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This is a pre print version of the following article:

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/138034> since

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Intellectual Property Rights or Liability Rules: How Do We Tackle Copyright Infringement in the Music Market ? Insights from Experimental Data ^{**}

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Abstract: The strategy of suing consumers for copyright infringement when they illegally download music adopted by major recording companies is premised on the assumption that actual suit raises the price of downloading and dissuades use of downloads in favor of legal CDs. This experiment suggests that this assumption is questionable since a market for downloaded and copied music exists despite the fact that it is costless to copy, absent the prohibitions of copyright law. Consumers are willing to pay a non-zero price for a downloaded or copied music file, a price in general quite a bit below their willingness to pay for a CD, but quite a bit more than what would be expected for a product that can be obtained at zero cost. To prove this, we asked our participants their *wtp* for original and burned CDs using hypothetical as well as real choices. We compare our results with the usual market pricing and we explore infringing behaviors in order to verify if an increase in lawsuits is effective in reducing infringing activities and raising legal demand. From a policy perspective, our experimental findings seem to suggest that a change in the firms' pricing policy which allow for a different and more affordable pricing strategy could partially eliminate the crowding-out part of illegal consumption, since consumers do not perceive downloaded/burned music files as cost-free, while maintaining positive profits. Our experimental results imply a more cautious treatment of copyright infringement by courts and legislators in the name of social welfare.

JEL Classification: C91, K42, O34, D10, L82

Keywords: consumer behavior, illegal behavior and law enforcement, intellectual property, copyright, law infringements, download

^{**} The authors are grateful to Mark Blaug, Paul David, Brownyn Hall, Stan Liebowitz, Mike Scherer, Francesco Silva, Ruth Towse and Richard Watt for their helpful comments and suggestions. We must also thank the members of JEL for the considerable effort in setting up and running experiments, and Paolo Davico Bonino and Marco Ricolfi for the legal advice on how to carry all this out without infringing the Italian copyright law. The usual disclaimer applies. This paper was supported by the MIUR research grant on "The Governance of Intellectual Property".

1. Introduction

The strategy of suing consumers directly for copyright infringement when they illegally download music widely adopted by major recording companies is premised on the assumption that actual suit raises the price of downloading and dissuades use of downloads in favour of legal CD's. The experiments presented in this article suggest that this assumption is questionable. The article suggests that a market for downloaded and copied music exists despite the fact that it is costless to copy, absent the prohibitions of copyright law. Consumers are willing to pay a non-zero price for a downloaded or copied music file; such price is generally quite below their willingness to pay for a CD, but significantly higher than what would be expected for a product that can be obtained at zero cost.

Accordingly, two implications follow. First, suing consumers of downloaded or copied music may not result in switching to the market for CD's. Since there is quite a gap between the willingness to pay for CD's and the willingness to pay for copied music, raising the cost of the latter may result in individuals simply not buying any music and switching to the consumption of music in other forms, such as through broadcast or through live performances, or not consuming at all. Second, suing consumers - or suing peer to peer services for secondary liability - may be welfare reducing by eliminating a potential market for the distribution of music. The litigation strategy of recording companies rests on an incorrect assumption and may be economically harmful. Moreover, it reflects misconceptions about copyright law. Although often understood in terms of protecting property by creating limited rights of exclusion, copyright can fruitfully be understood more as a means of regulating and structuring markets for information and expression. The experiments conducted here help us to understand how to interpret copyright law as a tool to regulate markets through the use of what Calabresi and Melamed (1972) called "liability rules" rather than "property rules." By contrast, the current strategy of increasingly suing consumers is based on the assumption that copyright should best be protected by property rules, without paying attention to the increase of transaction costs and the overall effect in terms of economic welfare.

Our work helps in identifying how markets for CDs and downloads can be understood as trade in rights of access as defined by copyright law starting from consumer behavior. Once the relationship between market, rights and copyright law are understood, important policy implications emerge for copyright reform.

The paper is structured as follows: section 2 introduces the argument focusing on the previous literature and the new strategy adopted by firms i.e., suing consumers. Section 3 discusses the copyright rationale focusing on its role in markets and its juridical interpretation which lies between the property and liability paradigm. Section 4 introduces the aim of the experiments and describes the experimental design. Section 5 presents results and preliminary considerations, while section 6 focuses on policy insights. Finally section 7 contains our conclusions.

2. Consumers, copyright and legal suits

The economic analysis of copyright has mainly been focused on welfare matters by considering, on the one hand, consumption efficiency, as copyright restricts demand and thus decreases consumer surplus, and, on the other hand, production efficiency, as in the absence of revenues, creators would be expected to produce a sub-optimal level of new information goods¹. The latter is related to the general problem regarding the production of public goods, well known in economic literature.

¹ The latter is the so-called utilitarian or benthamian theory of the 'incentive to create'. For a general survey on intellectual property rights and incentives see Ramello, (2005).

Consumer behavior has generally been treated as fixed, paying no attention to consumer choice in response to incentives. For instance, Novos and Waldman (1984) studying the impact of an increased copyright protection simply assume that consumers always buy the copyrighted good, whether legal or copied; thus they just avoid the more problematic but crucial option that consumers have i.e., ‘not to consume’, which similarly represents a noteworthy choice for individuals and for firms in economic analysis. It is consequent to note that the above simplification might lead to incorrect conclusions and policy implications.

Only a limited number of papers pay attention directly to consumers, underlining the crucial role of their behaviors in the shaping markets. In particular, Conner and Rumelt (1991), Takeyama (1994) and Shy and Thisse (1999) show that sometimes the utility of every consumer of specific copyrighted goods is increasing in the total number of users, what is usually termed as ‘network effects’. In such a case, under certain conditions, copying can have a positive effect both on consumers and producers. Although this powerful intuition is mainly referred to in the software domain, which for its specificity of dematerialized technology can be represented as a network and clearly refers to the advantages of compatibility among users, a similar reasoning can be re-framed for other copyrighted goods, such as premium contents – e.g., movies, sport events, etc. - for television (Boardman and Hargreaves-Heap, 1999).

