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Plea Bargaining as a Mean to Maximum Sentence

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엄정한 양형을 위한 유죄인정감형제도의 활용

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ABSTRACT

This paper outlines the findings of a model of plea bargaining with multiple defendants, in which a prosecutor makes plea offer sequentially. It is shown that plea discount can be minimized with sequential offers and that not all of defendants shall be induced to plead guilty. By allowing sequential offer, a prosecutor has more power in the plea bargaining, which may increase social welfare by giving appropriate level of punishment to the guilty.

본 논문은 복수의 피의자가 존재하는 경우 시차 제안을 통해 유죄인정감형제도의 효과를 긍정적으로 유도할 수 있음을 보였다. 시차 제안의 가능성으로 인해 피의자에게 제시되는 양형 감량이 최소화될 수 있음이 제시되었고, 모든 피의자가 유죄를 인정하게 되는 균형점 이외의 해가 존재함을 증명하였다. 시차 제안의 허용으로 인해 검사는 보다 높은 수준의 협상력을 지니게 되며, 이를 통해 피의자에게 엄정한 양형을 부여함으로써 사회후생을 증가시킬 수 있게 된다.

I. Introduction

A plea bargaining is a deal offered by a prosecutor as an incentive for a defendant or defendants to plead guilty. Plea bargaining agreement has been practiced in the United States since several hundred years. Although estimates vary, 95% of criminal cases were resolved by plea bargaining in United States.¹ Yet, the wide use of plea bargaining is not without criticism. Skeptics of plea bargaining argue that the criminal justice system has been too soft on criminals by allowing for less sentence in exchange for a guilty plea.

Introduction of plea bargaining system aims to gain more information about the crime by allowing plea discounts to the defendant(s). So the main objective of plea bargaining is information-gathering effect, although the plea bargaining system is going to save trial cost borne by prosecutors. However, to induce the defendant(s) to plead guilty, a prosecutor shall offer lenient penalty in the plea offer, which tends to decrease the social welfare.² Moreover, plea bargaining could be unfair when a plea bargain gives the most culpable defendant the lowest penalty.³ However, previous works have focused primarily on analyzing possibility of unfair settlement so far,⁴ and the first and main disadvantage of plea bargaining, leniency to the guilty was not thoroughly analyzed.

This paper tries to support plea bargaining system by providing method to minimize disadvantages in theoretical model. In section 2, a model of multiple defendants is introduced. Section 3 describes the effect of sequential offer by a prosecutor, and tries to characterize an equilibrium. Section 4 includes concluding remarks as well as points for discussion.

1 See US Department of Justice (2000).

2 I followed Adelstein and Miceli (2001) in that punishing truly guilty defendants is directly linked to social benefits. So less severe punishment imposed on the guilty implies less social welfare, if trial cost is ignored.

3 Kobayashi (1992) tried to explain unfair plea bargains.

4 For example, Kobayashi (1992) and Kim (2009).

II. Model

In this section, I consider plea bargaining model which was employed by Kim (2009). A prosecutor (P) has accused two codefendants ($D_i, i = 1, 2$), who jointly committed a crime. The sanctions need proof of their guilt at formal trial, while it is common knowledge that they jointly committed the crime.

If the defendants go to the formal trial, each defendant i is expected to be sentenced of $s_i (>0)$ when he is convicted as guilty. Without loss of generality, let's assume that $s_1 \geq s_2$. The probability of conviction is set to q if there is no testimony from defendant(s) via plea bargaining. Here, q is strictly less than 1, as there is probability of acquittal after formal trial. Defendants may accept the plea offer with reduced sentences by the prosecutor. It is assumed that the defendant pleading guilty has to testify against the other defendant.

The sequence of movement in the model is as follows. First, P makes plea offers $b_i \in B \equiv [0, \infty]$ to each defendant D_i . It was assumed in previous literature that the prosecutor is able to make only simultaneous plea offers to both of the defendants.⁵ In the present paper, rather, I assume that the prosecutor can approach defendants to make plea offer one by one. Then, D_i decides whether to accept or reject the offer. If the first defendant D_i who P makes plea offer accepts the offer, he is sentenced to b_i at court with certainty. Also if D_i testifies against D_j via plea bargaining, D_j will be convicted with probability $q' (> q)$ when D_j moves to the formal trial. For simplicity of analysis, let $q' = 1$. If he rejects the offer, then he goes to the formal trial. After knowing decision of the first defendant on plead, the prosecutor can choose to make plea offer to the second defendant, or she can just move the case to the formal trial without more plea bargaining.

