ECONSTOR
Make Your Publications Visible.

A Service of

ZBW Leibniz-Informationszentrum Wirtschaft
Leibniz Information Centre for Economics

Kim, Jung Wook; Chae, Su Bok

Article

Anchoring Effect of the Prosecutor's Demand on Sentence: Evidence from Korean Sexual Crime Cases

KDI Journal of Economic Policy

Provided in Cooperation with:
Korea Development Institute (KDI), Sejong

Suggested Citation: Kim, Jung Wook; Chae, Su Bok (2017) : Anchoring Effect of the Prosecutor's Demand on Sentence: Evidence from Korean Sexual Crime Cases, KDI Journal of Economic Policy, ISSN 2586-4130, Korea Development Institute (KDI), Sejong, Vol. 39, Iss. 3, pp. 1-18, https://doi.org/10.23895/kdijep.2017.39.3.1

This Version is available at:
https://hdl.handle.net/10419/200809

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.


https://creativecommons.org/licenses/by-sa/4.0/

WWW.ECONSTOR.EU

Mitglied der Leibniz-Gemeinschaft

KDI Journal of Economic Policy 2017, 39(3): 1–18
http://dx.doi.org/10.23895/kdijep.2017.39.3.1

Anchoring Effect of the Prosecutor's Demand on Sentence: Evidence from Korean Sexual Crime Cases†

By JUNGWOOK KIM AND SUBOK CHAE*

The anchoring effect can be found when a decision shows cognitive prejudice towards the initial information given. Several studies have argued that such an effect is present even for judges in the courtroom. This paper seeks to find a relationship between judges' decisions on penalty sentences and the sentences recommended by prosecutors. In this study, 2,773 actual court cases are considered in the analysis, and quantile regression is used to show that the sentencing decisions judges make are anchored by the recommendations of prosecutors. However, this reliance on recommendations differs according to the seriousness of the crime committed. Specifically, at the lowest penalty levels, a one-month increase in the prosecutors' sentencing recommendation results in a 0.25-month increase in the judges' sentence, while at the highest sentence level, the judges' sentences increase by 0.78 months under an identical condition. The results of this research indicate the need to create more objective and clear sentencing guidelines in the future in an effort to mitigate the psychological pressure experienced by judges with regard to serious offences or heinous crimes.

Key Word: Prosecutor, Anchoring Effect, Sentence
JEL Code: K14, K42, D91

I. Introduction

It is crucial to make fair and rational judgements in courts to consolidate the faith of people. If there is a gap between sentences for similar crimes or similar criminals, it can cause people to discredit the criminal justice system. Therefore, it

* Kim: Fellow, Korea Development Institute (e-mail: awaker2@kdi.re.kr); Chae: Senior Researcher, Korea Development Institute (e-mail: sbchae@kdi.re.kr).
* Received: 2016. 11. 9
* Referee Process Started: 2016. 11. 18
* Referee Reports Completed: 2017. 8. 8
† This paper is based upon Jungwook Kim and Subok Chae, *Sentence Variation and Influence of Prosecutor's Demand*, Supreme Prosecutors' Office, 2011. The authors are grateful to Suhyeon Wi for her great help.

is important to verify whether reasonable decisions are made on each case where various factors can affect those decisions, including the final sentence of the judiciary.

Judges are allowed to make decisions at their own discretion, as each case needs diverse perspectives and consideration of the circumstances to provide clear justice. However, the principle of discretion can hinder predictability and therefore acceptance of consequences. Here, we suggest that there is an anchoring effect on judges' decisions and empirical results to prove the existence of this phenomenon.

The empirical results provide fair insight into how a prosecutor's declarations affect judges. First, judges' sentences tend to be below the level of the prosecutors' sentence recommendations. Second, the more serious the case is, the more sensitively judges respond to prosecutors' recommendations.

The following section describes both the data used here and the relationship between prosecutor demands and the decisions of judges for each decile of sentencing. The third section introduces the empirical model and reports and discusses the empirical findings, while the final section of the paper offers a summary and concluding remarks.

II. Literature Review

In one study of the jurisdictional process, Lee (1988) lists the characteristic factors and causal incidents affecting sentences and measures the degrees of those effects. This study suggests that several factors, including lower economic status and repeated convictions, induce longer sentences; however, there are still differences among judges. In another study, Lee (2006) investigated violent crimes and confirmed characteristics related to the final conviction level, while later Lee (2009) asserts that an upside-down U-shaped relationship exists between the criminal's age and the sentence level. However, these studies were mostly based on small sample sizes.

Other studies specifically focused on the anchoring effect during the prosecution process. Note that this paper attempts to analyze both sentencing disparities and the anchoring effect of the prosecutor's sentencing demand. Many studies present results supporting the idea that the decisions of judges depend on an anchoring point. Park *et al.* (2005) and Kim and Choi (2010) give active judges in South Korea three different anchoring points (no anchor, low anchor, and high anchor) to assess whether their decisions change according to the information given. First, Park *et al.* (2005) analyzes the jurisdictional consequences of 158 judges in Daejeon in Korea. That study compared three types of hypothetical cases of sentencing after prosecutors' recommendations of zero years, two years, and ten years, while controlling for other variables. Second, Kim and Choi (2010) conducted an experiment on 103 judges' decisions in sexual harassment cases. Both surveys conclude that an anchoring effect exists, as judges facing higher recommendations tend to impose longer sentences.

Hastie *et al.* (1999) and Malouff and Schutte (1989) find through an analysis of actual cases that amounts claimed by the plaintiff side can affect jurors' decisions. The former conducted a controlled experiment and showed that juries were willing

to announce 2.5 times more compensation for plaintiffs. The latter also demonstrated the existence of the anchoring effect, finding that the amount of legal compensation is significantly influenced by the plaintiffs' claims in civil cases. Viscusi (2001) and Hinsz and Indahl (1995) conducted surveys of citizens and college students to show that the anchoring effect exists during the process determining the penalty. The latter study divided the samples into three groups of high, low, and zero compensation for a traffic accident. The results were similar to those of Robbennolt and Studebaker (1999).

Most importantly, Martin and Alonso (1997) conducted an empirical study of actual criminal court decisions. Their study showed stronger anchoring effects in sentences for sex crimes, minor rape cases, and rape cases, while no significant results were noted for rape attempts. Judges sentencing for serious crimes may tend to share responsibilities with prosecutors.

