Available online at https://ejournal.corespub.com/index.php/ijhlp/index

International Journal of Humanities, Law, and Politics

e-ISSN 3025-0536

Vol. 3, No. 3, pp. 78-84, 2025

Public Opinion Sentiment Analysis on the Indonesian Music Royalty Polemic in the Public Space using the RoBERTa Transformer: A Case Study of YouTube Comments

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Abstract

This study aims to analyze public perception of the music royalty controversy in Indonesia through YouTube comments. The development of digital technology has made YouTube a public space where discourse on cultural and policy issues, such as music royalty payments in the commercial space, is openly expressed. This study uses a quantitative approach with sentiment analysis based on the RoBERTa (Robustly Optimized BERT Pretraining Approach) model adapted for Indonesian, namely the Indonesian RoBERTa Base Sentiment Classifier. Primary data was obtained from comments on a YouTube video titled "Royalty Polemic, Cafes Afraid to Play Indonesian Songs" published by KompasTV. The analysis results show that negative sentiment dominates public conversation with 9,595 comments, far exceeding neutral (3,395) and positive (2,548) sentiment. This dominance of negative sentiment reflects strong public resistance to the royalty payment policy, which is perceived as an additional burden for business actors. Further qualitative analysis reveals that negative sentiment generally contains criticism and concern, while neutral sentiment is descriptive, and positive sentiment, although minor, indicates support for musicians' copyright protection. This study concludes that YouTube serves as a spontaneous and broad reflection of public opinion, and the use of the RoBERTa model proved effective in capturing the rich nuances of informal language in comments. This research contributes to filling a gap in the literature, which tends to focus on legal and economic aspects, by providing a digital data-based understanding of public responses to the issue of music royalties.

Keywords: Sentiment analysis, youtube comments, roberta music royalties, public opinion

1. Introduction

The rapid development of digital technology has significantly transformed the way people consume and interact with music. Platforms such as YouTube not only serve as channels for music distribution but also as public spaces where discussions, debates, and opinions about cultural and policy-related issues take place. One of the most prominent issues in the Indonesian music industry in recent years has been the polemic surrounding music royalties, especially regarding the obligation of public spaces, such as cafés and restaurants, to pay fees for playing copyrighted songs (Um & Jung, 2024).

Music royalties are fundamentally a recognition of the intellectual property rights of songwriters and musicians. However, the implementation of this policy often creates controversy. Business owners frequently perceive the regulation as an additional financial burden, while musicians and copyright holders view it as a legitimate right that must be respected. This tension reflects a gap in understanding and perception between creators and users of music in public spaces (Kristian et al., 2025).

YouTube, as one of the most widely used platforms in Indonesia, has become a place where such polemics are openly discussed. Videos that raise the issue of music royalties often attract a wide range of comments from netizens, representing diverse perspectives. These comments provide valuable data for understanding public opinion, whether supportive, critical, or neutral toward the royalty policy. Analyzing these sentiments is crucial for capturing how the public perceives this issue in the digital era.

Sentiment analysis is a branch of Natural Language Processing (NLP) that focuses on extracting subjective information from text to determine whether it conveys a positive, negative, or neutral attitude (Naithani & Raiwani, 2023). In recent years, transformer-based deep learning models, such as RoBERTa, have shown superior performance in sentiment classification tasks due to their ability to capture linguistic context more effectively than traditional approaches. Applying this method to YouTube comments enables researchers to map public sentiment more accurately (Shah & Parekh, 2023).

The polemic over Indonesian music royalties cannot be separated from broader socio-economic and legal contexts. Socially, it raises questions of fairness and cultural appreciation. Economically, it places additional burdens on small businesses, potentially affecting their sustainability. Legally, it points to the challenges of enforcing intellectual property rights in a way that is both fair and effective (Gupta, 2024). Understanding public responses to these complexities can provide valuable insights for policymakers, musicians, and business stakeholders.