Liebowitz (1985; 2003) observes an ‘exposure effect’ essentially describing that the familiarity with which certain information goods are copied can eventually determine their subsequent purchase. The central idea here is that copies can sometimes play the role of informative advertising, thus helping consumers to match the utility maximizing legal products.

Similarly, but with a significant difference, Silva and Ramello (2000) argue that, in the music market, a sort of ‘addiction effect’ exists and, subsequently, in an inter-temporal perspective, low-valuation consumers can become high-valuation consumers thanks to the previous consumption of copies. In other words, the current consumption of copies can determine future purchases.

In both the cases, the phenomena can be welfare enhancing if they prevail on the substitution effects, i.e. the shift of legal demand to copied products. This underlines the importance of a better understanding of consumer behavior, which becomes crucial for the economic evaluation and policy.

Despite the above observations, however the general assumption still remains that copying behavior is just a side effect of the legal market due to the possibilities of copying brought about by technology, the willingness to save money by consumers and a weak legal enforcement.

Here, hence, we can find the roots for the strategy adopted by firms that suing music downloaders can save the market and increase legal demand and firms’ profits (IFPI, 2004). The starting point for the implementation of that strategy has been offered by the Napster case which brought for the first time to public opinion the concern regarding music downloading/copying and consumer liability². At that time only the Napster company was sued for vicarious and contributory copyright infringement. Nevertheless, the die was cast and very soon consumers became the focal point of legal actions brought about by recording companies.

Since then, the Recording Industry Association of America (RIAA) sued more than 3.400 people for copyright infringement, mainly downloaders using file-sharing systems. Afterwards the strategy was soon exported over the US boundaries as similar lawsuits were filed in Canada and in European countries by the recording industry associations (Find Law, 2004; Hines, 2004).

Currently, although no empirical evidence supports this thesis, firms assume that music downloading/copying is just the consequence of consumer willingness to save money and of a weak law enforcement. In reality, as we shall see, the picture seems to be more complex and consumption attitudes are really the focus of the problem. The experimental data can help the observer to sketch out a more complete figure.

² A&M Records, Inc. v. Napster, Inc., 114 F. Supp. 2d 896 (N.D. Cal. 2000); A&M Records, Inc. v. Napster, Inc., US Court of Appeals (9th Circ., 2001).

3. Copyright rationale and the legal entitlement nature

Copyright law should resolve an externality that exists with information. Absent encryption or some other technological protection, information can be copied and disseminated at minimal cost once the piece of information is first made public. The problem here enounced sends back to the general problem of financing the production of a public good (Ghosh, 2001; Ramello, 2005). Copyright law addresses this problem by giving the creator of information the entitlement to be paid for her/his creative work and to control its dissemination once it has been created. This solution is in line with the Coasean prescriptions on property rights, though in the case of information markets, however, the proper scope of rights is at issue.

It is fruitful to see how, given and relating to the technology, copyright structures the market for information by defining the rights implicit in the commodities traded in these markets. Most of domestic copyright law calibrates the right to control based on the nature of the information with the result that information in the form of facts or non-creative works is not protected by copyright because society values free dissemination of these types of information. All copyright systems recognize in general four rights: the right to copy, the right to make derivative works, the right to distribute, and the right to perform. In the typical sale of a CD, the seller of the CD transfers a set of rights to the buyer. These rights include: the right to resell, the right to make private performance, the right to make copies for limited personal use, and the right to make parodies. These rights are enforced not only through copyright law, which vests these rights in the copyright owner, but also through technological means that prevent unauthorized copying or other forms of distribution (Ghosh, 2001).

It is easy to note that the described legal framework has been mainly designed for a given technological one. As technology is changing and new consumption/exploitation paradigms emerge, the previous balance is not necessarily still efficient and the right is not further easily enforceable. In other words, the willingness to preserve in the same way the original entitlement can not warrant the same equilibrium. By contrast, persevering in keeping all steady in a changing scenario can significantly increase the social costs of legal enforcement and can negatively affect the economic welfare. This, it will be further discussed, seems to be the case of lawsuits against a multitude of consumers downloading music files, which reveals the generalized attitude to enforce the property right at every cost.

A different solution is offered by looking at the copyright through the Calabresi and Melamed's lenses (1972), considering thus in a more expanded way the entitlement given by copyright law. The paradigm built by the two scholars, which brings interesting consequences both from a positive and normative point of view, seems to offer the way to disentangle the dilemma copyright versus right holders, by considering two different forms of warranting the original right by means of property rules vis-à-vis liability rules³.

According to Calabresi and Melamed (1972) a property rule confers the holder the right to exclude other individuals from consuming or using a good along with the power of alienating it at a chosen price. Thus a property rule prevents any non-consensual transfers of the right. By contrast, a liability rule permits non-holders to use the entitlement, even without the consent of the right holder, should it be the case by paying a price decided by the court or the legislator. In other words, the right holder retains a residual right to obtain possibly an ex-post payment without the right to exclusively control the entitlement any longer. In other words, the former inhibits any taking without the right holder's consent while the latter can just impose a duty to compensate the entitlement infringement if required.

Both the systems recognize the property right - that is to say the entitlement - though acting in a different way. The preference to a property rule regime should be accorded when transaction costs

³ The scholars also discuss a third form of property protection through 'inalienability rules' not relevant for the present discussion.

associated to the legal protection are low, while a liability rule regime should be favored when transaction costs associated to legal protection are high.

In general transaction costs are low when parties are few, easily identifiable and prone to bargain. Now, it is pretty trivial to see that in the case concerning music consumption, parties are a crowd, perhaps easily identifiable in the case of downloading though not in the case of private copying among friends and bargaining with everyone is pretty impossible.

Hence the enforcement of copyright as a property rule, according to the Calabresi-Melamed paradigm, appears neither to be effective nor to pursue economic efficiency. In other words, the cost of enforcing a property rule regime appears to be higher than benefit, and however, far from reaching any effectiveness due the market structure. These remarks will be useful to discuss the main findings of the experiments.

