FUKAYA TAKESHI

The Instability of Producer Cartels in Japan: Working Toward a Substantive Understanding of Special-Interest Politics in the Context of General-Interest Reform

This study provides an empirical analysis of the fluctuations of producer cartels in Japan. The political reforms undertaken since the 1990s, particularly following the electoral institutional reform in 1994, have led to a departure from the special-interest politics that have traditionally supported Japan's political economy in favor of general-interest politics. I aim at reaching an empirical understanding of how traditional special-interest groups have or have not maintained such interests. I also examine quantitatively the relationship between such various rents and the change in the cost of collective action. I then consider why some sectors are able to maintain diminished cartels by looking at centralization as an organization of interest groups, and suggest that it is becoming more difficult to maintain what has traditionally been high rent at that level. I suggest that the situation has become more unstable. While further empirical analysis is required, this study suggests a direction for future analysis in terms of understanding the overall picture of the instability in Japan's current producer cartels.

KEYWORDS: producer cartel, rent, the cost of collective action, regulation and market, electoral institutional reform

FUKAYA Takeshi is an Assistant Professor in the Department of Political Science, Musashino University. This paper is based on the proceedings prepared for the annual meeting of the Japanese Political Science Association 2014 (poster session) and the Midwest Political Science Association 2014/2015 (paper presentation). The research has been supported by a JSPS grant-in-aid for research undertaken from 2014 to 2015.

FROM THE PERSPECTIVE of how institutions define activities whereby participants pursue their own interests, the politics of regulation in Japan has been understood to be one that encourages the pursuit of special interests (that is, rent-seeking). As long as the existing institutions remain in place, it is logical to believe that the coalition of interests that has sprung up on the periphery of regulatory policy will endure.

Still, progress has been made on the reform of these institutions that supported the long-term control of the Liberal Democratic Party (LDP), and an appropriate period of time has already elapsed. During this time, reform of the electoral and regulatory institutions—both of which underpin special-interest politics—has taken place. Hence, it would appear that, in the political context, the direction of policy is now toward the general interest.

Yet, we can easily imagine that special interests will remain independent special interests, despite efforts to reform them. In other words, proponents of special interests will continue to review their strategies of self-preservation, so that they can either strategically respond to reforms or find loopholes to exploit. Hence, the question becomes, just how far can producers' special interests go toward self-preservation when political reforms are tilting in the direction of the general interest? Moreover, to what extent can we ascertain this situation?

The purpose of this paper is to analyze the following points in reference to the above situation. First of all, we attempt to quantify producers' rent for individual industries. Here, "rent" refers to the excess profit held by special-interest groups. Second, the cost of collective action for each industry will be ascertained. The higher the cost of collective action among the participants in special-interest groups, the more difficult it is to reflect their special interests in policies. Third, correlations between these two factors will be investigated—that is, whether there is a linear relationship between the expansion of costs of collective actions within industries and a decrease in rents of producers. By doing so, we further examine to what extent special-interest groups are able to preserve their interests when the electoral institution is geared toward the general interest following the reform of 1994. Also, this paper hypothetically considers the political mechanism that explains fluctuations in producer cartels (that is, coalitions of special interests).

Institutional Reform and Special Interests

UNDERSTANDING THE CARTEL IN THEORY

In general, when cartels are considered in economics literature, overconcentration between companies is seen as problematic. Beginning with STIGLER (1964), a broad range of theoretical and empirical research has been conducted about the stability or instability of the cartel mechanism as well as industry concentration and collusion. The most representative of these is GREEN and PORTER (1984), who investigated the correlation between collusion and the price-cost margin (PCM). They argued that, because incomplete information leads to the implementation of trigger pricing strategies during recessions, PCM ultimately increases during periods of economic expansion. Furthermore, the generally applicable understanding regarding cartel duration is that the higher the degree of market concentration, the greater the duration of the cartel (MARQUEZ 1994). In addition, in the field of economics, much research has focused on the factors, changes, and consequences of cartels, such as SYMEONIDES (2003), on the effect of cartel productivity using panel data analysis. These studies have contributed to our understanding of market mechanisms.

The relationship between cartels and politics does not appear to have sufficiently been considered, although groups whose main purpose is profit have incorporated political elements. Without a doubt, industrial cartels are economic phenomena in and of themselves. Therefore, they have not been the direct subjects of research in the field of political science. As shown in many studies by political scientists on interest groups and pressure groups, industry participants are also main players in the game of political influence. Despite the industrial structure itself having significantly changed since the argument of MURAMATSU, ITO, and TSUJINAKA (1986), analysis from political science incorporating industrial dynamics appears to have been lacking up to now. Considering these points, this paper conducts an analysis of the idea of the producer cartel as a coalition of political interests, primarily among producers in the market.¹

1. What this paper refers to as a “producer cartel” denotes a cartel-like entity wherein domestic producers have been safeguarded as a result of the government regulation of supply and demand. It does not refer to illegal cartels that are punishable under the Anti-monopoly Act.

THE CARTEL² AND REFORM GEARED TOWARD THE GENERAL INTEREST

How can we actually understand the logic of the instability of cartels from the perspective of political science? According to previous research on special-interest politics (GROSSMAN and HELPMAN 2002), the 1994 electoral institutional reform's introduction of a single-member district (SMD) system for elections to the Japanese House of Representatives led to the convergence of the electorate's policy preferences with those of the urban median voter. This is a situation that had not existed under the previous multiple-seat constituency electoral system (SNTV; Single Nontransferable Vote electoral system) (ROSENBLUTH and THIES 2010; PERSSON and TABELLINI 2000).³

Based on this argument, regarding the politics of regulation aimed at producers who had strong ties to special interests, the protective producer cartel of the past would be expected to fade away with the assumed change from a producer-focused orientation that protects large companies to an orientation toward the median voter or general consumer.

