Does the media coverage of capital punishment have a deterrence effect on the occurrence of brutal crimes?: An analysis of the Japanese time-series data from 1959-1990

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ABSTRACT

We examined the possible causal relationship between the amount of the publicity of judicial affairs (execution, death sentence, imprisonment for life sentence, and innocence judgment) in three major newspapers (Asahi, Mainichi, and Yomiuri) and the occurrence of brutal crimes (homicide, robbery, arson, and rape) in Japan from 1959 through 1990. We analyzed monthly time-series data, using an autoregression analysis. The results were as follows: (a) The publicity of executions and death sentences of capital punishment did not have a deterrence effect on the occurrence of brutal crimes but sometimes had an augmentative effect on that of homicide; (b) The publicity of imprisonment for life sentences and innocence judgments had no effects on the occurrence of homicides; and (c) For the occurrence of robbery, arson, and rape, no effects were found.

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INTRODUCTION

Although many countries have abolished capital punishment, it is still retained in some countries including Japan, China, and the United States. This situation is probably due in part to the public opinion of those countries strongly supporting the retention of capital punishment, and the governments' inabilities to ignore it (Amnesty International, 1989). For example, a survey conducted by the Prime Minister's Office of Japan (1999) revealed that 79.3% of Japanese thought that capital punishment should be retained, whereas 8.8% of Japanese thought that it should be abolished. Those who are in favor of capital punishment seem to believe that the capital punishment would have a deterrence effect on the occurrence of brutal crimes such as homicide, robbery, arson, and rape. In fact, the survey mentioned above showed that 54.4% of Japanese answered that the abolishment of capital punishment would increase the occurrence of brutal crimes, whereas 8.4% of Japanese answered that it would not increase it. While the public opinion of the deterrence effect is clearly positive, controversy is evident in the academic world. Most of the studies on this issue have been conducted in the United States.

We may classify these studies into three groups. The first group consists of studies that examined if the murder rate changed when executions were carried out, using some time-series analysis methods (e.g., Bailey, 1998; Bower & Pierce, 1975; Cochran, Chamlin,

& Seth, 1994; Ehrlich, 1975; Layson, 1985; Sorensen, Wrinkle, Brewer, & Marguart, 1999). The second group of studies examined a difference in the murder rate between states in which executions were carried out and the ones in which executions were not carried out (e.g., Bailey, 1980, 1984; Black & Orsagh, 1978; Ehrlich, 1977; Peterson & Bailey, 1988). The third group consists of the studies that investigated how the media coverage of executions and sentences of capital punishment influenced the occurrence of homicides (Bailey, 1990, 1998; Bailey & Peterson, 1989, 1994; Dann, 1935; King, 1978; Phillips, 1980; Phillips & Hensley, 1984; Peterson & Bailey, 1991; Savitz, 1958; Stack, 1987, 1990). They examined the change in the murder rate when executions and death sentences were publicized. These studies have presented mixed results without any clear conclusion with regard to the deterrence effect of capital punishment.

As Stack (1990) wrote, the third group studies are important when examining the impact of capital punishment. The public usually find out if someone was executed or sentenced to death only through its media coverage. This means that the impact of the execution or sentence would be mediated by the media coverage, if they were really affected by that. To evaluate possible effects of capital punishment on the occurrence of homicides, researchers should therefore examine the potential changes in the murder rate when executions and death sentences were publicized in the media. Those studies showing no effect of capital punishment may not have looked at the media coverage, and instead simply focused on the executions themselves.

Thus, in this study, we examined how the media coverage of capital punishment has possibly affected the occurrence of brutal crimes through the analysis of Japanese data. The Japanese data would be useful for the following reasons.

First, Japan still maintains the execution of capital punishment (Figure 1), although

many countries, especially highly industrial countries, have abolished it. Japanese data would therefore be helpful for understanding the effect of executions conducted in similarly industrialized countries.

Second, three major newspapers (Asahi, Mainich, and Yomiuri) are available in Japan, and a large number of Japanese people read them. Sales for each paper run up to about several million copies per day. Almost all households in Japan subscribe to at lease one of these newspapers. If the publicity of capital punishment influences the occurrence of brutal crimes, the publicity in these Japanese newspapers should have a significant effect on the occurrence of brutal crimes.

