

'User-centric' revisited: The unintended consequences of royalty distribution

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Summary

This paper revisits the "pro rata" vs. "user-centric" debate over how streaming services directly and indirectly compensate recording artists, songwriters, and publishers. Will Page, Director of Economics at Spotify, and David Safir, formerly Head of International Relations at PRS for Music and Vice-President, International at ASCAP, authored a discussion paper for the Society for Economic Research on Copyright Issues (SERCI)'s annual conference in July, detailing some of the unintended as well as intended consequences of distribution policies and practices that seek to balance efficiency and equity on behalf of all stakeholders. The two authors have kindly given their permission for Ovum to reproduce the paper:

In last year's SERCI paper, *Money In, Money Out*, it was axiomatic that the overriding objective of all licensors is to balance equity and efficiency in allocating and distributing revenue. However, while neither model is perfect, pragmatic hybrids can stake a reasonable claim to have achieved such equilibrium. Indeed, it is widely accepted that, in accounting to members and affiliates, established collective management organizations (CMOs) have demonstrably applied principles and rules that seek to allocate licensing revenue – and even non-licensing revenue/financial income – in precisely this way.

Section 1 examines and illustrates the traditional CMO distribution model in the context of two fundamental aspects of music licensing: (i) collection of fees and distribution of revenue are neither coextensive nor simultaneous; (ii) the market is characterized by imperfect competition.

Section 2 examines some of the intended and unintended consequences of 'pro rata' and 'user-centric' scenarios and introduces a mathematical framework both for licensees choosing their distribution model and for artists choosing where to promote their repertoire.

Our framework confirmed our intuition that under 'pro rata,' an artist is less concerned with diversity and will simply prefer the platform whose users stream their music most. Under 'user-centric,' artists prefer streaming platforms whose listeners exhibit less diversity. In our concluding remarks, we propose that academics and professionals take a more empirical approach to the current 'pro rata' vs. 'user-centric' debate; and allude to some issues that merit further study.

A primer on the CMO "hybrid" model of revenue distribution

The 'pro rata' versus 'user-centric' debate fails to acknowledge that the traditional CMO model is a hybrid of 'pro rata' and 'user-centric' distribution. Indeed, user-centric distribution of net licensing revenue is possible, if not necessarily commercially viable, when songs are licensed on a work-by-work basis. As explained in *Money In, Money Out*, this is predicated on CMOs' having timely access to authoritative copyright data and adequate performance data – without which too little is paid too late to too few of those who rightly claim to have earned it.

Only twenty years ago some under-developed (albeit, paradoxically, over-regulated) CMOs routinely cited rudimentary operational infrastructure as an excuse or explanation for pure 'pro rata' distribution. However, neither in principle nor in practice can it be argued that paying the same to a given work for a radio performance to 50,000, a (live) concert performance to 5,000, or a (mechanical) disco performance to 500, balances equity and efficiency, even if the absolute and relative license fees

collected reflect the size and/or financial contribution of the audience; and reduced administration costs result in a significant increase in net distributable revenue.

The problem is largely pre-empted where direct licensing enables the licensor and licensee to identify, isolate, and follow revenue from its collection through to its allocation and (net) distribution. 'User-centric' or, more accurately, 'licensee-centric' distribution is therefore axiomatic with regard to grand rights and synchronization rights – even where licensed by a CMO – and implicit where small rights are licensed on bespoke tariffs, terms, and conditions for a given program or set-list.

While most CMOs' distribution rules as well as CISAC's professional rules reflect this inherently collective goal by "following the dollar," political, commercial, and technical factors invariably call for pragmatic compromises; and the resulting distribution of revenue may be more accurately described as 'qualified pro rata,' 'qualified user-centric,' or simply as an imperfect, interim 'hybrid' solution.

While such 'pro rata' distribution is still widely practiced with regard to a given source/pool of revenue (for example, by isolating and then allocating all TV revenue exclusively to all TV performances), it is invariably qualified – typically by sub-dividing the pool, allocating fixed shares to different categories of performance (eg., 80% to music in TV programs; 20% to music in TV commercials), by supplementing the pool, allocating excess (and arguably "undistributable") revenue from another source/pool to compensate for artificially low license fees (eg., where the live classical tariff is disproportionately higher than the live "pop" tariff); or by reserving a share of revenue to meet unresolved or anticipated claims.

