LUND UNIVERSITY
School of Economics and Management

The Chinese Music Industry:

Which Strings do Intellectual Property Rights and Social Norms Play?

A Multi-method Study with Sweden as a Comparative Example

Master in International Economics with a Focus on China

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Abstract

This paper examines the impact of formal and informal institutions on the Chinese music industry. Standard utilitarian theory states that property rights are essential for innovation and this research tests the effects that intellectual property rights has on the Chinese music industry by using panel data on the provincial level for the years 1997 to 2011. In order to further investigate the Chinese music industry, social norms are studied by the means of a survey conducted in China as well as in Sweden in order to test for cross-cultural differences. The results show that intellectual property rights protection has a positive effect on music production in China. However, this effect is only significant and positive for coastal regions, and not for non-coastal regions. On the microeconomic level, the results prove that consumer behavior is affected by perceptions of illegality. Furthermore, the results show that Chinese consumers are more accepting of music piracy and have a lower will to pay for music compared to Swedish. Hence, this study demonstrates the importance of social norms and intellectual property rights when it comes to music production and consumption.

Keywords: intellectual property rights, music piracy, social norms, cross-cultural differences, Chinese music industry, Swedish music industry

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1. Introduction

1.1 Background

China is a big potential market in the music industry with the world's largest population and over 618 million Internet users[1]. When it comes to the size of the music industry, however, China only measures up to be the 21st biggest music industry in the world (IFPI 2014: 36). One of the major challenges for the industry is that China is estimated to have a high level of music piracy. In 2012, music piracy was estimated by The International Federation of the Phonographic Industry[2] (IFPI) to be at an astonishingly high level of 99 percent (IFPI 2012: 23). Secondly, China also has a history of weak legal protection of intellectual property rights (IPR). The National Copyright Administration (the primary administrative organ for developing and enforcing copyright law) has been criticized to be relatively weak and under-resourced. Along with that, property rights law enforcement has provided little deterrence value because the damages awarded are often too low (China Music Business 1).

Considering the high piracy environment in China, – is there hope for a profitable music industry? Since China's entry into the World Trade Organization in 2001, rules and regulations regarding copyright protection have been strengthened. After the WTO entry, China has lowered the threshold for criminal prosecution of copyright infringement. In addition to that, the popular music search engine, *Baidu MP3 Search*, was cancelled due to Baidu enabling users to download music effortlessly (Priest 2014). Since 2011, Baidu has started to pay royalties to the record labels and removed many links to pirate music websites[3]. As the controls of piracy become stricter, which seems to be the case in China, it may increasingly become a viable music market in the coming years. The IFPI has estimated that China is now on its way to a paid model, meaning that consumers are starting to pay for music. The government has started to take more action against file sharing both in

[1] Calculated from the year 2013.

[2] The International Federation of the Phonographic Industry claims to be not-for-profit international organization that represents the recording industry worldwide (IFPI 1).

[3] This solution is a product of an agreement between Baidu and Warner, Sony BMG and Universal (INA Global 1).

enforcement and raising consumer awareness of IPR, according to the vice minister Yan Xiaohong of the National Copyright Administration of China (NCAC) (IFPI 2014: 36-37).
Taking the remarkably smaller country of Sweden as an example, online music services such as Spotify and Youtube are widely used. Subscription and streaming of music is estimated to have contributed greatly to decrease piracy in Sweden, along with a stricter legal framework (The Economist 1). In 2013, music revenues in Sweden were estimated to be around 194.2 million US dollars (IFPI 2014: 34-35). Comparing this to China, which in the same year was estimated to have music revenues of 82.6 million US dollars, it is quite impressive considering Sweden's population only is around 0,7 percent of Chinas population (IFPI 2014: 36). Hence, when it comes IPR protection of music, Sweden and China could be seen as two great opposites. The effects that formal laws in the form of IPR have on music production will be researched in this study. However, in order for formal laws to change, informal institutions in the form of social norms need to change as well (Williamson 2000). Thereby, this research further aims to analyze the norms surrounding the music industry.

1.2 Research Purpose

Some scholars argue that piracy is *beneficial* for both consumers and producers because it lowers access barriers to a wide variety of goods and can thereby drive innovation. For example, Raustiala & Sprigman (2012: 7) claim that there is a "piracy paradox" where copying spurs innovation in some industries and in others social norms contribute to keeping the innovation going. With piracy, consumers could be better off because they get a broader variety of goods to a lower price, and the producers benefit from this because a lot of creative artists gather inspiration from previous works (Priest 2014: 520). Standard property rights theory, however, states that protection of IPR is crucial for innovation and development (Bergh & Jakobsson 2010; Menell 1990; Fromer 2012). The aim of this research is to investigate how IPR protection affects music production in China. If a positive correlation between well developed legal institutions and production of CD products can be shown, it can give incentive to further develop IPR protection and thereby increase music production and innovation.

The formal laws do not solely guide consumer behavior; behavior is also guided by the social norms surrounding the consumers (Nee 2010). Since illegal downloading is a big obstacle for music companies trying to make profits on music sales, knowledge of social norms is

believed to be of use for a future viable music industry. Thereby, the norms of behavior of Chinese music consumers will be studied and compared to Swedish music consumers in order to investigate how IPR protection is viewed on the micro-level and whether or not there are cultural differences in social norms that affect the music industry. Hence, the thesis provides a two-stage analysis; the legal environment on provincial level and micro-behavioral data by means of a survey. The main aim of this thesis is to answer the following question:

– *How do formal and informal institutions affect the Chinese music industry?*

1.3 Methodology

To investigate how IPR protection affects music production in China, a fixed effects regression is performed on macroeconomic data collected from China's Statistical Yearbooks (1997-2013). Furthermore, in order to research the drivers of the will to pay for music, a micro-level study is performed by the means of a survey conducted in China as well as in Sweden, with 210 and 215 respondents respectively. The target group for the survey is young adults since they are the first generation to have grown up using the Internet and are thereby assumed to have the technological skills to download music illegally. The answers are then analyzed by performing regressions on the will to pay for music among Chinese consumers, as well as regressions to see whether or not I can establish differences in behavior across Chinese and Swedish consumers. Hence, the micro-level analysis consists of two steps; one where the drivers behind the Chinese' social norms are analyzed and one where the potential differences in social norms between Chinese and Swedish respondents are studied.

1.4 Limitations

The data on CD production on provincial level might not provide the whole picture of music production. Music consumption has changed dramatically over the past decades and only looking at CD production could be misleading. In the beginning of the data for CD production (year 1998) music was also consumed through cassette tapes and now, by the end of the data, music is also consumed through computer files that might never be released as CDs. However, data on all music production is not available and CD production should give a broad picture, since it is a music device that has been in use during the whole period.

Regarding the two surveys conducted for this research, one limitation is that the respondents can be assumed to have a reference-point[4] when it comes to how much they are willing to pay for music. This reference-point might be the price on the market today and it is assumed to be lower for Chinese consumers, due to some of the most popular music streaming services in China being for free. This is important to keep in mind when interpreting the results. Furthermore, certain confusion about what is legal or not occurred when conducting the survey in China. Several respondents were not sure how to answer the question of whether or not they know someone who has ever downloaded a music file illegally, because they did not know what was legal or not. However, the mere fact that this confusion occurred indicates that regulation regarding music is not very strong in China. None of the 215 Swedish respondents showed any sign of confusion regarding this question. Furthermore, the question on whether or not a person who downloaded illegally would be treated any differently afterwards was not specified as treated *negatively* or *positively* after illegal downloading. Thereby, the interpretation of the responds on this question is done with caution.

1.5 Thesis Outline

The thesis first covers an introduction of today's music industry in China and Sweden along with the research purpose. A short description of the method and limitations follow in chapter 1. Secondly, the theoretical framework provides a discussion on the music market structure. Theories on intellectual property rights, social norms and cross-cultural differences are then described. Section 3 explains the method, data and results for the macroeconomic study, while chapter 4 shifts the analytical focus to micro-behavioral responses. A discussion of the results is provided in chapter 5 along with conclusions and suggestions for further research.

[4] See for example Wenner (2015) on how expected prices can serve as reference-points.

2. Theoretical Framework

A perfectly competitive market implies that the producers will not make any profit in the long run because they will be forced to lower their price to the marginal cost in order to stay in the market (Varian 1992, p. 216). In the music industry, this cannot be assumed to be the case since the actors in the music industry in most cases seem to make profits that are above the marginal cost. Furthermore, the market is not perfectly competitive since the goods that are sold are differentiated. For example, most would agree that a firm (in this case a record label) selling music files with Britney Spears as the singer does not sell the same good as a record label selling Guns N' Roses' music. Looking at the music industry, we can say that the record labels have a monopoly on their artists. The consumers can only purchase an album or song of their favorite artist from one single label (Norbert 2004). This monopoly structure is, however, challenged by piracy. Thereby, intellectual property laws can be thought of as a way to "take back" the monopoly of music creation.

Considering the music industry as a kind of monopoly market, the producers are selling the music at a price higher than the marginal cost. It is hard to know how high the marginal cost is for a music file and it can be assumed to vary for different producers. However, one can assume that distribution costs have decreased with the arrival of the Internet and that costs of production might have gone down with the technological development. This would imply that if the market structure were perfect competition, the price for the music would have gone down with the arrival of the Internet. It further implies that technological development should be positively correlated with music production, given that it lowers the costs of producing and distributing.

If a good is a substitute to another good, the demand for the good goes up if the price for the other good goes up. Perfect substitutes refers to the case where if the price of one good rises, the consumer will be expected to substitute the good for the other good at a constant rate. Imperfect substitutes are goods that are substitutes to some degree, but the substitution rate depends on more than just the price (Varian 2010: 28-111). Pirated and original copies of music files can be considered imperfect substitutes to each other. If a consumer is choosing between a pirated music file and a legitimate one, the consumer's choice between the two goods might depend on the prices and the quality of the goods. In this case, the quality of a

pirated music file can be assumed to be equally as good as the quality of the legitimate one. This would imply that, since the price of the pirated copy is zero, a consumer would always choose the pirated copy. However, this is clearly not always the case because a lot of people still choose to pay money for the original music files. Hence, there must be something else affecting the demand for the good, other than price and quality. Some consumers might find value in purchasing a legitimate music file simply because of the fact that it is legal and there might be consequences if you get caught. In other words, the formal institutions surrounding the music market might affect the consumption. A legitimate music file might be considered as a more luxurious good. Furthermore, if you pay for the good the producers and artists earn a profit that might be desirable for some music fans and in some cases an original file could be easier to get a hold of. Additionally, there is reason to believe that social norms come into play and reduce or increase illegal consumption. If downloading illegally is not socially acceptable, it might lower the likelihood of engaging in piracy.