4. The experiment

The actual enforcement of copyright law has to face the following problem: internet downloading and copying have increased considerably in many countries. The consequence is that, every day, it has become more difficult to enforce copyright law without inhibiting the use of potential emerging new markets. By getting micro-data on consumers' behaviors in the music market we hope to reach a better understanding of the possible motivations underlying the choice of copyright infringement. This understanding is crucial if we want to tackle piracy in an efficient way. However, getting these micro data it is not an easy task, since piracy is an illegal behavior. Hence, we decided to run a series of experiments in spite of the fact that we were aware that, in order not to break the law, we could run into some methodological problems.³

4.1 Purpose of the experiments

The economic analysis of copyright infringement is usually based on the assumption that the marginal cost of a burned CD is approximately zero (or at most equal to the cost of a blank CD); it follows that, without the enforcement of a property right law, the legal market will tend to disappear. In presence of continuous violation of the property laws, the obvious answer has been to increase penalties and suing consumers. Since the music industry is an oligopoly, legal CDs are usually sold at a price which is higher than the competitive price⁴. As a consequence, we might expect the music industry to invest the difference between the oligopoly price and the competitive price in suing the consumers. Such a kind of behavior has obvious consequence in term of welfare, and in addition it might not be effective in reaching its purpose: the cost in term of society can be high and piracy can remain a pervasive phenomenon. However, if either a positive price exists that is significantly different from zero for burned CD, or if consumer motivation and behavior have explanations which cannot be framed in the usual concept of economic rationality, increasing the penalty for piracy may be not only a costly but also a useless policy.

³ We had two main methodological problems: first, we want to assure strong anonymity since subjects could be afraid that the information that was given to us by their behavior in terms of piracy could be given away. For the importance of anonymity for controlling the misconceptions in experiments see among the others C.Plott and K.Zeiler (2005) forthcoming in the American Economic Review. The second methodological problem was related to the fact that we could not break Italian legislation on copyright. Hence in the auction experiment where CDs were to be sold for real we did not copy them but bought via internet. However this information was not disclosed to our subjects. We had to chose whether to hide a piece of information to our subjects or violate the Italian Law.

⁴ The market structure of the music industry is essentially a vertical differentiated oligopoly with certain spaces – including the best selling products - close to monopoly and thus conferring significant market power to firms. For a detailed description see Silva and Ramello (2005).

Given this consideration we designed an experiment to elicit the consumer willingness to pay for a legal and a burned CD. Each experimental session was followed by the filling out a questionnaire which contained behavioral questions. In the next session the experiment is described in detail.

We want to underline that, in this particular case, choosing students as subjects' pool can be considered as choosing experts: students are in fact among those who most use internet downloading and burning CDs as substitutes of legal ones, according to the Napster case evidence and recent economic literature (Chiang and Assane, 2002).

4.2 Experimental design

We ran two experiments in a University in the North of Italy: in one we elicited the willingness to pay for CDs with hypothetical questions, in the other we tried to measure the real willingness to pay by using a Vickery auction.

In the first experiment, we directly asked the participants about their *wtp* for an authorized CD and an unauthorized one (*wtp* can be used as proxy of consumer demand)⁵. Subjects had to answer two hypothetical questions.⁶ To enhance anonymity, we used students who did not belong to our University. They did not know the experimenters and of course the *wtp* questions were anonymous. The participants in the experiment were presented with the following scenarios:

A

Suppose that you are given the opportunity of buying an original CD with your money. It is important to know that the CD is not sold to you for real but it is of utmost importance that you state your maximum willingness to pay for this CD as if this CD were to be sold for real here and now and you would have to pay for it with your own money.

B

*Suppose that you are given the opportunity of buying a burned CD with your money. It is important to know that the CD is not sold to you for real but it is of utmost importance that you state your maximum willingness to pay for this CD as if this CD were to be sold for real here and now and you would have to pay for it with your own money.*⁷

This question was followed by a list of prices which went from zero to 0 € to more than 24€ with increments of 0.5€ (See appendix)

Subjects had to write 'no' near all the numbers that they *were sure they were not willing to pay for* and 'yes' near all the ones that *they were sure they were willing to pay for*⁸.

Subjects had to state their willingness to pay for the original and the copy of the same CD.⁹

There was no incentive mechanism in monetary terms, but students were given a partial exemption from their examination paper in exchange for their participation¹⁰.

⁵ Before describing in detail how the experiment was organised and conducted, it is important to notice that when we speak about prices and individual *wtp* for a CD we refer to a specific category of products, the one concerning the so called *full-price* CDs, that is to say the upper price level CDs in the market Full-price CDs are in general new releases sold at the higher price. In Italy the price of these CDs usually falls in a 20-24 euro interval. It is worth noting that downloading and copying normally plagues this category of products (Silva and Ramello, 2000).

⁶ The order of the questions was random so to avoid any order effect.

⁷ In case of the copy, we did not use the word 'copied' or 'unauthorised' or 'illegal' or 'downloaded', but the more general form of 'burned', which includes different ways of obtaining an infringing CD but does not associate any specific judgement or moral assessment.

⁸ Using the list of prices is according to experimental literature a way of making a pricing task more similar to a choice task. Among the others C. Camerer (1995) and C. Starmer (2000) Subjects seem to respond better to a choice task than a pricing task in the sense that a choice task is cognitively easier than a price task. In any case, however, it is important to notice that the goods in question are well-known goods for youngsters.

⁹ We decided to compare the willingness to pay for an original "general" CD with the willingness to pay for a particular CD being worried that subjective preferences would interfere too much with the evaluation of just a specified CD.

¹⁰ For a discussion of the importance or non importance of monetary incentive we remind to Gneezy, U. and Rustichini, A. (2000) and Camerer and Hogarth (1999). Moreover we want to point out that for most of the Italian students one or two points waived on the final exam will count more than the usual flat payment of three or four euros.

In total one hundred and eight students took part in the first experiment.

The validity of hypothetical evaluations of willingness to pay has sometimes been questioned in literature because of the general lack of knowledge of the goods sold (Johannesson et al., 1998). However in these experiments, this problem is not crucial - and thus the validity of the method holds - mainly for two reasons: first, the considered goods are goods that are normally sold in the market and consumers know the market prices for these goods (we are not talking about states of health or pollution reduction as in the so-called contingent valuation); secondly, students are amongst the most frequent users of authorized as well as unauthorized music.

