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► **To cite this version:**

Ramadan Aly-Tovar, Maya Bacache-Beauvallet, Marc Bourreau, François Moreau. Should I Stay or Should I Go: Artists and Free-Streaming. 2018. hal-03407887

HAL Id: hal-03407887

<https://hal.science/hal-03407887>

Preprint submitted on 28 Oct 2021

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Projet de recherche EnCommuns

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WP 24
September 2018

Should I Stay or Should I Go: Artists and Free-Streaming

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This version: Monday 12th March, 2018 Abstract

While streaming services are becoming the dominant way to consume recorded music, professional musicians remain divided in their opinion toward streaming, especially towards free (ad-supported) services that generate very low royalties. This paper is one of the first attempts to analyse what are the factors that drive the artists' opinion on free streaming. We emphasize four main determinants that affect the opinion of artists on free-streaming beyond their individual preferences: (i) free-streaming stands as a discovery tool that helps consumers to explore the music catalogue beyond stars and already well-known artists; (ii) free-streaming generates a positive externality on the live music market; (iii) the contractual situation of the artist also matters since the biggest recording companies obtain much more favourable conditions in revenue sharing from streaming services; (iv) the opinion of artists is also shaped by the evolution of consumption behaviour of their fan base that musicians cannot simply ignore. To check for the relevancy of these four factors we use poll data from more than 1,100 French professional musicians.

Keywords. Streaming, Music Industry. *alytovar@univ-paris13.fr
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1. Introduction

Offering an unlimited access to music without download – either ad-supported or through a paid subscription – becomes the new paradigmatic business model in the recorded music industry: streaming now accounts for 62% of total recorded music revenues in the US¹, for 50.4% in the UK², 36% in Germany³ and 42% in France⁴. This boom is seen as a relief by music labels since it contributes to stop the seemingly never ending decline that the recorded music industry experienced since 15 years. Hence, according to John Rees, VP of Warner Music⁵:

Streaming has the potential to create a golden era for music, with multiple players establishing a truly competitive digital landscape that will benefit artists, consumers and the industry.

However, on the artists' side, the opinion towards streaming is more controversial. Radiohead took down all the albums to which they hold their rights from Spotify in 2013. Likewise, Taylor Swift took her entire catalogue out of Spotify before the launch of her new disk "1989" and Adele refused during seven months her album "25" being available on streaming platforms. Taylor Swift explained more precisely her motivations. Her dispute with Spotify focused on the free tier of the streaming service:

Music is art, and art is important and rare. Important, rare things are valuable. Valuable things should be paid for. It's my opinion that music should not be free [...]⁶.

Artists' criticisms indeed focus on ad-supported streaming provided by audio streaming services (e.g. Spotify) as well as by video sharing service (e.g. YouTube). For instance, in 2017, the ad-supported segment accounted for

¹ <https://www.riaa.com/wp-content/uploads/2017/09/RIAA-Mid-Year-2017-News-and-Notes2.pdf> (retrieved March 5, 2018)

² <https://www.bpi.co.uk/news-analysis/rising-uk-music-consumption-enjoys-fastest-growth-this-millennium/> (retrieved March 5, 2018)

³ <https://www.billboard.com/articles/business/8223646/germany-music-revenues-2017-bvmi-streaming-physical> (retrieved March 5, 2018)

⁴ <https://www.musicbusinessworldwide.com/french-recorded-music-market-3-9-streaming-income-grows-e243m/> (retrieved March 5, 2018)

⁵[IFPI, 2016]

⁶ <https://www.theguardian.com/music/2014/nov/04/taylor-swift-spotify-streaming-album-sales-snob> (retrieved October 25, 2017).

56% of Spotify's users but only for 10% of its revenues: a free-user generates a yearly income of \$2.6 against \$51.7 for a subscriber⁷. Sheltered behind the "safe harbor provisions", YouTube is exempted from the obligation to negotiate the access to the catalogue of music labels, conversely to audio streaming services [Liebowitz, 2018]. In 2016, the 900 million users of music video sharing services like YouTube only generate \$0.55 billion, that is to say only \$0.6 per user [IFPI, 2017].

Yet artists are not unanimously against free streaming. In France, for instance, 40% of professional musicians have a positive opinion on free streaming services (see below). Thus the aim of this paper is to better understand how artists could have a positive opinion on a consumption mode that generates so low revenues for them. At a first glance, the issue of artists' perception of free-streaming could appear quite close from the debate on artists' opinion towards piracy. Indeed, in both case recorded music comes at a zero marginal cost for consumers with an unlimited catalogue. As for free-streaming, some artists have also positive opinion on piracy [Bacache- Beauvallet et al., 2015]⁸. However a closer look shows that free-streaming and piracy strongly differ. Firstly, free-streaming is legal conversely to piracy. This should eliminate ethical considerations and lead to focus on economic concerns. Secondly, conversely to piracy, free-streaming generates revenues, although smaller than pay-streaming. Artists can thus directly benefit from free-streaming depending on their contracts and on their fans listening behavior.

