Institutional Design and Conjunctural Causations: Causal Conditions for Adoption of a Dispute Settlement Mechanism in International Institutions

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Abstract

It has been argued that international institutions with a formal dispute settlement mechanism can promote international cooperation effectively. Under what conditions, then, do international institutions adopt this institutional design? Although previous studies on this research question have analyzed the effects of several conditions/variables and commonly employed regression analysis methods, they have reached different conclusions. The lack of consensus could be caused by their implicit assumption (accompanying their choice of method) that conditions have effects that are independent from each other. To examine this inference, the present paper conducts an analysis 1) employing the same conditions/variables as the previous studies, 2) using the dataset of one of the previous studies, but 3) employing the qualitative comparative analysis (QCA) method, which is more appropriate than regression analysis methods for analyzing conjunctural effects. The present paper has important implications for the endogeneity problem in research on international institutions.

Keywords : dispute settlement mechanism, conjunctural causation, QCA

1．Introduction

Anarchy distinguishes international politics from domestic politics, and international institutions do not have a large impact on international politics, which is determined by the great powers' interests. This is what previous studies, especially those by realists, have traditionally emphasized（Krasner 1991; Mearsheimer 1994/95）. International society, however, has developed international institutions that vary in terms of both quantity and quality. Accordingly, there has been an increase in the number of studies that address the research question of "what kind of international institutions have an impact on international cooperation"（Bohmer et al. 2004; Breitmeier et al. 2011; Davis 2012; von Stine 2008）. In other words, in considering international cooperation, it has become indispensable to think about the design of international institutions.

Given that a certain kind of international institutional design is an important cause of international cooperation, explaining the design as an outcome is also an important task. Although international cooperation has been considered to be caused by the design of an international institution, the truth could be that the phenomenon is caused by the factors that cause such an institutional design in the first place. To examine this endogeneity problem, one of the most controversial topics in thinking about the effect of international institutions,[2] exploring the conditions that produce international institutions is indispensable.[3]

2　See Simmons（2000）, von Stein（2005）, and Simmons and Hopkins（2005）.

3　The endogeneity problem consists of membership endogeneity and design endogeneity（Mitchell 2009）. This paper is related to the latter.

The present paper focuses on formal dispute settlement mechanisms as an international institutional design and investigates what conditions cause international institutions to feature this design. There are four different types of dispute resolution mechanisms. The first type is an informal mechanism, which encompasses diplomacy, friendly negotiations, or market-based mechanisms. The second type is mediation, which involves a neutral third party but is nonbinding. The third type is arbitration, where the disputants select a third party for the dispute resolution. The last type is adjudication. The latter three are formal dispute settlement mechanisms and are more autonomous than the informal ones from the countries concerned.[4] Because the differences in dispute settlement mechanisms have been shown to have important impacts on international politics by many studies (Davis 2012; Johns and Peritz 2015; Kono 2007; Lee 2019; Rosendorff 2005; Zangl 2008), analyzing the conditions that produce a given institutional design is a significant research agenda.

Previous studies that explore the conditions for formal dispute settlement mechanism design have employed two common elements. First, the studies examine the following causal conditions: the power gap between member countries, the nature of the cooperation problem that the international institution in question tries to solve, the issue area of the institution, and the number of member countries. Second, the studies employ a regression analysis method and try to find which condition or conditions have an impact. Accordingly, these works (implicitly) assume that a condition has an effect independent from other conditions. De-

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4   See Koremenos (2007). On the classification in terms of autonomy, see Smith (2000).

spite these common approaches, previous studies have derived different conclusions as to what conditions lead to formal dispute settlement mechanisms.

This paper proposes that one of the reasons for the divergent findings lies in the second element of the approach in these studies. Conditions could have conjunctural effects rather than independent effects. Therefore, the present paper conducts the analysis in the following two ways. First, I chose a qualitative comparative analysis（QCA）rather than the regression analysis method on which the previous studies depend. QCA is an appropriate method to grasp conjunctural causal relations. Second, I utilized the dataset of Koremenos（2007）. She has statistically analyzed this dataset to find the conditions under which international institutions develop a formal dispute settlement mechanism. By reanalyzing the same dataset with a different method, the present paper attempts to acquire new findings in terms of conjunctural effects.

