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國際學碩士學位論文

Japanese Youth's Homicide Rates:
An Analysis of Time-series data from 1968 to 2010

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Abstract

Due to long economic depression, economic conditions of youths in Japan are deteriorated to the worst in postwar period. However, the number of homicide cases they commit is the lowest in postwar period. Accordingly, previous studies proposing that the low crime rate in Japan is resulted from economic achievements cannot explain the low homicide rate of youths.

In this study, an explanation of the homicide rate of youths by the loss of motivation was attempted. Homicide rate is affected by economic conditions with the medium of relative deprivation. In order that youths feel relative deprivation, they should have high expectation, but youths in Japan today are losing the motivation as a result of bad economic conditions. Loss of motivation decreases relative deprivation and consequently it reduces homicide rate.

Loss of motivation can be measured through local orientation. Local orientation is the inclination that youths are hesitant to leave the present province they are living. This inclination is resulted from the loss of motivation, and it is correlated with other phenomena resulted from loss of motivation. Local orientation can be operationally defined as the employment rate to other prefectures of high school graduates. As employment rate to other prefectures is lower, local orientation becomes higher.

Accordingly, in this study, correlation between employment rate to other prefectures and homicide rate was investigated. Time-series data from 1968 to 2010 were collected to perform descriptive analysis and multiple regression analysis. To identify the self-correlation of residual, Durbin-Watson test was performed.

From the analysis, it was confirmed that employment rate to other prefectures could

explain homicide rate. The employment rate to other prefectures and the homicide rate showed similar trend during the target period of the study. In the regression analysis, positive correlation was identified at one percent significance level. In the results of Durbin-Watson test, positive autocorrelation was found in the residual.

Therefore, low homicide rate of the youths today in Japan can be explained that they lost the motivation. Loss of motivation among youths is likely to act as a social burden in Japan's aging society.

Keywords: Japan, youths in Japan, relative deprivation, loss of motivation, homicide rate, crime rate

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1. Introduction

Japan, a country achieved fast economic growth after World War II, has been suffering long-term depression recently. 20 years after chaos of postwar, Japan became the 2nd largest economic power with rapid economic growth. When other developed countries showed very low growth as a result of the first and the second oil crisis, Japan overcame it and maintained stable growth. When overheated bubbles in stock and real estate industry in 1980 collapsed in 90s, Japan had to suffer from a long-term depression. Numerous enterprises went bankrupt, and remaining companies had to carry out large scale restructuring or cut the wages. Additionally, such depression did not end in a short time. As the economy did not show the sign of recovery even after the continuation of low growth for more than 20 years, discourses that Japan enters 'Lost 30 years' are emerging.

As the result of such depression, youths in Japan faced numerous difficulties. As bubble economy burst, companies reduced new employment to cut labor cost, and increased proportion of non-regular workers. Because of this, it became highly difficult for the youths to be employed by companies, and even when they were employed they could not get good salary if they were non-regular workers. Accordingly, unemployment rate of youths has increased to conspicuously higher level than other age brackets and wage disparity among youths has expanded. Additionally, the ratio of employment as non-regular workers is significantly high in youths. According to the survey of Ministry of Health, Labour and Welfare, approximately half of male youths between 15 and 24 are working in non-regular works, which is more than twice of the ratio of non-regular works out of total male workers.

Nevertheless, we could find a discrepancy with these difficulties among youths in Japan today. Unexpectedly, life satisfaction of youths in Japan today is surprisingly high (Furuichi,

2011). In common sense, life satisfaction should be lowered when life becomes worse from the perspective of employment or wage. However, if we see the results of ‘Public Opinion Survey Concerning People’s Lifestyles’, a regular survey by Japanese government, people in their 20s today showed higher satisfaction than most of other age brackets. Besides, 20s today showed higher life satisfaction than 20s in previous times such as period of high economic growth. Such inclination has been confirmed in many other survey results. In surveys by NHK and Cabinet Office of Japan, the inclination of rise in sense of happiness and life satisfaction is also shown (Toyoizumi, 2010).

In addition, from the perspective of homicide rate, it is difficult to understand the youths of today. Previous studies on crime rate in Japan pointed out the low unemployment rate and poverty rate resulted from the remarkable economic growth and the reduction of income inequality as the cause of low crime rate. As such economic factors have shown correlation with crime rate, it can be expected that the crime rate becomes higher because, youths today who experience high unemployment rate and poverty rate, and the increase of income inequality. However, homicide rate of people in their 20s did not show any changes at the fairly low level in 1990s.

By studying these discrepancies that cannot be explained with previous researches, we may be able to understand Japanese society and Japanese youths better than before. The fact that characteristics of youths cannot be explained by previous studies means that there had been changes in youths and some characteristics that could not be found in the past were appeared. If the correlation between homicide rate and variables representing the changes of youths is discovered, we may be able to identify the changes in the youths in Japan and the causes of such changes. By identifying the changes in the youths and the characteristics of such changes,

we also expect to understand new clues to anticipate the changes in Japan in the future.

As a matter of fact, both increase of life satisfaction and decrease of homicide rate are related with loss of motivation which is the characteristic of Japanese youths today. The fact that we are satisfied with the current life does not mean that the current life is satisfactory. People feel unhappy at present when they believe that they will have a better life in the future (Furuichi, 2011). Because of this, life satisfaction and sense of happiness of the aged is higher and life satisfaction and sense of happiness rather rise when the economic condition becomes worse. Accordingly, the answers of youths that they are satisfied with the current life mean that they do not have positive prospects for their future (Furuichi, 2011).

Likewise, reduction of homicide rate is related with loss of motivation. Previous studies reported that relative deprivation resulted from income inequality can explain homicide rate (Blau & Blau, 1982; Krahn, Hartnagel & Gartrell, 1986; Kennedy, Kawachi, Prothrow-Stith, Lochner & Gupta, 1998). Relative deprivation is created when there is discrepancy between goals and means, or the expectation and the reality. Consequently, if people lower their goals or do not have positive expectations, relative deprivation naturally decreases. Current situations in Japan that crimes including homicides do not increase, although the income inequality among the youths increases, can be explained by such loss of motivation. If they do not have positive expectation, they will not feel relative deprivation or hatred much even when they face gap or inequality.

In the main body of this article, this thesis will be verified. In the following literature review, the relationship between loss of motivation and relative deprivation was briefly discussed. And then the applicability of theories of relative deprivation on Japanese society was assessed through detailed review of previous studies on the crime rates in Japan. After

that, this paper will discuss the recent situation of Japanese youths and the loss of motivation among them through reviewing data and researches from various sources. Once the reviewing of data and researches is done, the remaining part of this paper will verify the proposal of the main body by analyzing time-series data of variables.

2. Literature Review

Relative Deprivation and Loss of Motivation

Discussions on relative deprivation were originated from Durkheim's discussion on anomie. Durkheim's anomie is the status of temporary loss of social functions regulating personal desires of individuals as a result of rapid social changes. He explained anomic suicide in his book 'Suicide (2008)' and mentioned this concept in details. If the society cannot control the desires of individuals, they become infinite. As the infinite desires can never be filled, individuals in the state of anomie will be frustrated in the long run. Durkheim thought that state of anomie would cause exasperation to human beings. Such exasperation can be burst to self or others, and when it bursts to self it is anomic suicide that Durkheim mentioned. In other words, Durkheim considered the emergence of state of anomie as a result of rapid social changes was one of the causes of suicide.

Such discussions of anomie by Durkheim were succeeded to Robert Merton. He modified the concept of anomie and developed his own theory. He defined that anomie was the tension from the gap between culturally defined goals and institutionalized means to pursue them (Merton, 1968). Here, culturally defined goals mean the most prevalent goals among the goals commonly pursued by the members of society. Such culturally defined goals are the objects of the aspiration of the members and what is considered to be worth pursuing in the society. For example, in capitalist society like US, acquisition of wealth is one of the representative culturally defined goals.

The societies add regulations based on customs and institutions on the means to pursue such goals (Merton, 1968). Therefore, only a part of means to achieve such culturally defined goals are allowed to the members of the society. However, to some people these restrictions

may imply the limitation of the means which can be the most efficient to achieve the goal. In addition, the goal achievement through institutionally allowed means is only available for people in a certain class. For example, those who are not well-educated and poor cannot accumulate wealth although they work diligently for their whole life. Therefore, to him more realistic means to accumulate the wealth can be the ones that are not allowed by institutions or customs. Accordingly, a tension between culturally defined goals and institutionalized means can be developed, which may trigger crimes. In other words, according to Merton's anomie theory, crimes cannot help but increase if aspiration to culturally defined goals is too high or the approach to institutionalized means is unequal.

The theory of relative deprivation is deeply related to Merton's anomie theory. Merton's anomie theory explains crimes focusing on the gap between culturally defined goals in the society and objective elements such as institutionalized means. The theory of relative deprivation additionally considers the process such elements are accepted by the members of the society. Even when there is a state of anomie in a society, it does not automatically lead to crimes. The inconsistency between the goals and the means will raise the tension only when it can be perceived by the members, and only when it is received as injustice (Passas, 1997). Additionally, because the members of the society did not know the culturally defined goals and institutionalized means from the beginning, the process to accept these values depends considerably on the interactions with people in the society and perception on others (Passas, 1997).

On the process to set personal goals and norms, reference groups make significant effects on individual (Passas, 1997). Reference group is a group that an individual has already belongs to or want to belong to. Such reference group acts as the counterpart for the

comparison and reference of individuals, and it can be a group or an individual, or even an abstract idea. Individuals do not identify the society as a whole and learn something from it, but they develop the way of thinking by setting a reference group and making relations with it (Newcomb, 1950). When an individual sets a reference group, he accepts the viewpoints and values of the group by comparing the group and himself while playing the role as a member of the group, or as an outsider watching the group (Passas, 1997). Therefore, individuals do not learn the same culturally defined goals and institutionalized means of the society but they learn them in different shapes through the goals, norms and values of the group that they actually belong to or want to.

In this process, relative deprivation can occur. Relative deprivation is an individual or group emotion shown when a certain element expected to him is deprived when comparing himself with a certain group or individual (Runciman, 1993). Thus, if he perceives that certain thing naturally granted for to the reference group is deprived of during the process of comparison with the reference group, it can create the relative deprivation. However, lack of something does not always cause relative deprivation. Relative deprivation is created only when a certain deprivation exists and it is considered unfair (Passas, 1997). In other words, relative deprivation can be summarized as the feeling triggered when something expected to him based on the standards of reference group is not given to him unfairly.

