



## Bootlegging in the Music Industry: A Note

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### *Abstract*

This paper analyzes bootlegging of music, i.e. the unauthorized recording and distribution of previously unreleased music (e.g. a live concert). In particular, we investigate whether, and if so, how this illegal activity may hurt bands and record companies. Bootlegging is different from pirating, where legal releases are illegally copied and sold, because it adds to the product variety. It turns out that welfare implications of bootlegging are decisively different from those of pirating—bootlegged music does not crowd out legal sales.

**Keywords:** arts economics, bootlegging, pirating

**JEL Classification:** K4, Z1, O34

### **1. Introduction**

The term ‘Bootlegging’ stems from the act of carrying illicitly a flask of liquor in the leg of one’s boot. The interpretation of the term has evolved since to refer to the illegal production of alcohol in “Al Capone” days (the US prohibition era), and to certain types of infringement in the arts context today. In the music industry the term describes the unauthorized recording of previously unreleased music (e.g. in a live concert) and its distribution.

The welfare effects of these bootlegging activities are to date only very poorly understood as they have not been subject of any thorough economic analysis.<sup>1</sup> Results from the vast economic literature on copyright protection and pirating do not necessarily carry over to the case of bootlegging. Music pirating is the illegal reproducing and selling of *existing* officially released CDs at a lower price, whereas bootlegging brings *new* (versions of) music into circulation and therefore adds to the variety of available records of a particular band. Pirated music is cheaper than their legitimate counterparts and may thus crowd them out. According to conventional wisdom, this hurts artists and producers and leads to static net welfare gains through a higher dissemination of music at the expense of dynamic welfare losses due to reduced incentives to create music. Recent research, however, has identified

situations where, through positive network externalities, illegal copying may actually lead to an increase of official sales as well (cf. section 3).

As bootlegs constitute new products (new albums of the bootlegged band) in addition to the official releases, it is neither clear that they are cheaper, nor that they crowd out official sales. Moreover, it is not clear whether network externalities exist in the music industry and if so, whether they would apply to bootlegs as well. In order to assess the welfare implications of bootlegging we need information about the quality, the prices, and therefore the distribution channels of bootlegs.<sup>2</sup> Our paper provides these, and it will turn out that the welfare effects of bootlegging are decisively different from music pirating. In particular, the non-profit segment of the bootlegging market may constitute a larger threat than commercial bootlegging. This result is in strong contrast with the beliefs of non-profit bootleg traders who regard only commercial bootlegging as harmful to their favorite band.

What makes bootlegging even more interesting is that trading takes place predominantly on the internet as mail orders. Bootleg shops reside in ‘safe’ jurisdictions, if their websites are closed down by their internet service provider, it is very easy for them to reopen somewhere else and internet search engines make it extremely easy for customers to locate them again. This holds true also for the wide variety of ‘fair-game’ traders, who swap bootlegs on a non-profit basis through contacts on the internet. Consequently, our main research was done on the internet and through email communications with commercial and not-for-profit bootleggers. This novelty of our approach simply reflects the changing trading technology especially for clandestine activities.

As bootlegging is a white spot on the economics landscape, section 2 provides a brief account of welfare-relevant facts of bootlegging (quality and prices of bootlegs and law enforcement). Section 3 uses these facts along with empirical evidence to draw conclusions on the welfare implications of bootlegging. Section 4 concludes.

## 2. Facts about bootlegs<sup>3</sup>

### 2.1. Welfare determining factors

**Sound quality.** The sound quality of a bootleg is determined by the source of its initial recording. *Live audience recordings* have the lowest quality as they usually pick up ambient noise (screaming, clapping, etc.). Bootlegs of *studio sessions* containing ‘unreleased’ songs or early versions of later released songs have a relatively good quality due to the lack of audience. *FM radio broadcasts* of concerts are of higher quality than audience recordings because they are professionally done. Finally, *soundboard recordings* have superior quality: tapers plug in their devices directly to the mixing boards, so undesired audience noises are consider-

ably reduced. Possibly with the exception of the rare soundboard recordings, the quality of bootlegs is considerably lower than that of legitimate CDs.

Means of storage could also have an indirect influence on the quality of a bootleg. Until the emergence of CD-Rs, tapes have been the exclusive storage medium for *non-profit bootlegs* which are swapped between fans. Typically master copies are not traded but only copies thereof. Thereby, the quality deteriorates from “generation” to “generation,” as copies are made from copies etc. The main form of *commercial bootlegs* was vinyls but has changed to CDs since their 1989 introduction (<http://www.bootlegs.com/hist.html>). In recent years, CD burners are increasingly used to copy bootleg CD-Rs also for swapping or selling purposes to avoid this “generation loss.”