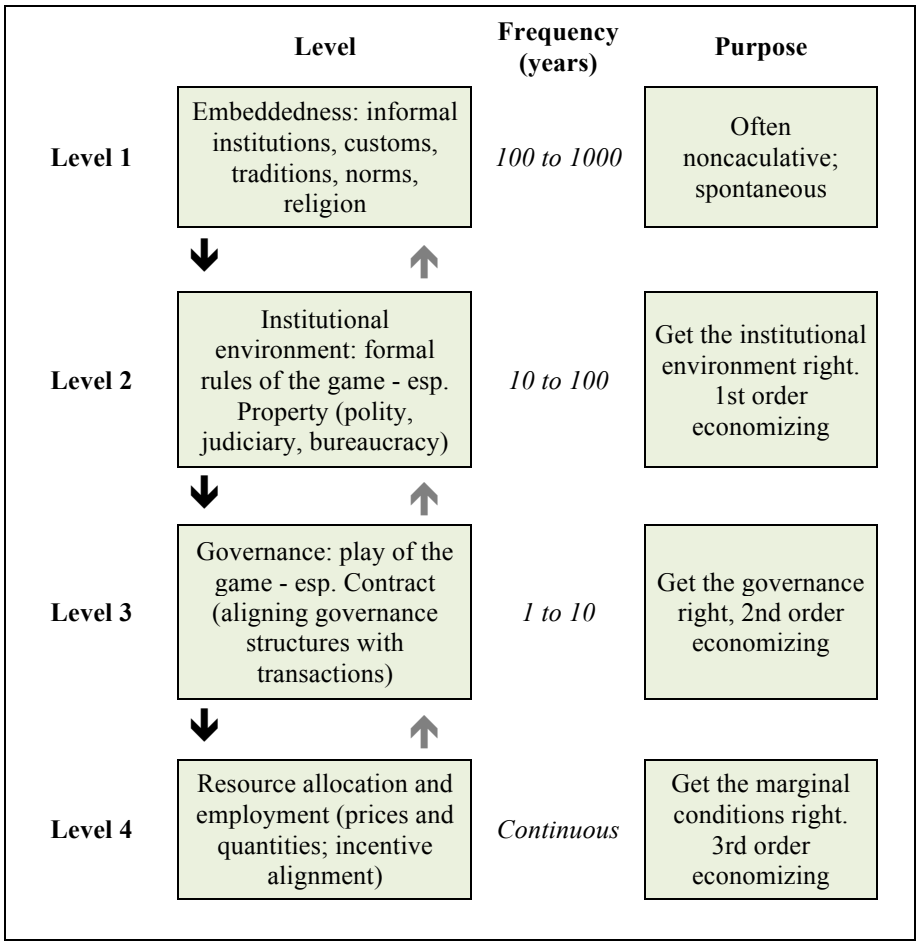
Another issue regarding the music market is the problem with excludability. A good is excludable if one can prevent non-paying customers to benefit from it and illegal file sharing challenges the excludability of music. Along with competing with hundreds of unlicensed music services, China further struggles with a low share of the profit going to the copyright holders, - only three percent of the total digital music sector revenues (IFPI 2014: 36). The problem with this is that such a low share of the profit might not provide enough incentive for further investment in the industry. The low profits for sales of recordings has lead to leading record companies in China relying heavily on live performance income, where non-paying consumers can easily be excluded. This is however not considered very profitable in the long-run, which is why the music labels along with the government are now cooperating more in order to change the music environment (IFPI 2014: 37).

The Chinese government controls a large portion of the music sold and consumed, both domestic as well as foreign. There is a list made by the Ministry of Culture that defines criteria for any officially distributed music, which includes restriction of promotion of religion, violence and crime in recordings. A list of unapproved foreign songs that were to be deleted from music websites (for example *Last Friday Night* by *Katy Perry*) was published in 2011 (INA Global 1). Many of these restrictions can be seen as an obstacle for the growth of the music industry in China, because they limit the supply of legal music. In turn, this could

be assumed to give incentive for illegal consumption, because these songs have no legal distribution channel in China (Priest 2014). Aside from limiting censoring of music (which is not discussed in this research but is however encouraged for future studies), both formal regulation and informal institutions such as social norms has the potential to shape the incentives for illegal consumption.

Williamson (2000) defines four levels of social analysis that provides a picture of how long it takes for different levels of institutions to change and how they are connected. His analysis suggests that the institutional environment (level 2), such as laws and property rights, cannot work without the other institutional levels. In other words, property rights will not be fully implemented if the informal institutions, such as social norms, do not change. These informal institutions, Williamson argues, can take 100 to 1000 years to change and have a huge impact on the way that formal institutions are realized.

Figure 2.1 Williamson's Four Levels of Institutions



Source: The New Institutional Economics (Williamson 2000)

Applying Williamson's four levels of institutions on the Chinese music industry, it is apparent that social norms play an important part in explaining the structure of the music industry and that both formal and informal institutions need to change in order for a transformation to happen.

2.1 Intellectual Property Rights

Without property rights protection, can there be a profitable music industry? Some might argue yes. The monopoly that artists have on their own music, as previously mentioned, implies that they can still profit in other ways. Live music is an important source of income for music labels due the excludability. Furthermore, artists and music labels can profit from activities that are related only to the publicity and recognition that music creation can bring. In other words, the artists become a brand and can thereby make money as such on the side of their music (Priest 2014). It is also important to note that creating music can be affiliated with benefits that are non-monetary, such as social status. Considering these alternative ways to profit on music (both monetary and non-monetary), there might not have to exist strong IPR protection in order for musicians to be willing to create music. In China, copyrights law conforms to international standards in many ways. In fact, the overall legal infrastructure cannot be said to be the problem when it comes to weak protection of intellectual property. However, this legal infrastructure is relatively novel and Chinese copyrights law has had less than two and a half decades to develop. IPR protection in China has faced pressure from outside countries, such as the US, and much improvement has been made and can be made in the future (China Music Business 2).

Utilitarian theory of intellectual property rights generally states that patent laws lead to more innovation due to a creators right to his or her own work. This utilitarian framework is commonly used to explain and validate patent laws. The United States Constitution grants the power to Congress when it comes to patent and copyright laws as: "to promote the progress of science and useful arts", which is based on the utilitarian framework (Menell 1999). Property rights theory, as emphasized by Bergh & Jakobsson (2010: 64), states that in order to have a functioning private market there needs to be transparent information about who has the right to sell and who has the right to buy the good. An important factor for this to hold is functioning institutions for property rights. In other words, without property rights there is no working market. IPR protection also has a downside – it can form monopolies on the market

due one person holding the rights to a certain creation, which in turn is linked to a dead weight loss. However, John Stuart Mill (1862) argued that the monopoly situation which patent creates is justified due to the reward that it provides to the inventor and the benefits that consumers gain from the invention (Menell 1999). Hence, intellectual property rights protection can both have a positive welfare effect and a negative one. On one hand, it can be considered necessary for innovation to prosper and on the other hand it creates welfare loss due to monopoly power.

Libertarian arguments regarding IPR protection are often used to critique the dominant theories that justify the protection. An argument provided by Barlow (1994) is that IPR limits the free exchange of ideas over the Internet, which is harmful because it enables corporate interests to gain control over the arts and politics. In fact, one could argue that in the specific case of China, piracy might be beneficial to consumers due to less censorship. Putting aside the possible benefits from music piracy, the question still stands whether or not intellectual property rights protection is needed in order for innovation to occur. In an article by Fromer (2012), the importance of IPR protection is further emphasized. She distinguishes between utilitarian theory and moral rights theory of property rights. While utilitarian theory is defined as copyright laws *providing incentive* for creation by giving creators exclusive rights to their work, moral rights theory also justifies IPR protection but is grounded in the belief that creators *deserve* rights due to having created the works. Fromer further discusses how utilitarian and moral rights theory can be combined and maximize the societal benefits by increasing and improving creative works. This opens up for discussion on why IPR protection is beneficial and emphasizes that not only can IPR protection lead to more innovation (which is good for the society as a whole) but one can also see it as if the creators deserve this protection simply for the creation.

Considering standard utilitarian theory and the notion that stricter intellectual property rights protection leads to more innovation, the following hypothesis is derived:

Hypothesis 1. Intellectual property rights protection is positively correlated with music production

2.2 Social Norms

A social norm can be defined as a mean to coordinate behavior and expectations in interactions between people. In other words, norms unify social behavior, and deviating from the norms can lead to social disapproval or punishment. Social norms have power over a broad variety of phenomena, for example forms of communication, concepts of justice and property rights (Young 2007). Social norms are, unlike formal laws, monitored intrinsically and enforced by social interaction (Nee 2010). In the article *Copyright Extremophiles: Do Creative Industries Thrive or Just Survive in China's High Piracy Environment?* Priest (2014) states a set of reasons for China's high level of piracy. First, he mentions that the threat of copyright enforcement is not sufficient because damages awarded to deter these illegal activities are too low. He also states that there are cultural, social and economic factors that play a part in explaining the high level of piracy. Even if there is no one around to see the illegal behavior, for example while sitting at home in front of a personal computer downloading an illegal music file, a social norm can still trigger a feeling of guilt or shame (Peyton 2007). As previously mentioned, downloading a pirated copy of a music file has zero cost. Therefore, whatever the cost of the legitimate music file, the pirated copy will always be economically ideal to the consumer. If IPR protection and the damages awarded if caught are low, it could provide strong incentives for engaging in piracy. However, if downloading illegally is not socially acceptable, i.e. not the norm, it might provide a barrier for illegal behavior beyond the legal environment.

Nee and Opper (2012: 23-24) further emphasize the importance of analyzing the relationship between social norms and formal institutions. Opposition norms are norms that work against and undermine the formal institutions. If the norm is to download music illegally, it would imply that the norm is an opposition norm that undermines the legal system. According to Schelling (1978: 17), deviating from the formal laws is made acceptable or unacceptable depending on how the nearby society behaves. In other words, we could expect that if a majority of your friends download music illegally, you are less likely to consider it as unacceptable behavior. The reversed causality might also be true; that if people believe that illegal downloading is unacceptable, fewer people in their peer-group will engage in these illegal activities. In other words, it is hard to state the exact causality and there is reason to believe that there is a two-way effect.

A second hypothesis is based on the theory of social norms and the important role they play:

Hypothesis 2. There is a relationship between social norms and consumer behavior of music in China

2.3 Cross-Cultural Differences

Consider these two scenarios; a mother binds her daughter's feet in order to keep them small and burping loudly after eating a meal. These situations might be the norm in certain societies, but considered abnormal in others (Young 2014). Considering perceptions of illegal behavior when it comes to music consumption, the norms might differ between China and other countries.

In this specific study, Sweden is used as the comparative example. As previously mentioned, China and Sweden can be seen as two opposites when it comes to the music industry. Sweden has relatively strong property rights protection and a large music industry in relation to its population, while China has a history of weak property rights protection and has a very small music industry in relation to its large population. However, the differences in music industry sizes might also be due to underlying social norms that vary between the two economies. Research by Schelling (1968) studies ethical systems and the consequences of constraints on behavior. These constraints can come from a broad spectrum of for example religion, ethics and law. Schelling claims that the extent to which different ethical systems affect social behavior can be vast and that ethics and law are in many cases similar to each other. This further motivates the importance of looking at social norms when defining music consumption and production in China, and motivates a cross-cultural comparison.

Swinyard et al. (1990) researched the behavioral differences between Asia and United States when it comes to software piracy by reviewing cultural histories and property rights protection. Copyright protection is deeply rooted in Western culture, specifically in the US, where the creation of an individual is considered as owned by the individual and should be protected as such. In fact, protection of property rights originated in the Western world. Asia, on the other hand, provides a direct contrast. Asian countries, and China in particular, have a tradition of viewing individual creations as common goods that are best to be shared with the rest of society. In fact, to be copied is viewed as a compliment and honor in many Asian

nations. Third-world and Asian countries often emphasize that Western ideas of copyright protection are harmful for a nation's long-run development due to monopoly power over production and distribution of knowledge-based products (Swinyard et al. 1990). Considering this view of copyrights in Asia, there is reason to believe that protection of copyrights would be hard to implement.

In a paper written by Edward Sandels (2012), the results from a survey conducted in Sweden showed that a high level of respondents believed that the price for legal music files were unreasonably high. However, only 23 percent of the respondents believed that illegal file sharing was completely acceptable, which implies that there is a willingness to pay for music, although perhaps not as high as the price on the market. 10 percent of the respondents said that implementation of the IPRED law completely stopped them from downloading music (Sandels 2012). Sandels' research gives an indication for the possible results in this research, and Swedish respondents can be assumed to have a lower acceptance level for illegal downloading than the Chinese. However, Jiang Di, a postgraduate at China University of Political Science and Law (CUPL) with a major in intellectual property rights law at, states that the social norms among young adults in China are changing. Chinese music consumers are used to not having to pay for music but there is a tendency towards more and more consumers paying for music. It is important to note, however, that in certain situations, downloading music for free is not illegal in China and some large companies pay royalties to the creators (Jiang Di 2015, pers. Comm., 28 April). Hence, the social norms surrounding music consumption in China might be highly influenced by the fact that receiving music for free is not always subject to illegality.

