term granted) affect dependent variable (decision to cooperate with the state). The first set of questions will however take the answer from wide range of sample population into consideration including those from business sectors, law firms, academia, and government sectors. The second set of questions , on the other hand, will be mainly used in the sample groups which are prospective applicants, including business sectors who are member of Trade Association, the Federation of Thai Industries etc. (as settlement program or leniency prospective applicants) and lawyers who generally represents their clients in settlement or leniency program. Researcher conducted survey with the total sample population comprising of 936 people including those from public sectors (25.2%), academia (6.5%), business sector (15.7%), lawyer (45.8%), and others (6.7%).

Information from two sample groups, comprising of 406 people including business sectors and lawyers however will be used to make an analysis whether jail term or surcharge reduction have an effect on the decision to cooperate with the state in accordance with section 79 of the Trade Competition Act B.E.2560 (2017) through the statistical analysis method. Regarding researcher's hypothesis in this section, $H_{0\ or}$ Null hypothesis is "jail term or surcharge reduction have an effect on the decision to cooperate with the state", while H_1 or alternative hypothesis is "the decision to cooperate with the state either via settlement

program or leniency is *not* depend on level of administrative surcharge applied and reduction of jail term granted. This sample population represents result with confidence interval of 95 percent and margin of error of 5 percent.

The paper surveys were allocated during competition law conference "The New Era of Trade Competition Act B.E.2560 (2017)" organized by Thailand's Office of Trade Competition Commission on September 19th, 2017 with approximately 600 participants including those from business sectors, law firms, academia, public sectors etc. and allocated in law firms and business enterprises. The response rate is however around 60 per cent from all surveys distributed. To provide the more precise outcome, the sample groups will be selected randomly. Sample group from business sectors will include wide range of business industries and sizes (e.g. SMEs, large business enterprises with market dominance etc.). The sample group from law firms will be also selected randomly and include both lawyers from local and international law firms. Online survey was however distributed among groups of business people, judiciaries, academia etc. to obtain a wide range of perception. Logistic regression method is selected because independent variables in this research are "quantitative scale", while dependent variable is "dichotomous nominal scale" and the normal regression model cannot be used in this case because the dependent variable in this research is "*decision*"--dichotomous variable. Thus, it takes the value 1 of the one who choose to apply for settlement and 0 otherwise. The survey answers from selected questions will be used to process in SPSS program to see the correlation of research variables.

Qualitative in-depth interview method is nevertheless mainly used for exploratory, explanatory and descriptive research regarding cartel regulation, punishment and leniency program and to draw causal inferences from the data and adopts an appropriate data collection method and modes of data analysis in order to answer the research questions posted. The author aims to cross-check the quantitative result via the qualitative in-depth interview and explores perceptions into details. Among 32 interviewees, 25 people were interviewed on a face-to-face basis, while three of interviewees were interviewed via email and Facebook message. Two interviewees were asked interview questions by the author during Q&A session of law conferences. Two interviewees however requested to give an interview on phone. Regarding face-to-face interview, the interview is generally conducted in the two-way interaction style and ranges between 30 minutes to 2 hours depending upon the availability of an interviewees. Author generally makes an appointment to conduct a face-to-

face in-depth interview with open-ended questions. For the interviewees from foreign countries or well-known lawyers in Thailand, the researcher generally approached some of them during the law conferences to make a short interview or contacted them through email. Due to the limitation of time, the researcher generally selected some most significant questions to ask this target groups.

According to lawyers and business people interview, the researcher conducted in-depth interview with executive level representatives from the Federation of Thai Industries and the Thai Chamber of Commerce as well as conducting interview executives from market-leading enterprises with market dominance position. Research however explores opinion of those from small or medium business enterprises though survey question. Researcher also pays close attention on the opinion from lawyers because they will generally be the representative of business people in competition law cases.