Even where such 'qualified pro rata' distribution enhances equity and efficiency, it cannot claim to be 'qualified user-centric' so long as CMOs continue to grant public performance licenses to intermediaries (whether concert promoters, discos, or broadcasters) whose ultimate customers/users exercise negligible individual and minimal collective influence over what music is offered to them, when, and how. In the absence of any meaningful interaction with a radio station, it is impossible to quantify the marginal utility to an individual listener of a given song or track streamed at a given time to a given device; and impossible for a CMO to justify or implement a commercially viable (efficient) and statistically valid (equitable) 'user-centric' distribution policy.

It may not, however, have been appropriate to do so without reference to the relative amounts collected from individual stations with different reach, actual audience size, and revenue. With radio license fees determined by potential audience and/or actual advertising revenue, there are too many variables and not enough equations to determine whether 100 performances of a given track on a station with a reach of 1,000,000, an average audience of 200,000, and \$10m advertising revenue are arguably worth more than 100 performances on a station with a reach of 2,000,000, an average audience of 200,000, and \$20m advertising revenue.

CMO distribution teaches us that it is not a matter of either 'pro rata' or 'user-centric.' Non-interactive analog public performance and broadcasting means that distribution can never be fully 'user-centric,' insofar as neither an individual user's contribution (tickets, etc.) nor the absolute and marginal utility derived from accessing the performance are known or quantifiable.

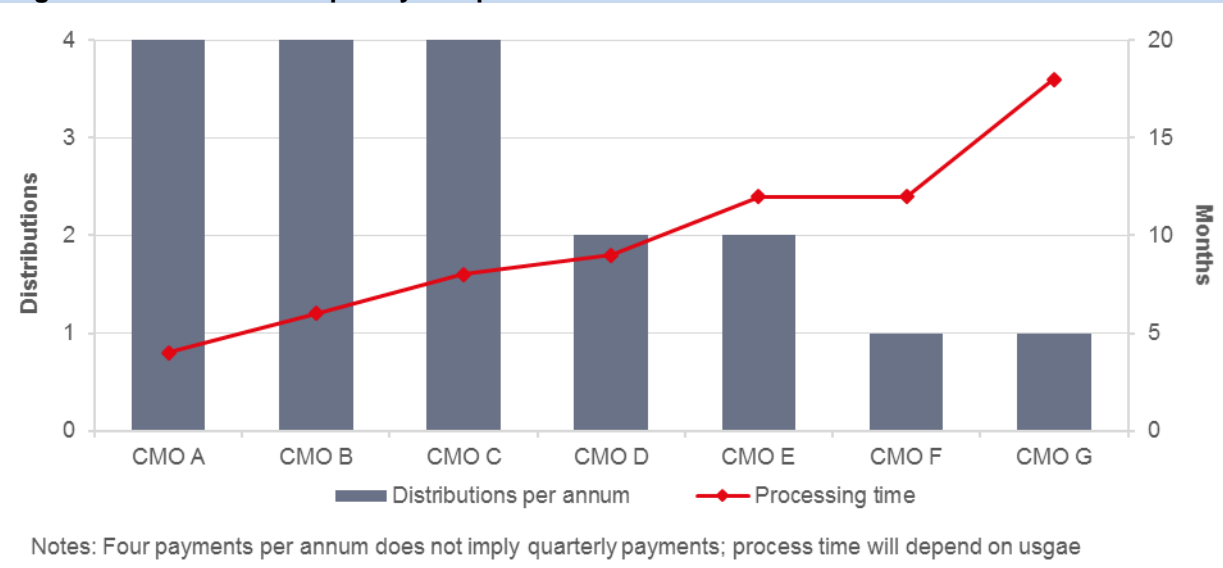
This paper now examines and graphically illustrates the impact of factors that a priori make it impossible to transform imperfect "Money In" into perfect, undiluted "Money Out" – in the context of collective and direct licensing and distribution.