Considering this history of cultural differences between Asia and the Western world, a third hypothesis is derived:

Hypothesis 3. There are behavioral differences between Chinese and Swedish music consumers

3. Macroeconomic Study

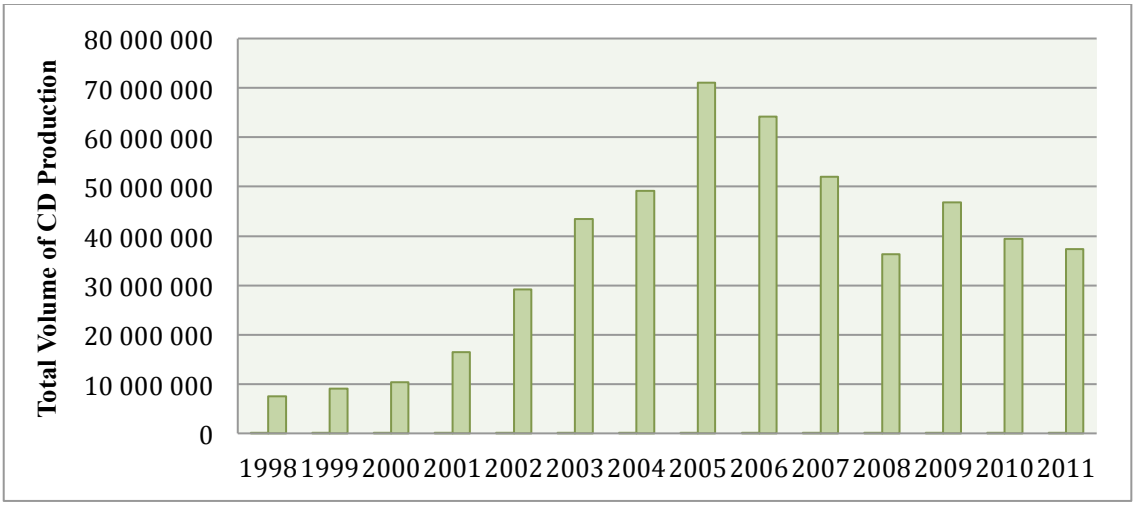
To test if IPR protection has a positive effect on music production, regression analysis is performed using a robust fixed effects regression with CD production as a proxy for music production. A fixed effects model is a linear regression where the intercept terms vary over individual units. In this case, time effects and province effects are included in order to control for province time-varying economic effects and heterogeneity across provinces. The data for the regression analysis is collected from China's Statistical Yearbooks and the NERI index of marketization (Fan et al. 2011) and reflects data for the years 1997-2011. The NERI index of marketization is created by the National Economic Research Institute and is a commonly used index among researchers (see for example Du et al. 2008 and Lin et al. 2011).

3.1 Choice of Estimates

3.1.1 CD Production

As a measurement for music production, the volume of CD production on provincial level, normalized by population size, is collected from China's Statistical Yearbook for the years 1998-2011. The decision of using the volume of CDs, and not the kinds, as a measurement for music production is due to it being considered more substantial since it reflects both innovation and a level of determination and expectancy to profit. On one hand, the total volume reflects innovation because the broader the variety, the bigger the total volume. Furthermore, only producing one copy of one CD indicates that it is only a one-time thing and that the producer does not show much determination to make profits. However, it might be interesting to note that in 2011 only 4716 different kinds of CDs were produced, which cannot be thought of as much considering the large population. Looking at the data of total volume of CD production, there is a high variance between different years and provinces. Figure 3.1 shows the total volume of CD production by year and figure 3.2 shows the provincial distribution of average CD production per capita for the years 1998 to 2011.

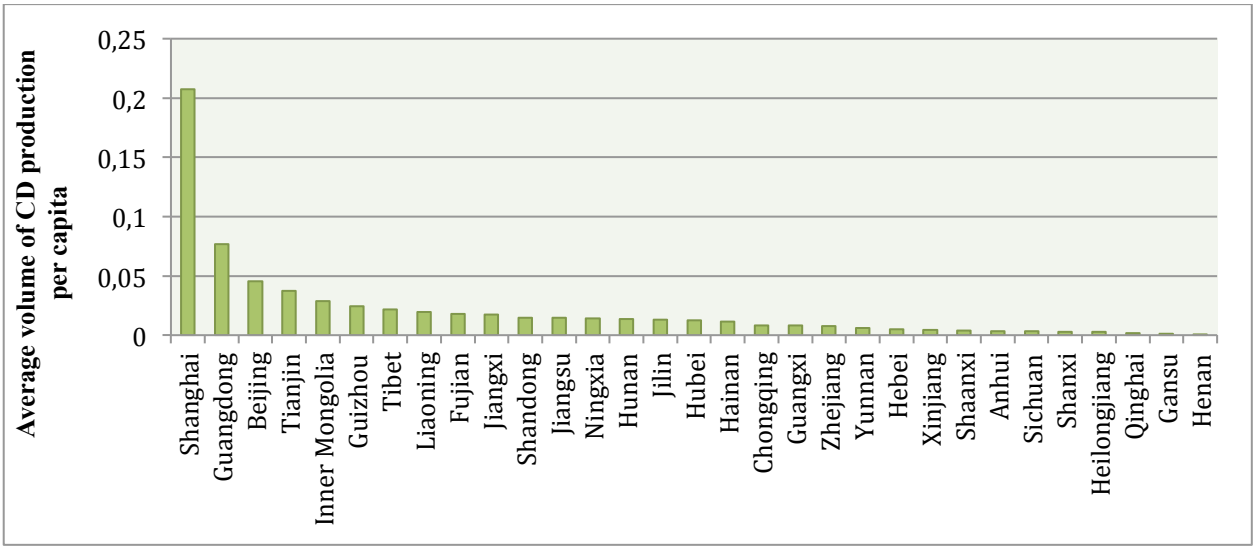
Figure 3.1 Nation Total Volume of CD Production by Year



Source: China Statistical Yearbooks (1999-2012)

Between 2004 and 2007, production of CDs was at the highest levels and since then we can see a slight decline. This could be due to the fact that a greater proportion of the music today is only released in electronic form and never produced as CDs.

Figure 3.2 Average Provincial Volume of CD Production per Capita



Source: China Statistical Yearbooks (1999-2012)

From the graph above we can see that Shanghai, Guangdong, Beijing and Tianjin have the highest levels of CD production per capita. All these provinces are coastal provinces[5] located

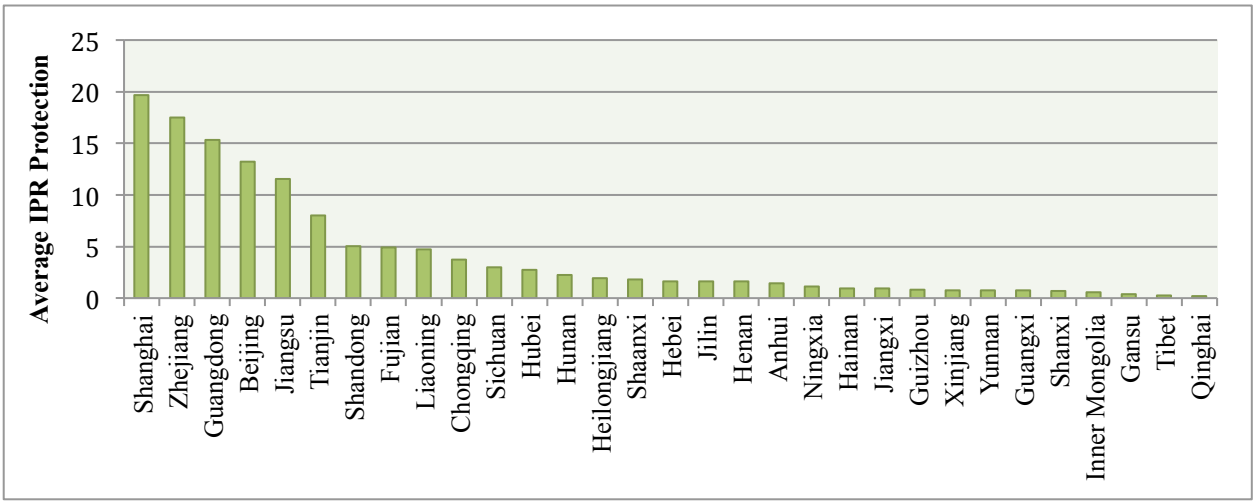
[5] The capitol of Beijing is not directly located by the coast but is considered a coastal region in this study, due to its high development level and it being included as a coastal region in several previous studies (see for example Lampton 2001: 114; Jiang 2014: 85).

in eastern China. The high levels of CD production among these provinces might be explained by the fact that coastal provinces have prospered and experienced an almost unthreatened economic growth over the last 30 years in China. Thereby, coastal provinces are often subject to higher levels of development (Ramesh 2007).

3.1.2 Intellectual Property Rights Protection

As a measure for intellectual property rights protection, the 2011 NERI Index of Marketization for China's Provinces, published by the National Economic Research Institute (Fan et al. 2011) is used. This measure has been previously used as an indicator for IPR protection in a study performed by Du et al. (2008), which researches how property rights protection and contract enforcement affects foreign direct investment in China. The NERI Index of Marketization provides data of marketization over the years 1997 to 2009 on provincial level. The index measures marketization through five different fields with a total of 23 basic indicators, where there is a sub-category for IPR protection. This sub-index is constructed by combining two ratios; a ratio of patent applications to GDP and a ratio of patent approvals to GDP. The distribution of the average levels of IPR protection, sorted by highest to lowest levels, is shown in the figure below.

Figure 3.3 Regional Average Levels of IPR Protection (1997-2009)



Source: NERI Index of Marketization (Fan et al. 2011)

Shanghai, Zhejiang, Guangdong, Beijing and Jiangsu show the highest levels of IPR protection. As with levels of CD production, all are considered coastal provinces. This shows that the provinces that experience the highest levels of CD production also display the highest

levels of IPR protection. Again, coastal provinces have been subject to higher development, which could explain the distribution.

As an additional measure to protection of IPR, the share of lawyers and independent accountants in the population will be included in order to check for a potential relationship between law enforcement and music production. Using a sub-index of the NERI Index of Marketization on legal institutions and contract enforcement, one can see the proportion of lawyers and independent accountants out of the total population of the regions. This data reflects the development of the legal environment as during the pre-reform period in China there were no lawyers and accountants were not independent (Fan et al. 2011). Again, this data is available for the years 1997-2009.

3.1.3 Control Variables

In order to get non-biased results, a set of control variables are also included in the models. Reviewing previous economic literature, no direct previous research has been made regarding what variables affect CD production. However, previous research was found on the music industry in Japan where Hazucha & Rešovský (2012) discuss the factors that affect music sales. The factors affecting music sales might also be applied as factors affecting music production, with a few exceptions. Hazucha & Rešovský emphasize the importance of looking at income of the population as well as demography. When it comes to music production, one could assume that at least the first variable has an impact. Furthermore, it could be of interest to control for demography if one assumes that music production mostly targets young people. However, producers might be more likely to simply target a large market rather than a young market and music is consumed by people of all ages. Therefore, demography will not be taken into account in this research.

(1) Gross Regional Product. The financial situation of the population, here measured through gross regional product per capita, is of importance to a producer since it might affect his or her future profit. GRP might also correlate with the level of IPR protection within a region and hence it is important to control for GRP confounding effects. Research by Mijiyawa

(2008) found that property rights institutions have a positive effect on economic growth[6]. The numbers are collected from China's Statistical Yearbooks and are further normalized for inflation.

(2) Technological Development. The technological development over the last decade has dramatically changed the way and the cost of music production and distribution. Technology has also made is easier to copy and share intellectual property, which can make enforcement of IPR more difficult. Furthermore, there is reason to believe that IPR protection affects the technology development positively by incentivizing innovation (Wakeman 2012; Monsef et al. 2011). A positive correlation motivates controlling for its confounding effects. Using a sub-category from the NERI index of marketization controls for the technological development within the region. The technological development is there measured by the market transaction value of technology as a share of GRP.

(3) Higher Education. Controlling for the education level is of importance since there is reason to believe that IPR protection is more present and effective among a highly educated population. Furthermore, one could assume that highly educated people are more likely to innovate and file for patents (Bušíková 1999). Thereby, it is necessary to control for its confounding effects. Education is here measured as the numbers of students enrolled in higher education normalized by regional population, which is gathered from China's Statistical Yearbooks.

