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Music supply behavior

in the digital era

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Abstract

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Due to the increase in file-sharing in later years, there is a wide concern among music industry professionals and others that the music supply will be negatively affected by the decreasing sales of pre-recorded music. However, almost no research effort has been put into measuring the change in the supply of music. Using two indicators of music supply, this paper investigates how the supply from individual music producers has changed during the last five years. Moreover, a labour supply model and relevant concepts from economic theory are used to outline how music producers are affected by the recent changes in the music industry. The findings of this paper suggests that the supply of music is in fact increasing, and some explanations are given for how increasing supply can be compatible with decreasing compensation levels.

Keywords: Music, supply, file-sharing, cultural economics, artists

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Introduction

“Good music isn't easy to come by. Musicians spend their entire lives perfecting their craft and honing their skills. Unfortunately, everyone has to make a living. If musicians had to work ‘day jobs’ to support themselves and their families, they wouldn't have time or energy to be creative ... It's all about supply and demand. If there is not demand, there will eventually be no supply.”¹

...

The quote above is from Grammy award winning singer and songwriter Sheryl Crow relating to the recent increase in illegal downloading of music. However, it reflects a concern that is by no means new for people engaged in the music industry. Since the introduction of Edison's cylinder phonograph in the late 19th century, the way music is produced, distributed and consumed has gone through major changes due to technological advancements. We have gone from consuming printed music sheets, to buying pre-recorded music on physical mediums such as records and CD's, and we are now entering a stage where music consumption arguably will be fully digitalized and consumed via computers and portable digital music players. Historically, when a major technological breakthrough has been made, it has changed the structure of the music industry and the players that engage in the market place. One necessary condition for the music market to even exist, is obviously that there are artists supplying music. This paper will focus on these individual artists' behavior and supply decisions.

In the public debate, the type of argument presented in the quote above is often seen as an axiom; “we need to pay artists for making music, or there will be no music produced”. However, this argument only holds given certain assumptions about the artists' situation and behavior, that may not be realistic. The purpose of this paper is to get an estimate if the supply from artists has increased or decreased during the last five years, and to explain this contingent change.

¹ <<http://www.musicmediaentertainmentgroup.com/piracy/piracyquotes.html>>

1.1 Purpose and outline

As touched upon already, the main question that this paper will try to answer is if, and how, the supply of music has changed during the last years. The increase in the use of the Internet and file-sharing² is obviously a concern among record labels and music publishers that have relied on the sales of CDs and records, because they fear that their traditional business model is threatened by new distribution methods. While there has been some academic research effort put into determining if illegal file-sharing is harmful or not for ‘the industry’, these studies often tries to isolate the effects of file-sharing, disregarding that there may also be beneficial aspects to the technological advancements made during the last years.

Instead, this paper will use a different approach and investigate the situation of the individual artist, and the factors that are likely to affect his or her supply decision. The reason for this is simply that while intermediaries such as music publishers, record labels and record stores come and go, the artists have always been the ones creating the music, and will always be the least common denominator in the music industry. Ultimately, what is most relevant is therefore how much *they* choose to supply. This is especially true in the time of change that the music industry is facing at the moment, when it is uncertain how music will be produced and delivered to the consumer in the future. By measuring how the supply from the individual artist has changed, we will know more about the shape that the music industry is in.

Chapter 1 will give an introduction to the paper. In chapter 2 the changes in the music industry that are relevant to the artist will be outlined, and theses that will be useful for the analysis in later chapters will be developed. In chapter 3, supply indicators will be presented to get an estimate if and how supply has changed. Chapter 4 will use economic theory to explain the changes in supply, and chapter 5 will offer the conclusion of this paper.

² SCB (2006) estimates that 20% of all Swedes between 16-74 has tried file-sharing software.

1.2 Scope

Wikström (2006) suggests that “one way to structure a review is by level of aggregation, in other words whether the research initiative is focused on individuals in the music industry; on intra-organizational issues; or on inter-organizational issues”.

Level of aggregation	Related facets
Individual level	Occupational career
Intra-organizational level	Organizational structure
Inter-organizational level	Market Technology Law Industry structure

Source: Wikström (2006)

Research on the individual level is concerned with exploring the role of the individual artist in the music industry, and this is the level of aggregation that will be studied in this paper. There has not been a lot of research on this level, especially not during the last decade³. The intra-organizational level examines the effect of organizational structure, and has been investigated quite often in the area of cultural economics. A popular research area has been the proposed controversy between the size and concentration of firms and the cultural diversity of music. Research on the inter-organizational level is concerned with changes in the macro environment, for example how market structure, technological innovation and law affects the music industry. Not surprisingly, this is the aggregation level where most economic analysis has been made. In the last years the research in the music industry has mainly been focused on the effects of file-sharing.

This study may be regarded as specific in the sense that it focused on the individual level, but it should be pointed out that it is nearly impossible (nor appropriate) to isolate the aggregation levels from each other completely. Instead, we will take a broader approach and investigate how factors on the intra- and inter-organizational level may affect supply on the individual level.

³ One exception is Abbing (2002) who studied the role of the artist in an occupational context.

2

Developing theses

In this chapter, revenue sources for the artist will be investigated, and the recent changes in the music industry will be discussed, from the viewing point of the individual artist. Five theses, based on theoretical argumentation and empirical data, will be presented.

...

2.1 Selling pre-recorded music

Since the introduction of physical mediums such as records, cassette tapes and CDs, the artist has been dependent on record labels and distributors for recording music and delivering it to consumers. By sending in demos, and in other ways pursuing the record label, the artist makes the record label aware of its existence. If both parties are interested in doing business together, they will team up to release a single or an album, and a record contract is necessary to regulate the legal terms of the collaboration. Recording contracts can be designed in many different ways, but they can essentially be divided into two main groups.

2.1.1 The traditional contract vs. The master deal

A *traditional* contract with a record label means that the record label pays for all expenses related to recording an album (studio time, manufacturing the CDs, marketing etc), and all the artist supplies is his own time. Since the record label pays for everything and takes on all the economic risk, it will own the copyright to the recorded material and take the most part of the profits made from sales. The other type of contract is the *master deal*, where the artist produces and records the album on his own, and approaches the record label with a master tape⁴ already produced. From there on, the record label takes on the rest of the costs. These master deal type of record contracts have become more common in later years⁵. The artist will have a better chance of negotiating the terms of the

⁴ A master tape is an original recording, from which copies can be made

⁵ Wennman and Boysen (2008) p. 206

contract with a master recording, and usually the royalty⁶ level for these recordings lie in the range 20-50%, while being 6-12% for the traditional record deal⁷. This is mainly motivated by the fact that the artist carries all the costs of producing the music, and the record label takes on less risk in the sense that they already know how the finished product will sound. While a higher royalty rate may seem unequivocally better for the artist, it is not necessarily so. Except for the royalty percentage, two other factors are important for determining how much money the artist makes from selling pre-recorded music.

2.1.2 Fifty percent of nothing is nothing

The first thing to keep in mind is that usually the royalties are based on the wholesale price, and not the retail price in the record store. The mark up can reach levels of up to 80%⁸ on the wholesale price, which leaves the artist worse off than what may be obvious at a first glance. The wholesale price varies depending on what channel the music is sold through (retail store, internet store etc). Although digital sales are less costly in the sense that no physical record has to be produced or distributed, the value chain for digital sales often includes more middlemen that wants their share of the revenue⁹, for example the developers of the digital platform used to distribute the music. This can mean that even though the royalty level for digital sales is higher, the artist may not be better off selling digital music than a CD.

The other impacting factor are the various deductions made before the artist receives any royalty payments at all. Depending on the terms of the contract, the cost of recording the album, making a music video, marketing costs, touring costs and so on may be *recoupable expenses*. What this means is that the record label will deduct these costs from the profits made from record sales before the artist is paid. Some record labels takes things further, and require that sales and costs go break even before the artist sees any money, except for a small advance payment¹⁰. When all the deductions have been made, the artist will get the royalty percentage of any exceeding sales. Considering that a record often has to reach a fairly high volume before all expenses have been paid

⁶ Payment to the holder of a copyright protected composition, for the right to use the property

⁷ Wennman and Boysen (2008) p. 207-211

⁸ Brain (2009)

⁹ Frejman & Johansson (2009)

¹⁰ Wennman and Boysen (2008)

off, and that the probability of reaching this level is pretty slim, in theory this means that an artist could release records for his entire life without making any money from selling records.

2.1.3 What can the artist expect?

To exemplify, assume that the boy band *Backstreet Economists* manages to sell 40 000 copies (Platinum level in Sweden) of their first CD album *Equilibrium*. The record sells at a retail price of \$20, the retail stores add a mark-up of 60% and the record label withhold a packaging charge of 25% from the royalties. After these reductions, the *Backstreet Economists* will receive 10% in royalty. When their manager has been given his 20% cut, the five members of the band will walk away with \$6000 each¹¹. Bear in mind that during 2008, only 14 Swedish artists reached the platinum sales level in Sweden¹². To drive the point home further, assume that there are 1000¹³ aspiring Swedish artists out there with equal chance of success, competing for these 14 platinum spots. This would give every artist about one shot in a hundred to reach platinum sales.