In-depth interviews were conducted with broad range of people of 32 interviewees in total including those from business sectors, stakeholders, academia etc. The selection criteria is on the other hand focusing on those with certain competition law background, those who engage in competition law enforcement or law drafting, those who are at the management level of the leading business enterprises or even who are the executive members of Federation of Thai Industry where market-leading business enterprises get together and discuss over their business plan etc. The researcher also conducted interviews competition law experts from oversea to get in-depth perception from developed economy point of view.

4. Research Presumptions and Contributions

According to the author's research, there is no tool assisting competition authority to obtain direct evidences from insiders where hardcore cartels are secret by nature and are subject to very high standard of proof – proof beyond reasonable doubt. The third factor is that the perception of law drafting committee and the council of state that are not familiar to provide power to reduce sanctions to other institutions rather than the Court of Justice.

Nevertheless, from the author's viewpoint, there are small rooms to apply hardcore cartel provisions pursuant to section 54 of Thailand's Trade Competition Act in practice without an implementation of leniency program or other tools. This is because hardcore cartels are subject to criminal sanction and thus are subject to very high standard of proof.

The court also generally accepts only direct evidences in practice whereby direct evidences are very difficult to find. Hence, cartel adjudication processes face difficulty since investigation stage in which competition authority needs to gather direct evidences before prosecution.

Settlements in accordance with section 79 allowing cartel participants settle the case is also less beneficial in practice because negotiation can be done after competition authority conclude its investigation. Thus, from the author's point of view, leniency program is a very crucial instrument to assist competition authority to combat hardcore cartels in practice.

Various jurisdictions adopted leniency program as a tool to fight against hardcore cartels. Nevertheless, there is no "one-size-fit-all" leniency model that is applicable and effective to all countries. Thus, apart from comparative legal research, the author also employed empirical studies to gain in-sight perception and test factors affecting leniency application in Thailand's context.

This research makes contribution in terms of primary quantitative and qualitative data collected from Thailand. Actual problems occurring in Thailand and perceptions were collected. Factors affecting decision of business sectors to cooperate with competition authority are also tested though selected statistic regression model and are crossed checked quantitative outcome with in-depth qualitative interview. This research was carefully designed and obtained survey data reaching enough number of respondents to test public perception with confidence interval of 99 percent and margin of error of 4 percent. Logistic regression was tested to gain perception from specific groups who will be leniency applicants or representatives of business sectors for leniency application, accounted for 406 people. Thus, regression result falls within the research standard to represent whole population's perception with confidence interval of 95 percent and margin of error of 5 percent. This research also contributes to primary qualitative interview data collecting from stake holders who have been engaging in competition law drafting processes or competition authority. Data were also gained from executives or directors of firms with market dominance in Thailand and executives of the Federation of Thai Industries and Thai Chamber of Commerce which are the main business associations in Thailand to obtain in-sight aspects.

The research result thus proposed what shall be done as prerequisites before an implementation of leniency program that is essential tool to combat hardcore cartels and

further proposed leniency design in accordance with supporting empirical research result. Action plan in terms of implementation steps was also included in research result. These proposals are the main contributions and originality of the research as supporting evidences are based on primary quantitative test and qualitative data that were collected by the author.

5. Research Result and Proposals

Policy recommendations are proposed with supporting quantitative and qualitative data divided into two scenarios including short term and long term action plans.

5.1 Short term proposals

The author proposes that Thailand should firstly develop clearer legal framework, create more public awareness toward harm of anti-competitive conducts especially hardcore cartels, set higher cap of administrative surcharge and punitive fine level to suit with net profit margin of firms to create higher deterrence, using settlement and broaden the scope of circumstantial evidence acceptance in cartel cases by the court. In short run, competition authority should also combat hardcore cartels through the use of existing tools e.g. settlement, private litigation etc.

Short term proposal could initially take action via the use of soft law mechanism e.g. competition authority's guidelines etc., whilst long term proposal could be approached through hard laws. In-depth details are outlined as follows.