(4) Foreign Direct Investment. FDI is included as a control variable in order to control for foreign integration in the region. There is reason to believe that foreign integration might lead to better production possibilities and that it spurs innovation, which in turn could have an effect on music production (Du et al. 2008). Furthermore, IPR could attract FDI and better protection of IPR is often used as negotiation device for international trade agreements (Fink & Maskus 2005). The data for foreign investment is again taken from the NERI index and is defined as foreign direct investment as a share of GRP.

(5) Share of Agriculture. Some control of the economic structure of the regions is necessary, and it can be assumed that the economic structure is correlated with IPR protection since some sectors in the economy are in greater need of IPR. The share of agriculture, normalized by GRP, will be used as an indicator for the economic structure. The share of agriculture is

[6] GDP per capita over five consequetive years is used as a measurement for economic growth in the study (Mijiyawa 2008).

collected from China's statistical yearbooks for the years 1997-2011 and is defined by the gross output value of farming, forestry, animal husbandry and fishery.

3.2 Model Specification

The following empirical specification is used to estimate the effect of IPR protection on music production:

$$Y_{it} = \beta_0 + \beta_1 S_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

Where Y_{it} is the outcome variable CD production, S is a vector of two different IPR protection measures and X is a vector of control variables discussed above. Using lags of three years on the variables for share of lawyers and accountants and protection of intellectual property, the causality will be more clear due to the assumption that it takes a certain amount of time (in this case three years are assumed) until law enforcement and protection of intellectual property has an effect on CD production. Year is further included as a dummy variable in order to control for time effects on the dependent variable. The group variable of the regression is provinces, which controls for province fixed effects.

Two other regressions are further preformed, where coastal and non-coastal provinces are divided in order to see if IPR protection affects CD production differently between the two groups. The gap between coast and inland is extensive within the Chinese economy, where economic growth has been steadier in coastal provinces (Naughton 2007: 29-30). Considering the higher development within coastal regions, there is reason to believe that IPR protection might be more effective in those regions. Based on previous research, 12 regions[7] are considered coastal in this analysis (see for example Lampton 2001: 114; Jiang 2014: 85).

[7] The coastal regions are: Beijing, Hebei, Zhejiang, Fujian, Liaoning, Tianjin, Guangdong, Hainan, Guangxi, Shanghai, Shandong and Jiangsu.

3.3 Descriptive Statistics

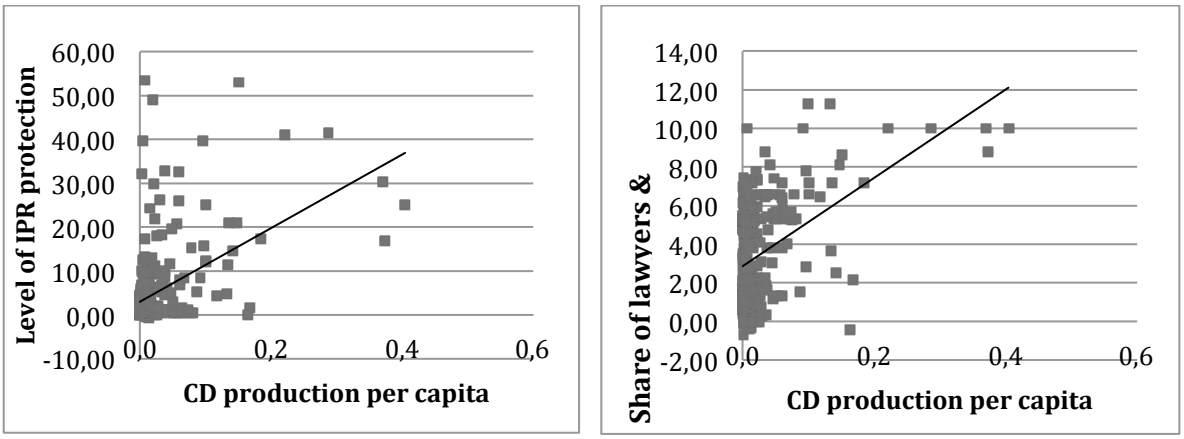
Below are descriptive statistics of the variables included in the macro analysis for testing hypothesis 1; share of CD production by population, level of intellectual property rights protection, share of lawyers and independent accountants in population, gross regional product, technological development, higher education, foreign direct investment and share of agricultural activity.

Table 3.1 Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
Dependent variable					
CD production	307	.02	.05	.00	.40
Independent variables					
IPR protection	307	4.23	7.9	-.62	53.51
Lawyers & Accountants	307	3.04	2.63	-.70	11.28
Control variables					
GRP (100 million yuan)	307	17,407.15	15,275.83	2,199.06	83,448.56
Technological development	307	6.66	2.04	-3.67	10.23
Higher Education	307	.01	.01	.01	.04
FDI	307	2.9	2,94	-.12	17.92
Share of agriculture	307	.25	.12	.02	.6

To get an indication for a potential relationship between the dependent variable (CD production) and the two variables of interest; IPR protection and share of lawyers and independent accountants, two scatterplots with trend lines can be seen below.

Figures 3.4 & 3.5 CD production and the two Independent Variables



Source: China Statistical Yearbooks (1999-2012) and the NERI index of Marketization (Fan et al. 2011)

Observing the left scatterplot, there seems to be a weak positive trend between CD production and IPR protection. The right scatterplot further indicates a weak positive correlation between CD production and the share of lawyers and independent accountants. This should provide some implication for how the two measures for IPR protection might correlate with CD production.

3.4 Results

The results from a robust fixed effects regression on CD production is presented in the table below. Gross regional product was excluded from the original regression due to collinearity.

Table 3.2 IPR on CD Production

Variables	**CD production**
IPR protection (lagged)	.0024**
	(.00104)
Share of lawyers & accountants (lagged)	.0086
	(.00956)
Technological development	.006**
	(.00282)
Higher education	-1.354
	(.0468)
Foreign investment	.00048
	(.00186)
Share of agriculture	-.0582
	(.05457)
Constant	-.0191
	(.0336)
Observations	307
Number of provinces	31
R-squared	.212

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A Breusch-Pagan test for heteroskedasticity was performed and it showed that the data suffers from heteroskedastic standard errors[8]. This problem is fixed for by performing a robust regression. Checking for multicollinearity[9], the correlations between the independent

[8] Heteroskedasticity is when the variance of the residuals varies across observations. Homoskedastic residuals is one assumption of a nonbiased OLS estimation (Dougherty 2011: 281-283).

[9] Multicollinearity indicates that one variable could be considered as a linear combination of other independent variables, which might cause unreliable estimates. The problem is present if the correlation is close to -1 or 1 (Verbeek 2012: 43-46).

variables are not considered too high, except for the correlation between Education and GRP of 0.824. A variance inflation factor test (VIF) was also performed in order to further test for a potential problem of multicollinearity, where a VIF value that exceeds 4 might be a sign of multicollinearity[10]. The VIF value for GRP is 9.94, which is considered high. Therefore, excluding GRP from the final regression should provide more robust results. Moreover, the data was checked for omitted variable bias by performing the Ramsey Reset test, showing that the data does not suffer from omitted variables. See appendix for Breusch-Pagan test, correlations matrix, VIF test and Ramsey Reset test.

As can be seen, the coefficient for IPR protection is positive and significant on a 5 percent significance level. This indicates that better protection of intellectual property leads to more production of CDs, according to hypothesis 1. Technological development within provinces is positively correlated with CD production as well on a 5 percent significance level, which can be interpreted as the higher the level of technological development the more production of CDs. The share of lawyers and independent accountants in the population did not show a significant relationship with the dependent variable, which proves that the share of lawyers and independent accountants in the population does simply not affect CD production. There is reason to believe that lawyers and accountants have little to do with the IPR protection of music files specifically, – most cases of piracy might not require a lawyer and simply the existence of lawyers in the region of production might not affect the decisions of music producers.

There is reason to believe that IPR protection has different effects on music production in different regions, especially considering a large country such as China. Thereby, two robust[11] fixed effects analyses were performed on coastal and non-coastal provinces respectively.

[10] The acceptable levels of the VIF test differ among the literature. For this specific study, a level of 4 has been chosen as acceptance level.

[11] Tests for heteroskedasticity and multicollinearity showed that the separated data also suffers from heteroskedastic standard errors as well as a high VIF value for the variable GRP. Therefore, GRP was once again excluded from the regressions.

Table 3.3 IPR on CD Production for coastal and non-coastal provinces

Variables	CD Production Coastal Provinces	CD Production Non-Coastal Provinces
IPR protection (lagged)	.00239*	-.000983
	(.00118)	(.00156)
Share of lawyers & accountants (lagged)	.00191	-.000142
	(.00601)	(.00144)
Technological development	.0144	.00540
	(.0133)	(.00352)
Higher education	3.356	-1.739
	(2.150)	(1.259)
Foreign investment	-.00263	.00191
	(.00266)	(.00251)
Share of agriculture	-.00492	-.0361
	(.213)	(.0524)
Constant	-.0616	-.0165
	(.107)	(.0258)
Observations	119	187
R-squared	0.161	0.098
Number of provinces	12	19

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

When separating coastal and non-coastal provinces, IPR protection has a significant positive effect on CD production only within coastal provinces[12]. For the non-coastal provinces, it is not possible to prove that IPR protection has an affect on music production. In other words, it is not possible to prove that formal laws surrounding the music industry have any effect in non-coastal regions. Considering that social norms are important for formal laws to be properly implemented, there might be a bigger need for the social norms to change in non-coastal areas. Without the norms surrounding perceptions of illegality changing, the legal framework might continue to have little effect. The potential disparity between coastal and non-coastal areas on a microeconomic level was considered beyond the scope of this study. However, with this finding on the macroeconomic level, research on differences in social norms between coastal and non-coastal areas is strongly encouraged for future analyses.

[12] The p-value for IPR protection is 0.068 for coastal provinces.

4. Microeconomic Study

Many sociologists believe that the social and moral sanctions against illegal behavior are as important, and sometimes even more important, than legal sanctions (Grasmick & Green 1980). Thereby, in order to get a broader view of the music industry, there is need for analysis of consumer behavior. Gathering micro-level data by means of a questionnaire, I aim to examine the social norms surrounding music consumption and perceptions of illegality.

Two surveys, one Chinese and one Swedish, were constructed and distributed in order to investigate social norms regarding music consumption in China and Sweden. The main purpose for conducting the surveys among both Swedish and Chinese citizens is to compare the social norms within the countries. In 2009, Sweden introduced an anti-piracy law, IPRED[13], as an attempt to stop illegal file sharing. The anti-piracy law, along with a guilty verdict in the high-profile The Pirate Bay-trial[14], is assumed by the IFPI to have persuaded many consumers to try legal alternatives for consuming music. Remedies like these seem to have worked well for Sweden, which has had an overall market growth of 34 percent between the years of 2008 and 2013 (IFPI 2014:36). Considering the recent changes on the Swedish music market, it further motivates the comparison between Chinese and Swedish music consumers. This comparison might give an indication about the obstacles that the Chinese music industry faces when it comes to the population's potential usage of legal music services, will to pay for music and attitude towards illegal downloading.

4.1 Survey Design and Distribution

Not complying with formal laws can lead to social consequences and the fear of social disapproval can be an important sanction against illegal behavior (Grasmick & Green 1980). Considering that the questionnaire aims to explain illegal activity, the design is of great importance. In order to minimize the risk of respondents feeling reluctant to provide honest answers, the survey questions regarding social behavior and illegal activity were constructed

[13] IPRED, or Intellectual Property Rights Enforcement Directive, was a law implemented in 2009, aiming to make it easier to take action against illegal file sharing (NE 1).

[14] The Pirate Bay is a website that allows users to consume audio and video products at zero cost. The co-founders of The Pirate Bay were found guilty in a trial in 2009 and were sentenced to one year in jail along with a 3.6 million US dollars fine (The Guardian 1).

in third-person (see survey questions 13 and 14). This technique was inspired by previous research performed by Nee & Opper (2012).

Five survey questions are mainly analyzed in this study:

Q12. How much are you willing to pay per month for unlimited access to music without any commercials or other disturbances?

Q13. Assume that you are with two good friends and you see that one of your friends is downloading a music file from an illegal website. How do you think your other friend would react?

Q14. Assume the same scenario as in the previous question. Would your friend who downloaded music from the illegal website be treated any differently after that?

