The Implementation of VOS viewer on Bibliometric Analysis: Tax Evasion Deterrence

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ABSTRACT

This research aims to determine the development of publications and research trends related to tax evasion deterrence (TED). The method used in this research is the bibliometric method sourced from Scopus. The three applications used in this research mapping were publish or perish, Mendeley, and VOSviewer. The results of the analysis showed that the number of publications that had been mapped (accessed December 10, 2021) was 76 publications that were published during a period of 39 years (1982 – 2021) and the most common types of publications were in the form of articles. The increase in the number of TED publications occurred from 2013 to 2021 with the largest number of publications occurring in 2014. Meanwhile, the most dominant topics which were studied related to TED were in terms of taxpayer compliance and tax morale, while several topics such as company size, the public policy, tax inspectors, taxpayers' trust in tax administrators, and fellow taxpayers were topics that became research trends within around 2020s.

Keywords: Prevention, tax evasion, bibliometrics, VOSviewer.

1. INTRODUCTION

Indonesia is a developing country, therefore it is actively carrying out development in various sectors. The implementation of expansion such as infrastructure acceleration and community social service provision certainly requires massive funding. One of the efforts in carrying out this development is to apply tax collection to taxpayers [1]. Therefore, in order to increase tax revenue, a self-assessment system is applied to give the authority for taxpayers to report, calculate, and pay their tax obligations [2]. However, in reality, there are factors that cause the tax revenue target cannot be achieved, that is the indications of tax evasion by individuals or corporate taxpayers [3]. Tax evasion is the illegal non-payment of taxes that can cause state financial loss [4]. Therefore, tax evasion is a crucial problem in some developed and developing countries, one of which is Indonesia [5]. An effort is needed to increase taxpayer compliance, that is by raising awareness of taxpayer behavior as not to engage in tax evasion [6]. This is the background of many researchers studying tax evasion. Many of the factors associated with previous researches on tax evasion including religiosity [7]; [8]; [9]; [10], love of money [11]; [12]; [13], tax ethics [14]; [15]; [16], taxpayers understanding [17], taxpayer environment [18]; [19]; [20]; [21], taxpayers perception [22] and tax morale [23]; [24]. Based on the above factors, tax evasion can be suppressed in various ways by implementing four aspects. The first is the legal aspect which consists of sanctions and tariffs. The second relates to the aspects of organizational culture which consist of socialization, internal control and internal inspection. The third is the human resource aspect which consists of training, and awareness of fraud. Fourth is the aspect related to the applied tax information system [25]. In addition, the prevention of tax evasion can also be done assertively and clearly based on the human resource and the legal aspect [26] [27].

Based on those researches on the prevention of tax evasion, it is necessary to conduct a mapping to reveal the research trend and its development. One of the mapping principles that can be applied is adopting bibliometric analysis. Bibliometric analysis is a method used to map a large number of bibliographic data and can be employed to perceive the productivity of authors and journals, h-index, citations, and journal producing countries [28]. Bibliometric analysis provides an
explanation about the communication process in writing and analyzes research developments in a scientific field [29]. In addition to the above opinions, mapping or research mapping employing bibliometric techniques is a simple approach that can be used to analyze a relationship that will result in clustering according to certain elements [30]. This research aims to find out the development of research and publications related to TED, researcher productivity, and the number of publications that are most cited, as well as research trends based on VOSviewer. In addition, this research is also expected to provide convenience for researchers who want to examine factors related to the topic of TED so that it can be used as an update for further research.

2. RESEARCH METHOD

The method used in this research is an adaptation from the previous one [31]; [32]. This bibliometric research is sourced from Scopus and uses three applications to help the mapping; they are publish or perish version 7, Mendeley desktop version 2.61.1, and VOSviewer version 1.6.11. The keyword used in Publish or Perish to search for publications indexed by Scopus is tax evasion deterrence. All the data is stored in the form *.Ris. Mendeley is used to complete the abstracts, keywords, and titles. The results of the VOSviewer mapping will be in the form of network visualization, overlay visualization, and density visualization.

3. RESULTS AND DISCUSSION

2.1 Publish or Perish

Bibliometric mapping is one way to find out how far one particular scientific topic is studied by researchers around the world. Through this mapping, it will be easier for researchers to know the development of research every year and also the research trends which still have the opportunity to be used as research topics as a renewal.