In actuality, however, this external institutional reform toward a general-interest orientation does not unilaterally define everything as would be theoretically predicted. Rather, it has led to the coexistence of industries whose industry-wide protective cartels began to break down early on and of industries that have nevertheless been able to maintain their cartels for a relatively long period of time. Although this holds the possibility of both theoretically and empirically presenting meaningful implications, there has been no attempt to specify them. Thus, there is still a room to explore the relationship between the politics of regulation and institutional reform that is geared toward the general interest.

In addition, although the reason for change itself in institutional reform is one-shot in nature, it does not end with that one shot. Since institutional reform is about a major change of environment, the strategic participants who exist in the environment are bound to take action. Furthermore, if "time" is to be considered, it is necessary to examine the aftermath of

2. As cartels are considered to be a product of collusion in the markets, they have traditionally been a subject of study in industrial organization theory. However, there is also a lot of interest in the mechanisms of cartel formation in the study of party politics and political economy.

3. The SNTV is premised on the median voter theorem according to which preferences converge on those of the median voter (the general interest) in a single-member district system.

institutional reform. In previous research in the U.S., PATASHNIK (2008) and others conducted the research on what happens after reform, in other words, analyses of strategies and dynamics of special-interest groups in response to institutional reform. These studies indicate the strategic response of special-interest politics and the significance of assessing institutional change in the long run. This study shares this awareness and aims to conduct an analysis of the dynamics of government and market regarding the conflict between special interests and the general interest in Japan.

THE PRINCIPAL AGENT MODEL AND THE CHAIN OF DELEGATION⁴

When theoretically understanding the relationships among bureaucrats, politicians, and special-interest groups, one of the models used in modern political science is the principal-agent (PA) model. In FIGURE 1, the PA model illustrates the nested relationships between principals and agents—the relationship between special-interest groups and politicians, and the relationship between politicians and bureaucrats.

In this figure, when the fundamental principal is taken to be the interest group, the politician is its agent. A nesting then occurs in the PA model, whereby the politician becomes the principal and the bureaucrat becomes the agent. The premise of various discussions (RAMSEYER and ROSENBLUTH 1993; ROSENBLUTH and THIES 2010) suggests that this was the configuration of coalitions of political interests before institutional reform. On the other hand, a principal of the politician is not necessarily a special-interest group. Let us assume that the general electorate is the case of the principal. In other words, the electorate, which embodies the general interest, becomes the fundamental principal and the politician becomes the electorate's agent. Next, this political entity becomes the second principal, and the bureaucrats become the second agents who are given orders from it. This is understood as the pathway of the political PA relationship that embodies the general interest.

In general, the longer the chain of delegation, the greater the likelihood the agent will behave contrary to the desires of the fundamental principal. If the principal is not a single entity, controlling relations where several agents exist will be complicated and difficult.⁵

4. See NIELSON and TIERNEY (2003).

5. Since it is complicated, it is worthwhile discovering the nested relationships of delegation to try to understand their actual state.

FIGURE 1. The nested PA structure in the politics of regulation.
Prepared by the author, considering the PA nesting.

FLUCTUATIONS IN PRODUCER CARTELS

When the above model is taken to be a premise, politics (politicians) is considered to pursue interest on the assumption of reelection. In this case, the politics (politicians) as an agent will keep an eye on the intention of two different kinds of entities. The politicians either (1) respond to narrow but strong-willed special interests, or (2) respond to broad but weak general interests. A system that determines politicians' rational preferences is being rational when it chooses (1) in cases where multiple candidates are elected within an electoral district. On the other hand, if only one candidate can be elected in an electoral district, the rational choice would be to choose (2). The 1994 electoral institutional reform that introduced a single-member district system for the House of Representatives elections caused a major shift in these rational choices (ROSENBLUTH and THIES 2010).

In light of this, the basic hypothesis of this study captures what happened to the politics of regulation due to this. That is, in the wake of the 1994 electoral institutional reform, the trend of institutional reform led to an increase in the number of participants, thereby increasing the cost of collective action. Consequently, unilateral delegation as a principal became difficult, which resulted in a diminution in producers' rent and the collapse of the cartels. Below, this study reviews the overall data concerning fluctuations in producer cartels as preparation for examining the validity of this assertion.

Identification Strategy

(1) EMPIRICAL APPROACH

This paper approaches the actual state of the producer cartel by conducting the following three methods of empirical analysis: (1) a comparative analysis; (2) a quantitative analysis; and (3) an analysis through case studies. We first conduct an international comparison to quantify the characteristics of rent in Japan. We then quantitatively grasp the cost of collective action and perform a comparison across industries to find the diversification of the whole to analyze individual case studies.

(2) DATA

Producer rent and the degree of concentration are operationalized as follows, in accordance with the hypothesis discussed above.

Rent

First, “rent”⁶ is the excess profit received by producers. It is generally assumed that a producer will set prices at the point of equilibrium between market supply and demand, but in reality a surplus is produced. There is no set technique that determines such excess profit (rent), but previous studies have suggested several approaches.

One of these techniques is “price differentiation.”⁷ This method attempts to determine the deviation of the average domestic price from the average international price. This can be calculated as follows:

$$\begin{aligned} \text{Rent} &= \text{Average domestic price} - \text{Average international price} \\ &= \text{PPP (Purchasing Power Parities)}_{it} / \text{Exchange Rate}_{it} \end{aligned}$$

This equation signifies not only the deviation of producers’ domestic prices from international prices but also the profit that consumers would have received if there was no deviation. In short, it is the producer’s potential excess profit and the consumer’s potential lost profit. This can be understood as the value of purchasing power parity divided by the exchange rate at the time (where i denotes the item and t denotes the time period). In the nested PA model, we can think of this as the battle over the disintegrating pie being transferred to and waged in the domain of politics.