Moreover, we also ran a second experiment using a market institution and in particular a Vickrey auction, in which a burned and an original CD were sold by the experimenter to the subjects. We ran four sessions using the auction as elicitation mechanism. In each session participants had to answer two practice questions and two real ones: the practice questions were introduced to make the subject familiar to the auction mechanism. In each session we had fifteen participants, with a total of sixty students. To sell the two goods, we used a seal-bid-third-price auction. The winner of the auction had to buy the CDs on the spot and the price that he/she had to pay was the maximum *wtp* of the third-last bidder. Before starting the auction, each student had to write on a piece of paper three favorite CDs of their choice. This would give the experimenter a choice in case one of the CDs was not available. We supervised the experiments but the real transaction for the winners was done subsequently (just at the end of the experiment, by some student union members to preserve anonymity). The students in fact had to pay immediately an amount of money corresponding to the maximum *wtp* of the third-last bidder and in exchange they received a receipt. The Student Union members were given a few days to get the CDs which were then given to the winners of the auctions in exchange of the agreed price.

At the end of the two experiments, students had to fill in the same questionnaire, which contained questions on their behavior in terms of piracy. They were told that the filling out of the questionnaire was an integral part of the experiment and of the research project.

To summarize: we ran two experiments, one with hypothetical *wtp* and one with real choices (the auction). In total, we had 168 participants. They were all first students from a northern Italian University. However, while in the first experiment all participants were Law students, in the second experiment the majority were Law students, Business, Engineering and IT students¹¹.

As far as the final questionnaire is concerned, it was designed to investigate more general attitudes of the subjects that could help us explain the widespread existence of piracy.

In particular, we asked the following questions:

Do you consider copying a CD illegal?

Criminal ?¹²

Unethical ?

What is the price that you consider appropriate for a CD?

Do you buy the burned CDs or do you borrow them from your friends and do you burn them yourself?

Do you download files from internet and how many often?

Do you think that the probability of being caught while downloading or coping an illegal CD is not at all likely, a little likely, likely or very likely.

These sets of questions will allow us to investigate on one hand some sort of “moral” attitude of our subjects while conveying in the meanwhile information of their actual behavior in terms of copyright infringement. On the one hand, we thought that the answers to these questions could help

¹¹ It is important to notice that when speaking with the students in all the experiments we made it clear that we were always focusing on a CD in the highest category of prices, that is to say a full price CD. Nevertheless, we never mentioned a precise monetary value.

¹² We expressly used the word crime because this is the word that it is used in advertisements in Italy “Piracy is a crime”, even if the word crime in common language tends to mean the breaking of the law that leads to personal imprisonment rather than to the payment of a fine.

us understand the underlined social customs of the group and their subjective perception and opinion of the legal market and infringing activities, while, on the other hand, the question on the probability of being caught could convey us important information about the subjects' beliefs on the enforcement of the law.

Results of the experiment are given and interpreted in the next section.

5. Results and preliminary comments

The experimental data and results give helpful insights to the understanding and the interpretation of consumer behavior, at least from a qualitative point of view. Furthermore the experimental findings will be helpful in discussing the current strategy adopted by firms in order to tackle copyright infringement.

Table 1 presents mean, standard deviation and median of subjects' willingness to pay for a legal CD in both experiments. H symbolizes the potential wtp measured in the hypothetical experiment for a generic full-price CD. The four AU columns present the same results obtained from the four sessions of the auction.

(Insert Table 1 about here)

As can easily be observed, both the experiments are characterized by a high willingness to pay. The difference in the subjects' responses can possibly be ascribed to the difference between hypothetical and real choices. In the hypothetical experiment the mean of the wtp of the participants was, 17.039 euros. This value is always higher than the corresponding values in the auction market (ranging from 8.970 to 11.766 euros). The explanation is reasonably due to the fact that in the hypothetical experiment the CD was not really bought and thus the wtp was possibly not as constrained by the budget as in the real experiments where subjects truly bought the CD.

However, subjects' wtp is always significantly higher than zero but lower than the market price for a full price CD (in Italy between 20 and 24 euros). This might imply that, except for a small number of participants offering a price ranging around the market value (as the wtp is a mean); most of the subjects would not have bought a CD sold at full market price. If this is the case, then the commercial strategy to sell CDs at a full price level will reasonably lead several consumers not to buy. This assertion seems to be confirmed by the recent decrease of CD sales in Italy (and elsewhere).

The same statistics are shown in Table 2 for copied CDs.

(Insert Table 2 about here)

Also in this case consumers are willing to pay a price significantly higher than zero, since in the hypothetical experiment the wtp measures 5.527, while in the auction results are ranging from 3.600 to 4.366. It is worth noting that once again differences in the figures can be ascribed to the different method used, as in the hypothetical experiment subjects have no budget constraint.

However, the standard assumption that consumers prefer downloaded/burned CDs because they are free, that is to say offered at a zero price, is not true. This assertion is contradicted by the empirical outcomes which show instead that a positive and significantly higher than zero wtp exists even for these CDs.

In Table 3 we summarize per experiment the information related to subjects' perceived time employed and costs of downloading and burning a CD. In other words, we tried to catch with these measures, at least from a qualitative perspective, the subjects' opportunity cost of producing a copied CD. Our results seem to give support to the claim that downloading and copying are not perceived as a zero cost activity by our subjects since respondents assert to spend money (2.627

euros in the hypothetical experiment and 4.32 euros in the auction) and time in doing these activities.

(Insert Table 3 about here)

From the comparison of Table “2 and 3 we can say that these costs are somewhat close to the *wtp* for a copied full-price CD (values are very close) and thus reinforcing the previous calculated values. The higher standard deviation in time employed can be easily explained by the different technical skills of respondents¹³.

Table 4 presents the answers of our subjects concerning the probability of being caught in case of copyright infringing activities. Some of our participants –36,7% of auction subjects and 20.6 % in the hypothetical – think that it is *not at all likely* to be caught infringing the copyright law. In both experiments no one thinks that it is very likely to be caught This observation hence seems to corroborate the judicial strategy adopted by majors, as strengthening copyright enforcement should raise the probability of being caught and consequently lower illegal consumptions.

(Insert Table 4 about here)

Table 5 summarizes per experiment results coming from answering the remaining questions on the moral attitudes by subjects. These findings are in line with what found in other recent surveys (IFPI, 2004).

