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R. Watt

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Indirect Copyright Infringement Liability for ISPs and The Economics of Contracts under Asymmetric Information

by

Richard Watt[1]

University of Canterbury and SERCI

ABSTRACT: Under current copyright law, Internet Service Providers (ISPs) can be found liable for the traffic on the websites that they host. While the ISPs themselves are not undertaking acts that infringe copyright, indirect liability asserts that they either contribute to, or encourage in some way, infringing activities, and thus they are liable to claims of indirect involvement by the affected copyright holders. The present paper explores indirect liability in a standard principal-agent setting, where both moral hazard (the act of monitoring) and adverse selection (differential costs of monitoring over ISPs) are present. The model considers the kinds of contracts that could be signed between the copyright holders (acting through a collective) and the ISPs (acting individually). The self-selecting, incentive compatible equilibrium is found for the feasible scenarios that may present themselves.

1. INTRODUCTION

Under current copyright law, Internet Service Providers (ISPs) can be found liable for the actions of their clients (firms and individuals that own websites), and even for the actions of the clients of their clients (firms and individuals that use those websites). When an ISP hosts a website that is then used for downloading/uploading copyrighted content illegally, the affected copyright holder may have recourse against the ISP, which is often a much less costly legal course of action than attempting to identify and then sue the individuals or businesses that actually carry out the illegal activity on the website. It is often argued (see, for example, Gilbert and Katz 2001, and Landes and Lichtman 2003)

[1] I am most grateful for the hospitality of ICER in Turin (Italy) where I was visiting when this paper was written.

that secondary liability of this type is an efficient solution, as the threat of liability performs the role of an incentive for the ISP to monitor and control for the traffic and content on the websites that it hosts. Assuming that the ISP itself is better placed than is any third party (e.g. the copyright holder, or the copyright collective) to do this, then indirect liability may be an efficient mechanism for avoiding misuse of copyright content.

But this assumes, perhaps rather blithely, that an ISP does actually have a cost efficient monitoring mechanism at its disposal. If it happens that effective monitoring is too expensive even for the ISP, then indirect liability may still not be enough to give the ISP any incentive to monitor. In such a situation, it becomes debateable that indirect liability should even exist, or in other words, showing that monitoring is overly costly for the ISP should be a valid defence against any claims of indirect liability (e.g. when the only relationship is at the point of sale).

Indirect liability rests on a claim from the plaintiff that an ISP did not take all of the actions that it could have to avoid the copyright infringements.[2] Notice that this is a two-pronged attack – (1) were there any feasible actions or not, and (2) were all feasible actions carried out? Thus, when a claim of indirect liability is brought against an ISP, the defence will typically be that, either monitoring did in fact take place to the best of the ISP's ability and so there is no indirect liability, or that no monitoring took place since monitoring was just overly expensive for this particular ISP, that is, monitoring should not be expected of the ISP, and so again there is no room for indirect liability. In short, if it is found that there were in fact no actions that the ISP could have reasonably taken to avoid the copyright infringements, then the ISP should not be liable (see, for example, the discussion of the case of Perfect 10 vs. Visa in Haskel 2008).

On top of this, it is also true that, whenever there exists a diverse set of agents to whom we want to give incentives, a single incentive mechanism is unlikely to give an efficient outcome in terms of incentives and risk bearing. That is, if there are different "types" of ISP, differentiated by their ability to monitor website traffic, then the incentives given to each will be different when a single incentive mechanism is used. For a legal system to be "first-best" efficient, one would feasibly need a different set of laws for each and every individual and firm, something which is obviously not a realistic possibility.[3] However, there may still exist ways in which we can avoid the inefficiencies of the current second-best solution (at least for the case of indirect liability for copyright infringements), making use of the now well established economic theory of contracts under asymmetric information.

[2] Of course, indirect liability takes more than one form – contributory liability, vicarious liability, and more recently, inducement liability (see, for example, Dixon (2009), and Landes and Lichtman (2003)). In the current paper we abstract from any differentiation between these types of indirect liability.

[3] Current legal systems, copyright included, that offer a single set of laws to which all must abide, are a "second-best" efficient option, but where the enormous transactions costs of the first-best make it unfeasible.

In effect, if a suit is brought against an ISP, then that ISP can look to defend itself by either showing that the ISP did in fact carry out monitoring to the best of its ability, or alternatively by showing that although no monitoring took place, the ISP did in fact not have any simple manner in which to monitor for copyright violations on the websites that it hosts. The very fact that such a defence strategy can be devised, and may be successful, clearly indicates that in reality there must be more than one type of ISP, differentiated by their ability to monitor website traffic. In economics, this is an example of the very well known problem of adverse selection. It is equally well known that the solution for an adverse selection problem does not involve waiting for the bad state of nature to occur and then requiring the agent to defend in a court of law which type she actually is, against the threat of punishment for an agent who claimed to be of one type but is found to be of another. Rather, it is efficient for the principal to offer a contract menu at the outset, and to allow each agent to choose from the contract menu, in a manner in which self-selection occurs.

However, for the case at hand, the situation is not quite so simple as straightforward adverse selection, as each ISP also has an effort choice to make, that is, whether or not to actually monitor. It is unlikely that the outcome of this choice (whether or not monitoring took place) is easily observable by any third party, so a hidden action is also present. This is an element of moral hazard that we must consider along with the adverse selection. Again, it is very well known that an efficient solution to a moral hazard problem of this sort is not to wait for the bad state of nature to occur, and then to require the agent to defend that she did indeed carry out the action in question, but rather an incentive compatible contract should be offered at the outset.

