A SCIENTIFIC REVIEW TO FORMULATE MODEL OF ECONOMIC RESILIENCE IN INDONESIA BASED ON THREE TYPES OF VARIABLES

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ABSTRACT

The study of economic resilience literature is very necessary before conducting research. The study of economic resilience literature is a series of processes to study the results of research that has been published by previous researchers in support of economic resilience research that is being carried out. The purpose of conducting a scientific review on economic resilience is to provide an overview of the development of economic resilience research topics that have been published from 2015 to 2020, avoiding duplication of problems that have been carried out by previous researchers. The Method used in the study of economic resilience literature is bibliometric analysis by searching the Google Scholar database. The software used are Publish or Perish and VOSviewer. Based on the results of the analysis using Publish or Perish obtained information on the number of papers, citations, researchers, h-index, g-index, journals, and using VOSviewer information on visualization maps was obtained. The results showed that there is still wider open research that can be done related to the problem economic resilience and from these results will be used as study material and reference to formulate model of economic resilience in Indonesia based on three types of variables. Based on a comprehensive literature study, there is no study that determines economic resilience using unwanted conditions specifically. The formulation of the problem in economic resilience study is that the economic resilience index is not the only appropriate tool to determine the economic resilience of a city.

Keywords: Economic Resilience, Disturbance Variable, Control Variable, Concern Variable, Bibliometric Analysis

INTRODUCTION

Indonesia's economic conditions have progressed since the economic crisis in 1997 to 1998. Over the past 20 years, Indonesia has faced various pressures in the economic sector from outside. The policy changes that have been made in the banking sector, monetary sector, and institutional institutions after the monetary crisis in 1997 to 1998 have strengthened the resilience of the Indonesian economy. Based on this, Indonesia's basic conditions are more resistant to external disturbances. Minister of Finance Indrawati (2016) explained the need to maintain the economic sector when the global economic condition is weakening. Economic resilience must be maintained so as not to have a worse impact on the global economic sector. Global economic conditions have an impact on tax revenues, which in the last 3 years has decreased. The global economic trade sector is still experiencing weakness, as well as the commodity trading sector is also experiencing a weak condition, this has an impact on tax revenue which is also getting weaker. Based on this, taxes are indispensable in order to maintain growth in the economic sector through the State Budget,

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including investing in the Human Resources sector, the infrastructure investment sector, and institutions.

Fingleton, et al., (2015) explain that regional economic resilience is a term used to broadly describe how the regional economy responds to unwanted external disturbances. In essence, the notion of regional resilience emphasizes the ability of regions to resist and recover from shocks. Strengthening economic resilience for quality and equitable growth is included in National Priority One in the Government of Indonesia Work Plan 2021. The plan carries the theme "Accelerating Economic Recovery and Social Reform" (Government Work Plan, 2020). Economic resilience is a strategic issue of the Indonesian State. This is reflected in the statement: Bank of Indonesia-BI policy synergy, government and related authorities are strengthened to maintain economic resilience and encourage economic growth. National economic resilience is currently in a fragile state. Strengthening economic resilience is also a key recommendation in the Policy Brief: Strengthening Macroeconomic Resilience & Competitiveness for the Acceleration of Inclusive & Quality Economic Growth (Ramda, 2020).

The research problem of this study, currently economic resilience in Indonesia is measured using the index approach. The national resilience index measured by Labkurtannas is economic resilience. The socialization of the National Resilience Index measurement, including the economic resilience index, is continuing. Economic resilience according to the findings is in a pretty strong index cannot answer that question, but a model that shows the interrelation between the disturbance variable and the unwanted condition. National Resilience according to the National Resilience Institute is the dynamic condition of the Indonesian people which contains tenacity and resilience which contains the ability to develop national strength in facing and overcoming all challenges, threats, obstacles and disturbances both from within and outside that can endanger the integrity, survival nation and state.

Objectives

The purpose of conducting a scientific review on economic resilience is to provide an overview of the development of economic resilience research topics that have been published from 2015 to 2020, avoiding duplication of problems that have been carried out by previous researchers. This study also aims to examine the results of research on economic resilience, citation developments, publication trends, collaboration of authors, trends in title terms, keywords, authors, abstracts, and statistics on the state of economic resilience articles which have been published on database sources, namely google scholars This paper discusses the results of a literature study as a first step to determine the hypothesis that there are study materials that can be researched related to determination of economic resilience model in Indonesia based on three types of variables.