6. Rent is also understood as the waste generated by monopolies, which places it in the realm of monopolistic profit. See VISCUSI et al. (2005, 89–90).

7. Although this is not the only way, understanding rent in this way is a valid technique. For example, CALDER (1988) used it to estimate producers’ rent, and JEONG and WEINER (2011) used it to specify rent as it relates to political corruption.

The second approach is to understand industrial productivity, which is thought to have a correlation with rent. Differences between domestic and international prices usually reflect Japanese industry's high internal costs. Hence, productivity improvements can lead to a reduction in the domestic and international price differential (NAGAOKA 1999). In this sense, we can see an inverse correlation between productivity and rents, so that the determination of productivity should enable us to indirectly ascertain changes in rent.

Moreover, this study uses the Japan Industrial Productivity (JIP) database to determine productivity.⁸ In particular, the productivity data that will be dealt with here is the growth rate of total factor productivity (TFP). Productivity growth is generally defined as the sum of the increase in TFP and the contribution of the increased input of labor, capital, and services (FUKAO and MIYAGAWA 2008). Therefore, the relationship between labor and capital in TFP growth can be expressed by the following equation. This in itself is an indicator that measures the so-called activity efficiency, which is the degree by which an industry as a whole has become more technologically efficient due to factors such as technological innovations.

$$\begin{aligned} &\text{TFP growth rate} \\ &= \text{Labor productivity growth rate} \\ &\quad - \text{contribution from ratio of capital intensity (capital stock per} \\ &\quad \text{employee)} \end{aligned}$$

In this study, we will tentatively try to determine the rent for Japan overall and for each industrial category, based on productivity and the differences between the internal and external prices discussed herein.

The cost of collective action

Next, we will operationalize the cost of collective action. Starting with OLSON (1965), the logic for collective action in the formation of a group can be applied to various problems in political science, and the logic of the free rider problem covers a wide range of fields.⁹

8. For more on JIP, see FUKAO and MIYAGAWA (2008) and the webpage of the Research Institute of Economy, Trade and Industry (<http://www.rieti.go.jp/en/>). Although we have tried to preserve the integrity of the industrial classification (e.g., the Japan Standard Industrial Classifications) and interest group categories in this process, it is debatable whether industrial categories determine the territories of interest groups, but this is a topic for future discussion.

9. Various subjects can be understood as a problem of collective action, including political coalitions, interest groups, self-reinforcing power structures such as the "iron triangle" of the LDP, policy networks, and organization formations.

Here, we focus on the dynamics of industry and measure the cost of collective action in each industry's market. In particular, we focus on the degree of concentration among players as an indicator of the internal cost of collective action and as a proxy for industry as a whole. Then, we measure the cost of collective action for each industry's market. For this, we utilize the Herfindahl–Hirschman Index (HHI) that has been determined for each item on the basis of the Fair Trade Commission's survey on industry concentration. The HHI is expressed by the following equation, which is the sum of the square of each company's (i) share (market share) for each item (j).

$$HHI_j = \sum_{i=1}^n (\text{Share}_{i,j})^2$$

The HHI is a general indicator of the status of market competition. Naturally, the greater the share of a company (i), the larger the squared value of that share becomes. Hence, it follows that the larger the numerical value is, the closer the situation comes to being monopolistic. Conversely, the closer the numerical value is to zero, the more it will spur greater competition through the entry of new players.¹⁰ Therefore, we can infer that the larger the HHI value, the smaller the cost of collective action, and vice versa.

Empirical Results

Based on the identification strategy above, the results of analysis concerning various data for rent and the cost of collective action are presented below.

RENT

In measuring rent, this study attempts to specify producers' rent for all industries in Japan. This was determined to be the difference between Japanese domestic and foreign prices taken from an international comparison that uses OECD data.¹¹

To gain a descriptive understanding of the overall trend, we looked at the data on the overall Japanese rent (Japanese-foreign price difference) as a time series and observed that it continues to fluctuate. The continuously downward-sloping line denotes the purchasing power parity (see FIGURE 2). We can see that it continues to decline over the long term, thus illustrating a

10. For a discussion of HHI, see VISCUSI et al. (2005, 159–61).

11. The international data was mainly collected through the database of OECD Stats Extracts.

FIGURE 2. Trend in Japanese-foreign price differences based on purchasing power parity. Note: Data obtained from the OECD library, and prepared using OECD Purchasing Power Parities data.

general decline in prices. The wildly fluctuating line denotes the exchange rate. Looking at prices adjusted for the exchange rate over time, we see that 1995 was a peak year, after which prices declined. This is partly because the yen has generally been strong since the 1985 Plaza Accord and also because productivity levels have changed for each industry.

The data can then be broken down by industry and item. For several categories, looking at the major changes in the Japanese-foreign price differences, despite a declining trend—for instance, in agriculture and other food-related fields (food, nonalcoholic beverages)—rent remains relatively high over time. Meanwhile, we can see that rent in communications has changed very little since the 1990s.

Based on OECD data, we perform a time-series comparison of producer prices. We can observe, for example, a trend through the first decade of the

FIGURE 3. Changes in rent for each category.

Note: Prepared from OECD Purchasing Power Parities data.

FIGURE 4. International comparison of producer prices in the manufacturing cluster.

