

**COOPERATION AND ANTISOCIAL PUNISHMENT:
A PUBLIC GOOD EXPERIMENT IN THAILAND**



**A THEMATIC PAPER SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
(BUSINESS MODELING AND ANALYSIS)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2012**

COPYRIGHT OF MAHIDOL UNIVERISTY

Copyright by Mahidol University

Thematic Paper
entitled
**COOPERATION AND ANTISOCIAL PUNISHMENT:
A PUBLIC GOOD EXPERIMENT IN THAILAND**



Kong Ek-Ak
.....
Mr. Kong Ek-Ak
Candidate

Yingyot Chiaravutthi
.....
Asst. Prof. Yingyot Chiaravutthi, Ph.D.
Major advisor

N. Udomkit
.....
Lect. Nuntana Udomkit, Ph.D.
Co-advisor

B. Mahaisavariya
.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

Ornlatcha Sivarak
.....
Lect. Ornlatcha Sivarak Ph.D.
Program Director
Master of Business Administration
Program in Business Modeling and
Analysis
International College
Mahidol University

Thematic Paper
entitled
**COOPERATION AND ANTISOCIAL PUNISHMENT:
A PUBLIC GOOD EXPERIMENT IN THAILAND**

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Business Administration
(Business Modeling and Analysis)

on
February 4, 2012



.....
Mr. Kong Ek-Ak
Candidate



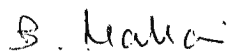
.....
Assoc. Prof. Piriya Pholphirul, Ph.D.
Chair



.....
Lect. Nuntana Udomkit, Ph.D.
Member



.....
Asst. Prof. Yingyot Chiaravutthi, Ph.D.
Member



.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University



.....
Prof. Maleeya Kruatrachue, Ph.D.
Dean
International College
Mahidol University

ACKNOWLEDGEMENTS

It would be almost impossible if I were to finish this thematic paper all by myself. Firstly and most importantly, I would like to give my utmost gratitude to my supervisor, Asst. Prof. Yingyot Chiaravutthi. He had guided, taught, encouraged, and kept me in the right path for this achievement.

He also gave me support throughout my thematic paper-writing period. He was willing to give up his free time during late working hours on weekdays and on weekends. He was there to help me corrected all the mistakes and gave me advices when needed one. Additionally, I also would like to give my gratitude to my co-advisor Lect. Nuntana Udomkit. She also had helped and guided me throughout the thematic paper.

I would like to thank all the staffs in Mahidol University International College, Sathorn Campus, for assisted me in many helpful ways. Thanks to all of my MBA classmates who had created a lively environment in the class. I would also like to give my gratitude to Prof. Dr. Maleeya Kruatrachue who gave me this chance to switch the field in my study, and gave me this great opportunity to join this MBA program. Lastly, I would like to thank my parents who had supported me financially and love.

I wish to offer my regards and blessing to all of those who supported me in any respect during the completion of the project.

Kong Ek-Ak

COOPERATION AND ANTISOCIAL PUNISHMENT: A PUBLIC GOOD EXPERIMENT
IN THAILAND

KONG EK-AK 5138493 ICMA / M

M.B.A. (BUSINESS MODELING AND ANALYSIS)

THEMATIC PAPER ADVISORY COMMITTEE: YINGYOT CHIARAVUTTHI, Ph.D.,
NUNTANA UDOMKIT, Ph.D.

ABSTRACT

The controversy of individual needs and wants and the public needs and wants can be viewed as a conflict of interests anywhere in our society, ranging from warfare, environmental protection, tax, donations, and etc. Individuals can over consume resources which results in the ‘tragedy of the commons’ where the collective of individual needs can imperil the benefits of the whole group. A public good experiment is used as a tool to measure the cooperation levels in different societies. However, past experiments were conducted in the western cultural background. The purpose of this experiment is to measure the level of cooperation in the Thai sample pool.

The public good experiment was conducted at Mahidol Univeristy, Salaya, Nakornpathom, Thailand. There were 60 participants from various fields of study who joined the experiment. The experiment was a one shot game with two sessions N-P, and P-N. Three participants were grouped together and needed to decide on how much of their money they would contribute to the group project. Once they learnt about others’ contribution, they could choose to punish others’ payoffs with their own money. For the N-P session, the public good experiment started with no punishment and was followed by punishment. The P-N session was the opposite. The results show that in the N-P session, the cooperation is low; and when punishment was put in, the cooperation declined even further. However, in the P-N session, it yielded better cooperation within team members while taking the punishment away in the P-N session, dropped the cooperation levels significantly. Finally, our sample pools were not that harsh in assigning deduction points to punish their team members in both sessions of the experiment.

KEY WORDS: COOPERATION / ANTISOCIAL / PUNISHMENT
PUBLIC GOOD / THAILAND

ความร่วมมือและการลงโทษในสังคม: การทดลองสินค้าสาธารณะในประเทศไทย

COOPERATION, AND ANTISOCIAL PUNISHMENT: A PUBLIC GOODS EXPERIMENT IN THAILAND

ก้อง เอกอักร 5138493 ICMA/M

บธ.ม. (การวิเคราะห์และสร้างตัวแบบธุรกิจ)

คณะกรรมการที่ปรึกษาสารนิพนธ์: ชัยยศ เจียรุททธิ, Ph.D., นันทนา อุดมกิจ, Ph.D.

บทคัดย่อ

ความขัดแย้งระหว่างผลประโยชน์ส่วนตัวและผลประโยชน์ส่วนรวมเป็นเรื่องที่มีอยู่ทุกยุคทุกสมัยในสังคม ตั้งแต่สงคราม การปกป้องสิ่งแวดล้อม ภาษี การบริจาค และการบริโภครักษาการ นำไปสู่หายนะส่วนรวม โดยการเห็นประโยชน์ส่วนตนเป็นหลักจะกระทบกับประโยชน์ของสังคม การทดลองโดยเกมสินค้าสาธารณะเป็นอีกสิ่งหนึ่งที่ใช้วัดระดับความร่วมมือในสังคมต่างๆ อย่างไรก็ตาม การทดลองในอดีตส่วนใหญ่เกิดขึ้นในวัฒนธรรมทางตะวันตก การวิจัยในครั้งนี้มีจุดประสงค์เพื่อดูความร่วมมือและการลงโทษในสังคมไทย

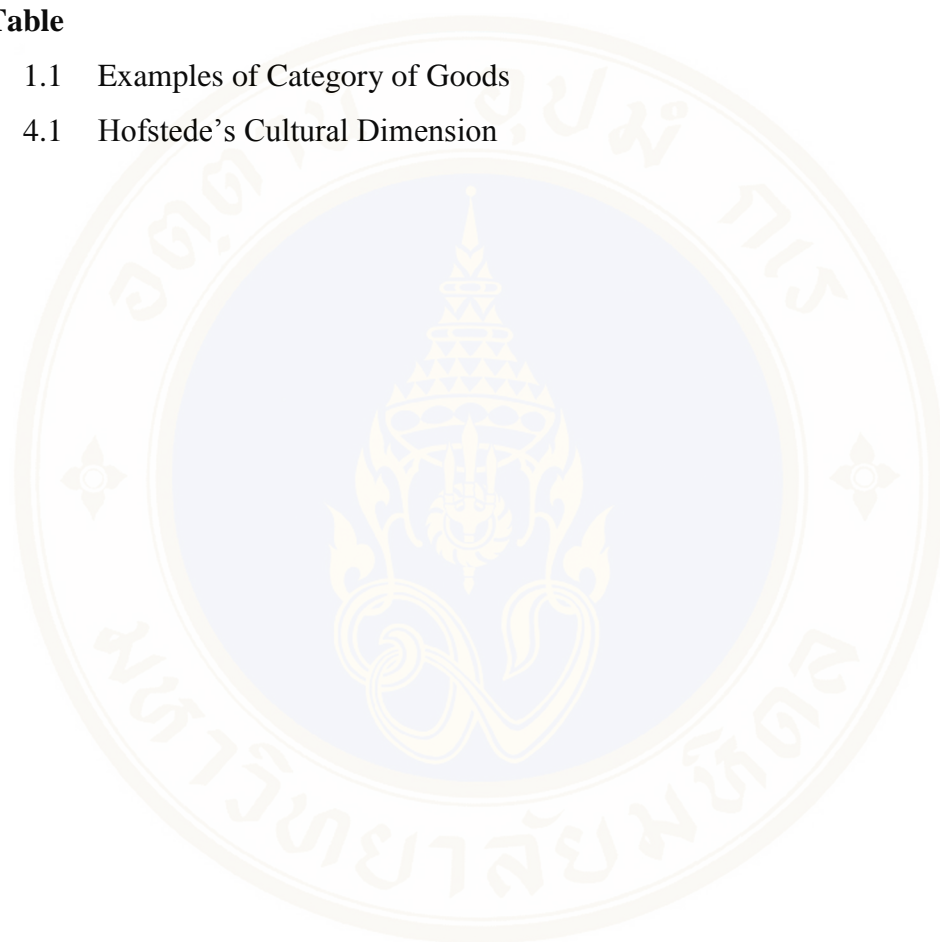
งานวิจัยนี้ได้ถูกทำการทดลองขึ้นที่มหาวิทยาลัยมหิดล ศาลายา นครปฐม ประเทศไทย โดยมีผู้เข้าร่วมการวิจัยในครั้งนี้เป็นจำนวน 60 คน ผู้เข้าร่วมการวิจัยในครั้งนี้เป็นกลุ่มนักศึกษาที่กำลังศึกษาอยู่ในหลายภาควิชาของมหาวิทยาลัย การทดลองถูกแบ่งเป็น 2 รูปแบบ และในแต่ละรูปแบบจะมี 2 เกมย่อยคือ “ไม่มีการลงโทษ” และ “มีการลงโทษ” กลุ่มย่อยประกอบด้วยผู้เข้าร่วมการทดลอง 3 คน ซึ่งต้องตัดสินใจให้เงินสนับสนุนในโครงการหนึ่ง โดยเมื่อแต่ละคนทราบการให้เงินสนับสนุนของคนอื่นในกลุ่มย่อยแล้ว จะต้องตัดสินใจว่าจะลงโทษสมาชิกคนอื่นในกลุ่มด้วยเงินของตัวเองหรือไม่ รูปแบบที่หนึ่งเริ่มจากไม่มีการลงโทษ ตามด้วยการลงโทษ รูปแบบที่ 2 จะถูกทดลองเหมือนกันแต่จะสำหรับลำดับของเกมย่อยจากผลของการทดลองแสดงให้เห็นว่า กลุ่มผู้ร่วมการวิจัยมีระดับความร่วมมือที่ต่ำหากการทดลองเริ่มต้นด้วย “ไม่มีการลงโทษ” และเมื่อมีการลงโทษระดับความร่วมมือยังลดต่ำลงไป ความร่วมมือดีขึ้นมากในกลุ่มผู้ทดลองหากการทดลองเริ่มจากการที่การลงโทษ แต่ความร่วมมือจะตกไปอย่างมากเมื่อเอาการลงโทษออกไป การทดลองแสดงให้เห็นว่ากลุ่มผู้ร่วมการวิจัย ไม่เพียงประสงค์ในการให้เต็มลดแก่สมาชิกในกลุ่มย่อยของตนเอง