This research adopts the case study of YouTube videos that specifically discuss the issue of music royalties in Indonesia, particularly those highlighting the concern of café owners about the financial implications of playing Indonesian songs. By examining the comment sections of these videos, this study seeks to capture the authentic voices of netizens as they engage with the issue in real time.

The application of RoBERTa-based sentiment analysis allows the research to not only classify opinions into positive, negative, and neutral categories but also to explore the dominant trends and patterns in public discourse. This approach provides both quantitative data, in terms of sentiment distribution, and qualitative insights into the underlying arguments expressed by the public. From an academic perspective, this study contributes to the growing field of digital humanities and computational social science by demonstrating how advanced NLP techniques can be applied to cultural and policy issues. By integrating technology and social inquiry, the research highlights the role of digital platforms as mirrors of public perception and arenas of democratic discourse.

Furthermore, this study is significant because it addresses the intersection of technology, culture, and law in Indonesia. The findings are expected to help policymakers design royalty systems that are more balanced and responsive to the needs of both artists and business owners, while also fostering greater public understanding of intellectual property rights. This research aims to analyze public opinion on the Indonesian music royalty polemic through YouTube comments using the RoBERTa transformer model. By doing so, it seeks to provide a comprehensive understanding of how society perceives the issue and to offer insights that may inform more effective cultural policies in the future.

2. Literature Review

Sentiment analysis is a rapidly developing field of research within Natural Language Processing (NLP). According to Wankhade et al. (2022), sentiment analysis aims to identify, extract, and classify subjective opinions in text into specific categories such as positive, negative, or neutral. This research has been widely applied to various digital platforms, from social media and discussion forums to YouTube video comments. The link between sentiment analysis and public opinion makes it a relevant method for understanding public perceptions of social, cultural, and public policy issues.

Research on sentiment analysis of YouTube content shows that user comments can reflect emotional reactions and collective opinions on a topic (Toussaint et al., 2022). As one of the largest social media platforms in the world, YouTube has a broad and diverse user base, making comments a representation of heterogeneous public views. A study by Davis (2021) revealed that comments on digital platforms often contain intense opinions and have the potential to shape public discourse. This suggests that YouTube comment analysis is crucial in assessing public reactions to issues, including the music royalty controversy in Indonesia.

In the context of music, the issue of royalties has become a topic that generates both pros and cons in the public sphere. Research by Nurhayati et al. (2021) emphasized that copyright regulations and royalty mechanisms often spark debate between music industry players and the general public, particularly when playing music in public spaces such as cafes or restaurants. In Indonesia, this debate has become even more prominent since the stricter enforcement of royalty payment obligations through the National Collective Management Institute (LMKN). A study by Stilgoe and Cohen (2022) found that there remains a gap in public understanding of the royalty system, which contributes to the emergence of social resistance to the policy.

With the increasing volume of digital data, the use of deep learning-based methods has become a trend in sentiment analysis. The Transformer, a model architecture introduced by Vaswani et al. in 2017, has revolutionized NLP due to its ability to handle long-tail context in text (Rahali & Akhloufi, 2023). One popular variant is RoBERTa (Robustly Optimized BERT Pretraining Approach), developed by Liu et al. (2019). RoBERTa has been shown to outperform standard BERT in various NLP tasks, including text classification and sentiment analysis.

Various studies demonstrate RoBERTa's superiority in social media sentiment analysis. For example, a study by Maryam et al. (2025) demonstrated that RoBERTa was more accurate in detecting emotions in Twitter text than traditional methods like SVM or Naïve Bayes. Similar results were also demonstrated by Prasanthi et al. (2023) who

applied RoBERTa to analyze comments on online platforms, where the model was able to classify sentiment with a high degree of accuracy even when faced with informal language and slang. Therefore, using RoBERTa in research on public opinion on YouTube is a relevant approach and has the potential to produce more representative results.

