BARGAINING THEORY AND ROYALTY CONTRACT NEGOTIATIONS

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ABSTRACT. This article shows how the principles of modern bargaining theory can help develop a better understanding of contractual terms such as royalties between copyright holders and users such as between an artist and a recording company (or between an author and a publisher). We develop the main principles in a non-technical and illustrative manner.

1. INTRODUCTION AND OVERVIEW

The terms of royalty contracts over IP such as copyright can be understood as the outcome of negotiations between the two main parties. In many instances, explicit bargaining (such as the making of offers and counter-offers, or threats to exercise outside options) does not actually take place, but instead copyright holders accept the royalty contract terms that seem to constitute the norm in the industry in question. But even then it would seem reasonable to argue that the norm (eg., "customary" royalty rates) can be understood as a stable outcome (or equilibrium) of the typical bargaining situation in this context. Given all this, it is productive to have a better understanding of the kinds of factors or variables that are deemed relevant in understanding the outcome of such negotiations.

This paper lays down some of the main principles of modern bargaining theory with a view to demonstrating the potential applicability of such principles to royalty contract negotiations. In order to make the basic ideas as widely accessible as possible, we develop the principles in a non-technical language and in a simplified illustrative manner.

Questions of interest include the following. What kinds of variables (or factors) are relevant in determining the outcome of royalty contract negotiations? Under what circumstances would the parties not strike a deal even though mutually beneficial deals exist? What determines a party's bargaining power? Bargaining theory, which seeks to address such questions in the context of various bargaining situations, should provide insights into royalty contract negotiations.

Before proceeding we note that for a formal and complete (but technical) development of the modern theory of bargaining, see Muthoo (1999), where the two fundamental bargaining models due to John Nash (the "Nash bargaining solution") and Ariel Rubinstein (the "alternating-offers model") are described, evaluated, applied and extended at some length. Finally, it may also of be interest to note that some of the core ideas of modern bargaining theory can be found in Schelling (1960).

1.1. **An Illustrative Royalty Contract Negotiation.** Consider the following situation. An individual, called Paul, owns the copyright over some piece of music that he created and is willing to transfer it at a minimum price of $100,000; that is, he "values" the copyright at $100,000 (this figure can for example be interpreted as what he expects to obtain by instead recording free-lance and distributing on the Internet). A recording company, called SENY, is willing to pay up to $200,000 for it (this figure can be interpreted as the present discounted value of the future stream of profits); that is, the company values it at $200,000. If trade occurs – that is, if Paul agrees to transfer the copyright to SENY – at a "price" that lies between $100,000 and $200,000, then both Paul (the 'seller') and SENY (the 'buyer') would become better off. This means that in this situation these two players (or parties) have a common interest to trade. At the same time, however, they have conflicting (or divergent) interests over the price at which to trade: Paul, the seller, would like to trade at a high price, while SENY, the buyer, would like to trade at a low price. It should be emphasized that the "price" is a shorthand for the royalty rate and its form; it could for example be implemented by a small upfront lump-sum (i.e., an advance) plus a royalty rate.

The situation just described, in which a pair of players can engage in mutually beneficial trade but have conflicting interests over the terms of trade, is a *bargaining situation*. Stated in general terms, a bargaining situation is a situation in which two or more players have a common interest to co-operate, but have conflicting interests over exactly how to co-operate. The situation that confronts a copyright holder and potential user, in determining the terms of a royalty contract, is a bargaining situation.

The main issue that confronts the players in such a bargaining situation is the need to reach agreement over exactly how to co-operate and agree on the terms of the contract. Each player would like to reach some agreement rather than to disagree and not reach any agreement, but each player would also like to reach an agreement that is as favourable to her as possible. It is thus possible that the players will strike an agreement only after some costly delay, or indeed fail to reach any agreement.

Bargaining is the process through which the players try to reach an agreement. This process is typically time consuming, and involves the players making offers and counteroffers to each other. A main focus of any theory of bargaining is on the efficiency and distribution properties of the outcome of bargaining. The former property relates to the possibility that the players fail to reach an agreement, or that they reach an agreement after some costly delay. The distribution property relates to the issue of exactly how the gains from co-operation are divided between the players (eg., the royalty rate and its form).

The principles of bargaining theory set out in this article determine the roles of various key factors (or variables) on the bargaining outcome (and its efficiency and distribution properties). As such, they determine the sources of a player's bargaining power.

