An experimental study on internal and external negotiation for trade agreements.

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Abstract

This paper experimentally studies the performance of negotiation considering individual and party, like a country, share of benefit over the best ones. It experiments two-stage bargaining games, internal and external negotiations. From the experimental results, this paper shows strong tendency to select fair allocation in the internal negotiations, but the tendency would be weaker with attractive outside option. In addition, the outside option may claim difference in individual benefit. From the regression on individual performance in the negotiations, being a proposing party would matter to enhance the performance. However, relative individual performance within party fairness matters. Still attractive no agreement options happen to break the tendency. As policy implication for trade negotiation, this paper warns that possible loss in individual benefit from not active participation to the external negotiations, no active role of proposer in case that players stick to internal allocations, and possible deviation by advantageous sector due to attractive outside option.

Ⅰ. Introduction

Trade liberalization happens to make a winner or loser within countries. As argued by Ricardian, Hecksher-Ohlin, and other trade models, there would be no doubt that trade liberalization create benefit for countries implemented such policy. However, since trade liberalization demands specializations on more efficient sectors within country, relatively less efficient sectors inevitably have less resources allocated and thus less preproduction. It is said that trade liberalization would enhance efficiency by allowing production resource within country to be allocated in proper sectors in production but it would exasperate the fairness between sectors within a country.

Since the trade negotiation results in serious gap between sectors that is why the trade liberalization is hard to implement. Uruguay Round had to go through eight- year long negotiations, and the Trans-Pacific Partnership agreement, only with 12 countries, also took almost eight years to be concluded.

This paper experimentally studies the performance of negotiation considering individual and party, like a country, share of benefit over the best ones. The experimental design for this paper considers two-stage bargaining games, internal and external negotiations. The first stage, internal negotiation, is designed to be an internal negotiations between two players. One of the two players is called power player, who would be advantageous position on the allocation of fixed amount benefit compared to other player, non-power player. The second stage of the games, external negotiation, is a divide-the dollar games between two power players in each party. The power player who had better position in allocation of benefit participate in the external negotiation as a representative of each party. In the end, share of benefit to each party would be determined by the performance at the external negotiation, and the share attributed to each party would be divided by the allocation determined at the internal negotiation.

From the experimental results, this paper is to analyze the aspects of internal and external negotiations. This paper studies (1) allocation of benefit as the result of internal negotiations, (2) share of benefit to players, and (3) factor to affect performance of external or internal negotiations on the trade negotiations. From the analyses, we can have policy implications on trade negotiations in that how to start and purse the trade negotiations considered internal and external negotiations.

Baron and Ferejohn (1989) identifies the equilibrium in noncooperative multilateral bargaining games and shows the proposing power in the legislative bargaining. Morelli (1999)'s demand bargaining game shows the limited proposing power under a various rules. Winter (1996) added the power of veto right to the Baron and Ferejohn (1989). As experimental studies on bargaining, Frechette, Kagel, and Lehrer (2003) experiments Baron and Ferejohn (1999), and Frechette, Kagel, and Morelli (2005a, 2005b, 2005c) compares Gamson (1961), Baron and Ferejohn, and Morelli (1999) with diverse experimental settings. Those show the qualitatively similar but quantitatively different between experiments and the theories. Kagel, Sung, and Winter(2010), Sung (2012, 2015a) discuss veto player games based on Baron and Ferejohn (1989) and Winter (1996). Those show the strength of veto compared to proposing power, weighted multiple votes. In particular, Sung (2015a) applies the experimental results on games with veto players on the trade negotiations by identifying learning mechanism in the process of negotiations. Sung (2015b) experimentally analyzes the Trans-Atlantic Trade and Investment Partnership (TTIP) using the two stage games. It sees determinants to bring better agreement in internal negotiations and factors to affect absolute size of individual prize for the TTIP. Sung (2015) studies the agreement in the internal negotiation would result in higher payoff for players. Although this paper use the same experimental data with Sung (2015b), However, Sung (2015b) does not show relative performance of individual players. In addition, this paper tries to compares allocations between different type of experiments and relative performances between internal and external distribution of benefit.

The rest of this paper is organized as follows: Section II provides describes the experimental design, and Section III shows conclusions from the experimental results. Section IV provides the policy implications and Section V does concluding remarks.

Ⅱ. Experimental Design[1]

The experimental design for this paper is identical to Sung (2015b). While Sung(2015b) focus on the aspect of the TTIP negotiations, but this paper consider the relative individual performance compared to the best ones or parties performance.

[1] This chapter summarizes the experimental design in Sung(2015b)

This paper sees three types of experiments, called Exp1, Exp2, and Exp3. In each experiment, four or five teams play together.[2] The number of subjects in each experiment are 20 to 36. Each team consists of two parties, and each party has two players. One of the two players is called a power player who can obtain benefits greater than or equal to those of another player (non-power player) in the party at the internal negotiation. The power players as representative negotiators take part in external negotiations with other parties.[3] The role of players are randomly and fairly assigned by casting a dice as typical experimental designs. Players in each team supposedly do not know each other.

<Table 1> Basic experimental designs

	Exp1	Exp2	Exp3
Number of subjects	32	36	20
Discount factor to the benefits (external negotiation)	0.5	0.95	0.5
Number of teams	8	9	5

Source: Sung (2015b)

When subjects starts a Game, players start to be at the internal negotiations. For the internal negotiations, each player chooses one allocation out of six simultaneously without any communication.[4] As shown in Table 2, the six allocations on the benefits are displayed to each players. As the allocation number increases, those become more equal distributions up to the equalized distribution between power and non-power players in the internal negotiations.

If players in a party choose the same allocation without any communications, experimenters tell them that they are in agreement. This means that outcome of the external negotiation would be distributed as the agreed allocation. If not, then experimenters would tell players that they are not in agreement. The disagreement makes players end up with a designated allocation in

[2] Exp 1 and 2 consist of two sessions and Exp 3 does one session. Each sessions consists of four to five teams.