Beyond technical aspects, sentiment analysis in the issue of music royalties is also closely related to cultural studies and the creative economy. According to Jhally (2022), the music industry is not only a space for artistic expression but also part of a political economy involving regulation, profit distribution, and copyright. Therefore, public sentiment towards royalty policies can be seen as a social response to cultural regulation. In Indonesia, this phenomenon is important to study, given the significant role music plays in social life and forms part of cultural identity.

Previous research on royalties in Indonesia has focused primarily on legal and economic aspects, while approaches based on public sentiment analysis are rare. A study by Doran (2025) highlighted the unclear implementation of royalty policies, while research by Aufderheide & Jaszi (2024) focused more on protecting musicians' copyright. However, very little research has explored how the general public responds to these policies through opinions on social media. Therefore, analyzing YouTube comments using modern NLP methods can fill this research gap.

3. Methods

This study adopts a quantitative content analysis design with a computational linguistics approach to examine public opinion regarding the Indonesian music royalty polemic in public spaces. YouTube comments from the video "Polemik Royalty, Kafe Takut Plays Indonesian Songs" were selected as the primary data source, as they represent a rich corpus of spontaneous public discourse. The research employs a sentiment analysis framework using the RoBERTa Transformer model, which has proven effectiveness in handling natural language processing tasks, particularly in capturing contextual nuances in textual data. The design integrates data collection, preprocessing, model implementation, and evaluation to ensure reliable findings. In this approach, textual comments are extracted, cleaned, tokenized, and classified into sentiment categories positive, negative, or neutral based on the model's predictions. The results are further analyzed quantitatively to identify sentiment distribution and qualitatively interpreted to contextualize public perspectives on royalty issues. This design ensures both empirical rigor and interpretive depth, aligning with the study's objective of mapping public sentiment toward music royalty regulation in Indonesia.

The primary data in this study were obtained from the comment section of a YouTube video titled “Polemic of Royalties, Cafes Are Afraid to Play Indonesian Songs” published by KompasTV. This video was selected as a case study because it directly discusses the controversy surrounding the implementation of music royalties in public spaces, a topic that has generated wide public debate in Indonesia. YouTube was chosen as the data source due to its open-access nature and the diverse representation of user opinions, making it a rich platform for sentiment analysis.

Data collection was conducted using YouTube Data API to systematically extract user comments. To ensure the validity of the dataset, several preprocessing steps were applied, including removal of duplicate entries, filtering of irrelevant comments (such as spam, advertisements, or unrelated emojis), and exclusion of non-Indonesian language texts. Only comments that explicitly contained opinions or emotional expressions related to the music royalty polemic were retained.

Before conducting sentiment analysis, the raw data collected from YouTube comments underwent a series of preprocessing steps to improve data quality and ensure reliable classification. The first step was case folding, which converted all text to lowercase to maintain consistency and reduce redundancy in word representation. Next, punctuation, numbers, links, hashtags, emojis, and special characters were removed, as these elements do not contribute meaningful information to sentiment classification.

The following stage was tokenization, where each sentence was broken down into individual words or tokens, enabling the model to analyze the text at a more granular level. To reduce noise, stopword removal was applied by eliminating frequently used words (such as yang, dan, di) that carry little semantic weight in determining sentiment.

Model selection in this study focused on the use of a pre-trained Transformer model for Indonesian-language sentiment analysis. The selected model was RoBERTa (Robustly Optimized BERT Pretraining Approach) with a base architecture, specifically fine-tuned for sentiment classification tasks in Indonesian texts, namely "w11wo/indonesian-roberta-base-sentiment-classifier." This model was chosen based on its superior ability to deeply understand sentence context through self-attention mechanisms, making it more effective at capturing the complex nuances of public opinion than traditional machine learning-based algorithms.

Furthermore, the use of a pre-trained model offers significant advantages because it has been trained on a large corpus, reducing the need for additional training data and improving classification accuracy. This model automatically classifies comments into three sentiment categories: positive, negative, and neutral. This approach allows for more efficient analysis while maintaining a high level of precision, making it well-suited to the research objective of mapping public opinion on the music royalty controversy in Indonesia.