By summarizing the discussions above, several characteristics of relative deprivation can be identified. First of all, relative deprivation is not always identical to objective or absolute deprivation. Of course absolute deprivation can carry over into relative deprivation, but when individuals perceiving this do not feel uncomfortable, relative deprivation does not occur (Passas, 1997). Additionally, as a reference group can be set even as an abstract idea, relative

deprivation can be made without absolute deprivation by setting a virtual superior reference group. Additionally, relative deprivation is not limited to certain classes. Individuals with high rank can set a reference group higher than them and those who with low rank may set the reference group lower than them. But as the status that an individual has in a certain social structure influences the establishment of the reference group (Passas, 1997), and there is inclination that reference group is set based on the similarity or possibility of prospective belongings (Webber, 2007), the level of relative deprivation differs according to the status.

It is known that such relative deprivation is deeply correlated with the crime rate. High crime rate is generally shown in the conditions causing high level of relative deprivation. Relative deprivation can explain crime rate better than poverty, which is absolute deprivation (Blau & Blau, 1986; Kennedy, Kawachi, Prothrow-Stith, Lochner & Gupta, 1998), and it is particularly true when economy develops rapidly (Krahn, Hartnagel & Gartrell, 1986). It is because fast economic development may trigger relative deprivation by increasing the expectation from the reference group.

Therefore, by applying such explanation to Japan, we can get the following assumption. Although objective situations of Japanese youths have been deteriorated, it does not necessarily trigger relative deprivation, and consequently crime rate may not increase. Especially, as proposed in this article, if they do not have positive expectation on their future, the occurrence of relative deprivation becomes weakened further. However, empirical studies on relative deprivation theory are mainly made in the U.S. Therefore, we need to assess the possibility to apply the theory of relative deprivation to Japanese society before testing this assumption. In next section, we will review the previous studies on crime rate in Japan and the applicability of relative deprivation theory.

Previous Studies on Crime Rate of Japan

Japan has very low crime rate. According to White paper on Crime by Ministry of Justice in Japan, penal code crime rate in Japan is lower than half of that of advanced countries such as Germany, U.K and the U.S. In particular, in case of homicide, such inclination becomes more conspicuous and homicide rate of Japan is 1/10 of US at most. Many studies were made on the reason of such low crime rate and many different explanations were made. Such explanations can be classified as 1) arguments related to police activities, 2) arguments related to cultural factors, and 3) arguments related to successful economic development.

First of all, some of the studies concluded the police in Japan are the cause of low crime rate. According to Vogel (1980), the low crime rate of Japan is the result of successful crime control. He pointed that the three important reason of successful crime control were, preparedness to response crime quickly, close cooperation with community, and the current situation that more officers can be placed to a crime because of small crime quantities. Additionally, he paid attention to the characteristics of policemen in Japan. Policemen in Japan have higher status than those in the U.S and are regulated by strict rules (Bayley, 1976; Vogel, 1980). On the other hand, they try to keep close relations with local residents with kind and humble attitudes. Accordingly, Japanese policemen can acquire better information and background knowledge necessary for their police activities and consequently can control crime better.

There are studies paying attention to cultural characteristics of Japan from the perspectives similar to the perspectives regarding the police. Such cultural focus can be found in the classic study on Japan, 'The Chrysanthemum and the Sword (Benedict, 2008)'. Benedict addressed that moral and conscience were emphasized in western countries, while in Japan what others

think and sense of shame were emphasized. When a member of western society made bad behaviors, the standard judging it is his or her own conscience. So when he confesses and atones for his wrongs he can reduce the burden from the behavior. But what others think and sense of shame are external sanctions unlike conscience and moral. When one does wrong doings in Japanese society, the standards to judge it are relative, and because of this the Japanese keep agonizing how others think or feel. In this case, confession does not reduce the burden but it aggravates agony as it is revealing his own faults to others. Accordingly, Benedict addressed that the Japanese were under external sanctions from sense of shame which was stronger than internal force by moral and conscience.

The opinion of Benedict that the Japanese are more strongly controlled by society or groups is shown throughout in the explanations for crime rate related to cultural causes. It is related with the flow of the studies on national characters of Japanese. According to Kato (1988), most studies on national characters of Japanese concluded that Japanese were group oriented, by comparing them with citizens in western countries. Here, the meaning of 'group oriented' is that Japanese tend to adapt themselves to the roles expected by the group, avoid conflicts and place importance on group harmony.

The explanations on low crime rate accommodate these proposals. As summarized by Fenwick (1982), many researchers thought the low crime rate of Japan was resulted from group oriented characteristics of the Japanese. Core opinions of these researchers are that Japanese are sensitive to the danger of being alienated from social group and they become more adaptive to rules and laws. According to these researchers, Japanese are very sensitive to the evaluation from the group (Bayley, 1976), and when they commit behaviors that can damage the honor of the group, their status and existence in the group is seriously threatened

(Clifford, 1976). Therefore, committing a crime accompanies the expulsion from the social group to which he belongs, and Japanese restrain from crimes to remain in the social group for themselves.

Komiya (1999) shows this type of opinions in detail. Komiya explained the low crime rate of Japan with particularity of legal cultural compared to western countries. According to him, in Japan at the end of 19th century, conventional moral and customs still remained and preserved although Meiji government introduced western style legal institutions. Accordingly, there have been two areas in the legal culture of Japan such as *Yoso* (Other Place) where western rights are applied, and *Uchi* (Inside) where *Giri* (Loyalty), the traditional spirit of Japan is applied. According to Komiya, Japanese place significant value on the safety and close relationship in the area of *Uchi*, and they have the burden of infinite *Giri* in return for them and should accept strong informal sanctions when they breach it. Komiya proposed that self-restraint disciplined through strict control of *Uchi* and safety from the group affiliation deter the crimes in Japan and reduce the crime rate.

Explanations on police activities and cultural causes can be summarized as follows. Both viewpoints see that Japanese are under stronger social control. Police activities are a part of formal social control, and the pressure from the social group they belong to is an informal social control. Accordingly, the reason why the crime rate is low in Japan is the deterrence of the crime because of strong social control from this point of view.

But there are some weaknesses in this explanation. First, such explanations are not sufficient to explain the crime rate trend of Japan. Japan has industrialized and urbanized in a relatively short period, and social changes were made rapidly. Therefore, important entities providing social control such as family and community were weakened. Nevertheless the

crime rate of Japan is maintained in a stable low level after war. Thus, informal social control through family or community cannot sufficiently explain crime rate trend of Japan. Second, such explanations cannot explain the crime rate before war. If cultural causes made the crime rate in Japan low, crime rate in Japan before World War II when the cultural tradition was more strongly maintained should be also low. However, crime rate in Japan before World War II was in the similar level to that of U.S or European countries (Fujimoto & Park, 1994). Therefore, the crime rate of Japan in pre-war period cannot be explained from this point of view. Third, it is hard to verify the validity of these explanations. For example, the opinion that Japanese are group-oriented was not able to be verified empirically (Kato, 1988). Furthermore, informal social control is very hard to measure. Therefore, it is difficult to provide the explanations on trend of crime rate from the perspective of social control.

On the other hand, there are opinions that the low crime rate of Japan is owing to the result of remarkable economic development. The theoretical background of this proposal is not sole. Some studies assumed that the crime was the result of the rational choice of criminals, and the crime rate reduced because they had more opportunity to get legal benefits through economic growth. Evans (1977), one of researchers who paid attention to the trend of low crime rate in Japan, accepted this viewpoint. He assumed that the crime rate would decrease as the clearance rate of the crimes increased and benefits from legal activities were larger. According to this hypothesis, he performed a multiple regression analysis on the crime rate by setting real wages, unemployment rate, ratio of job openings and applicants, and clearance rate from 1946 to 1972 as independent variables. It was found that clearance rate, conviction rate, number of job vacancies and number of employed people had negative correlation with crime rate.

Merriman (1988) performed a study from a similar perspective. He assumed that criminal behaviors of the criminals were the results of the calculation of cost and profits, and analyzed the effects of economic development, clearance rate, and severity of punishment on the homicide rate from 1957 to 1982. From the study, he did not discover the ground that economic development made direct effects on the homicide rate, and discovered that other independent variables he included in the analysis such as unemployment rate, clearance rate, and conviction rate could not sufficiently explain the decrease of homicide rate. Therefore, he concluded that the trend of homicide rate of Japan showed very different characteristics from the U.S and other western countries.

Several limitations are found in the study results. The first limitation is that it is difficult to consider a murder as a crime by rational choice. According to Finch (2001), the most common motive of murders in Japan was hatred or sexual jealousy, and the relationship between victim and offender was mostly family or relative. Accordingly, the hypothesis that the murderer made a rational choice to get a benefit from the murder is not consistent with the actual motive and offender-victim relations. Second, the statistical method they used is inaccurate according to the current standards. When using general regression analysis on time-series data, there is probability to be inconsistent with the basic assumption that there is no autocorrelation in the residual, and there is probability of spurious regression when time-series data are not stationary. However, such risks were not identified and the methods to evade the risks were not sufficiently developed at times when they had performed the study. Merriman introduced linear trend variables to prevent spurious regression but this method had many limitations as well (Gujarati, 1995).

However, these limitations are being complemented by recent studies. Tsushima (1996)

performed a cross-sectional research rather than a trend research. He analyzed the effects of poverty, economic inequality and unemployment on the crime rate based on the data of each prefecture. In the results, homicide and robbery rate had positive correlation with unemployment rate, and Gini coefficient had positive correlation with theft rate. However, poverty rate did not show any significant correlation.

Roberts and LaFree (2004) analyzed correlation of crime rate with various variables using time-series data from 1951 to 2000 which is more extensible than previous studies. Additionally, they collected prefectural data during the same period and performed a pooled time-series analysis. In the results, income inequality, unemployment rate, and poverty rate showed correlation with homicide and robbery rate in time-series analysis, and income inequality and unemployment rate showed the same direction of correlation in the pooled time-series analysis. On the other hand, divorce rate, urbanization rate and female labor participation rate did not have correlation with those two crime rates in both analyses.