[3] External trade negotiations are generally pursued by advantageous sectors, so this paper set the power on the representative in the external negotiations.

[4] Even though no direct communication is allowed within team, players could indirectly communicate with each other by looking at the result and respond to others' decisions in the repeated Games and rounds.

each experiment. It may be worse one than agreed allocations.[5]

External negotiations start right after the internal ones were wrapped up. External negotiation is to divide a fixed amount of money between parties. Power player come to the external negotiations as a representative of his party. Two power players take seats, and one of the two is randomly chosen as a proposer who suggests the division of the money between parties.

<Table 2> Available allocation at the internal negotiations

Allocation of benefits			Share to power players	Share to non-power players
Allocation 1			100%	0%
Allocation 2			90%	10%
Allocation 3			80%	20%
Allocation 4			70%	30%
Allocation 5			60%	40%
Allocation 6			50%	50%
No agreement	Exp1	Games 1~6	30%	15%
		Games 7~12	20%	10%
	Exp2	Games 1~6	30%	15%
		Games 7~12	20%	10%
	Exp3	Games 1~6	60%	30%
		Games 7~12	40%	20%

Source: Sung (2015b)

As a power player is chosen as a proposer, he or she keeps the role until the external negotiation is over. Proposers write down the division of money without any communication, the power player (partner), who is not chosen as a proposer, may accept or reject the suggested

[5] For Exp 3, from Game 1 to 6, this may be equal to or better than allocation 5 or 6 for power player.

division. If the division is agreed, then the external one is over, and the agreed division is implemented to parties. The amount allocated to one party in the implemented division is distributed to each player as the result of internal negotiation. If the non-proposer power player rejects the suggested offer in the external negotiations, then the negotiation moves to another round. As they move to another round, the proposer suggests a new division of the pie, which is shrunk by 50% (in Exp1 and Exp3) or 5% (in Exp2). In the round, the partner may accept or reject the division. If the new division is rejected again, then the external negotiation would start another round. This process repeats until a division is accepted or the process reaches the deadline, which may be 5 rounds (in experiments 1 and 3) or 10 rounds (in experiment 2). In the case of no division being accepted by the final round, no one has any positive pie.

Three experiments were conducted: two sessions for Exp 1 and 2, and one for Exp 3. In each session, four or five teams played together, and no activity was allowed between teams. Experimental subjects were recruited through bulletin boards at the University of Seoul and its official website. All subjects were students at the University of Seoul, who took at least an economics courses previous or current semester. Before they started cash experiments, they went through instructions and allowed to practice through an exercise experiment. The experiments took an hour to complete. The subjects played 12 cash games (one game consisted of an internal and external negotiation). Because the pace of playing each Game varied according to the team, they resumed Games together after the completion of six Games. After all games were finished, one out of a total of 12 games was randomly chosen for payoff purposes. They were paid KRW 10,000 (around USD 9) for their attendance and participation in the selected game. According to the ethical guide and regulation from the National Research Foundation (NRF), no one would get negative benefits as a result of attending experiments.

Because the proposer's role did not change at the external negotiations, the negotiations are likely to be an ultimatum game. Therefore, the ex-post expected payoff of the proposer at the external negotiations was KRW 80,000 (about $80.), and the ex-ante expected payoff was KRW 40,000. Then, at the internal negotiations, the subjects were theoretically predicted as power players who would be negotiators at the external negotiations and were supposed to take a larger share of the pie than non-power players.

<Table 3>Total money available at the external negotiation

(Unit: KRW 1000)

	Exp 1	Exp 2	Exp 3
Round 1	80	80	80
Round 2	40	76	40
Round 3	20	72.2	20
Round 4	10	68.6	10
Round 5	5	65.2	5
Round 6		61.9	
Round 7		58.8	
Round 8		55.9	
Round 9		53.1	
Round 10		5.09	

Ⅲ. Experimental results

This paper shows a series of conclusions from the experimental results as typical experimental literatures.

Conclusion 1: *Players prefer to select more equal allocations than others. The frequency to select most fair one, Allocation 6, would not be statistically different with different delay cost in the external negotiations. However, with attractive compensation on no agreement in the internal negotiations, players prefer to select relatively more unequal allocations in Exp 3 than those in Exp 1 and 2.*