Note: Prepared using data from OECD Stat Extracts, and OECD Prices and Purchasing Power Parities.

twenty-first century toward the convergence of the average producer price for both the Japanese manufacturing industry and international prices. From this, we can at least infer that rent has been declining in the manufacturing cluster.

Furthermore, in reference to the productivity changes that we indicated earlier as factors in the change in Japanese-foreign price differences, we compare the manufacturing cluster with the non-manufacturing cluster, which is shown in FIGURE 5. This figure has important implications for understanding the differences of each cluster.

First, we can ascertain that although the timing of the fluctuations differs, both the manufacturing industry cluster and the non-manufacturing industry cluster are moving downward in a jagged line.

Second, we can verify the differences for both. The disparities in productivity that were determined using data on TFP growth show that both the manufacturing and non-manufacturing sectors have been trending downward since the 1970s, but the decline in productivity improvement is

FIGURE 5. Trend in productivity growth in the manufacturing and non-manufacturing industries.

Note: Prepared using data from OECD Stat Extracts, and OECD Prices and Purchasing Power Parities.

FIGURE 6. Overall trend of HHI.

Note: Prepared from the JIP database for 2009.

more pronounced in the non-manufacturing cluster. In other words, while the manufacturing cluster was fluctuating, its TFP continued to grow, albeit at sometimes sharply lower rates (it contributed to productivity improvement). However, we can see that although the productivity growth in the non-manufacturing cluster was never high from the outset, it has diminished even further. From this comparison, we can infer that the low growth rate of productivity observed over time for the non-manufacturing cluster (in fact, such growth has been negative since the 1990s) supports an environment conducive to the preservation of rent.

Furthermore, the Japanese-foreign price differences tend to narrow as productivity improves. Therefore, changes in productivity growth show that the manufacturing cluster is losing rent, whereas the non-manufacturing cluster is preserving rent. This is because, as deregulation proceeds (or despite deregulation's progress), sectors that remain regulated will benefit from an environment wherein it will be relatively easy to preserve rent.

COST OF COLLECTIVE ACTION

Next, the data concerns the cost of collective action. As shown in the preceding discussion, this cost is based on ascertaining the number of participants in the collective action.

FIGURE 6 illustrates the overall trend in changes in the degree of concentration calculated by participant share. What can be said here is that since the institutional reforms of the mid-1990s, HHI has trended downward. The slope of the fitted line that depicts the relationship between the degree of industry concentration (market share) and HHI was steeper in 2006 than it was in 1996, albeit only slightly. This shows that the extent of industry concentration declined from the 1990s through the first decade of the twenty-first century and that market competition was advancing overall. Yet, we can expect the trend to vary from industry to industry.

Next, we verify this for each individual product item. Below, we confirm the trend for each major industrial category.¹²

12. We will observe the changes in HHI over time using data from the Fair Trade Commission's surveys on degree of concentration. The JIP data are limited on HHI, but the Fair Trade Commission's data make it possible to look at the information for a longer period of time. Moreover, we omitted items for which it is difficult to ascertain trends because of many missing values.

FIGURE 7. Changes in degree of concentration in manufacturing industry sectors.
 Note: Prepared from the Fair Trade Commission's surveys on the degree of concentration in production and shipping from 1975 on.

FIGURE 8. Changes in degree of concentration in manufacturing industry sectors.
 Note: Prepared from the Fair Trade Commission's surveys on the degree of concentration in production and shipping from 1975 on.

The manufacturing cluster¹³

The manufacturing cluster includes industries that make so-called tradable goods, such as food, textiles, steel, and automobiles, as well as other transportation equipment.

The general trend in the manufacturing industry has been that of a one-time decline in concentration in the late 1980s, after which the trend for each sector flattened. For example, this trend is evident for butter, beer, and other food-processing industries; in the steel industry, which was formerly the driving force of Japan as an industrial nation; and even in the automobile and other transportation equipment industries, whose growth period coincided with the period of rapid growth of the Japanese economy.

On the other hand, there are some sectors wherein concentration has increased since the 1980s. Hence, it is difficult to say that concentration is being diffused in all sectors. For instance, as shown below for textiles, photographic film, and petroleum products, the degree of concentration has undeniably increased in some industries, especially since the late 1990s. This indicates that the number of influential participants in these industries is limited.

13. The manufacturing cluster includes many tradable goods that can be imported and exported.

FIGURE 9. Changes in degree of concentration in non-manufacturing industry sectors.
Note: Prepared from the Fair Trade Commission's surveys on the degree of concentration in production and shipping from 1975 on.

The non-manufacturing cluster¹⁴

Next, we address the changes in the degree of concentration in the non-manufacturing cluster. This cluster encompasses the so-called regulated industries, such as public utilities, communications, transport, and financial services.

First, there are some industries, such as communications, wherein the degree of concentration has been diminishing since the late 1990s. However, since communications had previously been a monopoly, it undeniably maintains a relatively high degree of concentration compared with other industries, which is indicated by its HHI level of 4000.

Next, in sectors such as transport (especially marine and air transport) and financial services (banking, life insurance, nonlife insurance, securities), we note that the degree of concentration temporarily weakened in the late 1990s, but HHI has since increased again. This is because competition in many of these sectors led to corporate mergers, thereby reducing the number of players or the number of significant players. In other words, it implies that the cost of coordinating interests within special-interest groups declined as industry concentration increased. The fact that regulated industries, in particular, have returned to a high degree of concentration can be considered a trend that reflects the industrial structure.

Discussion

To understand the fluctuations in producer cartels, this paper first highlighted producer rents and the cost of collective action as factors that explain forms of cartels. Then, it ascertained the trends of these cartels using the industrial data on disparity between domestic and foreign prices, productivity, and the degree of market concentration.