Except for the last case, most previous studies rely on experiments based on civil disputes in a controlled environment. However, we need to identify these effects in actual criminal cases as well as civil trials. The analysis provided in this paper is expected to offer the following advantages over previous studies: first, a majority of existing studies were based on small-scale data pools, which limits the generalizability of their results. Meanwhile, this paper examines a total of 2,733 cases in order to enhance the reliability of the results. Second, the existing literature on the anchoring effect of the prosecution's initial sentencing recommendation contends that sentencing recommendations present an obstacle for the judge when determining an objective and reasonable sentence. However, it would be more logical to consider the prosecution's sentencing recommendations as professional opinions and to have judges makes rulings based on or in reference to the prosecution's discernment. Third, actual cases were used for the data analysis, thus allowing empirical studies of sentencing disparities, which were lacking in previous studies.

III. Data

After collecting first trial cases on indictments from July 1, 2009 to October 10, 2011 in 52 categories of offences falling under the classification of sex crimes, 3,995 sex crimes were confirmed; 52 categories include rape, rape and murder, fatal rape, robbery and rape, forced indecency, and rape of minors, as listed in Table A1. Among these, 3,991 cases included data on the prosecution's sentencing recommendation and 2,737 provided information on the judge's eventual sentence. Finally, 2,733 sex crime cases were regarded as valid samples because information about the prosecution's sentencing recommendation in four out of the original 2,737 cases was missing.

Next, the above data were ranked according to the length of the judge's sentence in months then split into deciles (273 cases in each decile based on the sentence level). Table 1 shows the statistical abstract of these valid samples. We divided the entire dataset evenly into ten groups based on the sentence level to avoid arbitrary data distortion and to conduct a quantile regression. Hypothesis and suppositions

TABLE 1—SUMMARY OF JUDGES' SENTENCES AND PROSECUTORS' RECOMMENDATIONS

Level of Sentence	Number of Samples		Mean		Median		Std. Dev.		Paired t-test
	N_A	N_S	Judge	Prosecutor	Judge	Prosecutor	Judge	Prosecutor	
1	273	6	5.6	18.4	6	12	3.15	14.12	-14.69
2	273	3	14.5	30.7	12	24	3.18	17.86	-15.39
3	273	12	20.1	38.3	18	36	2.88	17.56	-17.93
4	273	15	28.0	42.8	30	36	2.82	15.98	-15.18
5	273	16	30.0	44.5	30	36	0.00	16.85	-14.20
6	273	13	30.0	47.7	30	36	0.00	21.46	-13.66
7	273	11	35.3	61.5	36	60	1.92	21.77	-20.38
8	273	13	40.2	66.2	36	60	4.84	23.33	-19.12
9	273	11	58.1	88.9	60	84	6.38	37.04	-14.15
10	276	31	100.2	153.3	84	120	37.34	125.88	-7.65
Total	2,733	131	36.3	59.4	30	48	28.19	57.92	-27.86

Note: 1) The unit of sentencing is months. 2) As the fifth and sixth deciles have the same mean, we ordered those two segments according to the recommendation level. 3) N_a indicates the total number of samples, and N_s indicates the number of times in which the judge's sentence surpasses the prosecution's sentencing recommendation. 4) The paired t-test verifies whether the differences between the sample means of the judge's sentences and those of the prosecution's sentencing recommendations are statistically meaningful.

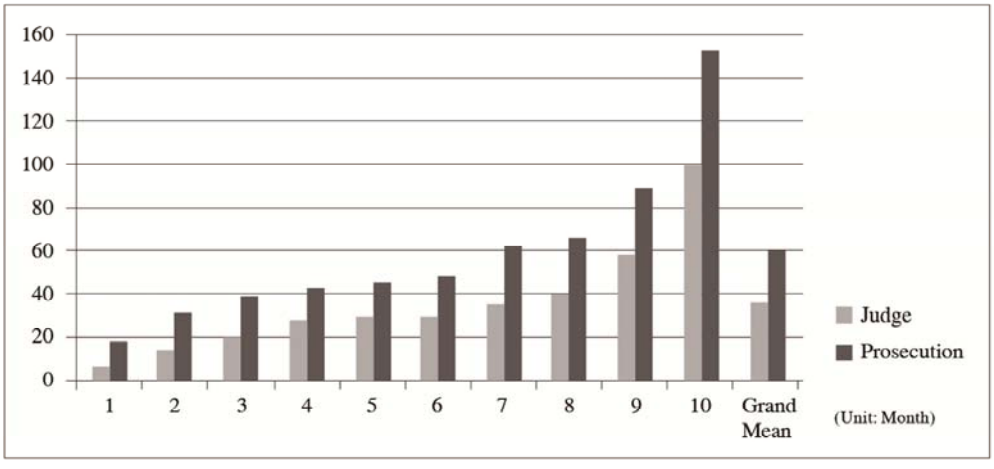


FIGURE 1. PROSECUTOR'S RECOMMENDATIONS AND JUDGE'S SENTENCES

are addressed in chapter IV.

Although some of the judge's sentences were indeed more severe than that recommended by the prosecutor, most of the judge's sentences were a fraction of what was recommended. Only 131 out of 2,733 (4.8%) were cases in which the sentence from the judge exceeded the sentencing recommendation. An examination of the sample means of each decile reveal that the mean of the prosecutor's requests was stricter than the mean of the sentences pronounced by the judges Figure 1.

In addition, Figure 2 shows the ratio of the judge's sentencing level to the prosecution's sentencing recommendation. From the third decile and above, these values are between 0.55-0.67 which indicates that the judges generally levy a sentence in a range lower than that recommended by the prosecutors.

In this paper, factors that affect the sentencing by a judge were determined by

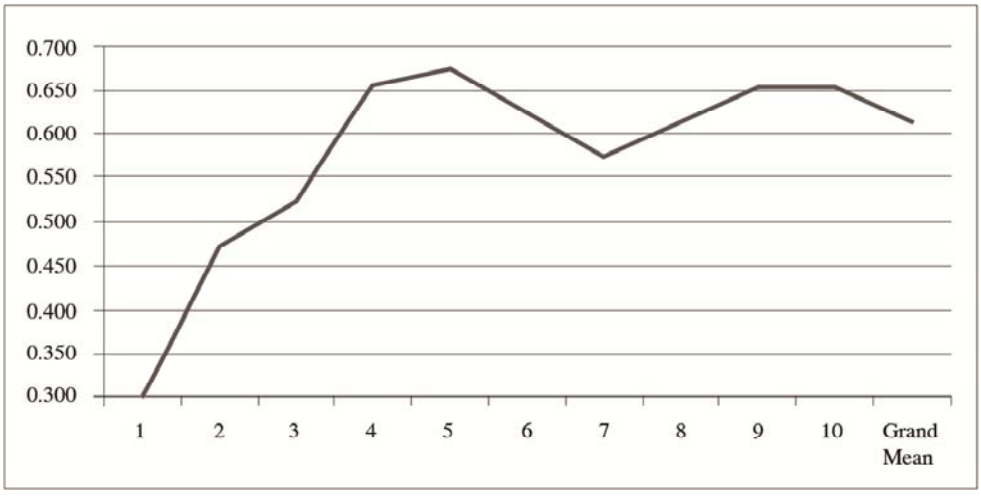


FIGURE 2. RATIO OF THE SENTENCING LEVEL TO THE RECOMMENDED SENTENCING LEVEL

examining processing data from the Prosecutorial Guideline System (PGS), which contains information about each case. Sentencing factors were divided in aggravating variables and mitigating variables. These were subdivided into general and special factors. Sentencing factors consist of 22 variables which include four special mitigating factors, four general mitigating factors, seven general aggravating factors, and seven special aggravating factors.[1]