The approach to measuring economic resilience by simply setting an index as carried out by the National Resilience Measurement Laboratory of the National Resilience Institute is not enough. This fact shows that a new approach is needed in assessing the level of economic resilience of a city that takes into account the interrelation between three groups of variables: disturbance variable, control variable and concern variable.

The research problem of this study, currently economic resilience in Indonesia is measured using the index approach. Economic resilience according to the findings is in a pretty strong position. The strategic research question is how strong a city to withstand the effect of an economic shock and at what intensity? An index cannot answer that question, but a model that shows the interrelation between the disturbance variable and the unwanted condition.

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LITERATURE REVIEW

Economic Resilience

Sanchev, et al., (2016) define economic resilience as the ability of individuals, communities or countries to reduce vulnerability, to withstand shocks and to recover quickly. Bruneckiene, et al., (2019) explain that economic resilience is a series of actions carried out by the socio-economic system to help regions recover from shocks. Xiao et al. (2018) resilient regions are defined as regions that show high entry levels or even increase their entry levels after the shock. Economic resilience is the ability of cities to minimize potential losses due to disasters (Rose & Krausmann, 2013). Bastaminia, et al., (2017), defines economic resilience as a systematic approach to reduce economic vulnerability and losses and improve critical disaster situations. Foster, (2007), defines regional resilience as the ability of an area to anticipate and recover from disturbances. Palekiene (2015), economies have always been prone to different kinds of shocks, industry shocks, currency crises. Hassan & Othman (2015) analyze the effect of economic resilience on private investment in selected Malaysian economic sectors, the results show that interest rates are statistically significant. Based on the above discussion, the stability of economy system is explained by resistance to disturbance and speed to return to pre – existing equilibrium.

Simmie & Martin (2009) defines economic resilience as the ability of a region to anticipate, prepare to respond to, and recover from disruptions. Hill, et al., (2008), define economic resilience as the ability of a region to recover successfully from its economic shocks. Regional resilience as the ability of an area to anticipate, prepare for, respond to, and recover from disturbances (Foster, 2007). The definition of regional economic resilience refers to the idea of the ability of local economic systems to recover from shocks elastically.

Literature Review

Bakhtiari & Sajjadieh (2018), have conducted research on the economic resilience index applied to developing countries including Iran involving dimensions of macroeconomic stability, market efficiency, governance, human development indicators, producing macroeconomic stability index, efficiency market index, government index, index human development indicators. Pietroa, et al., (2020) Analyzing European Union resilience based on regional vulnerability, resistance and recoverability using resistance index, recovery index, regression method, the result of the analysis is that the response area in receiving external disturbances varies widely. Research conducted by Li, et al., (2019) analyzed the regional economic resilience of Liaoning province in China, explored the determinants of regional economic resilience using a spatial econometric model on panel data, the results of the analysis were that the level of regional economic resilience in Liaoning was low and the urban economy was vulnerable to external shocks, governance regulatory factors, regional innovation capability and the level of economic diversification have a significant positive effect on regional economic resilience. Ringwood, et al., (2008) measures regional economic resilience to the great recession in United States of American.

Bruneckiene, et al., (2018) measures regional resilience to economic shocks, this study is based on 6 capacity groups consisting of 65 indicators using the Pearson correlation coefficient and the Kendall Rank correlation coefficient, from the research results obtained insight capacity index, regional government capacity index, knowledge and innovation capacity index, learning capacity index, infrastructure capacity index. Research to highlight several aspects that underlie regional resilience and analysis in building a territorial composite index for five factors, namely public relations factors, human structure in urban areas, labor market, economic innovation performance, science and research using principal component analysis was also carried out by Stanickova &

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Melecky (2018), the results of the study state that the measurement of regional resilience is based on making an index. Research on economic resilience was also carried out by Oliva & Lazzeretti (2018), in this study discussing regional economic resilience in the face of natural disasters by forming a resistance and recovery index for Japan, which was hit by a major earthquake, while the factors studied were regional demographics, economic aspects, labor, innovation and social, using the resistance index and sensitivity index. Resistance index greater than 1 indicates that a region in Japan has relatively high resistance to shocks, on the contrary, if the resistance index is less than 1 it indicates that this region has relatively low resistance to shocks. Measurement of national resilience was carried out by the Laboratory for National Security (2015) starting from the measurement of each factor, the results of the measurement of national resilience in the form of a resilience index were scored from 1 to 5, a score of 1 reflects vulnerability, a score of 2 reflects less resilience, a score of 3 reflects quite resilience, a score 4 reflects tough, score 5 reflects very tough. The weight of the indicators for each variable is given according to the priority scale of each indicator, as well as for the weight of each factor.