Thesis 1. Because royalties are low and are subject to various deductions, and the probability of reaching a high sales volume is very low, the artist is unlikely to make a considerable amount of money from record sales.

2.2 Sales are decreasing

After enjoying healthy profits for quite some time, the major record companies¹⁴ have seen sales figures plummet during the last five years. IFPI¹⁵ releases a rapport every year measuring the global trends in the music industry, and they have pointed out illegal file sharing as the main reason for the drop in music sales during the latest years. In their annual report for 2009 they estimate that 95% of the digital music downloads today are illegal¹⁶. The diagram below depicts the sales statistic collected by the organization *Grammofonleverantörernas Förening* (GLF), that covers 85-90% of the record sales in Sweden. Whether piracy should be blamed for the entire decline in sales or not

¹¹ Based on estimates from Brain (2009)

¹² IFPI (2009a) not including foreign artists or compilation albums.

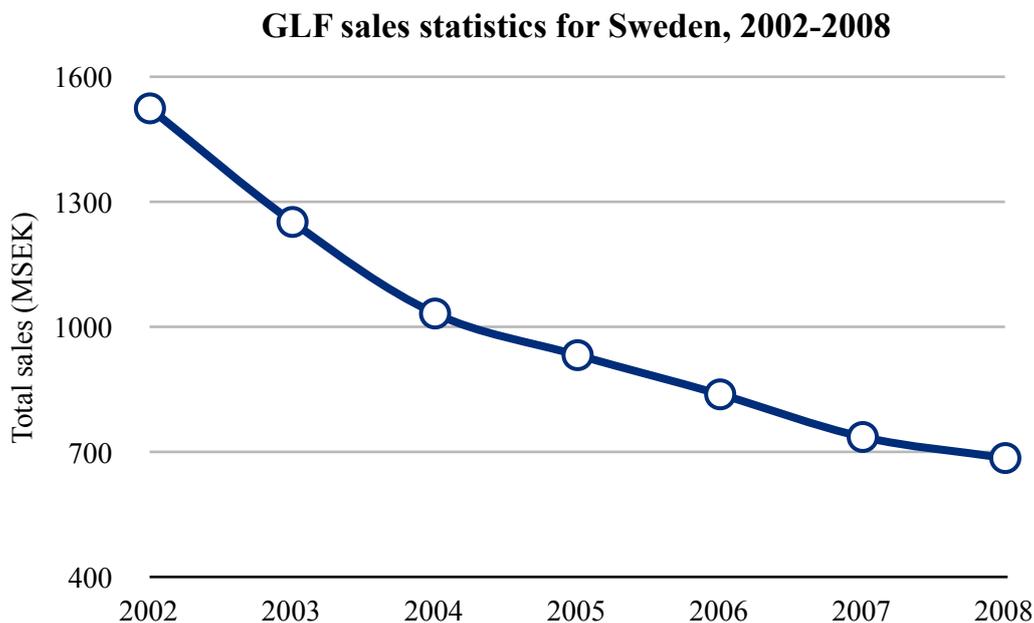
¹³ This is probably an understatement considering, for example, that over 6000 people audition for the Idol TV-show every year.

¹⁴ The "majors" are constituted by four record label groups that control about 80-85% of the music industry.

¹⁵ International Federation of the Phonographic Industry, <<http://www.ifpi.se>>

¹⁶ IFPI (2009b)

remains an unanswered question, while it is a fact that the net effect on the industry is a substantial decrease in revenues.



Source: GLF (2008)

The sales include singles and albums for 2002-2008, and digital sales for 2006-2008. While the digital sales have increased during the time period they are included, they do not nearly compensate for the drop in CD sales.

2.2.1 Uncertainty and risk in the music industry

“I found much uncertainty among personnel involved in producing music. Neither business executives, fans, the musicians themselves nor journalists can predict what is going to be commercially successful or what new musics are going to be critically acclaimed.” (Negus 1996)

In economics, the decision of whether to invest in a project or not is assumed to be dependent on, among other factors, the expected value and the risk associated with the investment. While uncertainty and risk is not unique for the music industry, it may be argued that it is especially apparent in copyright industries¹⁷. Since music is a good that has to be experienced before it can be properly evaluated, it is hard to predict the success of an album before it is released. Combined with the fact that the majority of the costs associated with releasing music are *sunk costs*¹⁸ (producing the

¹⁷ See for example Picard (2002).

¹⁸ Copyright industries in general face large sunk costs, see for example Shapiro & Varian (1999)

music, manufacturing, marketing), which means they are not recoverable, one realizes that decision makers in the music industry face a tough decision when deciding what artist to bet on. Frejmann & Johansson (2009) studied the emerging business models with respect to recent changes in the music industry and found that:

“... the cooperation between record companies and artists in terms of risk-taking, financing of recording and marketing is perhaps the biggest difference compared to earlier years. Because of declining CD-sales the so called 360-degree model has gained large attraction during the latest years where the record labels either owns or share a part of the rights to all relating products, merchandising, tour production, publishing, synchronization (the practice of getting music into movies, TV-shows, commercials), digital distribution etcetera. A second way of cooperating is to share risks, e.g. letting the artist finance or partly finance some part of the production process.”¹⁹

Thesis 2. *Because of the high uncertainty in the music business, and the decreasing CD sales for record companies, the business model in the music is changing towards one where the artist takes on more risk.*

2.3 Technology changes

In the last section, statistics that show a substantial decrease in music sales were presented. There is controversy regarding how much of the decline in sales that can be attributed to illegal downloads, but few would argue that there is a correlation between the increase in file sharing and the decreasing sales of CDs. Much less discussed however, are the new advantages made possible by digital technology and the Internet. Economists pay a lot of attention to technology when explaining production behavior, and this subchapter will investigate recent technology changes and how artists are affected by them.

2.3.1 New production tools makes it cheaper and easier to make music

While an artist twenty years ago was often dependent on a full fledged studio with expensive analogue recording equipment to produce and record music of high enough quality to be released, this is no longer the case for most artists. Since the introduction of the first Digital Audio Workstation²⁰ (DAW) in the late 1970's, the tools available for music recording and editing has gotten more advanced and a lot cheaper. Using computer based DAW's such as *Logic*, *Cubase* or

¹⁹ Johansson & Frejman (2009)

²⁰ A digital audio workstation (DAW) is an electronic system designed to record, edit and play back digital audio.

*ProTools*²¹ and a sound card, at a combined cost of about \$1000, an artist with some production and computer skills can record and produce music of professional quality in his home studio. This software can run on a normal personal computer, and are of the same type that professional studios use. If we also take into account that these software packages can easily be downloaded ‘for free’ (illegally), the price of starting to make music approaches zero. As these production tools has become cheap enough to be available to the general public, and not just professionals, a lot of effort has also been put into making them more user-friendly. For example, the software *Propellerheads Reason*²² emulates all the instruments and gadgets found in a regular studio, giving an artist access to ‘virtual studio equipment’ that works exactly like the real hardware would. Drums, synthesizers, bass’ and other instruments can be emulated with software that are priced at only a fraction of what the real instruments would cost.

The costs that a firm has to take on to even enter a market, are called *entry barriers*, and was first investigated by Bain (1956). A more formal definition of what an entry barrier actually is was made by Stigler (1968).

“A barrier to entry is a cost of producing (at some or every rate of output) which must be borne by a firm, which seeks to enter an industry but is not borne by firms already in the industry.”
(Stigler, 1968, p. 67).

If we replace ‘firm’ with ‘artist’, this insight can be applied to production decision of the individual artist. Essentially, there are two types of costs for the artist that wants to produce music; a) the cost of production tools needed to create the music, and b) the alternative cost of the time used for making music. The first cost is a entry barrier according to the definition above, the second is not since it is borne by all artists making music, more or less. As the costs of professional production tools decreases, more artists can afford them, and the entry barriers are lowered as artists are no longer dependent on an expensive studio. According to basic microeconomic theory, the rational profit-maximizing firm (artist) will enter the market if there are expected profits to be made²³. This means that when the entry cost decreases the number of artists entering the market will increase, everything else equal. It could be argued that many artists do not act like profit-maximizing firms.

²¹ These are the three most common commercial DAW’s, but there are of course many more to choose from.

²² <<http://www.propellerheads.se/products/reason>>

²³ See for example Varian (2006) p. 403-404

However, as long as we assume that there is some kind of reward, monetary or non-monetary, for producing music, we would expect the amount of artists to increase when the price of producing decreases as more artists can afford to make music.