In this paper a simple two-dimensional model is presented and analysed in order to explore the options of contracting that exist between copyright holders as represented by a collective, and individual ISPs. Since the different ISPs are facing a risk (the risk of liability), the contracts that are discussed are in essence mechanisms under which the copyright holders can insure the ISPs, while still ensuring voluntary participation (of ISPs and copyright holders), self-selection (of ISPs) and incentive compatibility. The model used is the standard principal-agent setting, under both adverse selection and moral hazard.

2. MODEL

Here we present a simple model of the situation of ISPs. There will only be two different ISP “types”, and only one possible action (monitoring). There are only two states of the world, defined by whether or not a copyright violation occurs on one of the hosted websites. In state 1 no copyright infringements are discovered on the websites that the ISP hosts, and in state 2 copyright infringements are detected. The probability of the two states of the world will be determined, at least in part, by the monitoring actions that the ISP can take to avoid such violations. Concretely, the probability of state 2 is reduced when the ISP carries out monitoring activities, but different ISPs have different abilities to

carry out such activities. These differences may be determined, for example, by the type of material that is typically uploaded to websites hosted by the ISPs, the sheer number of websites that are hosted, and any number of other aspects. We assume that the *only* thing that differentiates ISPs is the ability to monitor, i.e. in regards everything else, they are identical.

In short, an ISP is characterized by a parameter (unobservable by anyone other than the particular ISP) that determines the ability to monitor, and then the actual act of monitoring or not is also unobserved by others. We need to find contracts between the copyright holders (as represented by a collective) and the ISPs that are both self-selecting (i.e. each type of ISP signs a different contract) and incentive compatible (i.e. those ISPs that are contracted to carry out monitoring, and only those ISPs, actually do so).

Above all, it should be noted that this is very closely related to a scenario of pure risk bearing. The ISP faces an exogenous risk (that of indirect liability), and can choose to mitigate that risk by undertaking monitoring activities. The decision to monitor is identical to what is called "self-protection" in the insurance literature, in that it decreases the probability of the bad state of nature. The model described in this paper uses the similarity between the situation of the ISP and a situation of general risk bearing with the option of self-protection in much of the terminology used.

Appealing to the standard theory, the copyright collective should offer different contracts, with different payoffs for each state of nature, that the ISPs can choose from. Each different contract will be designed for a particular type of ISP, and self-selection occurs when each type of ISP voluntarily chooses the correct contract for that type. Incentive compatibility is also an issue, and within each contract there is also a demand for monitoring – here, either monitoring is demanded or not. Thus, incentive compatibility happens if each ISP that chooses a contract that includes a demand of monitoring, actually prefers to monitor, and each ISP that chooses a contract with no monitoring prefers not to monitor.

It would be expected that in a self-selecting equilibrium, the ISPs that have the lowest ability to effectively monitor the nature of the traffic on their websites would be offered a contract that makes them immune to a claim of indirect liability, or in other words, the copyright collective fully insures such an ISP against claims of indirect liability. It may also seem reasonable that an ISP that does carry out the monitoring activities should also be immune to the claim of indirect liability, however we shall see that this is not the case. In general, performing the monitoring activity will have the effect of reducing the amount of remedy that a plaintiff can claim under indirect liability, but not eliminating the liability outright. Thus, as is normal in adverse selection models, the better "type" (here the ISP with a greater ability to monitor) will typically need to bear some risk in the final outcome, but the risk borne will not be as great as the risk if no contract were entered into.

Note that although an ISP that chooses a full insurance contract would be immune to indirect liability, the cost for such a contract would be relatively high. On the other hand, an ISP that has chosen a contract that involves monitoring, and that consequentially has a low probability of being sued for indirect liability for copyright violation, would face a much smaller upfront cost, but would be liable to pay some compensation to copyright holders should copyright infringing material be detected on their sites. A proper choice by the copyright collective of the prices of each contract, and the level of the remedies that are charged to a partially insured ISP that has found to have hosted a copyright infringing website, will make the proposed system efficient.[4]

The payments that are made by ISPs who subscribe to contracts with the copyright collective should of course serve as compensation for the copyright holders. The most obvious way to do this would be to understand that the initial payments for entering into such contracts are payments for blanket licenses for the use of copyright material that would be paid to the collective for distribution to the copyright holders. Those ISPs that contract to a full coverage contract will have paid the equivalent of a full blanket license, and so are immune to posterior claims of indirect liability for copyright violation. On the other hand, those that purchase partial insurance contracts will still be liable for further payments should copyright violations be detected on the websites that they host. Any payments that are awarded in the form of remedies from under-insured, or not insured, ISPs from law suits claiming indirect liability would be paid to the plaintiff, which could be either a single copyright holder, or a group of copyright holders acting together (e.g. the copyright collective).

In the model here, we shall assume that the copyright collective is risk neutral, and so it is indifferent to a situation of no contracting at all and one in which contracting occurs but at the same expected level of contract and remedy payments. The ISPs are assumed to be strictly risk averse, and so they strictly prefer a situation of the same expected wealth but less risk. For example, if an ISP under the current system of no contracting has wealth of $3 million if no copyright infringing material is detected on its websites, and of $2 million if copyright infringing material is detected (that is, the indirect liability remedy paid to copyright holders is $1 million), and if each of these two states are equally likely, then the ISP's expected wealth is $2.5 million, and the copyright holders' expected remedies are $0.5 million. If, instead of waiting to see if copyright infringements are detected or not, the copyright holders and the ISP agree that the ISP should pay $0.5 million to the copyright holders up front in exchange for total immunity from indirect liability, then the risk neutral copyright holders would be indifferent, while the risk averse ISP is better off.