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
ABSTRACT (THAI)	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER I INTRODUCTION	1
1.1 The Public Good	1
1.2 The Public Good Game	4
1.3 Study Objectives	5
1.4 Benefits of the Study	5
1.5 Scope of the Study	6
1.6 Limitations	6
CHAPTER II LITERATURE REVIEW	7
CHAPTER III METHODOLOGY	13
CHAPTER IV RESULTS AND ANALYSIS	18
4.1 Culture Background	18
4.2 Contribution to Group Project in N-P Session	18
4.3 Contribution to Group Project in P-N Session	22
CHAPTER V CONCLUSION	28
BIBLIOGRAPHY	31
BIOGRAPHY	33

LIST OF TABLES

Table		Page
1.1	Examples of Category of Goods	3
4.1	Hofstede's Cultural Dimension	18



LIST OF FIGURES

Figure	Page
1.1 Example of Public Good Game	4
3.1 Example of “Decision Sheet”	15
3.2 “Earning sheet”	15
3.3 “Deduction sheet”	16
4.1 Mean Contribution for N-P Session	20
4.2 Percentage of Participants Contribution	20
4.3 Average increase / decrease in Contribution to Group for N-P Session	21
4.4 Percentage of Contribution Between 5 Cities	22
4.5 Mean Contribution for P-N Session	23
4.6 Percentage of Participants Contribution	24
4.7 Average increase / decrease in Contribution Group for P-N session	25
4.8 Percentage of Contribution Between 5 Cities	26
4.9 Deduction Point	26

CHAPTER I

INTRODUCTION

1.1 The Public Good

Imagine a person sharing the cost of building a swimming pool. The pool is well surrounded by the fence, and usage of the pool can be confined to those who contributed. One day those who contributed decided to allow some visitors to use the pool even though those visitors did not contribute anything to the construction cost. Now imagine the law stated that fences are not permitted, and anyone has the right to use the pool. Would the same contributors contribute the same amount they contributed if anyone could use the pool? What will be the new contribution from new comers? What are the ways that could enhance cooperation and increase contribution level, and what should be done to those who free-ride? These give us a brief sense of public goods. It is when an individual wants and needs are controversial to the group wants and needs.

Public goods theory was published in 1954 by Paul Anthony Samuelson in a paper called “The Pure Theory of Public Expenditure.” He described it as

“...[goods] which all enjoy in common in the sense that each individual's consumption of such a good leads to no subtractions from any other individual's consumption of that good... (Samuelson, 1954).”

On 15 May 1915, a great economist, Paul Anthony Samuelson was born. Paul Anthony Samuelson won a Nobel Prize in Economics, thus he was the first American to receive this prize. Samuelson believes in Keynesian economics which is the modern economics theory, and his theories were among the first to explain Keynesian economic successfully (Parker, 2002). In Keynesian theory, it is believed that a largely collective of microeconomic-level actions can lead to inefficient aggregate macroeconomic. This means that the economy is operating below its

potential output which could lead to a potential economic downturn. Government can use policies to stimulate the aggregate demand to reduce the potential economic downturn.

All goods and services can be described in to four categories: Exclusionary, nonexclusionary, rivalry, and non rivalry aspects. Exclusionary is goods and services that are inexpensive to limit the benefit only to those who contribute. Nonexclusionary is goods and services that are impossible or very expensive to limit its benefit only to those who contribute. Rivalry is goods and services that diminish after one has consumed it, and prohibit another person from using it. Nonrivalry goods and services are those goods that when one consumes do not prohibit another person from consuming it (Hirschey, 2009).

When a person drinks a can of coke, or lives in a house, this prohibits others from drinking that certain can of coke or living in that house. The resource has been consumed by an individual, and the resource is not longer available for other people consumption. When goods and services are both exclusionary and rivalry, they are called “Private Goods.”

Some goods and services can be exclusionary but non rivalry. Any goods or services that have a very high capacity of output, or when the marginal cost for providing an additional service or good to other individual is very low. Thus, the benefits from goods and services provided can be confined to only those who contribute. For example, a private cable TV provider has a very low marginal cost for providing service to new customers. Nevertheless, a private cable TV provider can limits the services to only those who contribute. These kinds of goods and services are called “Natural Monopolies.”

Goods and services that are rival and nonexclusionary are called “Common Resources.” A good example is fish in the sea. There is no specific country that actually owns the ocean, so over harvesting is a common problem because nobody has the authority to stop others. This usually resulted in “Tragedy of the commons.” Lastly, goods and services that are neither excludable nor rival are called “Public goods.” National defense, public parks, healthcare, public road, and etc are good examples. These kinds of goods and services, once provided for an individual, they

become available for all consumers. Nobody has the power to confine the benefit provided from public goods to only those who contribute.

Table 1.1 Examples of Category of Goods (Hirschey, 2009)

	Exclusionary	Nonexclusionary
Rival	Private Goods <ul style="list-style-type: none"> • Clothing • Congested toll bridges • Food • Internet access • Shelter 	Common Resources <ul style="list-style-type: none"> • Clean environment • Fish in the ocean • Open range for cattle grazing • Public waterways • Wild birds and animals
Nonrival	Natural Monopolies <ul style="list-style-type: none"> • Air-traffic control • Parks • Police and fire protection • Tunnels • Uncongested toll bridges 	Public Goods <ul style="list-style-type: none"> • Concerts in the park • Internet • National Public Radio • National defense • Traffic lights

Any individual can consume the benefits provided from public good at the same point in time, but the contribution contributed for that particular public good is unequal within the population. The benefits received by individuals who have contributed could be very little or hard to measure. For individuals who did not contribute, they cannot be excluded from the benefits from the public good. This resulted in free-rider problem. Free-rider is an individual or group of people who consume the benefits, but did not contribute to the cost of the public goods.

Another problem that could emerge is hidden preferences problem. Benefits are not confined to those who contribute could result in individuals not revealing their true demand for public goods. Individuals are afraid that higher demand of public goods would result in higher payment. This distorts the point of reference of where the optimum supply of public goods should be provided.

1.2 The Public Good Game

The reality of conflict of interest between individuals and the group always contains a large number of individuals. In the “Public good game” there must be a suitable number of individuals, let say n-person. In the game, each n-group member will receive an endowment, say, 200 Baht. The subject will then have to make a decision of how much he/she wants to keep for themselves, and how much he/she wants to contribute to the group project. Each endowment contributed to the group, the experimenter will give additional (α x amount) contribution, where $0 < \alpha < 1$, to each group member. This means that if there were 4 individuals in a group, and each one of them contributed 200 Baht to the group project; the result would be, “alpha equals 0.5, $200 \times 0.5 \times 4 = 400$ Baht.” However, this is the case where everybody contributed equally to the group project. Thus, this would provide a better payoff for the whole group. Since one Baht of contribution does not provide at least one Baht in return ($\alpha < 1$), it results in the conflict of interest. An individual might keep most of the money to themselves. An inequality of contribution by team members could result in free-rider problem. Any team member who did not contribute will still get the benefit from what others has contributed.