2.3.2 From payola to peer-to-peer

Music is an *experience good*. To some extent we can form an opinion with the help of reviews from music critics or from previous experiences, but most of us would rather like to hear at least a sample of the music before purchasing it. Therefore it has always been in the interest of both artists and record labels to make sure that consumers can hear the music, so that they will later go out and buy the record. For this purpose, record labels has primarily relied on radio airplay to advertise and launch new artists, as radio play is a) believed to increase record sales and b) a way to ‘test’ if music is going to popular²⁴. As long as mainstream radio has existed, there have been witnesses to the wide use of *payola*, which essentially is a euphemism for bribing, when the record companies pay radio (or TV) stations to play their music. This behavior is, not surprisingly, illegal in most countries. Coase (1979) is one scholar who carried out a study on the history of payola, and illustrated with quotes from a court hearing in the USA from the 1960s:

“MR. BENNETT:

Well, do you think without payola that a lot of this so-called junk music, rock and roll stuff, which appeals to the teenagers would not be played, or do you think that kind of thing would be played anyway, regardless of the payola?

MR. PRESCOTT:

Never get on the air.

MR. BENNETT:

Do you think payola is responsible for it?

MR. PRESCOTT:

Yes; it keeps it on the air, because it fills pockets.”²⁵

‘Mr Prescott’ in the interrogation quoted above was a disc jockey who had received around \$10 000 for playing songs selected by a record label, and it instantiates the influence a record label had over the selection of music played on radio and on TV. Before the Internet, the only way to get a sample of music before purchase, except for listening in the record store or borrowing records from friend,

²⁴ Montgomery & Moe (2000)

²⁵ Coase (1979)

was through radio or TV, and these were largely in the control of the record labels that could afford payola.²⁶

A lot has happened since then, and while the radio station is still a major player in the promotion of music, new music can now be found, listened to and downloaded easily from various sources on the Internet. Although the main topic of discussion with regards to file sharing has been the negative ‘lost-sales piracy’, research show that in addition there seems to be positive ‘pre-purchase sampling piracy’. Bhattacharjee et al (2004) carried out an empirical analysis of online music sharing, and argue that online music sharing “is today’s technological equivalent of the sampling that record companies sought for some 50 years ago in the days of payola”²⁷. Johansson & Frejman (2009), interviewing decision makers in the music industry confirms this claim;

“Sites like YouTube and MySpace are considered as natural channels for promoting videos and recruiting new fans. Official statistics of shows/plays on these and a number of other websites such as Facebook are used to value popularity of artists and releases. In fact some respondents actively plant genuine music files on P2P networks as a part of their marketing strategy and follow the number of downloads ... In fact, it has never been so inexpensive to produce recordings of high technical quality and make them globally available for digital downloads. At the same time, marketing music with the aim of reaching a broad audience has never been more difficult and expensive.”

The difference between promoting music through radio stations and promoting it on the Internet, is that everyone can get their content out on the web at virtually no cost. Anyone can create a Myspace²⁸ or a YouTube²⁹ account and make their music available to the entire world. In other words, mass marketing of music has gone from something that was exclusive to major labels with big budgets, to something that anyone with a computer and an internet connection can achieve. At the same time, with so many players fighting for the attention of potential consumers, it has become harder to stand out from the mass.

²⁶ Ibid

²⁷ Bhattacharjee et al (2004) p. 117-118

²⁸ <<http://www.myspace.com>>

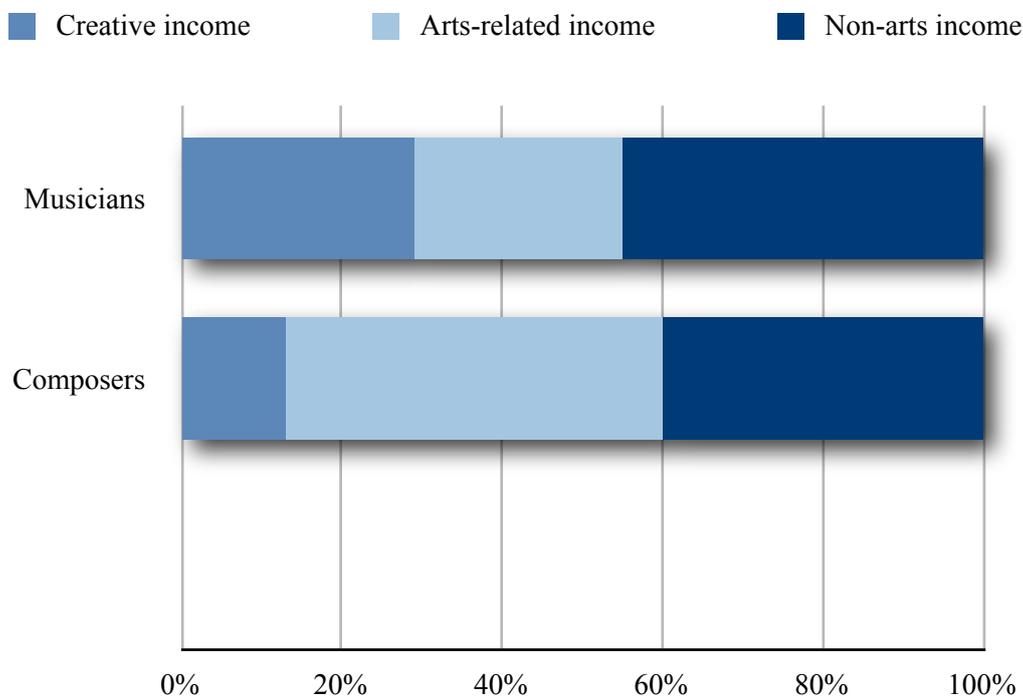
²⁹ <<http://www.youtube.com>>

Thesis 3. The entry barriers and costs of producing and advertising music has decreased. For the artist, this means that it has become cheaper to produce and distribute music, and that more potential artists can enter the market.

2.4 Artists hold multiple jobs

In the first subsection of this chapter we concluded that the artist is unlikely to make a considerable amount of money from record sales. So where do the artists get their money from? Obviously, musical artists are a heterogenous group, and it would be oversimplifying to imply that they all have the same income sources. Still, it may prove useful for the later analysis to try to make some generalizations about how the artists make their living. In a study published by the Australia Council, Throsby and Hollister (2003) investigated the situation for artists in Australia during the last 20 years, by using questionnaires and conducting telephone interviews with 1063 Australian artists³⁰. One of their main findings was that while some artists are able to make a living from their music alone, a majority of artists have jobs as non-musicians to support themselves.

Percentage of total income from different sectors for artists in Australia



Source: Throsby and Hollister (2003)

³⁰ Artists here meaning everything from visual artists to music artists, as opposed to the rest of the paper where artist means artists making music.

Creative income is income from ‘producing art’, i.e. producing, writing and performing music for the art forms we are interested in. *Arts related income* are incomes from teaching, administrative work in the art sector etc. *Non arts income* are incomes that comes from an entirely different sector. Musicians and composers have some of the highest total incomes relative to other art forms, but a majority of this income comes from arts related income and non arts income. Composers earn close to the lowest incomes from their creative work. Furthermore, the study concludes that during the last 20 years, the number of Australian artists has nearly doubled³¹. Quite obviously, if a majority of an artists income originates from sources other than music production, this income will be an important determinant of how much time is spent on making music, and therefore affect how much music the artist supplies.

Thesis 4. *A majority of artists has jobs in the non-arts sector, and these non-arts incomes will affect their supply decision.*

2.5 Live performances - a substitute for selling records

If we disregard incomes from the non-arts sector, artists principally earns revenue from recorded music sales and live concerts³². As has been argued in previous chapters, the artist sees little of the money made from record sales. However, as it turns out, the artists share of revenue gained from live performances is a lot better, and a typical deal gives 70-85% of the ticket revenues to the artist³³. Historically, the record labels has not held a big stake in the business of live performances, as they have been seen as merely a way to promote artists to sell more records, and this may explain why the artist has a relatively high share of revenues from live performances compared to record sales. While record labels may look upon live performances as a complement to record sales, for the artist it might instead be a substitute revenue source when record sales are falling. As discussed in previous chapters, file-sharing has not only eroded CD sales, but is also believed to work as the new payola, e.g. help advertising new music. Combining the fact that artists has a large share of concert revenues with the increasing trend in file-sharing poses an interesting question: can file-sharing increase demand for live performances to the extent that the artist makes more money from increasing concert revenues than is lost by declining record sales?

³¹ Throsby and Hollister (2003)

³² There are exceptions to this, established artists could for example make money from commercials, merchandise etc.