1.2. **Determinants of the Bargaining Outcome.** If the bargaining process is "frictionless" – by which I mean that neither player incurs any cost from haggling – then each player may continuously demand that agreement be struck on terms that are most favourable to him. For example, in the royalty negotiations described above, Paul may continuously demand that trade take place at the price of $199,000,

while SENY may continuously demand that it take place at the price of $110,000. In such a circumstance the negotiations are likely to end up in an impasse (or deadlock), since the negotiators would have no incentive to compromise and reach an agreement. Indeed, if it did not matter *when* the negotiators agree, then it would not matter *whether* they agreed at all. In most real-life situations the bargaining process is not frictionless. A basic source of a player's cost from haggling comes from the twin facts that bargaining is time consuming and that time is valuable to the player.

In section 2 below, I shall discuss the role of the players' degrees of *impatience* on the outcome of bargaining. A key principle that will be discussed is that a player's bargaining power is higher the less impatient she is relative to the other negotiator. For example, in the royalty negotiations described above, the price at which Paul transfers the copyright will be higher the less impatient he is relative to SENY. Indeed, patience confers bargaining power. If Paul were a poor musician desperate to make some money, and thus be willing to strike a deal at any terms, one would argue that he is pretty impatient. The high degree of impatience of the new musicians can be exploited by potential record companies, who thus obtain most of the gains from trade between them.

Another potential source of friction in the bargaining process comes from the possibility that the negotiations might breakdown into disagreement because of some exogenous and uncontrollable factors. Even if the possibility of such an occurrence is small, it nevertheless may provide appropriate incentives to the players to compromise and reach an agreement. The role of such a *risk of breakdown* on the bargaining outcome is discussed in section 3. In particular, a key principle that will be discussed is that risk aversion adversely affects bargaining power: i.e., a player's bargaining power is higher the less averse she is to risk relative to the other negotiator.

In many bargaining situations the players may have access to "outside" options and/or "inside" options. For example, in the royalty negotiations described above, Paul may have a non-negotiable (fixed) price offer from another record company; and, he may derive some flow payoff in the absence of transferring copyright to one the big record companies. The former is his outside option, while the latter is his inside option. When, and if, Paul exercises his outside option, the negotiations between him and SENY terminate forever in disagreement. In contrast, his inside option is the payoff per month that he derives by selling his music himself while he temporarily disagrees with SENY over the price at which to transfer copyright. The role of *outside options* on the bargaining outcome is discussed in section 4, while the role of *inside options* is discussed in section 5.

An important determinant of the outcome of bargaining is the extent to which information about various variables (or factors) are known to all the parties in the bargaining situation. For example, the outcome of the royalty rate negotiations will typically be influenced by whether or not the future stream of profits that determines SENY's maximum willingness to pay is known to Paul, or whether Paul's outside option is known to SENY. A key principle expounded in section 6, where I shall discuss the role of such *asymmetric information* on the bargaining outcome, is that costly delays are mechanisms through which privately held information is credibly communicated to the uninformed party.

I conclude in section 7 with a summary of some of the fundamental principles expounded in this article. Before proceeding, it may be noted that a bargaining situation is a game in the sense that the outcome of bargaining depends on *both* players' bargaining strategies: whether or not an agreement is struck, and the terms of the agreement (if one is struck), depends on both players' actions during the bargaining process. Indeed, the principles of bargaining theory that are expounded in this article have been obtained by using the methodology of game theory.

2. Impatience

Consider the royalty contract negotiations involving Paul and SENY described at the beginning of section 1.1. They will negotiate the price at which trade occurs by making offers and counteroffers to each other until an agreement is struck. The time interval between two consecutive offers is a week; this might be because they are able to communicate with each other only at one point during the week.

Each player values time: that is, each player prefers to reach agreement on any particular price today rather than tomorrow. For example, an agreement to trade at the price of $162,000 today would be preferred by each player to reaching the same price agreement one week later. A player's value of time can depend on a variety of factors, including income and the market interest rate. For example, a poor musician is typically more impatient than a rich one, since she is more eager to strike a deal in order to quickly obtain her share of gains from co-operation.

The "gains" from co-operation are often called the *surplus*. Most negotiations effectively involve bargaining over the partition of a "surplus". The negotiators have a common interest to reach an agreement over the partition of the surplus, but have conflicting interests over the exact partition (in that each player would like to obtain as large a share of the surplus as possible). For example, Paul and SENY are effectively bargaining over the partition of a surplus of $100,000; i.e., the difference between the maximum price at which SENY is willing to acquire the copyright (which is $200,000) and the minimum price at which Paul would transfer it (which is $100,000).