**Price.** A major deciding factor on determining the price of a bootleg recording is whether it is distributed through a commercial or a non-profit channel. *Commercial bootleg labels* press a certain number of CDs from the original tape and sell it to retailers, who in turn sell it to the public. The cost of pressing 1000 CDs is around 1.5 dollars per CD in a commercial style jewelcase (<http://uma.bootlegs.org/info/bootleg.html>). *Bootleg retailers* usually buy the bootleg records for a wholesale price of 10 to 20 dollars (<http://uma.bootlegs.org/info/bootleg.html>). Consumers then buy the bootleg at a considerably marked-up price, see section 3.3 for details on prices.

Today, the major retail source of bootlegs are internet shops as they have the flexibility to sell internationally and at the same time to effectively reduce the risk of being prosecuted.<sup>4</sup> While it is somewhat simple to discover which internet service provider (ISP) network the offending material resides on, it is next to impossible to find the specific person who pilfered the material. Under last year’s US Digital Millennium Copyright Act, ISPs cannot be held liable for copyright infringement unless it is proven that they know exactly where the pirated works are located on their networks and do nothing to eliminate them (Seminario 1999).

Prices are dramatically lower in the *non-commercial* segment of the bootleg market. Because swapping is the mode of operation the price drops to either another CD desired by the trading partner or even at times just the price of a blank CD-R. Internet is a very practical source also for non-commercial bootlegging. Bands have websites where information can be found about the particular band, the fans who trade its bootlegs, and details about the traded bootlegs.<sup>5</sup> Aside from websites for individual bands there are several general trading posts where traders place their requests and what they have available for trade (<http://www.bootlegs.com/trade1.html>). Because payment and shipment are made concurrently, and contracts can not be enforced, reputation must play the role of missing enforcement in the form of “bad trader” lists on the internet (<ftp://ftp.visi.com/users/astanley/ambfaq.txt>). The traders in this market segment have a genuine interest in the music with no commercial interest and were indeed annoyed when asked to sell their bootlegs.

## 2.2. Law enforcement

The US copyright act, dating back to 1790, protected all works of authorship for a period of 75 years before its latest revision, namely the Sony Bono Copyright Term Extension Act of 1998, added an additional 20 years to the overall term of copyright protection (<http://www.loc.gov/copyright/circs/index.html#fl100>). After a 1976 revision which made the technical aspects of copyright more precise, unpublished works were for the first time protected. (<http://arl.cni.org/info/frn/copy/timeline.html>). As bootlegs were made legally equivalent to pirated and counterfeited albums, record companies now officially had the right to prosecute bootleggers. In 1994, a pre-existing *state* “anti-bootleg statute” which criminalized the unauthorized manufacture, distribution, or trafficking in sound recording of live music performance became a *federal* statute. Consequently, the statute also provided for the seizure of bootleg recordings manufactured *outside* the U.S. by U.S. customs at the point of importation.<sup>6</sup>

Bootleggers are subject to a maximum penalty of up to five years in prison and a \$250,000 fine. (<http://grayzone.com/faqindex.html>). Table 1 shows the 1997 to 1999 mid year anti-piracy statistics by the Record Industry Association of America (RIAA) to compare the seizures of counterfeit/pirate recordings with that of bootlegged recordings. The drop in bootleg seizures in 1998 was due to the success of “Operation Goldmine” in 1997 during which 800,000 bootleg CDs were confiscated and 13 bootleggers arrested ([www.riaa.com/antipir/release/apmid98.htm](http://www.riaa.com/antipir/release/apmid98.htm)). Table 1 also witnesses a remarkable change in the structure of the bootleg market: While the seizure of commercial bootleg CDs decreased sharply between 1997 and 1999 from 807,392 to only 1560 units, the number of CD-R bootlegs seized in the same period rose from 355 to 10,485 units. These figures account for confiscation from suppliers of bootlegs as consumers are never prosecuted and are rarely even detected.<sup>7</sup>

In Europe the situation has been more diffuse. A larger number of bootleg labels were based in Europe where copyright laws were usually not as strict as