It is assumed that D_i minimizes his expected sentence, and that P maximizes the penalties⁶ on the defendants. As it is common knowledge that both defendants committed a crime, the prosecutor who is representative of society tries to penalize the defendants by appropriate sentence. I assume that s_i is the appropriate level of penalty given D_i 's crime committal. So the objective of P is to maximize the

⁵ For example, Kobayashi (1992), Bar-Gill and Ben-Shahar (2009) and Kim (2009).

⁶ This penalty-maximizing assumption was employed by Kobayashi (1992) and is equivalent to the special case of Kim (2009) with risk-neutral prosecutor. Kim (2009) considered risk-attitude of prosecutor for equilibrium selection among multiple equilibria. The present paper can be extended along with consideration of risk-attitude, but the main result does not change.

probability of sentences while holding the level of sentences as high as possible.

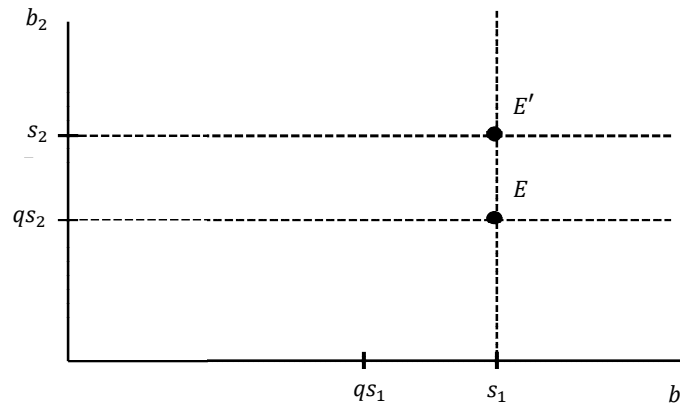
The strategy of P is defined by $\sigma_P = (b_1, b_{2a}, b_{2r}) \in B \times B \times B$. Here, b_{2a} is the plea offer to D_2 when D_1 accepted the offer b_1 , and b_{2r} is the offer when D_1 rejected the offer. Note that b_{2a} and b_{2r} need be not necessarily different. Also P can choose not to make plea offer to D_2 if D_1 accepted the offer b_1 . This can be the case where b_{2a} is set to be sufficiently high, or specifically be greater than $q \cdot s_2$.

In my model, the strategy of D_1 is defined by $\sigma_1: B \times B \times B \rightarrow \Delta$ where $\Delta = \{d \setminus \text{accept, reject}\}$. The strategy of D_2 is defined by $\sigma_2: H \times B \rightarrow \Delta$ where $\Delta = \{d \setminus \text{accept, reject}\}$ and H is the history information set, which contains the decision of D_1 . Lastly, in order to focus on strategic aspect of a plea bargaining, trial cost is set to be zero.

III. Equilibrium with Sequential Plea Bargaining

The model with simultaneous offers has a unique equilibrium in which P offers (S_1, q, S_2) and both of the offers are accepted by defendants,⁷ under joint negotiations.⁸ The equilibrium is illustrated as E in [Figure 1].

[Figure 1] Equilibrium with Sequential Offers



⁷ It is assumed that a tie in payoffs is resolved in favor of acceptance of plea offer.

⁸ In fact, this is true only when $s_1 > s_2$. If $s_1 = s_2$, $(s_1, q \cdot s_2)$ and $(q \cdot s_1, s_2)$ are equilibrium offers and both of the offers are accepted. See Kim (2009) for details.

Now let's characterize the equilibrium with sequential offers. First, plea offer to the second defendant is considered. There are two possible cases to the second defendant; one in which the first defendant accepts the offer with b_1 , and the other in which the first one rejects. If D_1 already decided to accept the offer, D_2 will accept the offer if and only if $b_{2a} \leq s_2$. If D_1 rejects the offer, then D_2 will accept the offer if and only if $b_{2a} \leq q \cdot s_2$. Thus, the decision of D_2 depends on the history information. Then the following result is easily derived.

Lemma 1 P chooses the offer to D_2 as $(b_{2a}, b_{2r}) = (k, q \cdot s_2)$, where $k \geq s_2$.