In this paper, we emphasize several factors that could explain the positive opinion of some artists on free-streaming. First, since free-streaming stands as a costless discovery tool for consumers, some artists could value more the opportunity to widen their audience than the potential loss in recorded music sales. Second, an artist who believes that her record label has a strong bargaining power with streaming platforms should be more favourable towards free-streaming. We consider that major labels have a stronger bargaining power because of the attractiveness of their music catalogue and are thus able to secure a greater share of streaming revenues. Third, an artist whose

⁷ <https://www.sec.gov/Archives/edgar/data/1639920/000119312518063434/d494294df1.htm#rom49429412> (retrieved March 5, 2018)

⁸ Recorded music consumption whether legal or illegal indeed generates a positive externality toward the live music market. Piracy increases the audience of artists and the attendance to their live performances. If artists earn more from touring than from recorded music sales, they should rationally be more tolerant towards piracy.

audience is more prone to use free-streaming should also be more favourable to this new consumption mode. Since youngest consumers are over represented in the population of free streaming users, artists who target this trench of age should be more favourable to free streaming.

To address our research questions we use a survey from more than 1,100 French professional musicians polled in autumn 2014. Such a focus on French artists is relevant because one of the first streaming service in the world has been launched in France in 2007 (Deezer). French artists have thus a long experience of the advantages/disadvantages of free streaming services. Moreover France follows the global trend with respect to the share of streaming in the music industry revenues (see above). We use an ordered probit to estimate the impact of our different variables of interest on the probability of an artist to have a positive opinion of free-streaming. Our results show that (i) artists whose objective is to expand their audience see free streaming rather positively conversely to artists who already get an established fan base; artists who mainly yield revenues from touring also see free-streaming more favorably; (ii) artists signed by a major label have a better opinion on free streaming than artists under contract with a small independent label, which is consistent with the hypothesis that major labels have a stronger bargaining power towards streaming platforms; (iii) the younger the fans of an artist are, the more positive her opinion on free streaming is.

The remaining of the paper is organized as follows. Section 2 reviews the literature. Section 3 presents the theoretical framework and the research hypotheses. Section 4 presents the data, the empirical strategy and the results. Section 5 is devoted to the discussion of the results and their implications. Section 6 concludes.

2. Literature review

Among the huge literature devoted to the digitization of information goods⁹, and especially of the Music industry, a growing part deals with the streaming issue. Three flows of papers can be distinguished: those that study if streaming substitutes or complements other (legal or illegal) music consumption channels; those devoted to the impact of streaming on consumer behaviour; and finally papers that deal with the impact on the business model of the music industry and of the streaming platforms, as well as with legal ramifications of the growth of streaming.

⁹See Belleflamme [2016] for a progress report.

The question whether streaming and purchasing music substitute or complement to one other is still open, existing literature provides contrasting results. A first set of papers suggest substitutability. Aguiar and Waldfogel [2017] find that Spotify use displaces permanent downloads. From a panel of 2,500 music consumers repeatedly observed over more than one year, Wloïmert and Papies [2016] show that the adoption of a free streaming service as well as the adoption of a paid streaming service cannibalizes consumer's music expenditures. From a quasi-natural experiment¹⁰, Hiller [2016] shows that free streaming negatively impacts album sales. However, if streaming displaces sales among best-selling albums, a promotional effect dominates among the lower ranked. Especially top-selling albums. Conversely, several papers conclude to the complementarity of streaming and music sales. Relying on individual-level click-stream data of a representative sample of 5,000 French Internet users and exploiting the introduction of a free streaming cap by the platform Deezer, Aguiar [2017] show that free streaming stimulates music purchasing, especially for lighter streamers. Aguiar and Martens [2016] also use click-stream data on a panel of more than 16,500 European consumers and find a positive relationship between the use of licensed streaming websites and licensed websites selling digital music, suggesting a stimulating effect of music streaming on digital music sales. From two quasi-experiments in Germany¹¹, Kretschmer and Peukert [2015] find that on-line videos availability is complementary to recorded music sales. New artists and mainstream artists benefiting disproportionately from video availability on YouTube. Despite these contrasting results, it should be noticed that a seemingly robust conclusion appears: the impact of free streaming on digital sales is less negative or more positive for new artists than top sellers. The link between streaming and piracy is also not clear. From 1052 surveys conducted on undergraduate students in two universities in South Florida, Borja and Dieringer [2016] find a positive correlation between frequent use of streaming services and illegal downloading. Aguiar [2017] also find that free streaming stimulates piracy activity. Conversely, Aguiar and Waldfogel [2017] show that Spotify displaces music piracy!

¹⁰The removal of Warner Music content from YouTube in January 2009, and its restoration in October 2009.

¹¹In 2009, virtually all official music videos were blocked from YouTube due to a legal dispute. The situation remained largely unchanged until the dedicated platform VEVO entered the market in 2013, making videos of a large number of artists available over night.

