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Economic Fluctuations, Political Change, and Protest Movements: A QCA Analysis of 19th Century Japan

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I. THEORIES OF POPULAR PROTEST AND 19TH CENTURY JAPAN

Past studies have documented that different explanations exist to account for the rise and fall of popular protest in times of social change of a historical scale. Of those explanations, economic and political accounts are most cited arguments relating historical changes and the occurrence of popular contention.

Economic change, usually associated with national development, has probably been the most widely claimed source of rebellions. It has been claimed that sudden change in economic conditions and the resultant degradation of the life conditions create mounting dissatisfaction and anxiety, which in turn leads to the rise of popular rebellions (Gurr 1970; Huntington 1968; Moore 1966). In a context of premodern society, market fluctuations and natural disasters constitute the sources of sudden alterations in economic conditions.

Development of a market economy brings about an increased number of people basing their lives on a daily exchange of commodities. Under this circumstance, a sudden large price hike of important daily

commodities pushes them into financial difficulties, and thus creates a confusion in the lives of the populace (Chirot and Ragin 1975). Also sudden catastrophic hardship, such as famine, earthquakes, and contagious diseases, disrupts the lives of people by destroying the cycles of economic activities (Oka 1970). Drained food reserves and price hikes resulting from a bad harvest, for example, bring sudden hunger and poverty among peasants. Financial difficulties, disturbed economic production, hunger, and poverty, all these contribute to the occurrence of popular protest, according to the economic explanation.

Quite apart from economic explanations, some scholars emphasize political factors as more directly related to popular rebellions. They claim that large political upheaval, such as domestic wars, change in power relations and resultant political confusions, incite popular rebellions (Snyder and Tilly 1972; Tilly et al. 1975; Oberschall 1973). This perspective, with mounting concern with political opportunity structure in recent research, has become popular and widespread. Scholars in this bent claim that the extent of "openness" of political opportunity structure determines the occurrence and nonoccurrence of protest. They emphasize severe political control and repression lessening the opportunity for rebellion, and political instability and power collapse contributing to its increase. The idea behind this perspective is that it is not the mobilization capacity of the organization per se but the structural opportunities and constraints surrounding people carrying out protest activities that leads to the occurrence of protest activities (Tarrow 1989).

Both economic and political explanations of popular protest in times of large social change appear convincing as theoretical speculations. However, they remain only conjectures if untested for their validity. It is possible to believe that either economic or political explanation is valid; at the same time, it is also possible to think that both

explanations are of equal explanatory power. Further, it is possible to hold that only the combination of both makes one solid explanation. These speculations therefore need to be tested against concrete historical cases. In this regard, nineteenth-century Japan can provide an ideal platform at which to examine the validity of the respective explanations, as it experienced both economic change and political upheaval of an unprecedented magnitude in that period.

In nineteenth-century Japan, buying and selling in the market was a rather widespread practice in the late Tokugawa and the early Meiji Japan. Peasants sold their raw and processed products and labor to buy food and daily necessities. Also in this period, Japan experienced natural disasters of an immense magnitude, with the Tempō famine exerting the most profound damage to popular life.

Nineteenth-century Japan experienced a series of events unparalleled by incidents in the previous two centuries. Tokugawa feudal system was heavily shaken by a major rebellion from within the samurai strata in the 1830s, and again by the "invasion" of foreign powers in the late 1850s. In the 1860s, the Tokugawa system was in its fatal decline. Two local powers, Satsuma and Choshu, emerged as dominant political actors. Putting the Imperial Court under their successive control, they began open resistance against the sovereignty of the Tokugawa bakufu. Late in 1867, Satsuma and Choshu, now joined by Tosa, declared the establishment of the new Meiji government. The war continued until May 1869, when the last feudal government's forces fell to the ground. A series of wars and collisions undoubtedly had strong impact on political scenes in the pre-Meiji period.

With these economic and political incidents, it seems plausible to examine the validity of the above explanations against Japanese experiences of the nineteenth century. The temporal investigation of the

Japanese historical case seeks to determine the relative importance of economic and political factors in the rise and fall of peasant uprisings over the period of 1800-1877.