Since each player (Paul and SENY) values time, they both have an incentive to compromise and reach an agreement without delay. If Paul and SENY value time equally – that is, they are equally impatient – then it is quite likely that they would split the surplus of $100,000 equally between them; and thus, agreement would be reached on the price of $150,000.

Now suppose that Paul is more impatient than SENY. In that case his share of the surplus would be less than SENY's share. To illustrate this point in a fairly transparent manner, suppose that SENY is extremely patient, while Paul is desperately impatient, perhaps because Paul, a poor musician, is in desperate need of money, while SENY is in no hurry. In this case almost all of the surplus would go to SENY – resulting in an agreement on the price of $100,001. This is because Paul would be willing to accept almost any share of the surplus in order to strike a deal quickly; Paul, being desperately impatient, values time so much that a contractual agreement at price $100,001 in the first week might be preferable to an agreement to get a higher price, say $100,200, but a week later. SENY, being aware of this, can exploit it to its advantage. Indeed, the price at which trade occurs is lower the more impatient Paul is relative to SENY.

A key principle illustrated above is that a player's bargaining power (as captured, in general, by her share of the surplus) is greater the more patient she is relative to the other negotiator. This principle holds when the source of the haggling cost is other than time preference; for example, Paul's haggling cost might depend on the size of his wealth, other sources of income and how easy it is for him to borrow money, while SENY's haggling cost might depend on the number of other artists it already has signed up. The larger Paul's wealth the lower is his haggling cost, and thus, the greater his bargaining power. And, similarly, the more other artists SENY has the lower are its haggling costs, and thus, the greater its bargaining power.

An implication of this principle is that to enhance one's bargaining power, a player should try to decrease his haggling cost and/or increase the other negotiator's haggling cost. For example, Paul could decrease his haggling cost by getting a job to provide a decent source of income at the same time as making music and negotiating with SENY.

3. Risk of Breakdown

While bargaining, the players may perceive that the negotiations might break down into disagreement because of some exogenous and uncontrollable factors. A specific factor that may generate such a risk of breakdown is that the players may get fed up as negotiations become protracted, and thus walk away from the negotiating table. This type of human behaviour is 'random', in the sense that the exact time at which a player walks away for such reasons is difficult to determine in any definite way. Another possible factor that may lead to the existence of a risk of breakdown is when due to some exogenous factor, the surplus disappears. For example, while Paul and SENY bargain over how to divide the surplus, the profitability of the music under copyright diminishes to the extent that a surplus no longer exists, due to the arrival on the market of a competing and more attractive piece of music.

More precisely, suppose that while bargaining over the price at which Paul would transfer the copyright to SENY, each week there is a tiny exogenous possibility that such an alternative competing music is created. In that eventuality there no longer would exist any gains from trade between Paul and SENY, because SENY would now value the copyright at, let us assume, only $50,000, but Paul's value decreases to only $80,000 (because he continues to think more highly of his music than SENY). Furthermore, in that eventuality Paul would, we can assume, manage to strike a deal with a alternative, small recording company at $100,000, thus netting a profit of $20,000, and, SENY would manage to buy a different substitute copyright worth $120,000 to it at a price of $70,000, thus netting a profit of $50,000.

Notice that the sum of their profits in the eventuality that the competing substitute arrives equals $70,000. Since this sum is less than the surplus of $100,000 that currently exists between them, it is mutually beneficial for Paul and SENY to reach a deal at a price between $150,000 and $120,000. Suppose, for example, that agreement were to be reached on the price of $160,000. This would mean that SENY's profit from the deal with Paul equals $200,000 - $160,000 = $40,000. Since this is less than its profit of $50,000 that it can obtain by waiting until the arrival of a substitute copyright, it would not agree to buy from Paul for $160,000. The agreed price must be sufficiently low so that its profit exceeds $50,000. At the same time, the agreed price must be sufficiently high so that Paul's profit exceeds

$20,000. This implies that they are effectively bargaining over the partition of a *net* surplus of $30,000, where the "net" surplus is the difference between the surplus and the sum of their profits in the eventuality that negotiations breakdown the moment an alternative, substitute arrives on the market.

It may be noted that if, in the eventuality that the substitute arrives, Paul's profit were $40,000 (instead of $20,000), then trade would occur at a price between $150,000 and $140,000. Indeed, a key principle is that a player's bargaining power is higher the higher is her profit (or payoff) following the occurrence of the exogenous and uncontrollable factor that triggers a breakdown in the negotiations; and, similarly, a player's bargaining power is lower the higher is the other negotiator's payoff in that eventuality.