In summary, the present paper conducts an analysis 1）employing the same variables as preceding studies, 2）using the dataset of one of the preceding studies, and 3）employing the QCA method, which is more appropriate for analyzing conjunctural effects. This research design（using the same variables and same data as a previous study but different methods）enables us to clarify whether a conjunctural effect is the key to explaining the research question at hand. The result of this analysis will have implications for the endogeneity problem in the study of outcomes related to international institutions.

The next section elaborates on the disagreement among previous studies about what causes international institutions to develop formal dispute settlement mechanisms and then explains how this paper tries to

overcome the disagreements. The third section describes the method of the analysis and its results. The last section sums up the paper and touches on its implication.

2．Conditions Producing Dispute Settlement Mechanisms

What conditions cause international institutions to develop formal dispute settlement mechanisms? After reviewing prior work on this research question, I will explain the problems not addressed by the previous studies and the key to overcoming them.

2.1　Literature Review

First, it has been claimed that the power gap between member countries determines whether an international institution has a formal（or autonomous）dispute settlement mechanism（Smith 2000; Haftel 2013; Allee and Elsig 2016）. For great powers with a strong bargaining advantage, solving disputes diplomatically between the countries concerned is preferable to solving them through a third-party's judgment in a formal dispute settlement mechanism, because third-party dispute settlement can help level the playing field（Stone 2011）. Accordingly, a large power gap between member countries tends to prevent autonomous dispute settlement mechanisms from being adopted.

Second, the design of international institutions is determined by the nature of the cooperation problem for which the institution was established（Keohane 1982）. Considering the function that the dispute settlement mechanism assumes, the demand for the mechanism becomes especially high in cases when the enforcement problem is severe, where

decreasing the transaction cost is important. Thus, as Koremenos （2007） clearly claims, cooperation problems characterized by uncertainty, incentives to defect, and time inconsistency lead international institutions to employ formal dispute settlement mechanisms （Koremenos et al. 2001; Haftel 2013）. Smith （2000） and Allee and Elsig （2016） also claim that the deeper the goals an economic agreement aims for, the stronger the legalization of dispute settlement within the corresponding institutions.

Third, Koremenos （2007） and Koremenos and Bets （2013） point out the influence of the issue areas on which an institution is focused for dispute settlement mechanism design. They argue that trade and human rights institutions are more likely to have dispute settlement mechanisms than security and environmental institutions.

Fourth, the number of member countries determines the institutional design （Allee and Elsig 2016; Koremenos 2007; Koremenos and Bets 2013）. As the number of member countries increases, transaction costs increase, and centralization or a formal dispute settlement mechanism becomes a measure demanded by members to decrease the costs. Thus, the more member countries an institution has, the more likely the institution is to adopt a formal dispute settlement mechanism.[5]

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5   The second, third and fourth causes are based on functional explanations. See De Bièvre （2014） for the problem that functional explanations have in explaining when international institutions develop formal dispute settlement mechanisms.

2.2 Considering Conjunctural Causations

Previous studies have claimed that the four conditions above are the determinants of the development of formal dispute settlement mechanisms.[6] However, there have been disagreements as to which conditions have an influence on dispute settlement mechanism design. On the one hand, Haftel (2013) concludes that the power gap between member countries has an influence on the dispute settlement mechanism but the number of member countries does not. On the other hand, Koremenos (2007), Koremenos and Bets (2013), and Allee and Esig (2016) find the opposite.

Why are there such disagreements? The present paper proposes that one of the reasons lies in the implicit assumption held by the studies that causal conditions have an independent effect from each other. However, there are rational reasons to think that the conditions producing formal dispute settlement mechanisms have conjunctural effects.

First, the large power gap between countries has been theoretically explained as a hindrance to the adoption of formal dispute settlement mechanisms. However, there could be another causal explanation: that is, that the formal dispute settlement procedure is employed *because* big power prefers it. Hegemonic stability theory argues that great powers establish international institutions to sustain their preferred international order (Snidal 1985). In fact, it was due to the strong advocacy of

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6   Jo and Namgung (2012) argue that in addition to the conditions named here, factors such as the establishment of the World Trade Organization and the existence of dispute settlement mechanisms in other institutions to which the member countries belong also influence the design of the institution. These authors' main unit of analysis, however, is not international institutions but countries.

the United States that the World Trade Organization (WTO) adopted its autonomous dispute settlement mechanism.[7] That is, a power gap can lead to both informal and formal dispute settlement mechanisms. In addition, the kind of mechanism great powers prefer depends on other conditions.