Q17. If your answer on the previous question[15] was "Yes", how many percent?

Q18. If a friend of yours got caught for illegally downloading a music album, what would be you first reaction?

These five questions aim to examine the will to pay for music, the reaction to illegal behavior, the treatment of a friend who downloads illegally, the share of friends who engage in music piracy and the reaction to someone getting caught for illegal downloading. Other control-questions, such as age, gender, employment status, education level and financial situation were also included in the survey. A copy of the survey can be found in appendix.

Before distributing the surveys, both surveys were tested among a group of 10-20 Chinese and Swedish people in the ages of 20-26 in order to check and be able to correct for instant mistakes. The target respondents were mainly young individuals, considering they are the first generation to have grown up with the Internet and there is reason to believe that young people are more adaptive and influenced by technological changes. The distribution of the two surveys took place mainly online via social media but also at Lund University in Lund, Sweden, and Fudan University in Shanghai, China. The surveys were conducted between January and April 2015 and the distribution of the responds can be found in section 4.3. The Swedish survey received 215 responds and consisted of 19 questions. The Chinese survey received 210 responds and consisted of 20 questions[16].

[15] The previous question, Q16, is "Within your circle of friends, do you think that anyone has ever illegally downloaded a music file?"

[16] For the Chinese survey an additional question was asked: "Under which hukou were you born?"

4.2 Variables and Model Specification

To test for hypothesis 2 and 3, five different regression models are conducted for each hypothesis where one includes only Chinese answers and the other one combines Chinese and Swedish responds to check for cross-cultural differences. For hypothesis 2, the main variables of interest for the regressions are the variables regarding social norms. For hypothesis 3 the main variable of interest is a dummy variable for country differences.

The dependent variables are:

- Will to pay something
- Treated differently after downloading
- Percentage of friends who download illegally
- Unfair if caught for illegal downloading of music
- Okay to download illegally

Will to pay something is a dummy variable where zero is coded as 0 and anything above zero is coded as 1. The independent variables for testing hypothesis 2 are: Treated differently (dummy), Percentage of friends who download illegally, Okay to download illegally (dummy), Unfair if caught (dummy) and Will to pay something (dummy). The independent variable to test for hypothesis 3, cross-cultural differences between Chinese and Swedish respondents, is: Chinese (dummy). The control variables are: Financial situation, Current user of a streaming service (dummy), Age, male (dummy), Urban hukou[17] (dummy), Hours using music streaming services (dummy), Hours spent on the Internet (dummy), Employment status (dummy) and Education level (dummy).

To test for social norms and cross-cultural differences, a general model is:

$$Y_{it} = \beta_0 + \beta_1 S_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

Where Y_{it} is the dependent variable, S is a vector of different independent variables and X is a vector of control variables.

[17] Urban hukou is only included when testing for hypothesis 2.

4.3 Descriptive Statistics

Below is a table showing descriptive statistics for the quantitative variables of the two different surveys. The financial situation is measured on a scale from 1-5 where 1 indicates that your financial situation is significantly lower than average, 3 is average and 5 is significantly higher than average. Education is a categorical variable where the lowest level of education is 1 (no schooling completed) and the highest level is 11 (postdoctoral). A higher number indicates a higher level of education. The same goes for hours using music streaming services, which is categorized into 5 different categories where 1 is the least time and 5 the most time. See appendix for a full description of the survey questions and answer categories[18].

Table 4.1 Descriptive Statistics for the Chinese and Swedish Surveys

Variables	Obs. (CH)	Obs. (SWE)	Mean (CH)	Mean (SWE)	Std. Dev. (CH)	Std. Dev. (SWE)
Q2. Age	205	215	22.27	25.19	.48	06.49
Q5. Education	210	215	7.1	5.88	1.96	2.05
Q6. Financial situation	209	215	2.76	2.69	.89	.9
Q7. Hours spent on the Internet	210	215	3.15	3.21	1.13	1.12
Q11. Hours using streaming service	191	189	2.7	3.55	1.03	1.32
Q12. Will to pay for music per month	210	215	11.27	112.11	19.63	94.93
Q17. % of friends that download illegally	207	208	59.36	78.56	39.88	22.92
Q20. # of friends that have been caught	3	4	2	2.25	1	1.89

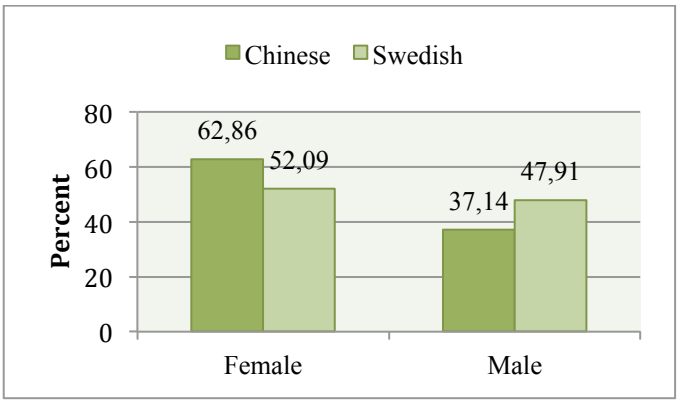
The table shows the distribution of responds for the Chinese and Swedish surveys respectively. As can be seen, one of the biggest differences can be found in the will to pay for music. The average response for the Chinese is 19.63 RMB, while the average response for the Swedish are 94.93 SEK[19]. Only considering the exchange rate, this can be seen as a big difference in the will to pay. A graph with the willingness to pay for the two nationalities

[18] The survey questions not discussed or presented in this paper were not considered important for the research.

[19] 19.63 RMB translated to 26.51 SEK on May 5th, 2014.

using PPP adjusted US dollars[20] will be presented later, showing that the difference still remains after adjusting to PPP. Looking at the percentage of friends who download illegally we can see that the average is higher for Swedish respondents. However, as mentioned in limitations, there was some confusion among the Chinese respondents regarding what was illegal and not. Therefore, the numbers for Chinese respondents might be higher in reality.

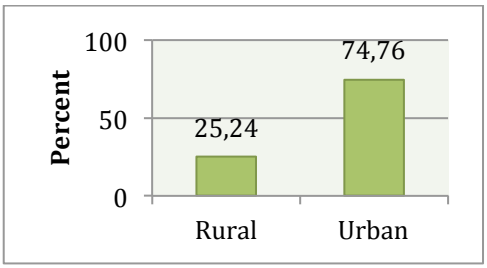
Figure 4.1 Gender Distribution of the Chinese and Swedish Survey



The figure above shows the distribution of gender for the respondents of the Chinese and Swedish surveys respectively. The Swedish responds are presented in the bars to the right.

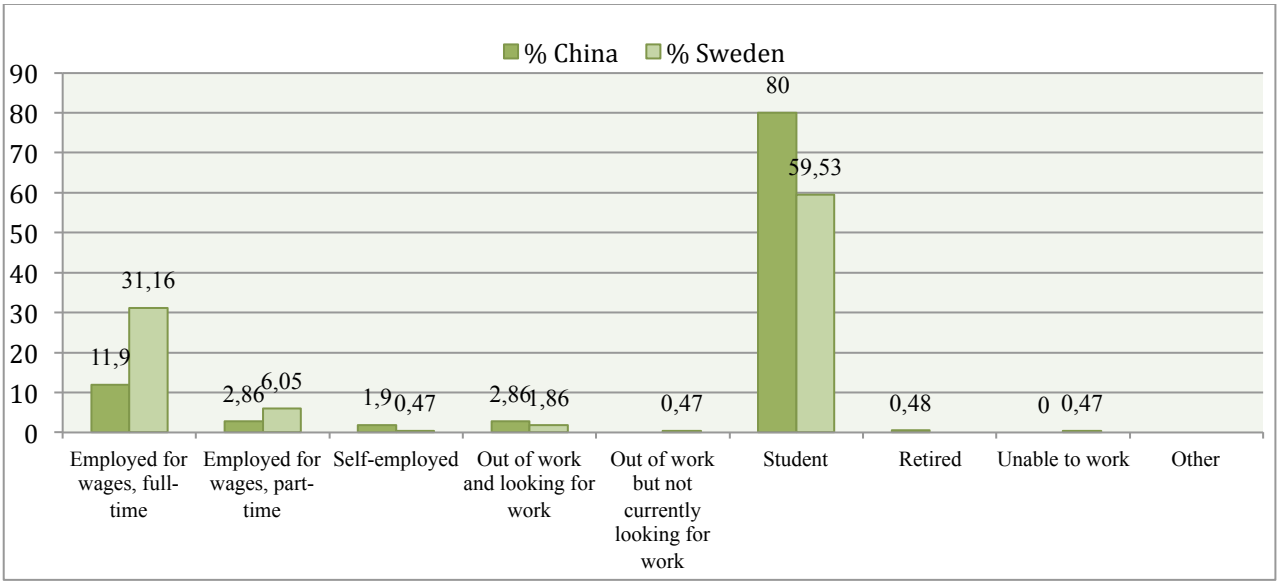
The Chinese *hukou system* is a system that divides residents into urban or rural. Even today, the hukou system creates a rural-urban divide and possessing an urban residence permit provides access to many benefits that rural hukou holders cannot enjoy while staying in urban areas (Naughton 2007: 116). In figure 4.2 we can see the distribution of hukous among the Chinese respondents.

Figure 4.2 Chinese Hukou



[20] Purchasing power parity, PPP, gives the exchange value of a currency by eliminating price differences between countries. PPP is often used to minimize the risk of conducting misleading international comparisons. For this study, PPP data for the year 2014 is used.

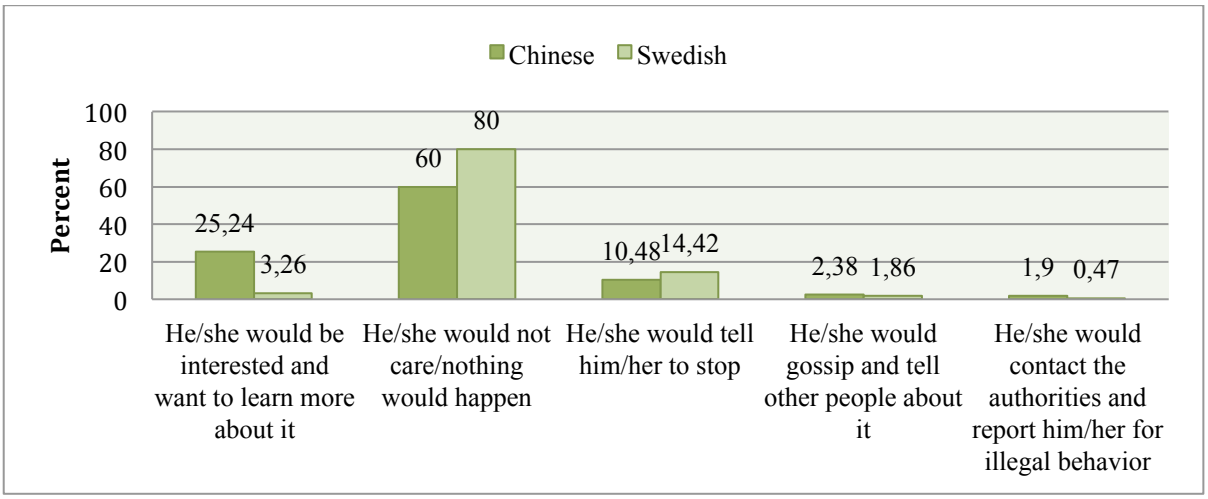
Figure 4.3 Employment Status



A majority of the respondents are students, which is expected as the target group was young adults and a large share of students can be assumed to be of younger ages. Again, the Swedish responds can be seen in the bars to the right.

Survey question 13[21] was: "Assume that you are with two good friends and you see that one of them is downloading a music file from an illegal website. How do you think you other friend would react?" The possible responds and their distribution can be seen in the graph below.