In particular, economic factors also provide consistent explanations on the crime rate of youths or juveniles. Otake and Okamura (2000) analyzed the effects of labor market conditions, educational conditions, income inequality and police activities on the juvenile crime rate with time-series data from 1966 to 1996. In the study, they found that juvenile crime rate increased when there were more job-seekers than the vacancies and the number of students per teacher was bigger. They also found the long-term equilibrium that the crime rate between 16 and 18 would decrease, as a ratio of policemen to population increased. As the analysis using prefectural panel data showed the same results as the analysis using time-series data, they concluded that their analysis results mentioned about were reliable.

Yuma, Kanazawa and Yuma (2010) discovered correlation between the homicide rate by

juveniles and unemployment rate. They investigated correlation between unemployment rate and juvenile homicide rate with data from 1974 to 2006. From the result, they confirmed that the unemployment rate and juvenile crime rate in each age bracket had positive correlation. They also proved statistical causal effect relationship that unemployment rate affected homicide rate but reversal effects were not found.

If above studies focused on the correlation between crime rate and various variables, Doi (2012) tried to provide theoretical explanations on the correlation. He explained the reason why juvenile crimes decreased in spite of the aggravated economic situations after 1990s using Merton's anomie and relative deprivation theory. According to him, objective elements such as unemployment or poverty did not have direct correlation with crimes. Instead, psychological strain from relative poverty that they felt they could not enjoy life like others, relative deprivation in other words, triggered crimes. Accordingly, probability of crimes becomes higher as the society is getting wealthier, and crimes occur even when they are not in absolute poverty. But for relative deprivation to be created, culturally defined goals that Merton emphasized should be emphasized among members and regulations on the means to achieve the goals should be strict and unfair. However, according to Doi, the cult of success (or, culture of encouragement or, *aorinobunka*) which used to be the culturally defined goal was weakened, and opportunities of education to reach the goal were rapidly expanded. Therefore, even when considering the recent aggravated economic conditions, relative deprivation is on the trend of decrease and it is natural that the crime rate is not increasing.

Recent studies reviewed above showed the correlation between economic conditions and crime rate more clearly. Statistical problems shown in early studies are gradually resolved with the introduction of more refined methods. Additionally, correlation between economic

conditions and crime rate is consistently found in cross-sectional research using prefectural data as well as longitudinal research using time-series data. In particular, unemployment rate is the most frequently mentioned variable and it can explain the trend of crime rate in Japan best as it shows correlation with total crime rate, violent crime rate, juvenile crime rate, and juvenile homicide rate.

However, even such explanation is insufficient to be considered as perfect. If we review more recent situations, it is difficult to understand the trend of crime rate in Japan with economic conditions. As mentioned in the preface of this article, Japan has been suffering from economic depression for a long period since 1990s, and unemployment rate, poverty rate, and income inequality have aggravated. Nevertheless, the crime rate in Japan did not show a conspicuous increase during the period.

What Doi (2012) introduced to explain such situations was relative deprivation. Aggravated economic conditions may increase the probability of relative deprivation. However, relative deprivation does not occur when the expectation is low or there are more opportunities to reach the goal. Accordingly, as Doi suggested, when the cult of success was weakened among youths, and educational opportunities were expanded, relative deprivation would be mitigated and increase of crime rate owing to aggravated unemployment rate would not be made.

Such explanations could also be applied to youths in their 20s. Hasegawa's (2005) research result regarding homicide rate of the males in their 20s is consistent with the explanation suggested above. After she reviewed the homicide rate in Japan by sex and by age, Hasegawa found that the reduction of homicide rate among males in their 20s was larger than any other age brackets. To identify the reasons, she collected and analyzed 1,768 court decisions on homicide cases in 15 prefectures including Tokyo and Yokohama from 1989 to 1999 and 500

random court decisions in 1950s. From the study, she found that most of homicide criminals were from relatively low economic class and there were very little people with higher education among homicide criminals. Gini coefficient and college enrollment rate from 1960 to 1996 respectively showed positive and negative correlation with homicide rate of males in their 20s in the same period. In other words, as Gini coefficient was lower, and as college enrollment rate was higher, homicide rate was lower. Based on this result, Hasegawa addressed that it was highly probable for youths to make dangerous choice to increase the reproductive success rate as they had relatively less resources, but in Japan even youths had much resource because of economic growth, therefore homicide rate of them were reduced.

However, there are several problems in the explanation of crime rate of males in 20s according to such risk-assessment of crime. Johnson (2008) raised two theoretical problems and the followings are the summary of his opinions. First, risk assessment viewpoint cannot explain the rate of other crimes. To follow Hasegawa's viewpoints, theft and other crimes which are also dangerous choice as homicide should show the same trend, but it is not in reality. Second, this viewpoint cannot explain the examples of other nations. If resource acquisition opportunity reduces the occurrence of homicide, homicide rate in other countries that achieved rapid economic growth as Japan should also decrease. However, it is difficult to find other examples which showed rapid reduction in homicide rate as Japan. In addition to the limitations mentioned by Johnson, viewpoints of Hasegawa cannot explain the reduction in opportunity of youths to acquire resources according to the recent long-term depression has not increased crime rate.

However, Hasegawa's research result is consistent with the explanation based on relative deprivation. Furthermore, the theory can solve a part of problems mentioned by Johnson.

Theory of relative deprivation inclusively explains aggravation of objective conditions, culturally defined goals of the society and expectations according to the reference group. Therefore, even when resource acquisition opportunity increased owing to economic growth in other countries, crime rate might not be changed if culturally defined goals or expectations increased more. Additionally, Gini coefficient and college enrollment rate are the elements influencing relative deprivation in that the former could increase the possibility to compose high expectation through reference group, and the latter could increase the opportunities to reach goals. Thus, this theory can explain the findings of Hasegawa but does not have the problem that such phenomena have not been found in other countries.

Up to now we have reviewed the previous studies on crime rate of Japan. The reason why Japan showed low crime rate can be classified into three viewpoints. The first perspective is to pay attention to formal social control of the police in Japan. In this viewpoint, they consider Japanese police can control crime more effectively because they are ready to response quickly to committed crimes and get highly advanced training but they still maintain close relationship with local residents. On the other hand, explanations according to the second viewpoint consider the group-oriented characteristics of Japanese as the cause of low crime rate. This viewpoint believes that Japanese are hesitant to commit crimes because of informal sanctions by the group or fear to be excluded from the group. Above two viewpoints are in common in that they think the low crime rate in Japan as the result of effective social control.

On the other hand, the third viewpoint assumes that rapid economic growth after war has influenced the reduction of crime rate. This viewpoint focuses on the correlation between the crime rate in Japan after war and variables such as unemployment rate, poverty rate, and Gini coefficient. Several theoretical backgrounds exist for this perspective but they mostly agree

that economic hardships cause crimes and the increased opportunities to get legal benefits have decreased crimes (Roberts & LaFree, 2004). In particular, studies adopting this viewpoint have made successful verifications through empirical data. Unemployment rate and Gini coefficient were confirmed to have correlation with crime rate in both longitudinal researches and cross-sectional researches. Especially, unemployment rate successfully explains juvenile crime rate and homicide rate.

Among perspectives regarding Japan's low crime rate, the third viewpoint shows the relevancy of relative deprivation in explaining the crime rate trend of Japan. As relative deprivation occurs when means to achieve culturally defined goals are insufficient, it is certain that objective gap or contracted means of goal achievement can be the direct cause of it. Accordingly, it is natural that crimes increase because of the occurrence of relative deprivation owing to increased unemployment rate, poverty rate or income inequality when other conditions remain same.

In addition, theory of relative deprivation can explain the trend of homicide rate of youths better than previous studies. If crime rate has been simply affected by economic difficulties and increased opportunities to get benefits legitimately, the economic struggles that youths have experienced recently should increase the crime rate. But such increase cannot be found in the trend of homicide rate. Accordingly, by applying the theory of relative deprivation that can consider cultural goals or the expectations from the reference group, a better explanation for the recent homicide rate of youths in Japan can be suggested.

Therefore, focusing on the changes in youths in Japan in this economic depression is necessary to provide a better explanation of trend of homicide rate. Recent objective situations are unable to explain the homicide rate of youths sufficiently. Additional

explanation can be done through the theory of relative deprivation by considering the standard of relative deprivation given from reference groups. As reviewed before, when standards or expectation is high, relative deprivation may occur more frequently, which is led to the increase of crime rate. Accordingly the reason why homicide rate of youths does not increase in spite of the aggravated objective situations in Japan may be because the standards become low or youths do not have positive expectations. In the next section, changes in the situations of youths and changes in their attitudes will be investigated to identify the changes shown in the expectation of youths.

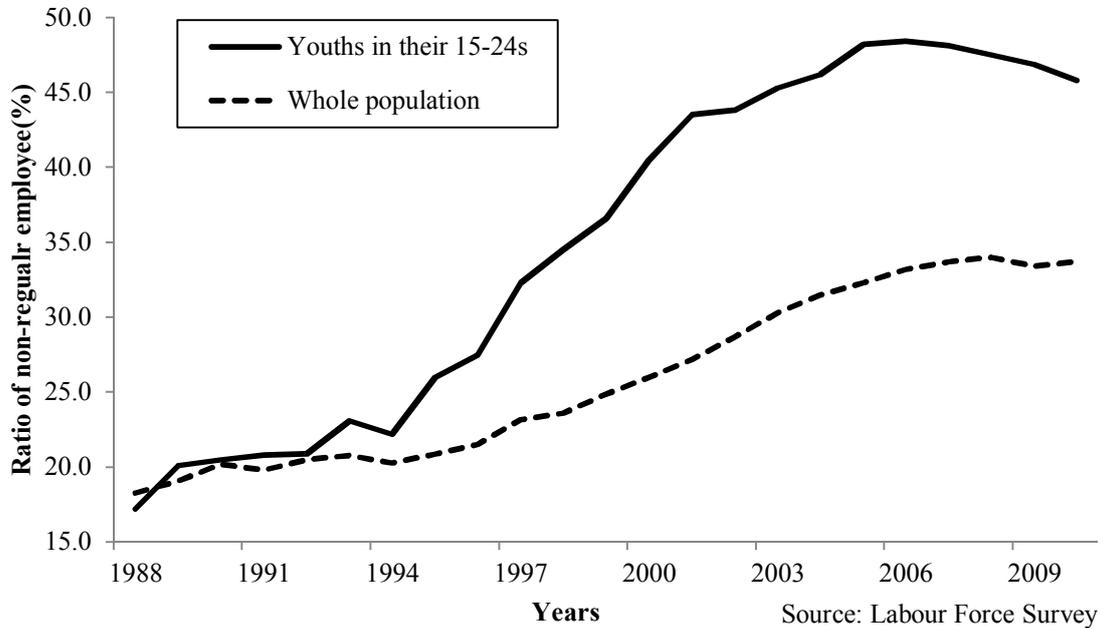
3. Loss of Motivation of the Youths in Japan

As Japan has suffered from a long-term economic depression, situations of youths have been changed particularly in employment and labor area. It was relatively simple for youths in Japan to have a job before the bubble burst period. Companies in Japan maintained the custom to employ high school or university graduates as regular workers directly (Komikawa, 2011). Those who will be graduated from high schools or universities applied for companies with the recommendation of their school, and companies usually accommodated the application. Accordingly, most of high school and university graduates could have a job and they could expect employment for the life time and the pay raise according to seniority once they had been employed as regular workers.