Giannakis & Bruggeman (2019) doing temporal empirical exploration and spatial patterns of economic resilience between European and urban, middle and rural areas the significance of territorial and structural factors during economic downturn. Abdullah & Hassan (2018) measure the resilience of ASEAN - 5 countries country from an economic stability perspective. Reggiani, et al., (2016) analyze the relationship between resilience and regional strategy using the Resilience Capacity Index (RCI), The result of the analysis is the economic vulnerability of the region in Slovakia is due to the increase in unemployment of the population who lost their jobs as a result of the crisis. Research on economic resilience has been carried out by Simmie & Martin (2010), in examining the definition of economic resilience, analyzing the long-term development of urban and regional economic resilience using an adaptive cycle model. Research to measure the economic resilience index is based on four aspects, namely macroeconomic stability, microeconomic market efficiency, governance, and social development using the simple average method also developed by Briguglio (2008). Foster (2011) that transferred the concept of resilience into the regionalization science analysed regional resilience to economic shocks through the response of the regional economic system to the economic shock in order to maintain a continuous development of the region's economy. Research to measure the economic resilience index is based on four aspects, namely macroeconomic stability, microeconomic market efficiency, governance, and social development using the simple average also developed by Briguglio, et al., (2006). Research on economic resilience and recovery from disasters in Wenchuan in 2008 using the Computable General Equilibrium concluded that accelerating the rate of recovery would significantly reduce gross domestic product losses carried out by Xie, et al., (2018). Empirical analysis of the relationship between regional innovation capacity and crisis resilience in the European region using cluster analysis concludes that the regions least able to respond to the economic crisis have the lowest level of economic capacity (Bristow & Healy, 2017). Research on the economic crisis in the labor sector using the Shannon entropy measure and Tsallis entropy concluded that the entropy measure is an indicator of resilience (Svoboda et al., 2018). Dormady, et al., (2018) conducted comprehensive research on economic resilience using the Kuhn-Tucker formulation. Research to measure and compare the dimensions of social and economic resilience in the Bam & Rudbar areas has been conducted by Bastaminia, et al., (2017). The results of economic resilience research using the Resilience Capacity Index method show that the regional economic vulnerability in Slovakia is caused by increased unemployment in people who have lost their jobs as a result of the crisis (Reggiani et al., 2016).

Bibliometric Analysis

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This paper uses a bibliometric analysis or method which is also called scientometrics, which is part of the research evaluation methodology from various literature that has been widely produced, and allows bibliometric analysis using a separate method (Ellegaard & Wallin, 2015). The bibliometric method is a method of measuring the literature using a statistical approach so that it includes the application of quantitative analysis (Reuters, 2008). Research using the bibliometric method can reveal the fact that there are very few research results that are not cited after several years, given that citations reflect the impact of the research that has been carried out, (Gracia, Lopez, 2019). Research using the bibliometric method, the scope of which can analyze parts or topics of the bibliography (metadata), including analyzing citations, publication trends, author collaboration, agency collaboration, title trend terms, abstract trend terms, author keywords trend terms, and journals as well as publicist (De Bellis, 2009; Pandu, 2012). Bibliometric mapping will benefit both the scientific community and the general public because it can help transform publication metadata into a map or visualization that is easier to manage and process in order to gain more useful insights, for example visualizing keywords to identify research themes or clusters in a particular discipline, mapping authors from specific journals to identify the geographic scope of authors and journals, and mapping institutional and international collaborations as part of a framework for identifying emerging technologies. Bibliometric analysis consists of four steps, namely the search stage, the filtering stage, checking bibliometric attributes, and bibliometric analysis (Julia et al., 2020a, 2020b).

Publish or Perish

Publish or Perish (PoP) is a freeware application for calculating citation analysis. This software was created by a website professor named Anne-Will Harzing (Bensman, 2011). Publish or Perish (PoP) is a software/application to retrieve and analyze academic citations. These applications introduced since October 2006 and have been progressing and update to date. Publish or Perish use google scholar query to obtain information about the citation, which is then analyzed and converted into several statistics. This application is used by the Internet network connection which can be run on Windows systems, Linux and Macintosh. The results are available which can be copied to the Windows clipboard (to run into other applications) or saved to a variety of output formats for future reference or further analysis (Harzing, 2011).