Proof When D_1 accepts the offer and chooses to testify against D_2 , in the formal trial D_2 will be convicted with s_2 for sure. Then, P has no incentive to offer b_{2a} less than s_2 . Note that if $b_{2a} > s_2$, then it is virtually identical to the case where P does not make offer to D_2 . When D_1 rejects the offer, P has two feasible options; to make D_2 accept b_{2r} , or to make D_2 reject b_{2r} . In the case where D_2 as well as D_1 rejects plea offers, then the expected penalties on the defendants are $q \cdot (s_1 + s_2)$. If P offers the maximum acceptable sentence $q \cdot s_2$ to D_2 , conditional on the testimony against D_1 , then the expected penalties on the defendants will be $(s_1 + q \cdot s_2)$. Thus, she prefers offering $b_{2r} = q \cdot s_2$. ■

Given the offer to D_2 , the offer to D_1 is analyzed. If the first defendant accepts the offer, then the penalty on him is b_1 . If he rejects the offer, the penalty becomes s_1 as D_2 is going to accept the offer of $b_{2r} = q \cdot s_2$. So D_1 will accept the offer if and only if $b_1 \leq s_1$. Then the following result is immediate.

Lemma 2 P chooses the offer to D_1 as $b_1 \leq s_1$.

Proof From the above argument, it is trivial as P is maximizing penalty on the defendants. ■

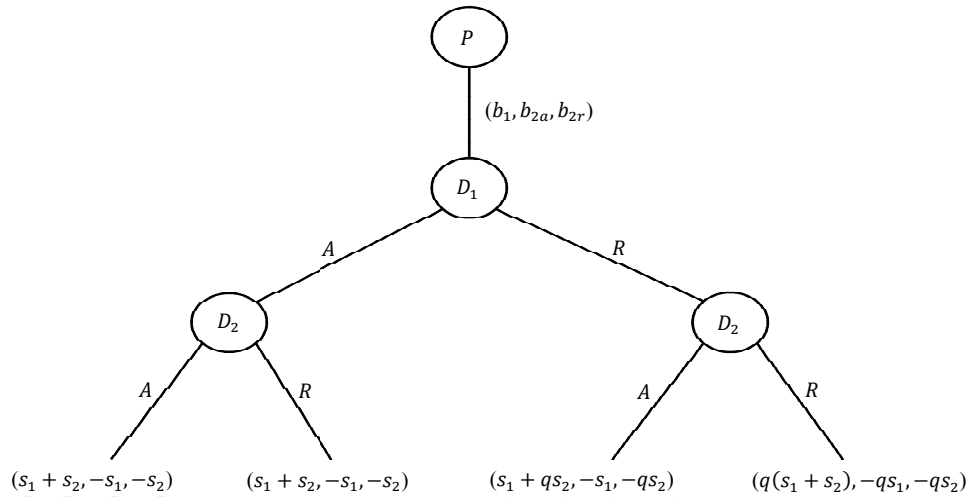
<Table 1> shows the payoff matrix of defendants, given the prosecutor's offers in Lemma 1 and Lemma 2. However, the normal form of the game is somewhat misleading. As D_1 moves first and D_2 moves after that, D_1 considers his payoff via forward looking movement of D_2 . It appears that D_1 's (weakly) dominant strategy is 'Reject', but he is going to take 'Accept' as D_2 is going to take 'Accept' regardless of D_1 's choice.⁹ Now I have the main result in the following proposition.

⁹ Again, it is assumed that a tie in payoffs is resolved in favor of acceptance of plea offer.

<Table 1> The Reduced Normal Form

		D_2	
		Accept	Reject
D_1	Accept	(s_1, s_2)	(s_1, s_2)
	Reject	(s_1, qs_2)	(qs_1, qs_2)

[Figure 2] The Extensive Form (1)



Proposition 1 With sequential offers, there exist an equilibrium in which P offers $(b_1, b_{2a}, b_{2r}) = (s_1, s_2, q, s_2)$ and both of defendants accept sequentially.

Proof From Lemma 1 and Lemma 2, it is shown that the defendants will accept the offers and have no profitable deviation. For the prosecutor, who has incentive to maximize penalties on the defendants, she has no profitable deviation, as the resulting penalties $(s_1 + s_2)$ is the maximum possible sentence. ■

In proposition 1, I consider the equilibrium in which all the defendants accept the offers and there is no formal trial. The structure of game among the prosecutor and the defendants is illustrated in [Figure 2]. Unlike <Table 1> in the normal form, sequence of the model is explicitly described. However, another equilibrium in which not all of the defendants accept the offers is feasible, which is stated in the following corollary.

