Economic Insight

Issue 12
30.10.08

Prepared by Will Page,
Chief Economist MCPS-PRS Alliance

Shadow pricing P2P's economic impact

Towards a responsible market solution for a broken supply chain

David Touve is presently a PhD student at Vanderbilt University, within the Owen Graduate School of Management. He previously founded, or held management positions within, a series of start-ups acquired by the likes of Lycos, Sony and AOL. He learned about music rights the hard way, experimenting with subscription-based and ad-revenue supported music services back when the web was still considered a 1.0 version.

Keith McMahon is a Senior Analyst at boutique analyst and consulting company, STL Partners, creators of the Telco 2.0™ Initiative. His work focuses on analysis of business model innovation in the digital economy, specialising around the relationship between content and distribution networks. . A co author of the research on Future Broadband Business Models, 2-Sided Business Models, and Voice & Messaging 2.0. He previously held senior technology and strategy positions in the Telcoms industry around the world working for companies such as Cable & Wireless, America Movil, Wiltel & Accenture.

On the eve of the deadline for submissions to BERR's P2P consultation, and more than a decade after file-sharing applications appeared on networks, the supply chain engaging network providers, technology developers and musical copyright owners remains broken, with few signs of self-healing. Here, three authors representing the three disparate camps decided to 'knock heads together' to encourage the parties involved to knock heads as well and co-produce a solution that might satisfy all corners. The authors converged upon the "Coase Theorem," a now classic economic approach for considering market problems muddled with reciprocal impacts, for which Coase would later receive a Nobel Prize. What follows provides the reader with an economic framework, contextualising both the problem and the solution as a catalyst for commercial discussions.

Prelude to a problem

An example of such a muddled market involves an oil refinery dumping pollution into a lake. Given the pollution released by the refinery greatly reduces the yearly catch of fish, the fishermen who earn their living on the lake are negatively impacted. Our initial instinct might be to require the factory to cease dumping, or pay for the negative impact of this pollution upon the yearly catch. This instinct however, ignores the broader context. The refinery produces a product upon which even the fisherman rely - fuel. Coase's argument was that assigning legal liability without considering the reciprocal nature of social problems could result in undesirable economic outcomes. The factors of production were ultimately rights, and even the right to do something harmful is a factor to be considered - as crass as this consideration may seem. In fact, even if legal liability were not defined from the outset, as long as transaction costs are nil and property rights are clear, an efficient outcome can still be achieved. For example, the fishermen could be afforded property rights to the lake, and the right to pollute could then be sold to the refinery. Importantly however, Coase argued such welfare-maximising outcomes required careful consideration for "the value of what is obtained as well as the value of what is sacrificed to obtain it. "

Neighbourly problems

In 1960, Ronald Coase (a graduate of the University of London) published a conceptual paper titled, "The Problem of Social Cost". In this paper, for which Coase would later win a Nobel Prize in Economics, it was argued that a clear delineation of property rights, even in the absence of legal liability, could result in a solution through which the costs of externalities would be priced and exchanged.

In Coase's example, a farmer and a rancher live in adjacent properties. The cattle owned by the rancher have a tendency to roam (as cattle will) beyond the legal boundaries of the rancher's land. As a result, these cattle damage the crops of the neighbouring farmer. Coase argued whether or not the rancher can be held legally liable for the damage done by his cattle. A reasonable and "efficient" solution could emerge - such as the construction of a fence that would keep the cattle off the farmer's land - as long as everyone agreed the cattle belonged to the ranchers, the crops belonged to the farmer, and each was the owner of her own land. Resolution would be based upon whether the economic value of each cattle that might roam was worth more than the damage each bumbling bovine might inflict upon the farmer's crops.

Our challenge is a little more complicated and involves music files, computer networks, gadgets and the parties responsible. Music files are like free-range cattle that have been granted a great deal of room to roam across a wide range of ISP properties. These bumbling bovines however, do very little damage to the neighbouring properties - the real cost of transmitting music files on ISP networks is negligible. And our farmers have figured out they can make money by simply milking the cattle that roam. And as the cattle reproduce, their total market value only increases. As such, in nominal terms, the neighbouring farmers seem better off when the cattle are left to freely move about.