(Insert Table 5 about here)

The first column shows that a considerable percentage of respondents do perceive downloading/copying as an illegal activity (*H*: 64.5 %; *AU*: 66.4 %). However, a high percentage of subjects (around one third in both experiments) who do not perceive as illegal the activity of copying/downloading a CD exists. In addition, the majority of subjects do not think that these are criminal activities, despite the massive campaigns promoted by the domestic recording industry association (and other firms/associations in related fields like movies, software, etc.), which, as previously stated, are mainly devoted to making consumers feel conscious about breaking the law and criminal. The explanation of this perception is somewhat puzzling and requires further research. However, these campaigns do not work - and thus represent a waste of resources - or it is not so easy to manipulate consumer perception in this domain. The same happens when asked if these activities are unethical. Almost 67 % or more in all the experiments do not perceive downloading/copying as unethical. These feelings seem to be correlated by the quasi-universal perception (more than 98 % of subjects) that the market price – that is to say the full-price level – is too high.

(Insert Table 6 about here)

Table 6 shows the answer to the question “*What is the price that you consider appropriate for a CD?*” As we can see the appropriate price approximately 11 euros for the subjects in the auction experiment and 12, 30 for the ones in the hypothetical one. These data might help to interpret the data contained in Table 5. Also you might consider evading taxes an option when you perceive the fiscal system unfair and therefore you might not perceive that piracy is an illegal act if you consider the price for a CD too high.

(Insert Figure 1 about here)

¹³ IT students might be more familiar with the use of computers and internet for example.

Finally Figure 1 shows the percentage of subjects downloading music from CDs borrowed from friends. In both cases more than half of the respondents are involved in both the infringing activities. However, copying CDs from friends' is still the most widespread way. This remark will be useful in discussing the legal reaction of firms. If the copy of a CD is mainly done for personal use then there is very little trade of burned CDs thus a policy that increases fines for copying is very likely not to achieve its purpose.

6. Discussion

From the previous empirical results and data we can grasp at least two different general results: first, consumers are willing to pay positive prices for legal - and even for copied - CDs. These prices are significantly higher than the marginal-average costs, in general roughly represented by the cost of a blank CD (let's assume it for sake of simplicity 1 euro). Accordingly firms could fix a price lower than the full-price, but still higher than costs and thus permitting positive profits. This new price, if carefully chosen, could increase the legal market and decrease downloading and/or copying. It is in fact worth noting that several consumers do not buy legal products at current market price and prefer to download and/or copy. Nonetheless they will presumably become legal buyers at a lower market price. This suggestion seems to be taken recently into account by a major recording company who decided to appreciably lower the wholesale prices for a number of products (CNN, 2003).

However, this case apart, someone could wonder why major recording labels are generally still pricing most of their CDs at a full-price level. The answer is easy to be found by recalling the usual firm strategy: majors decide *ex-ante* when a release will be full price and because the demand is somewhat unpredictable, they assume for every product sold in this price category - the most of their catalogue - the same expected demand; accordingly, they fix the same price (Silva and Ramello, 2000)¹⁴. Nevertheless, this pricing approach is dangerous as it represents an extreme way of applying the *ceteris paribus* condition: it is in fact apparent that new releases are not necessarily perceived by consumers in the same way as best selling products, and even if this were the case preferences can change as income, expectations, technology change and so forth. Consequently, the previous pricing that perhaps once could work probably does not fit today's market any longer. This observation supports the claims of scholars demanding new business models (Romer, 2002).

The change of *wtp* seems to be equally testified by the dramatic increase of CD sales from Internet retailers that are significantly less expensive than traditional retail channels.

If we move to the other findings, additional remarks emerge. On one hand, we have that the probability of being caught in the today juridical framework is perceived significantly as low, sometimes close to zero. Therefore, as previously shown and coherently with results coming from different sources in other domestic markets (Rainie et al., 2004; Nielsen, 2003), a strengthened copyright enforcement could be effective in lowering consumption of infringing products. In other words, if the probability of being caught when adopting infringing behaviors becomes higher thanks to new lawsuits and penalties, this will raise the expected costs for individuals consuming infringing products and thus will probably have positive effects in stopping individual illegal activities.

¹⁴ It is worth noting that selling products in the full price category follows an endogenous product differentiation strategy: high sunk costs serve to put a release in the full price segment, but, because of the uncertainty and the risk minimisation strategy, they are considered by firms as a whole to be divided amongst all the full-price releases. Consequently, the expected demand for each full-price product is the same. In other words, from the firms' point of view, sunk costs, once paid, grant a CD an average desirability level and consequently an expected demand which is the same for all products belonging to the full-price segment (see Silva and Ramello, 2000). This claim corresponds to what was once found by the UK Monopolies and Mergers Commission (1994, p. 26) and is verified in several domestic markets.

On the other hand, since there is quite a gap between the *wtp*, both for copied or legal CDs, raising the expected cost of the latter may result in individuals simply either not buying any music and switching to the consumption of music in other forms, such as through broadcast or through live performances, or not consuming at all. Thus the net benefit to social welfare and firm profits seems to be questionable.

Then there is still the individuals' evaluation of infringing activities. A vast majority of consumers, though having quite a clear idea of the legal framework, do not consider copyright infringement as either criminal or unethical; rather they have the feeling of being justified because of the high, almost unaffordable, market price.

Nevertheless, the positive found *wtp*, even for copied CDs, suggests that they do want pay music if priced at lower level and thus there is an easy way to solve the economic and legal dilemma. Furthermore these findings definitively challenge the view that downloaders are just outlaws or pirates who like to obtain things at a zero price. While some downloaders may fit this stereotype, the experimental results suggest that downloaders are willing to pay for downloaded music. The implication is that there is a value to downloading and even a potential market for music downloads.

Rather, the experimental data suggest that there is more at stake than simply getting something for free. There are in fact two puzzles worth examining more closely. First, what are the sources of value for downloaded/copied music? Second, since downloads and copies can be obtained for free (the threat of legal sanctions being absent), why do participants in the experiment report a positive *wtp*? In other words, why didn't participants report a zero price given that infringing music can be obtained for free?