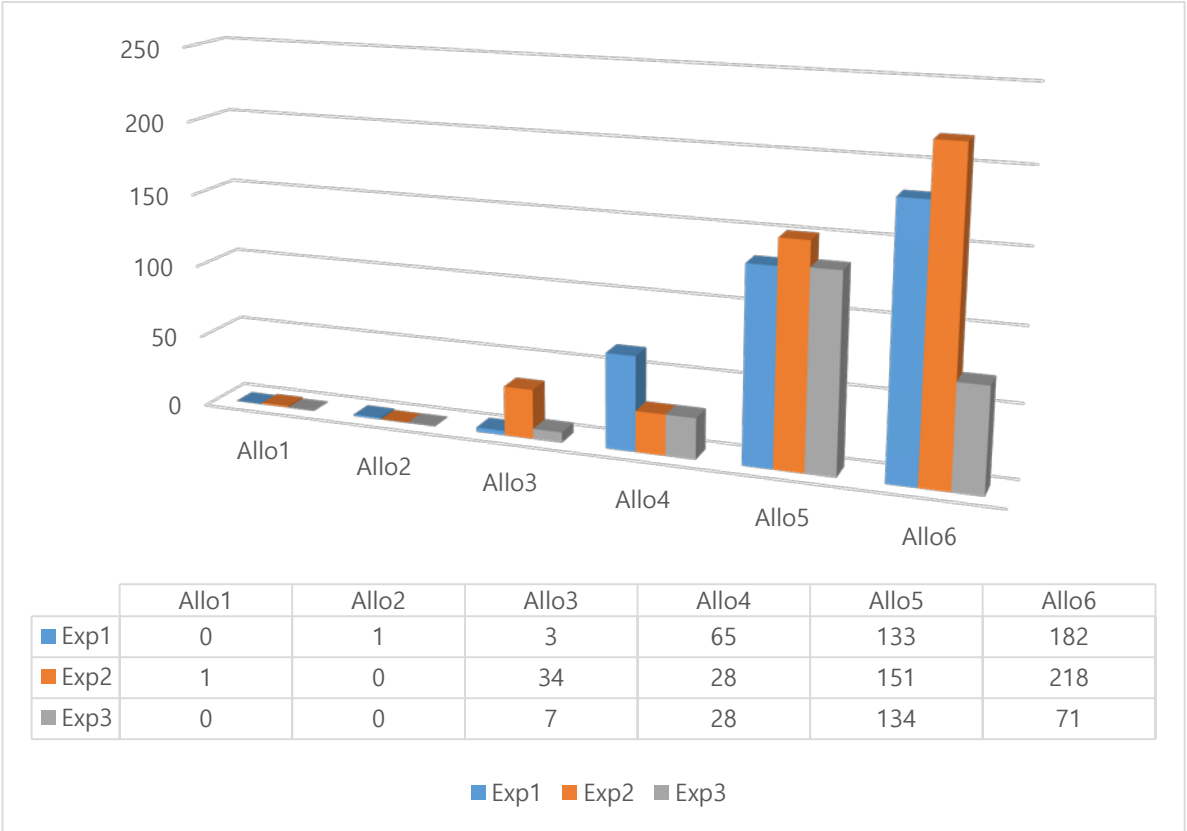
As shown in Fig. 1, frequency of allocation 6 in Exp 1 [Exp 2] is about 36.8 [44.4]% larger than that of allocation 5 in Exp 1, and selection on allocation in Exp1 and 2 are not statistically different (5.28 vs 5.27, on average). Figure 2, 3, and 4 show the relative frequency of proposed allocations over Game.

Using the relative frequency of allocation over Game has similar result in Exp 1 and 2, as players repeat Games, the frequency of selecting Allocation 6 gets steadily higher and that of other allocation gets lower. The frequency of selecting Allocation 6 in Exp1 and 2 is not

statistically different each other (z=1.28), but unlike Exp 1, in Exp 2, the relative frequency stays 50% level for the last seven Games. Interestingly, frequency of allocation 4 is strictly lower in Exp 2 than Exp 1. For Exp 3, the frequency of allocation 5 is even larger than that of allocation 6 in Exp 1 and 2 (z=-2.722, p-value<0.01, and z=-1.702, p-value<0.05, one-tailed Mann-Whitney Test). In Exp 1 and 2, the frequency from Game 1 to 6 has a bit larger than that from Game 7 to 12 due to the difference in penalty on no agreement. However, in Exp 3, difference of the frequency is evident in Figure 4. It is suspected that the allocation on no agreement in Exp is was equal to allocation 5 for power players for Game 1 to 6, but it became even worse than Allocation 6 from Game 7 to 12.

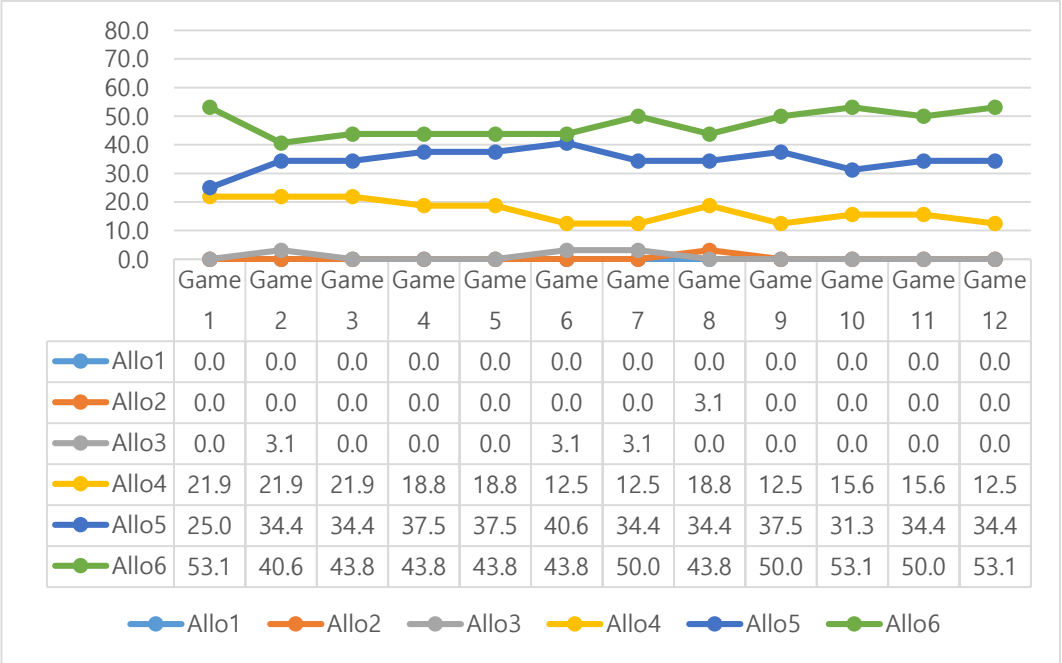
As expected, the selection on allocation in Exp 3 is more unequal than Exp 1 and 2 (z=3.00, p-value<0.01, and z=4.00, p-value<0.01, one-tailed Mann-Whitney Test). It is due to the existence of an attractive no agreement option in Exp3 consider that the probability to reach agreement in Exp 1 and 2 are 73. 4 and 71.3%, so those are larger than that in Exp 3 (62.5%).