[4] Of course, we might also desire to have a null-contract, at zero cost, under which the ISP has no insurance at all against claims of indirect liability, and must defend his case in court in exactly the same way as currently. However, in the model expounded here, such a null-contract would not be chosen by any ISP, and is thus redundant.

Notice that the system described above manages to give a different incentive to each ISP, depending on the contract chosen. But it would not be an unmanageably difficult system to put into practice. Indeed, from the point of view of the copyright collective and the copyright holders, there should be no difference in how they act currently. If the copyright holder detects infringements on a website, then he can look on a registry of the contracts with the ISPs to see to what degree a remedy can be obtained from a claim of indirect liability. If the ISP in question, for example, was found to have fully insured, then the copyright holder has already been compensated for the indirect liability, although there may still be scope for a direct liability claim against the individuals or firms who upload copyright protected material.

2.1 Assumptions and benchmark model (no adverse selection)

Assume that there are only two "types" of ISP, differentiated by their cost of monitoring the traffic on the websites that they host. There is a single act of "monitoring", regardless of ISP type. A type *i* ISP suffers a (financial) cost of c_i in order to monitor, where $c_1 < c_2$, that is, a type 1 ISP has a lower cost of monitoring than does a type 2 ISP. Outside of the ability to monitor website traffic, the ISPs are otherwise identical. Assume that by monitoring the website traffic, an ISP is able to minimize copyright violations on the corresponding websites, and that this is the cheapest way in which this can be accomplished (i.e. the ISP is the best placed agent to monitor). In particular, monitoring the traffic on the websites hosted by a type *i* ISP by outside agents (e.g. by individual copyright holders or by the copyright collective) costs more than c_i.[5] Finally, we assume that the low cost ISP is willing to undertake the monitoring even in absence of any contract with the copyright collective, while the high cost ISP is not willing to do so. Whether or not an ISP monitors, copyright holders always have the ability to sue under indirect liability, but the remedies that are available are determined, by the type of contract that the ISP has with the copyright collective.

The copyright collective acts as a risk neutral principal. We assume that the collective acts as if it were competitive, in the sense that it does not attempt to maximise the expected profit earned from the ISP from indirect liability. Thus, the collective is interested in improving the expected utility of the ISPs as much as is possible while respecting the participation and incentive compatibility constraints. Of course the copyright collective will also not reduce the expected value of the indirect liability remedies that they would receive from the default of no contracting.

To help with our understanding, let's go through the model when there is only one type of ISP, and it is a low-cost ISP (i.e. even with no contract with the copyright collective, the ISP is willing to undertake monitoring). We use throughout a simple model of moral hazard due to Rees (1989). In

[5] Of course, this does not mean that a copyright holder will not ever detect infringement, just that it is not able to carry out the monitoring act any more cheaply than can the ISP. Detection can occur even though consistent monitoring is not carried out, but of course without monitoring, detection is less likely.

Figure 1 we show the initial situation drawn in standard contingent claims space (the space of wealth of the ISP in each of the two states of nature). Here, state 1 wealth is denoted w_1, and state 2 wealth is denoted w_2. The ISP has an initial wealth of w_0, but faces an indirect liability risk valued at L. The probability that the ISP will have to pay the liability is initially p. Thus, the ISP is initially located at point A (with wealth of w_0 in state 1, and of $w_0 - L$ in state 2) with the indifference curve passing through that point. On the other hand, if the ISP were to undertake monitoring, it would lose c dollars in each state of the world, leading to point B, but in exchange the probability of suffering the indirect liability cost is reduced. The indifference curve becomes steeper to reflect the more favourable probabilities after having undertaken the process of monitoring. Notice that the two indifference curves intersect below the diagonal line through the graph, indicating that the ISP prefers to monitor.[6]

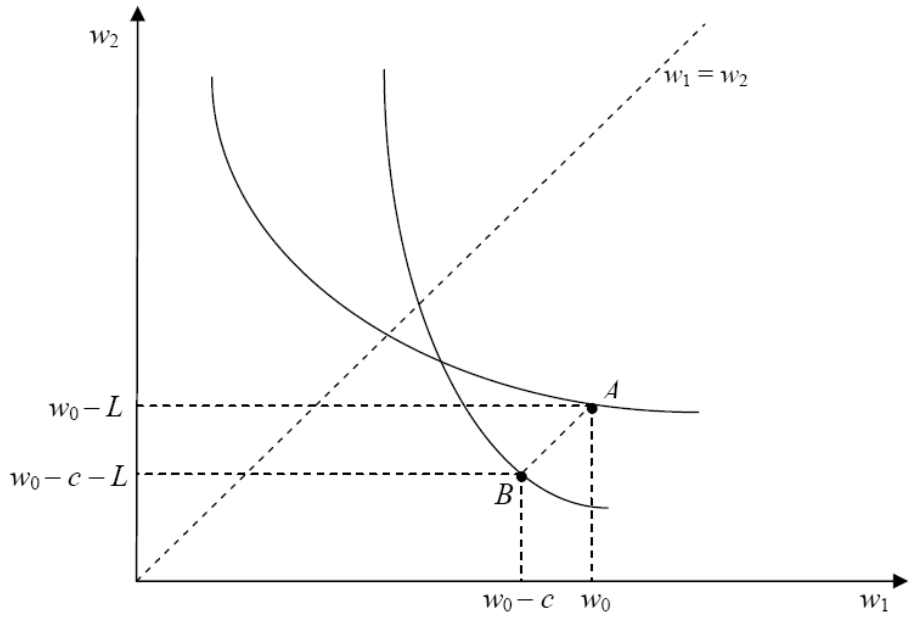

Figure 1

Now, by contracting with the ISP, the copyright collective can move the ISP along the iso-expected value line reflecting the lower probability that passes through point B, thereby shifting the indifference curve upwards, implying an increase in the expected utility of the ISP. However, since the act of monitoring is not observable, it may be that the ISP decides to take the deal offered by the copyright collective but then not carry out the monitoring activity, which would imply a movement from point A upwards along a line that is parallel to the expected value line passing through point B. However, by accepting the deal and yet not carrying out the monitoring, of course the ISP suffers the same probabilities as at point A, i.e. a relatively flat indifference curve.