First, the characteristics of special mitigating factors will be explained. *CRA_MHD* in the PGS defines the method used during the crime, which provides information about whether or not the crime is classified as simple violence by Korean law, whether a deadly weapon was used, whether a mental disorder existed due to the use of drugs, and whether authority and force were used. *CRA_MHD_5* (*sd1*) in the PGS data indicates the use of fraudulent means or a threat of force. Self-denunciation (*sd2*) and a confession (*sd3*) are considered as special mitigating factors. These variables could raise concern about multicollinearity which may arise when correlations among variables cause problems in the regression analysis, as self-denunciation by a suspect implies that he/she has offered a confession. However, as shown in Table 3, the total number of cases of self-denunciation accounts for only 1.65 percent. Most of criminal cases are resolved through an arrest rather than by self-denunciation, and those offenders commonly confess. This relieves concerns about multicollinearity between *sd2* and *sd3*. Lastly, whether or not the victim of the sex crime pursues punishment is also a special mitigating factor (*sd4*). In sex crimes, both the will of the victim and that of his/her family for punishment are taken into consideration, but this paper accounts only for the victim's will. Therefore, if the victim desires punishment, it is scored as '1', with a score of '0' otherwise.

The group composed of general mitigating factors considers whether or not the

[1]Sentencing guidelines from advanced research conducted by Lee and Park (2010) analyzing sentencing factors of sex crimes based on the guidelines set by the Sentencing Commission of the Supreme Court of Korea are correspondingly applied to the selection of sentencing factors in this paper.

accused undertakes serious reflection on their criminal conduct (*gd1*). In the PGS, the existence of serious reflection is shown in *SLEXM_YN* as '1', and whereas the absence is '2'. However, '2' is converted to '0', which shows that the accused undertook no serious reflection. Approximately 42 percent of criminal cases indicated that the defendants reflected on their crimes. *CNSP_XTN* in PGS shows whether there was passive participation in the crime (*gd2*). The data for passive participation was indicated as '03' in *CNSP_XTN* but was converted to '1'. Other values in addition to '03' were all converted to '0'. Whether or not the accused has a criminal record is regarded as a mitigating factor, *OFN_PRCD_8* (*gd3*), in this paper. Thus, if he/she has no such record, it is treated as '1', whereas the opposite is scored as '0'. Lastly, *DMG_RVR_EFT_YN* in the PGS shows the existence of a sufficient compensation deposit (*gd4*, which is considered a general mitigating factor that indicates whether the accused is making serious efforts to compensate for damages even when he/she fails to reach an agreement).

Seven general aggravating factors are considered. Premeditated crime (*ga1*) distinguishes between cases in which the commission of a crime is premeditated or accidental. The existence of multiple instances of sexual intercourse during the period of an offence (*ga2*) indicates that the defendant committed multiple crimes. In other words, he/she is charged with repeated criminal conduct instead of a single sex crime. Whether or not a case falls under Article 7 of the Act on the Protection of Children and Juveniles from Sexual Abuse (*ga3*) is another aggravating factor under the special act. If it does, the data is scored as '07' in *SPCL_LAW_ICRS_YN* in the PGS and is converted to '1'. If not under the special act, it is scored as '0'. The use of fiduciary relations (*ga4*) is also considered an aggravating factor. It is defined as follows: 'It could be extensively believed that in terms of the motive, means, and results, etc., of a crime, that the accused abuses the mutual trust with a victim in the commission of a crime against the victim with whom the accused maintains an interpersonal relationship'. *ICRS_ELMT_2* is used in the PGS to show the existence of a fiduciary relationship. Whether the criminal motive is to avoid condemnation (*ga5*) is another general aggravating factor. In other words, this factor is related to the following cases: 'the commission of a crime to prevent the victim from reporting it while he/she commits other criminal acts'; 'the commission of a crime to acquire benefits to property'; 'the commission of a crime out of retaliation, resentment or hatred towards the victim'; and 'the commission of a crime for other purposes equivalent to the aforementioned causes'. Causing mental disorder (*ga6*), which falls under *CRA_MHD*, means that a defendant commits a criminal act after mentally debilitating the victim using drugs to render the victim unable to protest. This is represented by *CRA_MHD_6* in PGS. The final factor in the group is the presence of sadistic sexual acts (*ga7*), which is designated as *NV_AGG_ACT* in the PGS.

Finally, there are seven special aggravating factors. The act of compounding the victim's humiliation (*sa1*) is represented by *ICRS_ELMT_1* in the PGS, and approximately 12.3 percent of all samples include this factor. Whether a victim is among those considered especially vulnerable to a crime (*sa2*) is linked to crimes against groups such as those who are mentally impaired or children. If a victim is vulnerable, *VTM_DLCT* in the PGS is classified as '1'; otherwise, it is '0'. The existence of special robbery refers to whether offences include not only a sex