Money in and money out are not simultaneous

The title of the previous paper may have inadvertently implied that these transactions are simultaneous. Even where sophisticated CMOs collect license fees and distribute royalties quarterly (deducting administration costs or commission), it takes much longer than one quarter to collect and analyze the copyright documentation and performance data needed to process and accurately allocate domestic revenue (let alone annually paid revenue from a foreign CMO with entirely different licensing, collection, and distribution policies, processes, and schedules).

The anonymized two-axis graph below illustrates the inherent difficulties (too many variables; not enough equations) of reconciling royalties distributed with license fees collected (see Figure 1). The bars plotted to the left-hand axis show distribution frequency, while the line plotted to the right-hand axis shows process time. CMO A to the far left takes four months to process licensing revenue but is committed to distribute royalties quarterly – such that the minimum time period between money in and money out is incompatible with the commitment to distribute royalties quarterly. CMO G to the far right presents a more worrying picture, taking eighteen months to process licensing revenue while committed to distribute royalties only once per year. Moreover, the task is more intractable where a CMO allocates revenue to social and cultural activities and/or shares non-licensing revenue such as financial income.

Figure 1: Distribution frequency and process time for CMOs



Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

While a CMO's distribution schedule will indicate the frequency and composition of its distributions (eg., all TV in June and December but cable TV additionally in April and October), it will not – and in many cases cannot – identify exactly where and when each component of the revenue was collected. As such, it is impossible to quantify, validate, or compare the equity or efficiency of a delayed settlement from Channel XYZ with the distribution of revenue from 1Q18 over performance data from 4Q17 or with the distributions from "undistributable" (unmatched, or unidentified) revenue – after three years – paid pro rata to current earnings).

Does imperfect money in preclude perfect money out?

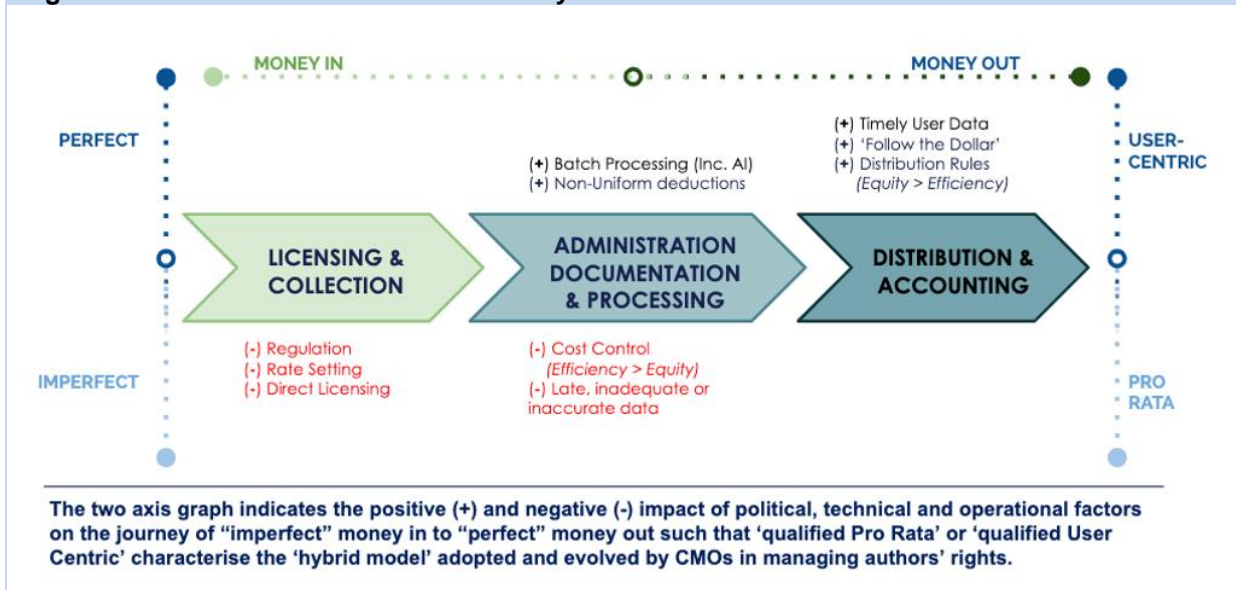
The licensing of musical works and sound recordings is clearly more 'user (licensee)-centric' than 'pro rata' insofar as license fees paid for performing rights in most territories are typically negotiated by