Unfortunately, when the bovines return to the rancher's land, a great proportion of the value of these cattle - their milk - is gone. It seems the rancher can only hope to make money by restraining the cattle to her own land. Restraining the cattle however, whether or not a feasible solution, is now a choice that in turn affects the neighbouring farmers who have shifted their incomes from growing crops to milking cattle. In truth, the cattle may now be worth more to this economic system if they are able to roam freely.

Meet the neighbours

Within the following section, we will resist the temptation to over-extend the bovine analogies and instead highlight the key players and conflicts involved within the supply chain that comprises the provision of music on modern networks. We consider each of these parties involved to be media providers, of some sort.

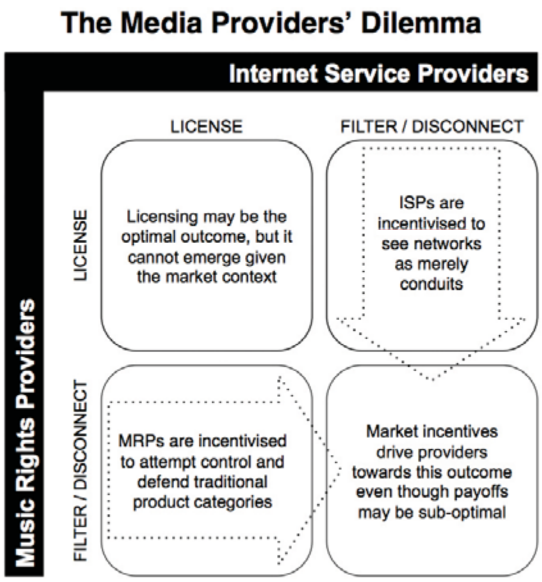
Internet Service Providers (ISP) - Entities that provide network services, whether fixed-line or mobile. By way of these networks, music can be delivered to end-users as downloaded files or streaming services. Fixed-line ISPs currently have no expressed control over end-user choices for the acquisition and access to music. Mobile ISPs tend to exert more control over their networks, limiting the range of end-user choice regarding access to music on the network.

Music Service Providers (MSP) - Entities providing music to the general public. Music might be provided by way of digital downloads, subscription services, internet radio, or otherwise. MSPs come in two flavours, licensed and not licensed. Licensed MSPs pay copyright fees for their use of music either to royalty-collection societies, or directly to music rights holders. MSPs that are not licensed are somehow involved in the provision of music, yet do not pay copyright holders for the rights required to provide such services. Unlicensed MSPs have a clear cost advantage over licensed MSPs. It is believed that the presence of unlicensed MSPs stifles innovation in MSP space. MSPs of both kinds can operate across national borders.

Music Rights Providers (MRP) - In the UK, two non-profit entities represent specific music rights on a collective basis. MCPS-PRS-Alliance collects and distributes fees on behalf of music publishers, songwriters and composers for both the performing rights assigned to musical works (as with broadcasting) and the reproduction rights of those works (as with a Compact Disc). PPL collects and distributes fees on behalf of sound recording owners and performing artists based upon the performing rights assigned to sound recordings. Alternatively, record companies, publishers, and independent artists and composers/songwriters can represent their various rights through a direct licence basis for the various uses of music.

The media providers' dilemma

Albert Tucker, while preparing for a lecture at Stanford University, developed what has now become a classic example for intuitively understanding the challenges that underlie mathematical theories of games - the prisoner's dilemma. In this dilemma, two prisoners are sequestered upon detention and each is offered the chance to either confess to their crimes, or remain silent. Neither prisoner can speak to the other regarding their decision. Given the possible outcomes as defined, the prisoners chose an outcome that is less than ideal - both prisoners confess even though by not confessing each prisoner might have gone free.