5.1.1 Clearer legal framework

According to qualitative interview data, it is apparent that business sectors need a very clear legal provision to allow them to estimate their legal liabilities and risk themselves. This will also support the use of leniency program in the future because firms can calculate costs of crime that will incurred after prosecution. In other word, clear legal provision make system more transparency and more predictable for business entities and thus support an effective

less of leniency program. Concerning cartel provision, “market definition”, “timing that cartel becomes illegal”, and “market share” shall be clearly specified to allow business sectors to estimate their liabilities which also support an effectiveness of leniency program.

Independence and transparency of enforcing institution are also the main prerequisites for the successful leniency program because one of the key elements to support an effectiveness of leniency program is a high risk of detection by the competition authority. Thus, if firms do not fear detection, there is a very small chance for them to apply for leniency. Strong competition culture is therefore needed.

5.1.2 Create more public awareness toward harm of anti-competitive conducts especially hardcore cartels

According to quantitative survey result from sample population of 936 people, around 85 percent of respondents has no competition law knowledge or know competition law in a fair degree. Interestingly, there were 147 lawyers among the group of respondents claiming that they have fair competition law knowledge (61%) and have no competition law knowledge at all (10%).

During an early stage, the author views that public awareness toward anti-competitive conducts and the clear understanding of competition law are significant. Regarding the public’s side, public awareness of harmful effect of anti-competitive conducts will drive more action for law enforcement in practice. The public will be more aware of anti-competitive effects that will infringe their rights similarly to the thief who will secretly take illegal profits from their pockets. After we have more public awareness, people will take more action after all either in the form of private or public enforcement to claim for damages or injunction.

Concerning business entities’ ankle, according to OECD report, there should be a high incidence of naïve cartels in developing countries with a light competition culture, either because they are unaware that their conduct is unlawful or because they are not sufficiently sophisticated to do so. The lacking in the country a strong competition culture could also make it more difficult for the competition agency to generate co-operation with its anti-cartel program. Thus, from the author’s viewpoint, creating awareness is one of the key factors to ensure effective enforcement and lead to better business compliance with competition law.

5.1.3 Set higher cap of administrative surcharge and punitive fine level to suit with net profit margin of firms to create higher deterrence

Based on empirical data, stake holders and competition law experts generally views that the current level of surcharge and punitive fine is appropriate and is in accordance with international standard. Business sectors however have different views depending on the nature of business industry and net profit margin. Qualitative data also shows that economic studies point out that the average cartel profit is between 15 to 30 %. Calculation of surcharge based on revenue turn over creates inequality among different types of business.

From author's viewpoint, according to net profit margin and financial statement provided by the Stock Exchange of Thailand, the current level of punitive fine and surcharge is high enough for some business industries comparing to their profit margin (e.g. retailers, petrochemical, consumption, hotel etc. generally generating net profit margin less than or slightly over 10 percent), while it is considered as too low for some business industries with high profit margin in Thailand (e.g. some firms in cosmetic industry, hospital and healthcare industry, electricity industry and so on).

Whether the legislator should set surcharge percentage in accordance with business industries is somewhat controversial. This is due to the facts that firms in the same industries make substantially different amount of net profit margin annually. Thus, from the author's viewpoint, it is better and fairer to set single cap for surcharge or punitive fine percentage and apply it on case by case basis. An application should be however proportionated with net profit margin to create deterrence effect upon collusion. For example, if company generally generates net profit of around 10 percent and the net profit is increased up to 30 percent when company engages in cartel conduct, it is very difficult to prove in practice that cartel generates illegal profits of 20 percent of net profit margin. Thus, setting amount of surcharge or punitive fine equal to average net profit margin of specified products or services that anti-competitive conduct is found will create deterrence effect in practice because it takes both illegal profits from cartel conduct and company's general net profit back as a whole.