<Figure 1> Frequency of Proposed Allocations



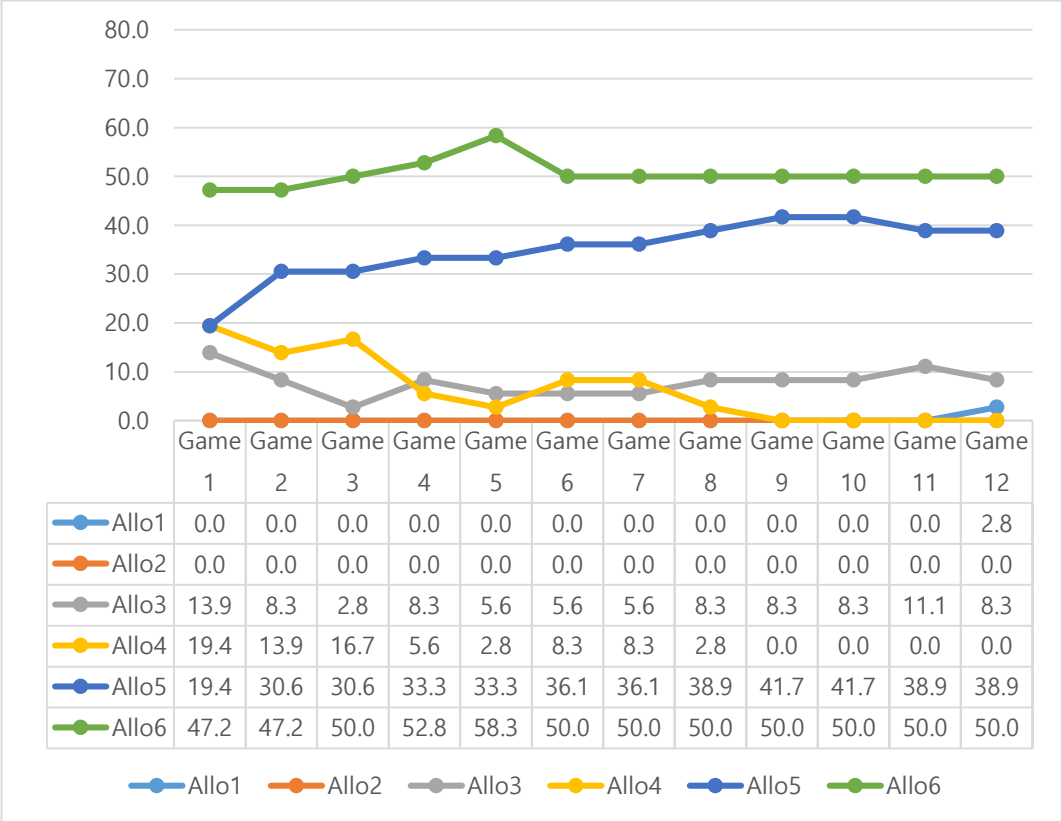
	Allo1	Allo2	Allo3	Allo4	Allo5	Allo6
Exp1	0	1	3	65	133	182
Exp2	1	0	34	28	151	218
Exp3	0	0	7	28	134	71

<Figure 2> Relative Frequency of Proposed Allocations in Exp 1



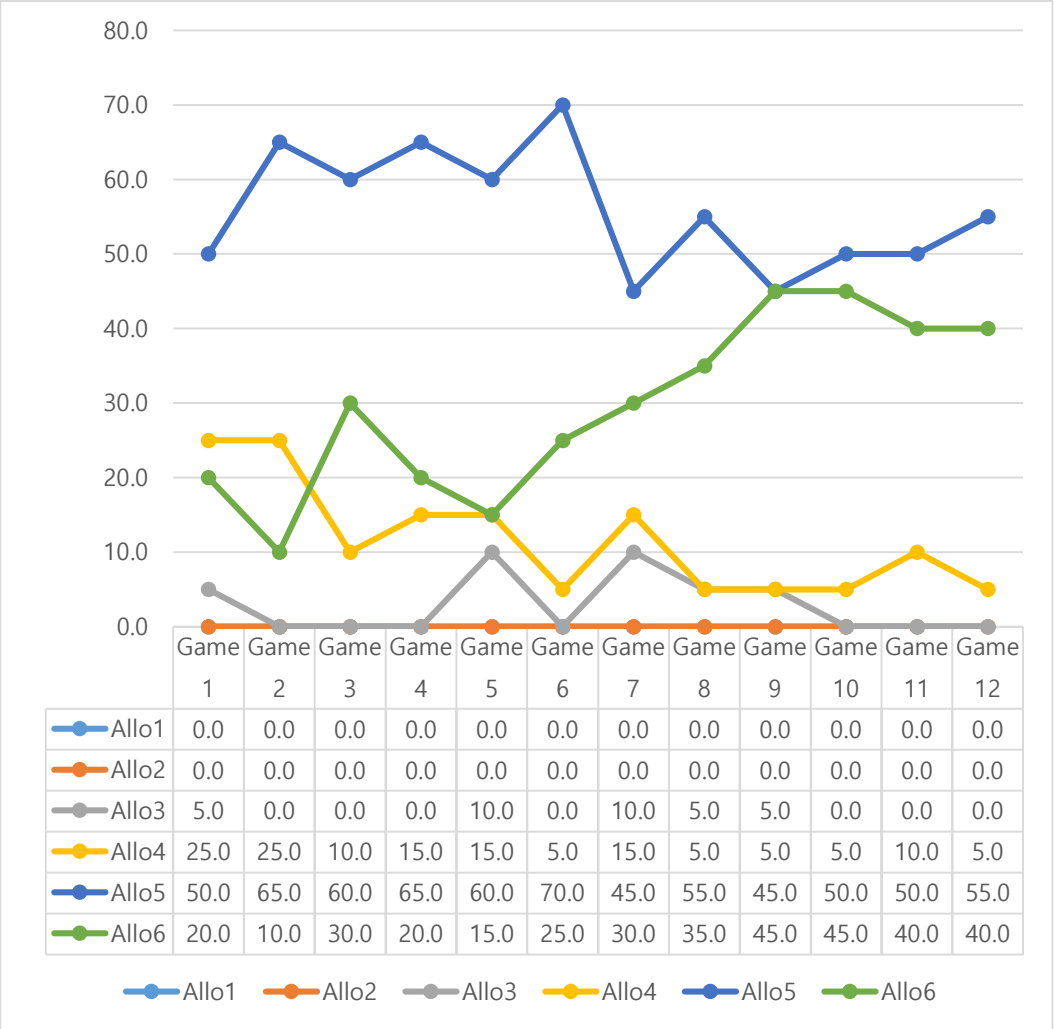
	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Game 9	Game 10	Game 11	Game 12
Allo1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allo2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0
Allo3	0.0	3.1	0.0	0.0	0.0	3.1	3.1	0.0	0.0	0.0	0.0	0.0
Allo4	21.9	21.9	21.9	18.8	18.8	12.5	12.5	18.8	12.5	15.6	15.6	12.5
Allo5	25.0	34.4	34.4	37.5	37.5	40.6	34.4	34.4	37.5	31.3	34.4	34.4
Allo6	53.1	40.6	43.8	43.8	43.8	43.8	50.0	43.8	50.0	53.1	50.0	53.1