Second, the causality underpinning the notion that a large number of members leads to creation of a formal dispute settlement mechanism could also depend on other conditions. This theoretical explanation is grounded in the transaction cost perspective. A large number of members, however, gives rise not only to high transaction costs but also to difficulty in reaching agreement. This is because a large number of members could indicate many veto players[8] and in turn cause difficulty in adopting the formal dispute settlement mechanism.

Third, the influence of the issue area on which an institution focuses could also have a conditional effect. Take, for example, economic and human rights institutions.[9] These two issue areas have different aspects, at least in the following two regards. One is the difference in transaction costs such as monitoring and enforcement. In the issue area of the economy, transaction costs are large even when the institution is bilateral. Economic institutions cover many industries, and related agreements include a broad range of content. In contrast, human rights insti-

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7   Payosova et al. (2018: 2) describe how the US Congress and government were eager to introduce a more legalized dispute settlement mechanism into the WTO during the Uruguay Round of multinational trade negotiations under the General Agreement on Tariffs and Trade (GATT).

8   See, for instance, Tsebelis (2003) for veto players.

9   Wendt (2001: 1031-1032) points out the possibility that these two issue areas are different in terms of the kind of uncertainty that each deals with.

tutions include a narrower range of agreements and face fewer transaction costs, especially when the institution has a small number of members. This difference implies that the influence of the number of members on the design depends on the issue area.[10]

The other aspect is the interchangeability in the offensive and defensive positions of parties in a dispute. In the economic issue area, for example, every country has both industries with comparative advantages and those with comparative disadvantages. Thus, a country should switch between offensive and defensive positions depending on which industry is in a dispute. In contrast, in the issue area of human rights, there are fewer exchanges in the offensive and defensive positions than in disputes involving the economy. This changeability in the offensive and defensive position can be considered to determine countries' attitudes toward formal dispute settlement mechanisms, because countries expected to always be on the defensive would not prefer the design.

Thus, we have considerable reasons to expect that the causal conditions for the development of formal dispute settlement mechanisms have conjunctural effects rather than independent effects.[11] Accordingly, the present paper tries to explore the conjunctural effects among the four causal conditions（power gap, nature of cooperation problem, issue area, and number of members）with an appropriate method.

10　Note that the difference in transaction costs between the issue areas results not from the nature of cooperation problems within the institution, as claimed by previous studies, but from the range of agreements covered by the institution.

11　Koremenos et al.（2001: 795-796）admit that the relationship between the conjunctures may be substitutive or complementary.

3．Examining Conjunctural Causation

3.1　Method

What method is adequate for the present paper, which seeks to examine conjunctural effects? Qualitative comparative analysis（QCA）was used in this study for that purpose.[12] QCA is a method to analyze the effects of all logically possible combinations of causal conditions. It thus makes clear which combinations of conditions lead to certain outcomes. This method is adequate for grasping conjunctural effects, especially for more than two conditions. Although the regression analysis method would allow us to analyze interaction effects by inserting interaction terms, it is unrealistic and undesirable to use interaction terms with more than two variables.[13] QCA has three variants: csQCA（using crisp-set, dichotomous values）, mvQCA（using dichotomous or multivalues）, and fsQCA（using fuzzy-set, membership values）. Because the outcome of this paper is measured in a dichotomous value（adopting a formal mechanism or not）and one causal condition has a multivalue, as explained below, the present paper utilizes mvQCA.

This paper reanalyzes the dataset of Koremenos（2007）, which is one of the previous studies mentioned above.[14] I chose this dataset for three

12　Broadly speaking, QCA has two core features as a method. One is that it tries to grasp conjunctural or configurational causations. The other is that it analyzes set-theoretic causations such as sufficient and necessary conditions. On QCA, see Rihoux and Ragin（2009）and Schneider and Wagemann（2012）, for example.