³³ Mortimer and Sorensen (2005) p. 5

Moretimer and Sorensen (2005) studied the supply of live performances in North America, and showed empirically that even though ticket prices for live music performances doubled between 1993 - 2002, the number of concerts and revenues from concerts increased sharply. Their findings also indicate that even though record sales have declined, the artist is not necessarily worse off:

“For artists, the decline in revenues from recorded music after 1998 is striking, but appears to have been more than offset by a concomitant increase in concert revenues. Total industry revenues, on the other hand, have not fully recovered, despite the increasing contribution of concert revenue to the total ... It is quite likely that file-sharing is a boon to some artists and a bane to others, but to date there is little empirical evidence indicating which types of artists gain vs. lose.”³⁴

Thesis 5. *The number of live performances has increased, and the revenues of these live performances have compensated some artists for the decreasing revenues from record sales.*

³⁴ Ibid p. 32

3

Indicators

In the previous chapter the changes that are likely to affect the supply were discussed, and a number of thesis' were made. This chapter will present empirical data that will serve as an indication whether more or less music is being supplied today than five years ago.

...

3.1 Why use indicators?

One problem with measuring output in the music industry is that there are very few unbiased data sources, and organizations that are collecting valuable information are often unwilling to share their data³⁵. Most of these organizations serve specific interest groups; composers and song-writers, record labels, performing artists etc. Organizations such as RIAA and IFPI have been very eager to provide the public with statistics on declining sales and the increase of illegal downloading. Unfortunately, they have been less helpful in providing statistics that would show, for example, how many new album titles that are released every year³⁶. The unwillingness to provide data could of course be due to a number of non-conspiratorial reasons; the point is that it is problematic finding robust data on supply in the music industry. This is one of the reasons that sources that may seem unconventional has been used in this paper, and it should be pointed out that they are not intended to serve as proof that the music supply has changed by this or that amount. Instead, they are used to provide an rough estimate if the supply has increased or decreased. The characteristics, strengths and weaknesses of the indicators will be more thoroughly discussed in their respective subchapters.

3.1.1 What is an artist?

Until now, the term *artist* has been used in a broad sense without really defining what an musical artist is. This has been intentional, motivated by the belief that the topics discussed are applicable to

³⁵ IFPI, Nordic Copyright Bureau and RIAA have been asked to supply data for this paper but declined to participate for unknown reasons.

³⁶ IFPI and RIAA did supply this information until 2002, but this is of little interest for this study.

a range of different musical artistry. However, before introducing the indicators it is relevant to separate the artists into two subgroups, since the supply indicators will be divided in this way.

- *The composing artist* is the artist that writes and composes the music.
- *The producing artist* is the artist that produces and records the music.

To exemplify, if the *Lund Academic Choir* records a *Beethoven* symphony, Beethoven will be the composing artist, and the Lund Academic Choir will be the producing artist. Of course, these two different forms of artistry could both be done by the same person or group.

3.1.2 Quality or quantity?

The two indicators used have in common that they measure the *quantity* of output. It may be argued that some value should be given to quality or diversity of the music supplied, since these are attributes that may be important for the potential listener. However, the purpose of this paper is to find out whether artists are supplying more or less music (and why), and not if the music supplied is 'good' or 'bad'. While it would indeed be interesting to know if music or muzak is being supplied, this question falls outside the scope of this paper.

3.2 Indicator of composed music

An original composition of music is regulated by copyright law, controlling how it may be distributed and used. As it would be practically impossible for the individual artists to protect the rights himself, organizations has been created to manage these rights more effectively. There are many different types of these *collecting societies*, managing different types of rights. For example, in Sweden there are organizations for the composers (STIM), the performing musicians (SAMI) and artists publishing music (NCB and IFPI)

STIM³⁷ is one of the largest Swedish collecting societies, owned by 50 000 composers and music publishers. Their purpose is to look after the rights to economic compensation to the composer when a piece of music is used in public, for example when music is played on the radio, on TV or at a restaurant³⁸. To become a member of STIM, it is required that at least one of your compositions

³⁷ Svenska Tonsättares Internationella Musikbyrå, <<http://www.stim.se>>

³⁸ STIM (2007)

has been performed in public or has been recorded and published, and as a member you are obliged to report all your compositions to STIM. In return, they will collect and pay out economic compensation whenever your music is used in public.

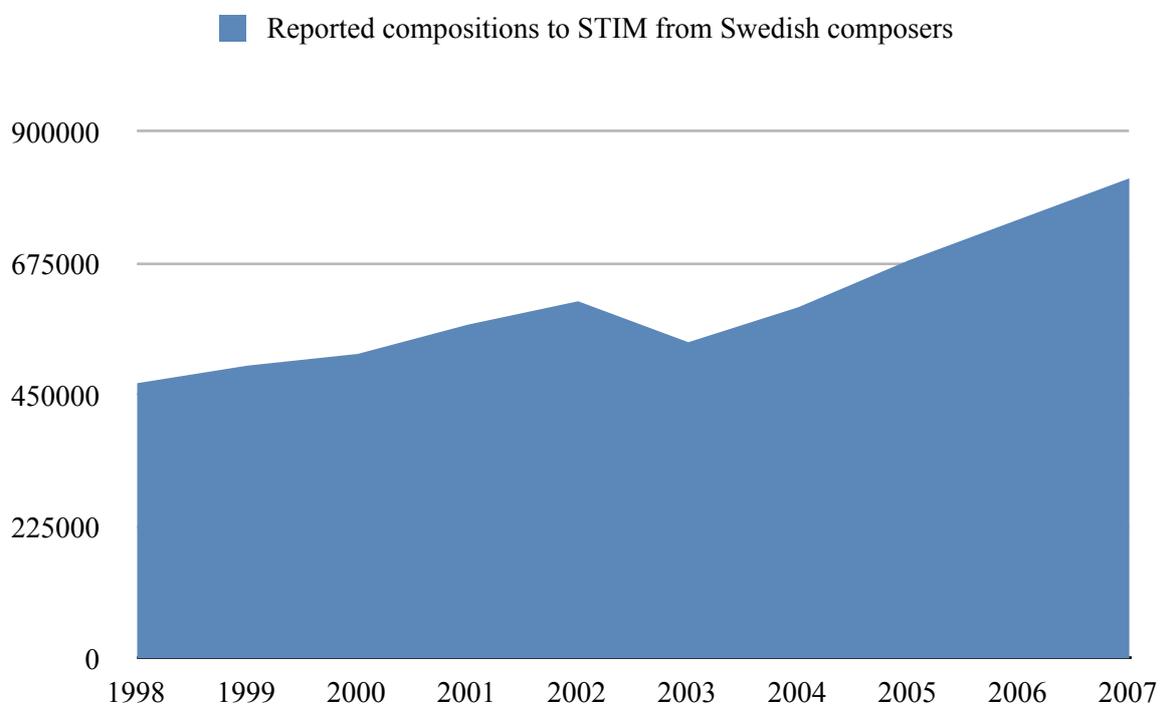
3.2.2 Strengths and weaknesses of STIM reports as an indicator

As members are required to report all their new compositions, the annually reported compositions from STIM would serve as a good indicator whether the supply of composed music has increased or decreased. The fact that a composer has to release one of his compositions, or have it played live to join STIM, also serves as some proof that the composition is ‘serious’. The drawback of the data STIM provides is that it is not available as ‘raw data’, but only in graphical diagrams that present the accumulated number of compositions.

3.2.3 Results

The data depicted in the graph presented below has been collected in STIM’s annual reports for 2002 and 2007, through ocular inspection³⁹.

Accumulated number of compositions reported to STIM, 1998-2007



Source: STIM (2002, 2007)

³⁹ The original graphs can be found in appendix A.1.

The graph shows a rather constant trend, except for the gap between 2002/2003. As can be seen, the graph does not begin at zero, and the reason is that it shows the accumulated number of compositions that have been reported to STIM. One peculiar thing however, is that the accumulated number of compositions at the end of 2002 is roughly 600 000, while at 2003 it is just over 500 000 compositions, which is impossible since you can not ‘withdraw’ a composition from STIM. When asked, STIM replies that they “made system changes that year”⁴⁰ and that this may be the explanation for this apparent error in the graph. Errors of this type of course affects the credibility of the data, but at the same time there is no apparent reason to believe that STIM has made this type of error every year when adding new compositions to the database. Once compositions are reported to STIM, they stay in the database, which makes a system error described above the only plausible explanation for the decrease between 2002 and 2003. The annual growth rate of compositions is 5.4% between 1998 - 2003 and 8.7% between 2003 - 2007. If we disregard the supposed error in the database and measure the average growth during the entire time period, the annual growth rate for the entire time period is about 5.7%.

Indication 1. The number of (Swedish) music compositions has increased by roughly 350 000 between 1998 and 2007, which corresponds to an annual increase of about 6%.

3.3 Indicator of produced music

To measure the amount of produced music, we first have to define when music can be considered to be ‘produced’. Is a song produced when it has been recorded on tape in the local band’s garage, or is it produced first when it is available for purchase in a record store? As this paper studies the supply on the individual level, what we are interested in is whether the artist is willing to supply music, not if a record label is. At the same time, it is questionable if music supply that has no change of reaching consumers is relevant, since no one except the artist himself will ever hear it. Essentially, what we are looking for is an indicator that measures the amount of produced music that is meant to be supplied to the public in one way or another.