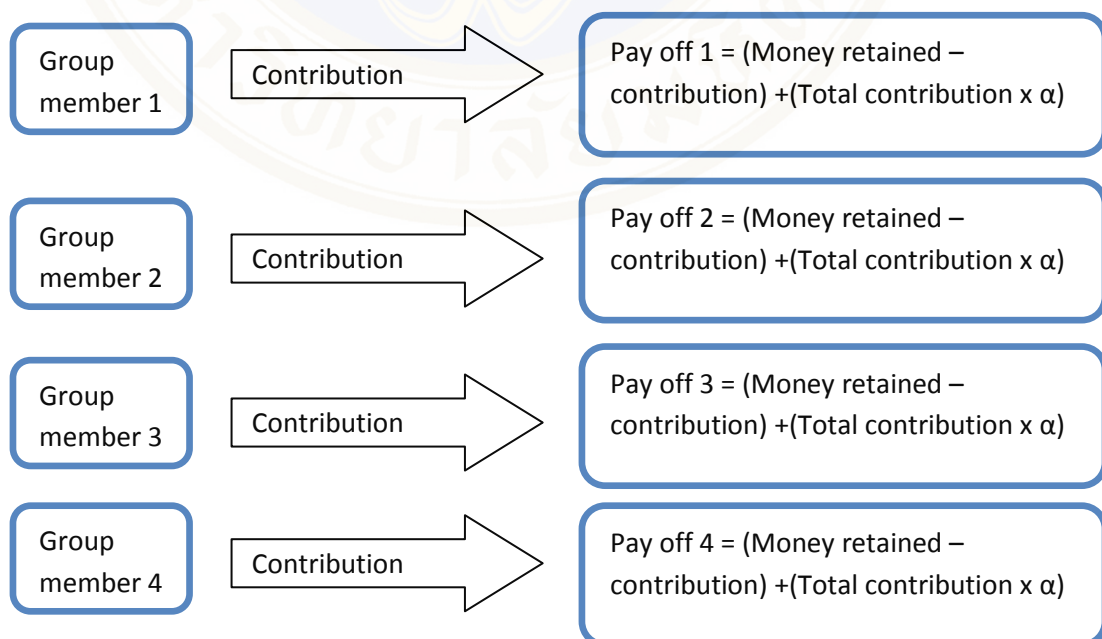


Figure 1.1 Example of Public Good Game

1.3 Study Objectives

This research will investigate how people in Thai culture solve the problem of cooperation. The experimenter will set up a controlled experiment to test on a group of people in Thailand. According to the theories in evolutionary biology, cooperation only exist when people has their self-interest like genetic related relative, care for their reputation, or a selfish incentive to cooperate (Hamilton, 1964). This research will investigate how:

- 1.) What are the cooperation level without punishment.
- 2.) What are the cooperation level when punishment are allow.
- 3.) Compare the two results of cooperation.

1.4 Benefits of the Study

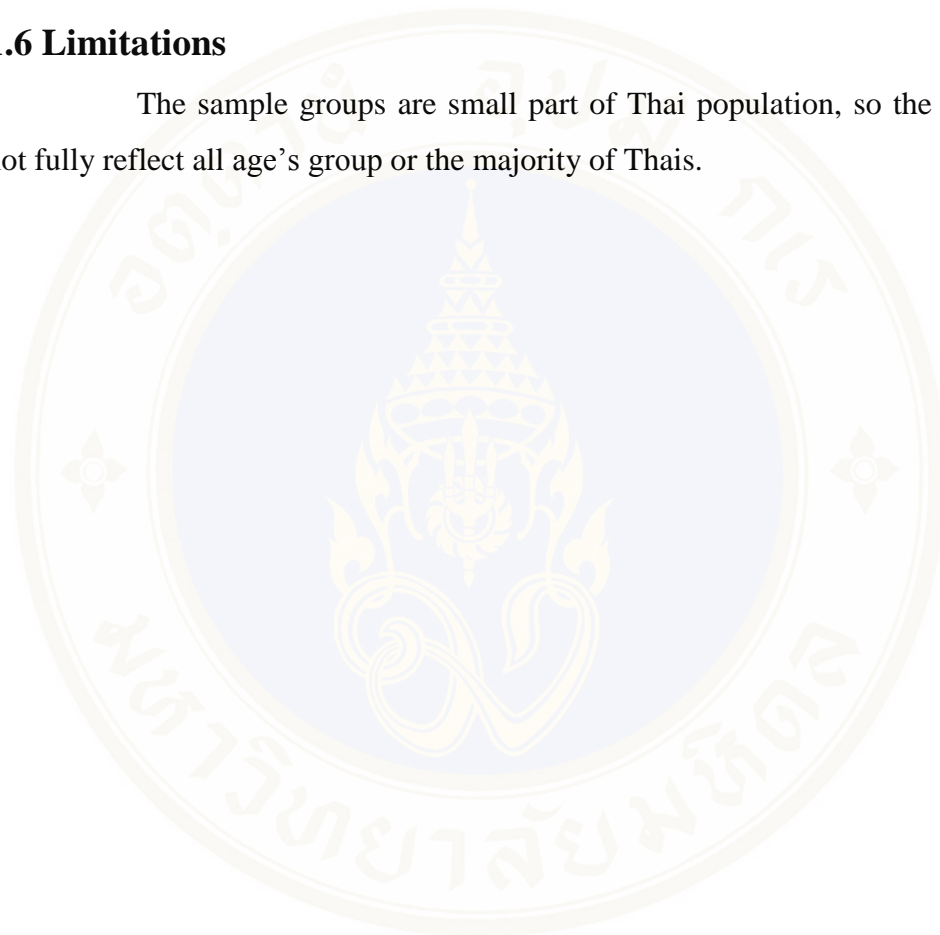
The controversial of individual needs and wants and the public needs and wants can be found (conflict of interest) anywhere in our society. This ranges from warfare, environmental protection, tax, government, donations, and etc. Individuals can over consume the resources which resulted in the ‘tragedy of the commons’. This is where collective of individuals’ needs and wants can imperil the benefits of the whole group. However, complex society and civilization seen in modern world can only exist from a large-scale cooperation (Herrmann, Thöni, and Gächter, 2008). Humans have their own system to prevent from the ‘tragedy of the commons’ and are able to obtain high level of cooperation. Can cooperation result from natural and cultural evolution? Understanding cooperation is an important field in evolutionary biology (Hammerstein, 2003). Nonetheless, Thai people and their culture are 94.6% (The World Fact Book, 2011) believer of Buddhism. According to Hofstede’s Cultural dimension, Thais are located in large power distance and highly collectivist (Hofstede, 1990). It is interesting to investigate how people in a country that has a Buddhism background, large power distance and highly collectivist would react to the public good game differently from the past experiments that were conducted in western countries.

1.5 Scope of the Study

The experiment was conducted to a sample group of Mahidol University undergraduate students, age ranges from 19-22 years old.

1.6 Limitations

The sample groups are small part of Thai population, so the result might not fully reflect all age's group or the majority of Thais.



CHAPTER II

LITERATURE REVIEW

For the past decades, public goods experiments were being tested using university students from various backgrounds. Each result was an add-on to the understanding of human decision. Below are literature reviews of the past experiments related to cooperation decision that were conducted using university students as subject. Many studies of public goods (Fischbacher, Gächter, and Fehr, 2001), participants usually cooperate much more than the expected cooperation by standard economic theory that assume selfishness, and rationalization.

In the paper from Fischbacher, Gächter, and Fehr (2001), it assumed that people are “conditional cooperators,” or people that are likely to contribute more as others contribute more. The paper examined the importance of conditional cooperation in one-shot public goods game. There were 44 participants from University of Zurich who were in their first and second semester undergraduates program from various fields (except economics). The experiment was designed that there were 4 participants playing the game, totaled up to 11 groups. All 4 participants were explained about the instruction and procedures. Three participants were randomly picked and were forced to make the contribution. Then the fourth participants was selected and learned how much the other three has contributed before he/she contributed. For the result, it was found that 30% were free-rider with selfish incentives, 50% were conditional cooperators, and 14% were close to perfect conditional cooperators.

In the article from Fehr and Gächter (2002), the key research was to explore why people involve in the altruistic punishment and how the altruistic punishment could lead to the changes in cooperation.

Public good game was used as a tool in this experiment, and where participants were given real monetary unit. The game followed normal public goods theory where there were two conditions, without punishment and with punishment. In the game, each student was given the right to punish free-rider on their own expense;

the question was how much they were willing to spend to punish other and how it affected the cooperation level. There were 240 student participants from University of Zurich and Federal Institute of Technology that were involved in this experiment.

From the result, altruistic punishment happened frequently. In this group of participants 84.3% received punishment at least one time, 34.3% was punished more than 5 times in 6 periods. It is clear that punishment happened to participant that contribute less than average, in fact, 74.2% of punishment were on defectors. These punishments were imposed by participants who contributed more than average. The more deviation less than the average contribution, the more that particular participant was punished. Because of the punishment, cooperation between strangers in investing in public goods increased significantly when compared to no punishment (94.2%). The act of punishment, albeit it was costly, it induced the potential of free-rider to increase in their contribution, thus, resulted in the better outcome for the whole group. The authors believed people cooperate in order to avoid punishment and strong negative emotions toward free-riders or defectors. This might be the trigger for the punishment.

Recent paper on behavior of people that interact with other people who are not related to them proved that it is hard to clarify the reciprocal altruism or kin (Gintis, Bowles, Boyd, and Fehr, 2003). This paper it presented empirical evidence to support that reciprocity is the blueprint for explanation for altruism in humans. However, this literature review focused to only public good related experiment.

First experiment evidence was about the strong reciprocity within labor market. This public good game experiment from Fehr Gächter, and Kirchsteiger (1997) has divided participants into employers and employees. As a result it showed that when employers were able to punish, under fulfilling agreement decreased from 83% to 26%, and over fulfilling agreement increased from 3% to 38%. The payoff increased by 40% when reward or punishments was allowed. Participants role as employee internalized standard of reciprocity when they acknowledged there wouldn't be consequence if they acted in a self-interest way. Employer expected, and they prepared reward and punishment for these behaviors.

According to many papers from Yamagishi, Ostrom, Walker and Gardner, and Fehr and Gächter. All of their papers have concluded that there would be greater

cooperation behavior when participants were given the choice to incur cost to themselves for punishing others.

In the article from Thöni, Herrmann, and Gächter (2004) it examined the link between trust and voluntary cooperation. A lot of problems in the society revolve about multilateral trust and cooperation with free-rider incentives. Participants in this experiment consisted of 782, where 413 were students and 369 were non-students from rural and urban area in Russia. These participants were from a diverse socio-economic background. A public goods game that is a one-shot game was used as a tool to see cooperative behavior given a strong free-rider incentive. Later, survey was given in trust attitudes. The survey questionnaire was taken from Glaeser (2000) Student participants were investigated and then it is connect to the questionnaire about trust to characteristics of the participants from different socio-economic background. Lastly, experimental result was investigated to see the correlation between trust-surveys and the actual trust in the public goods game.