Third, the present Japanese results should be helpful in gaining a cross-cultural perspective on the impact of capital punishment. Cross-cultural comparisons of the studies would increase the robustness of our findings. In addition, if cross-cultural results are different from each other, they should promote our consideration of contributing factors. Since most of the published research studies on the impact of capital punishment have been conducted in the United States with the exception of only a few studies (e.g., Layson, 1983; Wolpin, 1978), the present Japanese time-series study should be helpful to examine the generality of the effect of capital punishment from a cross-cultural perspective.

We used Japanese data to examine the impact of capital punishment. The present study also has three novel aspects.

First, we examined not only the impact of publicity of executions and sentences of capital punishment but also that of other judicial affairs, that is, sentences of imprisonment for life and judgments of innocence. One has to compare the impact of capital punishment with that of imprisonment for life sentence, if he and/or she wants to discuss whether capital punishment should be abolished or not. One can argue that capital punishment should be

abolished, only when the impact of capital punishment is larger than that of imprisonment for life sentence. However, only a small number of studies have examined the impact of imprisonment for life sentence (Bailey, 1977; Phillips & Hensley, 1984).

Second, we examined not only the impact on the occurrence of homicide but also the impact on that of other crimes, including robbery, arson, and rape, whereas a large part of the previous studies examined only the impact on the occurrence of homicide.

Third, as measures of the publicity of the affairs, we used not only the number of judicial affairs (execution, death sentence, imprisonment for life sentence, and innocence judgment) that are publicized in newspapers but also the numbers of characters and photographs reported in newspaper articles of the affairs. As Bailey and Peterson (1994) indicated, few previous studies measured the amount of media attention devoted to executions. Media attention is the attention media pays to an affair, and reflects how important it is regarded by the media. When newspapers consider that an affair is important, they would usually provide a large article, in which many characters and photographs are used. In this study, therefore, we measured the amount of media attention by using the numbers of characters and photographs reported in newspaper articles.

We examined how the amount of the publicity of judicial affairs (execution, death sentence, imprisonment for life sentence, and innocence judgment) in the three major newspapers (Asahi, Mainichi, and Yomiuri) had influenced the occurrence of brutal crimes (homicide, robbery, arson, and rape) in Japan from 1959 through 1990. We analyzed data from over 360 time periods (months), which we considered to be sufficient for the time-series analyses.

Many factors affect the occurrence of brutal crimes in a complicated manner. In the present study, we attempted to assess the effects of the publicity itself as accurately as

possible, using the time-series analysis and removing other explanatory factors through this analysis. Strictly speaking, an experiment with randomized group design is ideal for testing causality, but the time-series analysis of data from many periods is also regard as an excellent method for revealing causality (Cook & Campbell, 1979).

METHOD

Publicity.

We collected all articles on the four types of judicial affairs from the three major newspapers published between 1959 and 1990. In addition, we collected the articles of October - December of 1958. The data of the latter period were necessary to examine the lagged effect of capital punishment.

We used three measures for the publicity of each type of judicial affairs from these articles of 387 months. The first measure was the monthly number of publicized judicial affairs. If one affair was repeatedly publicized in a newspaper on some days, we counted only the first publicity. The second and third measures were the monthly numbers of characters and photographs that were found in newspaper articles on the judicial affairs.

We first obtained the scores of these measures for each of the three newspapers, and summed up the score of each measure across the newspapers. We analyzed only this total score in the present study. As shown in Table 1, correlation coefficients between the newspapers for each measure are mostly high, and therefore, it is unlikely that we lose important information by using the total score.

Brutal crimes.

We used "Hanzaitoukeisho" (criminal statistics) to know the number of the

occurrence of brutal crimes: homicide, robbery, arson, and rape. "Hanzaitoukeisho" is a periodical the Japanese National Police Agency publishes once a year to report the criminal statistics of each year.

The frequencies of brutal crimes that occurred one year before the publication year are reported in each volume. In addition, in the volumes published after 1978, the Agency reports the frequencies of the crimes that were not reported in previous volumes even thought they had occurred during two or three preceding years, because they were not found when the previous volumes were published. Therefore, to obtain more accurate number of the occurrence of brutal crimes for any particular year, they have to look in to three volumes, those published one, two, and three years after that target year. We also examined three succeeding volumes and summed up the data described in the volumes in order to identify the correct number of the occurrence for each year.