⁴⁰ According to Lotta Lunden, press informant at STIM.

3.3.1 The Discogs database

*Discogs*⁴¹ “is a user-built database containing information on artists, labels, and their recordings.”⁴² Founded in year 2000, the internet database was at first aimed to be the largest database for electronic music, but since then genres has been added and it now contains music from virtually all genres of music, both commercial and non-commercial releases. The database grows continuously as users add new and old releases, and after registration anyone can become a user and add information to the database. It should be pointed out that “adding a release” means adding text information about the release, not the music itself. A brief description of how the database works is given below⁴³.

1. A user submits a new release to the database, including information about the artist, composer, genre, label, format, release year, and other information.
2. The release is immediately added to the database, but is listed as “awaiting votes”.
3. Other users vote on the release information, deciding if the release information submitted seems to be correct or not. If the release is voted to be “Correct”, it will be marked as such and fully active in the database.

3.3.2 Strengths and weaknesses of using the Discogs database

For the purpose of this study, the Discogs database has many advantages. It is run as an open source project with voluntary users that have no incentives to consciously skew the information, which vouches for unbiased data. Since anyone can add information, it is also likely to represent a broad range of releases; with respect to different genres, level of recognition of the artist, release year or format. Finally, as other users vote regarding the accuracy level of the releases added, we can be fairly sure that the releases are not ‘fake’. One objection against using Discogs, is that it probably does not represent a majority of all the music being produced. The database contains roughly 1.5 million⁴⁴ releases, and while there are no univocal statistics on how much music is being produced, it may be argued that the total amount of releases ever made outnumber the Dicgogs database. However, for the purpose of this study, the aggregate amount of releases is irrelevant, as we are

⁴¹ <<http://www.discogs.com>>

⁴² <<http://www.discogs.com/help/about-discogs.html>>

⁴³ <<http://www.discogs.com/help/contributing.html>>

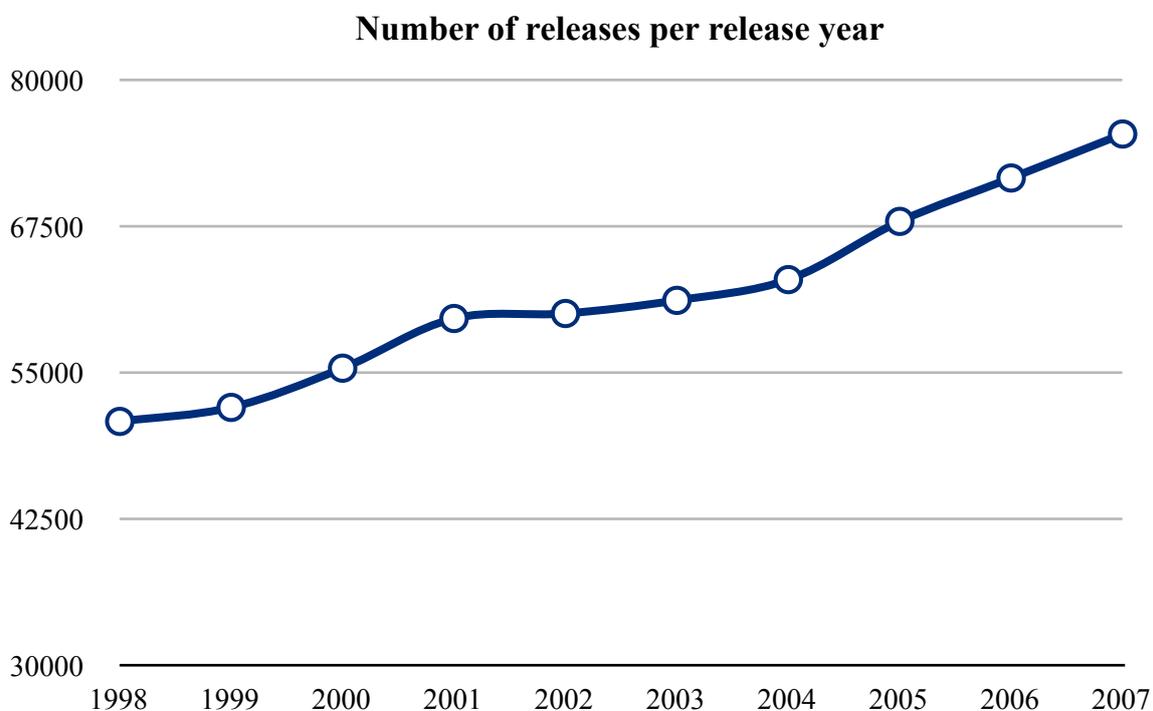
⁴⁴ According to one of the founders of Discogs.

interested in the *change* in produced music. As long as there is no bias toward some particular type of releases, the change in the Discogs database is likely to represent a similar change for the entire industry.

3.3.3 Data gathering process

The data has been gathered through the web interface search engine on the Discogs website, available to anyone. Since releases include the release year, a search query for “1999” will output all releases with release year 1999 that are currently in the database. This has been done for the time period 1998 - 2008, on two separate occasions in march and april 2009. Not to cause any confusion for the reader, we emphasize that this data is a snapshot of the database at the exact time the search query is made. That means that a search query for “1999” will output all releases with release year 1999, no matter when they were added, and *not* releases that have been added during 1999. Since the database is continuously being updated by users, doing a query for “1999” today can (and probably will) yield a different number of releases than if it is done in a month.

3.3.4 Results



Source: http://www.discogs.com/advanced_search on March 9th, 2009

The graph shows the total number of releases in the database for each year. The trend shows an increase in the number of added releases between 1998 and 2007. Although there is a slight decrease in releases after 2007, this can most probably be explained by a lag in the data, i.e. that users have not ‘caught up’ adding all releases for 2008 yet⁴⁵.

Indication 2. *The number of pre-recorded music releases shows an increasing trend.*

⁴⁵ See Appendix A.2 for more on this.

4

Explanations

The two previous chapters have outlined key variables that are likely to affect artists supply decision, and found two indications that the supply of music is increasing. In this chapter, a labour supply model will be used to analyze this behavior, and possible explanations will be presented.

...

4.1 Supply theories

Supply and demand are perhaps the most fundamental concepts in economics, and are often looked upon as ‘laws’ of economic behavior by laymen, as expressed in the introductory quote in chapter 1. The phrase *supply and demand* was first used by economists such as Adam Smith and David Ricardo in the late 18th century, and was later formalized by Alfred Marshall and Leon Walras. Since then, different supply theories have been developed to analyze different markets. When trying to find a relevant supply theory to analyze the behavior of the individual artist, labour supply lies close at hand. As opposed to firm supply theories that focus on input factors such as labour, capital and technology, labour supply models asks the question of how many hours one chooses to work at a given wage rate. A plausible assumption can be made that the individual artist’s reasoning more resembles that of a worker choosing how to spend his time, than that of a firm that wants to maximize profits given the constraints of input factors⁴⁶. If we also assume that the supply from the artist is dependent on how much time that is put into music creation, labour supply seems like an appropriate framework to analyze artist supply behavior.

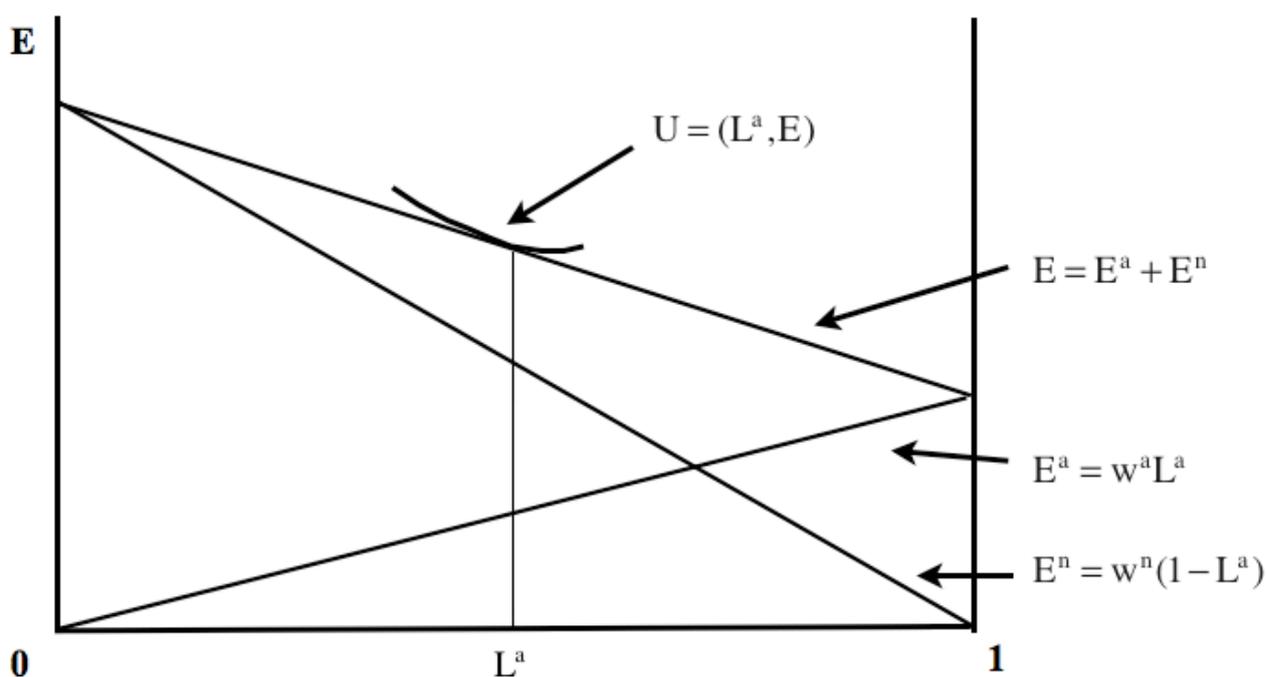
The standard model of labour supply derives the supply from the tradeoff between labour and leisure, where more hours of work earns a higher income, at the expense of leisure time. In this model, workers has a positive preference for leisure, and a negative preference for working. The problem is that this assumption may not hold for all workers, especially artists, that are likely to gain utility from making music except for the monetary rewards. Adding to the facts that many