Table 1. 1999 Midyear anti-piracy statistics by the RIAA

Counterfeit/pirate seizures	1997 Midyear	1998 Midyear	1999 Midyear
Counterfeit/pirate cassettes	194,979	249,865	61,420
Counterfeit/pirate CDs	12,325	133,215	70,734
Counterfeit/pirate CD-Rs	87	23,858	155,496
Counterfeit/pirate/bootleg labels	1,527,888	1,010,272	1,460,125
Bootleg seizures	1997 Midyear	1998 Midyear	1999 Midyear
Cassettes	2,385	0	1,005
CDs	807,392	2,150	1,560
CD-Rs	355	0	10,485

those in U.S. (<http://www.c-nclassifieds.com/news/app/sotry/0%2C2110%2C156716%2C00.html>). Yet, Britain has been an exception as the UK copyright law has protected sound recordings throughout the British Empire since 1911 (Heylin 1994: 23–32). Due to massive legal risks, bootleggers in Britain had already quit manufacturing at home anyway and had moved to Germany and Italy, which had looser protection laws (Heylin 1994: 348–349).<sup>8</sup> In Italy bootleggers could even legalize their products up until 1994 through a stamp of legitimacy they received with a small registration fee and agreement to pay royalties to the original musicians (<http://www.rferl.org/nca/special/bootleg/boot3.html>). In 1994, the European Commission stopped such loopholes by explicitly granting performers and broadcasters the right to *authorize* or *prohibit* the fixation of performances.<sup>9</sup> Although this move has made it easier to convict bootleggers and bootleg retailers, it has only caused them to resurface elsewhere as in the case of Kiss the Stone, which was shut down in Italy and continued business in Singapore (<http://www4.pf-roio.de/pffan/text/sources.html>).<sup>10</sup>

Eastern Europe has been one of the largest operation centers for producing pirated and counterfeited sound recordings due to its enormous political upheaval of the late 80's. (<http://www.rferl.org/nca/special/bootleg/boot4.html>). There has been remarkable copyright legislation reform in this region during the 1990's as most states have joined the Bern Convention. However, these reforms need to be actively enforced in order to put an end to the dramatic pirating taking place in this region.<sup>11</sup>

Asian countries have always been the home of all forms of piracy and bootleg production due to loose copyright laws. Even in Japan, the first Asian country to have modern copyright legislation, only Japanese—originated recordings were given protection by copyright laws until 1971. Unauthorized releases were still legitimate as long as the master recording was pressed outside Japan until the latter joined the Bern Convention in 1992 (Heylin 1994: 334–339). In the Middle-east, copyright laws are still as of today de facto non-existent.<sup>12</sup>

The 1886 Bern Convention for the Protection of Literary and Artistic Works defined copyrights in an international context for the first time. According to the basic principles of national treatment, automatic protection, and independence of protection, works originating in other contracting countries were automatically given the same protection as domestic works independent of the level of protection in that other country (<http://www.kipo.go.kr/ehtml/eAnnSemi05.html>). While the basic duration of protection required by the convention for most types of work is the life of the author plus 50 years, member states may grant longer terms of protection.<sup>13</sup> As for the type of work protected, it must include “every product in the literary, scientific and artistic domain, whatever may be the mode or form of its expression.”<sup>14</sup>

The Bern Convention contained significant gaps in the framework of protection, particularly pertaining to enforcement measures that ensured legal remedies for defending the rights of titleholders. The Trade Related Aspects of Intellectual Property Rights (TRIPS) agreement, a part of the World Trade Organization

(WTO) created in 1996, was an attempt to solve such concerns. TRIPS requires all 134 members of the WTO and potential entrants to comply with the three basic principles<sup>15</sup> and the minimum standards of the Bern Convention.<sup>16</sup> In addition, TRIPS adopted the obligations missing in the Bern Convention with respect to enforcement measures which were to be made available by member states to persons claiming protection (<http://www.kipo.go.kr/ehtml/eAnnSemi05.html>). By linking intellectual property standards with trade, the agreement also established dispute settlement procedures with application of *trade sanctions* for those violating TRIPS obligations.<sup>17</sup>

### 3. Welfare implications of bootlegging

#### 3.1. Bands' attitudes toward bootlegging

As of today, it is still controversial whether bootlegging in general or only commercial bootlegging hurts the bands, if at all. That includes the bands themselves as bands' attitudes towards bootlegs vary considerably.

One approach is to directly fight bootlegs. For instance Bob Dylan and his record company Columbia officially released part of his bootleg "The Great White Wonder" as "The Basement Tapes" to abandon the bootleg market for it (Heylin 1994: 42–47). The sales of the official release version of the album were also very successful pointing towards a lack of correlation between demand for legitimate releases and bootlegs sales (<http://www.bootlegs.com/hist.html>). Likewise, Frank Zappa licensed his record company to release a few of his bootleg recordings with the original bad quality bootleg sound and cover as "Beat the Boots."

Grateful Dead and other bands such as Phish used an alternative, more liberal strategy of fighting commercial bootlegs.<sup>18</sup> They allowed audience recording in their concerts as long as the music was not recorded for profit purposes. The idea was to let the fans obtain their live concert recordings for free, which should dry up the market for commercial bootleggers.