II. RESEARCH DESIGN, METHODOLOGY, AND MEASUREMENT

Given the above theoretical concerns, both short-term economic and political changes as well as popular protest need to be incorporated in the examination. In nineteenth-century Japan, a majority of the populace was peasants. Popular protest then meant peasant protest. Peasant protest here can be defined as peasant unrest directed to those belonging to the upper social class, the Samurai class governing authorities. Typical cases include a peasant gathering with the intention of resisting the policy laid out by the local government or the feudal lord.

To represent economic changes, market fluctuations and bad harvest hampering economic activities of people should be incorporated in the analysis. Also for political change, instances of political instability shaking the central government in Japan at that time, the bakufu, need to be incorporated. Such instances include the Ohshio rebellion in 1837, opening of ports to foreign powers in the 1850s, and the civil war leading to the Meiji Restoration.

Also in the analysis, cholera epidemics are to be included. Neither economic nor political factors of popular protest refer to the mobilization capacity inherent or internal to the organization of people carrying out protest activities. The analysis then needs a factor that taps on the mobilization capacity of the populace. In this regard, cholera epidemics signify instances that lead to change in the mobilization capacity. They brought about difficulties in the life of peasants through the depletion of

human resources and degrading manpower, which eventually lead to fewer people engaging themselves in the protest. Thus cholera epidemics are included in the analysis as an indicator for peasant mobilization capacity.

The examination will proceed in two stages. The first stage examines in an exploratory manner the relationship between socio-economic and political changes and peasant protest. This stage serves as a preliminary investigation prior to the later analyses. Two explanations, one economic and the other political, are examined in a more rigorous manner in the next stage. To examine the applicability of respective explanations, Qualitative Comparative Analysis based on the Boolean algebra (hereafter QCA) is employed.

The rationale for employing QCA as an analytical tool is that it allows us to examine multiple and conjunctural causation. As this study posits no assumption as to the supremacy of one of two possible explanations over the other, a maximum extent of possible combinations of the explanatory variables should be allowed in the analysis. In concrete terms, it is still a possibility that both economic and political explanations combined together can only make a valid account of the popular protest in nineteenth-century Japan. QCA as an analytical tool can test this possibility.

Application of QCA requires that both independent and dependent variables be treated categorically. Once causal conditions have been selected, cases conforming to each combination of causal conditions are examined to see if they agree on the outcome variable. Data on cases are represented as a truth table. A truth table lists different combinations of dichotomous causal conditions and the value of the outcome variable for the cases conforming to each combination. An analysis with three causal conditions yields a truth table with eight rows. Procedures

for simplifying truth tables are discussed in Ragin (1987). Before proceeding, descriptions of the measures are in order.

To operationalize popular protest, annual count of protest incidents is employed. A magnitude index, which would take into account various aspects of incidents, such as violence, duration, and damages, might be a possible alternative. However, such a measure points more to the entire volume of the activities and less to the occurrence and nonoccurrence of the incidents. As this study examines the occurrence of popular protest in its relation to historical change, it would be wise to use the annual counts of incidents as a measure of popular protest. As a variable used in QCA, years that witnessed equal to or more than 29 recorded incidents are given the value of 1, and years with less than 29 incidents the value of 0. The variable is indicated as PROTEST in the truth table. Annual data were taken from *Hyakusho Ikki Sogo Nempyo* by Aoki (1971).

Market fluctuation is operationalized as a proportional change in the value of the Osaka wholesale price index of the present year to that of the previous year. Following the contention of economic explanation, this measure is intended to reflect a sudden gap rather than the absolute amount of change. To create a measure, a year that saw an increase of equal or more than 17.6 index value compared to that in the previous year is coded as 1, and a year with less than 17.6 coded as 0. Annual data for the Osaka wholesale price index, 1800-1877, are taken from the *Kinsei no bukka to keizai hatten* (Commodity Prices and Economic Development in Premodern Era) by Shimbo (1978: 30-36) and the *Osaka oroshiuri bukka shisu 1757-1915 nen* (The Osaka Wholesale Price Index, 1757-1915) by Saito (1980).