[6] The indifference curves are comparable where they go through the certainty line. That which intersects the certainty line at the highest point is the more preferred level of utility.

In Figure 2 we draw the equilibrium movement. The equilibrium contract is at point *G*, which is a risk reducing movement from point *B*. The point *F* is the point that would be obtained by an ISP that takes the deal but does not monitor. Notice that the equilibrium is found when the indifference curve corresponding to actually carrying out the monitoring and the indifference curve corresponding to not monitoring (but taking the deal) intersect exactly at the certainty line. This intersection implies that the ISP is exactly indifferent between taking the deal and monitoring or taking the deal and not monitoring, and both of these are better than not taking the deal and not monitoring. As is normal in economics, we resolve the indifference in favour of the ISP taking the deal and then undertaking the monitoring.

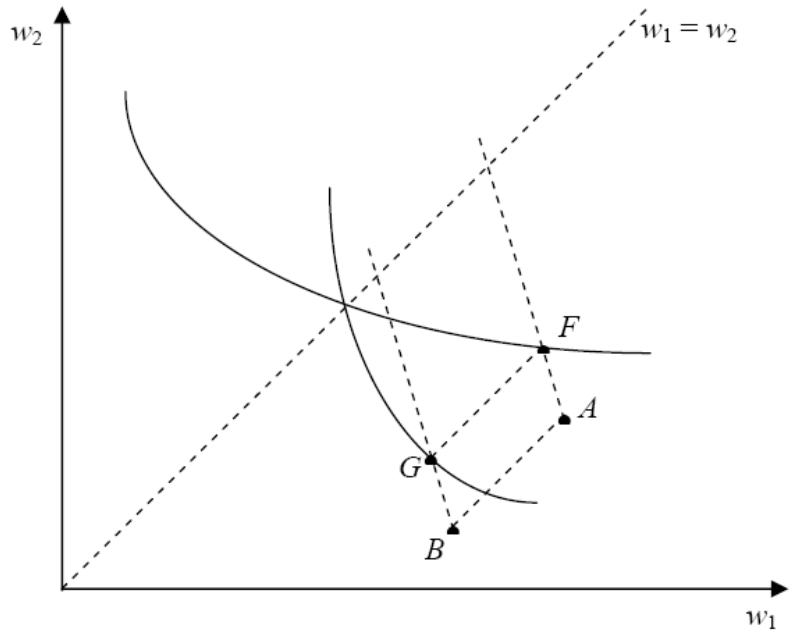

Figure 2

What sort of deal has been offered to the ISP? Figure 3 shows all of the information. The distance between *H* and *J* is the initial liability cost (the amount of money that the ISP would have to pay in indirect liability remedies if copyright infringements were discovered on its websites in absence of any contracting). The movement from point *A* to *B* corresponds to the ISP actually paying the cost *c* and undertaking the monitoring. Then, the movement from *B* to *G* is the "deal" offered by the copyright collective. The deal consists of the ISP paying a further cost equal to the distance between points *J* and *K* to enter the deal, in exchange for a reduction in the liability remedies of an amount equal to the distance between *G* and *J*. That is, the liability is now reduced to the distance from *H* to *G*. In essence, the copyright collective is offering an insurance arrangement to the ISP (priced at the fair premium), at a premium payment of distance *JK*, and with an indemnity of distance *JG*.

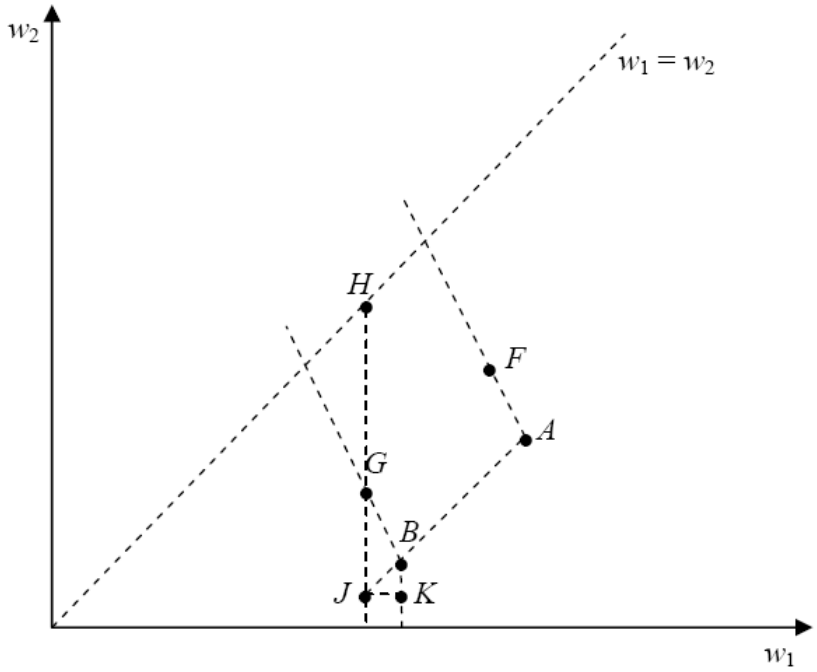

Figure 3

Now, let's look at the situation of a single type of ISP, but where the ISP has a high cost of monitoring, that is, the ISP is unwilling to monitor. In this case, the indifference curve through point *A* intersects the indifference curve through point *B* to the left of the certainty line. Now, attempting to move the ISP indifference curve upwards from point *B* is fraught with failure, since by accepting the deal and yet not monitoring, the ISP will always achieve a greater level of utility. Thus, there is no incentive compatible deal that the copyright collective can offer this ISP in return for monitoring to be carried out.