Figure 4.4 Reactions to illegal downloading

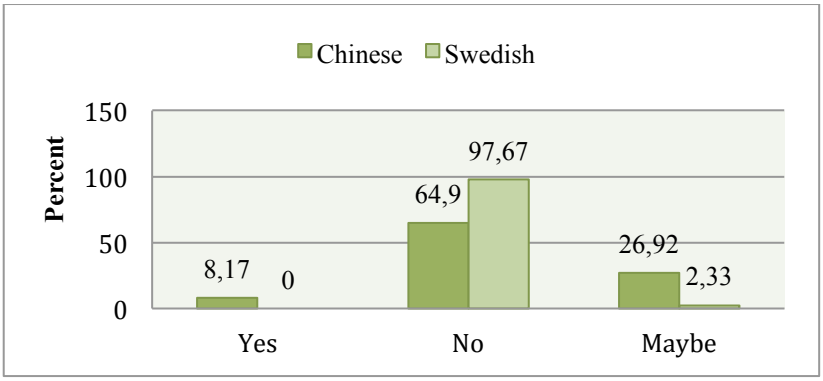


[21] Question 13 is number 12, question 14 is number 13 and question 18 is number 17 on the Swedish survey, due to one less question in total.

It is worth noting that both surveys show that more than 80 percent of the respondents believe that illegal downloading is acceptable social behavior. 25 percent of the Chinese respondents even answered that they would be interested and want to learn more about it.

Question 14 was: “Assume the same scenario as in the previous question. Would your friend who downloaded illegally be treated any differently after that?” The possible responds and their distribution can be shown in the table below.

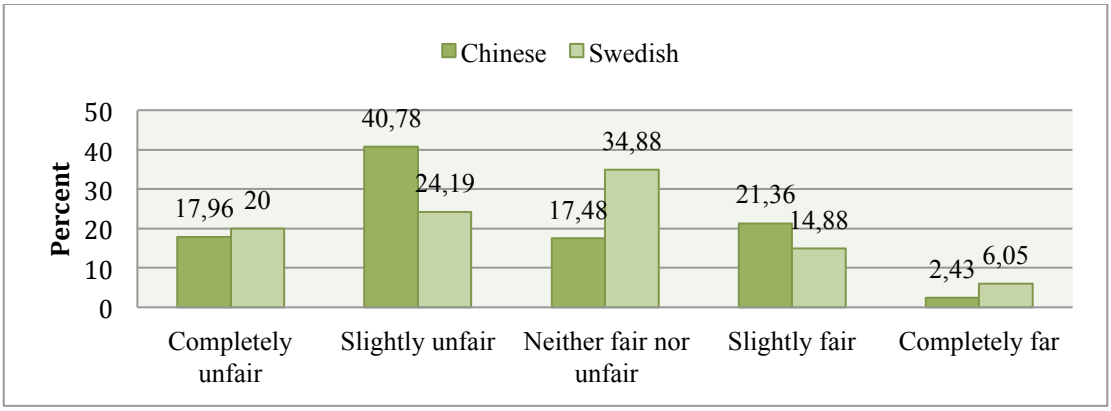
Figure 4.5 Treated differently after illegal downloading



As can be seen from the table, the Chinese survey shows a higher percentage of respondents answering that their friend would be treated differently afterwards. 64.9 percent of the Chinese answered no on the question, while 97.67 percent of the Swedish respondents answered no. This indicates that illegal downloading causes more reactions, either positive or negative, in China than in Sweden.

Finally, question number 18 was ”If a friend of yours got caught for illegally downloading a music album, what would be your first reaction?” Again, the possible responds and their distribution can be shown in the table below.

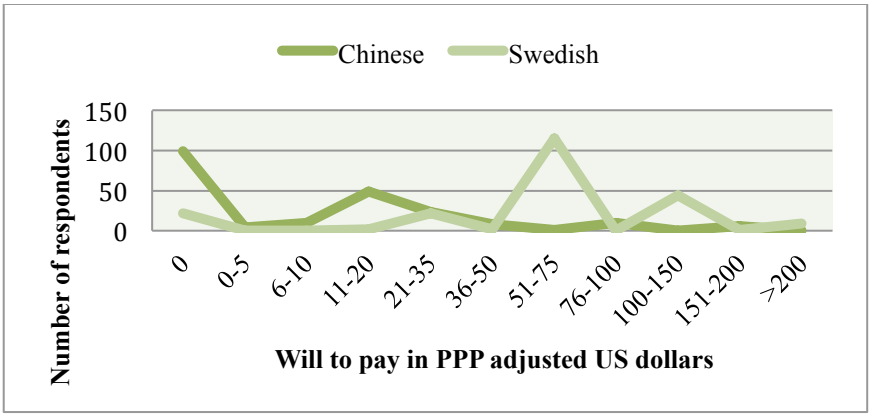
Figure 4.6 Reactions to a friend getting caught for illegal downloading



The graph above indicates that the Chinese respondents believe, to a greater extent than the Swedish, that if a friend got caught for illegal downloading it would be unfair (58.74 and 44.19 percent respectively). Thinking that it is unfair if caught for illegal downloading is connected to formal laws and since formal laws surrounding intellectual property have a shorter history in China than in Sweden[22], this result might not be too surprising. However, the overall responds are relatively similar and few respondents answered that it would be completely fair. Regressions on the behavioral differences between Chinese and Swedish consumers will be presented in the result section below.

Figure 4.7 shows the Swedish and Chinese consumers' will to pay for an unlimited supply of music without disturbances (such as advertisements). The values are in US dollars, where the will to pay in CNY and SEK is adjusted for by using the purchasing power parities.

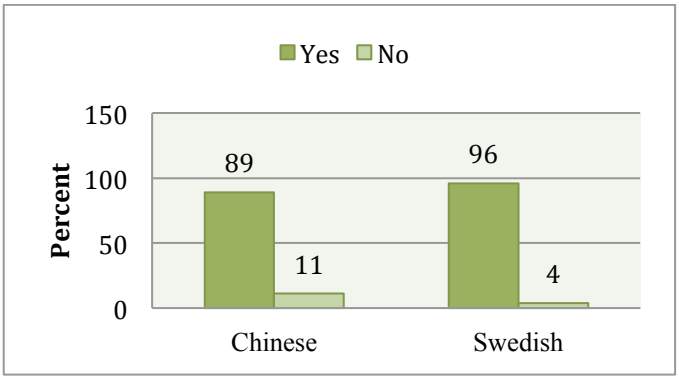
Figure 4.7 Will to Pay for Unlimited Access to Music



[22] The first patent law of the People's Republic of China was implemented in 1984, but has been amended in 1992 and most recently in 2001 (Embassy of the United States). In Sweden, a patent law has been in place since 1960's (The Swedish Parliament).

From the figure above it is clear that Swedish music consumers are significantly more willing to pay for unlimited access to music compared to Chinese music consumers. Even when converting the responds to PPP adjusted US dollars, we can see that a majority of the Chinese respondents are willing to pay less than 20, while a majority of the Swedish are willing to pay more than 20. However, as can be seen from the figure below, the lower will to pay for music among Chinese consumers does not seem to affect their usage of music streaming services.

Figure 4.8 Usage of Music Streaming Services



The high usage of music streaming services among Chinese respondents (89 percent) and the low will to pay implies that Chinese music streaming services are less costly and often for free.

4.4 Results

Regression outputs from four Probit regressions and one Tobit regression are presented in the table below.

Table 4.2 Chinese Responds

Variables	**1. Will to pay Something (probit)**	**2. % of friends that download illegally (tobit)**	**3. Unfair if caught for downloading (probit)**	**4. Okay to download illegally (probit)**	**5. Treated Differently (probit)**
Will to pay something		4.574	.285	.299	-.392*
		(6.972)	(.287)	(.196)	(.208)
% of friends that download illegally	.00361		.00731**	-9.71e-05	.00726***
	(.00254)		(.00342)	(.00252)	(.00268)
Unfair if caught for downloading	.287	.716		-.107	.324
	(.190)	(6.754)		(.271)	(.203)
Okay to download illegally	.123	20.79**	.00754		1.119***
	(.288)	(10.38)	(.285)		(.291)
Treated differently	-.421*	24.03***	1.087***	.285	
	(.218)	(7.790)	(.295)	(.215)	
Urban hukou	.786***	-19.45**	.232	-.158	.217
	(.227)	(8.029)	(.290)	(.226)	(.237)
Financial situation	-.0176	-6.248	.153	.0633	-.0483
	(.109)	(3.992)	(.153)	(.109)	(.122)
Age	.00521	1.814	.00619	-.0147	.0166
	(.0297)	(1.203)	(.0442)	(.0300)	(.0312)
Male	.253	10.06	.379	.208	.256
	(.209)	(8.078)	(.317)	(.219)	(.219)
Employment status	-.0196	4.288	.202	.0167	-.0922
	(.102)	(3.864)	(.141)	(.106)	(.111)
Education	-.00707	1.522	-.00642	.0550	-.0661
	(.0528)	(1.841)	(.0692)	(.0525)	(.0541)
Hours streaming music	-.0359	-3.850	.418***	-.0137	-.0646
	(.0725)	(2.398)	(.0951)	(.0779)	(.0704)
User of streaming service[23]	.314	30.57**		.308	.0287
	(.407)	(13.97)		(.422)	(.405)
Hours on the internet	.137*	-2.516	-.0774	-.0167	.213***
	(.0733)	(2.556)	(.1077)	(.0743)	(.0806)
Constant	-1.546	2.874	-3.900**	-.343	-1.572
	(1.061)	(40.59)	(1.552)	(1.136)	(1.179)
Observations	199	199	178	199	199

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

[23] The variable *user of streaming service* in model 3 was omitted due to the dependent variable not varying within the variable.

Performing a Breusch-Pagan test for heteroskedasticity showed that the data suffers from heteroskedastic standard errors. This was corrected for by performing robust regressions. A correlation matrix can be found in appendix, and no high correlations were found between the variables.

The will to pay is negatively correlated with *treated differently*, which indicates that treating someone differently after illegal downloading is related to a lower will to pay for music. However, the variable treated differently is considered unreliable due to possible misinterpretation of the question. In some cases, the treatment of someone could be positive, specifically contemplating that Chinese respondents displayed interest in learning how to download illegally (see figure 4.4). The percentage of friends who download illegally is significantly correlated with the variable *okay to download illegally*. This implies that the more accepting of music piracy you are, the more friends you have who engage in illegal activities. The other way around, - that the larger share of friends who engage in illegal activities the more accepting you are, is also likely to be true. This correlation shows the importance of social norms when it comes to illegal behavior and proves that if the norm is that it is acceptable to download illegally, more people within your peer-group will do so. A significant correlation is further found between the percentage of friends who download illegally and the belief that it is unfair if a friend gets caught (model 3). In other words, having more people around you who are involved in music piracy is correlated with the idea that it is unfair if someone receives legal punishment for engaging in such behavior. This seems quite intuitive and, once again, it shows how the surroundings and social norms can affect one's behavior.

Considering the control variables, it seems as if more time spent on the Internet leads to a higher probability to be willing to pay something and of treating someone differently after illegally downloading a music file. In other words, people who spend more time on the Internet seem to be willing to pay more for music and are more likely to change their opinion of someone who consumes music illegally (positively or negatively). However, it is important to note that the causality is not established; hence it may be that people who are willing to pay more for music are also more frequently using the Internet. Furthermore, the control variable *urban hukou* shows a positive significance on the will to pay something and a negative correlation with the percentage of friends who download illegally. This indicates that urban

hukou holders are more willing to pay for music and have fewer friends who download illegally.

Investigating the potential differences between Swedish and Chinese music consumers, five different regressions were again performed on the equivalent dependent variables as in table 4.2. The independent variables are the same except for the exclusion of the variable *urban hukou* and inclusion of the variable *Chinese*, which is a dummy variable coded 1 for Chinese respondents and 0 for Swedish.