⁴⁶ It could be argued that some commercially very successful artists resembles a firm in the sense that they have an entire business built around their music career. However, this is assumed not to be true for most artists.

artists does not make a considerable amount of money from making music, and has to take on ‘regular jobs’ to support themselves⁴⁷, the need for an adjusted labour supply model is even more apparent. Friedman and Kuznets (1945) were among the first to take into consideration that some professionals such as academics and scientists derive utility from the work itself, not just the income. Throsby (1994) followed in their footsteps and introduced a work-preference model for artists.

4.2 Throsby’s work-preference model of artist behavior

The main difference between Throsby’s model and the standard model of labour supply, is that Throsby recognizes that there are two markets that the artist can supply his labour to; the arts market and the non-arts market. The model is proposed in a strong and a weak form, where in the strong form the artist is entirely devoted to making music and has no interest in leisure time or consumption, as long as he satisfies a budget constraint necessary for ‘survival’. In the weaker (more general) form, the artist is ‘allowed’ to consider the marginal rate of substitution between arts and non-arts work, with respect to the wage levels in the different markets. The latter form of the model is the one presented below.



Source: Throsby (1994)

⁴⁷ See chapter 2.4.

E , on the y axis, represents total income, and is equal to the sum of incomes from work in the arts sector (E^a) and work in the non-arts sector (E^n). The income functions are equal to the wage level in the corresponding market (w^a, w^n) multiplied with the hours supplied to the corresponding markets. The x-axis shows how much time that is supplied to the two markets, where 0 means that the artist only works in the non-arts market, and 1 that the artist devotes all his time to the arts. Finally, $U(L^a, E)$ is a utility function that depends on the time devoted to the arts, and the total income level. From basic microeconomic theory we know that if the artist is a utility maximizer, he will pick the point where the indifference curve just tangents the budget constraint, given that we have an interior solution. Now that the framework of the model has been presented, let us move on to the key variables.

4.2.1 The wage levels

The first determinants of the supply to the arts sector are the wage levels. As wage levels change, the budget constraint moves and will therefore possibly, depending on how the utility function is constructed, alter the relation between time spent on work in the arts and non-arts sector. The budget line can move in two ways; it will pivot if the real wage levels change, and it will shift if the total income changes for some reason, for example that the artist receives a scholarship. When a change in behavior is caused by a change in the real wage, economists call this a *substitution effect*. The individual substitutes one good for the other, depending on his preferences, when the relative prices for the two good changes. In our model, the artist chooses between income and time spent on making music. The other effect, when the budget line shifts, is described as an *income effect*. This is the change in behavior caused by a change in the income level. Given that the utility function in Throsby's model is positively dependent on the total income and the time spent in the arts sector, we would expect that the income effect and substitution effect move in the same direction; when the total income level increases more time will be spent on the arts, and when the arts wage increases the artist will substitute towards the arts sector. Throsby empirically investigated the amount of time spent on arts depending on the wage level, and found that when the arts wage surpassed the non-arts wage, the time spent on arts increased significantly⁴⁸. Intuitively, it is not very surprising that an artist chooses to work more in the arts sector when the arts wage level surpasses the wage level of the 'day job'.

⁴⁸ Throsby (1992)

4.2.2 The utility function

The other important determinant for the artist's 'optimal supply' in this model is the utility function. In economics, utility is a measure normally used to rank different consumption bundles. There is no clear definition of what utility actually is, but close synonyms are 'satisfaction' or 'happiness', and the more utility the better. The utility associated with a certain consumption bundle is calculated with the utility function, that could depend on virtually any variable. For example, the utility function in Throsby's model positively depends on the total income and the time spent on working in the art sector. From a utility function, indifference curves that show all points with an equal utility level can be drawn. The indifference curve in Throsby's model depicted above is a concave utility function, which basically means that the more one has of a good A, the more one is prepared to give up of good A to get some of good B. The shape of the indifference curve determines this exchange relationship between two goods, the so called *marginal rate of substitution* (MRS). As the labour supply is derived from the utility function, and we assume that the amount of music supplied by the artist is dependent on the labour effort put in, the utility function essentially determines supply. In other words, the shape of the supply curve will be dependent on how the artist values the time spent on art versus his income level. The responsiveness of supply (or demand) to a change in a depending variable is traditionally measured with *elasticities*. For example, the income elasticity of music supply would be the ratio of the percentage change in income to the percentage change in supply. There are two 'extreme' cases of elasticity: on one end there is *perfectly elastic supply*, where a small decrease in income would result in a large decrease of supply. On the other end there is *perfectly inelastic supply*, which means that no matter the income, the supply will remain constant. The elasticity is generally assumed to lie between these two extremes.

4.3 Explanations

A labour supply model and concepts of supply have been presented. Combining these with the background changes in chapter 2, and the indicators from chapter 3, possible explanations for artist supply will be presented.

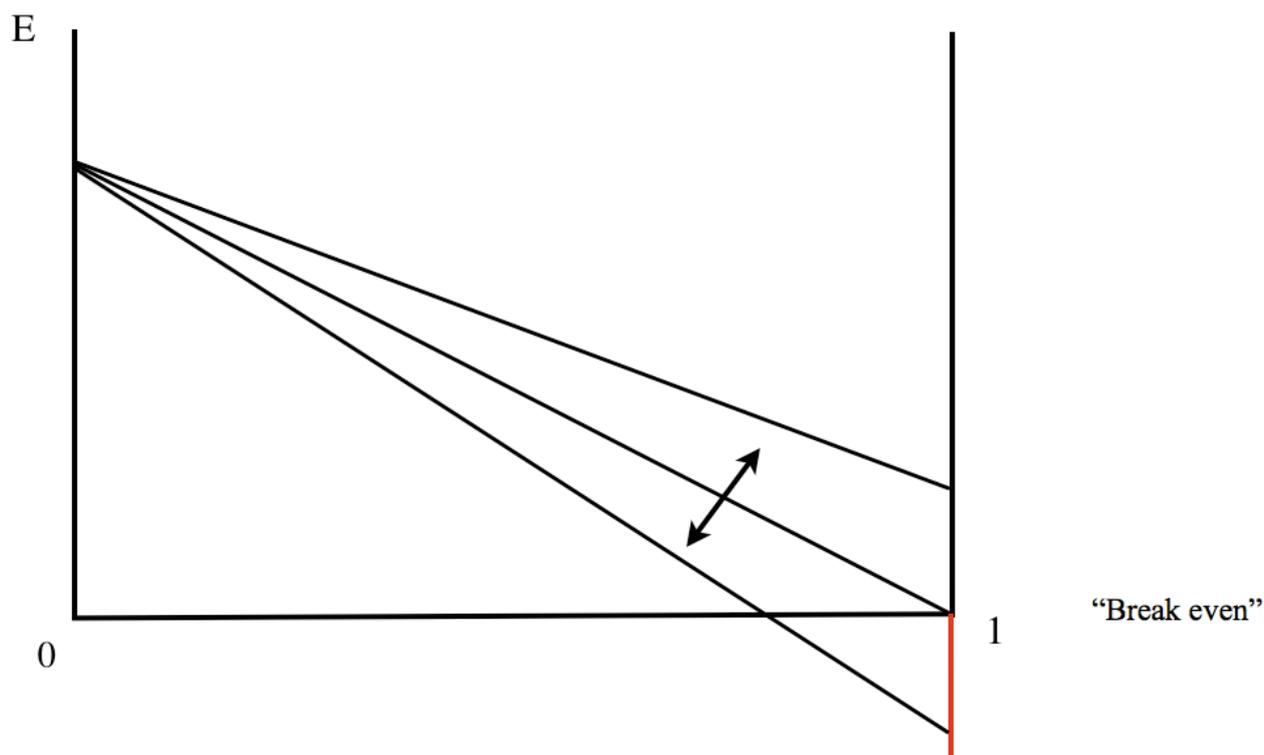
4.3.1 The Artist may not be worse off

The labour supply is dependent on the income budget constraint and the utility function. Let us assume that the utility function for the artist is constructed in a way that yields elastic supply with respect to income over the relevant range, i.e. supply will be dependent on the wage levels in the

arts and non-arts sector. There is not much to say about the wage level in the non-arts sector, as an artist could have virtually any job besides being an artist. Therefore, analysis on the aggregate level with respect to non-arts wages would be pure guesswork without knowing what jobs the artists normally hold in the non-arts sector. However, something could be said about the arts wages for musicians, based on the background analysis in previous chapters.