<Figure 3> Relative Frequency of Proposed Allocations in Exp 2



	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Game 9	Game 10	Game 11	Game 12
Allo1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Allo2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allo3	13.9	8.3	2.8	8.3	5.6	5.6	5.6	8.3	8.3	8.3	11.1	8.3
Allo4	19.4	13.9	16.7	5.6	2.8	8.3	8.3	2.8	0.0	0.0	0.0	0.0
Allo5	19.4	30.6	30.6	33.3	33.3	36.1	36.1	38.9	41.7	41.7	38.9	38.9
Allo6	47.2	47.2	50.0	52.8	58.3	50.0	50.0	50.0	50.0	50.0	50.0	50.0

<Figure 4> Relative Frequency of Proposed Allocations in Exp 3

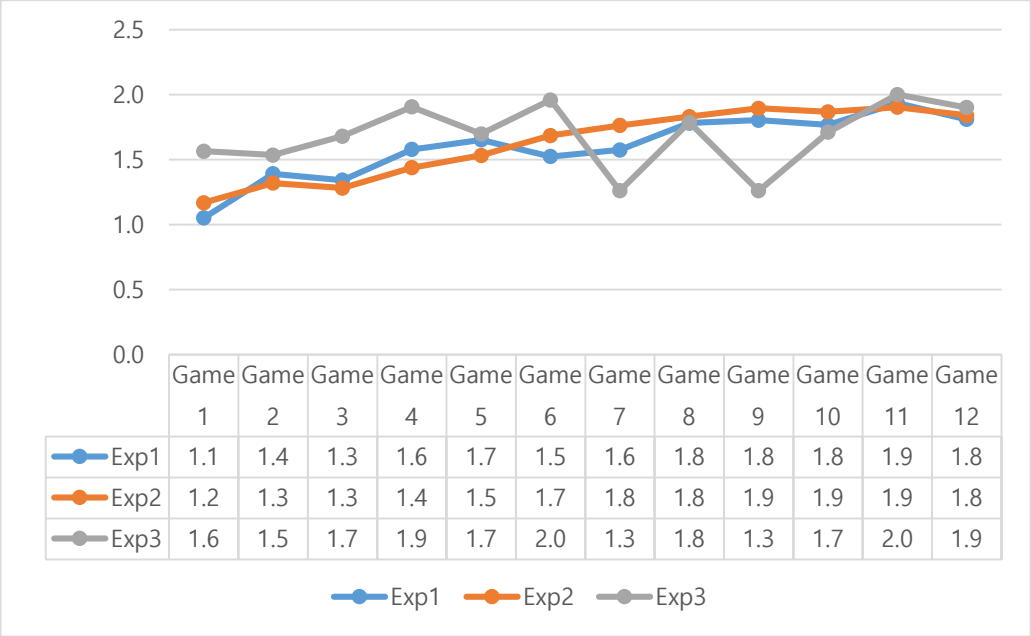


	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Game 9	Game 10	Game 11	Game 12
Allo1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allo2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Allo3	5.0	0.0	0.0	0.0	10.0	0.0	10.0	5.0	5.0	0.0	0.0	0.0
Allo4	25.0	25.0	10.0	15.0	15.0	5.0	15.0	5.0	5.0	5.0	10.0	5.0
Allo5	50.0	65.0	60.0	65.0	60.0	70.0	45.0	55.0	45.0	50.0	50.0	55.0
Allo6	20.0	10.0	30.0	20.0	15.0	25.0	30.0	35.0	45.0	45.0	40.0	40.0

Conclusion 2: *Share of benefit to the parties in Exp 1 and 2 are not statistically different from each other. However, that in Exp 1 and 2 are larger than that in Exp3. Although no statistically difference in share to each players between Exp 1, 2, and 3, its difference were clear as the allocation for no agreement at the internal negotiation has changed. In particular, considered agreed or not agreed allocations separately, the differences in individual share were observed.*

The share of benefit to the party in Exp 1 and 2 are statistically larger than that in Exp 3 at 6% and 1% significance level (Mann-Whitney Test). In particular, the individual share of benefits for agreed or not-agreed were not statistically different from each other. From Game 1 to 6, players had larger share of benefit in Exp 3 than Exp 1 or 2 ($z=-2.672$, $p<0.01$; $z=-2.729$, $p<0.01$, Mann-Whitney one-tailed test).