This, however, does not mean that the copyright collective cannot offer any deal at all. Just as in a regular adverse selection model, the collective can move the ISP along the expected value line passing through point *A* to the point of intersection with the certainty line. The deal located at point *C* in Figure 4 keeps the expected value of the ISP's wealth constant at its initial level, but removes all risk of indirect liability. The ISP is fully insured, but at a cost (equal to the distance from *A* to *M*). Never-the-less, since the ISP is assumed to be risk averse, this is a most beneficial deal, and it would be gladly accepted.

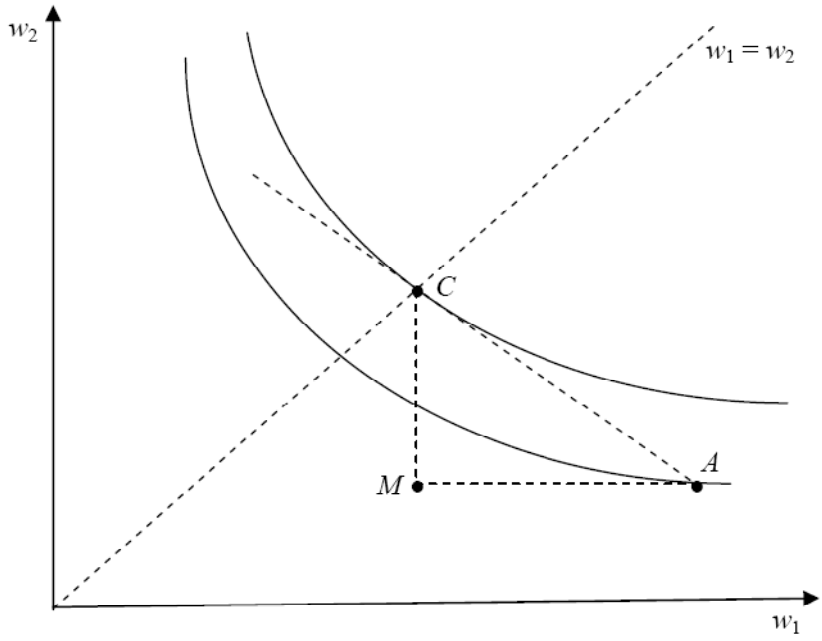

Figure 4

We now know how the moral hazard game would be solved if there were only one type of ISP. If the ISP has a high cost of monitoring, then full coverage should be offered at the initial expected value, and no monitoring should be demanded. On the other hand, if the ISP has a low cost of monitoring, then partial coverage against indirect liability should be offered, and monitoring will be demanded. But what will be the adverse selection outcome, that is, the outcome when both types of ISP simultaneously exist?

2.2 Simultaneous adverse selection and moral hazard

When both types of ISP exist simultaneously, the copyright collective needs to consider the self-selection constraints that determine that the high cost ISP does not prefer the contract designed for the low cost one, and vice versa.

To start with, recall from what we have done above that the point of full coverage at the initial expected value is a contract that cannot be improved upon for the high cost ISP. Let's say then, that this point (point *C* in Figure 4) will always be offered by the copyright collective with the high cost ISP in mind. The question then is what contract can be offered for the low cost ISP? Call point *D* the certainty equivalent point for a low cost ISP that undertakes monitoring but without any contract with the copyright collective. Point *D* is the point at which the indifference curve passing through point *B*, with slope reflecting the fact that monitoring has taken place, cuts the certainty line (see Figure 5). The assumptions that we have made on the model are consistent with point *D* being either above or below point *C* (or of course, equal to point *C*). We need to analyse each case separately.