The analysis of results classification was carried out using both quantitative and qualitative approaches. Quantitatively, the study focused on mapping the distribution of sentiments into three categories: positive, negative, and neutral. This mapping highlighted the overall tendency of public opinion regarding music royalties in Indonesia.

Qualitatively, the sentiment outputs were contextualized within broader socio-cultural and economic discourses. Representative comments were examined to capture the nuances of public perceptions, including support, resistance, and ambivalence toward royalty enforcement in public spaces. This dual approach enabled a deeper understanding of how society interprets and responds to the implementation of intellectual property rights in the music industry.

4. Results and Discussion

4.1. Word Frequency (N-gram Analysis)

Word frequency analysis was conducted using unigram, bigram, trigram, and 4-gram approaches to capture representations of public discourse regarding the issue of music royalties. At the unigram level, the words "song" (7,658), "royalty" (3,759), and "music" (3,208) were the most frequently occurring words. This finding indicates that public conversation focuses on fundamental issues, namely the use of music in public spaces and the obligation to pay royalties.

In the bigram, the phrases "pay royalties" (965) and "songwriter" (747) emerged as dominant topics. This indicates public attention to two important aspects: (1) the burden of payment obligations, and (2) the position of songwriters as recipients of economic rights. Meanwhile, in the trigram, the phrases "must pay royalties" (221) and "Indonesia Raya song" (190) stood out. The first phrase emphasizes public sentiment regarding binding normative and regulatory aspects, while the second phrase demonstrates the emerging controversy regarding the status of the national anthem in the context of royalties.

At the 4-gram level, phrases like "just play western songs" (28) and "also have to pay royalties" (26) reflect a comparative discourse between local and international music. This suggests that some people are responding to the royalty issue by shifting their preferences to foreign music as a form of resistance to domestic policies. The complete results can be seen in Figure 1.

Top 10 Unigram

	Ngram	Frekuensi
0	lagu	7658
1	di	5626
2	yg	4801
3	royalti	3759
4	dan	3694
5	musik	3208
6	aja	2802
7	bayar	2791
8	ada	2492
9	itu	2405

Top 10 Bigram

	Ngram	Frekuensi
0	bayar royalti	965
1	pencipta lagu	747
2	lagu indonesia	643
3	putar lagu	637
4	kena royalti	606
5	harus bayar	580
6	lagu barat	377
7	hak cipta	358
8	suara burung	350
9	ada yg	304

Top 10 Trigram

	Ngram	Frekuensi
0	harus bayar royalti	221
1	lagu indonesia raya	190
2	lagu barat aja	101
3	di putar di	80
4	bayar royalti ke	78
5	para pencipta lagu	72
6	putar lagu barat	70
7	kena royalti juga	64
8	putar lagu indonesia	63
9	usah putar lagu	61

Top 10 4-gram

	Ngram	Frekuensi
0	putar lagu barat aja	28
1	juga harus bayar royalti	26
2	gak usah putar lagu	23
3	penyanyi dan pencipta lagu	23
4	bikin undang undang bising	22
5	undang undang bising suara	22
6	undang bising suara dan	22
7	bising suara dan pidanakan	22
8	suara dan pidanakan yg	22
9	dan pidanakan yg membuat	22

Figure 1: Top 10 Words in Each N-Gram

4.2. Sentiment Distribution

The distribution of public sentiment was analyzed using the Indonesian RoBERTa Base Sentiment Classifier, and the results show that negative sentiment dominates public conversations regarding the issue of music royalties. Of the total comments analyzed, there were 9,595 negative comments, 3,395 neutral comments, and 2,548 positive comments. The significantly larger number of negative comments indicates strong public resistance to the royalty policy, while neutral comments were mostly informative or simply expressed opinions without significant emotional content. On the other hand, although relatively limited in number, positive comments still emerged, reflecting support from some members of the public for copyright protection and appreciation for musicians' work. The results of this distribution can be seen in Figure 2.