#### 3.2. Copyright protection, pirating, and bootlegging

For a welfare assessment of copyright protection, the negative static effects of copyright protection need to be weighed against its positive dynamic effects. The static effect is that the protected artistic product or the intellectual property receives only suboptimal-dissemination, i.e. it is underconsumed. Given that a product has been produced, it is optimal from a welfare point of view to sell it at its marginal cost, which is typically very low.<sup>19</sup> Yet, if it were sold at marginal costs it would not have been produced in the first place (provided the producer anticipated its sales price). The reason is that the production of artistic products and intellectual property incurs a large fixed cost component which requires above marginal

cost pricing, at least average cost pricing, if it was to break even. Copyright protection puts the producer in a monopolistic situation for the duration of the copyright thereby ensuring positive profits. This establishes an incentive to produce innovations, but at the same time reduces consumption compared to a non-monopolistic situation. The optimal copyright protection balances the effect of increased incentives to produce market innovations from higher protection against the reduced consumption from it at the margin (Breyer 1970, Braunstein et al. 1979). This trade off has a time dimension as analyzed in the determination of the optimal patent duration (Nordhaus 1969, Tandon 1982) as well as a geographical dimension which has been studied to determine the optimal geographical coverage of a copyright (Deardorff 1995).<sup>20</sup>

Copyright issues (including copyright violations) in the arts have been extensively analyzed (e.g., O'Hagan 1998, sect. 4.3, Towse 1999 and the literature cited). In case of the music industry the traditional view holds that pirated CDs crowd out legitimate sales because they are direct substitutes for official releases and they are cheaper. Production costs are about half of the costs for legitimate CDs because pirates select only successful albums and therefore avoid marketing risk, free ride on the official advertisement and save the royalties (Burke 1996). Thus, pirating leads to a loss of royalties for the artists and of profits for the record companies, but increases the consumer surplus. An optimal copyright protection for artistic creations against pirating could then be calculated just as in the case for intellectual property.

While the above considerations already suggest that absolute copyright protection may not and typically will not be optimal from a world welfare perspective, it is questionable whether copyright protection raises welfare at all.<sup>21</sup> If it does, the question remains under which conditions a violation of copyrights (which might be limited in duration or geographical coverage) will actually harm producers. A more recent literature has identified situations in which pirating actually leads to enhanced profits for producers of intellectual property which implies no dynamic efficiency losses from copyright violations.

Such situations can arise in the presence of network externalities (Katz and Sharpiro 1986), when the value of intellectual property such as computer programs depend on the overall user base, both legal and illegal (inter alia Reavis Conner and Rumelt 1991, Givon et al. 1995). Such a positive network externality exists because an increased user base raises the utility each individual user derives from the software: people can exchange files, ask for help, reduce learning costs as tutorials are available etc. If pirating increases the overall user base, the number of legitimate users may actually increase together with pirating due to this externality (Reavis Conner and Rumelt 1991). This has been shown for the diffusion word processor and spreadsheet software in the UK where pirating generated 80 % of new software buyers (Givon et al. 1995).<sup>22</sup>

Producers may also indirectly appropriate some of the benefits from copying, if the increased demand for copies allows the producer to increase the price of the originals that are being copied as in the case of library subscriptions of professional

journals (Liebowitz 1985, Besen and Kirby 1989). This presupposes that price discrimination is possible: library journals are more highly priced than copies for individual subscribers. Frey (2000) makes a similar argument for arts: He claims that copying produces a 'propagation effect' which makes the artist more renown and thereby allows her to charge higher prices for subsequent works.

In order to establish the welfare effects of *bootlegging*, we need first to assess whether bootlegs erode the monopoly power of the bands and their record companies by actually diverting demand from their officially released music to bootlegged music of the particular band. If that is not the case, bootlegged bands and their producers are not harmed. Furthermore, we have to consider the possibility that bootlegging increases the demand for legitimate CDs through positive network externalities. Only then can we determine whether bootlegging is welfare deteriorating or welfare improving, depending on the actual level of copyright protection.

If bootlegs crowded out official sales we would have to weigh the increased choice set of consumers and increased profits of commercial bootleggers minus reduced profits of the bands and their record companies (static gain) against the dynamic losses of reduced incentives for the production and marketing of new artistic creations by the bootlegged bands. If, however, bootlegs do not crowd out official sales, there is no conflict between static gains and dynamic losses (as there are none) and bootlegs are welfare-improving as they increase consumer rents.<sup>23</sup> If bootlegs rather increase legitimate sales, dynamic gains are realized in addition to the describes static gains.

Of course, in the absence of bootlegs consumers would have spent their expenditure for (commercial) bootlegs on other products, whether artistic or not. The entailed profit shifting is merely a redistribution between producers and does not constitute a net loss for the society, but since the consumers of bootlegs prefer to buy bootlegs it increases their overall utility and thus overall welfare (in the static sense).