RELATIONSHIP BETWEEN RENT AND THE COST OF COLLECTIVE ACTION

Returning to the question posed at the beginning of this paper, the purpose of this paper is to clarify the relationship between rent within special-interest groups and the cost of collective action. The expected result of the electoral system changes predicted by the median voter theorem is a linear relationship between industries' increasing cost of collective action and the diminution of rents. Nevertheless, in reviewing these rents and the data on the degree of concentration, although we observe fluctuations in

14. This includes many non-tradable goods from regulated industries that do not engage in importing or exporting.

FIGURE 10. Changes in degree of concentration in non-manufacturing industry sectors.
Note: Prepared from the Fair Trade Commission's surveys on the degree of concentration in production and shipping from 1975 on.

FIGURE 11. TFP growth rates and HHI.

Note: Prepared from the JIP databases for 1996 and 2006.

both, it seems premature to conclude that they are converging in a particular direction. We can indicate the following points.

First, rent in Japan is certainly on an overall downward trend. Still, we notice differences between the manufacturing and non-manufacturing industries. In our comparison, we note that the manufacturing industry is losing rent by maintaining improvement in its productivity. In other words, in regulated industries, rent declines but is maintained.

Second, regarding the degree of concentration, there is no particular trend toward less concentration in either the manufacturing or the non-manufacturing industries. Over time, and since the late 1990s in particular, we see that the costs of collective action are increasing in some areas, whereas they are decreasing in others. We also see that regulated industries in particular have a tendency to maintain a high degree of concentration.

Third, regarding the connection between rent and the cost of collective action, not all industries are converging in the same direction. Still, it is possible to ascertain the direction in which they are moving.

FIGURE 12. Rent and the cost of collective action.

Note: Prepared by the author.

FIGURE 11 shows a comparison of scatter diagrams illustrating the relationship between TFP growth and HHI for the manufacturing cluster and the non-manufacturing cluster in 1996 and 2006. In the non-manufacturing cluster, the relationship appears to be one in which productivity growth is relatively low (maintaining rent), concentration is diminishing, and the cost of collective action is maintained. Meanwhile, in the manufacturing cluster, it appears that productivity growth is higher (losing rent) and that concentration is also diminishing. Moreover, as we previously forecast, this does not mean that the lower rent and the higher costs of collective action do not necessarily converge in the same direction.

Next, in FIGURE 12 we substitute rent and the cost of collective action for productivity improvement and degree of concentration. The diagram on the left shows this paper's initial prognosis that supposes a change in preference from that of the producer's interests to that of the general interest in response to institutional change. Meanwhile, the diagram on the right illustrates the actual dimensionality of rent and degree of concentration. Although the correlation between rent and the cost of collective action should be plotted in a scatter diagram adjusted for industry type, in neither case does the general trend appear to be an inverse linear correlation. For example, for most sectors in the non-manufacturing cluster, even though rent is decreasing, it remains relatively maintained, and the cost of collective action is moving toward a decreasing trend. This means

	BEFORE (THE REFORM)	POLITICAL COST INSIDE THE SECTOR	AFTER (THE REFORM)	OUTCOME (FLUCTUATING CARTELS)
HYPOTHESIS 1	Low rent	High Cost of Collective Action	Rent Declines	(1) Consumer-centric
HYPOTHESIS 2	High rent	Low Cost of Collective Action	High Rent Maintained	(2) Producer-centric
HYPOTHESIS 3	Low rent	Low Cost of Collective Action	Low Rent Maintained	(3) Hybrid regime
HYPOTHESIS 4	High rent	High Cost of Collective Action	High Rent Maintained	(4) Hybrid regime

TABLE 1. Fluctuations in producer cartels (prepared by the author).

that the trend in most sectors is a deviation from a linear correlation into a “concentration-maintaining cluster” or a “rent-maintaining cluster.”¹⁵

EXAMINING THE POLITICAL MECHANISM OF THE FLUCTUATIONS IN PRODUCER CARTELS

So why is the movement in this direction? Now that we have ascertained the rent of industries and their degree of concentration, we will examine the correlation between political mechanisms and institutional reforms that are geared toward the general interest. Although we have seen that the relationship between a declining rent and a rising cost of collective action does not necessarily converge in the same direction for all industries, we will attempt to derive several hypotheses, based on the assumption that the direction diversifies.

That is to say, we think we can distinguish the regimes geared toward regulatory policy into the following three, depending on the status of rent before institutional reform and the status of the cost of collective action after institutional reform.¹⁶

First, when rent is low before institutional reform and the cost of collective action among participants is high after reform, it becomes diffi-

15. For example, since the late 1990s, the regulated industries of the non-manufacturing cluster (utilities, transport, finance) have had stable rent (have been unable to increase productivity) while maintaining or increasing their degree of concentration.

16. Here, we tentatively discuss the framework. However, it will be necessary to test the validity of these fluctuations in the future by conducting a panel regression analysis using a dataset wherein rent is operationalized by Japanese-foreign price differences based on international comparison, and the cost of collective action are operationalized by degree of market concentration.

cult to maintain producer cartels. Therefore, under these conditions, (1) it changes to a consumer-centric regime. Second, when rent is high before institutional reform and the cost of collective action remains low after reform, high rents are maintained, which results in a regime in which (2) the cartel (producer-centric regime) persists. Third, when the rent is low before reform and the cost of collective action remains low afterward, the original low rent is maintained. Thus, regime (3) is one that changes to a hybrid whose orientation is toward both producer and consumer. Finally, when the pre-reform rent is high and the cost of collective action increases after reform, the original high rent declines; hence again, it settles down to regime (3), a hybrid of producer and consumer orientation.