However, after the bubble burst, it became very difficult for youths to get a regular work. As the profits of the company reduced because of the bubble burst, they wanted to save labor cost and it led the reduced employment of regular workers (Honda, 2005). At the same time, the ratio of non-regular workers became expanded. Conclusively, unemployment rate of youths between 15 and 24 increased more than twice from the level of 4% before the bubble burst. In 2003, the highest record of unemployment rate of youths was made as 10.1% monthly in average. The ratio of non-regular workers also increased rapidly after 1990, and recently it reached around 50% in both sexes in the age bracket of 15 to 24. <Figure 1> confirms that the ratio of non-regular workers of the youths is much higher than the ratio of non-regular workers of whole population.

At the same period, income inequality among youths became expanded. Although it was difficult to be employed and the ratio of non-regular workers increased, it was not that the working conditions of all youths became deteriorated. As a matter of fact, the phenomena that

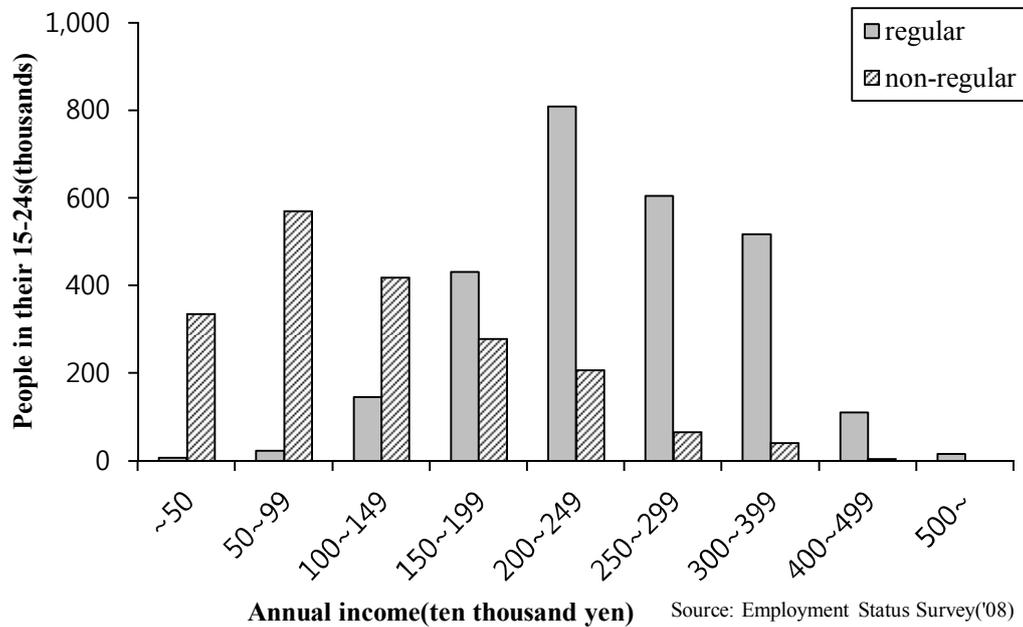
<Figure 1> Trend of non-regular employee ratio



the ratio of regular workers decreased and there become more non-regular workers was partially because the industry of today needed more professional and creative workers but at the same time it also needed more simple production workers just following the manual (Yamada, 2010). Accordingly, companies expanded employment of non-regular workers to cut labor cost and at the same time paid high salary, breaking the seniority, to those who were responsible for professional and core works. Consequently, there became more youths who got high salary in foreign companies or large enterprises, those who got non-regular jobs and the unemployed (Yamada, 2010). The conspicuous gap between wages of regular workers and those of non-regular workers is shown in <Figure 2>.

As it became difficult for the youths to get jobs, unemployment rate ascended rapidly and income inequality increased at the same time. Considering that the crime rate of Japan has

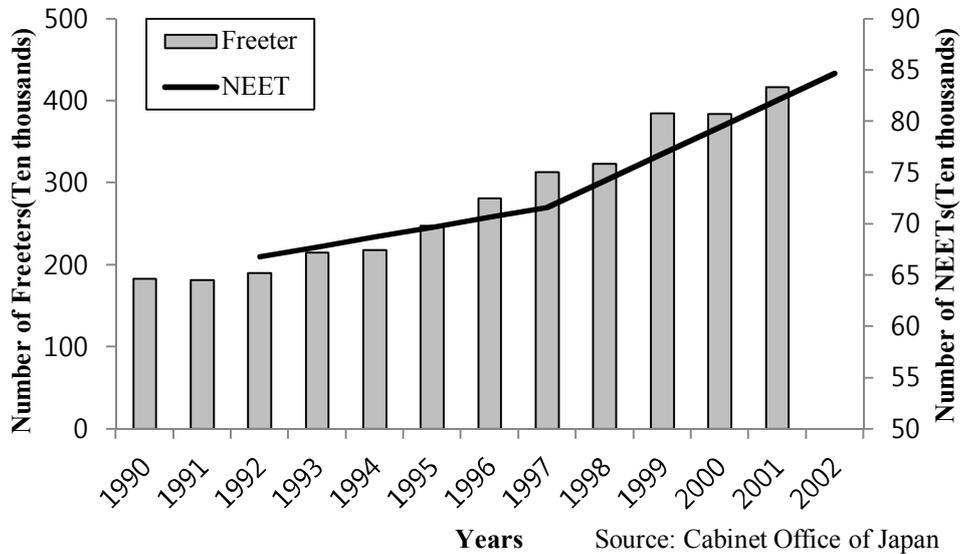
<Figure 2> Income gap between regular and non-regular employees



been consistently correlated with unemployment rate, poverty rate, and income inequality, it is not coherent that homicide rate of youths did not increase in this period. However, some evidences that there were changes in the attitude of youths can be found from the research results and data regarding freeters and NEETs.

Bad economic situation became one of causes to rapidly increase freeters among youths. The word 'Freeter' originally meant youths who did not get regular jobs although they were capable to do that, at the end of 1980s when bubble economy was at peak. However, it became a general word referring youths who do not have regular works (Yamada, 2010). According to Ministry of Health, Labour and Welfare and Cabinet Office of Japan, the number of freeters increased rapidly from early 90s, and the biggest population of freeters belonged to people in their 20s and early 30s. The increase of NEET and freeters can be seen

<Figure 3> Number of Freeters and NEETs



at a glance of <Figure 3> based on the data provided by Cabinet Office of Japan. The most important reason why freeters increased rapidly was because of the changes in labor market structure. As mentioned before, opportunities to get a regular job were limited to the laborers with low education and low skills (Kosugi, 2004).

However, the increase of freeters reflects not only the economic changes but also the changes in the attitudes of the youths. Such attitude changes are reported in various studies and survey results. If the objective situation such as difficulty in getting a job is the major reason of increase of freeters, most of freeters should have experiences of failure in getting a job. However, according to Japanese Institute of Labour [JIL], around 50 percent of high school graduates became freeters although they did not fail in getting a job (Kosugi, 2001). Kosugi's analysis on the survey supports the changes in youths' attitudes. She found that the most important factor to make high school graduates freeters was the thought that freeters

<Table 1> Why High School Students Become Freeters(%)

	Main reason			MA
	Total	Male	Female	Total
Total	100.0	100.0	100.0	100.0
(N=)	773	296	432	773
I have other things I would like to do	22.8	28.7	18.8	33.8
I have no idea what type of jobs suits me	14.9	17.9	12.7	38.3
Higher education is expensive	8.0	6.4	9.0	41.4
My parents do not approve of higher education	4.8	3.7	6.0	22.5
I have not had a good job offer	8.3	5.4	10.4	40.1
I have not been hired as a regular employee	3.0	1.4	4.2	12.4
Freeters have more free time than regular employees	6.2	4.1	7.4	42.8
Freeters take relationships more easily than regular employees	0.1	0.0	0.2	16.8
Freeters can switch jobs more easily than regular employees	0.5	0.7	0.5	18.6
I need more money immediately	6.3	5.1	7.2	43.1
Freeters have higher incomes than regular employees	0.5	0.7	0.5	9.1
My results were not good enough to go onto higher education	2.6	4.4	1.4	26.8
I did not want to continue my education	3.2	3.4	3.2	27.6
If I like the work, being a freeter is okay	7.2	4.1	9.3	33.2
Some of my friends are freeters	0.1	0.0	0.2	9.2
Other reasons	5.8	6.4	6.0	4.7
NA	5.6	7.8	3.0	1.0

Source: Kosugi(2001)

would have more free time and could earn more money with easy work. In <Table 1> it was found that the ratio of students answering that they became freeters to be free was higher than the ratio of students answering that they became freeters because they could not get a regular work or because they could not get a good job. Such inclinations were confirmed in various surveys. For example, in the survey by Recruit in 2000, the ratio of answer ‘because I failed in getting a regular job(13.6%)’ was far lower than the ratio of answer ‘because I can use time more freely (47.1%)’ and ‘because I do not have to stick to company works (31.2%).’ In other

words, freeters thought it positive to live as a non-regular worker.