Complete information on the spatial spread of the bad harvest and its damages does not exist. However, various historical descriptions and

records are available through which we can reasonably decipher the years with severely damaged harvest. Altogether, these records point to the years 1833, 1836, 1866, and 1868 to be the most disastrous in harvest. These years are given the value of 1, with the others given 0. Data are taken from *Saigai no rekishi* (History of Natural Disasters) by Arakawa (1964), *Kikin no Rekishi* (History of Bad Harvest) by Arakawa (1967), and *Nihon kanbatsu rin-u shiryo* (Historical Materials of Drought and Long Rain in Japan) by Kisho Kenkyu-jyo (1964). Finally, both market economy and bad harvest are combined to make one variable used in QCA and designated as ECONOMY.

In a sense, the entire period of the last four decades of the Tokugawa period could be considered as consisting of a collection of political incidents of major importance. Of all possible indicators, however, the Ohshio rebellion in 1837, the opening of the ports as a result of foreign pressure and its resultant political confusions (1858-1860), and the Meiji Restoration and political incidents leading to the Restoration (1864-1869) were by far the most significant political change, leaving the most profound impact on the entire Japanese society.

Thus, this study employs these incidents occurring during this period as indicating significant political instability that in turn created political opportunities for protest. In QCA, years with political instability are marked 1, and the rest marked 0. This variable is indicated as POLITICS in the truth table.

As with the other variables, cholera epidemics are to be operationalized to fit an QCA analysis. Years with severe damage by the epidemics are given the value of 1, the other years the value of 0. This variable is indicated as CHOLERA in the truth table.

III. ANALYSIS

III. I. GRAPHIC EXPLORATION

Figure 1 shows the annual change in the number of popular protests during the period 1800-1877. The graph shows the presence of the periods of eruption as well as periods of relative calm and stability with two notable peaks: 1833-36 and 1866-73. It also shows the relative calmness of the periods other than these eruptive moments; with the two periods of big explosion taken from the graph, the frequencies of political protest would not appear to change much over the period 1800-1877.

Historical comparison of the two peak periods leads us to notice different incidents behind them. The first peak, 1833 through 1836, overlaps the period of the Tempō famine. Especially in 1836, it has been said, a bad harvest of an unprecedented magnitude hit northern Japan. In contrast, the second peak, 1866 through 1873, was characterized by political upheaval that marked the end of the Tokugawa reign. These periods, then, suggest the relationship of peasant uprisings with economic

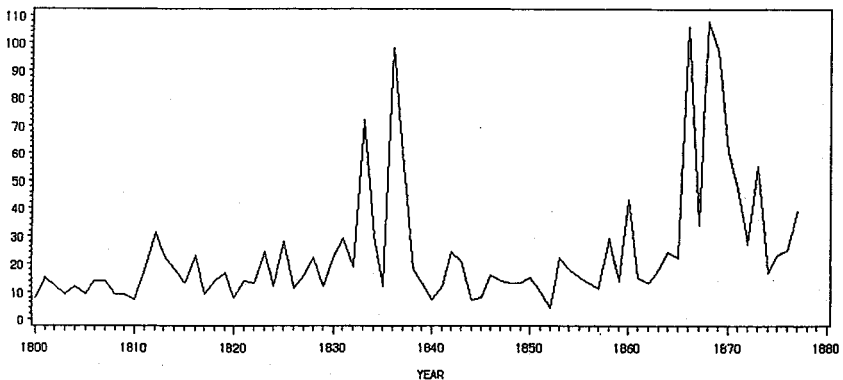


Figure 1 Annual Counts of Popular Protest, 1800-1877

fluctuations, on the one hand, and with political turmoil, on the other.