For an overall welfare assessment we are thus concerned with the question as to whether the bootlegged band and its record company lose from being bootlegged, which depends on whether their official sales are being crowded out by bootlegs. This in turn depends on the quality and the price of the bootlegs as compared to the official releases.

### 3.3. *Do bootlegs crowd out or increase legitimate sales?*

As seen in section 2.1 and confirmed by many bootleggers the sound quality is regularly well below that of the official releases due to inferior recording technology. The only exceptions maybe soundboard recordings; but even if the sound quality were comparable with official releases the price would have to be below the price for official CDs to make up for increased risk. Then, bootlegs might crowd out official sales and therefore hurt the record companies (as is the case for pirated



CDs). Given that the bootleg sound quality is considerably lower, the price differential would have to be even greater. Table 2 compares prices of legitimate CDs and commercial bootleg CD for a representative selection of bands. Note that we include Grateful Dead who allowed non-commercial bootlegs as well as Zappa and Dylan who fought bootlegs. The selection also includes some of the most bootlegged classic bands and also more modern well-known bands to show the generality of our argument.

Tower Records, CDNOW and Amazon are among the biggest legal internet stores who sell authorized official releases. Their prices are compared to representative illegal bootleg stores chosen from USA, Japan, and Singapore to show that the results do not vary geographically. The selection has been made from the few existing internet bootleg stores. The internet shops found that resided in other countries were either immediately closed down at the time of writing or only carried products from one band.<sup>24</sup>

The overall picture is clear: commercially bootlegged CDs are considerably more expensive and have a worse sound quality than officially released CDs. This combination makes bootlegs collectors' items rather than substitutes for legitimate CDs. This is in stark contrast to pirated CDs which are always substantially cheaper than the legitimate CDs but have the same quality. In other words, bootleggers cater to a market segment which the official record companies mostly choose to ignore—"hardcore fans" who buy low quality music of their favorite bands in addition to the legitimate records. In effect, bootlegs constitute a case of price discrimination over a range of products and the question arises why record companies do not do this themselves thereby effectively draining the bootleg market. In principle they could release competing live CDs of every bootlegged concert at a competitive price even though they would have to pay royalties, because the mark up on bootleg prices over legitimate CDs (which include royalties) is substantial. In fact they have done so at times by releasing 'unplugged' and live concert albums (see also section 3.1). In other words, because record companies always have the option to release a live album that would outprice the competing bootleg and have superior quality, the existing commercial bootlegs cannot constitute a profit opportunity that was illegally taken away from bands and their record companies.<sup>25</sup>

In contrast to the commercial bootlegs, non-profit bootlegs are much cheaper than the legitimate CDs. Their effective price includes costs for the medium of storage (CD-R or tape) and for shipping and rarely a small fee. Since they are lower in quality and in price, they might potentially crowd out official sales, as individuals might go for the low-price option instead of buying the higher priced legitimate CD. Presumably, however, this effect is extremely small because people interested in (illegal) low-price options will prefer pirated CDs (CD-Rs) over bootlegs as their quality is much higher.

We have now established that bootlegs do not harm the bands or their record companies as they do not crowd out official sales and therefore do not reduce the monopoly power created by the copyright. Could, on the contrary, bootlegs actually

Table 2. Price differentials of bootlegs and legitimate CDs

Band	Authorized internet shops					
	Tower records			Worldwide		
				Amazon		
	Titles	Freq. prices	Titles	Freq. prices	Titles	Freq. prices
Grateful Dead	41	\$9.99, \$13.99	48	\$11.49, 12.99, 13.49	45	\$11.49, 12.99, 13.49
Pink Floyd	39	\$13.99	30	\$12.99	25	\$12.99
Elvis Presley	121	\$9.99, 13.99	126	\$11.49, 12.99, 13.99	137	\$11.49, 12.99, 13.99
Rolling Stones	47	\$13.99	50	\$13.49, 13.99	47	\$13.49, 13.99
Led Zeppelin	17	\$13.99	27	\$12.99	20	\$12.99
Bob Dylan	50	\$9.99, 13.99	53	\$9.49, 11.49	51	\$9.49, 11.49
R.E.M.	41	\$13.99	12	\$11.49, 12.99	22	\$11.49, 12.99
Bruce Springsteen	22	\$9.99, 13.99	22	\$11.49	20	\$8.38, 11.49
Frank Zappa	30	\$11.99, 13.99	77	\$11.49, 12.99	79	\$11.49, 12.99
U2	76	\$9.99, 13.99	20	\$11.49, 13.99	19	\$11.49, 12.58