The research devoted to the impact of streaming on consumer behaviour mainly focus on the discovery opportunity offered by streaming as compared to purchasing channels. The zero marginal cost of music discovery through streaming should, especially for those with high discovery costs, foster the exploration of the catalogue of streaming services. Aguilar [2017] indeed emphasizes that its results are consistent with streaming allowing discovery of products. From a panel data set of individual consumers listening behaviour on digital music platforms, Datta et al. [2017 (Forthcoming)] show that consumer adoption of streaming leads to an increase in the quantity and the variety of music consumption, as well as to an increase in discovery of new music. Finally, a last stream of the literature on streaming deals with the impact on the industry as a whole and on record companies' and streaming platforms' business models. As far as the global revenues of the music industry are concerned, Aguilar and Waldfogel [2017] show that the losses from displaced sales are roughly outweighed by the gains in streaming revenue. In other words, interactive streaming appears to be revenue-neutral for the recorded music industry. Likewise Wlömert and Papies [2016] estimate that the overall effect of streaming on industry revenue is positive (the positive effect of paid streaming outweighs the potentially negative effect of free streaming). In a theoretical setting, Hiller and Walter [2016] identify conditions under which the rise of streaming and the adaptation of music industry will encourage the release fewer songs, but higher quality songs. Dang-Nguyen et al. [2014] show that free streaming has a positive impact on the live music market, suggesting that record companies should seek for diversification outside the recorded music market. Other papers [Thomes, 2013, Carroni and Paolini, 2017] switch the analysis from the recorded music industry to platforms strategy, especially on the choice among the various possible business models: subscription, advertising, or freemium (a combination of the two first). In the legal field, the research had been focused on the effects that digitization and streaming have on the copyright administration and in general their relationship with the current laws [Towse, 2013, Hogan, 2015]. To the best of our knowledge, there is no paper devoted to explain the opinion of artists on streaming, and especially on free-streaming. Some of the previous papers just provide a few insights. For instance, by emphasizing that famous artists' music sales should be more negatively, or less positively, affected by free streaming [Hiller, 2016, Kretschmer and Peukert, 2015]. The present paper aims at filling this gap.

3. Theoretical framework and research hypotheses

We argue that in the streaming age three features of the recorded music industry are key-determinants of the opinion of artists on this new mode of consumption. First, the shift from selling to renting music that allows consumers to increase their discoveries; second, the relative bargaining power of music labels and streaming platforms; third, the specific demographic composition of streaming users.

Up to the rise of streaming services, the digitization of the music industry has led to a nearly zero marginal cost of production and delivery of digital file but not to a zero marginal cost for consumers (the usual price to purchase a downloaded song remains around \$0.99). With streaming, the zero marginal production/delivery cost translates in a zero marginal cost for consumers since consumers either accept the broadcast of advertisements or are charged a flat rate for subscription to rent an unlimited access to a music catalogue. Hence a consumer is willing to try any song and not only those for which her expected utility justifies to pay \$0.99. The potential for music discovery is hence much higher with streaming than with pay-downloads or physical purchase. This conjecture is supported by Datta et al. [2017 (Forthcoming)] who highlight that streaming is indeed a discovery tool for consumers (see the above literature review). Hence those artists who already have an audience or are popular enough could see free-streaming as a disadvantage because it is a way to give their valuable content away to people who don't pay anything to get it. This is how we can interpret the position of Taylor Swift or Adele (see introduction). Conversely, artists still unknown (especially the youngest ones) need to expand their audience and thus should be more favourable towards free-streaming. For example, Ben Berry, a musician member of a new band called Moke Hill which released an EP in 2013, sees Spotify as the instrument by which his band has get to be known:

With no marketing, PR or label support, Spotify has exposed to an audience who otherwise have little chance of finding us.

Moreover, this discovery process does not only foster the increase of future audience in the recorded music market (for the next albums for instance)

but can also have a short run effect on ancillary markets on which recorded music generates a positive externality. The most important of these ancillary markets is the live music market which has benefited from the digitization of music. Mortimer et al. [2012] have shown that files-sharing has a positive impact on live music demand whereas Dang-Nguyen et al. [2014] highlighted that free-streaming generates the same effect. This discovery tool feature of streaming platforms leads us to posit two hypotheses:

H1 Artists who need to expand their audience are more favourable towards free-streaming.

H2 Artists who yield large revenues from ancillary markets of recorded music are more favourable towards free-streaming.

The recorded music market is highly concentrated with three record companies (the so-called Majors) accounting for around 70% of worldwide sales. The domination of the majors is even more important in the streaming sub-market (see Table 1). Securing the access to the majors music catalogue is thus mandatory for the various competing streaming platforms. This provides a huge advantage in bargaining power for the majors towards streaming services that translates into various specific clauses in the contracts that link them. The contract signed in 2011 between Sony Music and Spotify has been made publicly available¹². It shows, among others, that Spotify has accepted to pay huge advances to Sony (possible to cut back if Spotify earns over that amount in the corresponding contract year) and that for the free tier Spotify accept to pay a minimum of \$0.00225 per stream to Sony. Theoretically, Spotify is supposed to keep 30% of its revenues and pay 70% to music labels according to their respective market share. However, the analysis of Spotify's annual financial statement shows that in 2015 the amount pay to the recorded music industry reached 84% of Spotify's revenues. A note in the financial statement of Spotify clearly links this difference between the theoretical and actual payment of Spotify to music right holders to the various contractual clauses evoked above¹³.