VOSviewer

VOSviewer is a freeware software to create maps based on selected data and visualize it in map form (Naukkarinen & Bragge, 2016). VOSviewer was developed to view bibliometric maps (Eck,V & Waltman, 2009). VOSviewer was utilized since it is efficient to use with huge sets of data and gives various interesting visuals, analysis, and investigations (Eck,V & Waltman, 2010).

METHODS

This paper uses a bibliometric analysis or method which is also called scientometrics. Software used to browse scientific journals is Publish or Perish. VOSviewer is used to perform bibliometric analysis and visualize analysis results. The results of the analysis provide information that research on economic resilience that has been carried out by previous researchers.
Bibliometric analysis consists of four steps:

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Search stage

The software used in tracing scientific journals is Publish or Perish (PoP) to search for bibliographies as the initial database. The database sources used for searching on PoP is Google Scholar. The choice of Google Scholar because Google Scholar is the largest and main databases that provide peer-reviewed literature and publications. Bibliographic searches in this study are limited to several aspects. First, the type of bibliography used in the types of journal articles. Second, the title used is Economic Resilience. Third, the author's keywords are used, namely economic resilience, disturbance variable, unwanted condition. Fourth, the search year for this study was limited to 6 years in 2015-2020.

From the Publish or Perish search results, it was obtained 260 paper titles related to the search for economic resilience. Then refinement is carried out with keywords economic resilience, disturbance to 31 papers. A search with the keywords economic resilience, disturbance, unwanted condition, title words economic resilience resulted 3 papers.

Bibliographic Selection Stage

This selection is carried out to sort or select the journals to be analyzed. Bibliography that is selected and used is the type of journal articles and conference papers.

Bibliographic Attribute Stage

Applications for analysis are included in the bibliographic file Mendeley_02.ris, to analyzing the filtered bibliography, the bibliographic metadata was thoroughly examined. The examination includes the author's name, article title, author keywords, abstract, year, volume, issue number, page, affiliation, country, number of citations, link articles, and publisher. After the metadata is complete, bibliometric analysis begins. The following is a bibliography view of the Mendeley application.

Bibliometric Analysis Stage

Bibliometric analysis is carried out based on seven aspects, namely the formulation of the problem posed. To help carry out bibliometric analysis and visualize the results of the analysis, the application used is VOSviewer. VOSviewer is used because it is good and efficient with a large index of information and can provide a wide variety of interesting visuals, checks, and investigations.

Disturbance Variable

Economic resilience studies indicate the existence of shock or disturbance variables. If there is no disruption there is no issue of economic resilience. The essence of disruption is a significant departure from the current state of the economy. The issue of resilience implies that there are variables that influence and some are affected. The variable that does not affect other variables is not a disturbance variable, nor is a variable that is not affected by other variables, not a variable of resistance.

Purwandari, et al., (2020) disagree to the existing theories that determines economic resilience based only on disturbance model, economic resilience of a city requires the existence of unwanted conditions and level of disturbance factors, the economic resilience model without taking into account the level of disruption and unwanted conditions is unrealistic model.

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Modifier Variable

Modifier variable is a variable that functions as an absorber of various economic turmoil so that the variable concern remains within the set point. The state to remain in a set point condition indicates a measure of resilience. This variable will distinguish the economic resilience of a city relative to other cities.

Economic resilience shows the government's ability to return to the normal set point level after experiencing economic shocks (withstand or recover from the effects of such shocks). This variable functions as an absorber or shock breaker when an external shock occurs (Purwandari et al., 2020).

Concern Variable

The study of economic resilience must identify the variables that will be affected by the disturbance. Adverse impact and couple disturbance, adverse impacts are related to the economic variables that a city wants to maintain, or we call it a concern variable.

Concern variables are the output and even the outcome of an economic activity which is a determinant of economic stability at the city level (Purwandari et al., 2020).

DATA COLLECTION

Data collection was obtained from Google Scholar through bibliometric analysis, namely the author, the title of the paper, the title of the journal, the year of publication from 2015 to 2020. The choice of Google Scholar because Google Scholar is the largest and main databases that provide peer-reviewed literature and publications.

The bibliography reaches were limited to the following aspects: the type of bibliography was only journals, the title and author keywords were two words namely economic resilience, and the year is limited to 2015-2020. Since searching on the google scholar database *via* Publish or Perish was limited to a maximum 1000 articles in one search.