Understanding or agreeing on such attitude of youths could be difficult. Non-regular workers usually earn remarkably lower wages and their employment is not guaranteed. Therefore, it is difficult for them to have a stable life. Nevertheless in reality, some youths nowadays chose to be freeters, which doesn't seem to be reasonable. However, the youths themselves know such disadvantages. In the survey which Yamada performed with Life Insurance Center, there were no freeters who wanted to continue to work as a non-regular worker after 10 years (2010). In other words, those who live as freeter at present want to be regular workers or self-employed as a professional after 10 years. Thus, freeters at present are those who don't know or don't decide what they should do. It is more like that they are trying to figure out what they want to do as a professional while living as a freeter. We can confirm it through the aforementioned survey by JIL. The answers that were most frequently given as the cause to be a freeter were 'I have no idea what type of jobs suits me' and 'I have other things I would like to do' (Kosugi, 2001).

The reason why the youths show such hesitation is rapid changes in the situations. First of all, employment as a regular worker is losing its advantages quickly. We have already reviewed that Japanese companies guaranteed life time employment and paid salary according to seniority in the past. However, this guarantee is not maintained anymore. Companies can no longer guarantee life-time employment and payment standard is being changed from seniority to achievements. Besides, as the number of regular workers decrease, workload of remaining regular workers is getting heavier. In particular, increase of workload is conspicuous among young regular workers. According to Ministry of Health, Labour and Welfare's Labour Force Survey, the ratio of regular workers who work more than 60 hours a

week is increasing rapidly among employees in their 20s to 40s (JIL, 2004). In other surveys performed on enterprises by JIL in 2004, the ratio of answers that workload of young generation had increased for recent 5 years was over 50 %, and there was no answer that their workload had been reduced. As such, the workload is increasing rapidly and they cannot expect life-time employment or pay raise even when they become regular workers.

However, they don't have an alternative but being a regular worker. Job opportunities guaranteeing life time employment and pay raise according to seniority are rapidly decreasing in Japan. Public servant jobs that keep these advantages are less than 10% of total employment, and vacancies are decreasing, too (Yamada, 2010). The world of mass media and education which do not experience international competition is also divided into small number of regular workers and non-regular workers, and in service industry which is growing recently it is difficult to expect pay raise (Yamada, 2010). Therefore, regular worker employment is not very satisfactory to Japanese youths but they do not have alternatives to it. The only possible alternative is non-regular working job but they definitely know that freeter life is not prospecting in the long run. Thus, it is a chaotic status for Japanese youths to have definite goal.

When they lose the definite goal, the youths cannot help losing motivation. The youths in Japan in the past had a clear goal to be a regular worker guaranteeing the life time employment and pay raise according to seniority. However, this goal disappears quickly, and the reference group based on which relative deprivation occurs should be set differently. We have already reviewed that setting a reference group is affected by already established social relations of individuals and the possibility that they may belong to it. However, there were few groups that was functioning satisfactorily among the groups that Japanese youths could

belong to. The possibility to be a regular worker became very low and regular works lost their advantages rapidly, while non-regular works were not satisfactory because they did not guarantee stable employment and income. As other alternatives had their own problems, they could not be attractive goals. Therefore, it is difficult for the youths of today to set a reference group higher than regular workers and only less favorable options are available to them. In other words, the culturally defined goals became shakier than before, which become the cause to set the reference group lower. Lower level of reference group means the weaker aspiration to the goal and consequently it means the loss of motivation.

Eventually, present situation causes loss of motivation to youths. What shows loss of motivation of the younger generation best is increase of NEET. NEET means youths with No Education, Employment, and Training. Especially, unlike general unemployed people, NEET includes those who quit job seeking, and those who do not have a will to work at all. According to Genda (2007), from 1992 to 2002, youths who had a will to get a work but did not do job seeking activities increased more than 60 percent.

Once, NEET was considered to grow because more and more youths become dependent on their parents, but it was not always true. If youths become NEET because they depend on their parents, the probability to be NEET must be higher in the class with high income. To depend on their parents, it is better to have parents with high income, and wealthier kids will have fewer problems even when they do not have income. However, this tendency was strong only till early 1990s and after then this tendency was weakened (Genda, 2007). According to Genda (2007) those who were from low income family or who did not get enough education tended to be NEET. Especially, in NEETs who stopped job seeking activities because of lack of will to work, the ratio of youths from low income family has been increasing. Thus, it

can be interpreted that youths in low income class who urgently need a work and consequent salary are losing the motivation or will to get a work. It means the current situation is made because the loss of motivation weakened the will to work.

Loss of motivation because of indefinite goals can be found in their local orientation (*jimotosikō*). Local orientation means the tendency that they do not want to move out from the place where they have lived. According to recent studies, such inclination is remarkably shown among youths today. For example, in the survey that Miura Atsushi performed in 2003, 90% answered that 'I will live in the current prefecture in 10 years.' (Doi, 2010). One of the reasons why the youths have stronger local orientation is the anxiety for the future (Doi, 2010). In the past, as Japan kept growing economically although the society was rapidly changing, youths could overcome difficulties with the expectation to the future. However, these days the prospects for the future became unclear and youths came to have fear to be deprived of what they already possess (Doi, 2010). According to Doi, such chaotic situations made them see where they originated from rather than uncertain future.

The point that uncertain goals or anxiety about the future forces local orientation has been confirmed by other studies regarding the relationship between local orientation and employment. Hori Yukie reported cases in a symposium in 2005 that the youths with strong local orientation became unemployed trying to get a job in their life zone and those who quit the job when they were ordered to move to another area even after the employment (Doi, 2010). Additionally, Hirao and Shigemitsu (2006) showed clear relationship between local orientation and the desire to get a job. They surveyed students in Yamaguchi University located in the province and found that those who had strong local orientation did not have definite job they wanted to have, were hesitant to do international work, and did not want to

have professional jobs or independent business. Besides, those who had strong local orientation evaluated themselves as not very passionate or energetic for job seeking activities, felt bigger anxiety about recruitment and showed attitude that they could not help being a freeter if they failed in getting a job. In other words, those who had bigger anxiety about the future had less motivation for employment, which increased the possibility to be a freeter.

Therefore, the uncertainty about the future that the youths of today experience is shown as the enforcement of local orientation by frustrating the motivation of youths. As we have already reviewed, the loss of motivation may reduce homicide rate by reducing the relative deprivation. Therefore, the enforcement of local orientation and the reduction of homicide rate are the different faces of one element such as loss of motivation. In other words, a common element of loss of motivation can explain the enforcement of local orientation and the reduction of homicide rate altogether.

Until now, we have reviewed the changes that the youths of Japan have been experiencing these days. The long depression in Japanese economy after bubble burst made considerably negative effects on employment conditions of the youths. As a matter of fact, youths of today do not have many job opportunities that are feasible and attractive. In these bad conditions, many youths opt to be or could not help being freeters or NEET. However, it was also found that such changes were greatly affected by the loss of motivation of the youths. The uncertain situations of the youths of today reduced the expectations on the future and stimulated the anxiety about what they had already had. Such anxiety made them passive in job seeking and led them to the situation that they could not know what to do. As a result, they lost motivation and became hesitant to leave the province where they had lived.

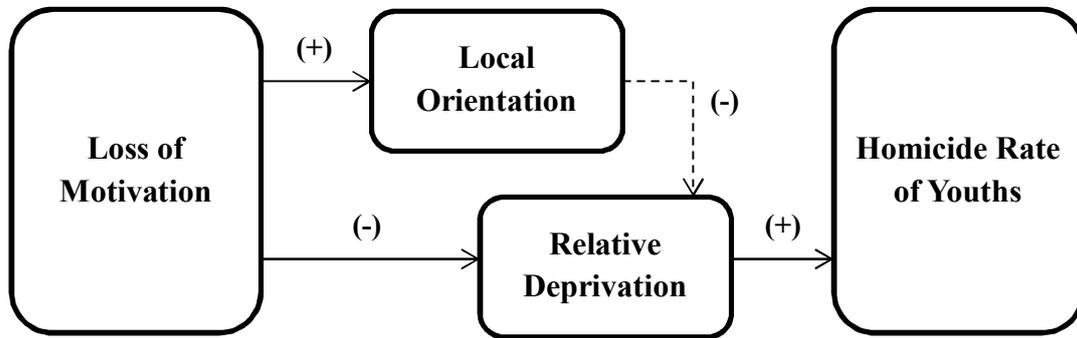
4. Hypothesis

Through previous studies, we reviewed the correlation between relative deprivation and loss of motivation and investigated the situations that the youths were placed. Relative deprivation is the emotion occurring when they could not get what they were entitled to have. Accordingly, this emotion occurs easily when the standards about what they deserve are high. Human beings set their reference group in the social relationship that they have already had and chose the reference group based on that they belong to or they want to belong to. Thus, when they can find individuals or groups that have more than themselves more easily, the standards for relative deprivation are set higher.

However, the youths of Japan of today are placed in the situation where they cannot set high standards. Changes in recruitment beginning with the burst of bubble economy made the employment conditions of the youths suddenly difficult. Approximately half of the youths were employed as non-regular workers and even when they got regular works luckily they could not expect the same benefits from the company. Besides, workloads on young regular workers increased in a rapid speed. Therefore, both of unstable life moving between non-regular works or difficult life constrained by the company as a regular worker cannot be attractive options to the youths. Conclusively, they feel chaos in their goal setting, set the reference group lower, and lose motivation of employment activities.

It is the reason why homicide rate has not increased in spite of the degeneration of objective situations. Chaotic situations that the youths of today experience reduce the motivation. Relative deprivation will be decreased when the standard gets lower even when objective possibility increases. Therefore, the loss of motivation prevents the occurrence of relative deprivation, and consequently homicide rate does not increase.

<Figure 4> Relationship between loss of motivation and homicide rate



However, it is impossible to directly measure the loss of motivation. Besides, it is more difficult to identify the motivation of the youths in the past. Accordingly, in this study to reflect the trend, we used other variables reflecting the loss of motivation out of currently available time-series data. One of such variables is local orientation. We have already reviewed that there was deep relationship between local orientation and loss of motivation through previous studies. The youths who showed strong local orientation had weaker motivation to get a job. It is because the loss of motivation because of the chaotic situations made strong influence on job-seeking activities. The following figure shows such relationship.