The result showed that the cross-societal differences in trust among students and non-student participants were not apparent even though they were from different socio-economic and cultural background. The socio-economic characteristics and trust interaction showed that age was the most important indicator. Participants average age for student was 20.2 where from non-students was almost twice older. Older people tended to be more fair or helpful. People who live in small-city showed more trusting behavior than ones who live in big cities. All in all, it was found that socio-economic background effects trusts attitudes. However, socio-economic results did not explain the cooperative behavior. There was a positive correlation between trust toward strangers and cooperation

According to “Antisocial punishment across societies” there has been acclaimed that there’s an extensive act of antisocial punishment. Antisocial punishment is a punishment toward pro-socially acted people. Some high contributors were punished as much as low contributors. The experiment examined how cross societies punishes free-rider and high contributor, and how this affect the result of cooperation (Herrmann, Thöni, and Gächter, 2008).

Public good was used as a tool in this experiment, where it was divided into two punishment and non-punishment. In the game, real monetary unit was used,

and participants were allowed to punish their group member who contributed less, same, or more on their own expense. The experiment was conducted all around the world ranging from Boston, Melbourne, to Istanbul and Riyadh. There were 1120 participants in total, where all of them were from upper middle class background university students. As a result, different societies had different levels of antisocial punishments. Some places had up to 90% social contribution and some places only had up to 29% of social contribution. This contribution level had a negative correlation with antisocial punishment. The author believed that antisocial punishment was the result from participants that seek revenge. The antisocial punishment increased when law and civic norms of cooperation are weak. Antisocial punishment decreased when law and civic norms are strong. The stronger the civic norm of cooperation, the less punishment happened to free-riders. Punishment methods only benefit society only if complemented by that society's cooperation as a social norm.

After it is proven that antisocial punishment does exist, it is interesting to see how people solve cooperation problems in a cross-cultural experiment (Gächter, and Herrmann, 2009). The experiment investigated how culture background influences strong reciprocity. The experiment was conducted in Switzerland and Russia where two cities were selected for each country. These two countries were different in many ways, like political, religion, and how people trusted each other. There were a total of 603 participants, where 180 were from Belgorod, 180 Yekaterinburg, 102 St. Gallen, and 141 were from Zurich. Public good was used as a tool where the game was divided into a one-shot game with punishment and no punishment. The result found that there were similarities and differences in punishment for those who free ride. The punishment was very similar to those who free ride but varied a lot when it comes to antisocial punishment. The result has increased the confirmation that people punish and cooperate in a one-shot experiment when future benefits from cooperation, reputational gains are not included from the experiment.

According to Varian about voluntary provision of public goods, it showed that under appropriate assumptions, sequential contribution mechanisms lead to less contribution when compared to simultaneous contribution mechanisms (Gächter, Nosenzo, Renner, and Sefton, 2010). It is also proven in the past that a lot of people are "conditional contributors" and people are willing to pay to punish free riders. In this

paper from Gächter, Nosenzo, Renner, Sefton (2010), it focused on the simplest version of Varian's model. This experiment was conducted from 192 students from University of Nottingham from various fields and conducted at the university itself. In the public good game, first mover's advantage might not be used by the first mover due to self interest, and also if others are willing to punish. It was uncertain that Varian's result can be represented in the laboratory setting. This paper differs from the past experiment in three ways. First, it used set up that is close to the Varian's literatures where second mover's who acted with self-interest contributed in a decreasing manner to the first-mover's contribution. Second, it setups the benefits received from the public goods fluctuate among players. Lastly, sequential contribution mechanisms were being studied. The results from this paper showed that, when first-mover was expected to free ride, the result did not confirm it. However, when second movers were expected to free ride, there was a solid evidence for the expectation. These results could be reasoned from the second movers' unwillingness to reward first movers who contributed, and also willingness to punish if first mover didn't contribute.

Economist and social scientist have examined people's normative views. In this paper from Cubitt, Drouvelis, Gächter, and Kabalin (2011), it studied social normative view on social dilemmas. Past research has indicated that people feel negatively to free riders and they are willing to punish free rider on their own cost, but the reason for people's justification for free rider is not fully understood. Unlike other public goods paper, this paper used a simulated scenarios consisting of 2 characters playing public goods game. There were 538 participants to read and give their judgments through questionnaires. These participants were students from University of Nottingham. These scenarios consisted of character A and character B. Character A was varied across scenarios while B always free-ride. The four scenarios were give-take, simultaneous and sequential.

Later, real participants were given a questionnaire to ask for their judgment, giving score of 50 for very good moral or negative 50 for very bad. The result showed that public goods problems or dilemmas were perceived as having moral dimension. In general, free riders did not get a neutral judgment. Moreover, judgment for free riders was framed by the scenario, and in some cases it was the behavior of the

other character in the scenario. Emotional-base and reason-base models were used to explain the differences between the surveys. Information about emotion, reason-base model can be found in the paper. Thus, reason-base model was used to the group of participants. Character B was judged evenly among scenarios in simultaneous treatment. Also, this group usually has increasing condemnation on sequential treatments when compared to simultaneous treatments. In emotional-base, an increased in condemnation could come from reactions when non-judge player feels that the scenarios are not equal or not fair.

This last review differs from the rest due to the fact that it was conducted via real society people, which are not university students. In the research from Capreuter, Daniere and Takahashi (2004), was conducted to survey cooperation and trust. To examine how behavior differs with demographic parts and related measures of social capital in Southeast Asian urban slums. Four reasons that this article was unique than most of the researches that were conducted because this article focused on in Southeast Asia while the past experiments were in the western culture. Second, most of the researches used student as participant, but this research participants were from real urban slums. Third, this research used voluntary contribution of public good game, and lastly, they also did post interview. The participant groups were selected from 5 communities in each city, Bangkok and Ho Chi Minh; where 120 participants were involved for each city. This totaled up to 240 participants.

The result of the research showed that contribution rates were high for both Thai and Vietnamese. Men in Thailand contributed 15% more than women, while 15% more women contributed more than men. Many participants were willing to spend to punish free-rider when this had no monetary affect to free-rider. It was found that trust and cooperation differ with sex, age, education, years of slums residency, and household size. For example, high school education in Ho Chi Minh City increased contribution by 24%. Why people behaved in such a way correlate with the homogeneity of the community, involvement in the community projects in the past, home ownership, and relationship among people, neighbors, and leadership in the community. Homogeneity within neighbor increased contribution by 30% for Bangkok while only 9% in Ho Chi Minh City.

CHAPTER III

METHODOLOGY

The public good experiment is a one-shot experiment that can be conducted in a closed room. In the game, each n-group member will receive an endowment, say, 100 Baht. The subject will then have the decision of how much he/she wants keep the money for themselves, and how much he/she wants to contribute to the group project. Each endowment contributed to the group, the experimenter will give additional (α x amount) contributed where $0 < \alpha < 1$ to each group member. This means that if there were 3 person, and all contributed 100, and alpha equals 0.5, the payoff would be $200 \times 0.5 \times 3 = 150$ Baht. However, this is the case where everybody will contribute equally and it resulted in a better payoff for the whole group. Since one Baht contributed doesn't provide at least one Baht in return ($\alpha < 1$), it is the conflict of interest that an individual will want to keep most of the money for themselves. An inequality of contribution by team members could result in free-rider because a team member who did not contribute will still get the benefit from what others has contributed. The experiment closely resembles cross-cultural experiment by Gächter, and Herrmann (2009), where they conducted the public good in Switzerland and Russia.

In order to experiment Thai people on conflict of interest between an individual and a group, the public game was designed to separate into two major sessions, N-P and P-N. In N-P session, there are two sets of games that participants must play. First step in N-P session is the N steps. In N steps, participants are not allowed to punish other team members on the contribution decision that's made to the group project. In the second step of N-P session is the P steps. This is where participants will decide on how much they will contribute to the group project, and then followed by the decision of how much they want to punish their team members for their contributions. The P-N session is identical to the N-P, but the steps are in reverse. In P-N session, is started with P step then followed by N steps.

This public good game was conducted at Mahidol University, Salaya, Nakornpathom, Thailand on January, 2012. Prior to the experiment, announcement notices were advertised in the university for any participants who wanted to participate. This public good game comprised of two sessions where 30 participants participated in each session. The first session was held on 10 a.m. while the second session was held on 12 p.m. Each session took approximately 90 minutes to complete.

On the experiment day, participants (students of all fields from Mahidol University) registered at the front of the experiment, and each of them randomly drew out their ID ranging from 1-30 from the experimenter. Each participant later entered the room and sat on the same seat ID as their received ID. Each participant was put in the group of three people, however, they did not acknowledge of who was in their group. Once in the room all participants were not allowed to communicate with each other or else they will be disqualified and no fee will be given. Each participant received instruction sheet that explains that they were given 100 Baht from the experiment and they have the right to keep if for themselves, or contribute to their group project. The instruction sheet also explains formulas and example of how the game is play, and how their earning is calculated. A control questions to check for participants' understanding about the game was given right after all the participants have finished reading the instruction sheet. Participants were give 10-15 minutes to complete the questionnaire, mistakes or any misunderstands were explained by the experimenter to make sure that participants understands how the game is played.