In chapter 2, plummeting sales statistics for record sales were presented, which is probably the most dominant argument for why the supply of music is expected to decrease. However, as concluded in the first thesis (section 2.3), the artist is unlikely to receive a considerable amount of these sales profits, and the proposed negative effect on the artist income due to this is therefore questionable. Research findings also suggests that the number of live performances, where artists normally gets a larger share of revenues, has increased (thesis 5, section 2.5), which is likely to have compensated at least some of the artists for declining revenues from royalties. Furthermore, it was concluded that most artists hold jobs in the non-arts sector, that would reduce the influence of a possible decrease in the arts wage, especially if the non-arts job accounts for a large proportion of the artists labour supply (thesis 4, section 2.4). Finally, the costs of music production has decreased (thesis 3), and while this does not affect the relative wage level, it would shift the budget constraint outwards as a cost decrease has the same effect as raising the total income. The effects on the wage for artists described above pull in different directions; the decline in record sales is unambiguously negative (but not necessarily important), while the others are likely to affect income positively. What is interesting is that our indicators suggests that supply has increased and this indicates that the net income effect may be positive.

Assume, like in Throsby's model, that the total income E is a decreasing function as the time spent on arts increase, which basically means that he could make more money in some other occupation. Furthermore, assume that there are direct costs of producing music, such as buying studio equipment, in addition to the sunk cost of working in another sector. The artist makes $R(x)$ revenues from selling x 'units' of music that cost $c(x)$ to produce, and makes $w^n(1 - L^a)$ from his day job. Moreover, the amount of music he sells, x , is positively dependent on the time he puts into music creation. The costs are assumed to be increasing when more music is made, and therefore also dependent on 'arts time':



Income function for the artist; $E = R(x(L^a)) - c(x(L^a)) + w^n(1 - L^a)$

The intermediate line represents the “break even artist”, i.e. the artist that will break even if he spends all his time making music. The topmost line is an artist that makes money from being a full time artist, and the bottom one is an artist that will need to borrow money to be able to spend all his time on music. Based on the investigation of the artists situation in chapter two we assume that, *ceteris paribus*:

$$\frac{\partial R}{\partial x} < 0 \text{ (Revenues are decreasing, since record sales are declining.)}$$

$$\frac{\partial c}{\partial x} < 0 \text{ (Costs are decreasing since technological advancements has made it cheaper to make music)}$$

Furthermore, we assume that real wages in the non-arts sector are constant. This means that if the costs are decreasing faster than the revenues are, we would expect the budget line to shift upwards, making it more profitable to produce music. In conclusion, one rather compelling explanation for the increase in music supply is simply that the cost reductions have outweighed the decreasing compensation levels from record sales.

4.3.2 Non monetary rewards are important to the Artist

Few would agree with the notion that artists make music with the sole purpose of making money, e.g. that it is a necessary ‘bad’ to receive an income. On the contrary, most artists probably have other rewards, whether it be the self-fulfillment of writing a song, recognition from peers or the pure joy of playing an instrument. It is therefore reasonable to assume that a substantial part of the utility for the artist is derived from other factors than the monetary income. Let us assume that income levels have decreased due to falling record sales. Since the indicators show that supply has increased, it may then be that supply is inelastic, which means is that the supply of music is unresponsive to a change in income. While it would be a too strong assumption to say that artists are completely uninterested in money, it could be argued that over a certain range, supply is not very responsive to income changes. Assume that the artist has some basic needs for leisure, consumption and other necessary goods, but other than that he is entirely devoted to making music. His utility is dependent on both income and time spent making music, but the higher his income is, the less elastic his supply is with respect to income. Making the assumption stronger, say that once his basic needs (whatever they may be) for other goods are fulfilled, he is happy making music no matter what his income is. If we think about music creation as a hobby and not a job, this sounds more realistic than at a first glance. Many of us have a passion that we, if we had the chance, would devote our time to given that we have ‘enough’ money. With this point of view, a decreasing income is compatible with a constant or even increasing supply, as long as the income level does not go below the ‘survival constraint’. The artist may be poorer than before, but not *poor enough* to quit making music.

4.3.3 Why the Artist enters the market

Up until now, the underlying assumption has been that there is a constant number of artists reacting to the changes in the market. However, the number of artists appears to show a long-run increasing trend⁴⁹, and some effort will therefore be put into explaining why the artists enter the market in the first place. Abbing (2005), who devoted an entire book to explaining why artists are poor, offers a couple of explanations for why so many people choose an occupation in the arts, despite the low compensation levels.

⁴⁹ See section 2.4

The winner takes it all

‘Regular’ jobs are mostly paid on the basis of the absolute performance of the work. For example, a newspaper salesman gets paid based on the number of newspaper he sells. If there are two competing salesmen, one of them sells nine newspapers and the other one ten, the more successful salesman will make 10% more. In other markets however, pay is based on relative performance compared to the other players on the market. Abbing compares the situation for artists with that of sport athletes; an athlete who can run a 100 meter race a fraction of a second faster than the others, will end up with all the prize money. The point is that low differences in quality or talent may result in a large difference in income in winner takes it all markets. In a way, the importance of relative performance also applies to musical artists. A singer that can, for example, sing marginally better than the second-best singer will end up with the record contract. The cover band that can render a perfect copy of a *Beatles* song, on the other hand, will probably not gain any listeners compared to the real deal. While these examples are a bit extreme, the nature of the music market is such that a few very successful artists will end up with a much higher income than the rest. Abbing claims that the winner takes all structure attracts more competitors than a market based on absolute performance:

“Even though artists may be just as ill-informed, overconfident, risk taking and interested in money as other professionals, the winner-takes-all principle should tempt more people the arts than other occupations with a weaker winner-takes-all market. Due to the market structure, extreme monetary rewards and renown lure people into the arts. Therefore, many youngsters become artists and supply many art products.”

Considering the low probability of succeeding in the music industry, it could almost be viewed as a lottery. While the first prize in this lottery may be less worth nowadays, due to falling record sales, the lottery ticket has certainly gotten a lot cheaper. As described in previous chapters, the cost of entry has been decreased due to new technology for production and distribution, and virtually anyone can afford to produce music. If we accept the notion that the music industry is indeed a winner takes all-market, artists entering the music industry reminds of the *patent race* companies engage in when developing new products. Because of the nature of patents, the only thing that matters is winning, not by how much. In the most basic model of a patent race game, the players (artists) compares the cost of investing (producing music) with the expected profits. If the expected profits equal or surpass the costs, the player will participate in the race. Formally, if $c_i \leq E(\Pi)$

where c_i is the cost of producing music, $E(\Pi)$ is the expected profit dependant on the probability of success and the reward if one succeeds given by $E(\Pi) = \sigma_i Y$, the artist will enter the market.

Moreover, if we keep the model simple and assume that all players have an equal chance of success⁵⁰, e.g. $\sigma_i = 1/n$ where n is the number of artists, we have that $c = Y/n$ or $n = Y/c$.

What this means is that the costs decrease more than the rewards do, e.g. $\partial Y / \partial c > 0$, we would expect to see an increase in the number of artists entering the market. To sum up, another potential explanation for the increase in music supply is that more artists are entering the music industry today than before.

Lack of information, overconfidence and risk taking

Most microeconomic analysis make use of *rational choice theory* to explain how consumers and producers make their decisions, and it has been the assumption in this paper that artist utility maximize given an income constraint. Rather strong assumptions are made to support rational choice theory, and it has been questioned whether these assumptions really hold. For example, to even construct an indifference curve the individual must be able to rank all different actions in order of preference. The individual is also often assumed to have perfect information about all choices available, and the ability to weigh the risks and benefits of these choices. It could be argued that one reason that artists are willing to supply to the music market, is that they have a unrealistic view of the chance of success. Abbing (2005) argues, although without empirical support, that artists are less risk-averse than the average individual. Many enter the arts at a young age, when they have little information about their own abilities, the odds of success, the number of competitors etc. Artists are compared with gamblers that overestimate their ability to pick the right lotto number; in the same way young artists overestimate their own ability and luck⁵¹. This might sound like stupefying the artists, but considering that the measure of quality of music is highly subjective, it is hard for artists to correctly asses their chances of success and this may lead to overconfidence. Exemplifying, a track and field athlete can easily measure his abilities by the time it takes to run 100 meters or how far he can jump. Artists does not have the same accurate measurements of talent or ability, and therefore may overestimate their chance of success. Abbing claims that the lack of information, incorrectly interpreted information, or even self-deceit may explain why artists keep going even though they are unlikely to succeed.