"willing buyers and willing sellers"; license fees paid for (phono-mechanical) reproduction rights are set by non-market players such as the US Copyright Royalty Board; and license fees paid by digital service providers (DSPs) to stream sound recordings are negotiated with individual labels or SPVs. As such, the fragmented and atomized music rights licensing market may be characterized as "imperfect money in" – at least at the point of initial collection.

Where a CMO issues a composite (performing and mechanical) license, its author and publisher members will nonetheless determine not only whether revenue is allocated to each right in the same proportion as it was collected but also how it is ultimately distributed to its respective rights-holders. As such, it may be argued that "imperfect money in" (collective licensing characterized by imperfect competition) neither precludes nor facilitates "perfect money out" (collective distribution characterized by perfect price competition).

To summarize, the flowchart below shows the unavoidable imperfections of money in; the potential for further distortion during the administration and processing of money in; and the difficulties of restoring perfection in money out (see Figure 2). Advocates of pure 'user-centric' or 'pro rata' distributions cannot ignore the fundamental facts of music rights licensing and administration.

Figure 2: From license fees collected to royalties distributed



Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

Money In, Money Out addressed the concepts of network effects, switching costs, and anchor content regarding streaming services. It is accordingly essential to recall that, even with "imperfect money in," an artiste may choose among competing DSPs; an author may choose to affiliate to different CMOs in different territories; and a publisher may choose to license directly while subcontracting distribution and 'back-office' administration to a CMO – each concerned to ensure that their earnings are distributed more efficiently and equitably.

The best laid plans...: Unintended consequences in royalty distribution

History is littered with examples of trying to do the right thing and ending up doing more harm than good – and the world of music licensing and distribution is no different. Taking Canada as an example, the CanCon regulation prescribes that 34% of all radio airplay be Canadian music (to

support the country's cultural heritage). The intended consequences are to support Canadian music and prevent a talent drain to its southern neighbor; the unintended consequences are that radio stations simply program Canadian music in the "graveyard shift" to fulfil their quotas and the possible dilution of royalties distributed.

The world of streaming is not immune to similar consequences. A track will be monetized so long as the consumer listens to it for more than thirty seconds. The intended consequence is to foster diversification (and emphasize the choice available on-demand); the unintended consequence is that some creators bring the chorus to the beginning (often of shorter songs) so as to ensure not only that they are paid, but that they are paid more – exploiting the opportunities of the market.

Lessons from history teach us how traditional licensing and distribution by CMOs demonstrate inherent imperfections – which lead to unintended consequences – that characterize licensing via non-interactive provision of music. In the new world of consumer-facing on-demand music, we can aim higher in applying economics in seeking to perfect money in and money out.

A framework for quantifying 'pro rata' versus 'user-centric'

The two-sided nature of streaming challenges us to aim higher when examining both the intended and unintended consequences of royalty distribution policies. To do so, we introduce a mathematical framework both for licensees choosing their distribution model and for artists choosing where to promote their repertoire (see Figures 3 and 4). Assume that there are two artists, X and Y, each with one track, and assume there are n subscribers to a streaming service, each paying a monthly subscription, \$10 of which will ultimately reward artists.