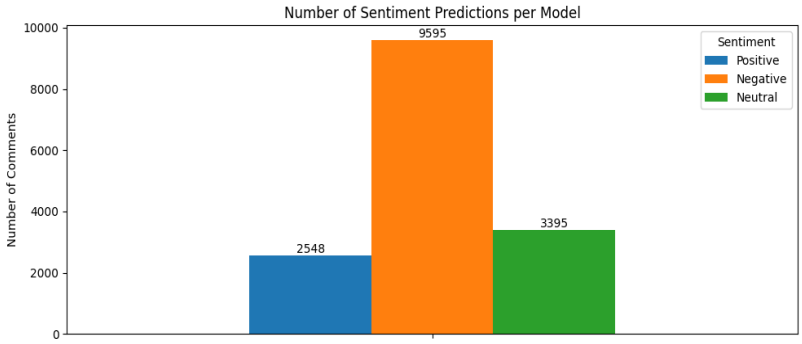

Figure 2: Distribution of Public Sentiment Regarding the Issue of Music Royalties

4.3. Qualitative Interpretation

To gain a deeper understanding of the distribution of public sentiment, a qualitative analysis was conducted on comments representing each sentiment category. The results are shown in Table 1.

Table 1: Public Comments and Sentiment Analysis

No	Original Comment	Clean Text	Sentiment Forecast
1	*Makin gilaaa* 🤣*, muter lagu siap-siap dipenjara ...*(getting crazier 🤣, playing the song, get ready to go to jail...)	*makin gilaaa muter lagu siap siap dipenjara* (getting crazier playing songs ready to go to jail)	Negative
2	*Budayakan kembali MENDENGAR LAGU MANCANEGARA ...*(Let's re-establish the habit of listening to foreign songs...)	*budayakan kembali mendengar lagu mancanegara* (cultivate the habit of listening to foreign songs again)	Positive
3	*sekalian aja gak boleh sebut nama orang soalnya ...* (You're not allowed to mention people's names because...)	*Sekalian aja gak boleh sebut nama orang soalnya* (You're not allowed to mention people's names, you know?)	Negative
4	*Putar lagu barat aja* (just play western songs)	*Putar lagu barat aja* (just play western songs)	Netral
5	*tanpa mendengar musiknya juga tidak viral* (without hearing the music it also doesn't go viral)	*tanpa mendengar musiknya juga tidak viral* (without hearing the music it also doesn't go viral)	Negative

The analysis shows that negative comments generally contained strong criticism of the royalty policy. Most comments contained nuances of protest and concern, for example, the phrase "Makin gilaaa, playing songs, get ready to be jailed...", which reflects public anxiety about the potential threat of sanctions and the perception that the policy limits public access to music.

Meanwhile, neutral comments were more descriptive or simply conveyed musical preferences without prominent emotional expression. An example is the statement "Just play western songs," which, although simple, indicates a shift in interest among some people from local to international music as a response to the royalty issue.

On the other hand, positive comments, although fewer in number, reflect support for copyright protection and appreciation for musicians. A prominent example is the sentence "Madayakan kembali budayakan musik internanegara...", which can be interpreted as a call to continue appreciating musical works and supporting the implementation of royalties as a mechanism for protecting creators' rights. This qualitative interpretation confirms that public resistance dominates the discourse, but there are still segments of society that are neutral or supportive of the policy. This finding reinforces the results of the quantitative sentiment classification and demonstrates the complexity of public attitudes toward music royalty policies in Indonesia.

4.4. Discussion

The results of a sentiment analysis of public comments on YouTube regarding the issue of music royalties indicate a diversity of responses, dominated by negative sentiment, followed by neutral sentiment, and only a small portion with positive nuances. This finding aligns with research by Wankhade et al. (2022), which states that sentiment analysis can identify subjective opinions in text and divide them into specific categories. In the context of this research, the predominance of negative sentiment reflects public resistance to music royalty payment policies, particularly in public spaces such as cafes and restaurants.