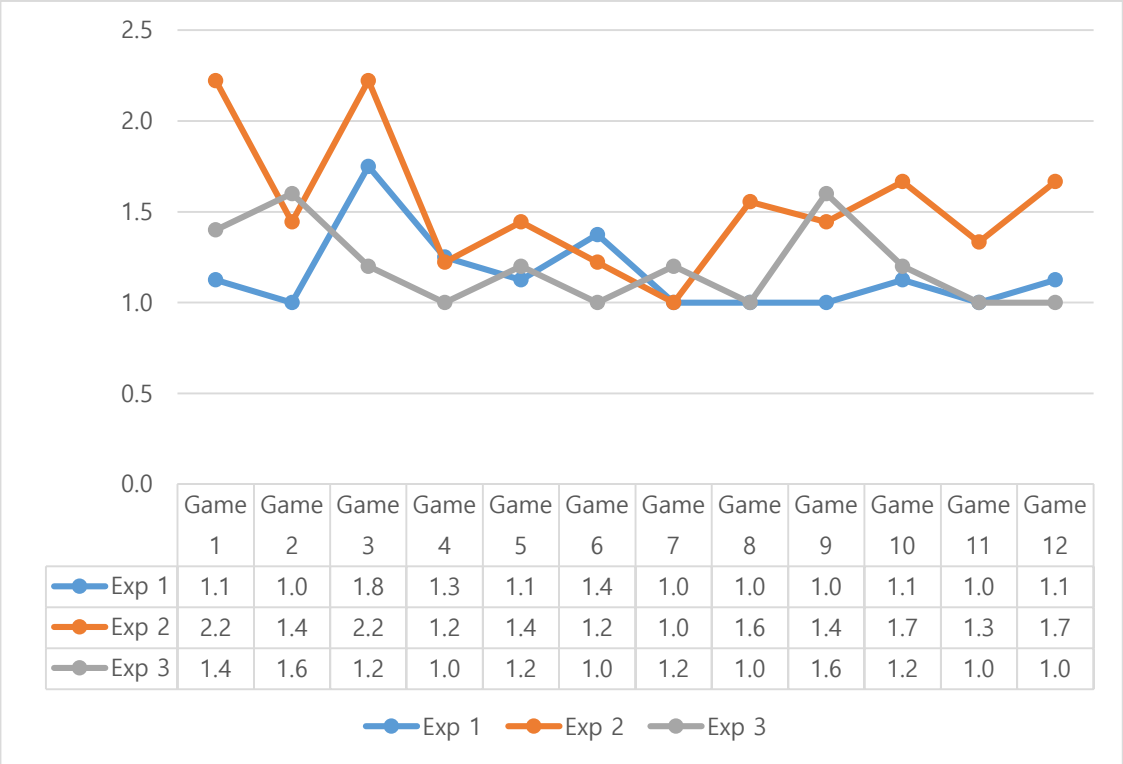
<Figure 5> Individual Share of Benefit



	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Game 9	Game 10	Game 11	Game 12
Exp1	1.1	1.4	1.3	1.6	1.7	1.5	1.6	1.8	1.8	1.8	1.9	1.8
Exp2	1.2	1.3	1.3	1.4	1.5	1.7	1.8	1.8	1.9	1.9	1.9	1.8
Exp3	1.6	1.5	1.7	1.9	1.7	2.0	1.3	1.8	1.3	1.7	2.0	1.9

Looking at the individual share of benefit only when the allocation at the internal negotiation is on agreement, individual shares in Exp 1 and 2 are larger than Exp 3.(p-value<0.01). However, there were no statistical difference of individual share between Exp 1 and 2. For allocations with no agreement, individual shares in Exp 1 and 2 are smaller than Exp 3 (p-value<0.01), which bring benefits as attractive as allocation 5 for power players.

<Figure 6> Round at the External Negotiations



	Game 1	Game 2	Game 3	Game 4	Game 5	Game 6	Game 7	Game 8	Game 9	Game 10	Game 11	Game 12
Exp 1	1.1	1.0	1.8	1.3	1.1	1.4	1.0	1.0	1.0	1.1	1.0	1.1
Exp 2	2.2	1.4	2.2	1.2	1.4	1.2	1.0	1.6	1.4	1.7	1.3	1.7
Exp 3	1.4	1.6	1.2	1.0	1.2	1.0	1.2	1.0	1.6	1.2	1.0	1.0

Conclusion 3: *For individual performance, which is individual share over best share in all experiments, agreement at the internal negotiations would lead higher individual benefit. In addition, being a member of proposing party would be better for higher individual benefit than being a proposer. For higher individual performance over party performance, fair allocation would be preferred in Exp 1 and 2, but not necessary, and agreement may not be preferred in Exp 3.*

<Table 5> Explanations of variables

Variable	**Explanation**
IndivPerform	Individual benefit over the best individual benefit in all experiments
PartyPerform	Party benefit over the best party benefit in all experiments
IndivPartyPerform	*IndivPerform* over *PartyPerform*
Exp2	1 if subjects are playing in Exp2 and 0 otherwise
Exp3	1 if subjects are playing in Exp3 and 0 otherwise
AlloInternal	Allocation chosen by the subject at the internal negotiations
AlloIntenral2	The interaction term between *AlloInternal* and *Exp2*
AlloIntenral3	The interaction term between *AlloInternal* and *Exp3*