Table 2. Continued

Band	Unauthorized bootleg internet shops											
	USA				Singapore				Japan			
	Tunnel Records		Eclectic Music		Kiss The Stone		Music Specialist		Cd Shop Gold		Lost Horizon	
	Titles	Freq. prices	Titles	Freq. prices	Titles	Freq. prices	Titles	Freq. prices	Titles	Freq. prices	Titles	Freq. prices
Grateful Dead	137	\$19,24	28	\$25.95 (CDR 19.95)	22	\$19.99	33	\$22	3	\$59 (2)	3	\$35
Pink Floyd	80	\$21,24	15	\$25.95 (CDR 19.95)	7	\$19.99	48	\$22	12	\$32,35,39	46	\$35
Elvis Presley	221	\$24	0	—	4	\$19.99	24	\$22	0	—	0	—
Rolling Stones	338	\$19,24	28	\$25.95 (CDR 19.95)	13	\$19.99	68	\$22	63	\$32,35,39	345	\$20,25,35,40
Led Zeppelin	153	\$22,24	12	\$25.95 (CDR 19.95)	4	\$19.99	25	\$22	78	\$32,35,39	171	\$35
Bob Dylan	310	\$22,24	24	\$25.95 (CDR 19.95)	15	\$19.99	128	\$22	5	\$35	122	\$35
R.E.M.	97	\$21,24	6	\$25.95 (CDR 19.95)	5	\$19.99	15	\$22	5	\$35	21	\$24, 28
Bruce Springsteen	260	\$22,24	23	\$25.95 (CDR 19.95)	16	\$19.99	100	\$22	30	\$32,35,39	13	\$35
Frank Zappa	24	\$21,24	1	\$25.95 (CDR 19.95)	0	—	1	\$22	3	\$32,35,39	0	—
U2	114	\$21,24	18	\$25.95 (CDR 19.95)	19	\$19.99	52	\$22	103	\$32,35,39	18	\$35

Prices refer to a regular, single CD unless indicated by (2) which refers to a double CD. Frequent prices cover more than 80 percent of the supply for each internet store.

Prices refer to November 17, 1999.

Tower Records: <http://www.towerrecords.com>

Amazon: <http://www.amazon.com>

CDNOW: <http://www.cdnw.com>

URLs of internet shops available upon request

benefit the bands through positive network externalities (see above)? Those could occur if the number of records of a certain band in circulation, both legal and illegal, determine how renown a band is, and thereby reduce information costs and attract new customers for legitimate CDs. If that was true bootlegs would increase legitimate purchases. The idea behind this is that stars in the arts are created through the interaction of individuals—the more people already know a certain artist, the easier it is for other people to acquire artist-specific knowledge (Adler 1985). Due to this snowball effect, stars may be born just because initially people happen to know them a little better than their competitors of equal talent. This translates into initially only somewhat lower search costs for people interested in this art form, an easier build-up of consumption capital and thus into higher marginal utility of consuming the art of a certain artist (Becker 1996).<sup>26</sup>

Unlike the case of software such network externalities will at best be very small for bootlegged music. The reason is that bootlegs will not increase the ‘user base’ for the music of a particular band because they are harder to find and have a less favorable price-quality mix than legitimate records. They are thus purchased only by ‘hardcore fans’ as a complement to the legitimate records. Those people, however, need not be convinced of the quality of their favorite bands and will convince others regardless, whether they have access to bootlegs or not.

#### 4. Conclusion and outlook

We have analyzed the welfare implications of bootlegging. In particular, we have shown that bootlegs do not crowd out official sales as they have lower sound quality and higher prices than the officially released CDs of the respective band. Rather, they cater to a small market segment of “hardcore fans” ignored by the record companies. The real threat for the bands thus lies in pirated CDs, not in bootlegs.<sup>27</sup> Bootlegs hurt the bands only insofar as they take away the artists’ right to decide what to release on a tape or a CD.

This conclusion rests upon the analysis of the status quo, which we have investigated through extensive internet searches and various email communications with commercial and non-commercial bootleggers. Our assessment is technology-dependent: If the rapid development in the recording technology continues allowing for high quality recordings of live concerts and their subsequent digitalized storage e.g., through miniaturized DAT recorders and the home production of CD-Rs, then non-profit bootlegs may eventually crowd out official sales as they would be cheaper with only a small quality difference. They might even drain the high-price commercial bootleg market. On the other hand, the commercial bootleg market may start to cater also to a different market segment of more ordinary fans with altered pricing and marketing strategies, thereby effectively blurring the existing sharp dividing line between pirating and bootlegging.