After participants finished answering the control questions, experimenter then gave out the "decision sheet" to allow participants to write down their contribution toward their group project. During this process, they made their decision unobserved and undisturbed by the experimenter or any other participant in the room. When this was completed experimenter collected the entire "decision sheet" and recorded it to the "earning sheet." "Earning sheet" was given back to the participants according their ID and team. In this sheet, it informed participants group member's contribution, their own, and the total earning.

Decision Sheet

ID # _____

You currently have 100 baht

You will contribute to the group project

_____ Baht

Figure 3.1 Example of “Decision Sheet”: Allows participants to decide the amount of contribution they wanted to contribute to the group project.

Earning sheet **ID # _____**

	Contribution to the group project	Earning
You		
Team member 1		
Team member 2		

Figure 3.2 “Earning sheet”: Informs participants of how much they contribute to the group, and the earning each team member received.

After step one was completed, participants were informed about the next steps of the experiment (allowing punishment). In the second step (P) a new set of instruction was given to the participants, and experimenter made sure that all participants understand. Each participant received instruction sheet that explained that they were given 100 Baht and that the first part of this second step of the experiment is identical to the experiment the participants has just completed. The difference in the second step was that, now all participants were allowed to give deduction points to their team member after learning about their contributions. Each deduction point is

equal to 3 Baht, and each participant cannot assign more than 50 deduction points to their team member. Each deduction point they assigned cost them 1 Baht. A control questions to check participants' understanding was given out, and they were given 10-15 minutes to complete all the questions.

Participants then repeated the identical procedures they did in step one, however, this time the experimenter (after collecting the decision sheet) gave out the “deduction sheet” after all participants have decided how much they decide to contribute to their group project. In this “deduction sheet” they were inform about their and their team earning, and contribution to the group project. The deduction sheet allowed participants to assign deduction points to their teams, where the cost of each point they assigned was deducted from the earning they received from the first part of the second steps.

Deduction sheet ID # _____

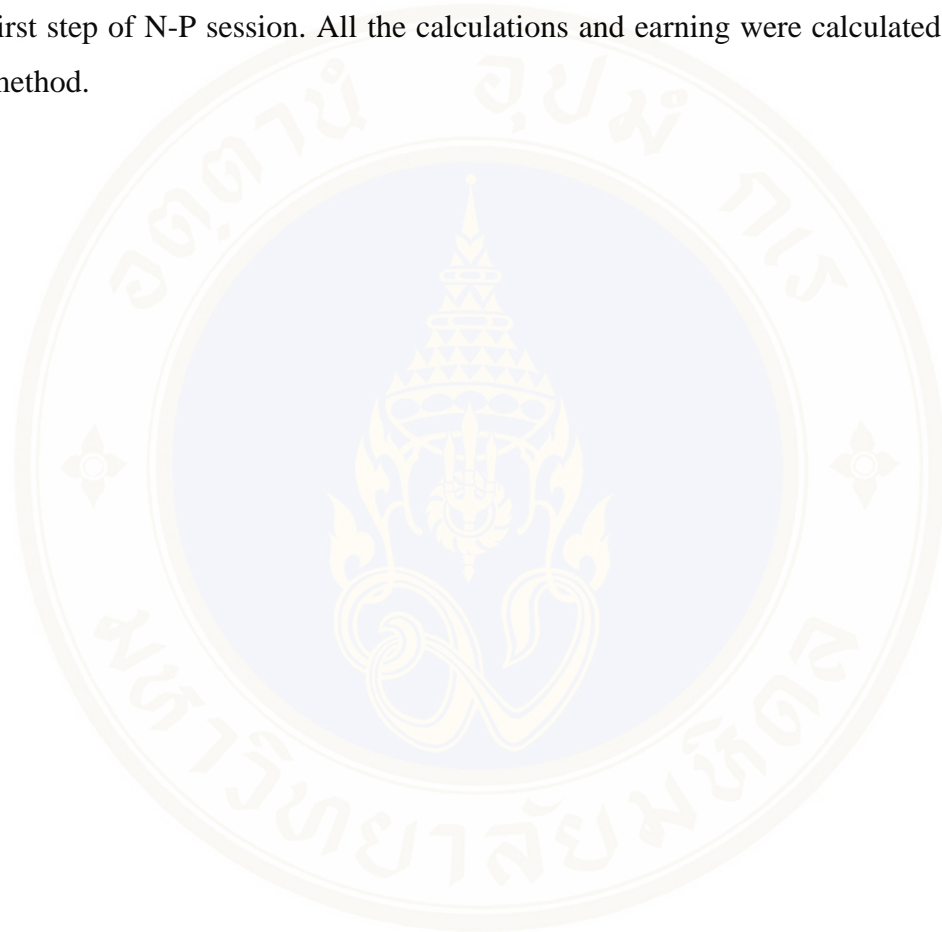
	Contribution to the group project	Earning from part 1	Deduction points
You			
Team Member 1			_____ Point
Team Member 2			_____ Point

Figure 3.3 “Deduction sheet”: it informs participants of how much they contribute to the group, and the earning each team member received, and the amount of deduction point they wanted to assign to their team member(s).

After the deduction point has been assigned, experimenter then collected all the deduction sheets and calculated participants earning from both the first steps and the second steps of session N-P. In the end participants received 50 Baht as a

show up fee plus earning from step one and plus earning from step two. After all participants received their money, session N-P is completed

Session P-N, was conducted at 12 p.m. and the experiment steps and procedure was identical to the session N-P. However, the steps were in reverse order. The first step of P-N was the second steps step of N-P, and second step of P-N was the first step of N-P session. All the calculations and earning were calculated in the same method.



CHAPTER IV

RESULTS AND ANALYSIS

4.1 Cultural Background

Thai culture and background are much differs from the past experiment conducted by Gächter and Herrmann (2009), where the experiment was conducted in Russia and Switzerland. Thailand does not share geological location, political system, religion, and history from the two countries. It is interesting to see how cross-cultural background would affect the results from the similar public good game. According to Hofstede's cultural dimension, Russia, Switzerland and Thailand show that all three cultures are located in a different background group. However, in many areas, Thailand reflects a closer resemblance to the Russian Hofstede's cultural dimension than the Swiss.

Table 4.1 Hofstede's Cultural Dimension: A comparison of cultural dimensions according to Hofstede's

<i>Country</i>	<i>Uncertainty Avoidance</i>	<i>Masculinity</i>	<i>Individualism</i>	<i>Power Distance</i>
Russia	95	36	39	93
Switzerland	56	72	69	26
Thailand	65	34	20	64

4.2 Contribution to Group Project in N-P Session

In the N-P sessions, the result from the first step of N-P sessions showed an average contribution to group project of 27.9 Baht. In the second steps where punishment was allowed, the average contribution was reduced to 25.7 Baht. On

average, contribution to group project has decreased by 2.2 Baht when punishment was allowed. The contribution ranges from 0 Baht up to 100 Baht, where 20 participants contributed between 0-33 Baht range, 9 participants contributed between 34-66 Baht, and 1 participant contributed at 67-100 in the first step of N-P session. Decrease in contribution after the punishment was allowed showed a similarity to the result from Russian cities, Belgorod and Yekateringburg. When punishment was allowed, there were 22 participants who contributed in 0-33 Baht range, 6 contributed 34-66, and 2 participant contribute on 67-100 Baht.

The result showed that the sample pool was not willing to contribute more to the group project when each participant knew that they could be punished for not contributing to the group. There could be 2 reasons explaining this outcome. First reason could be that Thailand falls in to the feminine side of Hofstede's cultural dimension, so punishment won't be as severe or harsh as masculine countries. The average punishment point was 2.06 point or about 6 Baht per person. The participants might not fear of this soft punishment. Second might be the fact that Thai sees contribution as an act of charity, something not to be forced. By being able to be punished by team members might have created the rejected feeling towards the contribution, and this made them contributed even less when punishment was allowed.

Participants were classified into three group, low, mid, and high contributors, where low contributors were lowest contributor from their group. This logic applies to mid contributors and high contributors. An assumption was made when participants in the same group contributed the same amount of money. When participants in the same group contribute at the same amount, they will be put into the same group, low, mid or high, 0-33, 34-66, 67-100 respectively. The left over participant was put according to the money he/she contributed lower or high to their team members. If two of the team members contributed to low group or high group, the left over participant was put to mid/low/high at 0-33, 34-66, 67-100 respectively. The result showed that in the low contributor group only showed an increase of contribution by 3.25 Baht when punishment was allowed. Mid group contributor has decreased their contribution by 0.83 Baht while high group decreased by 15.8 Baht. This result is relatively similar to the result from experiment conducted in Russia

where lowest contributors had a small increase contribution by 1.6 token, and mid contributors decreased their contribution (Gächter and Herrmann, 2009).

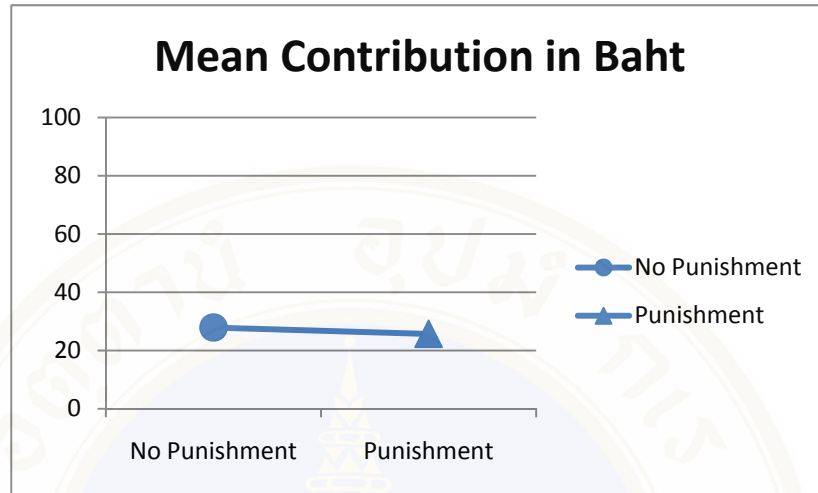


Figure 4.1 Mean Contribution for N-P Session: Graph representing mean contribution for a group project in N-P session. Y-axis represent in Baht, x-axis represents no punishment and punishment.