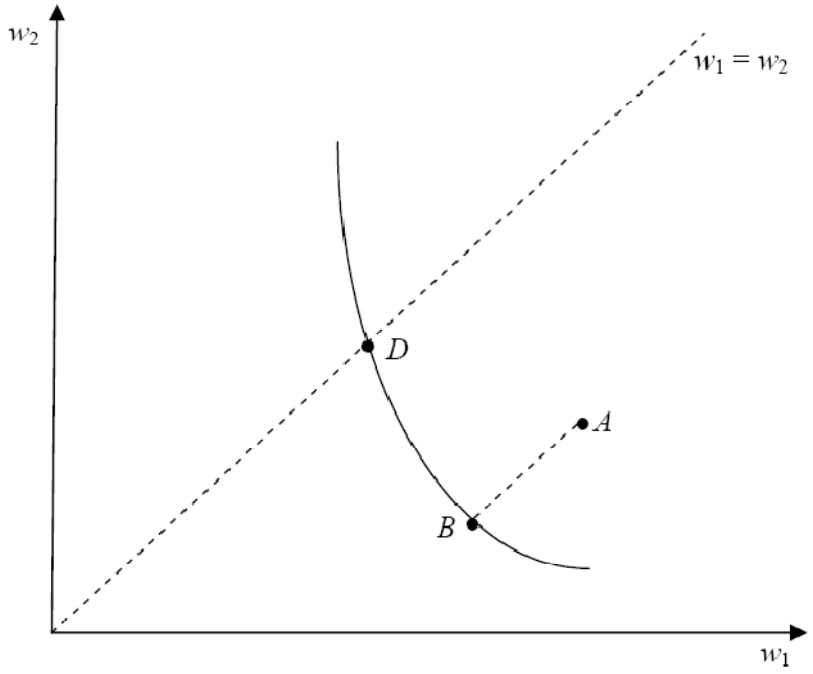

Figure 5

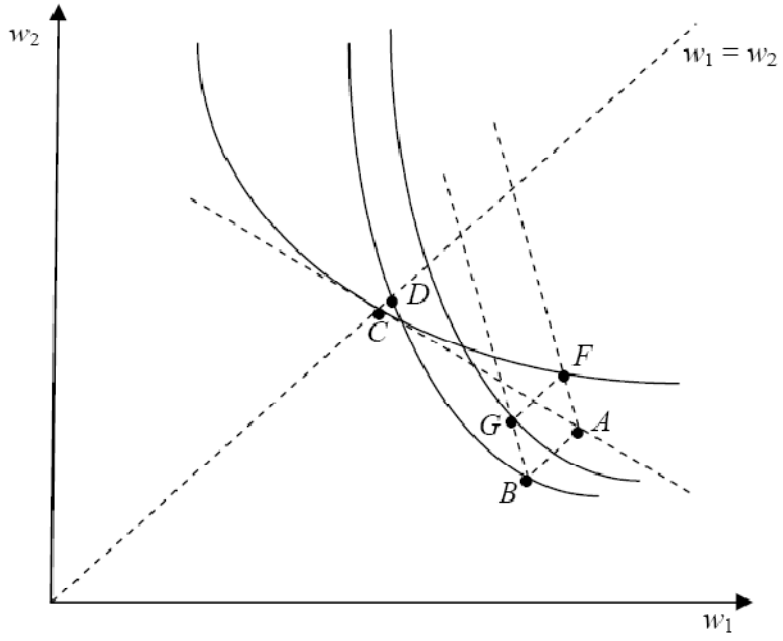

Figure 6

1. *D* is above *C* (see Figure 6)

In this case, even if we were not to offer any contract other than point *C*, the low cost ISP would still carry out the monitoring (locating at point *B*), and would of course reject contract *C*. However, it is certainly possible in this case to improve the welfare of the low cost ISP over and above that obtained

at point *B*. Recall that by moving the low cost ISP upward along the new expected value line (that corresponding to having carried out monitoring), the low cost ISP can either take the contract and carry out the monitoring (in which case it moves upward along the negatively sloped line through *B* in Figure 6) or take the contract and not monitor (moving then upward along the steepest negatively sloped line through *A*). In the first case the indifference curve is relatively steep (since monitoring was carried out) while in the second case the indifference curve is relatively flat (since no monitoring was carried out).

Now, consider point *F* in Figure 6. This point mirrors point *G*, with the only difference between them being that at *F* no monitoring is carried out, while at *G* it is. The intersection between the indifference curves passing through *F* and *G* must lie below the certainty line, since by assumption point *D* is above point *C*. Thus, given the option of signing the partial coverage contract defined by point *G*, the low cost ISP would take that contract and would prefer to carry out the monitoring as demanded. This option is also preferred by the low cost ISP to the contract located at point *C*. Note also that the high cost ISP would be indifferent between taking this contract (*G*) and then not carrying out the monitoring, and taking contract *C*. Thus, the solution offered by points *G* and *C* achieves self selection (the high cost ISP chooses point *C*, the low cost ISP chooses point *G*), and incentive compatibility (the high cost ISP chooses not to monitor, the low cost ISP chooses to monitor). Any further movement upward above point *G* will violate incentive compatibility, as it will have a mirror point above point *F*, which would be accepted by the high cost ISP without monitoring. Thus the equilibrium (when point *D* is above point *C*) is made up of points *G* and *C*.

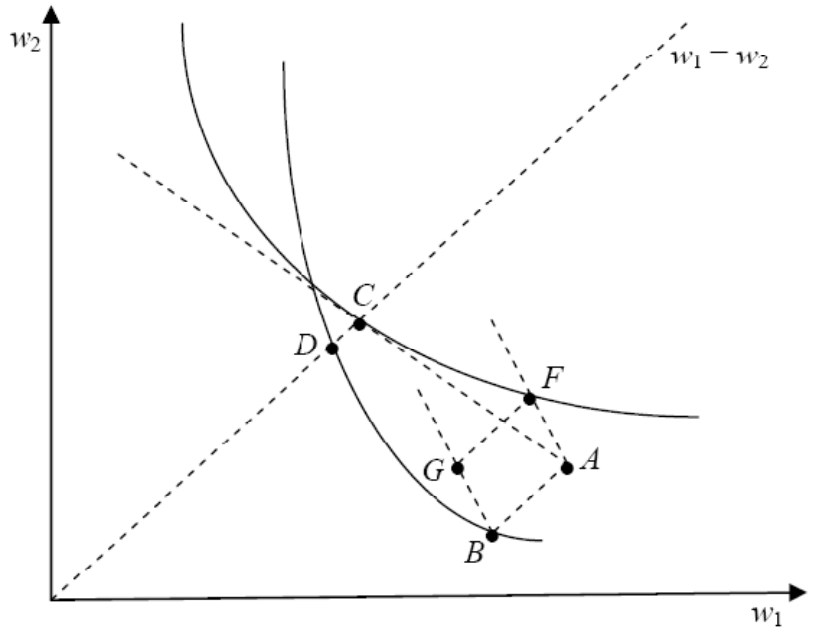

Figure 7

2. *D* is below *C* (see Figure 7)

When point *D* lies below point *C*, the outcome without any contract offerings besides *C* would be that both types of ISP would choose point *C*, and neither of them would carry out any monitoring. This may be considered to be not a good outcome, since no monitoring at all will take place, however it is simply a reflection on the assumption that now even the low cost ISP has a relatively expensive monitoring technology. Never-the-less, again it may be possible to offer a second contract that will inspire monitoring by the low cost ISP.