TABLE 2—PROSECUTORIAL GUIDELINE SYSTEM AND FACTORS

Sentencing Factors		Variable	PGS Code	Treatment of Variable
Special Mitigation	Use of Authority and Force (without violence·threat)	*sd1*	*CRA_MHD_5*	
	Self-denunciation	*sd2*	*SSRD_YN*	
	Confession	*sd3*	*CNF_YN*	
	Victim's Will not to Punish	*sd4*	*VTM_PNH_DCTR*	
General Mitigation	Serious Reflection	*gd1*	*SLEXM_YN*	
	Passive Participation	*gd2*	*CNSP_XTN*	
	Record of Criminal Punishment	*gd3*	*OFN_PRCD_8*	
	Sufficient Compensation Deposit	*gd4*	*DMG_RVR_EFT_YN*	
General Aggravation	Premeditated Crimes	*ga1*	*PLAN_LSNM_YN*	
	Multiple Occasions of Sexual Intercourse during the Period of an Offence	*ga2*	*ACT_TMS_2*	
	Pertinent to Article 7 of the Act on the Protection of Children and Juveniles from Sexual Abuse	*ga3*	*SPCL_LAW_ICRS_YN*	Yes = 1
	Abuse of Interpersonal Relationship	*ga4*	*ICRS_ELMT_2*	No = 0
	Crimes for the Purpose of Avoiding Condemnation	*ga5*	*BLM_MTV1,2,3,4*	
	Causing Mental Disorder	*ga6*	*CRA_MHD_6*	
	Sadistic Sexual Acts	*ga7*	*NV_AGG_ACT*	
Special Aggravation	Act to Compound a Victim's Humiliation	*sa1*	*ICRS_ELMT_1*	
	Victim Vulnerable to a Crime	*sa2*	*VTM_DLCT*	
	Inclusion of Special Robbery	*sa3*	*SLP_ICRS_ELMT_5*	
	Gang Rape	*sa4*	*GRP_YN*	
	Victim's Pregnancy	*sa5*	*VTM_PRGN*	
	Repetition of a Crime of the Same Type not under Relative Special Acts	*sa6*	*OFN_PRCD_2*	
	Commission of Instigation against Those So Directed	*sa7*	*CTR_CMDR_ABET*	

Note: Codes of sentencing factors for cases by the Office of the Supreme Prosecutor in the PGS are used.

TABLE 3—SUMMARY OF PROSECUTORIAL GUIDELINE SYSTEM AND FACTORS

Name of Variable		Number of Samples	Mean	Sample Deviation
sd1	Use of Authority and Force (without violence or threat)	2733	0.0820	0.2744
sd2	Self-denunciation	2733	0.0165	0.1273
sd3	Confession	2733	0.6378	0.4807
sd4	Victim's Will not to Punish	2733	0.7750	0.4177
gd1	Serious Reflection	2733	0.4171	0.4932
gd2	Passive Participation	2733	0.0051	0.0714
gd3	Record of Criminal Punishment	2733	0.2561	0.4366
gd4	Sufficient Compensation Deposit	2733	0.0717	0.2581
ga1	Premeditated Crimes	2733	0.2177	0.4128
ga2	Multiple Occasions of Sexual Intercourse during the Period of an Offence	2733	0.0424	0.2016
ga3	Pertinent to Article 7 of the Act on the Protection of Children and Juveniles from Sexual Abuse	2733	0.0827	0.2755
ga4	Abuse of Interpersonal Relationship	2733	0.1870	0.3900
ga5	Crimes for the Purpose of Avoiding Condemnation	2733	0.0402	0.1966
ga6	Causing Mental Disorder	2733	0.0121	0.1092
ga7	Sadistic Sexual Acts	2733	0.0048	0.0688
sa1	Act to Compound a Victim's Humiliation	2733	0.1233	0.4259
sa2	Victim Vulnerable to a Crime	2733	0.0048	0.0688
sa3	Inclusion of Special Robbery	2733	0.0059	0.0763
sa4	Gang Rape	2733	0.0337	0.1804
sa5	Victim's Pregnancy	2733	0.0088	0.0933
sa6	Repetition of a Crime of the Same Type not under Relative Special Acts	2733	0.0274	0.1634
sa7	Commission of Instigation against Those So Directed	2733	0.0015	0.0382
prose	Prosecution's Sentencing Recommendation	2733	59.3513	57.9213
judge	Judge's Sentence	2733	36.2678	28.1906

crime, but also a special robbery accompanied by the use of deadly weapons or intrusion. *SLP_ICRS_ELMT* in the PGS provides information about intrusion upon a habitation, compound larceny, special larceny, robbery and special robbery. This paper makes use of *SLP_ICRS_ELMT_5* (*sa3*), which represents special robbery. With regard to gang rape (*sa4*), pregnancy of a victim (*sa5*), repetition of a crime of the same type other than a repeated crime under the Act on Special Cases concerning the Punishment of Specific Violent Crimes, and the Act on the Aggravated Punishment, etc. of Specific Crimes (*sa6*) and commission of instigation against those who are so directed (*sa7*), the data *GRP_YN*, *VTM_PRGN*, *OFN_PRCD_2*, and *CTR_CMDRABET* in the PGS are used, respectively. All variables except for prosecution's sentencing recommendation (*prose*) and the judge's actual sentence (*judge*) are processed as binary variables and are treated as '0' or '1'.

IV. Regression Analysis

A. *Model Setting*

A model to confirm the following hypotheses is crafted in order to ascertain the influence of the prosecution's sentencing recommendations on the sentencing decisions of judges.

Hypothesis 1. The prosecution's sentencing recommendation influences the judge's sentencing decision.

Hypothesis 2. The judge's sentence tends to be below the level of the prosecution's sentencing recommendation.

Hypothesis 3. The judge's response to the prosecution's sentencing recommendation varies depending on the level of the sentence.

In fact, regarding the sentencing decision, the prosecutor's sentencing recommendation need not be taken into consideration, but it is considered likely that a judge would experience discomfort with the gap between the prosecution's sentencing recommendation and the sentence which is determined. In other words, it is possible for a judge to decide on a sentence by referring to the level of the prosecution's sentencing recommendation. As was stated above, the sample means of the prosecution's sentencing recommendation are on average higher than those of the judges' sentences, which indicates that a judge tends to set a sentence below the level recommended by the prosecutor. For instance, for every one-month increase in the prosecution's sentencing recommendation, the length of the corresponding increase in the sentence set by the judge would be shorter than one month. Lastly, the sensitivity of the judge to the prosecution's sentencing recommendation appears to differ between cases with lower and higher sentence levels. This means that in cases with a lower sentencing level, the nature of the crime in question and the significance of the matter can be considered as minor,

while in cases with a higher sentencing level, the crimes in question and related matters can be regarded as more serious, which may cause the judge to feel a greater sense of responsibility when passing the sentence. Thus, the judge in the latter situation could heighten sensitivity to the prosecution's sentencing recommendation. Thus, this paper attempts to confirm such a hypothesis.

In order to ascertain the influence sentencing recommendations by the prosecution have on a judge's determination of a sentence, this study aims to verify hypotheses 1 and 2 by including the variable of the prosecutor's sentencing recommendation (*prose*) with general or special mitigating or aggravating factors in each trial.