13　See Brambor et al.（2005）, Ragin（2008）, and Fiss（2007）, for example.

14　The dataset was obtained at the following URL（accessed on April 10, 2015）: http://sitemaker.umich.edu/koremenos/research.

reasons. First, the previous study analyzed this dataset employing the regression analysis method（probit analysis）and found statistically significant results. That is, this dataset is not constructed for QCA. Analyzing the same dataset with different methods allows us to directly compare the results of different methods. Moreover, finding conjunctural effects with a dataset constructed for statistical analysis（but not for QCA）would indicate the significance of the analysis by QCA. In this sense, using this dataset is preferable to using an original dataset. Second, most of the variables in this dataset are dichotomous. This is a preferable property of this dataset for QCA because the method requires us to prepare dichotomous or qualitative variables. Third, this dataset is rare in that it covers multiple issue areas. Most of the existing datasets on dispute settlement mechanisms cover only a single issue area. To analyze the influence of issue areas, the dataset is appropriate for the present paper.

The dataset consists of eighty-eight treaties that are taken at random from the population of the United Nations Treaty Series（U.N.T.S.）, which includes more than thirty-four thousand treaties registered in the United Nations by December 1986. The issue areas of treaties in the dataset cover the economy, the environment, human rights, and security. As explained below, this paper analyzes economic and human rights treaties. As a result, the number of observations in this paper is fifty-six.

For each institution, the dataset has data on whether it has a formal dispute settlement mechanism, whether a superpower is a member, whether the complexity of the cooperation problem under the institution is severe, the issue area, and the number of members. All variables ex-

cept the number of members are measured dichotomously. The complexity of the cooperation problem measures uncertainty about members' behavior, uncertainty about the environment, and the severity of the enforcement problem（Koremenos et al. 2001: Koremenos 2007）.

3.2　Operationalization and Measurement

The outcome of this paper's analysis is whether an international institution has a formal dispute settlement mechanism, as in Koremenos（2007）. My choice of mvQCA rather than fsQCA results from this binary coding of the outcome. A dichotomous outcome does not allow us to utilize fsQCA.

Let us move on to the measurement of causal conditions. The first causal condition is the power gap between member countries. Following Koremenos（2007）, we measure the condition dichotomously by whether a superpower（the US or the USSR）is a member country. The second condition is the nature of cooperation under the institution. As in Koremenos（2007）, we measure it dichotomously by whether the institution has a complex cooperation problem. The third condition is the issue area. The present paper analyzes only institutions focused on the economy and human rights, not security or the environment.[15] We examine

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15　One of the reasons for this choice is that treaties in this dataset are registered（and established）before December 1986. That is, the institutions were established during the Cold War era, when the international security situation was tense due to the severe confrontation between the US and the USSR, and when international environmental institutions were not yet developed. Accordingly, it is evident that formal dispute settlement mechanisms are not likely to be adopted in the institutions focused on both these issue areas. In contrast, international cooperation in the field of the economy has occurred since the end of the Second World War, especially among the Western countries. Interna-

institutions with these issue areas because the difference is important in examining conjunctural effects among the causal conditions, as explained above. Regarding the last condition, the number of members, Koremenos（2007）measures it by a continuous variable. Therefore, for QCA I must transform it into a qualitative value. This paper measures the condition trichotomously: few members（bilateral）, a moderate number of members（less than 20）, and many members（20 or more）. I chose

Figure 1. Distribution of the Number of Members among Multilateral Institutions（avg 24.6, med 20）
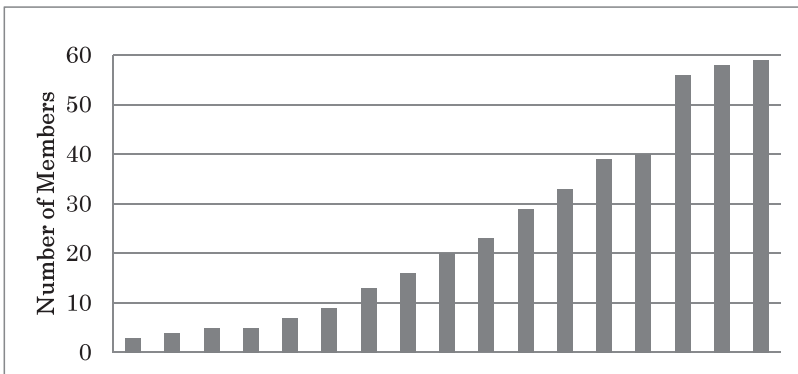
tional cooperation has also developed in the field of human rights following the civil rights movement in the US in the 1960s and the Helsinki declaration in the 1970s. In fact, the proportion of institutions that are focused on the security and environment issue areas and have a formal dispute settlement mechanism is quite low（less than 20%）compared to those focused on the economy and human rights（around 40% and 60% for each）. Placing much importance on unit homogeneity rather than degrees of freedom（Katz et al. 2005）, this paper analyzes only economy and human rights institutions. Moreover, adding institutions focused on security and the environment does not negate this paper's finings. This is because this key change is not to add new conditions but to add value to the existing conditions in the analysis.