In the volumes of 1964 - 1966, because only the annual data were described, we could not analyze the data for these three years. Thus, we eventually analyzed the data for 29 years.

Analysis.

We examined the impact of capital punishment on the occurrence of brutal crimes, using an autoregression analysis (cf. Box and Jenkins, 1976; Ostrom, 1978; Johnston, 1984; Vandaele, 1983). We employed the AUTOREG procedure of the Statistical Analysis System (SAS). We identified three stages to perform the AUTOREG.

First, we need to determine the stationarity of the mean, variance, and autocorrelation of the data for a dependent time-series variable. The stationarity means that the mean, the variance, and the autocorrelation are constant across periods, at each of which one datum is

obtained. This is a requisite precondition for autoregression analysis. We cannot estimate a real mean, variance, and autocorrelation for each period and examine antoregressive process for the time-series data, if the data do not have stationarity.

We can estimate the stationarity of the dependent variable, by observing a trend and a drift in a plot of the data. The data of the variable do not have stationarity, if they find trends and drifts in the data. The stationarity can also be assessed by measuring autocorrelations for the variable. The data of the variable have stationarity, if a higher-order autocorrelation is weaker than another lower-order autocorrelation. We should transform the data, using some method, if the data do not have stationarity.

Second, we need to investigate if some autocorrelations of the dependent variable are significant and evaluate an autoregressive process of the variable. Significant autocorrelations can bias the estimated values of parameters obtained through a regression analysis. Therefore, we need to find significant autocorrelations before we conduct a regression analysis.

Finally, we conduct a regression analysis to examine the effect of independent variables on the dependent variable. If we found some significant autocorrelations at the second stage, we should control the effect of the autocorrelations. This control is actualized by adding the lags of the dependent variable to a set of the independent variables.

RESULTS

Publicity.

We first summarized the data of the publicity of four judicial affairs: execution, death sentence, imprisonment for life sentence, and innocence judgment. Figures 2, 3, and 4 show annual changes in the number of affairs, characters, and photographs, respectively.

Brutal crimes

We next summarized the data of the occurrence of four brutal crimes: homicide, robbery, arson, and rape. Figure 5 shows annual changes in the number of the occurrence.

There are trends and drifts in these plots, and it is obvious that these data do not have stationarity. Therefore, we had to transform the data. We chose seasonal differencing as a technique for the transformation. The seasonal differencing is a technique to transform a time-series data that do not have stationarity into the data that have it, by subtracting the value of a datum of 12 preceding months (month t-12) from that of a datum for each month (month t). This technique is recommended, when a seasonal cycle exists among the data (Vandaele, 1983). Our data, especially the arson and rape data, suggested the presence of seasonal cycles (Figure 6). In addition, the results of analysis of variance showed that the effects of months on the occurrence of homicide, arson, and rape were significant (Fs(11, 480)=3.79, 19.96, and 9.87, ps<.01, respectively). Therefore, we thought it appropriate to use the seasonal differencing technique for homicide, arson, and rape. As for robbery, the results of analysis of variance did not show a significant effect (F(11, 480)=0.28, *ns*), but we used the technique for this crime, too, to permit comparisons across types of crimes.

We examined autocorrelations for lag periods ranging from t-1 through t-12 from the difference data transformed with this technique. We found that a higher-order autocorrelation was weaker than another autocorrelations. This shows that we were successful to obtain the data that now have stationarity.

Autoregression analysis.

We conducted an autoregression analysis to examine the impact of the publicity of

judicial affairs on the occurrence of brutal crimes. We first computed partial autocorrelations for lag periods ranging from t-1 to t-12 from the difference data. Partial autocorrelations are considered more important rather than simple correlations to detect the autoregressive effects that should be controlled (Vandaele, 1983).

We found some significant partial autocorrelations, that is, the 4th- and the 12th-order autocorrelations for homicide, the 1st-, the 2nd-, the 4th-, and the 12th-order ones for robbery, the 1st-, the 5th-, the 8th-, the 10th-, the 12th-order ones for arson, and the 1st-, the 2nd-, the 6th-, the 11th-. and the 12-order ones for rape. We conducted the autoregression analysis with removing these autocorrelative effects, by adding the lags of the occurrence of brutal crimes into a set of the independent variables.