However, concerning hypothesis 3, a conventional least-square regression model (OLS: Ordinary Least Square) cannot readily be used for verification. First, after the analysis groups are ordered according to the length of the judge's sentence in months and then divided into ten sequential groups, the regression analysis can be conducted on each group strategically. At this stage, the method of enumerating estimates of the variable of the prosecution's sentencing recommendation (*prose*) according to each level of sentence (the subset of the population) could be chosen. This may result in sample selection bias, as pointed out by Heckman (1979). The problem of sample selection bias is ignored in many regression analysis models that only draw partial samples from a total population, potentially distorting the estimated results by making random choices of groups with specific dispositions. A further problem arises when the variable of the prosecution's sentencing recommendation (*prose*) is set with the formula of equals $\alpha^{*} prose + \beta^{*} prose^{2} + \cdots,$ which is a type of quadratic function. That is, when differentiated, the formula equals $\alpha + \beta^{*} prose$ and is therefore expected to confirm that the sensitivity changes by β magnification depending on the sentence level. However, this strategy can trigger a multicollinearity problem due to the correlation between the variable of the prosecution's sentencing recommendation (*prose*) and the squared variable ($prose^2$). Therefore, it can be asserted that the strategy involves statistical errors when attempting to verify the differences in the level of influence by the sentencing recommendation of the prosecutor on the determination of the judge's sentencing level in serious criminal cases (with a higher sentence level) as well as in minor cases (with a lower sentence level).

Therefore, rather than applying OLS, it is necessary to select a model capable of addressing the aforementioned problem. Quantile regression,[2] as designed by Koenker and Bassett (1978), utilizes the entire sample in a regression analysis of all levels of penalty, from the lowest to the highest.

[2]Koenker and Basset (1978) conceived of quantile regression, which is able to analyze the influences of independent variables (covariate) at each distribution level of dependent variables, as opposed to the average variation of the dependent variables. Quantile regression is a model in which a hypothesis reflects that the response to sentencing factors, the explanatory variable, and the prosecutor's sentencing may differ according to the distribution level of sentencing by the judge. Essentially, quantile regression is based on the minimization of the weighted absolute deviation for the estimate of conditional quantile functions, while the estimate of OLS is based on the least square method for the estimate of the conditional mean function. Therefore, unlike OLS, quantile regression is not limited to explaining the averages of the dependent variables. It can also explain the determinants of the dependent variables at any level of distribution of the dependent variables.

Model:

$$J = \alpha \times P + \sum_{i=1}^{4} \beta_i \times GD_i + \sum_{i=1}^{4} \gamma_i \times SD_i + \sum_{i=1}^{7} \delta_i \times GA_i + \sum_{i=1}^{7} \lambda_i \times SA_i$$

J : Sentence decided by the judge (by month)
P : Sentence requested by the prosecutor (by month; dummy variables are set within each level of sentence)
GD : General mitigating factors
SD : Special mitigating factors
GA : General aggravating factors
SA : Special aggravating factors

B. *Empirical Results*

Table 4 presents the result of regression analysis according to the distribution unit, and it appears to confirm all of the aforementioned hypotheses.

First, the data for each sentence recommended by the prosecutor appear to show a positive correlation with the judge's sentence. It is fair to state that judges do indeed determine a punishment in consideration of the prosecutors' sentencing recommendations.

Second, when deciding a sentence, judges appear to moderate the sentences suggested by prosecutors within a certain range. Regarding cases with penalties in the lowest 10% (least serious cases), the judges increased their sentences by 0.25 months for every one-month increase by the prosecutors in their recommended sentence. This demonstrates that judges do in fact take the prosecutors' suggested sentence levels into account but tend to sentence more leniently than recommended by prosecutors. Such differences are also represented by the fact that across the entire sample, judges generally issued lighter penalties than prosecutors. Moreover, the sample mean of the sentence level recommended by prosecutors was much higher than that of the judges.

Finally, the quantile analysis results show that the more serious the case (the higher the sentence level), the more sensitively the judges respond to the prosecution's recommendation. In Table 4, a one-month increase in the prosecutor's sentence leads to a 0.25 month increase in the judge's sentence at the lowest 10% of sentences. However, the corresponding values are 0.36 months for the lowest 25%, 0.61 months for the highest 25% (the lowest 75%) and 0.78 months for the highest 10% (the lowest 90%). Cases with a low penalty level are highly likely to be less serious and thus place relatively less of a burden on judges when considering sentencing factors and deciding upon a penalty. On the other hand, cases featuring a higher penalty level are likely to be of a greater gravity and the sentences passed to defendants are likely to be heavier, therefore elevating the risk cost caused by an error of judgment – a heavier burden on the judge when determining a sentence. As a result, it is evident that the higher the sentence level, the greater the dependence of the judge on the prosecutor's sentencing recommendation. In other words, the prosecutor's sentencing recommendation has a greater influence on the judge's decision as the sentence level of the case