Also, these can be depicted as four paths with three outcomes, as shown in the diagram below.

How should we understand the political mechanisms inside industries that have maintained rents and preserved special-interest coalitions in the midst of pressure that would make producer cartels collapse, that is, reforms geared to the general interest? In other words, in the PA relationship shown in FIGURE 1 at the beginning of this paper, how is each interest group preserving its influence (or is it?) in the face of pressure to move from a Type A delegation to a Type B delegation?

FIGURE 13. Fluctuations in producer cartels and diversification of interest-group regimes.
Note: Prepared by the author, referencing the discussion by DUNNING (2008) on the diversification of regimes.

As previously discussed, a certain period of time has elapsed since a democratic control's bureaucratic system has been explained in the terms of modern social sciences, and the PA concept has become the established way of understanding relationships among political participants. The concept of delegation has also become indispensable to research in the field of political science. In particular, as cases of "agency slack" between the principal and the agent are expected to increase, it is important to analyze how the balance between delegation and control is being maintained. In general, when democratic control is an issue, the principal in the PA relationship is generally considered to be the citizenry (electorate) (SOGA 2013). Still, we can hypothesize various types of principals in a wide range of PA relationships. Furthermore, a discussion of the "common agency" is likely to be key in ascertaining these "multiple principals."¹⁷

First, there is the matter of "agency loss." This denotes the problem of the so-called asymmetry of information, wherein the agent undertakes an action that is contrary to the principal's intention and logic. For example, it applies to problems of hidden information, incomplete information, hidden action, incomplete action, Madison's dilemma,¹⁸ and other problems. In other words, the more resources and authority the agent has, the more the agent will have the capacity to act contrary to the principal. Furthermore, it is possible that the agent, to whom resources have been entrusted, will strategically use those resources to harm the interest of the principal. In this sense, one must consider the agent's dynamics and there are possibilities that the agent's diverse preferences and strategies could make control of the agent more difficult.

Second is the question of common agency. In this case, when a principal has multiple agents, we can consider two different issues: that of "collective principals ($\{X, Y, Z\} \rightarrow A$)" and that of "multiple principals ($X \rightarrow A, Y \rightarrow A, Z \rightarrow A$)." Although the latter (multiple principals) has been discussed to a certain degree in the context of the PA relationship, the substantive study of the former (collective principals) remains quite limited. Let us consider the occurrence of the problem of collective principals. For example, problems such as the prisoner's dilemma, increased coordination costs because

17. The following discussion is based on KIEWIET and McCUBBINS (1991), who applied the PA problem to the United States Congress and posed several problems in a general theory of delegation.

18. Madison's dilemma, which is discussed in the Federalist papers, states, "In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed, and in the next place oblige it to control itself" (see MADISON 1787).

of a diversity of preferences, and the impossibility theorem of social choice and the actual operational possibilities of the winner are some instances of its representative logic.¹⁹ In this case, if the cost of collective action is internally high or if someone has the right of refusal, it becomes difficult to deviate from the status quo. Furthermore, the agent is faced with a problem of not knowing whose words or preferences should be heeded. There is also a possibility that an entity comprising multiple principals is not a monolith.²⁰ Furthermore, the more participants with differing preferences there are within the principal (the special-interest group), the more difficult it becomes to reach agreements and delegate unilaterally to an agent. As a result, this can become a factor that disrupts the maintenance of special-interest (producer) cartel groups.

Now, according to the hypothesis that considers the logic of the latter theory (that of collective principals), interest groups (industries) that can successfully suppress the cost of collective action that necessarily increases as a result of general-interest reform by means of “successful concentration” can maintain cartels (the paths of hypotheses 3 and 2 in TABLE 1). Conversely, cartels for interest groups (industries) that have failed to undertake this concentration are faced with the high costs of collective action and become less stable than they were in the past (the paths of hypotheses 1 and 4).

In light of this, let us consider the issue of collectivity within interest groups in the context of the nested structure of the following PA relationship: interest group → politics (political party) → bureaucracy. That is, delegation occurs across multiple levels in a nested PA relationship. As we previously argued, the more nesting layers there are, the greater the likelihood of the expansion of agency slack. If the cost of collective action increases for the first principal (the principal that is doing the delegating), the problem of collective action of principals occurs, which makes it difficult to achieve a unanimous delegation and can further escalate the expansion of agency slack. Thus, the reform of the electoral system can be understood as an event that diffused the preferences of the principals by changing the preferences of the agents (politicians) and increased the cost of collective action among the internal participants.

19. For example, this is the paradox of the impossibility of choice, as typified by ARROW (2011) and Condorcet.

20. There is also the problem of collective agents, but this paper will limit its discussion to principals.

FIGURE 14. Trends in rice rent.

Note: Prepared using producer price data from the OECD's Stats Extracts and the Ministry of Agriculture, Forestry and Fisheries.

A Case Study: The Agricultural Sector

Based on the above examination, a test case below can be presented to individually ascertain the cost of collective action within interest groups (principals).

Changes in rent

We will investigate the change in rent for the agriculture sector, which until now has been the subject of a relatively high degree of producer protection. Rice is Japan's principal agricultural product. Agriculture has often been described as being cartel-like in character. Rice production has long been controlled through the Ministry of Agriculture, Forestry and Fisheries' postwar policy of acreage reduction (ARAHATA 2010). In ascertaining rent for rice as a subject through Japanese-foreign price differences, we observe the fluctuations over time as indicated in FIGURE 14. We can see that the producer's price of rice in Japan is still clearly much higher than the international price. This indicates a cost that the Japanese consumers might not have had to pay (or the cost that the producers might potentially have had to pay) if rice had not been protected.²¹

21. However, if the producers (farmers) did pay this cost, Japanese agricultural production may have become subject to more competition and not been able to survive.