Through the model shown in <Figure 4>, we can infer local orientation reduces relative deprivation. Local orientation is the result of loss of motivation so strong local orientation implies strong loss of motivation. On the other hand, loss of motivation reduces relative deprivation and consequently reduces homicide rate. Thus, we can expect those who have strong local orientation will have strong loss of motivation, which will consequently reduce relative deprivation and then homicide rate. Therefore, the hypothesis that we want to verify in this study is induced as follows:

Local orientation will show negative correlation with homicide rate of the youths.

5. Research Methods

Operational Definition of Variables and Data Source

Variables used in this research are defined as follows. Local orientation which is an independent variable is defined as the employment rate to other prefectures of high school graduates. The employment rate to other prefectures is the data frequently used for the local orientation of the youths. For the employment rate to other prefectures, the value reported in School Basic Survey published annually by Ministry of Education, Culture, Sports, Science & Technology was used. As school basic survey has been published since 1948, we can collect sufficient time-series data and it reports the career after the graduation of high school students in a consistent way. According to the survey, most of the youths in Japan excluding very few go on to high school and the ratio of going on to high schools outside of their prefectures was as little as 3 percent. On the contrast, more than 60 percent of university students were from other prefectures so the employment rate to other prefectures after graduation from universities was not appropriate to measure the local orientation. Accordingly, the employment rate to other prefectures of high school graduates can be considered as data reflecting local orientation relatively consistently out of available time-series data. But we need to take care about the direction that high employment rate to other prefectures means weak local orientation.

Homicide rate which is a dependent variable defined as the number of homicide cases by suspects in their 20s per 100,000 people in their 20s annually from 1968 to 2010. The data was acquired from Annual Crime Statistics (*hanzaitōkeisho*) published annually by National Police Agency of Japan. Crime statistics of Japan is reported to be accurate, and particularly records on homicide crimes are highly reliable (Finch, 2000). However, Annual Crime

Statistics from 1970 to 1988 did not record the number of crimes cleared by age but the number of criminals by age only. Therefore, during this period, we use the number of criminals instead of number of homicide cases. However, the probability of bias originating from this measure is expected to be little as more than 90% of homicide crimes were committed by one person. Distinctive homicides such as infant homicide and parricide were excluded. For population in 20s to calculate the ratio, the population recorded in Historical Statistics of Japan by Bureau of Statistics was used.

Definitions of control variables are as follows. Gini coefficient was calculated based on quintile income data from various years of Family Income and Expenditure Survey. The area under the Lorenz Curve was calculated using quintile income data and divided by the area of triangle to calculate gini coefficient. Unemployment rate was measured as the rate of the unemployed among population between 15 and 24. In previous studies, unemployment rate of different age brackets were used, but according to Doi (2012), it would not make statistical problems as the trend was almost same. In this study, we used the unemployment rate between 15 and 24, because this age bracket showed the biggest change in unemployment rate and the correlation could be shown better. Poverty rate was measured as number of households receiving public assistance per 1,000 households. Unemployment rate and poverty rate were collected from Historical Statistics of Japan by Bureau of Statistics under Ministry of Internal Affairs and Communications of Japan. College enrollment rate, a control variable, was collected from Historical Statistics of Japan and the clearance rate was from White paper on Crime by Ministry of Justice. <Table 2> shows the summary of the operational definitions of aforementioned variables.

<Table 2> Operational Definition of Variables

	Operational Definition	Period
Local orientation	Employment rate to other prefectures of high school graduates by year	1968 – 2010
Homicide rate	Homicide cases (or arrested criminals) by criminals in their 20s per 100,000 population by years. Infant murder and parricide are excluded	
Unemployment rate	Unemployment rate of population between 15 and 24 by year	
Poverty rate	Households receiving public assistance per 1,000 households by year	
Gini coefficient	Calculated based on the Quintile Income by year	
Clearance rate	Clearance rate of criminals by Criminal Law by year	
College enrollment rate	College enrollment rate of high school graduates by year	

Analysis Method

Analysis was made in two stages. First of all, descriptive characteristics of the variables were reviewed. Here, average, maximum and minimum values of variables were reviewed and the trends of major variables were shown in a chart.

In the second stage, the correlation of each variable was reviewed through regression analysis. Here, dependent variable was homicide rate and independent variable was local orientation. Control variables were selected as unemployment rate, poverty rate, Gini coefficient, clearance rate, and college enrollment rate which showed significant correlation with homicide in previous studies. To summarize it into a formula,

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + u$$

(Y: homicide rate, X₁: local orientation, X₂: unemployment rate, X₃: poverty rate, X₄: Gini coefficient, X₅: clearance rate, X₆: college enrollment rate)

It is highly probable that the residual might have autocorrelation if simple regression analysis is made on time-series data. To check this, Durbin-Watson test was performed on the regression model. By comparing resultant Durbin-Watson value with threshold value, it was reviewed if there was autocorrelation in residual.

6. Research Results

Descriptive Analysis Results

<Table 3> Descriptive Statistics

Variable	Statistics				Period
	Average	Standard Deviation	Maximum Value	Minimum Value	
Homicide rate	1.967	1.224	5.025	0.863	1968 ~ 2010
Local orientation	23.64	4.591	32.50	17.30	
Unemployment rate	5.495	2.565	10.1	1.8	
Poverty rate	23.64	4.591	32.50	17.30	
Gini coefficient	0.179	0.007	0.193	0.167	
Clearance rate	46.06	14.05	64.20	19.80	
College enrollment rate	40.27	8.725	54.30	19.20	

Descriptive statistics of the variables are shown in <Table 3>. In case of homicide rate, 1.967 cases per 100,000 youths were committed annually, and the maximum was 5.025 cases and the minimum was 0.863 cases. The employment rate to other prefectures reflecting local orientation was 23.64 % in average and the maximum was 32.5 % and minimum was 17.3 %. The unemployment rate in the age bracket of between 15 and 24 was 5.495 % in average and 10.1 % in the highest season and 1.8 % in the lowest season. In case of poverty rate, 23.64 households per 1,000 households were under the welfare scheme and got public supports. The maximum and minimum value was 32.5 households and 17.3 households respectively. Gini coefficient was 0.179 in average and the maximum value and minimum value were 0.193 and 0.167 respectively. The clearance rate showed that average 46.06 % of general criminal were arrested and convicted. The highest rate was 64.2 %, and the lowest rate was 19.8 %. In case

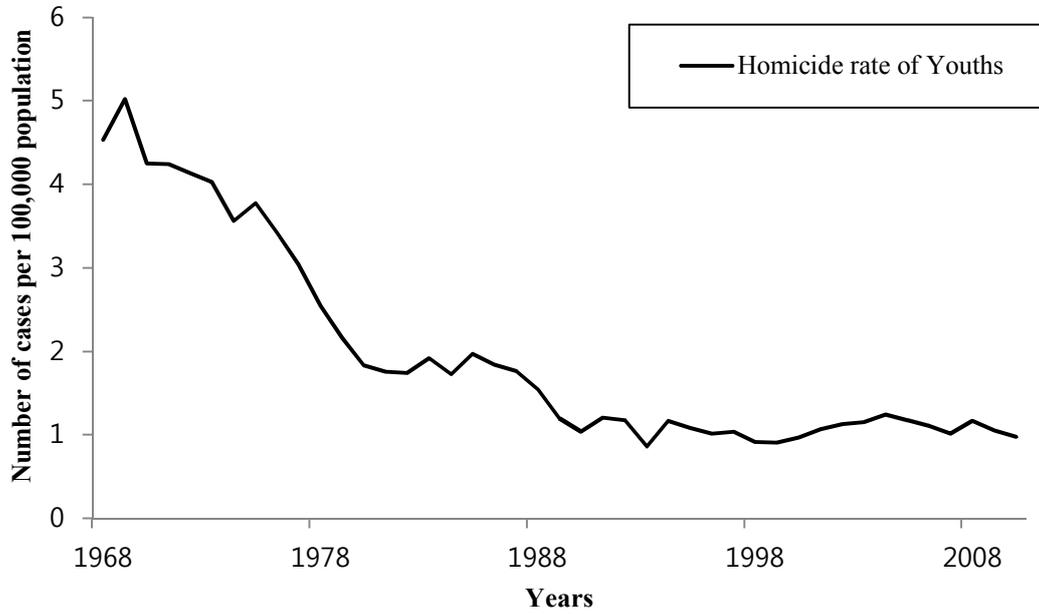
of college enrollment rate 40.27 % of high school graduates went to university in average. In the highest period, 54.3 % went to college and in the lowest period only 19.2 % went to university.

The trend of important variables by years is shown from <Figure 5> to <Figure 10>. Homicide rate and local orientation is in decreasing trend. Overall decreasing trend of homicide rate is shown in <Figure 5>. From 1968 to 1980, homicide rate has decreased rapidly and in 1980s it is little bit stagnant. It showed decrease again at the end of 1980s and is maintained in relatively low level in 1990s. Employment rate to other prefectures reflecting local orientation is also in the trend of decrease. Employment rate to other prefectures increased at the end of 1960s, but it has constantly decreased in 1970s. The decreasing trend became weakened in 1980s and it became stagnant at the end of 1980s but it started to decrease again in 1990s. Although it increased little bit at the end of 1990s and in mid 2000s, it maintains relatively lower level compared to 1960s.

Poverty rate repeated the trend of increase and decrease. From 1968 to mid-1980s poverty rate was maintained at the same level. From end of 1980 to mid-1990s it decreased rapidly. From mid to end of 1990s, it was maintained in a low level but it increased rapidly from late 1990s and became higher than the level of 1960s.

Unemployment rate, gini coefficient, and college enrollment rate showed the trend of increase. Unemployment rate has continuously increased from 1968 till late 1980s. Afterwards, it reduced in late 1980s and early 1990s a little bit, but it dramatically increased again in mid-1990s. In early 2000s, unemployment rate decreased rapidly but from mid-2000s it showed rapid increase again.