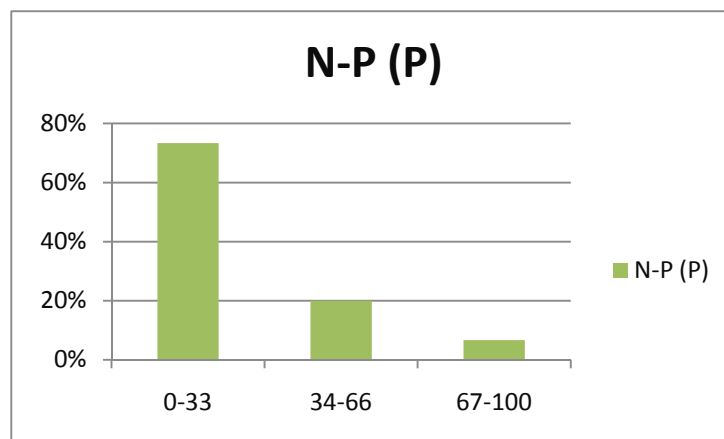
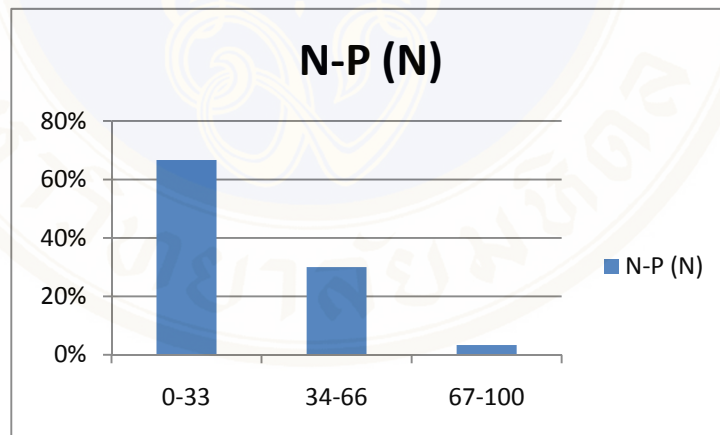


Figure 4.2 Percentage of Participants Contribution: N-P (N) graph representing percentage of participant contribution for a group project in the first step of N-P session. On x –axis participants were split into three groups from 0-33, 34-66, and 67-100. N-P (P) graph representing percentage contribution in second step of N-P session.

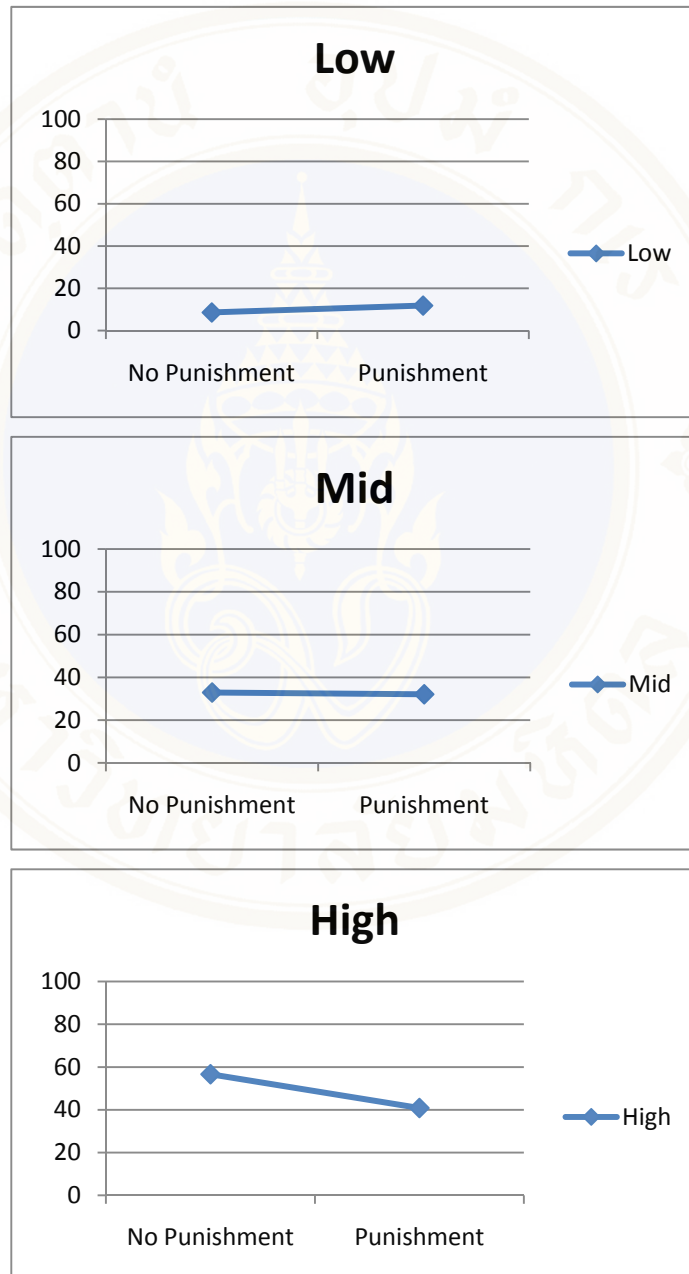


Figure 4.3 Average increase/decrease in Contribution to Group for N-P Session: X –axis is when punishment is not allowed and followed by allowed. Y-axis

represents number in Baht. Low, Mid and High graph are classified from lowest middle and maximum contributor for each group.

Considering the percentage of contribution when compared to the experiment conducted in Russia and Switzerland, Thailand has the lowest contribution percentage to the group project. Russian contributions are approximately 30-37% and the Swiss are 40-60%, and for the Thais is 25-28%. The reason for Thai and Russian to have a lower contribution to the group project could result from the social political background that comes from a moderate corrupted political system country. Thailand is ranked number 60 where Russia is ranked 113 and Switzerland is ranked 8 in world corruption ranking (World Audit, 2012).

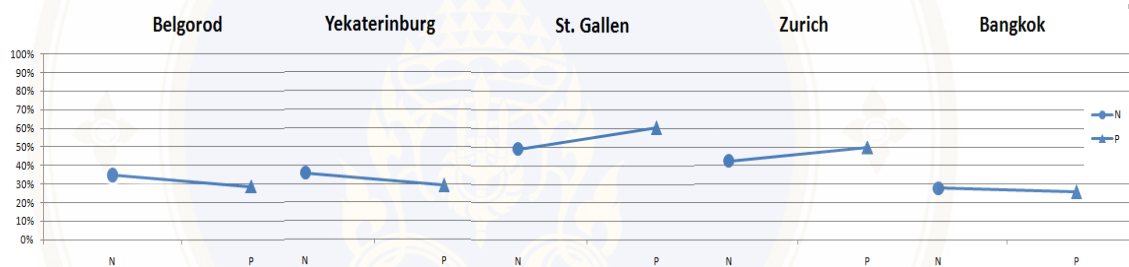


Figure 4.4 Percentage of Contribution Between 5 Cities: in Russia, Switzerland, and Thailand. It shows how much each participants pool has contributed to the group project in percentage of N-P session.

4.3 Contribution to Group Project in P-N Session

In the P-N session where participants were allowed to assign punishment points on their own cost to their team members as the first step, and no punishment at the second steps. This was basically experiment N-P session in reverse order. The result has shown that in P-N session, participants contributed on average at 32.8 Baht to the group project in the first step of the session. This is 7.1 Baht higher than the second steps of N-P sequence or when punishment was allowed in the N-P session. On the second steps of P-N, the average contribution to the group project was 22.8 Baht. This has dropped on average by 10 Baht when compare to the first step of the P-N session.

The contribution ranges from 0 Baht up to 100 Baht, where 18 participants contributed between 0-33 Baht range, 7 participants contributed between 34-66 Baht, and 5 participants contributed at 66-100 in the first step of P-N session. When punishment was taken away, there were 21 participant contributed in 0-33 Baht range, 5 contributed 34-66, and 4 participants contributed on 67-100 (figure 4.6). The number of contributors to the group project has decreased in both mid and high group, and the low group has increased by 10% when punishment was taken away.

We can see from the graph (figure 4.5) that second session when punishment was the first step, participants contributed more to the group project when compared to the N-P session. This showed that, punishment might be more effective if declared before than after because participant might beware of the consequences.

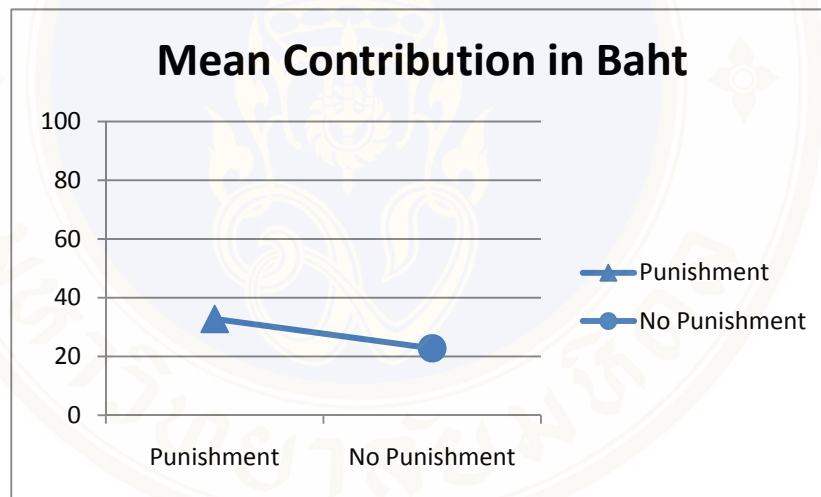


Figure 4.5 Mean Contribution for P-N Session: Graph representing mean contribution for a group project in P-N session. Y-axis represent in Baht, x-axis represents no punishment and punishment.