¹² <https://www.theverge.com/2015/5/19/8621581/sony-music-spotify-contract> (retrieved October 25, 2017).

¹³ "The Group has certain arrangements whereby royalty costs are paid in advance or are subject to minimum guaranteed amounts. An accrual is established when actual royalty costs to be incurred during a contractual year fall short of the advance payments or minimum guaranteed amounts. The Group also has certain royalty arrangements where it would have to make additional payments if the royalty rates were below those paid to other similar licensors (most favoured nation clauses). An accrual is recognised when it is probable that the Group will make additional royalty payments under these terms."

Conversely, independent labels are not proposed the same profitable clauses in their contract with streaming platforms. They do not even negotiate directly with them but have to contract with a digital aggregator (such as Believe) which will make their contents available on streaming platforms against a share of the revenues. The bargaining power towards streaming platforms being much more important for a major label than¹⁴ an independent label,

Table 1: Majors' market share on the worldwide recorded music market in 2016

Global recorded music market (%)		
Universal Music	28.9	30.4
Sony Music	22.4	22.7
Warner Music	17.4	18.6
Total Majors	68.7	71.7
Independent labels	31.3	28.3
Total market	100	100

Source: Midia Research

it is reasonable to believe that an artist signed by a major label will be more confident in the ability of her label to secure a good deal than an artist signed with a small independent label. Hence our third hypothesis:

H3 The larger the label an artist has signed with, the more favourable her opinion on free-streaming.

Another feature of the recorded music industry in the streaming age that can impact the opinion of artists is the specific demographic composition of streaming users. Streaming services, and above all free streaming services, are especially popular among young music consumers. Hence, people in the 15-29 trench of age only accounts for 22% of the French population (aged of 15 or more) but for 34% of streaming subscribers and for 36.5% of free streaming users.

¹⁴ <https://www.musicbusinessworldwide.com/global-market-shares-2016-sony-and-warner-gain-on-universal-as-indies-rule/> (retrieved October 25, 2017).

Put in other words, the penetration rate of music streaming for the whole French population (aged of 15 or more) is 35% but reaches 54% for the 15/29 trench of age [SNEP, 2015]. Moreover, according to a poll conducted by CSA Research in France in June 2015, Electronic or urban music is the most preferred musical genre for only 7% of French adults but for 22% of young adults (18-24 years old). Young listeners are thus more favourable to free-streaming and are also more favourable to electronic or urban music. Hence, a musician who performs one of these two genres should be more favourable to free streaming in order to "follow" her audience. We thus propose the following hypothesis:

H4 Artists whose target audience is young people should have a positive opinion on free streaming.

The following section presents our empirical strategy.

4 Empirical Strategy

For the present research we decided to use a classical ordered probit model as presented by Wooldridge [2010]. The ordered probit model for y conditional on independent/control variables x is determined by:

$Y^* = x\beta + \varepsilon$ with $\varepsilon|x \sim \text{Normal}(0,1)$ Where β is $K \times 1$ and x does not contains a constant. Let $\alpha_1 < \alpha_2 < \dots < \alpha_J$

be unknown cut points and define: $y=0$ if $y^* \leq \alpha_1$

$y=1$ if $\alpha_1 < y^* \leq \alpha_2$

...

$y = J$ if $y^* > \alpha_J$

To obtain the conditional distribution it is only necessary to compute each one of the response probabilities for each one of the values of y . In this sense we end up with the following conditional distribution:

$$P(y=J|x) = P(y > \alpha_J | x) = 1 - \Phi(\alpha_J - x\beta)$$

This model can be estimated by MLE to obtain the β coefficients. This ordered probit used to obtain several results presented in the following sections.

4.1 Data

The data set was built from a survey realized by a specialized survey company GfK-ISL. This survey was conducted on late 2014 on the French musicians who were members of Adami¹⁵. The dependent variable FREE¹⁶ is categorical in nature. It takes the values 0 to 3, being 0 the less favourable opinion towards free-streaming and 3 the most favourable. The 59.0% of the individuals of our dataset have not a favourable opinion towards free streaming compared to only 30% who have not a favourable opinion towards pay-streaming.