AggInternal	1 if both subjects in a party choose the same allocation simultaneously at the internal negotiations 1 and 0 otherwise
AggInternal2	The interaction term between *AggInternal* and *Exp2*
AggInternal3	The interaction term between *AggInternal* and *Exp3*
PowerPlayer	1 if the subject is a power player and 0 otherwise
PowerPlayer2	The interaction term between *PowerPlayer* and *Exp2*
PowerPlayer3	The interaction term between *PowerPlayer* and *Exp3*
ProExternal	1 if the subject is chosen as a proposer at the external negotiations and 0 otherwise
ProExternal2	The interaction term between *ProExternal* and *Exp2*
ProExternal3	The interaction term between *ProExternal* and *Exp3*
ProPartyExternal	1 if the subject is in a proposing party at the external negotiations and 0 otherwise
ProPartyExternal2	The interaction term between *ProPartyExternal* and *Exp2*
ProPartyExternal3	The interaction term between *ProPartyExternal* and *Exp3*
RndExternal	The number of rounds played by subjects at the external negotiations.
RndExternal2	The interaction term between *RndExternal* and *Exp2*
RndExternal3	The interaction term between *RndExternal* and *Exp3*
Gender	1 if the subject is male and 2 otherwise
Gender2	The interaction term between *Gender* and *Exp2*
Gender3	The interaction term between *Gender* and *Exp3*
Game	The Game currently played by subjects
Field	1 if the subject's field is economics or business and 2 otherwise

This paper considers the following two types of regressions, pooled regression in Equation (1) and panel regression in Equation (2).

$$y_i = \alpha_0 + F(x_i; \alpha_i) + \varepsilon_i, \tag{1}$$

$$y_{it} = \beta_0 + G(x_{it}; \beta_i) + \delta_i + u_{it}, \tag{2}$$

For each type of regression, it considers two dependent variables, y_i and y_{it}, *IndivPerform and IndivPartyPerform.* For panel regressions, each players are represented as *i*, and *t* stands for Game that players are currently involved in. This paper, first, analyzes factors to affect, *IndivPerform*, the individual players' performance that measure the individual share of benefit divided by the best share of the benefit among all experiments, and thus they try to capture the players' relative performance all around the experiments. Next, it runs regressions to see factor to affect the relative individual performance over relative party performance, *IndivPartyPerform.* While regressions whose dependent variable is *IndivPerform* are models to see how relative size of individual benefit as a result of internal and external negotiations could be affected by some possible determinants on the whole, regressions with *IndivPartyPerform* are relevant to the relative size of benefit within party[6].

The regression results are reported in Table 6. The left two columns in the Table * shows the result on the regressions with dependent variable, *IndivPerform* and right two columns does ones with *IndivPartyPerform*.

As shown in Table 6, the results on Equation (1)-1 and (2)-1 are generally similar, because the value and significance of coefficient of independent variables are not quite different each other (Hausman test statistic=8.57). For Equation (1)-1 and (2)-1, the estimates of coefficient for *AggInternal* are positive and statistically significant at 1% significance level, other things equal. It shows that whether or not two players in a party are agreed on the allocation in the internal negotiations affects players' relative performance positively in Exp 1 and 2. In Exp 3, however, where no agreement in the internal negotiations is not that costly, the early agreement in the internal negotiation is relatively affects individual performance less than other experiments.

The estimates of coefficient for *PowerPlayer* are positive and statistically significant at 1% level. Being a power player in Equation (1)-1 and (2)-1, as is with results in Sung (2015b), affects each players' performance positively, but, interestingly, the estimates of coefficient of role as a proposer in the external analysis is statistically significant at 10% or larger. Rather,

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being in a proposing party matters for the individual performances in Exp 1 and 3. Even though the impact in Exp2 is obviously smaller in Exp 1 than Exp 3, still membership for proposing party would boost the relative individual performance. This implies that membership in proposing party or power player is helpful to enhance players' performance, not the role of proposer.

The estimates of coefficient of *Game* are negative and statistically significant at 5% level, other things equal. This implies that the players' performance was diminished as they repeat Games. This may be related with the treatments that the penalty not to be in agreement at the internal negotiation is more painful to both players in a party for Game 7 to 12 than for Game 1 to 6, as shown in the modestly increasing trend of allocation 6 in Figure 2, 3, and 4.

The estimates of coefficient for *RndExternal* is negative and statically significant at 1% level, other things equal, as expected. It means that delay in the external negotiation is costly due to the discount of total money on the external round throughout all experiments. Interestingly, however, the estimates affect the relative individual performance more negatively in Exp 3, which shares the same discount factor with Exp 1, than Exp 1.

Results on Equation (1)-2 and (2)-2 are quite different from each other for the effects of the role of power player, gender, and field (Hausman Test statistic=76.73, p-value<0.01). Controlling an unobserved factors using panel data random effect model in Equation (2)-2, it would be proper to see the results in Equation (2)-2. Since the dependent variable, *IndivPartyPerform*, is more relevant to the relative internal distributions of benefit, in Exp 1 and 2, the estimates of coefficient of allocation in the internal negotiation are positive and statistically significant at 1% level, others are equal. However, the effects of allocation are smaller in Exp 2 and 3, and in particular, those are negative in Exp 3. It means that in Exp 1 and 2 fair allocation enhances individual performance within party, but it may be the case in Exp 3 where has relatively beneficial allocation with no agreement. This is also illustrated in Figure 4 with low frequency in Exp 3.

Like pooled regression, the estimates of coefficient for agreement in the internal negotiation is positive and statistically significant at 1% level in Exp 1 and 2, but the impact is mitigated in Exp 3. This means that agreement in internal negotiation would enhance the individual performance within party. However, unlike Equation (1)-1 and (2)-1, impact of being a proposer or in a proposer party on the within performance is negligible. Surprisingly, delays

for the external negotiations in Exp3, were relatively less costly than shoe in Exp 1, where apply same discount factors in the external negotiations.