Table 4.3 Behavioral Differences Between Chinese and Swedish Respondents

Variables	**1. Will to pay Something (probit)**	**2. % of friends that download illegally (tobit)**	**3. Unfair if caught for downloading (probit)**	**4. Okay to download illegally (probit)**	**5. Treated Differently (probit)**
Will to pay something		2.402	.130	.0970	-.340*
		(4.953)	(.215)	(.158)	(.203)
Treated differently	-.252	23.24***	1.083***	.143	
	(.199)	(6.247)	(.248)	(.198)	
% of friends that download illegally	.00158		.00668**	.00260	.00693***
	(.00217)		(.00272)	(.00207)	(.00250)
Unfair if caught for downloading	.0635	5.269		.188	.272
	(.147)	(3.667)		(.164)	(.194)
Okay to download illegally	.110	12.71**	.209		1.163***
	(.206)	(5.525)	(.186)		(.248)
Chinese	-1.216***	-5.269	.326	.443**	1.089**
	(.194)	(4.920)	(.254)	(.177)	(.333)
Financial situation	.0378	-5.158**	.0799	.0372	-.0421
	(.0828)	(2.008)	(.0987)	(.0733)	(.112)
User of streaming service	.541	18.12*	-2.006***	.271	.108
	(.341)	(9.498)	(.522)	(.307)	(.400)
Age	-.00359	1.0031	-.0433***	-.00143	.0178
	(.0138)	(.6531)	(.0162)	(.0138)	(.0218)
Male	-.0536	9.633**	.511***	-.0597	.286
	(.155)	(3.997)	(.195)	(.137)	(.197)
Hours on the Internet	.0600	-.420	-.111	.0747	.168**
	(.0548)	(1.537)	(.0730)	(.0516)	(.0724)
Employment status	-.00806	-.312	.113	.0570	-.0608
	(.0753)	(1.746)	(.100)	(.0612)	(.0830)
Education	.0165	.488	-.0423	-.0456	-.0989**
	(.0376)	(.980)	(.0434)	(.0328)	(.0450)
Hours streaming music	-.0931*	-1.717	.163***	-.0265	-.0849
	(.0520)	(1.218)	(.0599)	(.0456)	(.0650)
Constant	.857	42.85**	1.756*	-1.140	.832
	(.732)	(16.62)	(.934)	(.705)	(.940)
Observations	407	412	407	407	407

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Again, a Breusch-Pagan test showed that the data suffers from heteroskedasticity, which has been corrected for by performing robust regressions. As for the previous data, no high correlations were found between the variables when checking for multicollinearity (see appendix).

From the regression outputs above, we can see that the variable Chinese is significant on a 5-percent level for three out of five dependent variables. In other words, there are proven differences in behavior on those three questions. *Will to pay something* is significantly negatively correlated with the variable *Chinese*, which we could see an indication for in figure 4.7 in section 4.3. This proves that the Chinese are significantly less willing to pay for music compared to Swedish. The responds "yes" and "maybe" on the question of whether someone who illegally downloaded a music file would be treated any differently afterwards were both coded as 1, and the answer "no" as 0. From the results we can see that the Chinese respondents show a higher probability of treating someone who illegally downloads a music file differently compared to Swedish respondents. However, this could be due to the uncertainty that the Chinese respondents showed regarding what is legal behavior and not as well as the nature of the question, and should thereby be interpreted with caution.

Chinese respondents further seem to believe, to a greater extent than the Swedish, that it is acceptable to download illegally (survey question 13). From figure 4.4 we could see a high percentage of Chinese respondents who answered that, if a friend downloaded illegally, they would be interested and want to learn more about it. This answer was bundled in as a respond that indicated that illegal downloading was acceptable and thereby has an impact on the positive coefficient. However, wanting to learn more about it also indicates less knowledge in the matter and, as previously mentioned, some confusion regarding what is illegal and not occurred when conducting the Chinese survey. This further emphasizes a need to develop the formal institutions surrounding music piracy in order to make the distinction between legal and illegal more transparent. The percentage of friends who download illegally is insignificant for the variable Chinese, which means that any difference in illegal downloading between Chinese and Swedish respondents cannot be proven. Furthermore, it is not possible to prove any significant differences between Chinese and Swedish respondents when it comes to whether or not it would be unfair if someone got caught for illegal downloading.

When including the responds from both surveys, some interesting results could be found among the control variables. On a 5-percent significance level we can again see that more hours spent on the Internet is negatively correlated with the probability of treating someone who downloads illegally any differently. *Higher education* shows a negative correlation with treating someone differently. Again, this result is difficult to interpret due to potential misinterpretation of the question. The variable *male* shows a positive relationship with *% of friends that download illegally* and *unfair if caught for downloading*. This implies that male respondents have more friends who download illegally and have a more negative outlook on legal punishment for music piracy in comparison to females. *Financial situation*, *user of streaming service* and *age* also showed significant results for some models. Respondents with better financial situations have a smaller share of friends who download illegally, which implies that a better financial situation provides less incentive for engaging in illegal behavior. Users of music streaming services have a larger share of friends who engage in music piracy and are also more likely to believe that it is unfair if someone gets caught. Finally, older people are more likely to believe that it is fair if someone gets caught for illegal downloading of music.

5. Discussion

Stronger protection of IPR has a significant positive effect on CD production. This is according to utilitarian theory and according to hypothesis 1. However, when dividing the data into coastal and non-coastal provinces, the results are only significant for coastal provinces. This indicates that IPR protection is more efficient in coastal areas. This should provide incentive to further develop formal institutions surrounding IPR in China, especially in coastal areas where it seems to have a more significant effect. However, developing IPR in non-coastal areas should not be discarded. Development could eventually lead to more efficiency and with a change in formal institutions the informal institutions, such as social norms, could change as well, which could have a big effect on the music industry in the long run. It is important to note that there might be a third factor involved causing the relationship between CD production and IPR protection. Imagine that one could measure the level of creativity of the population, – this could affect the production of music and also encourage a higher level of IPR protection (since it would create a bigger *need* for protection of intellectual property). In other words, the found relationship can be caused by a factor that is not included in the regression but affects both variables to move together and the result might not necessarily mean that the two variables are directly correlated. Nevertheless, the found relationship provides an indication that the two are related to each other and how they move together.

Considering hypothesis 2, that social norms affect consumption of music and the perception of illegal behavior in China, some interesting results were found. Being more accepting of music piracy is positively correlated with the percentage of friends who download illegally, which proves that social norms matter when it comes to consuming music illegally. Furthermore, thinking that it is unfair if a friend gets caught for downloading is also positively correlated with the percentage of friends who download illegally. These results confirm hypothesis 2, that social norms affect consumption and perception of illegal behavior in China.

There are significant behavioral differences between Chinese and Swedish music consumers, which confirms hypothesis 3. The will to pay something for music, whether a friend who

downloads illegally would be treated differently afterwards and believing that it is okay to download illegally are three variables where significant differences could be found between the two groups. The results suggest that the Chinese have a lower will to pay for music and that they are more likely to treat someone who downloads illegally differently in the future. As previously mentioned, the low will to pay in relation to the high usage of music streaming services indicates that the Chinese are used to listening to music to a low (or non-existing) price. The fact that Swedish respondents are less likely to treat someone who has downloaded illegally any differently could perhaps be explained by the fact that Sweden has had a history of piracy and a longer history of technological development with Internet access. Sweden has only recently developed into a music streaming service "utopia", with a high number of paying subscribers to the music service Spotify. Considering this, the Swedish respondents might be more used to illegal downloading and are thereby less likely to treat someone who downloads illegally any differently. Furthermore, it is once again worth mentioning that the survey question did not specify *how* a person would be treated differently and it is thereby difficult do draw exact conclusions.

Considering the high-piracy environment in China mentioned in the introduction, it might seem surprising that we could not see any significant differences between Chinese and Swedish respondents on the percentage of friends who download illegally. However, this result might depend somewhat on the nature of the question. Had the question instead been "how many percent of your friends do you think download music on a regular basis today?" the result might have been different considering the Swedish music industry has recently evolved into a more paying model. Furthermore, Chinese respondents demonstrated confusion regarding what is legal and illegal when answering the survey, which might also explain this outcome. This confusion shows that there is a need for a clearer distinction between legal and illegal music on the Chinese music market. If a consumer does not know that a certain action is against the law, the laws might provide very little deterrence value.

From table 4.4, showing the distribution of responses for the survey question of how a friend would react if another friend downloaded an illegal music file, it is shown that 25 percent of the Chinese respondents answered that they would be interested and want to learn more about it, in comparison to less than 4 percent of the Swedish respondents. This implies less knowledge of illegal file sharing, and most importantly what *characterizes* illegal file sharing,

compared to Swedish music consumers. Hence, the line between consuming music legally and illegally is not always clear in China. As before mentioned, much confusion occurred while conducting the survey in China but not in Sweden, which further stresses the importance of a stronger regulatory system that distinguishes between what is legal and what is illegal.

In order for China (with its large potential consumer market) to become a big music industry, further action against copyright infringement should be taken. If a large part of the population has trouble affording expensive goods, this might be an indicator for the high piracy level, and China suffers from large income disparities. Beginning in the 1950's, the household registration system (hukou) divided rural and urban residents by a strict system. This system is to a large part responsible for today's urban-rural divide and income inequality (Park 2008). The urban-rural divide is further shown in this research, seeing as rural hukou holders have a lower will to pay and a higher percentage of friends who download illegally in comparison to urban hukou holders. According to the World Bank, China remains a developing country where poverty reduction is a fundamental challenge. However, the World Bank estimated that with a GDP growth of 10 percent on average each year since 1978, approximately 500 million people have been lifted out of poverty (World Bank 1). As poverty reduces and the average income rises, there might be more incentive to purchase legitimate products over pirated ones (China Music Business 1). In Sweden, fast broadband was introduced early, which first led to illegal file sharing through the popular website The Pirate Bay. However, since Spotify launched in 2008, streaming became widely popular, as previously mentioned. It is estimated that around three million Swedes already have streaming accounts. Monthly subscriptions to music services such as Spotify might be doing particularly well in Sweden since Sweden can be considered as a rather rich country (The Economist 1).

The low will to pay among Chinese music consumers proves the tough challenges that face music producers in China today. As previously mentioned, the will to pay might be influenced heavily by the actual *need* to pay. Thereby, it is important to note that the current will to pay is not necessarily unchangeable. Furthermore, the high number of users of music streaming services could provide incentives to further develop these services. The positive relationship between IPR protection and music production in China implies that further development of regulation of IPR is beneficial for a growing music industry. With changing

formal institutions and informal norms, which this research has proven to have an effect on music production, there might be hopes for a viable music industry in China in the future.

5.1 Conclusions

The results from this research challenges and refutes the notion that effective protection of intellectual property rights is unnecessary within the music industry in China. The significant positive relationship between IPR protection and CD production should provide incentive to further develop the formal institutions surrounding property rights. However, when dividing the data into coastal and non-coastal provinces, the significant effect can only be proven for coastal provinces. IPR protection has no significant effect for non-coastal regions, which could be an indication for differences in social norms that effect how the formal regulations are implemented.

In order for a change to happen the informal institutions, such as social norms, need to change as well. This study shows that a stronger belief that it is acceptable to engage in music piracy is positively correlated with the share of friends who download illegally. Furthermore, the percentage of friends who download illegally is also positively correlated with thinking that it is unfair if a friend gets caught for illegal behavior. These results indicate that social norms play a role when it comes to legal and illegal music consumption. Looking at cross-cultural differences between Chinese and Swedish music consumers, the will to pay something for music, whether a friend who downloads illegally would be treated differently afterwards and believing that illegal downloading is acceptable are three variables where significant differences could be found between the two groups. Chinese consumers show a significantly lower will to pay for music and also a higher probability to treat someone who downloads illegally differently afterwards (positive or negative). Chinese consumers also seem to have a more positive outlook on illegal downloading of music.

In conclusion, this study has proven the importance of IPR protection and social norms when it comes to the Chinese music industry. Neither formal nor informal institutions should be neglected in order for the industry to flourish. This knowledge should provide greater incentives for future regulation of music piracy, especially with a clearer distinction between legal and illegal consumption, and greater understanding of how Chinese as well as Swedish

consumers behave. It is my belief that the Chinese music industry has great potential and that this research could be used as guidance for the future growth of the industry.

5.2 Suggestions for Future Research

In order to further investigate how formal and informal institutions surrounding the music industry works, I suggest gathering more data both on an individual and macroeconomic level. If found, data for all music production and not only CD production on provincial level would provide a more precise picture of today's music industry and perhaps another measure for IPR protection, other than patent applications and patents granted, could provide sturdier results.