With respect to the first hypothesis we consider the level of prestige or fame of an artist. In this sense, we create a dummy variable GOLD taking the value of 1 if the artist has already received either a gold record or music award, and taking the value of 0 otherwise. Those artists already have wider audience and should not see streaming as a tool to discover them but as a give-away of their work to people who doesn't pay a fair price for it. We thus expect GOLD to have a negative sign. At the opposite of the success spectrum, we consider the case of lesser known musicians. MUSREV is a dummy variable that takes the value of 1 in the case that the revenues an artist receives from music are less than 50% of their personal income and 0 otherwise. Artists with a low music income tend to search for ways to increment and expand their audience. In this sense, we expect this variable to have a positive sign. We also take into account that young artists (by the age of by the length of their career) are more prone to look for ways to expand their audience. We use the variable AGE as well the variable CAREER to measure the length of the artist career. We expect both to have a negative sign. However using simultaneously AGE and CAREER generate a collinearity issue¹⁷.

¹⁵Adami is the French organization for the collective administration of performers' rights.

¹⁶Takes the answers of the question: "Are you favourable towards the distribution of your music by the following means: Free-streaming/Pay-streaming".

¹⁷We checked that there are no other collinearity issues among our interest variables (VIFs never exceed 1.78).

We thus choose to prefer the variable AGE and we stress in the results section that using CAREER instead of AGE does not change our results at all. As far as the second hypothesis is concerned, we construct the dummy STAGE that takes the value of 1 in the case that concerts are identified as the most important source of income of an artist and if he performed more than 10 concerts in the last year, the variable takes the value of 0 otherwise. We included STAGE to capture those artists who want to widen their audience because their main income comes from touring. We can consider that these artists have a favourable opinion on free streaming because they expect more from their touring revenues than from recorded music sales. We expect STAGE to have a positive sign.

To test our third hypothesis we created variables to distinguish the contract status of the artists. The variable MAJOR is a binary variable that takes the value 1 if an artist has a contract with a major label and 0 otherwise. A major label can secure better deals which generate higher revenues for the label that should translate into higher income for the artists. The variable MED is a binary variable that takes the value 1 if the artist has a contract with a large independent label and 0 otherwise. IND is a binary variable that takes the value 1 if the artist has a contract with a small independent label and 0 otherwise. Small independent labels usually don't contract directly with streaming services and have to contract an intermediary, a digital distributor, who will make their music available on digital platforms. The digital distributor charges the independent label for this service which reduces the revenues of right holders and artists. Finally we construct a dummy variable NOCONTRACT to account for those artists not signed by a music label. We consider IND as the reference category and we thus expect MAJOR to have a positive sign.

Finally, to test our fourth hypothesis and to capture the particularity of artists who perform music genres that have young people as their main target audience, we created a dummy ELECTRO URBAN that takes the value of 1 in the case that the musical genre of the artist is either urban music or electronic music and, that takes the value of 0 otherwise. We expect this variable to be positive.

Moreover, we created various control variables. Firstly, we consider the pres-

¹⁷We checked that there are no other collinearity issues among our interest variables (VIFs never exceed 1.78).

ence of the artists in the internet through the dummy WEBP that takes the value of 1 in the case that the artist has a web-page dedicated to her musical activity and 0 otherwise. Our aim with this variable is to control for the general opinion of the artists on digitization. It is possible that some artists may be not favourable to streaming just because they are not favourable to digitization at all. Secondly, we include the traditional socio-demographic variables. A dummy variable GENDER that takes the value of 1 if the artist is a male, and 0 otherwise. PARIS that takes the value of 1 if the artist lives in Paris or the nearest suburbs¹⁸. Education of the artists is taken into account through the variable EDU. It is a dummy variable that takes the value 1 in the case that the artist has at least a master level of education and 0 otherwise. We also control for they personal income (INCOME). We also control for the main musical genre of artists through seven dummies (Classical, Jazz, Pop-rock, Popular music, World music, Illustration, Various). Table 2 displays the descriptive statistics of the artists belonging to our dataset.

Table 2: Descriptive Statistics

Variables	Observations	Mean	Min	Max	SD
FREE	1178	1.217	0	3	0.952
major	1233	0.04	0	1	0.195
med	1233	0.024	0	1	0.154
ind	1233	0.17	0	1	0.376
gold	1222	0.296	0	1	0.457
musrev	1192	0.461	0	1	0.499
stage	1182	0.4	0	1	0.49
career	1236	4.072	1	5	0.942
age	1234	51.987	25	90	11.263
electro_urban	1235	0.057	0	1	0.231
classical	1235	0.15	0	1	0.357
jazz	1235	0.116	0	1	0.32
pop_rock	1235	0.146	0	1	0.353
popular	1235	0.256	0	1	0.437
world	1235	0.134	0	1	0.34
ilustration	1235	0.057	0	1	0.231
gender	1235	0.79	0	1	0.407
paris	1238	0.397	0	1	0.489
edu	1228	0.352	0	1	0.478
webp	1234	0.694	0	1	0.461
income	1197	2.717	1	5	1.209

¹⁸Nearest suburbs of Paris correspond to departments 92, 93 and 94.