FIGURE 15. Changes in the number of agricultural cooperatives.

Note: Prepared from the Ministry of Agriculture, Forestry and Fisheries' "Statistics on the Number of Agricultural Cooperatives" and the Ministry of Internal Affairs and Communications' "Shichōsonsū no hensen to meiji, showa no daigappei no tokuchō" [Transition in the number of municipalities and the traits of the major mergers in the Meiji and Showa periods].

Changes in the cost of collective action

Then, what about the cost of collective action in this sector? Here we will look at the principal interest group of the agricultural sector—the agricultural cooperative (JA: Japan Agricultural Cooperatives)—as the subject. The agricultural cooperative has been viewed as the LDP's rural vote-gathering organization in postwar Japanese politics (HORIUCHI and SAITO 2010; SAITO 2011). However, in the midst of institutional and environmental change, agricultural cooperatives have been forced to undergo major changes.²²

First, it can be observed that the number of agricultural cooperatives has declined in an accelerated manner since the 1970s, and especially during the 1980s and 1990s. From this, we can assume that the cost of collective action within the agricultural interest groups was dropping and that the industry had succeeded in becoming more concentrated (maintenance of the producer cartel). However, if the agricultural cooperative is taken to be a member of an interest group, the mere reduction in the number

22. See the CABINET OFFICE's (2013 and 2014) "Kisei kaikaku jisshi keikaku" [Implementation plan for regulatory reform].

FIGURE 16. Changes in the composition of agricultural cooperatives.

Note: Prepared using the Ministry of Agriculture, Forestry and Fisheries' "Comprehensive Statistics on Agricultural Cooperatives" and "Statistics on Number of Agricultural Cooperatives."

of cooperatives does not mean that the actual cost of collective action has diminished.

The fact of the matter is that the decline in the number of agricultural cooperatives was actually the result of "mergers," and the number of members per cooperative has actually been increasing as the number of cooperatives fell. Comparing this with the number of municipalities, the mergers of agricultural cooperatives proceeded at a much faster rate than did the mergers of municipalities. In the past, agricultural cooperatives were organized according to the area of municipality. However, in the mid-1990s, the number of agricultural cooperatives fell below the number of municipalities. As a result, nowadays, an area of agricultural cooperative often holds several municipalities, and large-scale merged agricultural

cooperatives have come into existence due to an increase in members (see FIGURES 15 and 16).

In this case, by seeing the current situation as being the opposite of the previous one—that is, as municipalities merged, the increasing number of branches under each cooperative's control has made it possible for cooperatives to expand their territories—we can understand that the cost of collective action for each of the large-scale agricultural cooperatives to concentrate its interests has increased.

If we understand this situation as a problem of collective principals in the context of the nested PA model discussed above, then it appears to imply the diversification of preferences among the internal members of the agricultural cooperatives as interest groups. As a result of this diversification, we can instead view the cost of collective action of each large-scale agricultural cooperative that encompasses several areas (including several municipalities) as being maintained at a high level. In this model, if diverse preferences make it difficult to aggregate a producer's interests (shown by line A in FIGURE 1), then it becomes difficult to delegate as a unified and consolidated principal. The electoral institutional reform promoted delegation via line B in FIGURE 1 (the electorate), and not delegation via line A. Politicians with rational preferences would be motivated to respond to this switch. This also resulted in fluctuations in the preferences of the interest groups that fell between the producers and the electorate.

Data on changes in the agricultural sector also show that the formerly strong position of the producer cartels as entities promoting producer interests in agriculture is starting to erode. Although they continue to maintain a relatively high rent, as they have enjoyed in the past, the increasing cost of collective action within the group means that they have evolved into the type of cartel that can be considered a hybrid, as per FIGURE 12 (as in hypothesis 4). Based on recent arguments favoring the breakup of the agricultural cooperatives, it is likely that this type of cartel will undergo further flux (will become unstable) in the future.²³

Still, this discussion is based on estimation. There needs to be an empirical investigation of just how much politicians' political preferences for agriculture have been dispersed since the 1994 electoral institutional reform. In other words, we need to examine to what degree agriculture

23. To empirically demonstrate this, a detailed survey of agricultural cooperatives and political interests in agriculture would need to be conducted, so some follow-up research is necessary.

has become unprofitable for LDP politicians (not to mention non-LDP politicians).

Conclusion

In conclusion, let me summarize the implications and issues that can be gleaned from this paper.

The first concerns the politics of regulation and special-interest politics. This paper discussed how Japan's producer cartels are becoming more diverse and unstable than in the past. This study simultaneously implies that special-interest politics, which is based on rent seeking in Japan, is in a state of flux. The second concerns the flux being experienced in the relationship between interests and institutional reform, whereby the situation after general-interest reform does not necessarily wipe out special interests. Regarding this point, an effort to ascertain the current state of industry in the political context would be meaningful from the standpoint of recognizing the diversification of special-interest cartels. The third concerns Japan's political context. As to the political significance of such fluctuations, it is possible that the PA model, upon which producer cartels and the one-party rule of the LDP have been premised, is becoming unreliable as a means of describing the modern Japanese political economy. In the 1990s, RAMSEYER and ROSENBLUTH (1993) argued that this model was appropriate as one way to explain Japan's political economy. However, their argument was based on a time when the SNTV (Single Nontransferable Vote) electoral system was in place. The conventional PA model appears to have limited applicability in explaining the maintenance of a politico-bureaucratic interest coalition (the so-called iron triangle), by considering the cost of collective action inside the principal.