Media providers face a dilemma involving entertaining bits - the digitised units of social, cultural and economic value that are musical works and recordings. One set of prisoners to this dilemma would be those organisations and individuals that create entertaining bits - musicians, songwriters, publishers and record labels. The other set of prisoners to this dilemma is those organisations and individuals that make the transmission of bits plausible.

Given the present structure of the marketplace, those involved have few, if any, alternatives. Constituents in the media providers' dilemma have proposed a solution: attempt to discourage or eliminate altogether - through technological designs or legal action - certain undesirable activities. Essentially, filter unlicensed content or disconnect those internet users who continue to trade in unlicensed content, disregarding repeated warnings. We argue that these proposals, by avoiding the shadows altogether, may lead to a sub-optimal outcome.

Mindsets and incentives may presently drive media providers towards a sub-optimal outcome. MRPs are driven to protect their traditional conception of music products - sales of CDs and digital downloads. Yet degrading the value of network connections through content filtering and a policy of three strikes for naughty customers may not provide the most effective and efficient solution to the Media Providers' dilemma. Neither MRPs nor ISPs have clear assurances that these technical and legal actions will positively affect income. Digital files can be wrapped up quite easily in camouflaged packaging, through encryption. Those consumers intent upon sharing files will simply cloak these activities or move elsewhere. As a result, neither the music industry nor internet services industry would be able to capture the value of externalities. Furthermore, any actions taken against encrypted transmission could easily invoke concerns for civil liberties and free speech.

At risk for ISPs is the removal of Safe Harbour protections, the consequences of which could be a large pile of financial liabilities. And the removal of these protections comes at an additional economic cost - network connections are worth less when limitations are placed upon what these connections make possible. The true purpose of a network operator is to design, develop and/or maintain networks that connect computers together. The greater the constraints that are placed upon these networks, the greater the gatekeeping potential is placed in the networks' court.

At risk for MRPs and MSPs is the persistence of Safe Harbour protections, the consequences of which will be an ongoing struggle to "compete with free." In a blind listening test, a licensed and an unlicensed version of Beck's New Pollution sound identical - consumers are not going to be easily peeled away from free. And the persistence of these protections comes with additional economic costs - the costly search, cease and desist process of scrubbing networks with a mechanical rake and an umpire's whistle, as well as the consumer confusion over music purchases that come with strings attached. The purpose of those that produce musical recordings and develop music services should be providing the general public with compelling musical experiences.

The incentive structure under which media providers operate should be reconsidered and restructured. Currently, one could consider the incentive structure to be conducive to creating a commons - like unregulated fish stocks in the North Sea. Those who abuse, or exploit rather, the 'free lunch' of content on the internet most, can get the most. The flip side of this, for copyright holders, is that not only do these rights holders see nothing in the form of royalties, but a legal market cannot find its maximum potential. This instable outcome could be deemed a failure of the market, or markets. Shadow pricing and exchanging the market costs of externalities might provide a structure for realigning incentives. This form of 'light touch' regulation is a means to an end, as opposed to the end itself. If incentives can be realigned, then the current obstacles to coordination might be removed - and that's when the market can focus on solving its own problems.

Spillover effects

Spillover effects, or externalities, are proving far more important as we try to understand that increasing proportion of marketplaces built upon information goods and services. Contracts written by lawyers can be copy-pasted, with the relevant names changed, and applied to similar circumstances without fees. Internet connections can be shared, or the infrastructure piggy-backed, with the benefits gained by those connecting to these ad hoc networks not passing to the underlying provider. Musical recordings can be re-purposed as samples, providing the musical building blocks for new creative works.

Unfortunately, the long history of economic theory and practice confirms that markets with spillover effects have failed endings, as long as the nature of these spillover effects are ignored. The result of spillover effects is an unrelenting tournament for the buyers and producers of information goods and services.