![Figure 1. Analysis result of Publish or Perish](image)

The results of the mapping are generally presented in the form of visualizations representing the relationship between one item and another. In the mapping of publications on publish or perish related to TED, there were 76 publications over a period of 39 years (1982-2021). From the citations carried out on these articles, there were 38.79 citations per year recorded, while the total citations carried out from 1982 to 2021 were 1,513 citations (Figure 1).

![Figure 2. Scopus Indexed Publications](image)

Figure 2 describes the number of publications (1982-2021) on the topic of TED which began to be widely studied from 2013 to 2021, although in 2018 and 2020 it decreased. During the years 1982-2021, the most publications were carried out in 2014 as many as eight publications.

![Figure 3. Top Seven Journal with the Most Publications](image)

Viewed from the number of publications, the Journal of Economic Behavior and Organization, a journal from Universities and Research Institutions in the Netherlands with quartile 1 (Q1) is the most productive journal with a total publication of four articles. The four articles were written by E. Kirchler, A. Litina, Y. (Paramonova) Kuchumova, and M. Philips. A more detailed explanation of journal productivity is presented in Figure 3. Based on the productivity of the researcher as the first author, Colin Williams is the most productive researcher in producing five publications (Table 1). The publications were carried out in 2017, 2020, and 2021.

![Table 1. List of Author Productivity](image)

The publications with the most citations can be viewed in Table 2. The publication entitled Speaking to theorists and searching for facts: Tax morale and tax compliance in experiments was the most frequently cited with 1,513 citations.
cited publication, 232 times, while the most recent publication and the most cited was "Tax compliance and enforcement in the pampas evidence from a field experiment" in 2015 with as many as 137 citations by Pomeranz.

Table 2. List of 10 Most Cited Publications During 1982 – 2021

<table>
<thead>
<tr>
<th>No</th>
<th>Publications</th>
<th>Number of citations</th>
</tr>
</thead>
</table>

Viewed from the distribution of publications on Scopus or journal rankings, it can be seen generally that most publications are published on the Scopus index Q1 (36 publications) followed by Q2 (22 publications), Q3 (9 publications), and Q4 (3 publications) (Fig. 4). There were six publications that were not included in the analysis because they were not listed (unknown) in the Q1, Q2, Q3, and Q4 indexes.

Figure 4. Article Distribution on Scopus

2.2 Mendeley

The number of metadata obtained was 76 publications consisting of two reviews (2.63%), one book (1.31%), three book chapters (3.94%) and 70 articles (92.10%) (Figure 4). It is hereby known that the most dominant type of publication is in the form of articles. However, from the 76 publications obtained, 15 publications did not meet the criteria (did not have keywords or private access) so that they were eliminated and were not included in the VOSviewer analysis. Thus, the number of publications analyzed in VOS viewer was 61 publications (Table 3).

Table 3. List of Publications that Do Not Meet the Criteria

<table>
<thead>
<tr>
<th>No</th>
<th>Penulis</th>
<th>Tahun</th>
<th>Jenis Publikasi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leandra Lederman</td>
<td>2021</td>
<td>Review</td>
</tr>
<tr>
<td>2</td>
<td>Bruno S. Frey dan Manfred J. Holler</td>
<td>2019</td>
<td>Book chapter</td>
</tr>
<tr>
<td>3</td>
<td>Kim M. Bloomquist</td>
<td>2008</td>
<td>Book chapter</td>
</tr>
<tr>
<td>4</td>
<td>Feld Lars, P dan Larsen Claus</td>
<td>2012</td>
<td>Book</td>
</tr>
<tr>
<td>5</td>
<td>Cary Christian</td>
<td>2017</td>
<td>Article</td>
</tr>
<tr>
<td>6</td>
<td>Diná Pomeranz</td>
<td>2015</td>
<td>Article</td>
</tr>
<tr>
<td>7</td>
<td>Gioseppe Ciccarone, Francesco Giuli, dan Enrico Marchetti</td>
<td>2014</td>
<td>Article</td>
</tr>
<tr>
<td>8</td>
<td>Julic. S. Ashby, Paul Webley, Alexander. S. Haslam</td>
<td>2009</td>
<td>Article</td>
</tr>
<tr>
<td>9</td>
<td>K. L. Glen Ueng dan C.C Yang</td>
<td>2006</td>
<td>Article</td>
</tr>
<tr>
<td>10</td>
<td>Chang. J.J</td>
<td>2004</td>
<td>Article</td>
</tr>
<tr>
<td>11</td>
<td>Forest Adam dan Sheffrin Steven. M</td>
<td>2002</td>
<td>Article</td>
</tr>
<tr>
<td>12</td>
<td>Varma. K. N</td>
<td>1998</td>
<td>Article</td>
</tr>
<tr>
<td>13</td>
<td>Gideon Yaniv</td>
<td>1986</td>
<td>Article</td>
</tr>
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</table>
2.3 VOSviewer

In this research, two terms were applied and the following is a more detailed explanation of the results of the VOSviewer analysis.