5.1.4 Using settlement in accordance with section 79 of Thailand's Trade Competition Act 2017

Settlement generally allows short-cut channel for adjudication process to save time and resource of full litigation. According to comparative research, some settlement models also allow competition authority to get cooperation from cartelists since investigation stage. Thus, in short run, Thailand's competition authority may make use of this existing instrument for better cooperation.

The question regarding this new instrument is whether cartel settlement will catch interest from business sectors or lawyers as representative to enter into negotiation. Based on quantitative survey data from selected sample population who are business people and lawyers (445 people), the majority of respondents (82%) said that they interested in settling the case, while only few respondents (18%) said that they are not interested in applying. Thus, an empirical result projects that application rate will be high.

The result of qualitative interview supports the former premise on the ground that settlement provision will provide the more short-cut processes for business operators to accelerate the prosecution processes. Also, settlement expedites processes and cases will end very quickly and reduce the burden of proof for the victim. Besides, it also creates incentive to business corporations to apply because they wish to end cases quickly and thus there will be no criminal sanction applied to director general or executives. Director Generals or those in executive level are afraid of jail term and will be thus more willing to let companies pay the fine to end the case.

According to the current Thailand's cartel settlement, section 79 of Thailand's Trade Competition Act allows those entering in negotiation to pay the amount of fine and suspend the cases which mean no further litigation and no imprisonment sentence. As a result, those entering into settlement and willing to pay fine will be eligible for immunity from jail term. Based on quantitative logistic regression result tested among business people and lawyer groups (445 people), such privilege is associated with incentive for business people to apply and provide cooperation.

5.1.5 Making use of private enforcement

According to qualitative interview data, firms generally conduct cost-benefit analysis and risk management before making a decision in each activity. Thus, before engaging in hardcore cartels, firms will consider if illegal profits generating from hardcore cartels will be greater than amount of punitive fine or surcharge applied together with the amount of damages granted.

Although our quantitative analysis outcome processed via logit regression model shows that monetary sanction has no association to cartelists' incentive, the author believes that the amount of damages will somehow reduce overall incurred illegal profits from hardcore cartels and therefore there will be lower incentive in cartel conduct (if there is a high chance of being detected) and create more deterrence.

5.1.6 Broaden the scope of circumstantial evidence acceptance in cartel cases by the court

Detecting and prosecuting hardcore cartels are very difficult task for competition authorities worldwide. This is due to the facts that hardcore cartels are secret by nature and direct evidences are very difficult to assess without the cooperation of insiders. Also, hardcore cartels are criminalized in general and thereby carry a very high standard of proof -- "*proof beyond reasonable doubt*" in accordance with section 227 of Thailand's Criminal Procedural Code. Competition authority as plaintiff has an obligation to prove in the case. Nevertheless, direct evidences in hardcore cartel cases e.g. minute of meeting, details of agreement, voice record, witnesses who know agreement etc. are very difficult to find in practice unless competition authority gets corporation from insiders or through the use of leniency program. Hence, circumstantial evidences become very essential in hardcore cartel cases in various countries. Circumstantial evidences are however divided into two categories including evidences showing communication among cartel members and economic evidences eg market structure, firm conduct etc.

Circumstantial evidence can be compatible to hearsay evidence under Thai laws. Standard of proof in criminal cases in Thailand is however prescribed in section 226/3 of the Criminal Procedural Code stating that hearsay evidence shall not be admitted by the court unless it is fallen within exemptions under section 226/3 paragraph two (1) or (2).

According to legal provision pursuant to Thailand's Criminal Procedural Code section 227/1 and the Court's practice, it is apparent that the court must consider the weight of hearsay evidences carefully and should not only believe such evidence for punishing the accused person unless there is a strong reason, a special circumstances of case or other supporting evidences (Supreme Court of Thailand's Decision NO.2915/2554, NO.3225/2557, NO.15833/2557). Supreme Court of Thailand's practice is however different from doctrines of common law system where the weight of circumstantial evidences is not considered as light e.g. business record etc.