bilateral as one threshold value because bilateral institutions and multilateral ones are qualitatively different.[16] Furthermore, the number of bilateral institutions（39）is more than multilateral ones（17）. The other threshold, 20, is chosen because the median value of the number of members among multilateral institutions is 20.（See Figure 1.）

3.3　Analysis

Before the analysis, I will explain the notation method of the outcome and the causal conditions. The outcome, whether a formal dispute settlement mechanism exists, is shown by D: D_1 denotes the existence and D_0 the nonexistence of the mechanism. Causal conditions are denoted in a similar way. The power gap is shown by P: P_1 for the existence of a gap （a superpower is member）and P_0 for no gap （no superpower is member）. The existence of complexity in the cooperation problem is shown by C: C_1 indicates that the institution has a complex cooperation problem, whereas C_0 does not. The issue area is shown by E: E_1 for economy and E_0 for human rights. Finally, M shows the number of member countries: M_2 for many members, M_1 for a moderate number of members, and M_0 for bilateral institutions. Moreover, for the purpose of clearly showing what combinations of causal conditions lead to the outcome, the present paper uses the symbol for mathematical operations with Boolean algebra （ab indicates logical AND of a*b, a + b indicates logical OR）.

16　For the same reason, Haftel（2013）excludes bilateral institutions from his sample to be analyzed.

3.3.1 Conditions Leading to a Formal Dispute Settlement Mechanism[17]

Under what conditions do international institutions develop a formal dispute settlement mechanism? The truth table (Table 1) shows the association between the combinations of the four causal conditions and the outcome concerning the dispute settlement mechanism. The truth table has four contradictory rows (rows that include both cases with formal

Table 1. Truth Table

	Power gap	Complex cooperate	Issue (Econ?)	No. of members	No. of cases	No. of DS	DS ?
1	1	1	1	0	13	5	?
2	1	1	1	2	1	0	0
3	1	1	1	1	1	0	0
4	0	0	1	0	8	0	0
5	1	0	1	1	1	0	0
6	0	1	1	0	15	11	?
7	1	0	1	0	1	0	0
8	0	0	1	2	1	0	0
9	1	0	0	2	2	2	1
10	1	0	0	1	1	0	0
11	1	1	0	2	4	4	1
12	0	1	0	1	5	2	?
13	0	1	0	0	2	1	?
14	0	1	0	2	1	0	0

Note: "DS" stands for having a dispute settlement mechanism.

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17 This paper does not refer to the result of the analysis regarding when international institutions do *not* have a formal dispute settlement mechanism. The result of the analysis shows that, as is often the case with the result of QCA, the causal conditions for not having the institutional design are not symmetric with those for having the design. In addition, there are too many complex conjunctural causations for not having the design to interpret the result straightforwardly.

dispute settlement mechanisms and those without them).

The present paper conducts analyses considering a row as conditions for having formal mechanisms only if more than 70% of cases in the row have formal mechanisms. The result is as follows.

$$P_0C_1E_1M_0 \ + \ P_1C_1E_0M_2 \ + \ P_1C_0E_0M_2 \rightarrow D_1$$

This formula can be minimized as follows.

$$P_0C_1E_1M_0 \ + \ P_1E_0M_2 \rightarrow D_1 \hspace{2cm} (1)$$

Formula 1 indicates that international institutions have a formal dispute settlement mechanism under the following two solutions. One ($P_0C_1E_1M_0$) stands for institutions that have no power gap *and* have a complex cooperation problem *and* are related to economy *and* have few members. The other ($P_1E_0M_2$) indicates institutions that have a power gap *and* are related to human rights *and* have many members. It becomes clear that whether a condition has an influence on the outcome depends on other conditions. Each condition constitutes a so-called INUS condition for international institutions to have a formal dispute settlement mechanism.[18]