The first puzzle can be addressed by describing the rights that the consumer obtains by acquiring music in the today technological setting. Digitalized music allows the user to unbundle a piece of music from other items on a CD. This unbundling makes a piece of music more portable and allows the user to listen to the work in different contexts and places. Unbundling also allows the user to create their own bundles by creating compilations of music that may not be available on the established market. Therefore, it is not surprising that participants report a positive price for copied CDs music since they are obtaining functionality and an aesthetic value that are not always available in the legal market. This assertion is coherent with other reports (The Economist, 2003)¹⁵.

The second puzzle concerns the positive *wtp* for a good that can be obtained at zero price from peer to peer sites or by non-virtual means. In the latter the chance of being prosecuted for copyright infringement is very low. The reporting of a positive price may represent many phenomena. The first intuitive explanation, supported also by data shown in Table 3 is that they perceive downloading and/or copying a costly and time-consuming activity. Accordingly the *wtp* represents an opportunity cost. In addition it could represent their reservation price in order to avoid being directly involved in infringing activities. As shown in Table 5 and will be discussed below, subjects' perception about downloading and copying is somewhat ambiguous. The *wtp* could thus represent how much participants are willing to pay to obtain music that is ostensibly legal. This remark can be of some usefulness in setting up pricing strategy by firms.

In addition, the fact they find several reasons to justify downloading and copying, although they know that it is illegal, requires further comments. First, there is a normative remark. When norms are heavily challenged by a considerable part of individuals, as in this case, legislators (and courts ?) should ask if they really fit the social needs. In this case this raises the question if the copyright enforcement to the bitter end serves the welfare and efficiency reasons on which it rests and has been drafted.

By looking at copyright in the historical perspective we discover that it was more pertaining to the domain of liability rules, even though today it is increasingly thought as a narrow property right. Now, as previously discussed, the adoption of the former paradigm leads to the assumption that

¹⁵ According to observers "the success of iTunes has made clear to the music industry an uncomfortable truth: many people want to buy single tracks, not albums." (The Economist, 2003).

copyright entitles the holder the absolute right to exclude other individuals from consuming or using an information good, and thus justifies the adoption of severe reactions against infringers in order to deter future violations. By contrast, the adoption of the liability rule paradigm permits non-holders to consume or use the information good, even without the consent of the right holder (Calabresi and Melamed, 1972). The liability perspective better fits contexts characterized by high transaction costs, as copyright markets are because the number of agents, the fragmentation of market, the number of transactions increased due to new IT technologies and the cost of bargaining every single transaction.

It is worth noting that such an orientation was already adopted in copyright law since its birth as specific provisions, as the fair use doctrine today severely questioned by copyright holders, witnesses.

Second, the experimental data suggest that copyright is today perceived by a significant and qualified majority of individuals as a ‘secondary’ property rule. Because it does not respond to its statutory goals any longer—i.e., enriching public knowledge by means of limited private incentives – but it just serves increasingly narrow private interests, it seems by facts not being as valued and respected as other normative bodies (Schwartz, 2004). This makes copyright a somewhat devaluated right also for creators.

Furthermore, the juridical strategy adopted by firms was mainly directed to downloaders because Internet can help to identify the infringer. Consequently, it can have effects on the Internet infringing activities. The same is not evident for the private exchange of music files amongst friends which, as shown in Figure 1, is at least as important as Internet downloads. By contrast, the extension of the lawsuits to this domain would further increase transaction costs to an inconvenient level because of the extended control regime over private behaviors. The latter then would imply an invasion of the consumer private sphere that would severely challenge the fundamental democratic liberties of individuals.

However, just strictly keeping the economic path, the previous reasoning led us to an unpredictable consequence: given the experimental *wtp* and the current pricing policy, the lowering of copyright infringement thanks to lawsuits would not have the expected consequence in raising consumption and thus firm profits. It would just lower total music recording consumption, with likely negative effects on total benefits as profits won’t increase and consumer surplus will decrease.

If we then introduce the specific demand features - such as exposure effects, addiction effects, network externalities and indirect appropriability as described by the previous literature (ref. section 2) - the welfare reducing effect will probably be amplified. It is worth noting that since certain of the previous demand characteristics – such as addiction effect and exposure effect - present a dynamic nature, the decrease in demand will presumably have a negative impact also on future consumption and firm profits, and last but not least on the pace of technological change.

Summing up, the described judicial response can possibly bring some positive consequences in the short term, deterring temporarily some users from adopting infringing behaviors; nevertheless, as it systematically neglects demand signals and raises monitoring and litigation costs, it will unlikely reach long term efficient results.

At the most, it could possibly raise social costs at a level to seriously question the overall beneficial effects of copyright on social welfare. This consideration would suggest a shift in the actions of judges and legislators, as social welfare rather than private interests should fairly be the focal point of their activities (Romer, 2002).

7. Conclusion

In this paper we use the experimental methodology to investigate the problem of copyright infringement and related consumer behavior. We take as a reference the music market, which plays a pivotal role in the debate on copyright. In particular, our work focuses on the consumers’ *wtp* for

original and burned CDs. We compare our results with the usual market pricing and we explore infringing behaviors in order to verify if an increase in lawsuits is effective in reducing infringing activities and raising legal demand.

Two different experiments were designed and ran in order to elicit individual preferences on legal and burned CDs in a population of university students, who in accordance to the Napster findings represent an important part of the demand of legal or illegal music recordings.

Our experimental results contradict the widespread view in the current copyright debate maintaining that file sharing or copying are just about getting music for free. Rather, the experimental figures reveal that individuals are willing to pay a positive amount even for downloaded or copied files and thus there is more at stake than simply getting something for free.

Our results suggest that the trade of infringing music might reflect an incoming change in the allocation and definition of rights in the CD market. Downloaded/copied music has certain desirable functional features which are reflected in a positive willingness to pay. It will be worthwhile to discover how individuals view the rights that are associated with the exchange of downloaded or copied music and how these rights flow from different conceptions of copyright.

Furthermore, the provisional interpretation of experimental data suggests that lawsuits can effectively lower the rate of copyright infringement because they raise the probability of being caught and thus being punished for consumers. However this evidence does not necessarily raise legal sales since the measured consumer willingness to pay for legal products is generally lower than the market price.