4.2 Results

Table 3 displays the results of our main model with either the variable AGE (regression 1) or the variable CAREER (regression 2). It shows that our first hypothesis is supported. The various variables that account for the willingness of artists to expand their audience all have the expected sign. The variable GOLD has a negative sign and is very significant. For artists who already encountered success, the low revenue effect of streaming dominates its ability to expand their audience. Conversely, artists who still remain lesser known are more favourable towards free-streaming: MUSREV is positive and very significant. Musicians who are still confidential and earn less than half of their personal income from musical activities indeed seem to see streaming as a way to increase their audience. Likewise young and/or newbie artists are also more favourable to free-streaming that can help them to develop a fan base: CAREER and AGE are both negative and significant.

Our second hypothesis is supported as well. STAGE is positive and significant. Artists who are touring a lot and earn the largest part of their income from live music are more prone to accept free streaming. Free streamers make some discoveries and could decide to go to see them on stage.

With respect to the third hypothesis, as expected, MAJOR is positive and highly significant. Artists sign by a major label are much more favourable to free-streaming than artists under contract with a small independent label. Do notice that the positive and significant coefficient for NOCONTRACT gives also support to hypothesis 1. Artists not under contract are also supposed to look for an audience expansion.

Finally, with respect to our fourth hypothesis, the coefficient of ELECTRO URBAN is positive and very significant. This confirms that artists know what the habits of their fans are and accept easily free streaming if their audience is among the biggest users of this music consumption solution In table 4 we observe the effects that these variables have on the probabilities of having a positive or negative opinion towards free streaming. The marginal effects show clearly how the probabilities of each opinion on free-streaming (from very favourable to very unfavourable) change for each independent variable. For instance, for artists under contract with a major label the overall¹⁹ probability

¹⁹We refer to overall probability to the sum of the effects of having either a bad opinion or a good opinion, this means that we sum up the effects of not at all to have a negative opinion decreases by 11.7 percentage favourable and not favourable as the overall effect to have a bad opinion and, we sum up the effects of Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 3: Probit Regressions Results

Variables	Coefficients			
	(1)	(2)	(3)	(4)
major	0.508*** (0.184)	0.507*** (0.184)	0.484** (0.221)	0.478** (0.221)
med	0.0805 (0.219)	0.103 (0.219)	0.184 (0.274)	0.192 (0.274)
nocontract	0.200** (0.0904)	0.210** (0.0902)	0.217** (0.108)	0.213** (0.108)
gold	-0.222*** (0.0766)	-0.221*** (0.0765)	-0.195** (0.0913)	-0.202** (0.0912)
musrev	0.241*** (0.0734)	0.230*** (0.0732)	0.297*** (0.0875)	0.295*** (0.0875)
stage	0.148** (0.0714)	0.150** (0.0711)	0.194** (0.0851)	0.203** (0.0847)
age	-0.00659** (0.00330)		-0.00648 (0.00412)	
career		-0.0741** (0.0368)		-0.0503 (0.0443)
electro_urban	0.418** (0.183)	0.431** (0.182)	0.812*** (0.223)	0.843*** (0.221)
classical	0.0685 (0.153)	0.0702 (0.153)	0.0640 (0.180)	0.0688 (0.180)
jazz	0.202 (0.153)	0.200 (0.153)	0.318* (0.188)	0.317* (0.188)
pop_rock	-0.00675 (0.148)	7.80e-05 (0.148)	0.0911 (0.174)	0.113 (0.173)
popular	0.236* (0.138)	0.220 (0.137)	0.298* (0.161)	0.296* (0.161)
world	0.0911 (0.150)	0.0835 (0.150)	0.105 (0.176)	0.101 (0.176)
illustration	0.376** (0.184)	0.369** (0.184)	0.458** (0.214)	0.464** (0.214)
gender	0.126 (0.0878)	0.130 (0.0880)	0.0873 (0.105)	0.0795 (0.105)
paris	0.0351 (0.0694)	0.0409 (0.0692)	0.0273 (0.0823)	0.0345 (0.0820)
edu	-0.0348 (0.0727)	-0.0439 (0.0732)	0.0380 (0.0882)	0.0324 (0.0889)
webp	-0.162** (0.0734)	-0.157** (0.0730)	-0.198** (0.0865)	-0.190** (0.0861)
income	-0.0337 (0.0317)	-0.0316 (0.0317)	-0.0293 (0.0374)	-0.0283 (0.0374)
Constant cut1	-0.629** (0.261)	-0.578** (0.244)	-0.716** (0.315)	-0.584** (0.292)
Constant cut2	0.228 (0.260)	0.280 (0.244)	0.209 (0.314)	0.344 (0.291)
Constant cut3	1.415*** (0.263)	1.465*** (0.247)	1.481*** (0.318)	1.613*** (0.296)
Observations	1,108	1,110	785	786