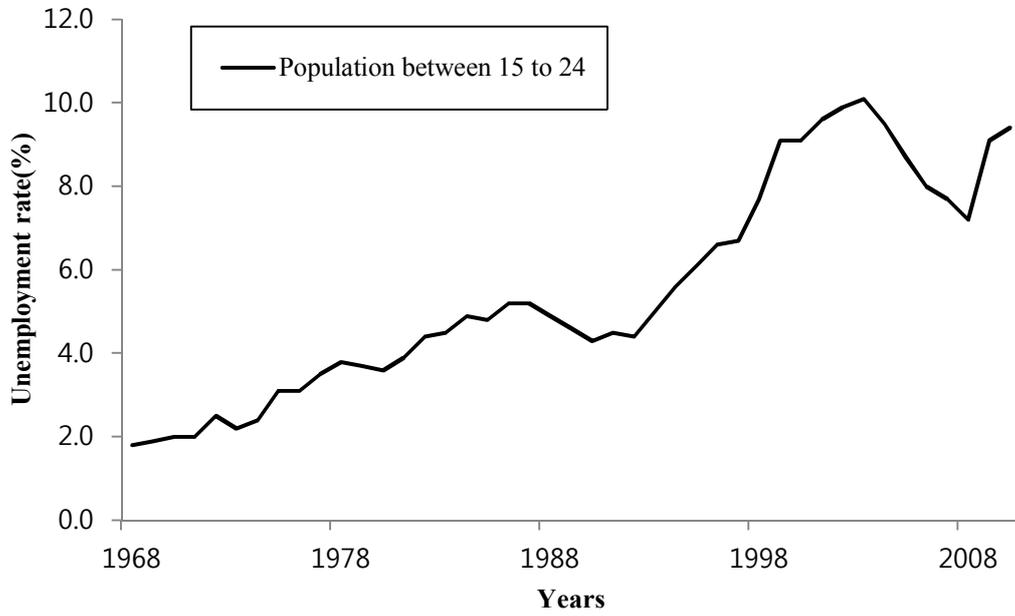
<Figure 5> Trend of Homicide rate



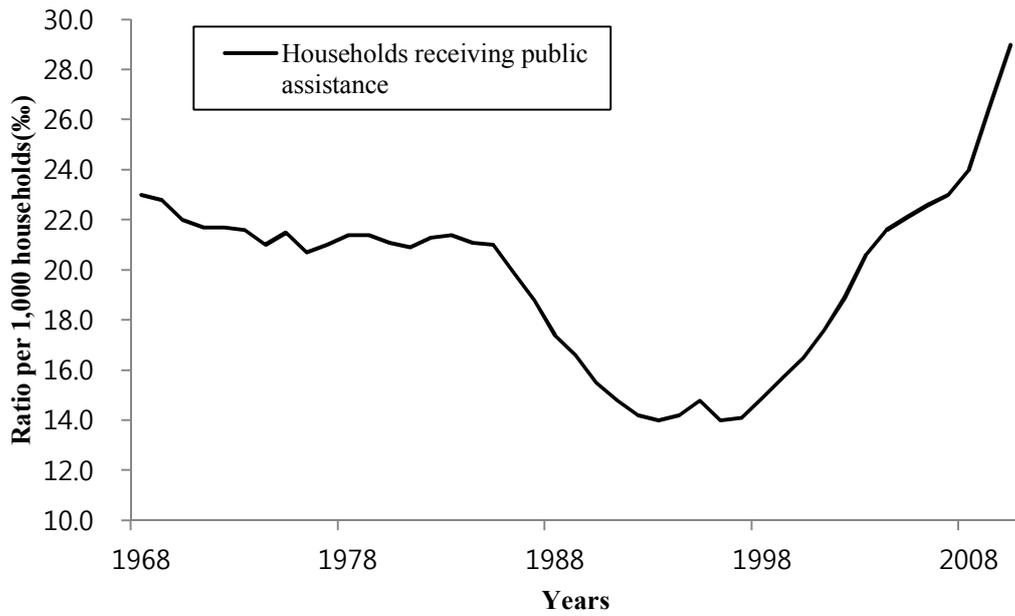
<Figure 6> Trend of Local Orientation



<Figure 7> Trend of Unemployment rate



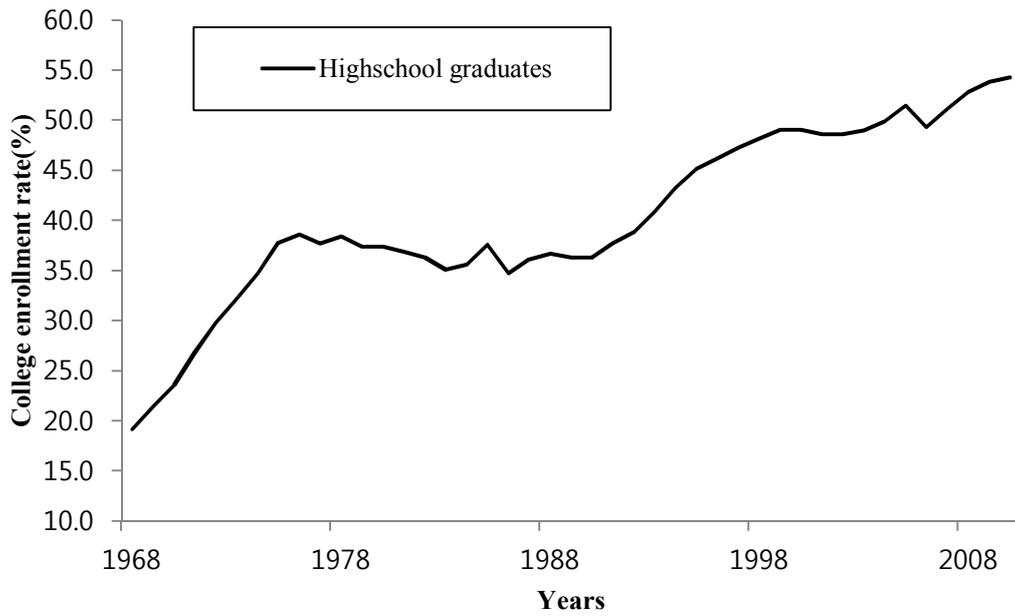
<Figure 8> Trend of Poverty rate



<Figure 9> Trend of Gini coefficient



<Figure 10> Trend of College enrollment rate



Gini coefficient showed the repetition of short-term increase and decrease. Overall trend is slow increase from 1968 to late 1990s, and such increase trend becomes faster from late 1990s. In case of college enrollment rate, it showed rapid increase from 1968 to mid- 1970s. After late 1970s, this trend was reversed and it decreased a little till late 1980s. In 1990s, college enrollment rate continuously increased and such increase continued till late 2000s.

Multiple Regression Analysis Results

<Table 4> Multiple Regression Analysis Results

Variables	Regression Results			
	β	Std Error	Std β	P-value
Local orientation	0.211 ^{***}	0.047	0.792	0.000
Unemployment rate	0.069	0.107	0.144	0.525
Poverty rate	0.057 ^{**}	0.026	0.166	0.038
Gini coefficient	0.193	16.59	0.001	0.991
Clearance rate	-0.018 [*]	0.010	-0.211	0.074
College enrollment rate	-0.059 ^{***}	0.019	-0.417	0.005
R²	0.880			
Adjusted R²	0.860			
Durbin-Watson	0.548a			

***: $p < 0.01$, **: $p < 0.05$, *: $p < 0.1$

a: The probability for residual to have autocorrelation is over 99%.

dependent variable is homicide rate (Number of homicide cases committed by offender in his or her 20s per 100,000 population in their 20s)

The results of multiple regression analysis are shown in <Table 4>. Local orientation, an independent variable was found to have positive correlation with the dependent variable homicide rate at 1 percent significance level. When the employment rate to other prefectures increased by 1%, homicide cases per 100,000 populations of 20s increased by 0.211. Out of control variables, poverty rate, clearance rate, and college enrollment rate showed significant correlation. Poverty rate showed positive correlation with homicide rate at 5% of significance level. When there was increase in households under public assistance by 1 per 1,000 households, homicide cases per 100,000 populations of 20s increased by 0.057. In case of clearance rate, it had negative correlation with homicide rate at 10% significance level. When clearance rate increased by 1 percent, the homicide cases decreased by 0.018. College enrollment rate had negative correlation at 1 % of significance level. When college enrollment rate increased by 1 %, number of homicide cases decreased by 0.059.

When comparing the magnitude of the effects of variables using standardized coefficients, it was found that local orientation of the youths had the biggest effects on homicide rate of the youths. The standardized coefficient of local orientation was the highest as 0.792. The next biggest affecting standardized coefficient was college enrollment rate as -0.417. Conviction rate and poverty rate showed lower score than the aforementioned two values as -0.211 and 0.166. Thus, the effects of conviction rate and poverty rate on homicide rate were smaller than those of local orientation or college enrollment.

Residual of regression model was found to have positive autocorrelation. Durbin-Watson statistics of this model was 0.548, which is smaller than 1.00, the lower threshold of Durbin-Watson statistics with 6 variables and 40 samples. Therefore the hypothesis that there is no autocorrelation in the residual is rejected and the residual of this model has positive

autocorrelation at 1% of significance level. When residual has autocorrelation, the regression model violates basic assumptions of regression analysis and consequently it makes several problems. According to Halcoussis (2007), when residual has positive autocorrelation and there are omitted independent variables, estimation values of OLS could be biased, and as the variance of coefficient estimates increases, the accuracy of the estimates becomes lower and standard errors may be estimated smaller than actual values. Accordingly, variables which are not statistically significant can have significance and F value, R-squared, and adjusted R-squared also become inaccurate.

7. Conclusion

In this study, time-series data were analyzed in order to identify the effects of loss of motivation of the youths on homicide rate. Loss of motivation, the independent variable, was considered to be shown in local orientation and it was defined as employment rate to other prefectures of high school graduates. A hypothesis that local orientation has negative correlation with homicide rate of the youths was set. To identify the relationship between local orientation and homicide rate, descriptive analysis and multiple regression analysis were performed.

The results of descriptive analysis on the variables supported the hypothesis of this study. Out of the variables in this study employment rate to other prefectures showed the most similar trend to homicide rate. These two variables generally showed declining trend. In 1970s, homicide rate and employment rate to other prefectures rapidly decreased at the same time. Additionally, two variables were in common in that they showed stagnancy in 1980s, and did not show conspicuous changes after late 1990s.

Multiple regression analysis results also supported the hypothesis. In the multiple regression analysis, employment rate to other prefectures, the independent variable and homicide rate, the dependent variable had positive correlation at 1% of significance level. Accordingly, local orientation, which had opposite sign of employment rate to other prefectures, showed negative correlation with homicide rate. It is consistent with the thesis of this study that loss of motivation stimulates local orientation and at the same time reduces homicide rate. Especially, employment to other prefectures was found to have the biggest effects on homicide rate.