The results of the analysis are summarized in Table 2. Each solution in Table 2 corresponds to each term in Formula 1. While solution 1 indicates $P_0C_1E_1M_0$ in the formula, solution 2 indicates $P_1E_0M_2$. Consistency refers to the extent to which a solution (causal combination) leads to an outcome. It indicates the percentage of empirical cases that result in the same outcome value (solution or causal combination) in a row of the

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18 INUS stands for "Insufficient but Necessary parts of a condition, which is itself Unnecessary but Sufficient" for an outcome to occur (Mackie 1965).

Table 2. Solutions for Dispute Settlement Mechanism

	Solution	
	1	2
Power Gap	⊕	◯
Complex Cooperation	◯	
Issue: Economics?	◯	⊕
N of Members	few	many
Consistency	0.73	1.00
Raw Coverage	0.44	0.24
Unique Coverage	0.44	0.24
Overall Solution Consistency		0.81
Overall Solution Coverage		0.68

◯ Existence   ⊕ Absence

truth table. If the consistency of a solution is low, that solution, as the set of conditions for an outcome to occur, is not supported by the empirical evidence. Overall solution consistency indicates the extent to which all of the causal combinations lead to an outcome. Coverage indicates how many cases with the outcome are represented by a particular causal combination. Overall solution coverage represents how many cases with the outcome are represented by all the causal combinations found in the analysis.

As shown in Table 2, solution 1 ($P_0C_1E_1M_0$) is a weak path to the development of a formal dispute settlement mechanism since the consistency rate is 0.73, which is slightly lower than the 0.75 consistency threshold recommended by previous studies (Ragin, 2008: 46; Schneider and Wagemann, 2012: 127). In other words, it is a solution that would

cause （but not always） the creation of a formal dispute settlement mechanism. In contrast, solution 2 （$P_1E_0M_2$） is a path that *certainly* brings about the establishment of a formal dispute settlement mechanism.

3.3.2　Logical Remainders

Because the present paper analyzes four causal conditions and one of them has a trichotomous value, the number of logically possible combinations of the conditions is twenty-four. Thus, the truth table has ten logical remainders （rows without cases）.[19] The existence of logical remainders might cause a suspicion that the findings could result from the absence of cases in the rows that contradict the result.

To show that this is not the case, let us examine two examples briefly here. First, according to Formula 1, $P_0C_1E_1M_0$ causes a formal dispute settlement mechanism. What outcome is brought about if only the issue area condition changes from economy to human rights （$P_0C_1E_0M_0$）? Two cases belong to this row, and they do not have a formal dispute settlement mechanism, which is consistent with the above result. Second, the formula indicates that $P_1C_1E_0M_2$ leads to a formal dispute settlement mechanism. What happens if only the issue area condition changes from human rights to economy （$P_1C_1E_1M_2$）? Again, there is one case having these conditions, and it does not have a formal dispute settlement mechanism. Hence, it is not that the existence of logical remainders favorable to this paper produces the above formulas.

19　The rows of logical remainders are omitted in the truth table （Table 1）.

3.4 **Discussion**

This subsection advances the interpretation of the above results from two viewpoints. First, how do we interpret the above results? Second, although we analyze the dataset of Koremenos（2007）using a different method and derive different results from Koremenos, are the results by QCA valid?

Previous studies have claimed that conditions influence institutional design independent of other conditions. Against these previous studies, the result of this paper's analysis shows that whether a condition has influence depends on other conditions. Although a power gap has been expected to hinder development of formal dispute settlement mechanisms, such a causal relation is observed only in the economic issue area. In the issue area of human rights, we see the opposite causal relation. The participation of a superpower leads to a formal dispute settlement mechanism in human rights institutions. In addition, it is in human rights institutions but not economic institutions where the more members there are, the more likely a formal mechanism is to be adopted.