## Notes

1. After completion of this paper we became aware of the only preceding work on this topic by Sam Cameron (1995) describing bootlegging from an economist's perspective. Although very inspiring, his analysis rests upon casual empiricism rather than a thorough comparison of qualities and prices of bootlegs and legitimate releases which is necessary for a sound welfare assessment of bootlegging.
2. While there are statistics about pirating of music, (e.g., Burke (1996) for microstatistics on prices and production costs and Throsby (1998) for macrostatistics on the dimension of pirating), empirical knowledge on bootlegging is completely lacking.
3. For more details on history, production, and marketing of bootlegs, including selection, price ranges, quality of services etc. of top internet retailers see the working paper version of the paper which is available upon request.
4. Bootlegs are also sold by local retailers, which are usually small collectable and used record stores. Their prices vary geographically according to supply and demand. For example, in Atlanta prices are high (up to 30 dollars) because there are only about five bootleg retailers. In Tallahassee, FL they are around 27 dollars. In New York, the prices are even lower (25 dollars) because of the large number of distributors (information obtained through emailing bootleg traders in US). In all cases studied bootleg prices were a lot higher than prices of legitimate releases in the record stores.
5. In Pink Floyd's traders list there were 107 traders found. The trader with the most titles owned 600 unofficial titles (<http://referenz.ecce-terram.de/cgi-bin/pffan/traderdb/traders>).
6. Title 18 U.S. Copyright Law, Section 2319A and a new chapter 11 to Title 17 were created, cf. <http://lweb.loc.gov/copyright/title17> and ([gopher://hamilton1.house.gov:70/11d:/uscode/title18](http://gopher://hamilton1.house.gov:70/11d:/uscode/title18)). Steve D'Onofrio, the Recording Industry Association of America's (RIAA) executive vice president and director of anti-piracy stated that "for the most part, the seized bootlegs are entering the United States from abroad and being intercepted by federal agencies, now that they have the additional legal tools to facilitate the efficient seizure of bootlegs" ([http://www.replitech.com/tdb/tdb\\_oct96/feat\\_piracy.html](http://www.replitech.com/tdb/tdb_oct96/feat_piracy.html)).
7. According to Frank Creighton, vice president and associate director of anti-piracy for the RIAA (<http://www.turnstiles.org/articles/bootleg/html>).
8. Around 32 percent of Italy's domestic sales in 1994 (about \$145 million) were pirated or bootlegged recordings. This figure accounts for almost half of all pirate music revenues in the EU (estimates by the International Federation of the Phonographic Industry, <http://www.rferl.org/nca/special/bootleg/boot3.html>). In addition, 95 percent of all illegal recordings seized in the United Kingdom in 1994 were produced in Italy (estimates by the Italian music industry federation, <http://www.rferl.org/nca/special/bootleg/boot3.html>).
9. Europe, Article 6, Chapter II of the Rental Directive (<http://grayzone.com/press2.html>).
10. Due to recent changes in copyright laws in Singapore, Kiss the Stone has once again been shut until further notice.
11. For a country-specific review of copyright legislation reforms in each country see (<http://culture.coe.fr/clt/eng/eculiv0.9.html>).
12. For example, the prices of music CDs, software, and video-games in Iran is so low that one does not even have the possibility to buy a legitimate copy. The price of Playstation games for example do not exceed \$1 in a nationally legitimate shop. Software such as Windows 2000 cost around \$3 in a computer store, and last but not least, music CDs which are copies are sold at an average price of \$3 in music stores of Tehran. (Information obtained from research based on personal observation in August 2000). Even lower prices were found in Beijing where a pirated CD costs less than a dollar (information obtained through email communication).
13. EU countries and the U.S. have moved to longer terms of life plus 70 years.
14. Article 2(1) of the Bern Convention ([www.wipo.org/eng/general/copyright/bern.htm](http://www.wipo.org/eng/general/copyright/bern.htm)).