Correlations of control variables were mostly same as previous study results. In case of

poverty rate, it showed positive correlation with homicide rate at 5% significance level. It is consistent with the study result of Roberts & LaFree (2004) that the reduction of poverty rate could explain the reduction of violent crimes in postwar Japan. However, although the poverty rate has increased rapidly since late 1990s, homicide rate has not increased. It may be because of loss of motivation as explained by this article. However, we should notice the proposal that the ratio that senior citizens, who lived alone were appointed as public assistance recipients, has rapidly increased because of aging. If poverty rate increases because of the poverty of the aged, it is possible that this increase does not have direct effects on the stimulation of relative deprivation of the youths.

Clearance rate, too, is consistent with previous study results. It was already known that clearance rate showed negative correlation with homicide rate in the studies of Evans (1977), Otake & Okamura (2000), and Roberts & LaFree (2004). This correlation can be explained from the perspective of social control rather than from the perspective of relative deprivation that this study adopted. We have already reviewed the viewpoints focus on formal and informal social controls. As clearance rate reflects the activities of formal social control institution such as police, high clearance rate means that active social control is in place. Therefore, the fact that the clearance rate of Japan is relatively high, in particular the clearance rate of homicide crimes is over 90% annually, can be a factor to reduce homicide rate in Japan.

College enrollment rate is also consistent with previous study results. In Hasegawa's study (2005) college enrollment rate showed negative correlation with homicide rate of the youths. And also in this study, college enrollment rate was found to have negative correlation with homicide rate at 1% of significance level. Hasegawa explained that the provision of legitimate

means to acquire resources for reproductive success reduced the motivation to commit a crime. However, it is not much different from the viewpoint of relative deprivation. Hasegawa's viewpoint is to consider culturally defined goals, or standards according to reference group that theory of relative deprivation emphasizes, as reproductive success. Besides, as going to university is a means to achieve culturally defined goals and can be considered as a means of reproductive success, the increase of college enrollment rate can reduce homicide rate from both perspectives.

However, the correlation of two variables in this study was not consistent with the results of previous studies. First of all, unemployment rate did not show any correlation with homicide rate. In previous studies dealing with the relationship between economic conditions and homicide rate, unemployment rate consistently had positive correlation with homicide rate. However, in the regression analysis in this study, the coefficient of unemployment rate was found to be insignificant. Such difference may be because of the following reasons; first, it may be owing to the difference in analysis methods. Previous studies have not performed multiple regression analysis on time-series data. In case of Tsushima (1996), he used unemployment rate in cross sectional research rather than time-series data. On the other hand, other researchers did not use multiple regression analysis. Roberts & LaFree (2004) estimated vector autoregressive model and Otake & Okamura (2000), and Yuma, Kanazawa & Yuma (2010) estimated vector error correction model to cointegrated time-series variables. Correlations shown in such models have different characteristics from the correlations in multiple regression analysis. If correlation of unemployment rate was not shown because of such differences, the results of this study are not inconsistent with previous study results. The second possibility is correlation between unemployment rate and homicide rate has been

weakened recently. The period of time-series data that previous researchers used is all different. However, if comparing <Figure 7> which shows the most recent trend of unemployment rate in this study and <Figure 5> which shows trend of homicide rate, it is difficult to expect positive correlation. While homicide rate decreases constantly, unemployment rate keeps increasing. There is a possibility that correlation between unemployment rate and homicide rate in the previous studies is not shown in recent data.

Additionally, correlation of Gini coefficient was not consistent with previous studies. Tsushima (1996) in his cross-sectional study and Roberts & LaFree (2004) in their longitudinal study reported that Gini coefficient had correlation with crime rate in Japan. Additionally, Hasegawa (2005) reported that the trend of Gini coefficient showed positive correlation with homicide rate of the young males in their 20s. However, in this study, the estimates of Gini coefficients were not significant. It seems to have relations with the characteristics of Gini coefficient. According to Otake (2005), Gini coefficient may increase because of changes in population structure or families, although there is not increase in economic inequality. Additionally, it was proved that the recent increase of Gini coefficient was the result of population aging. Therefore, the rapid increase of Gini coefficient in 1990s may be a result of population aging in Japan. In this case, increase of Gini coefficient does not make direct effects on the increase of relative deprivation and it may not increase homicide rate. The reason why there was correlation in previous studies was partly because there was less effects of population aging because previous studies used data up to 2000 or before.

To summarize, homicide rate of Japanese youths can be explained best with loss of motivation. Previous studies focused on the effects of economic conditions on crime rate. However, the correlation between economic conditions and crime rate was not consistent

excluding unemployment rate only. Additionally, homicide rate of the youths remains at the lowest level in spite of the worsened economic conditions. However, as a matter of fact, economic conditions make effects on homicide rate through relative deprivation as a medium. Although economic conditions may increase homicide rate by making them feel relatively deprived, severe difficulties in employment and chaos in goal setting resulted from the worsened economic conditions may let them lose motivation and reduce relative deprivation. Therefore, if we can measure loss of motivation, it will naturally have negative correlation with relative deprivation, and then homicide rate. As a matter of a fact, employment to other prefectures of high school students considered to reflect loss of motivation showed similar trend to homicide rate, and in the results of regression analysis, it could explain homicide rate significantly.

These explanations provide us with new inspiration to Japanese society. One time, the low crime rate of Japan was highly evaluated as the achievement of successful crime control. However, if the low crime rate reflects loss of motivation, this evaluation should be reconsidered. In rapidly aging society in Japan, youths are required to do more achievements comparing to the past. On the contrary, the youths of Japan are losing the motivation. It is another difficulty of Japanese society to expect more to the youths who are losing motivation. It might be difficult to forecast the actual problems loss of motivation will bring at this moment. However, it is highly probable that those problems will make negative effects on the roles that the youths will play in the future. Additionally, as they grow they will play the core roles in the society. Therefore, the negative effects of loss of motivation can be expanded to whole society.

Regardless of such implications, this study has several limitations. First, the operational

definition of loss of motivation has not been fully tested. Although interest in youths in Japan has been increasing, the studies on them have not been made sufficiently. Therefore, the opinion that local orientation of the youths is resulted from loss of motivation is addressed in limited studies only. Thus, it is not clear whether other social elements have influenced employment rate to other prefectures or not. If employment rate to other prefectures is significantly influenced by some other elements that have not been addressed, we need to reconsider if employment rate to other prefectures is appropriate variable showing local orientation, and consequently loss of motivation.

Additionally, the analysis method used in this study is not appropriate to deal with time-series data. In this study, general multiple regression analysis was performed on time-series data. Here, we have two problems. First, if regression analysis is performed on time-series data, the probability of autocorrelation in the residual is very high (Halcoussis, 2007). When there is autocorrelation in residual, the reliability of estimated values become lower and significance level may be biased. Accordingly, the analysis results do not have sufficient reliability because autocorrelation was found in the residual in this study. Second, the analysis method in this study may cause spurious regression problem. If some time-series data are non-stationary, spurious correlation can be detected in the regression analysis, even when there is no correlation actually (Gujarati, 1995). The possibility that time-series data used in this study is non-stationary is very high because they certainly have trends. Thus, correlations between variables found in this study can be spurious regression.

Considering such limitations, this study cannot provide complete explanations on loss of motivation and homicide rate. To overcome the limitations of operational definition, studies in the related field should be performed first. To identify true correlation between time-series

variables, more elaborated methods should be introduced. Only when limitations of this study are overcome through these efforts, we will be able to understand concretely the effects of loss of motivation on homicide rate of the youths.

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국문초록

일본 젊은이들의 살인율:

1968년부터 2010년까지의 시계열 자료 분석

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일본의 오랜 경기 침체에 의해 젊은이들의 경제적 조건은 전후 최악의 수준까지 악화되었다. 그러나 이들이 저지르는 살인의 비율은 전후 가장 낮은 수준이다. 따라서 일본의 낮은 범죄율을 경제적 성과에 따른 것으로 보는 기존 연구로는 젊은이들의 살인율을 설명할 수 없다.

본 연구에서는 의욕의 상실이라는 변수로 젊은이들의 살인율을 설명하고자 시도한다. 살인율은 상대적 박탈감을 매개로 경제적 조건들의 영향을 받는다. 젊은이들이 상대적 박탈감을 느끼려면 높은 기대를 가지고 있어야 하지만, 오늘날 일본의 젊은이들은 경제적 악조건 속에서 의욕을 상실해가고 있다. 의욕의 상실은 상대적 박탈감을 감소시키며, 이에 따라 살인율도 감소시킨다.

의욕의 상실은 지역 지향을 통해서 측정할 수 있다. 지역 지향은 젊은이들이 현재의 근거지를 떠나기를 꺼리는 경향이다. 이 경향은 의욕의 상실에 따른 것이며, 의욕의 상실로 인해 나타나는 다른 현상들과도 상관관계가 있다. 지역 지향은 고등학교 졸업생의 현외취업률로 확인할 수 있다. 현외취업률이 낮을수록 지역 지향은 높다.

따라서, 본 연구에서는 현외취업률과 살인율의 상관관계를 확인한다. 1968년부터 2010년까지의 시계열 자료가 수집되었고 기술적 분석과 중회귀분석이

실시되었다. 잔차의 자기 상관을 확인하기 위해 Durbin-Watson검정이 실시되었다.

분석 결과, 현외취업률로 살인율을 설명할 수 있음이 확인되었다. 현외취업률과 살인율은 확인된 기간 동안 동일한 추세를 보인다. 회귀분석의 결과에서도 유의수준 1퍼센트에서 양의 상관관계가 확인되었다. Durbin-Watson검정의 결과 잔차에서 양의 자기상관이 확인되었다.

그러므로, 오늘날 젊은이들의 살인율이 증가하지 않는 것은 이들의 의욕이 상실되었기 때문으로 설명된다. 이러한 젊은이들의 의욕의 상실은 고령화가 진행되는 일본에 사회적 부담으로 작용할 가능성이 높다.

키워드: 일본, 일본 젊은이, 상대적 박탈, 의욕의 상실, 살인율, 범죄율
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