Why do such combinations of the conditions cause formal dispute settlement design? One of the reasons lies in the differences between the issue areas, as was argued above. First, transaction costs are lower in institutions focused on human rights issues compared to those focused on economic issues. Accordingly, in economic institutions, the demand for formal dispute settlement exists even when they have few members, whereas in human rights institutions, demand for such a mechanism exists only when they have many members. Second, the interchangeability in offensive and defensive positions is higher in institutions focused on

economic rather than human rights issues. Therefore, the great powers hinder formal dispute settlement in economy-focused institutions, where they might have to take a defensive position in some cases. In contrast, the great powers demand the formal mechanism in human rights-focused institutions, where they always take the offensive.

Is the above interpretation valid even if Koremenos（2007）has already analyzed the dataset with the regression analysis method and produced different results that are statistically significant? This paper considers the result of this paper to be no less valid than that of Koremenos （2007）. The most important difference between the two studies is whether the effect of each condition is independent from each other or depends on other conditions. If, for example, the power gap has an independent effect, we should observe its effect constantly across various combinations of conditions. According to the present paper's analysis, however, this is not the case. Only in economy-focused institutions or those with few member countries does the small power gap influence institutional design.

3.5　Robustness Check

Are the results of the above analysis robust? This subsection tries to confirm robustness in terms of measurement and dataset.

The present paper analyzes the causation between four causal conditions and one outcome. Of those, three causal conditions and the outcome are dichotomous in nature. Thus, measurement error could occur only in the causal condition regarding the number of members. The above analysis set the threshold between middle and high at 20. However, with the average of the number of member countries being 24.6,

one might counter that 25 should be better. The choice of 25 as the threshold value, however, does not change the result of the analysis. In addition, even when we calculate the median and average values, including not only the economy- and human rights-focused institutions but also the security and environment-focused ones, the threshold value becomes almost the same.

Second, by analyzing another dataset, we can check the external validity of the present paper's analysis to some extent. Koremenos（2013; 2016）analyzes a dataset that expands the dataset of Koremenos（2007）. The former dataset covers treaties that are registered in the UN by 2006（even after the end of Cold War）, whereas the latter one includes treaties registered by 1986. The former includes 225 treaties, and the latter 88. Even when analyzing this larger dataset, one would obtain results similar to what the present paper has described. The conjunctural conditions of $P_0C_1E_1M_0$ and $P_1E_0M_2$ are again both shown to be the paths to the establishment of a formal dispute settlement mechanism in the extended dataset. The result of the previous section's analysis could have external validity for international institutions that are registered even in the post-Cold War era.

4．Conclusion

The present paper focuses on formal dispute settlement mechanisms as an international institutional design and explores what causes international institutions to adopt such a design. Previous studies, despite having employed the same causal conditions/variables and similar regression analysis methods, have reached different conclusions. With the

focus on the possibility that previous studies' problems lie in their assumption that each causal condition has an independent effect from the others, this paper tries to grasp conjunctural causations. For this purpose, the present paper employs the same conditions/variables and same dataset as a preceding study but a different method. This research design enables us to clarify whether conjunctural effects are key to explaining the research question at hand.

The analysis in this paper shows that all four conditions (the power gap between members, the complexity of the cooperation problem under the institution, the issue area of focus, and the number of members) analyzed by previous studies are determinants of the development of formal dispute settlement mechanisms. However, it also becomes clear that whether each condition has an effect or not depends on the combination of the four conditions. Contrary to the assumption held by previous studies, each condition has conjunctural effects among the four conditions. More concretely, international institutions have a dispute settlement mechanism under the following two combinations of the four conditions: A) a small power gap between members *and* a complex cooperation problem *and* a focus on the economic issue area *and* a small number of members, or B) a large power gap among members *and* a focus on the human rights issue area *and* a large number of members.

This paper has important implications for the endogeneity problem regarding international institutions' effect on international cooperation. First, in considering the effect of international institutional design, taking the four causal conditions into consideration seems indispensable for dealing with the endogeneity problem of research on institutional design. The second implication is how to address the endogeneity problem.

When testing the effect of international institutions as an independent variable, previous studies have tried to overcome the endogeneity problem by including control variables for international institutions in their statistical analyses.[20] The present paper, however, implies that utilizing control variables is not always appropriate as a measure to address the endogeneity problem. What determines institutional design might not be each condition's independent effect but a conjunctural effect, which is difficult to grasp by regression analysis methods.

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20　See Fortna (2004) and Mitchell (2006) regarding how to deal with the institutional design endogeneity problem.

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