In this regard, the author views that the current Supreme Court of Thailand's practice toward an acceptance of circumstantial evidences is not practical in hardcore cartel cases. This is due to the facts that direct evidences are very difficult to obtain without assistance of insiders or through the use of leniency program. Thus, in the short run, Thailand's Court of Justice should widen its practicality to accept circumstantial evidences to prove in hardcore cartel cases. Otherwise, without supporting direct evidences, prosecuting hardcore cartels become problematic after all. Nevertheless, Thailand adopts civil law system and thus judge made law is not applicable. Thus, we shall solve this through the use of hard law instruments to accept indirect evidences in competition law cases for effective law enforcement.

5.2 Long term proposals

Concerning long term proposals, after fulfilling all prerequisites required during short term milestone, the author views that Thailand should implement leniency program to assist competition authority in cartel prosecution, adopt punitive damages approach in private enforcement, create more flexible provision to tackle new types of collusions generating from advancement of new technologies and enter into international cooperation. Details are outlined as follows.

5.2.1 An Implementation of Leniency Program

Before an implementation, the main crucial question is how to design leniency program in Thailand's context. This is due to the facts that implementing leniency program without well preparation may do more harm than good. There are main supporting factors

that should be taken into account including (i) type of privilege granted to leniency applicants, (ii) leniency criteria and (iii) leniency marker and level of privilege provided.

5.2.1.1 Type of privilege granted to leniency applicants

According to comparative study, different leniency models developed different approach. Some models (e.g. US) provide leniency privilege in terms of immunity from criminal sanction both to corporate and individual applicants, while some models (e.g. EU) allow immunity or reduction of administrative surcharge. Thus, the first research question in this part is what type of privilege should be granted for leniency applicants in Thailand to create incentive to cooperate with competition authority.

To answer this question, the author conducted quantitative test through selected logistic regression model with the selected sample population of 406 people who are business people and lawyers. This statistical regression test aims to determine which variables are associated with an incentive to cooperate.

Critical level = 0.05

Independent variables	B	S.E.	Wald	df	Sig	Exp(B)
Surcharge reduction	.010	.009	1.125	1	.289	1.010
Jail term reduction	.011*	.005	4.598	1	.032	1.011
Constant	.440	.465	.894	1	.344	1.552

An outcome shows that only one variable –immunity or reduction of jail term, creates incentive for cartelists to cooperate with the state, while reducing or waiving surcharge has no association. An increase of 1 unit of jail term reduction will increase the decision to apply for settlement or future leniency around 1.011 or increase approximately 1 percent.

The authors thus crossed check this quantitative research with qualitative interview result showing that executives of large firms are generally not afraid of surcharge. Amount of surcharge applied may be just partially from illegal profits acquired from anti-competitive conduct and some firms also adopt measure toward this penalty e.g. getting insurance. Strict criminal sanction especially applying to 1st or 2nd level of firms' executives will instead make

different and thus any immunity or reduction of jail term provided will create incentive for them to cooperate.

According to empirical result, privilege that should be granted to leniency applicants in Thailand is "immunity or reduction from criminal sanction". Nevertheless, the further question arises whether exercising power to reduce or waive criminal sanction by competition authority is acceptable from the public's perspective. In this regard, the author conducted quantitative survey to test public opinion from 936 respondents which represents Thai citizen's view with confidence interval of 99 percent and margin of error by 4 percent. According to the survey, the public agrees to grant immunity or reduction of jail term to leniency applicants accounted for 77.8 percent.