As for independent variables, we used not only (a) the data of judicial affairs publicized in the month of the occurrence of brutal crimes but also (b) those of the affairs publicized a month before the month of the occurrence, (c) those of the affairs publicized two months before, and (d) those of the affairs publicized three months before. If the number of the judicial affairs publicized a month before has a significant effect on the number of the occurrence of brutal crimes, it suggests that the publicity influences the occurrence of brutal crimes a month after the publicity. In this way, we can evaluate the lagged effects of the media publicity.

We conducted this analysis for each of the 48 combinations in a matrix of four (judicial affairs: execution, death sentence, imprisonment for life sentence, and innocence judgment) by four (brutal crimes: homicide, robbery, arson, and rape) by three (measures of publicity: the number of publicized judicial affairs, the number of characters, and the number of photographs).

Table 2 shows the results for homicides. We described only significant and

marginally significant effects. The values in Table 2 are unstandardized regression coefficients, and they indicate the amount of the occurrence of brutal crimes changed by one judicial affair, one thousand characters, or one photograph appearing in a newspaper. For example, the value (4.59) found in the cell of homicide and the number of publicized judicial affairs in Table 2 shows that one affair publicized in a newspaper increased 4.59 homicides. The results of the lags of the occurrence of brutal crimes are omitted from the table for the brevity. All the effects of the lags were highly significant.

As shown in Table 2, for executions, the number of publicized affairs and photographs had significantly positive effects on the number of homicides that occurred one and two months after the publicity, respectively. This suggests that the publicity of executions does not reduce the occurrence of homicide but would rather augment it.

We also found similar results for death sentences. The number of characters and photographs had significantly positive effects on the number of homicides that occurred one month after the publicity. The number of publicized affairs had marginally significant effects. Thus, the publicity of death sentence also seems to augment the occurrence of homicide. On the other hand, the publicity of imprisonment for life sentences and innocence judgment rarely showed significant effects. As for other brutal crimes of robbery, arson, and rape, we detected no significant effects of media coverage on their future occurrence.

DISCUSSION

The results suggest that the media coverage of capital punishment would not decrease the occurrence of homicides but would rather augment it. In addition, the media coverage of imprisonment for life sentences would not have this augmentative effect. Therefore, it

seems unlikely that the number of homicides increases in Japan, even if capital punishment were abolished and imprisonment for life were used for some murderers instead of capital punishment.

We could not find any significant effects of the number of characters in the articles of executions on the occurrence of homicides. We do not think that the media coverage itself in the three newspapers would influence the occurrence of homicides. We do think that the coverage of other media, for example, television, radio, magazines, other newspapers, the Internet, and personal communications, would influence it along with the coverage of the three newspapers. However, unlike the number of publicized judicial affairs, the number of characters would not be highly correlated with the amount of coverage of other media, because the amount of media attention measured by an index such as the number of characters would vary greatly depending on media. In fact, as Table 1 shows, the number of characters in a newspaper is not highly correlated even with another newspaper. If the number of characters was not highly correlated with the amount of coverage of other media, it could not be regarded as representing the amount of coverage of all media. We found no significant effects of the number of characters in the articles of executions, partly because it was not possible to detect the influence of coverage of all media for the lack of representativeness.

The results of the present study are different from those of some previous American studies. As we wrote earlier, American studies have presented mixed results, and therefore, researchers have not obtained any clear conclusions yet. However, we found that a several American studies that supported the deterrence effect of capital punishment (Ehrlich, 1975, 1977; Layson, 1985; Strack, 1987, 1990). Some of them (Ehrlich, 1975; Stack, 1987) have been criticized (Bowers & Pierce, 1975; Yunker, 1976; Bailey and Peterson, 1989)

while the others (Ehrlich, 1977; Layson, 1985; Stack, 1990) have not been criticized yet. If the deterrence effect is valid in the United States, we need to explain why the American effect is different from the Japanese one found in the present study.