From a policy perspective, our experimental findings seem to suggest that a change in firm pricing policy which allows a different and more affordable pricing strategy could partially eliminate the crowding-out part of illegal consumption, since consumers do not perceive downloaded/burned music files as cost-free, while maintaining positive profits..

Moreover, our experimental results imply a more cautious treatment of copyright infringement by courts and legislators in the name of social welfare. In fact given an exogenously determined demand for CDs, infringing activities may represent an increase consumer surplus in the static framework and can, under certain conditions, even increase the legal demand in a dynamic perspective, as supported by the literature cited in section 2.. However, the final welfare evaluation should additionally include the increase in social costs of the enhanced judicial strategy.

On the whole, what we observed supports the view that copyright law can better be understood as a tool of regulating and structuring markets rather than a means of protecting vested property rights. The experiments and analysis presented here imply that we need to think about potential markets in more sophisticated ways with focus on what rights are important for users and for social welfare. An important policy implication could be reframing the copyright doctrine of fair use. Under US law, for instance, one criterion courts emphasize under the fair use analysis is the effect on potential markets of allowing unauthorized access to information. The challenge then is to identify how copyright law shapes existing and future markets for music and other types of information.

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Table 1: Willingness to pay for a legal full-price CD (euros)

	<i>H</i>	<i>AU1</i>	<i>AU2</i>	<i>AU3</i>	<i>AU4</i>
Mean	17.039	10.318	11.766	10.236	8.970
St dev	4.391	4.363	4.128	5.124	4.656
Median	18	12	12	10	9.5

Table 2: Willingness to pay for a copied full-price CD (euros)

	<i>H</i>	<i>AU1</i>	<i>AU2</i>	<i>AU3</i>	<i>AU4</i>
Mean	5.527	4.302	4.366	3.600	4.15
St dev	2.326	2.309	2.955	2.020	3.7
Median	5	4	4	4	4

Table 3 : Perceived time and cost of downloading and/or burning a CD

	<i>HYPOTHETICAL</i>		<i>AUCTION</i>	
	TIME (min)	COST(euros)	TIME (min)	COST(euros)
Mean	12.380	2.627	11.16	4.32
St Deviation	12.031	2.98	7.45	4.47

Table 4 : probability of being caught in downloading/burning music files

<i>Experiment</i>	<i>Perceived probability (%)</i>			
	<i>Not at all likely</i>	<i>A little likely</i>	<i>Likely</i>	<i>Very likely</i>
Hypothetical	20.6	67.6	11.8	0
Auctions	36.7	58.3	5	0

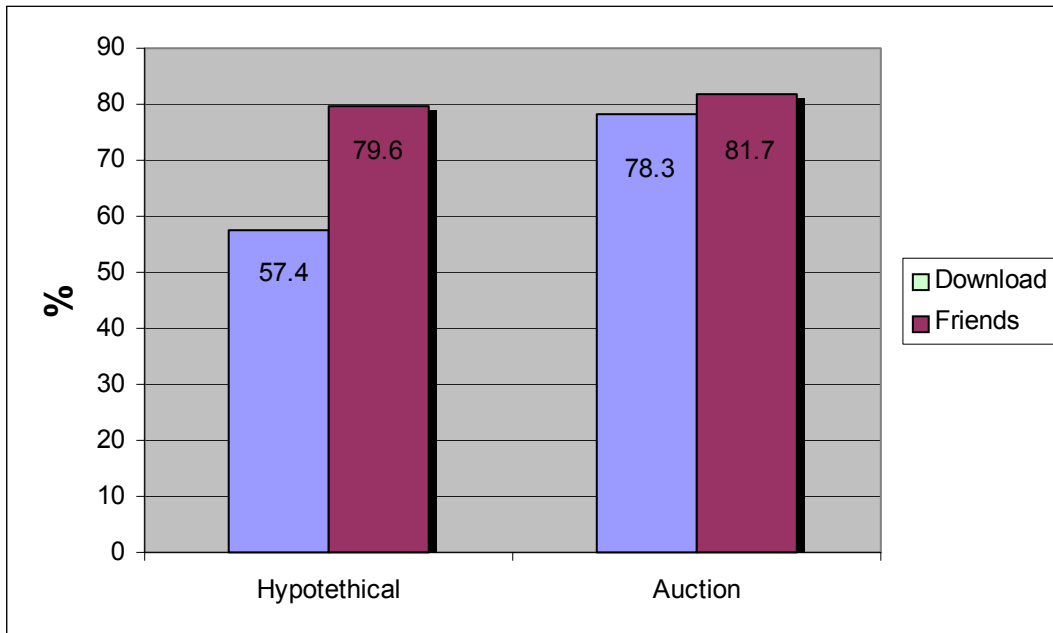
Table 5 : subjects opinions on individual infringing activities and market price (%)

<i>Experiment</i>	<i>Illegal ?</i>		<i>Criminal ?</i>		<i>Unethical ?</i>		<i>Price too high ?</i>	
	<i>yes</i>	<i>no</i>	<i>yes</i>	<i>no</i>	<i>yes</i>	<i>no</i>	<i>yes</i>	<i>no</i>
Hypothetical	64.5	35.5	21.5	78.5	24.8	75.2	98.1	1.9
Auction	66.4	33.3	7.8	92.2	34.7	66.3	98.3	1.7

Table 6: Adequate price for a full-price CDs (euros)

	<i>H</i>	<i>AU1</i>	<i>AU2</i>	<i>AU3</i>	<i>AU4</i>
Mean	12.38	11,60	11.26	11.40	11.76
St dev	3.14	2.67	2.76	2.37	2.97
Median	12	11.50	11	12	12

Figure 1 : subjects downloading and copying music from friends (%)



Appendix A

English and Italian Instruction for the first experiment

Invitation and Instruction

*We are working in a research project on the importance of copyright Law .
In these project the university of Turin as well as the University of Castellanza are involved.*

We are looking for volunteers who can fill in a questionnaire . The questionnaire involves two sets of questions. On each questionnaire there will be written a number. You do not have to write any name on the sheet of paper; it is extremely important that you answers will be anonymous. We hope you are so kind to fill in the questionnaire.