N=936

Types of privilege granted	Number (people)	Percentage
Immunity or reduction of imprisonment term	728	77.8%
Immunity or reduction of surcharge	143	15.2%
Others	65	6.94%

5.2.1.2 Leniency Criteria

According to qualitative interview outcome, business sectors address that they generally calculate payoff, conduct cost-benefit analysis and determine risk management toward each activity. Thus, clear legal provision and criteria are essential allowing firms to calculate their payoffs and liabilities to decide whether to apply for leniency i.e. eligibility of cartel ring leader, criteria on types of evidence and the immunity provided etc. This will allow leniency applicants to know whether evidences provided will be eligible for immunity or partial reduction after reading the guideline. Clear and easy to understand criteria will also assist to create more transparency and reduce abuse of power problem.

5.2.1.3 Leniency Marker and Level of Leniency Privilege Provided

According to comparative research, different leniency models develop different approaches to provide leniency markers to applicants. Some models grant marker automatically to create more certainty and transparency encouraging the race among cartelists to competition authority (e.g. US model), while other practices instead apply a discretionary marker system (e.g EU model). The question arises in which model is more applicable to Thailand's context.

From qualitative interview data, it is apparent that business entities will be assured to apply for leniency if conditions and criteria are clear and easy to understand. Therefore, the author views that automatic marker model is more suitable to Thailand's context. This approach will also easier to enforce with more transparency and certainty although the quality of evidences perceived may not compatible comparing to those obtained from discretionary system.

The further question is which level of leniency privilege shall be provided to leniency applicants. In this regard, the author conducted quantitative survey in selected population sample (434 people in total) including those from business sectors (306 people) and law firms (128 people). The statistic survey result shows that around 50 percent of respondents views that leniency applicants should get immunity from imprisonment. This is coherent with quantitative test through logistic regression model addressing that an increase of 1 unit of jail term reduction will increase the decision to apply for settlement or future leniency around 1.011 or increase approximately 1 percent. Thus, according to empirical research data, providing immunity from jail term to the first leniency applicant will create highest incentive to cooperate with competition authority in Thailand.

N= 434 people

	People	Percentage
25 percent reduction (remaining 1 year 6 months)	**24**	**5%**
50 percent reduction (remaining 1 year)	**87**	**20%**
75 percent reduction (remaining 6 months)	**67**	**15%**

87.5 percent reduction (remaining 3 months)	**39**	**8.9%**
100 percent reduction (no jail term applied)	**217**	**50%**

5.2.2 Adopt punitive damage approach in private enforcement

According to qualitative interview data collected, it is apparent that business sectors generally determine cost-benefit analysis and risk management before making a decision. Nevertheless, the current legal provision allows parties to claim for only amount of actual damages under section 69 of Thailand's Trade Competition Act. After incorporating with litigation cost and amount of time spent, this private litigation may be less beneficial in practice to create deterrence effect upon collusion.

Hence, from the author's point of view, increasing amount of damages granted through the use of punitive damages will increase deterrence effect upon collusions and support effectiveness of leniency program. Thailand however needs to take this step through hard law by allowing parties to claim for punitive damage in private litigation in competition cases.

5.2.3 Create more flexible provision to tackle new types of collusions generating from advancement of new technologies

Recently there are the more challenging issues for competition authorities worldwide especially when cartelists adopt advance technologies to collude and cartels are thus more difficult to detect than the traditional smoke-filled room cartels. A widespread use of algorithms has also raised concerns of possible anticompetitive behavior as they can make it easier for firms to achieve and sustain collusion without any formal agreement or interaction.

This new type of collusive behavior however gives rise to new problems with respect to competition law, in particular in the context of liability issues, with respect to the definition of an agreement, competition law enforcement etc. Traditional competition policy cannot be

applied over the cases of collusion beyond the "hub and spoke' type and thus gives rise to the new challenging policy issue.

In short run, from the author's viewpoint, the traditional competition law is still applicable for first two types of algorithmic collusions including the use of algorithm as an intermediary to facilitate cartel collusion and the Hub and Spoke as there are still evidences of agreement or concerted practice existed. For any collusion beyond the "hub and spoke' type, the antitrust enforcement issue may arise on how to prove liability especially in the case of self-learning algorithm.