TABLE 4—REGRESSION ANALYSIS RESULT: OLS AND QUANTILE REGRESSION

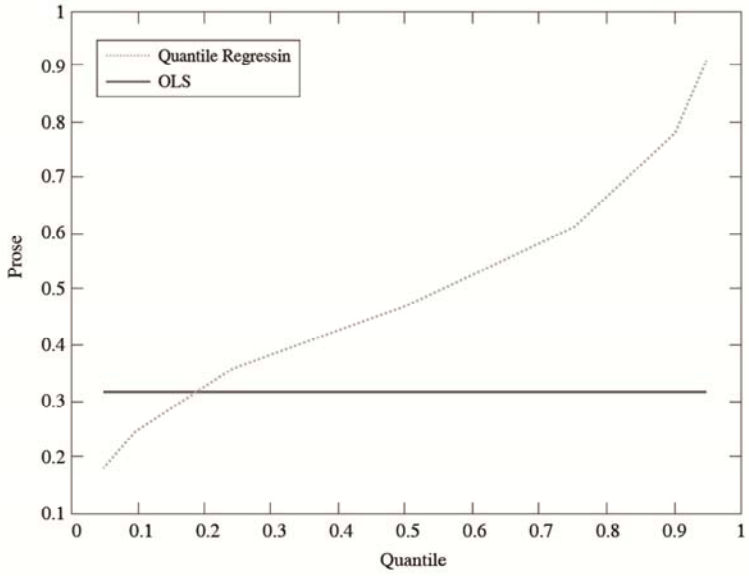
Dependent Variable: Sentence by Judge								
Var	OLS	5	10	25	50	75	90	95
prose	0.3139	0.1773	0.246	0.3621	0.4697	0.6098	0.78	0.9063
	(44***)	(16***)	(22***)	(57***)	(170***)	(995***)	(154***)	(115***)
sd1	0.8605	1.8912	-1.0374	1.2241	0	0.7805	2.04	1.3125
	(0.62)	(1.9*)	-(1.15)	(1.43)	(0)	(5.16***)	(1.64)	(0.75)
sd2	-5.713	-0.9813	-2.4385	-1.3448	0	0	-1.08	-4.125
	(-1.92*)	(-0.48)	(-1.28)	(-0.74)	(0)	(0)	(-0.48)	(-1.09)
sd3	3.8703	2.1013	-0.1176	-0.3103	0	0.6829	3.66	4.125
	(3.81***)	(2.94***)	(-0.17)	(-0.5)	(0)	(6.29***)	(4.23***)	(3.5***)
sd4	1.3273	-3.045	-4.8128	-6	-6	-3.5122	-3.66	-2.8125
	(1.37)	(-4.25***)	(-7.16***)	(-9.89***)	(-16.16***)	(-34.16***)	(-4.48***)	(-2.49**)
gd1	-1.1707	1.9362	2.139	1.6552	2.7273	0.1463	-1.02	-0.1875
	(-1.13)	(2.54**)	(3.04***)	(2.58***)	(6.76***)	(1.34)	(-1.23)	(-0.17)
gd2	-0.2084	-0.4447	3.0374	0.3103	0.7273	3.6585	1.14	-0.5625
	(-0.04)	(-0.41)	(1)	(0.1)	(0.35)	(6.56)	(0.28)	(-0.24)
gd3	-0.5953	-1.3002	-0.0963	-0.3103	0	-0.1463	-1.08	0
	(-0.68)	(-2.05***)	(-0.16)	-(0.58)	(0)	(-1.54)	(-1.4)	(0)
gd4	-0.1154	-2	1.2086	1.1897	2.9091	2.6829	1.26	0.1875
	(-0.08)	(-1.83*)	(1.22)	(1.29)	(4.91***)	(16.25***)	(1)	(0.1)
ga1	4.7856	3.8987	2.5989	0.6207	0.3636	0.5854	0.06	2.8125
	(4.83***)	(5.94***)	(3.95***)	(1.02)	(0.94)	(5.52***)	(0.07)	(2.3**)
ga2	3.7622	0.3827	-0.8342	-0.3621	0.9091	3.3659	2.34	1.3125
	(1.92*)	(0.37)	(-0.81)	(-0.32)	(1.19)	(15.99***)	(1.38)	(0.53)
ga3	-6.9997	-1.9625	-3.016	-2.2759	-2.5455	-4.2927	-1.2	-1.3125
	(-5.04***)	(-1.89*)	(-3.17***)	(-2.67***)	(-4.71***)	(-28.74***)	(-0.96)	(-0.74)
ga4	0.6638	1.8086	2.2353	0.3103	-0.3636	0	-0.06	-1.3125
	(0.67)	(2.55**)	(3.31***)	(0.5)	(-0.93)	(0)	(-0.07)	(-1.03)
ga5	10.6602	-4.6378	-7.9358	-0.6207	2.4545	0.9268	8.88	12.75
	(5.28***)	(-3.4***)	(-5.89***)	(-0.49)	(3.11***)	(4.26***)	(5.31***)	(7.06***)
ga6	-3.0595	0.1914	-0.7701	-3.1034	-7.8182	-1.4634	1.32	6.5625
	(-0.85)	(0.21)	(-0.78)	(-1.49)	(-5.73***)	(-3.6***)	(0.41)	(1.6)
ga7	-13.5579	-13.1481	-25.0374	-20.1724	-6	-11.4634	-11.22	-23.0625
	(-2.37**)	(-11.66***)	(-16.12***)	(-6.61***)	(-2.8***)	(-18.18***)	(-6.57***)	(-12.33***)
sa1	3.4429	1.0187	1.6043	0.931	1	0.4146	1.44	1.3125
	(3.81***)	(1.56)	(2.58***)	(1.68*)	(2.84***)	(4.28***)	(1.8*)	(1.11)
sa2	-7.5733	-14.5611	-3.6898	-4.9655	-6	-11.8293	-3.72	-6.75
	(-1.39)	(-14.74***)	(-1.12)	(-1.53)	(-2.9***)	(-20.51***)	(-0.85)	(-3.84***)
sa3	9.9058	24	20.9519	11.1207	9.9091	2.4878	-0.24	-6.1875
	(1.92*)	(22.58***)	(6.87***)	(5.01***)	(5.26***)	(4.23***)	(-0.16)	(-3.46***)
sa4	-3.7057	7.1445	2.246	-3.8793	-5.2727	-3.5122	-3.78	-0.75
	(-1.63)	(8.24***)	(2.62***)	(-3.1***)	(-6.17***)	(-14.74***)	(-1.89*)	(-0.29)
sa5	5.8542	0.7355	-10.3316	1.9655	5.1818	0.7073	-0.06	0.9375
	(1.44)	(0.78)	(-5.24***)	(0.78)	(3.31***)	(1.6)	-(0.02)	(0.19)
sa6	14.7312	0.2533	4.2567	3.5172	6	8.9268	23.22	34.125
	(6.31***)	(0.19)	(2.87***)	(2.51**)	(6.72***)	(35.7***)	(11.6***)	(12.33***)
sa7	-2.7325	-2.2551	-5.1872	0.8793	-8.5455	-26.9756	-26.74	-31.375
	(-0.28)	(-1.3)	(-2.45**)	(0.15)	(-2.53**)	(-25.84***)	(-9.93***)	(-10.86***)
cons	12.9638	2.88	7.123	9.6207	10.3636	10.8781	7.68	5.625
	(11***)	(3.22***)	(8.7***)	(13***)	(22.84***)	(83.51***)	(7.23***)	(3.72***)
N	2,733							
R^2	0.52	0.219	0.269	0.323	0.333	0.482	0.562	0.605

Note: t-values are in parenthesis. * p<0.10, **p<0.05, *** p<0.01.

increases. Such a tendency was also identified in a paper by Englich and Mussweiler (2001), which showed that in cases with two-month sentences recommended by prosecutors, the judges' decisions reflected little difference from that suggested by law school students (17.21 months). However, in cases in which prosecutors recommended 34-month sentences, the strain of setting the sentence led the judges to respond to the prosecutors' suggestion and pass down sentences averaging 28.70 months; essentially, the heavier the sentence, the greater the judges' dependence on the prosecutors' sentencing recommendation.[3]

In addition, Figure 3 suggests the influence of the prosecution's recommendation on judges' decisions according to quantile of the penalty level. The estimates of OLS show that an increase of one month in the sentence recommended by the prosecutor increases the judges' decision by 0.31 months. Figure 1 is limited to analyzing the data according to the sentence level for OLS estimates showing the same value throughout the section. In Figure 3, however, the OLS estimate is higher than that of quantile regression in the data representing the lowest 20%, which indicates that it is likely to overestimate the judges' decisions, while in the data representative of the lowest 20% and above, the OLS estimate is likely to underestimate the judges' decisions in response to the prosecutors' sentencing recommendations.