It is not only these relationships that the peaks imply, however. It has widely been known that the Japanese market economy had also fluctuated considerably throughout the nineteenth century. Figure 2 shows the logarithmically transformed trend in the Osaka Wholesale price index during the period 1800-1877, with figure 3 representing the annual change rate of the price index for the same time period. As is clear in Figure 2, the long-term trend of the market in nineteenth century Japan begins with a steady decrease lasting until 1820, then starts to move up gradually toward 1830 until it reaches a peak in 1837. After a sudden price rise in the 1830s, the market appears to stabilize again somewhat in the 1840s and 1850s. Entering into the 1860s, the graphs show an abrupt and large rise through the end of the 60s.

The results of the exploratory investigation strongly suggest that the structural changes that both explanations claim to be important have some relevance to the rise of peasant uprisings in nineteenth-century Japan. To investigate further the relationship between structural

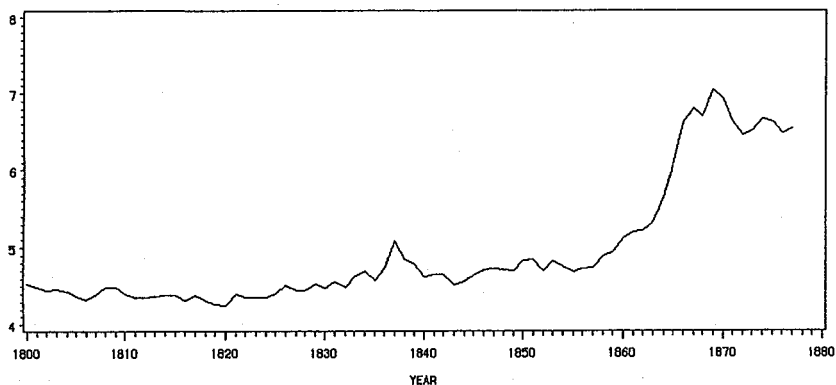


Figure 2 Osaka Wholesale Price Index (Logarithmically Transformed), 1800-1877

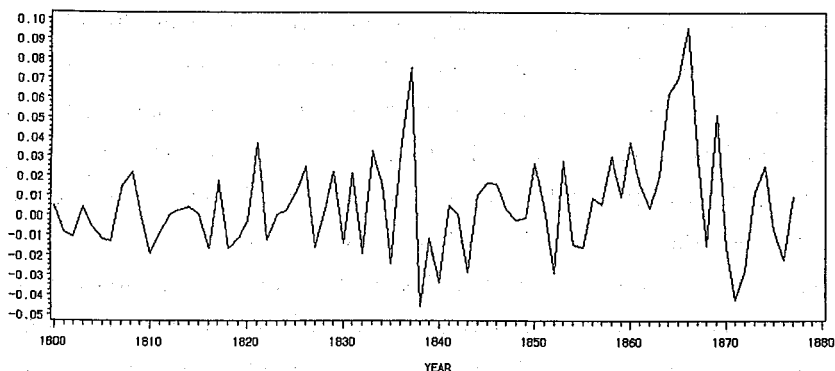


Figure 3 Annual Change Rate of Osaka Wholesale Price Index, 1800-1877

changes and peasant uprisings, we will employ a more systematic method of analysis: QCA.

III. II. FURTHER TEST: QCA

The truth table is constructed with three causal conditions, economic change, political change, and cholera epidemics, and a outcome variable, peasant protest. Table 1 shows the truth table created from these variables.

As is clear with the truth table, the fourth combination (line marked with a?), with Cholera nonpresent and Economy and Politics present, contains cases with contradictory outcomes. A few different treatments are possible for this combination. First, to configure the exact conditions with which peasant protest did occur, the combination is treated as having the value of 0 in the outcome variable. The following equation shows the result of a QCA analysis under this condition.