The exact partition of the net surplus between the players will depend upon their relative degrees of impatience (as was discussed above in section 2) and upon their relative degrees of aversion to risk. Indeed, a player's share of the net surplus is smaller the more averse to risk she is relative to the other negotiator. For example, if Paul is more averse to risk than SENY, then his share of the net surplus will be smaller than SENY's share of the net surplus. The logic behind this principle runs as follows. Although it is mutually beneficial for the parties to strike a deal (rather than wait for the arrival of a competing substitute), the more risk averse player is relatively more eager to minimize the risk of breakdown. This is exploited by the less risk averse player; she demands a larger share of the net surplus. Of course, if both parties are equally risk averse and equally impatient, then they are likely to split the net surplus equally between themselves.

4. OUTSIDE OPTIONS

In order to isolate the role of "outside" options on the bargaining outcome, I now assume that there is no risk of breakdown, and that each player values time equally. Consider the situation in which Paul and SENY are negotiating the price at which to trade. Suppose that before the negotiations with SENY begin, Paul has been made a non-negotiable (fixed) price offer by another record company; this is his "outside" option. Let the price offered be q, where q is greater than $100,000, but less than $200,000 – that is, it is a price which would be acceptable to Paul, but is less than the maximum amount that SENY is willing to pay. As such, trade at any price that lies between q and $200,000 would be mutually beneficial to Paul and SENY.

Suppose that in the absence of this outside option, trade would have occurred at the price of $150,000, which is the likely outcome when they are equally impatient. Now I describe what is likely to happen in the presence of this outside option. In its presence the agreed price will continue to be $150,000 if q is less than 150,000, but will equal q if q is greater 150,000. This means that if Paul's outside option is relatively small (more precisely, less than what he obtains in its absence), then it has *no* impact on the agreed price. But if his outside option is greater than what he gets in its absence, then the agreed price has to equal it. The logic behind this conclusion is straightforward, and has to do with the issue of the credibility (or otherwise) of threats in the bargaining process.

Paul's potential threat to transfer the copyright to the other record company at a price of q is not credible when q is less than what SENY would offer him in the absence of this outside option (namely, $150,000). This is because if SENY

refuses to agree to a price that is higher than $150,000, then Paul will not carry out his threat; since q is less than 150,000, he will prefer to trade with SENY at the (originally agreed upon) price of $150,000. As such, SENY can safely ignore such an empty threat, and continue to offer that agreement be reached at the price of $150,000. Notice that even if q equals 149,000, the outside option is useless; Paul cannot extract a higher price from SENY; he might as well not have this outside option. However, if q is greater than 150,000, then his threat to trade with the other record company unless SENY increases the price offer is credible. But, in this circumstance, all that SENY has to do is to just match the outside offer, and offer a price that is a penny more than $\$q$.

A key principle is that a player's outside option will increase his bargaining power if and only if the outside option is sufficiently attractive; if it is not attractive enough, then it will have *no* effect on the bargaining outcome. This is the so-called *outside option principle* (OOPS).

Contrary to what is often suggested, OOPS tells us that having an outside option (such as an alternative record contract) will not necessarily increase your bargaining power; it will not necessarily enable an artist to extract a higher royalty rate from a record company. In order to do so, the alternative contract must yield a royalty rate that is higher than what is being offered. It is no good approaching SENY saying, "I have just been made an attractive royalty contract offer that will pay me $149,000, so please raise your offer, or else I quit." SENY would reply to Paul and say, "but your current offer is $150,000$, and thus, I refuse to increase the price offer by even one penny." This response is based on the plausible presumption that Paul's threat to quit the negotiations unless the price offer is raised is empty (not credible); it is not in his interest to carry out the threat (*ex-post*).

A basic, important message that is built in OOPS is that a negotiator should not let himself be influenced by threats (or promises) that are empty, in the sense that such threats and promises would not be carried out when, and if, time came to do so. Only credible threats and credible promises matter.

5. Inside Options and Interactions with Outside Options

A negotiator's "inside" option is the payoff that he obtains during the bargaining process – that is, while the parties to the negotiations are in temporary disagreement. In the context of the exchange situation discussed above, while Paul and SENY are bargaining over the price at which Paul would transfer copyright to SENY, he may be deriving some income from it. As such Paul's inside option is the payoff (or utility) per week that he derives during periods of temporary disagreement. His bargaining power is greater when he has a larger inside option. If Paul derives much income by himself, then he is less desperate to transfer the copyright; and this works to his advantage during the negotiations with SENY. I now consider the interaction between outside options and inside options.