The tendency toward a predominance of negative sentiment also aligns with a study by Nurhayati et al. (2021), which emphasizes that copyright regulations and royalty mechanisms often generate controversy among music industry players and the general public. This is especially relevant in Indonesia, where the LMKN policy regarding enforcement of royalty payment obligations has sparked open debate. From this research, it can be concluded that the issue of royalties is not merely a legal and economic issue, but also touches on social and cultural aspects, as emphasized by Jhally (2022), who stated that the music industry is part of a cultural political economy involving regulation and profit distribution.

Furthermore, the finding that public comments serve as a reflection of collective emotions supports research by Toussaint et al. (2022) and Davis (2021), which emphasizes that comments on digital platforms like YouTube can be an important indicator in understanding public opinion. YouTube, as one of the largest social media platforms, provides a space for people to express their views on social issues and public policy. Therefore, comment analysis is relevant for capturing public perceptions regarding the growing issue of music royalties in Indonesia.

From a methodological perspective, the use of RoBERTa has proven relevant and effective in classifying comments with a high degree of accuracy. This supports the findings of Maryam et al. (2025) and Prasanthi et al. (2023), which demonstrated RoBERTa's superiority over traditional methods such as SVM or Naïve Bayes, particularly when dealing with informal text and everyday language on social media. These findings also align with Rahali & Akhloufi's (2023) assertion that Transformer-based models are capable of capturing the long and complex contexts that often arise in digital conversations.

This research also fills a gap in the literature on music royalties in Indonesia. As identified by Doran (2025) and Aufderheide & Jaszi (2024), most previous research has focused on the legal aspects and copyright protection of musicians, while public responses to these policies through social media have remained largely unexplored. Thus, this study makes a novel contribution by demonstrating that public resistance and criticism of royalty policies are clearly reflected in the digital space, particularly through YouTube comments.

5. Conclusion

This study aims to analyze public perception of music royalty issues in Indonesia through YouTube comments using a sentiment analysis approach based on the Indonesian RoBERTa Base Sentiment Classifier. The results show that negative sentiment dominated public conversations, with 9,595 comments, compared to neutral (3,395 comments) and positive (2,548 comments). This dominance of negative sentiment reflects strong public resistance to the music royalty payment policy, which is perceived as increasing the burden on both businesses and the general public.

Qualitatively, public comments criticized the royalty implementation mechanism, the lack of transparency of the managing institution, and the public's low understanding of the importance of copyright protection. Meanwhile, the limited number of positive comments indicated support for efforts to protect musicians' rights and strengthen the national creative industry. Neutral comments were generally informative or simply descriptive opinions without prominent emotional expression.

These findings align with previous research (Nurhayati et al., 2021; Stilgoe & Cohen, 2022), which highlighted gaps in public understanding of the royalty system, which fuel social resistance. Furthermore, this study confirms that YouTube, as a digital platform, functions as a public discourse space where public opinion is expressed spontaneously and widely (Toussaint et al., 2022). Using RoBERTa, this study successfully captured the emotional nuances of informal language, slang, and cultural contexts that frequently appear in digital comments, as demonstrated in the studies of Maryam et al. (2025) and Prasanthi et al. (2023). Thus, this study closes a gap in previous research, which tends to focus on the legal and economic aspects of royalty policy, but rarely explores public responses based on digital data. This NLP-based sentiment analysis provides an important contribution to understanding public perception more broadly and in real time.

Moving forward, the results of this study can provide input for policymakers, particularly the National Library of Indonesia (LMKN) and the government, to improve the socialization, transparency, and implementation mechanisms of music royalty policy to ensure greater public acceptance. Furthermore, further research could expand the analysis to other digital platforms such as Twitter, TikTok, or online forums to obtain a more comprehensive picture of public perception of copyright policy in Indonesia.

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