For future studies I also wish to inspire including interaction variables on the differences between Swedish and Chinese consumers to see whether there is a difference between the two nationalities when it comes to the effect that norms has on consumption and perception of illegality. This was considered beyond the scope of this research but would provide a deeper analysis of cross-cultural differences. Furthermore, there is reason to believe that comparing China with other countries than Sweden could provide useful knowledge of how social norms within the music industry differ among cultures.

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Appendix

Chinese/English Survey

关于中国人收听下载音乐的习惯调查
Music Consumption in China – *Survey*

请如实回答下列问题 *Please answer the questions as honestly as possible.*
您的回答将会被保密 Your answers are completely anonymous.
预估时间：10 分钟 *Expected time: Less than 10 minutes*

1. 性别？ Gender? **2. 年龄？ Age? _____**

- ❑ 女 Female
- ❑ 男 Male

3. 您的户口类型是？ Under which hukou were you born?

- ❑ 农村户口 Rural
- ❑ 城镇户口 Urban

4. 您目前的就业情况是? What is your current employment status?

- ❑ 全职 Employed for wages, full-time
- ❑ 兼职 Employed for wages, part-time
- ❑ 个体经营 Self-employed
- ❑ 失业（求职中）Out of work and looking for work
- ❑ 失业（非求职中）Out of work but not currently looking for work
- ❑ 学生 Student
- ❑ 退休 Retired
- ❑ 无法就业（身体疾病等原因）Unable to work
- ❑ 其他 Other: _____

5. 您的最高学历？ What is the highest educational level you have reached?
如果您还在读，请说明相关学历

- ❑ 没有接受过正规教育 No schooling completed
- ❑ 高中以下 Lower schooling than high school
- ❑ 高中肄业 Some high school (did not graduate)
- ❑ 高中毕业 High school graduate
- ❑ 大专肄业 Academy/Institution, no degree
- ❑ 大专毕业 Academy/Institution, degree

- ❑ 大学肄业 Some university credits, no degree
- ❑ 大学毕业 Bachelor's degree
- ❑ 研究生毕业 Master's degree
- ❑ 博士毕业 Ph.D.
- ❑ 博士后 Postdoctoral

6. 平均而言，您的收入水平如何？Comparing your financial situation to the average Chinese, how much money do you make/have?

请在相应条目下打叉 Please mark with an X

Significantly less than average		Average Chinese		Significantly more than average
低		平均		高
1	2	3	4	5

……

7. 您平均每天上网时间是多长？How many hours per day do you spend on the Internet?

-因工作需要的上网时间不计其中 Not included time spent for work
-包括使用手机，平板电脑上网 Including applications (apps)

- ❑ 少于一小时 Less than 1 hour
- ❑ 一至两小时 1-2 hours
- ❑ 三至四小时 3-4 hours
- ❑ 五至六小时 5-6 hours
- ❑ 七至八小时 7-8 hours
- ❑ 超过八小时 More than 8 hours

8. 您是否拥有一个可以连接网络的个人电脑？Do you have a private computer with Internet connection?

❑ 是 Yes ❑ 否 No

9. 你是否正在使用下列音乐播放软件？ Are you a current user of any music streaming service?

例如：中国移动，中国联通，百度，多米音乐，酷狗音乐，酷我音乐，虾米音乐

❑ 是 Yes ❑ 否 No

10. 如果上题您的回答是“否”，您是否考虑使用上述音乐播放软件？If your answer was “No” on the previous question, would you consider becoming a user in the future?

❑ 是 Yes ❑ 否 No ❑ 不确定 Maybe

11. 如果第九题您的回答是“是”，您使用这个／这些播放软件的频率是？If your answer was “Yes” on question 9, how often do you use the service/services?

❑ 每周少于一小时 Less than 1 hour per week
❑ 每周一到四小时 1-4 hours per week
❑ 每周五到十小时 5-10 hours per week
❑ 每周十一到二十小时 11-20 hours per week
❑ 每周二十一到四十小时 21-40 hours per week
❑ 每周查过四十小时 More than 40 hours per week

12. 为了获取海量音乐，没有广告干扰，您愿意每月支付多少钱？How much would you be willing to pay per month for unlimited access to music files without commercials or other disturbances? *如果您不愿意支付任何费用，请写“0” If you would not be willing to pay anything, just write “0”*

¥人民币 _____

13. 假设你正和两个朋友在一起，你的其中一个朋友在非法下载音乐，你觉得你的另外一个朋友将会做何反应？Assume that you are with two good friends and you see that one of your friends is downloading a music file from an illegal website. How do you think your other friend would react?

❑ 他／她十分感兴趣并且想要学习如何下载 He/she would be interested and want to learn more about it
❑ 他／她并不在意 He/she would not care / nothing would happen
❑ 他／她会指出这是违法行为，但不会加以阻止 He/she would mention that it is illegal but would not try to stop it
❑ 他／她会阻止 He/she would tell him/her to stop
❑ 他／她不会当面阻止，但是会跟其他朋友谈及 He/she would gossip and tell other people about it
❑ 他／她会联系有关部门，举报违法行为 He/she would contact the authorities and report him/her for illegal behavior

14. 接上题，你觉得事后你的另外一个朋友会对你非法下载音乐的那个朋友另眼相看吗？ Assume the same scenario as in the previous question. Would your friend who downloaded music from the illegal website be treated any differently after that?

❑ 是 Yes ❑ 否 No ❑ 不确定 Maybe

15. 你认识的朋友中，可能会有人会买盗版 CD 吗？ Within your circle of friends, do you think that anyone would buy a pirated CD? *比如地摊，街边小贩*

For example on a street market

❑ 是 Yes ❑ 否 No

16. 你认识的朋友中，有人曾经非法下载过音乐吗？ Within your circle of friends, do you think that anyone has ever illegally downloaded a music file?

❑ 是 Yes

❑ 否 No

17. 如果上题你的回答是"是"，你有多少朋友非法下载过呢？ If your answer on the previous question was "Yes", how many?

请写百分率 Please write in percent _____ **%**

18. 如果你有个朋友因为非法下载音乐被捕，你的反应是？ If a friend of yours got caught for illegally downloading a music album, what would be you first reaction?

我觉得:

❑ 非常过分 Completely unfair

❑ 有点过分 Slightly unfair

❑ 没什么感觉 Neither fair nor unfair

❑ 也不无道理 Slightly fair

❑ 他罪有应得 Completely fair

19. 在你的朋友中，有人曾经因为非法下载音乐被捕的吗？ Within your circle of friends, has anyone ever been caught for illegal downloading?

❑ 是 Yes

❑ 至少我知道的没有 No, not that I know

20. 如果上题你的回到是“是”，你有几个朋友曾经被捕呢？

If your answer on the previous question was “Yes”, how many?

请写出具体数字 Please write a ***number*** _____

Thank you 谢谢!

Tests on Macroeconomic Data

Breusch-Pagan test for Heteroskedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of cds

         chi2(1)      =   558.79
         Prob > chi2  =   0.0000
```

Source: Stata

Correlations Matrix

	cds	l3IPR	l3lawy~s	GRP	techdev	educat~n	FDI	agricu~e
cds	1.0000							
l3IPR	0.5328	1.0000						
l3lawyers	0.4658	0.5767	1.0000					
GRP	0.5476	0.7659	0.7969	1.0000				
techdev	0.2034	0.3957	0.2244	0.3321	1.0000			
education	0.3442	0.4761	0.7095	0.8133	0.2998	1.0000		
FDI	0.3621	0.4613	0.3765	0.5852	0.3882	0.4752	1.0000	
agriculture	-0.4148	-0.5569	-0.5864	-0.7440	-0.2058	-0.6386	-0.3971	1.0000

Source: Stata

Variance Inflator test

Variable	VIF	1/VIF
GRP	9.94	0.100653
education	3.72	0.268843
l3IPR	3.10	0.322214
l3lawyers	2.94	0.340389
agriculture	2.28	0.438325
FDI	1.69	0.593465
techdev	1.31	0.761645
Mean VIF	3.57	

Source: Stata

Ramsey RESET test for Omitted Variables

```
Ramsey RESET test using powers of the fitted values of cds
       Ho:  model has no omitted variables
                  F(3, 296) =     20.35
                   Prob > F =      0.0000
```

Source: Stata

Tests on Microeconomic Data

Breusch-Pagan test for Heteroskedasticity – Chinese Responds

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of willtopay

         chi2(1)      =    22.54
         Prob > chi2  =   0.0000
```

Source: Stata

Correlations Matrix – Chinese Responds

	willto~y	finance	user	age	male	urban	treate~f	downlo~y	intern~_	hours_	empl_
willtopay	1.0000										
finance	-0.0463	1.0000									
user	0.0444	-0.0089	1.0000								
age	0.0126	0.0048	-0.0304	1.0000							
male	0.0674	0.1593	-0.1198	0.1301	1.0000						
urban	0.1178	0.1635	-0.0518	0.0157	-0.1154	1.0000					
treateddiff	-0.0211	-0.0359	-0.0784	0.1188	0.1238	0.0077	1.0000				
download_h~y	0.0753	-0.1348	0.0463	0.1250	0.1673	-0.1492	0.2615	1.0000			
internet_	0.0085	-0.0774	0.0011	-0.1216	-0.0757	-0.0200	0.1483	-0.0373	1.0000		
hours_	0.0761	-0.1192	0.6329	0.0582	-0.1547	-0.0505	-0.0563	0.0031	0.0050	1.0000	
empl_	0.0593	-0.0674	-0.0715	-0.1998	0.2035	-0.0235	-0.0298	0.0774	-0.0050	0.0104	1.0000
edu_	-0.0744	0.0046	-0.0068	-0.4584	-0.0269	0.0637	-0.1093	-0.0490	0.1195	-0.1124	0.1123
okay13	-0.0614	-0.0016	-0.1475	0.1256	0.1174	0.0652	0.3567	0.2318	0.0251	0.0255	0.0460
okay	0.0001	0.0523	0.0448	-0.0429	0.0907	-0.0237	0.0980	0.0458	0.0167	-0.0142	0.0242

	edu_	okay13	okay
edu_	1.0000		
okay13	-0.1200	1.0000	
okay	0.0690	0.0345	1.0000

Source: Stata

Breusch-Pagan test for Heteroskedasticity – Chinese & Swedish Responds

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of willtopay

         chi2(1)      =   203.94
         Prob > chi2  =   0.0000
```

Source: Stata

Correlations matrix – Chinese & Swedish Responds

	willto~y	finance	user	age	male	Chinese	treate~f	downlo~y	intern~_	hours_	empl_
willtopay	1.0000										
finance	-0.0151	1.0000									
user	0.1416	-0.0564	1.0000								
age	0.1072	0.0421	-0.1672	1.0000							
male	0.0241	0.1592	-0.0724	0.1315	1.0000						
Chinese	-0.5905	0.0272	-0.1303	-0.2844	-0.1303	1.0000					
treateddiff	0.2436	-0.0278	-0.0050	0.1766	0.1536	-0.4267	1.0000				
download_h~y	0.1937	-0.1058	0.0958	0.0158	0.1623	-0.2868	0.3225	1.0000			
internet_	-0.0181	-0.0634	0.0204	-0.0347	-0.0985	0.0108	0.0740	-0.0116	1.0000		
hours_	-0.1654	-0.0536	0.4645	-0.0387	-0.1808	0.2478	-0.1461	-0.0944	0.1348	1.0000	
empl_	-0.0688	-0.0608	0.0180	-0.1345	0.0615	0.0611	-0.0332	0.0133	-0.1029	0.0324	1.0000
edu_	0.1009	-0.0138	0.0002	-0.1217	0.0140	-0.2600	0.0122	0.0481	0.0414	-0.0993	0.0677
okay13	-0.0397	0.0452	-0.0921	-0.0501	0.1736	-0.0027	0.2603	0.1946	-0.0575	-0.0029	0.0717
okay	-0.0826	0.0147	0.0211	-0.0527	-0.0159	0.1313	0.0131	0.0465	0.0621	0.0351	0.0451

	edu_	okay13	okay
edu_	1.0000		
okay13	-0.0664	1.0000	
okay	-0.1010	0.0791	1.0000

Source: Stata