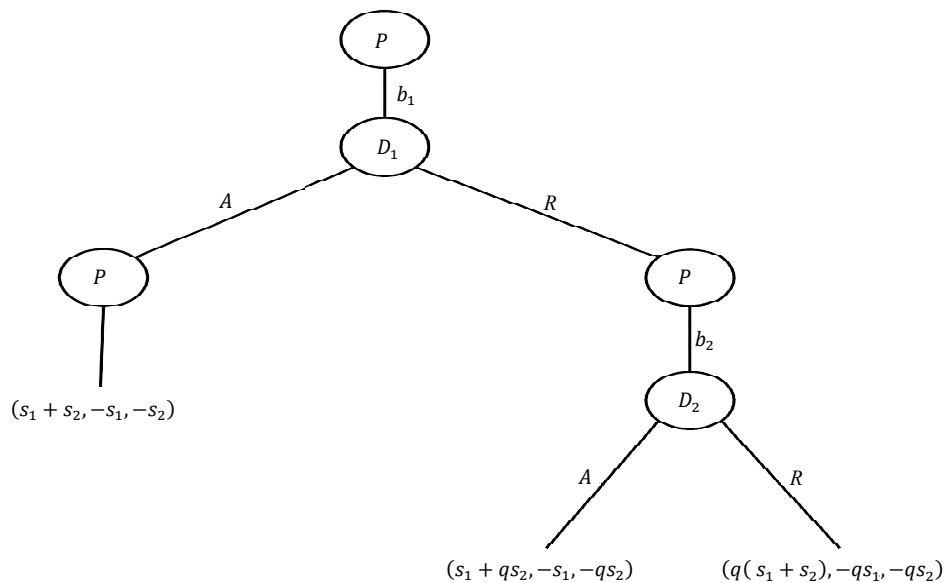
Corollary 1 With sequential offers, there exist an equilibrium in which P offers $(b_1, b_{2a}, b_{2r}) = (s_1, k, q, s_2)$ where $k > s_2$ and only D_1 accepts the offer.

Proof Similar argument in the proof of proposition 1 holds. And still the prosecutor, who has incentive to maximize penalties on the defendants, has no profitable deviation, as the resulting penalties $(s_1 + s_2)$ is the maximum possible sentence. ■

The result of corollary is noteworthy. Note that the equilibrium outcomes from proposition 1 and corollary 1 is explicitly ‘fair’ in the sense that the defendants will be punished with deserved sentence. Moreover, fairness of this outcome, which provides virtually no discount to the defendants, is much stronger than those in Kim (2009).¹⁰ The equilibrium is illustrated by E' in [Figure 1]. This fairness is from the assumption that the defendants jointly committed the crime, and that possibility of innocent defendant(s) was ignored.

[Figure 3] illustrates the structure of model, in which the prosecutor makes the plea offer only to D_1 in the equilibrium. While P makes a kind of packaged offer (b_1, b_{2a}, b_{2r}) to the defendants at the first stage in the equilibrium in proposition 1,

[Figure 3] The Extensive Form (2)



¹⁰ Fairness in Kobayashi (1992) or in Kim (2009) is relative among defendants, while that in the present paper can be seen as societal justice.

she can make separate offer to the defendants sequentially. The main result underscores that utilizing sequential offers can enhance bargaining power of the prosecutor, to increase penalties on the defendants.

IV. Concluding Remarks

Recently, in Korea, it was announced that the plea bargaining system will be implemented in 2011.¹¹ It was said that this introduction of plea bargaining system aims to gain more information about the crime by allowing plea discounts to the defendant(s). So the main object of this policy change is information-gathering effect, although the plea bargaining system is going to save trial cost borne by prosecutors. However, to induce the defendant(s) to plead guilty, a prosecutor shall offer lenient penalty in the plea offer, which tends to decrease the social welfare.

The present paper demonstrates that plea bargaining can be utilized to punish the guilty at the maximum with sequential offers. The prosecutor, by strategically timing and targeting her plea offers, can increase the level of expected penalties on the culprits. Considering cost saving motive, which was refrained from the present paper, along with information gathering effect is expected to enhance our understanding of plea bargaining system, I hope.

¹¹ Public Notice No. 2010-251, Ministry of Justice, Republic of Korea.

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