2.3.1 Network Visualization

Network visualization is represented by the size of a circle, the larger the size, the greater the number of publications match these keywords and vice versa. The existence of a circle connected to each other means that these topics often appear side by side (Figure 5), for example, the relationship between TED and legitimacy, which means that the prevention of tax evasion can be influenced by the provisions of the applicable tax laws. In addition, TED with tax auditing means that tax prevention can also be affected by strict tax audits.

![Figure 5. Network Visualization (TED)](image)

The results of the mapping in Figure 5 show that the topics in the TED research development map are 121 items which are divided into 12 clusters. Each cluster is also divided into several items. Therefore, the greater the number of items in the cluster, the more frequently these items are reviewed. In detail, the items in each cluster can be presented in Table 4.

2.3.2 Overlay Visualization

Overlay visualization (Figure 6) is used to map research trends by year of publication.

The darker the color on the circle the first the topic is researched.

![Figure 6. Overlay Visualization (TED)](image)
Topics such as penalty, income, dishonest taxpayer, risk, penalty rate, allowance, tax avoidance, incentive, tax rate, power, law, reform, tax ethic, and tax authority were topics that were first studied, namely in 2010 - 2014. The topics that were often discussed in the range of 2014 - 2018 were tax compliance, tax morality, tax administration, taxpayers, investigation, tax revenue, sales tax, industry, participation, demand, tax information, certainty, tax audit, female (gender), detection, strategy, and impact. In 2020, the topics that were starting to be studied were tax audit officers (tax examiners), perspective (perceptions of taxpayers), tax conviction notices (notification of punishment information by tax officers), and company size (company size), public policy (policy). The public trust issued by the government related to taxation, horizontal trust (the attitude of trust shown by taxpayers to fellow taxpayers), vertical trust (the attitude of trust shown by taxpayers to the tax authorities or government officials), and money laundering (an attempt to conceal money by the taxpayer in order to avoid paying taxes), and tax non-compliance (the attitude of non-compliance by taxpayers that can lead to tax evasion). Thus, these topics become research trends. Another issue is the low trust of taxpayers to the government (vertical trust) or fellow taxpayers (horizontal trust) against non-compliance with tax payments, so that the perception arises that taxpayers are committing tax evasion [33].

2.3.3 Density Visualization

Based on the mapping results, Figure 7 shows that the yellow area indicates the density or frequency of the topic being studied in research such as tax compliance (tax compliance), tax morale (tax morale), behavior (taxpayer behavior), tax noncompliance (tax non-compliance), taxpayer (tax payer), policy (tax policy), and tax agency (tax organizer). A different data showed in green, this area is possible to be developed again such as tax audit officer, company size, perspective, supervision, sanction severity, public policy, justice, law, control, regulator, social norm, tax audits, economic growth, policymaker, monitoring, horizontal trust, vertical trust, and high tax rate.

Like the size of the company to the amount of tax, the larger the size of the company (company size), the more risk it has in terms of managing its tax burden [34]. Companies that are included as large companies tend to have greater resources than companies that have smaller scales to carry out tax management. This is also supported by the results of previous studies which showed that firm size has a positive effect on tax evasion [35]; [36]; [37]. In general, such research mapping analysis using a VOSviewer really helps researchers in knowing research trends or research gaps so that researchers can acquire new information easily or develop the existed information.

3. CONCLUSION

This bibliometric research uses the Scopus publication database and has combined mapping and clustering of TED research topics to obtain 76 publications. In this research, the most dominant research topics are taxpayer compliance and tax morale. Recent research developments from the results of visualization mapping are regarding company size, public policy, tax inspectors, taxpayers' trust in tax administrators, and fellow taxpayers. This research is still limited the source in mapping from Scopus data therefore, further bibliometric research can use more data sources such as Web of Science®, Microsoft Academic®, PubMed®, Crossref®, or Google Scholar®. In addition, an alternative application that can be utilized in mapping other than Publish or Perish is HistCite®. This bibliometric analysis approach is employed to identify topics related to the keywords entered, thus far the results of bibliometric mapping are beneficial in determining novelty for further research.

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REFERENCES