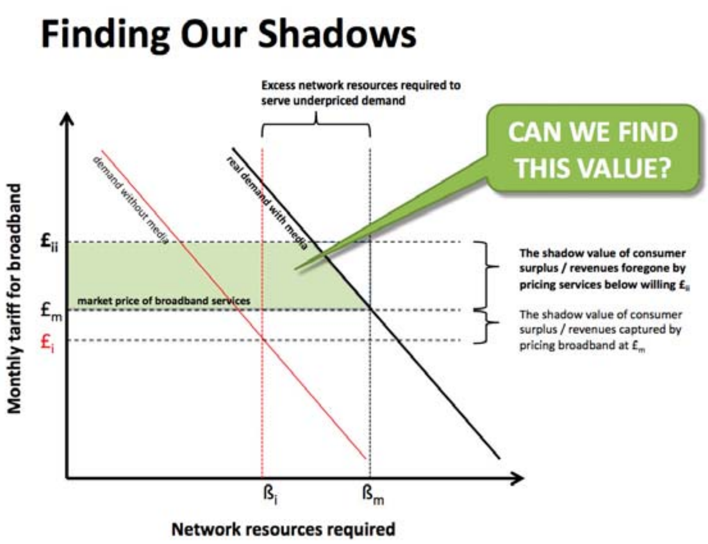
MRPs are aware of the spillover effects that result from the true lack of control over musical recordings. Music consumption and purchase are shifting online, away from the traditional venues of record stores and radio. Yet the rise in revenues of online distribution is not matching the fall in the revenues from traditional forms. All the while, the volume of unlicensed musical materials being transmitted through networks dwarfs that of licensed material. MRPs are asked to abandon certain business models related to the sale of recorded music, and abandoning these business models may be good for business in the long term. But compensation for the value of market spillovers will have to take place before these traditional ways of doing business can be foregone. Arguably, recorded music has value, leading people to spend their time searching for music files.

Last mile ISPs are incentivised to deliver unlicensed rather than licensed music. Neither legitimate nor illegitimate MSPs pay fees to last mile ISPs. Licensed music services, often coming at an additional price paid by the subscriber, might even lower the willing price for network connections (customers essentially pay twice to get music through the wires). Unlicensed media, coming at no additional cost to the subscriber, may raise the willing price for raw network connections (consumers pay once, getting access and music). Most importantly, by way of Safe Harbour provisions, ISPs do not presently hold responsibility for the actions of individuals that operate on their networks, as long as certain procedures are followed. However, if a system were developed that completely eradicated unlicensed media from networks, the impact might be a significant decrease in the willing price customers would pay for these connections.

Finding our shadows

One assumption underlying the less-than-desirable outcome of the classic prisoners' dilemma is that each individual involved actually knows the value of every possible outcome - even the outcomes of other prisoner. In reality - a human experience often overlooked by economists - media providers don't clearly see the outcomes within their own dilemma. The values of certain costs and benefits are hidden in shadows.
Shadow pricing is a simple concept that involves a very subtle attempt to highlight and price those costs and benefits not clearly apparent in the marketplace. What benefits might ISPs earn from their unintentional provision of music files to customers? What price might customers willingly pay, and how many more customers might willingly pay for a network connection that included reliable access to musical recordings without the risk of legal consequences? What benefit might ISPs gain from the right to distribute musical recordings in such a way as to lessen the appeal of file-sharing networks?

For economists, calculating a hypothetical price for obscure shadows is the stuff of legend and long weekends. For market participants, struggling to adapt to new technologies and the unexpected consumer demand that emerges from these technologies, a far better outcome is a context through which hypothetical shadows are surfaced and made into tangible things of value. Markets for the open exchange of carbon credits are one example of a market-based solution for pricing the otherwise shadowy costs of pollution. The market for emissions credits, however, could only function once agreements were put in place that surfaced these shadows.



For both ISPs and MRPs, the direct costs and benefits of file-sharing activity are not zero and the value of opportunities foregone may be greater still. For ISPs, there is a cost to this traffic. The network costs for files shared by the average user may be small, but the cost of the resources for all users - including those most actively involved with media distribution - can be significant.