Although hardcore cartel regulation in section 54 of Trade Competition Act 2017 may not be applicable in some cases, especially in the case of pricing algorithm which facilitates tacit collusion and self-learning algorithm which facilitate collusions. In this case, from the author's point of view, the court may consider whether the parties engaging this cartel has market dominance and thus section 50 of Trade Competition Act regarding abuse of dominance position can fill the loophole in this case. However, the controversial issue may arise if the party in question does not have dominance market position in the industry and thus the traditional competition law could not be applied in this case. In the case where both section 50 concerning abuse of dominance and section 54 regarding hardcore cartel provision cannot be applied, the court may however consider whether the facts of the case can be fallen within the scope of the application of unfair trade practice provision pursuant to section 57 of Trade Competition Act 2017. Although this solution can fill loopholes in a certain degree, it may not be the best options. This is due to the facts that level of punishment between section 54 and section 57 is different. Law governing hardcore cartel in section 54 is subjected to criminal sanction, while any acts fallen within the scope of section 57 is only subjected to administrative surcharge. Thus, the different legal standard applied makes cartel members in different cases subjected to different legal punishments which may inevitably lead to an inequality of law application.

According to the case of self-learning algorithm which facilitates collusions, the traditional competition law may not be applicable in this case. However, from the author's viewpoint, the parties suffering from collusion may instead claims damages under tort law in accordance with the general provision section 420 of Civil and Commercial Code or section 433 which is an analogy to the provision most nearly applicable. Regarding the case where

damage is caused by animal, the owner is bound to compensate the injured party for any damage arising pursuant to Civil and Commercial Code section 433. The owner has responsibility toward this although he or she does not willfully or negligently injure other parties. In the case where self-learning algorithm facilitates cartels and traditional competition law provision could not be applied, we may thus apply analogous law of tort in this case to provide damages to injure parties in accordance with Civil and Commercial Code section 420 and section 433. The owner or the programmer who act on behalf of the owner has responsibilities toward any damages although self-learning algorithm causes damages beyond his or her expectation. These may reduce incentive somehow as cartel members generally evaluate cost benefit analysis before agreeing on cartel. The state should however take a close look and apply proper provision toward this. Otherwise, unequal treatment may occur and leave loopholes to law enforcement

In long run, according to qualitative interview data, Thailand may use online investigator and try to find where IP address is located to find offenders or employ digital forensic to investigate cases and realize victims and use very capacity to gather evidences including the use of digital forensic and tools, training staffs how to investigate such kind of collusion and cooperate with the government to work out some weak points in the legislations or dealing with algorithms by requiring algorithms subjected to test. In addition, the main challenge lies in the ability of competition authorities to deal with tacit collusion, which at the moment is not illegal. In this respect, the preliminary questions is whether tacit collusion is a rational reaction to the market characteristics, or companies are actively engaging in creating a platform that changes the dynamics of the market.

In case of algorithms, we are faced with the question of the legality of tacit collusion. The question arises if algorithms can change the characteristics of the market and give rise to competition concerns that are not present today. The essence of the discussion is whether there is an enforcement gap or if we can stretch the concept of the agreement to cover this area. Regarding possible solution from competition law perspective, agencies could audit algorithms, allowing the competition agency to check if the algorithm can lead to collaborative outcomes or to price alignments. Another approach he suggested would be to use an algorithm collusion incubator, whereby the competition agency can use an algorithm of its own and try to imitate the results that we see on the market and based on that try to assess what actually is the type of instructions that are required in order to reach that.

5.2.4 Enter into international cooperation

The author views that international corporation should not be neglected. This is due to the facts that cartels generally operate across jurisdiction. Exchange of information or corporation among competition authorities is thus necessarily essential. Besides, an adoption of effect-based practice from EU is also beneficial. Thailand could therefore investigate and prosecute cartels which engage outside jurisdiction but posts harmful effect to Thai consumers and economy. This practice will also allow Thailand's competition authority to investigate new types of cartel conduct that may occur in digital platform in which the host is not located within jurisdiction.