We suppose that the surplus is so large that it is mutually beneficial for the parties to reach an agreement rather than exercise their outside or inside options. Since they have conflicting interests over the exact partition of the surplus, they will need to compromise and negotiate an agreement. In order to isolate the potential impact of their outside and inside options on how the surplus is divided, I assume that there is no risk of exogenous breakdown, and that the individuals value their time equally.

First, suppose that the outside option of each individual is sufficiently small. In that case, it follows from OOPS that the outside options have no impact on how the surplus is divided. The inside options will have the decisive impact. If their inside options are of equal size, then the parties would split the surplus equally. Now suppose, as seems realistic, that SENY's inside option is bigger than Paul's inside option. This works to SENY's advantage. Since Paul's inside option is relatively smaller, he is more eager to strike a deal over the partition of the surplus. As such, SENY is able to negotiate a bigger share of the surplus for itself; that is, the agreement that is reached is more favourable to SENY.

What happens if, instead, Paul's music is quite attractive, and thus, has a fairly large outside option? In that case SENY's bargaining power is much reduced; in particular, SENY's relatively large inside option becomes irrelevant. More importantly, Paul's potential threat to quit and take up his outside option, which is now credible (since the payoff associated with it is large), will solely determine the division of the surplus. The deal struck will now be more favourable to Paul. SENY's attractive inside option has no impact in such a circumstance.

A key principle is as follows. When both players' outside options are sufficiently unattractive, then a player's bargaining power is higher the more attractive is his or her inside option, and, the less attractive is the other player's inside option. But, when one player's outside option is sufficiently attractive, both players' inside options have no impact on the bargaining outcome; the player with the attractive outside option gets the more favourable deal. And, if both players' outside options are sufficiently attractive, then it is mutually beneficial for the players to exercise them. Indeed, if going their own ways is sufficiently attractive to both parties (relative to the size of the surplus), then the parties are likely not to trade.

The discussion above suggests that a good strategy for Paul in order to get a better deal from the record company is to enhance his outside option. This might partly explain why some artists and musicians make so much effort to make themselves attractive in the general market, so as to keep their outside options strong when negotiating with any single record company.

6. Asymmetric Information

In some bargaining situations at least one of the players knows something of relevance that the other player does not. For example, in the context of the exchange situation described at the beginning of section 1.1, Paul and SENY may have differing estimates of the quality of the music and hence differing estimates of the future profitability to SENY from acquiring the copyright. The profitability might be high or low. Or, alternatively, Paul's rate of impatience, which determines how eager he is to reach a deal, could be his private information. It could be high or low. How is the bargaining outcome affected by the presence of such an asymmetry in information?

A main consequence of this asymmetry in information is that an agreement may not be struck when, in fact, it would be mutually beneficial for Paul and SENY to trade. The logic behind this principle runs as follows. If Paul's rate of impatience is high, then he has an incentive to pretend that it is actually low, in order to obtain a relatively higher price (i.e., a higher royalty rate). Since SENY would be aware of this "incentive to lie", the maximum price that it would be willing to pay for the copyright may be less than what is required for trade to occur if Paul's true

rate of impatience is actually low. As such, trade between Paul and SENY may fail to occur if Paul is sufficiently patient. Notice that Paul cannot credibly convince SENY by simply saying that he is telling the truth when he claims that he is quite patient and not desperate to reach a deal; after all, he could be telling a lie.

In general, the absence of complete information – when at least one party to the negotiations possesses information about relevant variables (or factors) that the other party (or parties) do not have – will lead to inefficient bargaining outcomes. That is, outcomes with disagreements and/or costly delayed agreements. An important role of costly delays is to act as a mechanism through which privately held information can be *credibly* communicated to the uninformed party.

The message here is that costly delays are unavoidable consequences of asymmetric information. Of course, this message also implicitly suggests how such costly delays might be avoided: by finding alternative, less costly means of credibly communicating the privately held information.

7. CONCLUDING COMMENTS

Some of the fundamental principles expounded in this article may be summarized as follows. (a) Patience during the process of negotiations confers bargaining power, while risk aversion affects it adversely; (b) A player's outside option enhances his bargaining power if and only if it is attractive and therefore credible; (c) A player's bargaining power is higher the larger is his inside option, provided that all negotiators' outside options are not attractive enough; (d) If both negotiators' outside options are sufficiently attractive, then it is likely that gains from co-operation may not exist (and the parties may thus prefer to exercise their respective outside options); (e) When a party does not know something of relevance to the ongoing negotiations which the other party does, there is a risk of failure of negotiations or of costly delay till the relevant information is credibly communicated to the uninformed party; (f) Knowledge is veritable power in negotiations and enhances the bargaining strength of the better informed.

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