FIGURE 3. ANCHORING EFFECT: ESTIMATES OF CHANGES IN ESTIMATES OF PROSECUTORS' SENTENCES BY EACH QUANTILE



[3]It is plausible that this anchoring effect is sensitive to the type of the crimes. Separate regression by the type of sexual crimes reveals qualitatively same results, although the coefficients vary from 0.183 to 0.893. Controlling 28 types of sexual crimes by using dummy variables in the regression does not reveal qualitatively different result with the coefficient of 0.464.

V. Conclusion

Numerous studies have investigated determinants of sentences, whereas only a handful of studies have focused on the relationship between the judge and the prosecution regarding an anchoring effect. This study fills a void in the literature by providing useful information to judicial decision makers. Specifically, a dataset of sex crimes in the Prosecutorial Guideline System over the period from July of 2009 to October of 2011 is used to estimate the determinants of the variable related to prosecutors' sentence recommendations as well as other typical factors. The empirical analysis is based upon quantile regression, as designed by Koenker and Bassett (1978). Several valuable insights can be drawn from the results.

The results overall show that when controlling for the independent variables of mitigating and aggravating factors, the anchoring effect occurs in the jurisdictional procedures for sexual crimes. Moreover, the amount of influence increases as the level of the sentence increases. The categories of crimes are listed in Table A1. Most cases involve more than one type of crime. Further implications follow.

First, the sentence recommended by the prosecutor does have a major influence on the judge's decision, and an anchoring effect was verified. A number of domestic Korean and international research efforts have studied, through simulations, how different levels of sentencing recommendations by prosecutors influence judges' decisions with regard to identical cases. In a study by Park *et al.* (2005), the sentences judges give when a low sentence level was recommended by the prosecutor was much lower than when a longer sentence was recommended. A study by Englich and Mussweiler (2001) similarly demonstrates that when the prosecutor recommends a two-month sentence, the judges responded with 18 months, whereas a 34-month sentencing recommendation by the prosecutor led judges to decide on 28.70 months on average. Moreover, as Martin and Alonso (1997) showed, judges' decisions were close to the prosecutors' requests, and there was a proportional degree of this independency. This indicates that judges anchor their decisions to the sentencing recommendations of prosecutors. Through sentencing recommendations and sentence data from the PGS and the regression analysis model taking special and general sentencing factors into account, this research confirmed that the sentencing recommendation of prosecutors is an important factor in judges' examinations of offences, and the presence of the data on sentencing recommendation led to remarkable changes in the explanatory power of the model.

Second, judges tend to pronounce lighter sentences than those suggested by prosecutors. In Park's study, mentioned above, when the prosecutor recommended a much lower level of penalty than that considered appropriate in the field (57 months), the judge pronounced a sentence which was 15 months below the conventional level. When the prosecutor suggested a much higher level of penalty (10 years), the judges tended to sentence at a level half of that suggested. This study also shows that the sample mean of the prosecution recommendations is higher than that of judges' decisions in general, and among 2,733 cases assessed here, the sentence level handed down by judges exceeded the prosecutor's recommendation in only 131. According to the results of a regression analysis conducted here, a one-month increase in a sentence recommendation by

prosecutors led to an increase of 0.25 to 0.78 months in the judges' sentences from the lowest 10% to the highest 10%. This indicates that judges apply a certain discount to the sentences recommended by prosecutors. Although judges do generally anchor their decisions to the sentence levels requested by prosecutors, judges tend to choose a sentence level lower than that provided by prosecutors.

Third, although prosecutors' sentencing recommendations impact judges' decisions, the degree differs with the sentence level. Specifically, at the lowest level of penalty, a one-month increase in a prosecutor's sentencing recommendation results in a 0.25-month increase in the judge's sentence, while at the highest sentence level, judges' sentences increase by 0.78 months. The prosecution's recommendation influences judges' decisions differently according to the sentence level. This can be also identified in work by Martin and Alonso (1997), in which judges were found to be anchored to the sentence recommended by the prosecutor in cases of rape or incidents with minors, while the anchoring effect appears to be insignificant in sex offences of relatively lower severity, including sexual intercourse by abuse of occupational authority or attempted rape. Judges' sentences were determined to be independent of those of prosecutors. This study attempted to interpret the results in terms of psychology – sex offences including rape or incidents with minors are recognized by society as serious crimes; therefore, judges, who must determine the level of penalty, tend to share the responsibility by accepting the sentence recommended by the prosecutor. However, for offenses including sexual intercourse by abuse of occupational authority or attempted rape, they are deemed to be relatively less serious and thus judges make independent choices. This implies that the anchoring effect can manifest itself to a varying degree according to the gravity of the crime involved.

However, unlike Martin and Alonso (1997), which posits no anchoring effect with less serious crimes, this study found that prosecutors' sentencing recommendations indeed influence judges' decisions, even at less severe sentencing levels. Nonetheless, judges did retain space for sentencing independently in less serious cases, and this discretion caused judges to refer to the sentences recommended by prosecutors to a lesser extent. It is therefore possible to infer that the anchoring of judges to recommendations by the prosecution grows weaker in cases with more lenient sentence levels.

This study has thus far analyzed how sentences recommended by prosecutors influence judges' decisions in an examination of an offense. It holds implications in that it has identified an anchoring effect through South Korean and intentional references making use of simulations, as well as through actual cases derived from the PGS system and sorted through a regression analysis. In addition, the results here indicate a need to create more objective and clear sentencing guidelines in the future which incorporate an effort to mitigate the psychological pressure experienced by judges with regard to serious offences or heinous crimes. This pressure can anchor them to the sentence recommended by the prosecutor.

Nevertheless, this study includes several limitations, as follows. The current paper cannot take into account the endogeneity problem in the analysis. It may be that the prosecutors' demands depend on the (expected) judge's sentence, which indicates the possibility of reverse causality. More refined data analysis or a more elaborate theoretical approach will be able to demonstrate the existence of an

anchoring effect while also addressing this problem.

Secondly, because the study analyzed only those cases pertaining to sex offences, it is necessary to remain cautious against generalizing the results to other crimes. In other words, the nature of the crimes may vary according to the category of the crimes. This may lead to a gap between the levels of penalty recommended by a prosecutor and the judge's confidence level regarding the prosecutor's suggestion. This would result in different levels of the anchoring effect depending on the crime. In order to overcome this limitation, the authors hope to pursue a more systematic follow-up study to analyze all categories of crime, based on this research, and determine more precisely why judges depend on prosecutors' sentencing recommendations.

In addition, further analysis is possible to explain additional factors which influence judges' sentences and to show the anchoring effect more clearly. The data can include more information on sex crimes, such as whether or not they were premeditated, caused mental disorders, or committed by acquaintances. Additional research can identify factors that have more of an impact on judges' decisions.