Figure 3: Artist net revenue (R_x and R_y) under 'pro rata'

$$R_x = \frac{\sum_{i=1}^n P(x_i) s_i}{\sum_{i=1}^n s_i} \times n \times 10 \qquad R_y = \frac{\sum_{i=1}^n P(y_i) s_i}{\sum_{i=1}^n s_i} \times n \times 10$$

P denotes the probability that a randomly selected stream by user i will be attributed to artist X.

s_i = total streams by user $i \quad \forall 1 \leq i \leq n$

$P(x_i)$ = share of user i 's streams attributed to artist x

$P(y_i)$ = share of user i 's streams attributed to artist y

$P(x_i) + P(y_i) = 1 \quad \forall 1 \leq i \leq n$

Total streams of artist $x = \sum_{i=1}^n P(x_i) s_i$

Total streams of artist $y = \sum_{i=1}^n P(y_i) s_i$

Source: "User-Centric" Revisited: The Unintended Consequences of Royalty Distribution

Figure 4: Artist net revenue (R_x and R_y) under 'user-centric'

$$R_x = \sum_{i=1}^n P(x_i) \times 10 = 10 \sum_{i=1}^n P(x_i) \qquad R_y = \sum_{i=1}^n P(y_i) \times 10 = 10 \sum_{i=1}^n P(y_i)$$

P denotes the probability that a randomly selected stream by user i will be attributed to artist X .

s_i = total streams by user $i \quad \forall 1 \leq i \leq n$

$P(x_i)$ = share of user i 's streams attributed to artist x

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$P(x_i) + P(y_i) = 1 \quad \forall 1 \leq i \leq n$

$$\text{Total streams of artist } x = \sum_{i=1}^n P(x_i) s_i$$

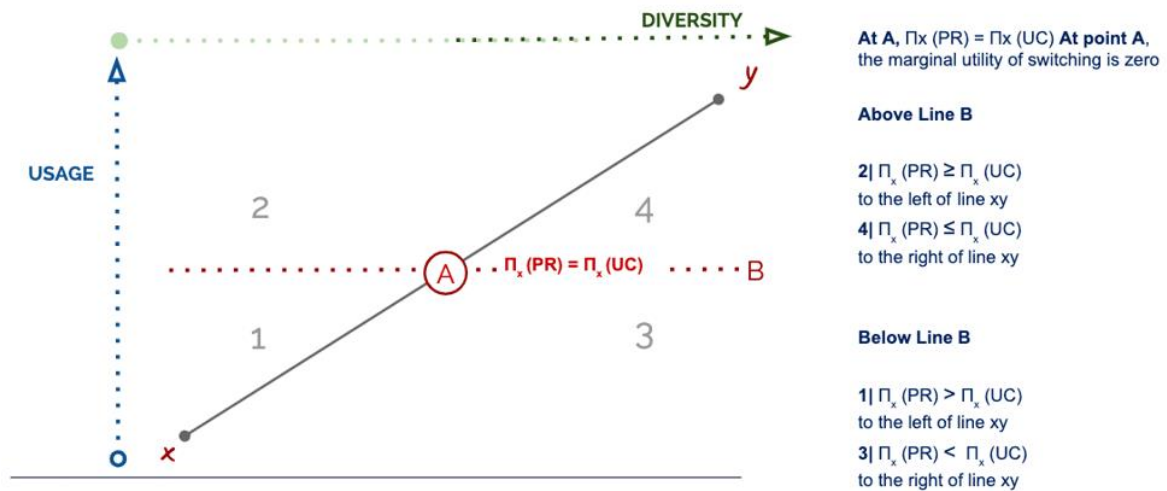
$$\text{Total streams of artist } y = \sum_{i=1}^n P(y_i) s_i$$

Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

A decision matrix qualified by usage and diversity

A streaming service in a given territory will choose the distribution method consistent with the usage and diversity characterized by subscribers in that territory. The following decision matrix plots usage and diversity to determine the point at which the marginal utility of switching is zero (see Figure 5). As the legend shows, the distribution method chosen will vary among the quadrants.

Figure 5: Decision matrix of usage and diversity



Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

A decision matrix for artists

We now apply the mathematical framework to determine how a marginal (new) artist – seeking to maximize revenue from streaming – will choose between 'pro rata' and 'user-centric' where both systems are available. The table that follows characterizes and gives as examples low and high usage diversity as well as low and high usage intensity. Unlike the decision matrix above, it deals with marginal as against total revenue and recognizes that the artist may be either an existing licensor bringing new repertoire or a new licensor optimizing the promotion of their repertoire. Artist X will prefer 'pro rata' if the following inequality holds (see Figure 6).