We have possible explanations. King (1978) speculated about a mechanism underlying the augmentative effect and proposed a hypothesis. King wrote that "The use of the death penalty as a punishment deadens people's respect for life by the state and thus increases the incidence of homicide." However, if people's respect for life has already been deadened by daily murders, the respect will not be deadened any more, when they encounter publicity of capital punishment. Murders are committed much more frequently in the United States than in Japan. Therefore, the respect for life by people living there has possibly been deadened already, and therefore previous American studies have not shown the augmentative effect. On the other hand, it seems unlikely that Japanese people's respect for life is deadened by murders, because murder incidents are much more unusual in Japan. This might be one of the reasons why the augmentative effect was obtained in the present study. Similar explanation is also possible. Capital punishment itself may be regarded as a violent behavior performed by a country to solve problems. The modeling of this behavior might more easily occur for Japanese people, because the impression of that violent behavior is made stronger by the infrequency of murders in Japan. Further research on these hypotheses would be warranted.

Finally, it should be noted that the data of the present study have some limitations. We analyzed the data of 1959-1990. Therefore, we are not quite certain whether or not our findings can be generalized to the current situations. We also admit the limitation of the present methodology to detect causality, although the time-series data analysis of data from many periods is regarded as an excellent method for revealing causality (Cook &

Campbell, 1979).

Future studies should address these problems. In addition, some other questions should be investigated. For example, how can the effects of media coverage found in the present study be generalized to those in other countries? If some differences between countries are found, how can we explain the differences? How do mediating factors such as criminals' gender and age influence the effects of media coverage? Although a quantitative research method was used in the present study, a qualitative research method will also be useful.

In summary, our results indicate that the publicity of capital punishment would not decrease the occurrence of homicides but would rather increase it in Japan. If the problems of generalization of periods and causality detection could be minimized, these results imply that the abolishment of capital punishment would not increase the occurrence of homicides but even decrease it. Therefore, the retention of capital punishment would not be meaningful in current Japan, if its deterrence effect is a major reason for the retention. In Japan, no studies have been conducted to examine the effect of capital punishment, but the public opinion of Japanese people has supported the deterrence effect and the retention of capital punishment. Although the data of the present study have limitations, we argue that they are meaningful to make Japanese people more aware of lack of evidence for that public opinion. At present, Japanese people do not seem to have strong reasons for believing in the deterrence effect of capital punishment.

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Table 1.
Correlation coefficients for the publicity items between major Japanese newspapers

	Affairs	Characters	Photographs
Execution			
Asahi - Mainichi	. 62	. 22	. 20
Asahi - Yomiuri	. 54	. 18	. 06
Mainichi - Yomiuri	. 78	. 30	. 40
Death sentence			
Asahi - Mainichi	. 75	. 69	. 57
Asahi - Yomiuri	. 80	. 90	. 80
Mainichi - Yomiuri	. 74	. 69	. 61
Imprisonment for life			
Asahi - Mainichi	. 59	. 86	. 54
Asahi - Yomiuri	. 67	. 84	. 87
Mainichi - Yomiuri	. 54	. 87	. 65
Innocence judgment			
Asahi - Mainichi	. 73	. 93	. 88
Asahi - Yomiuri	. 70	. 93	. 89
Mainichi - Yomiuri	. 76	. 91	. 86

Note. N=384.

Table 2 The results of autoregression analysis for homicides

	Affair		Characters		Photographs	
	b	*t*	*b*	*t*	*b*	*t*
Execution						
The same month	.24	.11	−.10	−.43	−.63	−.28
One month after	2.97	1.37	.28	1.25	4.82	2.12*
Two months after	4.59	2.10*	.35	1.53	3.53	1.56
Three months after	−1.16	−.54	−.12	−.52	−.18	−.08
Death sentence						
The same month	−.10	−.28	.00	.09	.21	.54
One month after	.65	1.86+	.05	2.33*	.89	2.35*
Two months after	−.52	−1.46	−.00	−.11	.12	.31
Three months after	−.12	−.34	−.00	−.18	−.18	−.48
Imprisonment for life						
The same month	.26	.70	.04	1.74+	.66	1.21
One month after	−.10	−.26	.03	1.28	.70	1.28
Two months after	−.09	−.23	−.03	1.15	.47	.86
Three months after	−.19	−.50	.03	−.19	.06	.11
Innocence						
The same month	−.50	−.90	.00	.12	.09	.69
One month after	−.54	−.99	.00	.21	−.06	−.44
Two months after	−.70	−1.28	−.01	−.78	−.14	−1.12
Three months after	−.54	−1.00	.00	.08	.03	.21

Notes: *p<.05 +p<.1