15. It added a fourth “most-favored-nation treatment” principle under which advantages accorded by a WTO member to the nationals of any other country must also be accorded to the nationals of all WTO members.
16. This specifically applies to literary and artistic work and is only a portion of the TRIPS agreement. Intellectual properties of other nature follow other relevant international conventions (for example, the Paris Convention deals with industrial property).
17. For more details see Braga et al. (2000).
18. A list of bands that allow taping can be found at (<ftp://ftp.visi.com/users/astanley/ambfaq.txt>, p. 45–46).
19. Of course, this argument disregards distributional considerations as it measures the welfare gains as the sum of producer and consumer rents.
20. This has been discussed in a North-South context, inspired by the political process that has led to the agreement on trade related intellectual property rights (TRIPs) under the roof of the World Trading Organisation (WTO). These models analyze the effect of increased patent protection in the South and thereby reduced imitation on consumer and producer rents in both regions as well as on the innovation rate and product variety. The overall result that emerges is that global and strict patent protection will not be optimal for the South and may not be optimal for the world as a whole as seen in Chin and Grossman (1990), Diwan and Rodrik (1991), Deardorff (1992), and Helpman (1993). Lai (1998), Yang and Maskus (2001), and Markusen (2001) have shown that the opposite could hold in presence of FDI or licensing due to increased technology transfer which is in turn caused by tighter intellectual property protection.
21. See Frank (1996) for an example of ‘an art without copyright’.
22. The producer benefits from pirating only if the market can be segmented so that a higher user base effectively translates also into higher sales and not only into more pirated versions of the product.
23. Also, the national fisc loses revenue as bootleg sales are untaxed black market activities. This tax effect is typically disregarded in the copyright literature. Of course distortion from taxing music records is eliminated but for a given revenue target and an optimal tax system in place this will lead to a higher distortion somewhere else in the economy. Presumably this effect will be small due to the relatively small sales in this segment.
24. For example, PB bootlegs in Poland and Physical Graffiti in Holland carry only Pink Floyd bootleg titles.
25. Furthermore, because bootlegs are more expensive they cannot undermine a profit-maximizing strategy of the record company to limit the number of available records to maintain a high price.
26. See Stigler and Becker (1977) for the concept of consumption capital; cf. also Schulze (1999); Frey (2000) implicitly transferred these two ideas (network externalities in copying and building up of consumption capital) to illegal copies from works of art, thereby postulating positive effects from copying for the artist.
27. Not only is the extent of commercial pirating alarming (cf. Throsby (1998)), but also the amount of home-made copies on CD-Rs. The number of confiscated CD-Rs by RIAA has skyrocketed from 442 in 1997 to 103,971 at the end of 1998 (<http://www.riaa.com/piracy/press/040699.htm>).

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## 2. Internet sites

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<ftp://ftp.visi.com/users/astanley/ambfaq.txt>

<gopher://hamilton1.house.gov:70/11d:/uscode/title18>

<http://arl.cni.org/info/frn/copy/timeline.html>

<http://cco.caltech.edu/its/help/policies/riaa/laws.shtml>

<http://culture.coe.fr/clt/eng/eculiv0.9.html>

<http://grayzone.com/faqindex.htm>

<http://grayzone.com/ifpi61099.hum>

<http://grayzone.com/press2.htm>

[http://home5.swipnet.se/~w-59501/bootlegs/q\\_and\\_a.html](http://home5.swipnet.se/~w-59501/bootlegs/q_and_a.html)

<http://lcweb.loc.gov/copyright/gatt.html>

<http://lcweb.loc.gov/copyright/title17>

<http://referenz.ecce-terram.de/cgi-bin/pffan/traderdb/traders>

<http://uma.bootlegs.org/info/bootleg.html>

<http://www.bmr.org/html/submission20.html>

<http://www.bootlegs.com/hist.html>

<http://www.bootlegs.com/trade1.html>

[http://www.bootstrap.org/colloquium/session\\_07/session\\_07\\_simons.html](http://www.bootstrap.org/colloquium/session_07/session_07_simons.html)

<http://www.britannica.com/bcom/eb/article/8/0,5716,80978+1+78848,00.html>

<http://www.cerebalaw.com/berne.htm>

<http://www.c-nclassifieds.com/news/app/story/0%2C2110%2C156716%2C00.html>

<http://www.fairfieldweekly.com/articles/bootleg.html>

<http://www.gdlists.org>

[http://www.icce.rug.nl/~soundscapes/DATABASES/TRA/Bootleg\\_record\\_industry.html](http://www.icce.rug.nl/~soundscapes/DATABASES/TRA/Bootleg_record_industry.html)

<http://www.kipo.go.kr/ehhtml/eAnnSemi05.html>

<http://www.law.indiana.edu/glsj/vol6/no1/crews.html>

<http://www.lib.duke.edu/ias/eac/ncc/legislation.htm>

<http://www.loc.gov/copyright/circa/index.html#fl100>

<http://www.marko.net/phish/CDS>

[http://www.replitech.com/tdb/tdb\\_oct96/feat\\_piracy.html](http://www.replitech.com/tdb/tdb_oct96/feat_piracy.html)

<http://www.rferl.rog/nca/special/bootleg/boot3.html>

<http://www.rferl.rog/nca/special/bootleg/boot4.html>

<http://www.rferl.rog/nca/special/bootleg/boot8.html>

<http://www.riaa.com/piracy/press/040699.htm>

<http://www.riaa.com/Protect-Campaign-6.cfm>

<http://www.turnstiles.org/articles/bootleg.html>

<http://www.underworld.net/kiosk/bootlegs.html>

<http://www.wipo.org/eng/general/copyright/bern.htm>

<http://www4.pf-roio.de/pffan/text/sources.html>

In addition we corresponded with many bootleggers via email. Names and email addresses withheld for protection.