APPENDIX

TABLE A1—CLASSIFICATIONS OF SEX CRIMES IN KOREA

Classification of Sex Crimes by Names of Offences
Rape
Murder after Rape
Rape and Bodily Injury
Rape Resulting in Death
Bodily Injury Resulting from Rape
Robbery and Rape
Indecent Act by Compulsion
Indecent Act by Compulsion and Bodily Injury
Bodily Injury Resulting from Indecent Act by Compulsion
Rape of a Minor
Indecent Act by Compulsion with a Minor
Bodily Injury Resulting from Indecent Act by Compulsion with a Minor
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Rape of a Minor under Thirteen Years of Age)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Murder after Rape, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Rape and Bodily Injury, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Rape, etc. Resulting in Death)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Bodily Injury Resulting from Rape, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Quasi-Rape of the Disabled, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Larceny and Rape, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Intrusion upon a Habitation and Rape, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Rape Committed by a Relative)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Indecent Act by Compulsion Committed by a Relative)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Quasi-Rape Committed by a Relative)

TABLE A1—CLASSIFICATIONS OF SEX CRIMES IN KOREA (*CONTINUED*)

Classification of Sex Crimes by Names of Offences
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Quasi-Indecent Act by Compulsion Committed by a Relative)
Violation of Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Special Rape)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Special Robbery and Rape, etc.)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Special Indecent Act by Compulsion)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Special Quasi-Rape)
Violation of the Act on Special Cases Concerning the Punishment, etc. of Sexual Violence Crimes (Special Quasi-Indecent Act by Compulsion)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Rape of a Minor under Thirteen Years of Age)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Murder after Rape, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Rape and Bodily Injury, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Bodily Injury Resulting from Rape, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Quasi-Rape of the Disabled, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Larceny and Rape, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Intrusion upon a Habitation and Rape, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Rape Committed by a Relative)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Indecent Act by Compulsion Committed by a Relative)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Quasi-Rape Committed by a Relative)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Quasi-Indecent Act by Compulsion Committed by a Relative)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Special Rape)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Special Robbery and Rape, etc.)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Special Indecent Act by Compulsion)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Special Quasi-Rape)
Violation of the Act on the Punishment of Sexual Crimes and Protection of Victims thereof (Special Quasi-Indecent Act by Compulsion)

REFERENCES

Hastie, R., D. A. Schkade, and J. W. Payne. 1999. "Juror Judgments in Civil Cases: Effects of Plaintiff's Requests and Plaintiff's Identity on Punitive Damage Awards." *Law and Human Behavior* 23 (4).

Hinsz, V. B. and K. E. Indahl. 1995. "Assimilation to Anchors for Damage Awards in a Mock Civil Trial." *Journal of Applied Social Psychology* 25 (11).

Kim, Cheong-tag and In-chol Choi. 2010. "Cognitive Biases in Judicial Decision Making." *The SNU Law Research Institute* 51 (4) (*in Korean*).

Kim, Jungwook and Subok Chae. 2011. *Sentence Variation and Influence of Prosecutor's Demand.* Supreme Prosecutors' Office (*in Korean*).

Koenker, R. and G. Basset. 1978. "Regression Quantiles." *Econometrica* 46 (1).

Lee, Min-sik. 2006. "Sentencing Differences among Homicide Cases." *Korean Criminological*

Review 17 (4) (*in Korean*).

Lee, Min-sik, Jung-sik Gong, and Soo-jung Lee. 2009. "Age and Sentencing Disparities among Murderers: An Examination of Nonlinear Effects." *The Korean Association of Criminology* 21 (1) (*in Korean*).

Lee, Min-sik and Mi-rang Park. 2010. "Study on Improvement of the Current Sentencing Standards and Analysis of Its Current Status: Based on the Statistical Analysis." Supreme Prosecutor's Office (*in Korean*).

Lee, Young-rahn. 1988. "Empirical Study of the Factors Influencing on the Sentence Disposition." *The Korean Association of Criminology* 3 (*in Korean*).

Malouff, J and Nicola S. Schutte. 1989. "Shaping Juror Attitudes: Effects of Requesting Different Damage Amounts in Personal Injury Trials." *The Journal of Social Psychology* 129 (4).

Martin, Eugenio Garrido, and Carmen Herrero Alonso. 1997. "Influence of the Prosecutor's Plea on the Judge's Sentencing in Sexual Crimes: Hypothesis of the Theory of Anchoring by Tversky and Kahneman." In edited by S. Redondo, V. Garrido, J. Perez, and R. Barberel. *Advances in Psychology and Law: International Contributions.* Berlin: Walter de Gruyter.

Park, Gwang-bae, Sang-joon Kim, and Mi-young Han. 2005. "Effects of Cognitive Heuristics on the Decisions of Actual Judges and Mock Jury Groups for Simulated Trial Issues." *Korean Journal of Psychological and Social Issues* 11 (1) (*in Korean*).

Robbennolt, J. and C. A. Studebaker. 1999. "Anchoring in the Courtroom: The Effects of Caps on Punitive Damages." *Law and Human Behavior* 23 (3).

Supreme Prosecutors' Office. 2011. Sentence Variation and Influence of Prosecutor's Demand

Viscusi, W. K. 2001. "The Challenge of Punitive Damages Mathematics." *The Journal of Legal Studies* 30.

LITERATURE IN KOREAN

김정욱·채수복. 2011.『구형과 양형 간의 관계 및 양형 편차에 대한 연구』. 대검찰청.

김청택·최인철. 2010.「법정의사결정에서의 판사들의 인지편향」.『서울대학교 法學』. 제51권 제4호. 서울대학교.

박광배·김상준·한미영. 2005.「가상적인 재판 쟁점에서의 현역판사의 판단과 모의재심의 집단판단에 대한 인지적 방략의 효과」.『한국사회문제심리학회지』. 제11권 제1호.

이민식. 2006.「살인범들의 양형에 영향을 미치는 요인」.『형사정책연구』. 제17권 제4호.

이민식·공정식·이수정. 2009.「연령과 살인범의 양형편차: 비선형 효과의 검토」.『형사정책연구』. 제21권 제1호.

이민식·박미랑. 2010.『양형기준 시행현황 분석 및 개선방안에 관한 연구-통계적 분석을 중심으로』. 연구용역보고서. 대검찰청.

이영란. 1988.「양형의 결정요인에 대한 실증적 연구-상해, 폭력행위 등 처벌에 관한 법률위반사건을 중심으로」.『형사정책연구』. 제3권.

양형위원회. 2007-2010.『양형위원회 연간보고서』.