Standard errors in parentheses

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

Table 4: Marginal Effects

Variables	Not at all favourable	Not favourable	Favourable	Very favourable
major	-0.140*** (0.0407)	-0.0603* (0.0310)	0.100*** (0.0256)	0.100** (0.0467)
med	-0.0258 (0.0686)	-0.00564 (0.0178)	0.0192 (0.0511)	0.0123 (0.0353)
nocontract	-0.0679** (0.0315)	-0.00858*** (0.00321)	0.0496** (0.0228)	0.0269** (0.0114)
gold	0.0751*** (0.0265)	0.0100*** (0.00334)	-0.0549*** (0.0193)	-0.0302*** (0.00996)
musrev	-0.0785*** (0.0237)	-0.0149*** (0.00541)	0.0579*** (0.0177)	0.0355*** (0.0113)
stage	-0.0483** (0.0231)	-0.00934* (0.00502)	0.0357** (0.0171)	0.0219** (0.0109)
age	0.00217** (0.00109)	0.000389* (0.000207)	-0.00160** (0.000807)	-0.000955** (0.000481)
electro.urban	-0.103*** (0.0368)	-0.0340* (0.0193)	0.0739*** (0.0257)	0.0627** (0.0306)

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

¹ Note: the above marginal effects are derived from regression (1) on Table 2 but only marginal effects of interest variables are reported. The marginal effect on a negative (resp. positive) opinion is obtained by summing up the marginal effects for "not at all favourable" and "not favourable" (resp. "favourable" and "very favourable").

points as compared to artists signed by a small independent label. We also notice that being specialized in urban or electronic music increases the over- all probability to be favourable to free-streaming by 13.7 percentage points.

A possible weakness of the previous analysis is that we are not sure to capture solely the opinion on free-streaming. Our measure of the opinion of artists on free-streaming could reflect their opinion on streaming in general (free or pay). We thus reran the regression with only those individuals whose opinion towards pay-streaming is positive²⁰ (which is the case for 70% of the artists). The results are displayed on columns (3) and (4) in Table 3. We observe no significant differences in the results obtained with the whole sam- ple. We just notice that the variables AGE and CAREER are not significant anymore. This could suggest that the age and the length of the career of an artist impact more her opinion on both pay and free-streaming than on free-streaming only.

²⁰We consider positive the options of favourable and very favourable.

4.3 Additional Robustness Checks

We perform several other robustness checks. First, we restrict the sample to those individuals who have been active in the last 12 months. We define active artists as those who performed on stage or participated in a record session at least once in the last 12 months. Column (1) on Table 5 shows that the results still hold. Second, to address the concerns about piracy, we added a categorical variable PIRACY that takes the value 1 if the artist declares to be bothered by her music being shared in P2P networks. Our goal is to check that the opinion on free-streaming is not perfectly aligned on the opinion on piracy. Put in other words, we would like to check that artists don't see piracy and free-streaming as perfectly similar phenomena. Regression (2) on Table 5 shows that the opinion on piracy indeed impacts very significantly the opinion on free-streaming. The less tolerant towards piracy an artist is, the less favourable to free-streaming she will be. However, all our interest variables are still significant which means that from the artist perspective, the opinion on piracy and on free-streaming stems from two different logical processes.

5 Discussion

The analysis of the perception of artists on free-streaming discloses several key-determinants. Firstly, the widely publicized issue of the opposition between stars and more confidential artists. Free-streaming is simultaneously a discovery tool for consumers and a low-paying consumption mode for artists (as compared to pay-streaming and pay-downloads). The winners of a gold record and/or of a main music award have already been discovered and expect revenues from their recorded music. Consequently they are unsurprisingly much less favourable to free-streaming than young artists, newcomers in the music industry, or incumbent but yet unsuccessful artists. For all these categories, generating revenues from their recorded music in the short run is less important than expanding their audience. Artists whose careers have just started or who want to widen their audience see streaming as a discovery tool, for so, they see free streaming as a platform to reach a bigger audience and generate interest in their work

Table 5: Robustness Checks

Variables	Coefficients	
	(1)	(2)
major	0.401** (0.178)	0.341** (0.170)
med	-0.106 (0.210)	-0.0523 (0.210)
nocontract	-0.196** (0.0925)	-0.165* (0.0909)
gold	-0.213*** (0.0813)	-0.194** (0.0770)
musrev	0.207*** (0.0768)	0.229*** (0.0737)
stage	0.173** (0.0731)	0.128* (0.0717)
age	-0.00683* (0.00352)	-0.00653** (0.00330)
Piracy		-0.317*** (0.0682)
electro_urban	0.294 (0.194)	0.431** (0.183)
classical	0.0562 (0.160)	0.0809 (0.153)
jazz	0.113 (0.159)	0.245 (0.154)
pop_rock	-0.107 (0.157)	0.0194 (0.148)
popular	0.155 (0.145)	0.239* (0.138)
world	0.0420 (0.157)	0.121 (0.150)
illustration	0.358* (0.200)	0.380** (0.184)
gender	0.0894 (0.0932)	0.138 (0.0881)
paris	0.0661 (0.0732)	0.0439 (0.0696)
edu	-0.0668 (0.0767)	-0.0373 (0.0728)
webp	-0.131* (0.0789)	-0.139* (0.0737)
income	-0.0593* (0.0342)	-0.0253 (0.0318)
Constant cut1	-0.982*** (0.266)	-0.956*** (0.255)
Constant cut2	-0.106 (0.265)	-0.0900 (0.254)
Constant cut3	1.110*** (0.267)	1.114*** (0.256)
Observations	1,001	1,106