Moreover, fixing the broken supply chain between content and connectivity provides more reasons to invest – that's an important and often-overlooked consideration for what is one of the most recognised constituents of Britain's 'creative industries', at home and abroad. Not only does the market become more buoyant, due to less leakage and more reward, but it also becomes more diverse – as those songwriters, publishers, artists and record labels currently contemplating leaving the industry choose to stay, whilst more parties – be they rights holders or rights users - outside of the industry choose to enter.

The benefit to the ISP and the MRP would be the consumer's true willingness to (i) enter into a contract for access and (ii) pay for the opportunities made possible by way of this access. If the consumer were not able to access so much content freely, how much lower would the willing price for network services be? Shadow pricing can surface these finer bargaining points to find value that has been lost.

We fear the parties involved might be ignoring the solution that could emerge from recognising and valuing the reciprocal nature of this economic puzzle. What might the value of musical files be worth to the general public when those files can move freely about ISP networks, and is this value comparable - if not greater than - the value of that same media sold and distributed through more traditional means? Is there a way to incorporate ISPs into the value chain of music services and distribution, such that MSPs might add greater value to the musical experiences of consumers and ISPs might appropriately participate in this value? If music were seen as a platform, upon which a number of compelling products, services and experiences can be built, how might the parties involved discover and exchange this value?

Real options, in need of appraisal going forward

So where do we go from here? The options presently being considered by the market actors appear to be: do nothing, litigate, levy, or licence.

Do nothing. Let's be clear that this option does not actually mean 'nothing' - rather it is a choice to ignore the externalities in play, and these negative externalities will become more pronounced, over time.

Litigate / Prohibition. A catch-all phrase covering letter writing, bandwidth throttling and legal action against those who upload and download files. Whilst understandable as a choice given the current coordination problems, there is little evidence suggesting the costly process of pushing down on the black market will indeed raise up the demand for the licensed market for music. Furthermore, there exists the real risk of a 'Whack-A-Mole' game - persistent reappearance of unlicensed sources for music upon the closure of any source.

Levy. A choice that can be captured with the overly simplistic statement, "Just stick £2 on everyone's monthly broadband bill and everything will be alright." When the impact of such a proposal is considered in more detail, more questions than answers are raised, for example, what would be the impact to the 'market for innovation' in selling digital music? Furthermore, what might be the extent of displacement?

Licence. This approach can be summarised by a populist statement of, "Allow the kids to do what they want, just make sure the creators and performers get paid." Whilst admirable in its approach, and ultimately reflecting the stance of many observers since P2P technologies first arrived on the music scene a decade ago, there are serious considerations in terms of 'how' such licensing schemes need to be designed, along with the unintended consequences of displacement and how licensing the anarchy of peer-based distribution might impact upon existing MSP models - such as iTunes.

The question of 'how', when raised in the past, arguably contributed to the solution that became blanket licensing, the historical response of rights collecting societies to technologies that exploited the true lack of control over creative products - e.g., mechanical reels, radio and television. Furthermore, the recent Radiohead experience, as presented in Garland and Page's paper In Rainbows on Torrents, has shown us how many of the questions currently being asked vastly underestimate the complex relationships among legitimate and pirate markets.

Afterthoughts

There are those who are unsure over their preference for any of the options available - do nothing, litigate, levy or license - particularly as the debate over the impact of P2P in the UK gathers greater publicity, increasing the stakes apparent. We have provided two concepts - Game Theory and Coase's Theorem - for contextualising both the problem and the solution. Game Theory highlights how incentives can lead market actors away from their optimal outcomes. Coase's Theorem informs the means for not only analysing, but also designing solutions that might surface the shadow price of externalities.

We have written this document knowing that the conditions of contentious liabilities, unclear knowledge and complex spillover effects are stalling the discovery of a deal - a deal that might balance the objective for free markets with an awareness of the consequences. Ideally, market incentives would be aligned such that a virtuous cycle of stabilised economic exchange among the participants would be encouraged, rather than stifled, or in the worst case, ignored.

Admittedly, both concepts - externalities and incentives - lean toward the establishment of 'market failure,' which itself could be the most bitter of pills for all market participants to swallow.