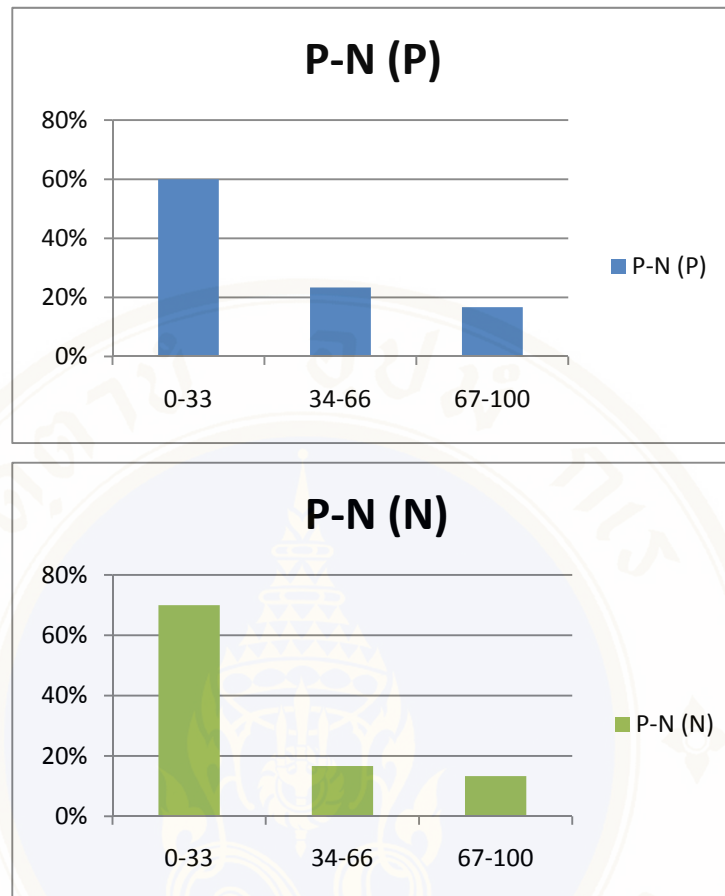


Figure 4.6 Percentage of Participants Contribution: P-N (P) graph representing percentage of participant's contribution for a group project in the first step of P-N session, on x-axis participants were split into three groups from 0-33, 34-66, and 67-100. P-N (N) graph representing percentage contribution in second step of P-N session

Participants were classified into three groups, low, mid, and high contributors, where low contributors were the lowest contributors from their group. This logic applies to mid contributors and high contributors. An assumption is the same as the assumption given above. The result showed that on average the low contributor group only increased their contribution by 1.92 Baht when punishment was taken away. It's the mid group and high group that contribution to the group project dropped over 10 Baht when punishment was taken away. In the mid group, contribution has dropped by 15 Baht and high group contribution has dropped by 20 Baht.

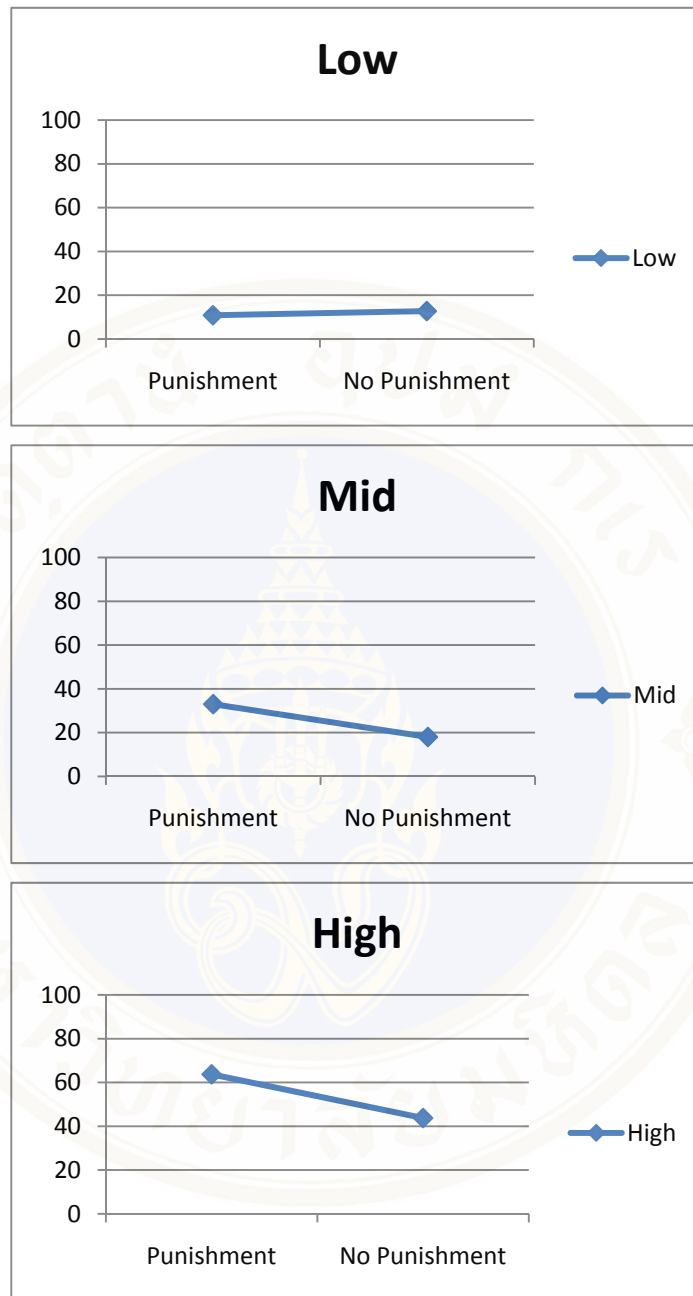


Figure 4.7 Average increase / decrease in Contribution Group for P-N session: X-axis is when punishment is allowed and followed by not allowed. Y- Axis representing number in Baht. Low, Mid and High graphs are classified from lowest, middle, and maximum contributor for each group.

Considering the percentage of contribution when compared to the experiment conducted in Russia and Switzerland, Thailand has the lowest contribution percentage to the group project, at 33% when there is punishment, and 23% when

punishment wasn't allowed. Russian contributions are approximately 30-40% and the Swiss are 40-50%.

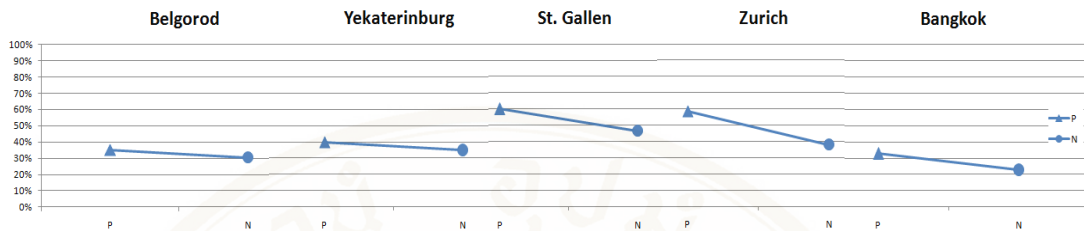


Figure 4.8 Percentage of contribution between 5 Cities: in Russia, Switzerland, and Thailand. It shows how much each participants pool has contributed to the group project in percentage of P-N session.

In P-N session, first step, the average punishment point was much higher than the N-P, second step. The average punishment point was at 11.03 point. However, in this high average resulted from only 3 participants that deducted more than 30 points to their team member. We can see that the majority of concentration for deduction point given was between 0-10 Baht.

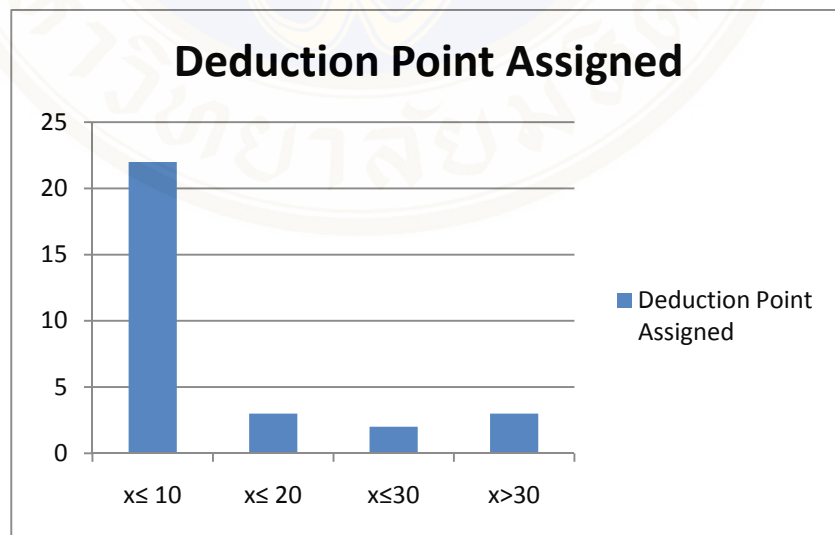


Figure 4.9 Deduction Point: It shows concentration of deduction point given to the team member. Y-axis representing number of participants, x-axis represent deductin point given to team members.