Table 1 Truth Table on Popular Protest in 1800-1877 Japan

Cholera	Causal Conditions		Total Instances of Protest	Number of Occurrence/Nonoccurrence of Protest		Output Code Protest
	Politics	Economy		Occurred	Not Occurred	
0	0	0	63	6	57	0
0	0	1	3	1	2	0
0	1	0	1	1	0	1
0	1	1	7	4	3	?
1	0	0	1	0	1	0
1	0	1	1	1	0	1
1	1	0	1	0	1	0
1	1	1	1	1	0	1

$$\text{PROTEST} = \text{cholera} * \text{POLITICS} * \text{economy} + \text{CHOLERA} * \text{ECONOMY}$$

A few important findings are noted. Both economic and political explanations are valid; they do incite popular protest. However, they do only with some qualifications and under some conditions. They themselves are not necessary conditions: neither political confusions nor economic fluctuations incite protest independently of other factors. They are not sufficient conditions either. Political confusions lead to the occurrence of protest only when combined with stable economy and the absence of cholera epidemics. Economic fluctuations lead to the occurrence of protests only when combined with cholera epidemics. Thus, in exact terms, both economic and political explanations are evaluated as valid only in the sense that economic and political factors can contribute to the occurrence of protest.

A different treatment is done to allow the maximum possible combinations of causal conditions for the occurrence of popular protest. An effort to find the combinations that might cause popular protest renders the fourth combination in the truth table the output value of 1. The minimization yields the following function.

$$\text{PROTEST} = \text{cholera} * \text{POLITICS} + \text{CHOLERA} * \text{ECONOMY} + \\ \text{POLITICS} * \text{ECONOMY}$$

The third term in this equation, presence of political turmoil and economic fluctuations, is of importance here. This combination signifies that there is an occasion in which both political turmoil and economic fluctuations need to be present concomitantly for the occurrence of popular protest. However, this combination itself is not a necessary condition for the occurrence of protest; there are other instances in which only one factor in this combination, combined with other conditions, can also incite protest, as are demonstrated by the first two terms in the equation.

In sum, the result of the examination using QCA leads to a conclusion that both economic and political explanations are valid in the sense economic fluctuations and political turmoil contribute to the occurrence of popular protest. Also there is a chance that both factors work concomitantly to create protest. In this sense, no clear difference that differentiates one explanation from the other is found in the analysis. From all these results, it seems safe to conclude that economic factors and political factors work to incite popular protest either separately from each other (in this case again these factors need another combinations with other variables) or concomitantly.

IV. DISCUSSIONS

This study started by pointing out that economic and political explanations existed to account for popular protest in times of social change of a historical magnitude. The purpose of this paper was to examine the explanatory potential of those theories. In the process, we

made no assumption as to the possible outcomes of the examination. We allowed for a maximum variation for the outcome, including the combination of these explanations being the sole account for the phenomenon in question.

In the initial examination, graphic presentations led us to believe that our initial suspicion, that is, the possible connection of economic and political fluctuations with peasant protest, was of some value and would merit further examination. To examine more rigorously the relative power of these explanations, QCA was introduced. In the results, no empirical base was found that would clearly differentiate the applicability of one explanation from the other in terms of its explanatory power.

We are not in a position to say that we have clearly demonstrated the relative strength between economic explanation from political one as applied to a Japanese case. Still this examination result was a big step forward in that it brought us a few major findings. First, examination results suggest the possibility that neither explanation is as thorough and convincing as we thought it would in the beginning of this study. Factors both explanations claim to work did not have impact on popular protest completely independently of another variables; economic fluctuations were found to be combined with the presence of cholera epidemics for the occurrence of protest; also, political turmoil was to be combined with, for example, the absence of cholera epidemics to incite protest. Second, the results also suggest that there may be cases in which both economic and political factors work together to bring about popular protest. Third, although the result does not point to the relative strength of respective explanations, it does suggest the existence of different routes and combinations that economic and political factors respectively come to have impact to give rise to popular protest.

The overall impression suggested by the examination results, then,

is that these economic and political conditions themselves may not be the ones that would dominate the entire causal logic of popular protest and that different routes may exist for the occurrence of popular protest. We need, thus, to go further to locate conditions that, together with political and economic conditions, possibly explain the occurrence of popular protest better.

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