To affirm the above claims with clear proof, this paper still has many limitations. Above all else, it is essential that we obtain a more comprehensive overview of the changes that all industries have undergone over the thirty-year period from 1980 to 2010. In this regard, we can conduct a complete analysis with the panel dataset for each variable in all industries in the Japan Standard Industrial Classification (JSIC). In particular, we must be able to empirically illustrate how the forms of protective cartels in each industry changed or diversified after the 1994 electoral institutional reform (whether in a producer-centric direction or a consumer-centric direction). For this, we will need to exercise additional care when operationalizing individual variables, such as rent. The above endeavors would be necessary for elucidating the political mechanism of the fluctuations in

producer cartels that we have tentatively shown in this paper. This paper has presented the results of analysis at a preliminary stage, and research on this topic is still underway.

REFERENCES

- ARAHATA, Katsumi
 2010 *Kome Seisan Chosei no Keizai Bunseki* [The economics of the rice acreage reduction program]. Tokyo: Agriculture and Forestry Statistics Publishing Inc.
- ARROW, Kenneth J.
 2011 *Social Choice and Individual Values*. 3rd.ed. New haven, CT: Yale University Press. (Originally published 1951.)
- CABINET OFFICE (Government of Japan)
 2013–2014 “Kisei kaikaku jisshi keikaku” [Implementation plan for regulatory reform].
- CALDER, Kent E.
 1988 *Crisis and Compensation: Public Policy and Political Stability in Japan, 1949–1986*. Princeton, NJ: Princeton University Press.
- DUNNING, Thad
 2008 *Crude Democracy: Natural Resource Wealth and Political Regimes*. New York, NY: Cambridge University Press.
- FUKAO, Kyoji, and MIYAGAWA Tsutomu
 2008 *Seisansei to Nihon no keizaiseichō: JIP dētābēsu ni yoru sangyo kigyo reberu no jishshyo bunseki* [Productivity and Japan’s economic growth: Industry-level and firm-level studies based on the JIP Database]. Tokyo: University of Tokyo Press.
- GREEN, Edward J., and Robert H. PORTER
 1984 “Noncooperative Collusion under Imperfect Price Information.” *Econometrica* 52/1 (January): 87–100.
- GROSSMAN, Gene M., and Elhanan HELPMAN
 2002 *Special Interest Politics*. Cambridge, MA: The MIT Press.
- HORIUCHI, Yusaku, and SAITO Jun
 2010 “Cultivating Rice and Votes: The Institutional Origins of Agricultural Protection in Japan.” *Journal of East Asian Studies* 10: 425–52.
- JEONG, Yujin, and Robert J. WEINER
 2011 “Conflict and Corruption in International Trade: Who Helped Iraq Circumvent United Nations Sanctions?” In *International Handbook on the Economics of Corruption*, vol. 2, Susan Rose-Ackerman and Tina Søreide, eds., 376–404. Northampton, MA: Edward Elgar Publishing.

- KIWEIT, D. Roderick, and Mathew D. MUCCUBINS
 1991 *The Logic of Delegation: The Congressional Parties and The Appropriations Process*. Chicago: The University of Chicago Press.
- MADISON, James
 1787 "The Federalist Paper, No. 51: The Structure of the Government Must Furnish." Available at: <https://www.congress.gov/resources/display/content/The+Federalist+Papers#TheFederalistPapers-51> (accessed 19 October 2016).
- MARQUEZ, J.
 1994 "Life Expectancy of International Cartels: An Empirical Analysis." *Review of Industrial Organization* 9: 331–41.
- MURAMATSU, Michio, ITO Mitsutoshi, and TSUJINAKA Yutaka
 1986 *Sengo Nihon no Atsuryoku dantai* [Pressure groups in postwar politics]. Tokyo: Toyo Keizai Inc.
- NAGAOKA, Sadao
 1999 *Naigaikakakusa no Keizai bunseki* [An economic analysis of international price differentials-productivity perspective]. Tokyo: NTT Publishing Inc.
- NIELSON, Daniel L., and Michael J. TIERNEY
 2003 "Delegation to International Organizations: Agency Theory and World Bank Environmental Reform." *International Organization* 57/2: 241–76.
- OLSON, Mancur
 1965 *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.
- PATASHINIK, Erik M.
 2008 *Reforms at Risk: What Happens After Major Policy Changes Are Enacted?* Princeton, NJ: Princeton University Press.
- PERSSON, Tortsten, and Guide TABELLINI
 2000 *Political Economics: Explaining Economic Policy*. Cambridge, MA: The MIT Press.
- RAMSEYER, Mark J., and Frances McCall ROSENBLUTH
 1993 *Japan's Political Marketplace*. Cambridge, MA: Harvard University Press.
- ROSENBLUTH, Frances McCall, and Michael F. THIES
 2010 *Japan Transformed: Political Change and Economic Restructuring*. Princeton, NJ: Princeton University Press.
- SAITO, Jun
 2011 *Jiminto Chokiseiken no Seijikeizaigaku* [The political economy of the LDP regime]. Tokyo: Keiso Shobo Publishing.
- SOGA, Kengo
 2013 *Gyoseigaku* [Public administration]. Tokyo: Yuhikaku Publishing.

STIGLER, George J.

1964 "A Theory of Oligopoly." *Journal of Political Economy* 72/1: 44–61.

SYMEONIDIS, G.

2003 "In Which Industries is Collusion More Likely? Evidence from the UK." *Journal of Industrial Economics* 51: 45–74.

VISCUSI, Kip.W., Joseph E. HARRINGTON, Jr., and John M. VERNON

2005 *Economics of Regulation and Antitrust*. Cambridge, MA: MIT Press.