To start with, note that again we can clearly continue to offer point *G* as well as point *C* (figure 7). Point *G*, which is mirrored by point *F*, will be rejected by the high cost ISP in favour of point *C*, so there is no concern that *G* will be accepted but with no monitoring undertaken by the firm accepting it. Point *G* is also strictly preferred by the low cost ISP to point *B*, but it may or may not be preferred to the contract at point *C*. Thus, we now have two sub-cases; either (a) the utility of the low cost ISP at point *G* (with monitoring) is greater than the utility of the low cost ISP at the fully insured point (point *C*), or (b) the utility of the low cost ISP at point *G* (with monitoring) is lower than the utility of the low cost ISP at the fully insured point (point *C*). In the first case (case (a)), the equilibrium is again to offer points *G* and *C*. In the second case (case (b)), the equilibrium is to only offer point *C*.

Case (b) deserves further discussion. The problem with case (b) is that no monitoring at all is carried out, whereas if no contracts at all were offered, then at least the low cost ISP would monitor. The low cost ISP does not monitor in the equilibrium of case (b) because in our attempt to maximise the welfare of the ISPs, we are willing to offer the full insurance contract at point *C*. Is it really a problem if the low cost ISP does not monitor? The answer to that question depends on the value of the externality – that is, how much is monitoring by the low cost ISP actually worth to the copyright holders? If the externality value is sufficiently low, then it should not be thought of as being problematic that the low cost ISP does not monitor in the case (b) equilibrium. But if the externality value is high, then perhaps we should consider altering things so that the low cost ISP does monitor.

Notice that, by moving point *C* backwards along the expected value line, to a point like *C'* in Figure 8, for no monitoring, the indifference curve of an ISP that does not monitor and that accepts contract *C'* drops. Contract *C'* is a partial coverage contract at the same expected value as contract *C*. Thus, if *C'* is offered rather than *C* as the high cost contract, then the attractiveness of the high cost contract to the low cost ISP is also reduced. It is also true that when *C'* is offered instead of *C*, then point *F* moves to point *F'*, and point *G* moves to point *G'*. That is, the equilibrium monitoring contract for a low cost ISP also becomes less attractive. Will such movements ever result in an offer (*C'*, *G'*) such that the high cost ISP takes contract *C'* and the low cost ISP takes contract *G'*? The answer is unambiguously yes, such a contract pair does exist. The reason why is that at the extreme, we would get *C'* located at point *A*, and *G'* located at point *B*. This is the case of the copyright collective not

offering any contracts at all. And in such a case we know (by assumption) that the low cost ISP certainly prefers to accept point *B* over point *A*. Thus, by continuity, there must exist some intermediate pair for which the low cost ISP is indifferent between the contract designed for him and the contract designed for the high cost ISP (see figure 9).