RESULTS AND DISCUSSION

Based on the results of the analysis using bibliometrics mapping, Publish or Perish software, VOSviewer software, and Mendeley, the following information was obtained:

Search Stage

The software used in tracing scientific journals is Publish or Perish (PoP) to search for bibliographies as the initial database. The database sources used for searching on Publish or Perish is Google Scholar. From the Publish or Perish search results, it was obtained 260 paper titles related to the search for economic resilience. Initial search results through the Publish or Perish application with title words economic resilience, the keywords economic resilience, disturbance resulted in 52 papers selected bibliographies, then refinement is carried out with keywords economic resilience, disturbance to 31 papers. The results are given Table 1.

Table 1
DISPLAY OF PUBLISH OR PERISH FOR GOOGLE SCHOLAR INDEX BASED 31 PAPERS

Metric	Score

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Publication years	2015 – 2020
Citation years	6(2015-2021)
Papers	31
Citations	733
Cites/year	122.17
Cites/paper	23.65
Authors/paper	2.71
h-index	12
g-index	27
hI,norm	9
hI,annual	1.5

Table 1 shows that publication years are from 2015 to 2020, the number of citation years obtained from the results of citations by authors from 2015 to 2020 is 6 years, the number of papers published in journals is 31 papers, the number of citations is 733 citations, cites/ year as many as 122.17 obtained from the total number of citations divided by 6 years of publication, 23.65 cites/ paper obtained from the total number of citations divided by the number of papers, authors/papers of 2.71, the authors have an h-index of 12 meaning that each published article is 12 has been quoted at least 12 times, the g-index is described from the accumulation of papers quoted from the number that affects other papers is 27. The Publish or Perish application can be used to find out the citation number of articles in journals with data sources from Google Scholar. One form of evaluation in the journal is the total number of citations with keywords economic resilience, disturbance. The results are given Figure 1.

Results Help

Publication years:	2015-2020
Citation years:	6 (2015-2021)
Papers:	31
Citations:	733
Cites/year:	122.17
Cites/paper:	23.65
Authors/paper:	2.71
h-index:	12
g-index:	27
hI,norm:	9
hI,annual:	1.50
Papers with ACC >= 1,2,5,10,20:	24,21,14,8,3

Cites	Per year	Rank	Authors	Title	Year	Publication
h 186	37.20	1	GP Cimellaro, C Re...	PEOPLES: a framework for evaluati...	2016	Journal of Structural ...
h 76	25.33	2	H Cai, NSN Lam, Y ...	A synthesis of disaster resilience m...	2018	... journal of disaster risk ...
h 29	14.50	3	MR Masnavi, F Gha...	Exploring urban resilience thinking...	2019	... journal of environmental...
h 30	7.50	4	D Wang, J Li, Y Wa...	Comparing the vulnerability of diff...	2017	Journal of Cleaner ...
h 115	23.00	5	DK Yoon, JE Kang, ...	A measurement of community dis...	2016	Journal of Environmental P...
6	3.00	6	DM Nunes, MD Pin...	Does a review of urban resilience a...	2019	Journal of environmental ...
h 37	18.50	7	S Scherzer, P Lujala,...	A community resilience index for ...	2019	International Journal of Dis...
6	1.00	8	Q Wang	Social-ecological evolutionary resil...	2015	Open Access Library Journal
h 34	11.33	9	H Adobor, RS Mc...	Supply chain resilience: a dynamic ...	2018	... Journal of Logistics Man...
3	1.00	10	M Lee, D Basu	An Integrated Approach for Resilie...	2018	Indian Geotechnical Journal
5	0.83	11	A Collin, K Nadaok...	Mapping the Socio-Economic and...	2015	... Journal of Geo-Informati...

FIGURE 1
DISPLAY OF PUBLISH OR PERISH FOR GOOGLE SCHOLAR INDEX BASED 31 PAPERS

Figure 1 provides information about the author, the title of the research results, the year of publication, the name of the journal that published it. A search with the keywords economic resilience, disturbance, unwanted condition, title words economic resilience resulted 3 papers. The results are given in Table 2.