In the first part of the questionnaire we are going to ask you a precise question. You will be asked to state your maximum willingness to pay to buy a particular good. Please try to answer as if you were ask to buy that good for real and had to pay for it with your own money and now

Think carefully to what are going to do and do not talk with your roommates while you are filling in the questionnaire

There is not any right or wrong answer

In the second part of the questionnaire we are asking you some personal information. Please take also these questions seriously. They are also important for our research and we will be grateful for your help.

If you compile completely the questionnaire you will receive a point score for your today examination.

Invito e istruzioni

Stiamo lavorando ad un progetto di ricerca sul valore del copyright .

In questo progetto partecipano sono coinvolte l'Università di Castellanza e l'Università di Torino.

Noi stiamo cercando volontari che possano rispondere ad un questionario. Il questionario consta di due parti. Su ogni questionario vi sarà un numero. Non scrivete nessun nome perché è importante che le vostre risposte rimangano anonime. Vi preghiamo di completare interamente il questionario.

Nella prima parte del questionari vi verrà fatta una domanda precisa .

Vi verrà chiesto di esprimere il prezzo massimo che siete disposti a pagare per l'acquisto di un determinato bene.

Cercate di rispondere come se vi trovaste realmente nella situazione che vi viene descritta, vale a dire come se doveste *veramente* pagare il bene descritto e pagarlo *con il vostro denaro qui e adesso*.

Pensate attentamente a quello che fate e non parlate con nessuno mentre compilate il questionario.

Ricordatevi che non esiste una risposta giusta o sbagliata.

Nella seconda parte del questionario vi si chiederanno alcune informazioni di tipo personale. Vi preghiamo di rispondere attentamente anche a questo tipo di domande. Fanno sempre parte della ricerca .Le vostre risposte ci saranno di grande aiuto.

Per la compilazione intera del questionario vi sarà assegnato un punto sul voto dell'esame di oggi

Buon lavoro e grazie !

*Giovanni Ramello
Anna Maffioletti*

Subject n

Suppose that you are given the opportunity of buying an original CD with your money. It is important to know that the CD is not sold to you for real but it is of utmost importance that you state your maximum willingness to pay for this CD as if this CD were **to be sold for real here and now and you would have to pay for it with your own money.**

An original CD of your preferred artist

Write yes near the amounts of money that you are sure that you are willing to pay

Write no near the amounts of money that you are sure that you are not willing to pay

- €
- 0
- 0,50
- 1
- 1,50
- 2
- 2.50
- 3
- 3.50
- 4.
- 4.50
- 5
- 5.50
- 6
- 6.50
- 7
- 7.50
- 8
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- 19.50
- 20
- 20.50
- 21
- 21.50
- 22
- 22.50
- 23
- 23.50
- 24
- More than 24

Soggetto n

Supponete che vi venga data l'opportunità di acquistare con il vostro denaro un compact disc originale

Notate che il CD in questione non è veramente in vendita, ma è estremamente importante che voi dichiariate la vostra massima disponibilità a pagare per questo CD come se questo CD fosse veramente in vendita **qui e in questo momento** e voi lo **dobbiat**e pagare con i vostri soldi

Un CD
Originale
Del vostro artista preferito

Scrivi **si** affianco alle somme di denaro che **sei sicuro saresti** disposto a pagare

Scrivi **no** affianco alla somme di denaro che sei **sicuro non saresti** disposto a pagare

€
0
0,50
1
1,50
2
2.50
3
3.50
4.
4.50
5
5.50
6
6.50
7
7.50
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22.50
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23.50
24
più di 24

Instruction

Thanks for your participation

The purpose of this experiment is to study the behaviour of consumers who decided to buy music CDs. Each participant will earn a participation fee of 4 euros in cash at the end of the experiment.

You will have the opportunity to buy a CD according to the way described below.

Please follow the instruction and ask any question you feel like to ask

Please do not talk with anybody during the experiment

You will have the opportunity to buy a CD here and now. You will be asked to state your maximum willingness to pay for this CD

To buy the CD you will use an third price auction. According to this mechanism the two participants who state the highest and the second highest willingness to pay will win the auction and will acquire the right to buy the CD.

However they will be paid the price of the third highest bidder...

This is a sealed bid auction. You will find a sheet of paper and an envelope in front of you. Please write the maximum price that you are willing to pay to buy the CD on the paper and put your bid in the envelope

When all the subjects will have declared your maximum willingness to pay, the experimenter will collect the envelopes and he or she will look at your bids. The two winners will be declared and they will have to pay a price corresponding to the third highest bid for real.

For example :

1° price A euro

2° price B euro

3° price C euro

4° price D euro

5° price E euro

etc.

with $A > B > C > D > E > \dots$

The participants who have chosen A and B will buy the preferred CD and they will pay C euros for it.

Before starting with the auction we will do two trials to show you how the auction mechanism works. At the end of the two trials we will start the real action. There will be two auctions: one to buy an original CD and one to buy a burned CD.

We remind you that you have to write on the paper the maximum amount that you are willing to pay for a CD here and now.

You will receive the CD that you have chosen within at most one week.

You will have to pay the price that you have to pay and that is determined through the auction mechanism for real at the end of the experiment to a member of the Junior Enterprise and you will receive a voucher . You wil collect your CD at the Junior Enterprise (JEP).

We thank you for your participation

Anna Maffioletti
Giovanni Ramello

A

Subject number

Please write down three titles of CDs that you will like to buy according to your rank of preferences

Which is the maximum price that you are willing to pay for the original CD?

p...

A

Soggetto n

Indicare tre cd che vorreste acquistare nella fascia alta di price in ordine di preferenza

Qual è il massimo che siete disposti a pagare per il cd originale ?

p.....

B

Subject number

Please write down three titles of CDs that you will like to buy as burned CDs of the original ones according to your rank of preferences

Which is the maximum price that you are willing to pay for the burned CD?

p...

Soggetto n

Indicare tre cd che vorreste acquistare in copia di un cd che in originale appartiene alla fascia alta di price in ordine di preferenza

Qual è il massimo che siete disposti a pagare per il cd masterizzato ?

p.....