<Table 6> Results on Regressions

	IndivPerform		*IndivPartyPerform*	
	Pooled Equation (1)-1	Panel Equation (2)-1	Pooled Equation (1)-2	Panel Equation (2)-2
AlloInternal	0.567 (0.651)	0.004 (0.805)	1.596*** (0.157)	1.581*** (0.183)
AggInternal	25.57*** (1.208)	25.68*** (1.250)	5.094*** (0.291)	4.691*** (0.272)
PowerPlayer	9.394*** (1.393)	8.89*** (2.103)	0.985** (0.336)	1.036 (0.600)
ProExternal	2.526 (1.955)	3.608* (1.796)	0.262 (0.471)	0.144 (0.382)
ProPartyExternal	14.85*** (1.387)	13.84*** (1.273)	0.193 (0.334)	0.013 (0.271)
Game	-0.252* (0.098)	-0.238** (0.091)	-0.0548* (0.024)	-0.030 (0.019)
Gender	0.856 (1.144)	0.874 (2.190)	-1.063*** (0.276)	-1.019 (0.655)
Field	-0.147 (0.615)	-0.145 (1.171)	-0.508*** (0.148)	-0.474 (0.350)
RndExternal	-10.08*** (0.754)	-10.10*** (0.696)	-1.126*** (0.182)	-1.102*** (0.148)
Exp2	-0.159 (5.329)	-4.044 (7.198)	1.622 (1.284)	2.762 (1.824)
Exp3	33.83*** (6.647)	31.21*** (8.442)	9.126*** (1.601)	10.53*** (2.114)
AlloInternal2	-0.385 (0.86)	0.250 (1.03)	-0.731*** (0.21)	-0.946*** (0.23)
AlloInternal3	-1.951 (1.123)	-1.718 (1.273)	-1.377*** (0.271)	-1.686*** (0.283)
AggInternal2	0.360 (1.591)	0.071 (1.580)	0.392 (0.383)	0.520 (0.341)
AggInternal3	-14.86*** (1.776)	-15.03*** (1.745)	-3.340*** (0.428)	-3.174*** (0.376)
PowerPlayer2	-0.016 (1.913)	0.626 (2.900)	0.902 (0.461)	0.566 (0.827)
PowerPlayer3	1.479 (2.254)	2.184 (3.390)	1.986*** (0.543)	1.909* (0.967)

ProExternal2	-0.274 (2.691)	-1.600 (2.503)	-0.612 (0.648)	-0.024 (0.534)
ProExternal3	7.563* (3.153)	5.891* (2.874)	-0.027 (0.760)	-0.040 (0.611)
ProPartyExternal2	-8.494*** (1.906)	-7.198*** (1.773)	-0.076 (0.459)	0.168 (0.378)
ProPartyExternal3	2.721 (2.239)	4.484* (2.036)	-0.173 (0.539)	0.007 (0.433)
RndExternal2	8.075*** (0.831)	8.144*** (0.767)	1.090*** (0.200)	1.099*** (0.163)
RndExternal3	-7.887*** (1.532)	-7.145*** (1.467)	0.821* (0.369)	0.938** (0.314)
Gender2	-0.915 (1.517)	-0.913 (2.869)	0.720* (0.365)	0.553 (0.855)
Gender3	-2.70 (1.733)	-2.884 (3.293)	0.54 (0.417)	0.43 (0.984)
Constants	16.02*** (3.992)	19.31*** (5.616)	3.626*** (0.962)	3.799** (1.460)
No. of Obs	1056	1056	1056	1056
R-squared	0.73	0.73	0.60	0.60

Note: Standard errors are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Ⅳ. Policy implications on trade negotiations

From the results in Equation (1)-1 and (2)-1, we can conjecture that being a member of proposing party is more desirable for each players' performance rather than being a proposer. Proposers are power players in the internal negotiations, and thus being a power player may not be that strong advantages in the internal negotiations for each players' performance. This would be problematic if the negotiation must be pursued with some other reasons, because no sector within country would be dedicated to the negotiations due to the fair (!) allocations in the end. If you consider the some trade negotiations that should pursue high level of trade liberalization, due to the internal bargaining no one is willing to move actively. It may result in the situation like prisoners' dilemma, in that everyone within country knows benefit of trade agreements, but no one dare to have strong intention to frontier the negotiation, because they already knows the outcome from trade agreement would be distributed relatively evenly to all sector within countries. In the end, without active participation in the external negotiation, the country would have less chance to be a proposing party.

Being a proposer or being in a proposing party happen to be demonstrated by aggressive and

positive attitudes on the external negotiations as shown in the results in Equation (1)-1 and (2)-1. Since those attitude would result in larger share of benefit toward not only the individual players but also parties, it would be desirable to be an aggressive agenda setter in the real external negotiations. However, comparing results from the regressions on individual performance in overall with that from regression on individual performance over party performance, once the individuals care more about the relative internal performance within their parties, they would neglect to behave as active proposers.

In Exp 3, other than Exp1 and 2, players would have incentive not to be agreed in the internal negotiations. It shows the case that advantageous sectors in the external negotiation would prefer not to be agreed as they think they need to sacrifice too much to reach agreement internally. The existence of the 'attractive' option may be reluctant for advantageous sectors, power players, to accept fair allocation.

Ⅴ. Concluding Remarks

This paper experimentally studies the performance of negotiation considering individual and party, like a country, share of benefit over the best ones. The experimental design for this paper considers two-stage bargaining games, internal and external negotiations. From the experimental results, this paper shows strong tendency to select fair allocation in the internal negotiations, but the tendency would be weaker with attractive outside option. In addition, the outside option may claim difference in individual benefit. For regressions on individual performances, being a proposing party would matter to enhance the performance. However, relative individual performance within party fairness matters. Still attractive no agreement options happen to break the tendency. As policy implication on trade negotiation, from the regression results, this paper warns that possible loss in individual benefit from not active participation to the external negotiations, no active role of proposer in case that players stick to internal allocations, and possible deviation by advantageous sector due to attractive outside option.

It shares some limitation with Sung (2015b). First, no communication at the internal negotiations would not be realistic, though repetition of Games may overcome this shortcoming. Second, further analyses should on the experimental results with lagged variable, which might have some implication on learning in experiments. Future research should cover those.

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