5.3 Action Plan

In this section, the author aims to answer question on how to implement leniency program into Thailand's legislation. As discussed before, hardcore cartels are very harmful types of anti-competitive infringement which are secret in nature. Hardcore cartels injure consumers and economy without reasonable pro-competitive ground. Nevertheless, detecting hardcore cartels is very difficult in practice. In Thailand, hardcore cartels are subject to criminal sanction pursuant to section 54 of Thailand's Trade Competition Act which is subjected to very high standard of proof –"Proof beyond reasonable doubt". In practice, the court generally accepts direct evidences in criminal cases, while the weights of circumstantial evidences are considered as low. Direct evidences nevertheless are very difficult to obtain in practice without cooperation of insiders or through the use of leniency program. During law drafting process, Thailand's Office of Trade Competition and Commission proposed to insert provision regarding leniency program inside the Trade Competition Act 2017.

The proposal was however rejected by the Council of State on the ground that the power to reduce sentence should be solely exercised by the Court. The law drafting committee was thus inserted the settlement provision in section 79 of Trade Competition Act instead.

Settlement allows firms to pay amount of fine to terminate the case. Section 79 of Trade Competition Act is somehow coherence with the practice in criminal cases pursuant to

section 37 of Thailand's Criminal Procedural Code allowing police officers to settle criminal cases which rate of penalty do not exceed that of a petty offence (2 years imprisonment). From the author's view point, settlement was thus passed the parliament during law drafting process because such practice has accepted to do by police officers in criminal cases. The new settlement however aims at expediting adjudication process to reduce time-consuming litigation and resources. Firms can also be able to pay fine to suspend the case and use time and resources for business.

Although settlement is beneficial in some extent, the author views that it may harm enforcement procedures at the same time. This is due to the facts that it may open some door for cartelists to escape criminal penalties by paying amount of fine to terminate cases. Thus, clear criteria for eligibility to settle cases should be set. Thus author views that there is a small room to use cartel settlement in practice. Settlement generally occurs after competition authority concludes its investigation with certain amount of supporting evidences. Direct evidences to crack down hardcore cartels however are generally hindered among cartel members. Hence, leniency program becomes very essential in practice if competition authority targets at cartel conducts.

As discussed before in the previous section, prior to an implementation of leniency program, there are some prerequisites for Thailand to do. Thus, leniency program will be beneficial as a tool to gain direct evidences from insiders. However, there were also obstacles to adopt leniency program in Thailand because unfamiliarity occurs among law drafting committees to allow competition authority to reduce or give full immunity for criminal sanction. Implementation steps are thus proposed in the following section.

Regarding an adoption of leniency program, the author proposes action plan as follows.

After fulfilling prerequisites before an implementation of leniency program, the author views that Thailand could adopt leniency provision initially through the use of soft law e.g. issuance settlement guidance which allow competition authority to obtain certain cooperation in exchange with eligibility to enter into settlement. Settlement program with the condition to cooperation should also be available at any time since before competition authority starts an investigation. Paying amount of fine to terminate the case ensure no

criminal sanction applying to them which is similarly to leniency program. Criteria however need to be very clear e.g. level of cooperation provided to be eligible to settle the case etc.

Under this transitional step, this action plan can be a pilot test whether leniency program works successfully in Thailand to assist competition authority to gain more direct evidences to prosecute cartels. After the measurement of performance, Thailand could thus consider to implement leniency program though hard law by adopting into the Act. The pilot test step could also ensure law drafting committee that leniency program assists competition authority via the number of cartel detected cases and the gradual lowering numbers of hardcore cartel cases year by year which show deterrence upon cartel formation.

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