Figure 6: Choosing distribution policy by math

$$10n \left[\frac{\sum_{i=1}^n P(x_i)s_i}{\sum_{i=1}^n s_i} \right] \geq 10 \sum_{i=1}^n P(x_i) \quad \text{or} \quad n \left[\frac{\sum_{i=1}^n P(x_i)s_i}{\sum_{i=1}^n s_i} \right] \geq \sum_{i=1}^n P(x_i)$$

Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

The table below uses this framework to explore all combinations of usage and diversity to determine the distribution method an artist will prefer if their listeners tend to have high or low diversity in their musical tastes and high or low intensity of overall listening (see Figure 7). Under 'pro rata,' an artist is less concerned with diversity and will simply prefer the platform whose users stream their music most. Under 'user-centric,' artists prefer streaming platforms where their listeners exhibit less diversity in taste.

Figure 7: Choosing distribution policy by usage and diversity

	Low total usage	High total usage
Low diversity	<p>Imagine a user who will listen to only one stream and it will be from artist X. Under 'pro rata,' that user's additional stream will increase the artist's total streams by one and the total streams on the platform by one. Assuming the platform is used heavily, this produces a minuscule change to the artist's share of total streams, and thus their payout is barely changed at all. But under 'user-centric,' this user provides an additional \$10, all of which is allocated to artist X.</p>	<p>Under 'user-centric,' the most that one new user can add to an artist's revenues is \$10. However, under 'pro rata,' if a new user listens to artist X a lot, then that new user can meaningfully increase artist X's share of total streams, and thus the proportion of the total royalty payments that artist X receives. This can certainly lead to an increase of more than \$10.</p>
High diversity	<p>This scenario is ambiguous. The low usage means that these listeners won't have much effect on any artist's total market share, so they won't benefit artists much under 'pro rata.' But their high diversity means that no one artist gets much of the revenues associated with this listener either. It is difficult to have both low usage and high diversity, since low usage means a low number of streams, and you cannot listen to more artists than the number of songs you stream. So this type of listener is not terribly desirable under either revenue distribution scheme.</p>	<p>Because the new user has diverse listening habits, under 'user-centric' only a fraction of this listener's \$10 will go to artist X. Under 'pro rata,' a user who streams a lot weighs more heavily onto where royalties go than a user who only streams a little, even if that user has diverse listening habits. If a new heavy streamer's proportion of streams dedicated to artist X is higher than artist X's current allocation of streams, then the new user can meaningfully increase artist X's share of total streams and thus increase artist X's revenues by a significant amount in spite of the new user's diverse listening.</p>

Source: 'User-Centric' Revisited: The Unintended Consequences of Royalty Distribution

Concluding remarks

This paper has developed both the theory and practice of 'pro rata' and 'user-centric' distribution, drawing on the best practice of CMOs at all stages of music rights administration. Referencing microeconomic principles, it has addressed and analyzed the unintended consequences of practices which set out to maximize efficiency and equity. It has also offered a mathematical framework to calculate the consequences of choosing between 'pro rata' and 'user-centric.'

It invites consideration of a "third way" – whereby distribution is 'qualified pro rata' (or 'qualified user-centric'). In this scenario, net revenue is allocated to a track by reference not only to the total but also to the relative number of times streamed as well as to qualitative criteria such as the duration of the performance streamed and subjective criteria such as work valuation. While Meatloaf's 10-minute anthem *Bat out of Hell* may well be the best value for a dime inserted in a jukebox, an individual subscriber to today's interactive music streaming services has infinitely more choice (and fewer constraints) when seeking the best value for \$/€/£9.99 per month.

Endnote

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About the authors

Will Page is the chief economist at digital music streaming service Spotify. He was previously the chief economist at PRS for Music and is a fellow of the Royal Society of the Arts. David Safir holds postgraduate degrees in economics and business administration from the London School of Economics and University of Chicago and was head of international relations at PRS before being appointed VP – international at ASCAP, a role he developed over 18 years.

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