⁵⁰ It is sufficient that they *think* they have the same chance of success.

⁵¹ Abbing (2005), p 118-120

5

Conclusion

The main purpose of this paper has been to find an indication whether the music supply from music producers has increased or decreased, and our two indicators show that the supply is increasing. The first indicator can be considered weak in the sense that it measures the accumulated number of compositions (which can only increase), although measuring the percentage change shows that compositions increased at a faster pace 2002-2007 than 1997-2002. The second indicator measures the change in supply as a flow variable, and shows that releases reported to the Dicogs database have increased every year during 1998 - 2007, e.g. that the supply of pre-recorded music has increased.

Some explanations were offered for how increasing supply can be compatible with declining record sales, something that at first glance may seem controversial. The most plausible explanation is that the net income effect for many artists has been positive, i.e. that decreasing revenue from the sales of pre-recorded music has been more than offset by a decrease in production costs, as well as substitute revenue sources such as concerts. Another important factor is that the entry barriers to enter the music industry have been lowered. Not only is it cheaper to buy music equipment nowadays, but it is also easier to distribute and advertise music using the Internet, making it possible for more potential entrants to 'give it a shot'. Furthermore, it was found that most artists have a job besides making music that takes up a substantial amount of their time, something that indicates that the income made from music may not be the most important factor for artists. Finally, some 'non-economical' aspects were brought up, such as the possibility of the artists not being fully rational in assessing the risks, rewards and their own abilities. While these latter factors do not really explain an *increasing* supply, considering that people can not be expected to be more irrational now than five years ago, they serve as a reminder that not all behavior can be explained by purely economic factors. Finally, it should be noted that the results only applies to the music industry, and one should be careful before applying the results of this paper to other forms of artistry.

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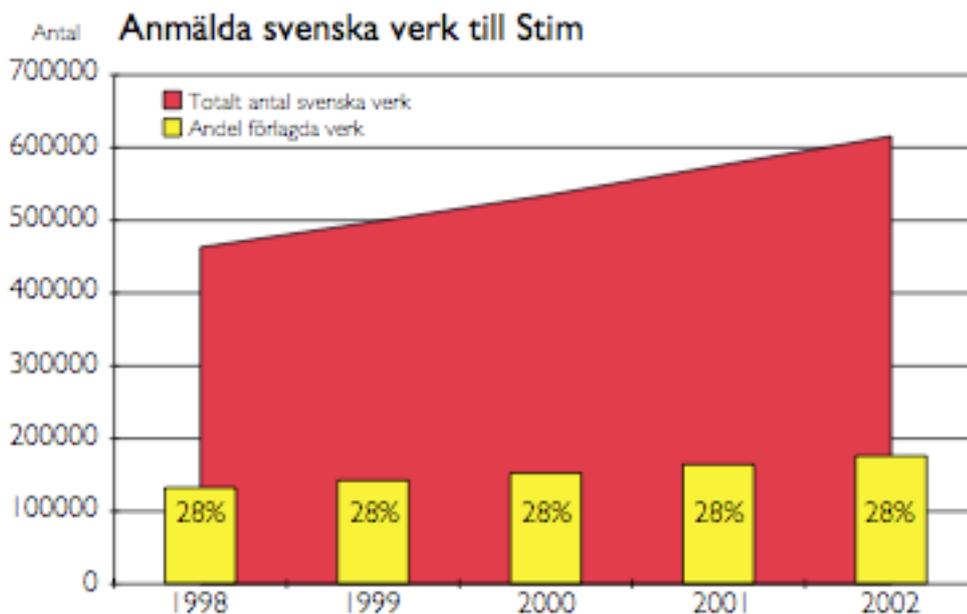
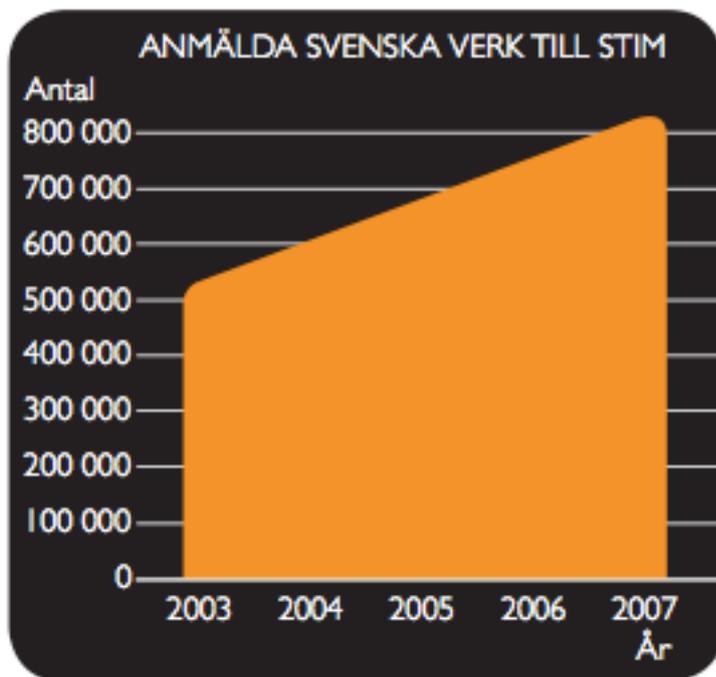
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Appendix

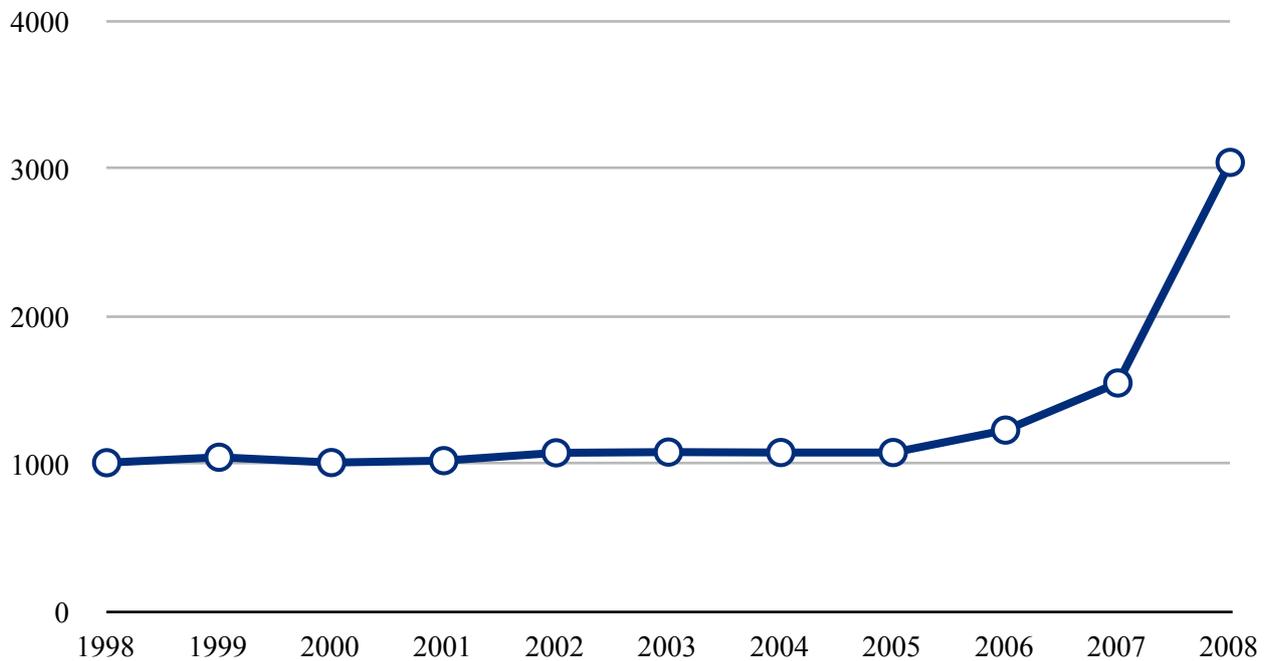
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A.1 The original STIM graphs



A.2 The data lag in the Discogs database

Amount of releases added to Discogs between 2009-03-09 and 2009-04-15



Source: http://www.discogs.com/advanced_search, retrieved on 2009-03-09 and 2009-04-15

As this graph shows, the amount of releases added to the Discogs database between 2009-03-09 and 2009-04-15 has a clear bias towards releases from later years, which confirms the suspicion that there is a lag in the data.