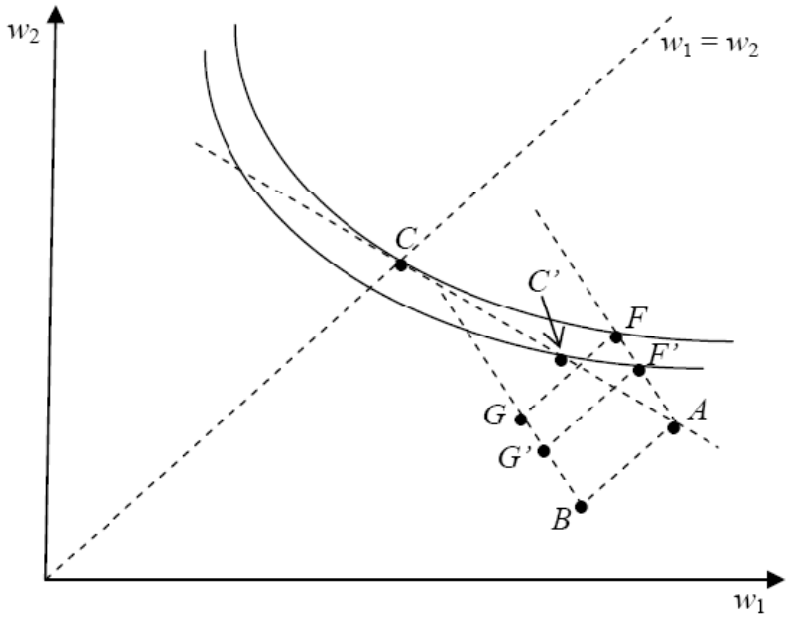

Figure 8

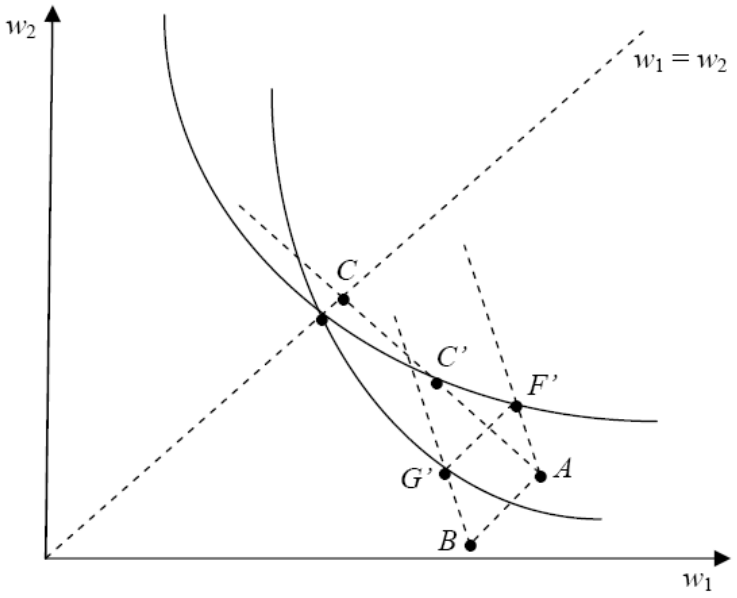

Figure 9

3. CONCLUSIONS

This paper explores a model of contracts between copyright holders and ISPs as copyright users. ISPs are firms that host the websites of other firms, and they can be found liable for the copyright infringing activities that may take place on the websites they host. An ISP may mitigate the risk of infringing activities on the hosted websites by engaging in monitoring activities that are costly to the ISP. Undertaking monitoring is a clear example of "self-protection" against the risk of indirect liability. The situation of an ISP exactly mimics a situation of risk bearing with the possibility of self-protection, and that analogy is used in the current paper to then study the types of contracts that might be written that can insure the ISP against the risk it faces.

Assuming that monitoring activities are non-observable for copyright holders, there is a clear aspect of moral hazard present. On top of that, it may or may not be true that the threat of indirect liability is sufficient for an ISP to undertake monitoring, but even if it is sufficient for one ISP, it may not be for another. That is, there is likely to be more than one "type" of ISP, differentiated by their ability to monitor. This is an aspect of adverse selection.

This paper explores the possible contracts that may be signed between an ISP and the copyright holders (acting via a copyright collective) such that the contracts solve, simultaneously, both the adverse selection and the moral hazard problems, that is, contracts that are simultaneously self-selecting and incentive compatible. We find that such contracts do exist. As a general rule, in the equilibrium, low cost ISPs will have a contract that demands monitoring. The level of indirect liability in the contract will be less than the level of indirect liability in absence of contracts. On the other hand, high cost ISPs will have a contract that insulates them to a much larger degree from indirect liability, but at a higher initial cost. In essence, the contracts in question are a mechanism under which the copyright holders can insure, either partially or fully, the ISPs against the threat of indirect liability.

The copyright collective will consider firstly offering a full coverage contract at a high premium in order to attract high cost ISPs. Such a contract would involve no monitoring, and would make an ISP that accepts it immune to indirect liability. Then there are basically two types of scenario. Firstly, assume the low cost ISP would prefer to reject the full coverage contract, that is, the low cost ISP can obtain a higher utility by monitoring and not contracting at all with the copyright holders than by accepting the full immunity contract. In this case, it will be possible for the copyright holders to offer a partial coverage contract at a low premium and that demands monitoring that would be accepted by the low cost ISPs, and rejected by the high cost ISPs. Thus, in this case, we get a fully self-selecting equilibrium in which the high cost ISPs choose the full coverage contract and do not monitor, while the low cost ISPs choose the partial coverage contract and do undertake monitoring.

The second case occurs when the low cost ISPs would prefer to accept the full coverage contract to monitoring and not contracting with the copyright holders. In this case, again we can always construct a partial coverage contract for the low cost ISPs such that the high cost ISPs would always be willing to accept the full coverage contract with no monitoring instead of the partial coverage contract with monitoring. But it is not clear that the low cost ISP would prefer the partial coverage contract. If it does, then again we have a self-selecting and incentive compatible equilibrium. On the other hand, if the low cost ISP does prefer the full coverage contract to the partial coverage one, then one option is that we can have a pooling equilibrium at the full coverage contract, such that all ISPs accept this contract and none of them undertakes monitoring. Alternatively, if self-selection is required, then the full coverage contract can be worsened in terms of adding risk without reducing expected value. This also implies that the partial coverage contract must be worsened, but in the end a self-selecting and incentive compatible equilibrium can be found in which the high cost ISPs have a contract with no monitoring (but it is now a partial coverage contract), and the low cost ISPs have a contract with monitoring (also a partial coverage contract, but with less coverage than the high cost ISP contract). This equilibrium reduces the utility of both types of ISP, but achieves the result that some of them (the low cost ones) do undertake monitoring. This would only be worthwhile, i.e. it would only be the socially efficient equilibrium if the externality spill-over for copyright holders from low cost ISPs monitoring activities is high enough.

One general result that appears in this paper, and that may have some implication for the way the current laws are interpreted, is that fact that although the low cost ISP can be given the correct incentive to monitor, the act of monitoring (to the best of the ability of that ISP) will not imply full immunity from indirect liability, only a reduced level of liability. Full immunity only occurs for high cost ISPs, and in the cases in which the full coverage contract is offered. In contrast to this, currently (that is, without any insurance type contracting between ISPs and copyright holders) an ISP may be able to successfully defend against a claim of indirect liability if it can successfully prove that it did in fact undertake all of the monitoring activities that it was able to undertake (that is, actually carrying out the monitoring is not sufficient, but rather monitoring to the best of one's ability would need to be proved, which may be difficult since monitoring is by assumption here an act that is not observed by third parties). If, on the other hand, the ISP contracts with the copyright holders under a partial coverage contract then there would be no need to prove monitoring at all, but the liability remedy that can be sought will be reduced.

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