Results from the public good experiment in Thai sample have a unique character of its own. It suggested that Thai, if not aware of any future punishment or consequence will not likely to contribute to the group project. The result shown in both experiments N-P and P-N that Thai sample group contributed on average the least when compared to the contribution of the past experiments by Gächter and Herrmann (2009) Thus, if punishment was later put into the equation, the sample group did not punish their team member as harsh as the western culture; 2.06 points for N-P and 11.03 for P-N. This suggested that Thai might expect that the punishment will not be as harsh. On the other hand if punishment was the first step, and make the sample group aware of the consequences, the average contribution raised from 27.93 Baht in first step of N-P, to 32.8 in first step of P-N. When punishment was taken away, the average contribution dropped by 10 Baht in P-N. This suggested that if the objective of any project that wants to increase the contribution to the group project, or any public goods, punishment or consequences must be announced to the Thai people for a higher contribution. Thus, the punishment or consequences should not be taken away or else the contribution will drop significantly.

CHAPTER V

CONCLUSION

This public good experiment that was conducted with 60 participants from Thai university sample pool. The experiment was divided into two sessions N-P and P-N, where there were 2 steps in each session. The experiment has revealed that over 60% of this participants group, either in N-P or P-N session were not willing to donate more than what they initially received. The trend for contribution to the group project in the N-P and the P-N session were also in the opposite direction. In N-P, the contribution to the group project was higher when no punishment was allowed at 27.93 Baht where when punishment was allowed, the contribution dropped to 25.73 Baht. This might have puzzled the experimenter expectation because under the given condition that allowed to receive punish from their team, the average contribution to the group project should be higher. However, this result is somewhat similar to the result for the two Russian cities, Belgorod Yekaterinburg. There could be 2 reasons explaining this outcome. First reason behind could be that Thailand falls in to the feminine side of Hofstede's cultural dimension, so punishment won't as severe or harsh as masculine countries. This could made our sample pool expected a soft punishment and they were not afraid of it. Second might be the fact that Thai see contribution as an act of charity, something not to be forced. By being able to be punished by team members might have created the rejected feeling towards the contribution, and this made them contributed even less when punishment was allowed. For P-N session, the contribution for the group project on average was 10 Baht higher than no punishment. When punishment steps was put as the first step, contributors contributed on average at 32.80 Baht, while when punishment was taken away or steps 2, the contribution dropped to 22.77 Baht on average. The result from this is what we have expected since there will be and incentive for participants to maximize their own earning when they know that their team member cannot punish them. The result from

P-N session is similar to the result conducted by Gächter and Herrmann (2009), where they conducted their experiment in 4 cities, in Russia and Switzerland.

The experiment revealed that the subject pool was not harsh in assigning deduction point to their team members. In an N-P session, the average punishment point was only 2.06, where in P-N session the average punish point was 11.03. Arguably, 11.03 can be considered as moderate punishment; however, if we were to investigate closely into the data, there were only 3 participants that deducted their team member more than 30 points. This pulled the average up. On the other hand, up to 17 participants assigned less than 5 deduction points to their team members. It revealed that when it comes to punishment, Thai can be considered as kindhearted, and does not want to punish other as harsh as what they deserve.

From the experiment, it suggested that it will be more effective to set up the punishment and makes the sample group aware of the consequence than not setting up the punishment and later set up the punishment. This has many implications toward government and many corporate in Thailand. In order to maximize the group benefits instead of individual interest, laws and regulations should be stated clear, and it should be enforced strictly. The consequence and punishment should also be announced to make sure that Thais understands it. This will result in a better cooperation in the community or society that does not stated the laws and regulation clearly, thus, later setting a strict laws or regulations. From the experiment, it suggested that Thais are not or does not put great concerns to the new punishment if the action is already taken. Moreover, Thais themselves are kind hearted, which makes the punishment even more ineffective. There were many great examples in the past that could be improved if there were more cooperation within the society. In 2011, Thailand has faced a catastrophic flood, and many individuals and communities has abandoned the group benefit for their own. For example, flooded community destroyed “Big Bag” just to make neighboring communities flood as well. Government officials blaming opposition officials for delaying flood reliefs or flood policies. If only a better punishment or regulation was stated before the incident happened, it could resulted in a better cooperation and lessen the severity of the 2011 flood.

More examples can be seen in many villages and condos. Most villages and condos will charge common fee which they will use this fee to collect trash,

maintenance of roads, sport clubs, garden, swimming pool, and etc. However, there will always be somebody who free ride this fee and enjoy the benefits from other people payment. If there were enough people who free ride the fee it will affect the overall quality and environment of that particular village or condo. Again, rules, consequences, and punishments should be stated clearly to prevent these free riders.

Another crucial example can be seen in many companies. All company can't expect every employee to cooperate and contribute equally, someone will always free ride. What these companies should do is to make each employee sign the contract and warn them of the consequence for free riding others. Another example is the fast turnover rate of employees we see in many firms; where employee likely to moves for a better pay. What happened is that when an important employee moves, firm will be left with vacancy position, lack of know-how, and have to train new employee to replace the leaving one which result in slower growth, and increase in cost, and a tougher tasks for the ongoing employees. This is a great example of conflict of interest between employee and the firm. What these firm should do to increase the cooperation and teamwork is to make each employee sign the contract.

In conclusion, Thais have shown that they have low cooperation level. To increase cooperation level punishment and consequence should be stated clear, and make sure Thais are aware of it. Thais, if left alone with no punishment and consequences, the cooperation level is considerably low. If punishment was added later, Thais cooperation will be even deteriorating.

BIBLIOGRAPHY

- Carpenter, J.P., Daniere, A.G., & Takahashi, L. M. (2004). Cooperation, trust, and social capital in Southeast Asian urban slums. *Journal of Economic Behavior & Organization*, Vol. 55, 533-551. doi:10.1016/j.jebo.2003.11.007
- Cubitt, P. R., Drouvelis, M., Gächter, S., & Kabalin, R. (2011). Moral judgments in social dilemmas: How bad is free riding?. *Journal of Public Economics*, 95, 253-264. doi:10.1016/j.jpubeco.2010.10.011
- Fehr, E. & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, Vol 415
- Fehr, E. & Gächter, S., & Kirchsteiger, G., (1997). Reciprocity as a Contract Enforcement Device: Experimental Evidence. *Econometrica, Econometric Society*, vol. 65(4), pages 833-860, July.
- Fischbacher, U., Gächter, S., & Fehr, E. (2001). Are people conditionally cooperative? Evidence from a public goods experiment. *Economics Letters*, 71, 397-404.
- Gächter, S. & Herrmann B. (2009). Reciprocity, culture and human cooperation: previous insights and new cross-cultural experiment. *Phil. Trans. R. Soc. B*, 364, 791-806.
- Gächter, S., Nosenzo, D., Renner, E., & Sefton, M. (2010). Sequential vs. simultaneous contributions to public goods: Experimental evidence. *Journal of Public Economics*, 94, 515-522. doi:10.1016/j.jpubeco.2010.03.002
- Gintis, H., Bowles, S., Boyd, R., Fehr, E. (2003) Explaining altruistic behavior in humans. *Evolution and Human Behavior*, 24, 153-172. doi:10.1016/S1090-5138(02)00157-5
- Glaeser, E., Laibson, D., Scheinkman, J., Soutter, C., 2000. Measuring trust. *Quarterly Journal of Economics* 115, 811–846.
- Hamilton, W. D. (1964). Genetical evolution of social behavior
I, II. *J. Theor. Biol.* 7, 1–52.

- Hammerstein, P. (ed.) (2003). Genetic and cultural evolution of cooperation. Cambridge, MA: The MIT Press.
- Herrmann, B., Thöni, C., & Gächter, S. (2008). Antisocial Punishment Across Societies. *SCIENCE*, Vol 319, 1362
- Hirschey M. (2009). *Managerial Economics*. Canada: South-Western
- Hofstede G., "The Position of the 40 Countries on the Uncertainty Avoidance and Masculinity Scales," *Culture's Consequences*, published by Sage Publications, Inc., 1990.
- Parker, Randall E. (2002), Reflections on the Great Depression, Cheltenham: Edward Elgar, p. 25, ISBN 1843763354
- Paul A. Samuelson (1954). "The Pure Theory of Public Expenditure". Review of Economics and Statistics (The MIT Press) 36 (4): 387–389. doi:10.2307/1925895. JSTOR 1925895.
- The World Fact book*. (2011). Retrieved June 1 from <https://www.cia.gov/library/publications/the-world-factbook/geos/th.html>
- Thöni, C., Herrmann B., & Gächter, S. (2004). Trust, voluntary cooperation, and socio-economic background: survey and experimental evidence. *Journal of Economic Behavior & Organization*, Vol. 55, 505-531. doi:10.1016/j.jebo.2003.11.006
- World Audit*. (2012). Retrieved January 15 from <http://www.worldaudit.org/corruption.htm>

BIOGRAPHY

NAME Kong Ek-Ak

DATE OF BIRTH 03 October 1985

PLACE OF BIRTH Bangkok, Thailand

INSTITUTIONS ATTENDED Mahidol University International College,
2004-2008
Bachelor of Science (1st Hon.)
(Biomedical Science)
Mahidol University, 2009-2012
Master of Business Administration
(Business Modeling and Analysis)

HOME ADDRESS 234/1 soi G14 Moo Baan Summakorn,
Rarmkarmhen 110, Sapansung, Bangkok
10240
Tel. 088-607-5888
Email: rotoota@hotmail.com

PUBLICATION / PRESENTATION “Cooperation and Antisocial Punishment:
A Public Good Experiment in Thailand”
Mahidol University Presentation on
February 4, 2012