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Secondly, we emphasize that taking into account the business model of an artist is also relevant to understand her opinion on free-streaming. Recorded music is known to generate a positive externality on the live music market Mortimer et al. [2012]. Hence, artists who yield the main part of their revenues from touring are more tolerant towards free-streaming. The potential loss that stems from consumers using free-streaming instead of pay-streaming or pay-downloads is probably compensated by the increase in demand for their live performances. It is worth to notice that in France, between 2005 and 2015, the revenues from live music performances²¹ have experienced a 8.6% annual growth. In the meantime, recorded music sales in France decrease at an annual rate of 8.2%!

Thirdly, the bargaining power of the various types of music labels (majors vs. indies) towards streaming services impact the opinion of artists on free-streaming. An artist signed by a major recording company is more tolerant towards free-streaming probably because she knows that her label has negotiated very favourable conditions in revenue sharing with streaming platforms. Making available the catalogue of major labels, including the vast majority of star-artists, is mandatory for streaming platforms to guarantee their attractiveness. Conversely, the less satisfy with free-streaming are artists under contract with a small independent labels since it is notorious that they do not benefit from the same advantages. Even artists without contract are more favourable towards free-streaming. This can be seen in two ways. The first is that artists with no labels see free streaming as an audience expansion tool and the success they could accomplish in it as a way to help to secure a contract with a label. In second place, it is possible that artists with no contract receive a greater part of the income generated by their work in the streaming platforms which leads them to see free streaming in a positive light. Finally, our results also highlight a generational divide among artists and among consumers. Youngest and newbie artists are more favourable towards streaming probably because they are more sensitive to both digitization as a new standard for the music industry and to the increase in audience that streaming allows

²¹The growth of the revenues generated by live music performances is estimated from the revenues generated by the tax of 3.5% collected on each live music performance organized in France. See: <https://www.cnv.fr/>

But above all, artists take into account their fan base behaviour to form their opinion towards free-streaming. Since youngest music listeners are over-represented both in streaming users and in electronic and urban music fans, artists who belong to these two musical genres are much more tolerant towards free-streaming. They have to make their music available accordingly to their fans behavior

A limitation of our study is inherent to the intrinsic problematic of evaluating an opinion. Even though we assume individuals to be rational it is clear individuals can change their opinions; one example of this is Thom Yorke who had very strong words towards Spotify and took all of the catalogue of his bands and projects out of it. After three years he returned with his content to Spotify showing clearly that either his opinion towards streaming changed or that streaming has become so powerful that is a career suicide to not release their content in this media.

6 Conclusions

This paper is one of the first attempts to analyse which factors drive the opinion of artists on free-streaming (ad-supported), this opinion being deeply divided among the musicians population. To deal with this issue we use poll-data from a survey about more than 1,000 French professional musicians. Whereas 70% of musicians turn out to have a positive opinion on pay-streaming (subscription), this figure falls to 40% for free-streaming. One obvious explanation lies in the low flow of revenues generated by a free-streaming user (about 40 times less than revenues generated by a pay-streaming user). Hence what drives the positive opinion on free-streaming? Our results highlight four main reasons.

Firstly, streaming, and especially free-streaming, stands as a discovery tool that may help consumers to explore the music catalogue beyond stars and already well-known artists. Young artists, newcomers in the artistic career and artists who still not earn more than half of their personal income from their musical activity are more favourable to free-streaming. They value more the opportunity to expand their audience than the low revenues they will obtain. Of course, this is the opposite for star-artists who already won a gold record or a main music award.

Secondly, the personal business model of each artist matters. Artists whose revenues mainly come from live performances take into account the positive

externality that recorded music generates on the live music market. For them each free-streamer is an opportunity to sell an additional ticket for a next concert. They are thus also more favourable to free-streaming.

Thirdly, the contractual situation of the artist also matters. All music labels don't have the same bargaining power towards streaming platforms. With their huge catalogue which includes most of the top-selling artists, the three major record companies (Universal Music, Sony Music, Warner Music) are more than essential for any streaming platform. Majors thus obtain very favourable conditions in revenue sharing with streaming services and the artists they have under contract seem to believe that this will be also profitable for them. Conversely, artists signed by small independent labels, which are considered as much less valuable by streaming platforms, know that the revenues sharing will be much less favourable for them.

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Fourthly, the opinion of artists is also shaped by the evolution of consumers' behaviours. Since young music listeners are much more prone to adopt new technologies and hence to use free-streaming, musicians who perform musical genres that encounter a huge success among the young audience (i.e. electronic music and urban music) are more prone to accept free-streaming. They have no choice but "following" their fan base in their new mode of music consumption.

This suggests that the acceptance of free streaming could increase in the future with the growing adoption of this new mode of consumption by music listeners.

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