Table 2
DISPLAY OF PUBLISH OR PERISH FOR GOOGLE SCHOLAR INDEX BASED 3 PAPERS

Metric	Score
Publication years	2017 – 2020
Citation years	4(2017-2021)
Papers	3
Citations	4

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Cites/year	1
Cites/paper	1.33
Authors/paper	1.67
h-index	1
g-index	1
hI,norm	1
hI,annual	0.25

Table 2 shows that publication years are from 2017 to 2020, the number of citation years obtained from the results of citations by authors from 2017 to 2020 is 4 years, the number of papers published in journals are 3 papers, the number of citations is 4 citations, cites/ year as many as 1.00 obtained from the total number of citations divided by 4 years of publication, 1.33 cites/ paper obtained from the total number of citations divided by the number of papers, authors/papers of 1.67, the authors have an h-index of 1 meaning that each published article is 1 has been quoted at least 1 times, the g-index is described from the accumulation of papers quoted from the number that affects other papers.

Bibliographic Selection Stage

This selection is carried out to sort or select the journals to be analyzed. Bibliography that is selected and used is the type of journal articles and conference papers. Initial search results through the Publish or Perish application resulted in 3 papers selected bibliographies authors for analysis. The refined results are then exported to Mendeley to make it easier to refered. The results of Bibliography selection of authors are presented in Table 3.

Table 3
BIBLIOGRAPHY SELECTION AUTHORS

Publication Year	Selected Papers	Number of Citation
2020	1	2
2017	2	2

Table 3 provides information that there are 3 papers published in journals in 2017 and 2020. In 2020 produced 1 paper published in journals with number of citations 2, and in 2017 produced 2 papers published in journals with number of citations 2.

Bibliographic Attribute Stage

Applications for analysis are included in the bibliographic file Mendeley_02.ris. To analyzing the filtered bibliography, the bibliographic metadata was thoroughly examined. The examination includes the author's name, article title, author keywords, abstract, year, volume, issue number, page, affiliation, country, number of citations, link articles, and publisher. After the metadata is complete, bibliometric analysis begins. The following is a bibliography view of the Mendeley application.

Table 4
DISPLAY OF ARTICLE REFINEMENT RESULTS THAT HAVE BEEN EXPORTED TO MENDELEY FOR 3 PAPERS

Authors	Title	Year	Publish in
Taslimi,M.S., Azimi,A.,Nazari,M	Resilience to economic sanctions; case study: Hospital equipment cluster of Tehran.	2020	Journal of Disaster Resilience

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Kamran, M	Role of Cultureal Heritage in Promoting the Resilience of Linear/critical Infrastructure system with Enchacement of Economic.	2020	International Journal of Construction Management
Salvati, L	Economic Resilience, Demography and Local Systems: Comentary on The Theory and Assessment.	2017	Romanian Journal of Regional Science, Vol 11, No. 2, 2017

Table 4 provides information that Taslimi, Azimi & Nazari (2020) conducted a study entitled Resilience to economic sanctions; case study: Hospital equipment cluster of Tehran published in the Journal of Disaster Resilience. Kamran (2020) has conducted a research entitled Role of Cultural Heritage in Promoting the Resilience of Linear/critical Infrastructure system with Enchacement of Economic which was published in the International Journal of Construction Management. Salvati (2017) has conducted a research entitled Economic Resilience, Demography and Local Systems: Commentary on The Theory and Assessment published in the Romanian Journal of Regional Science, Vol 11, No. 2, 2017.

Bibliometric Analysis Stage

Bibliometric analysis is carried out based on seven aspects, namely the formulation of the problem posed. To help carry out bibliometric analysis and visualize the results of the analysis, the application used is VOSviewer. VOSviewer is used because it is good and efficient with a large index of information. Of the minimum number of occurrences of 1 term out of 42 terms, 42 meets the threshold. For each of the 42 terms, a relevance score will be calculated. Based on these scores, the most relevant term will be selected. Results of the network visualization terms in the title of Economic Resilience are 3 papers which are presented in Figure 2.

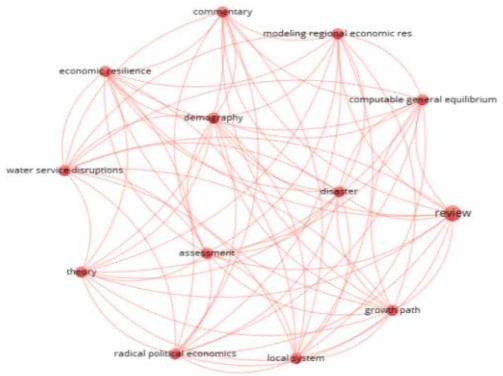

FIGURE 2
NETWORK VISUALIZATION TERMS IN THE TITLE OF ECONOMIC RESILIENCE

Network visualization is used to see the network between visualized items. Based on Figure 1, the results of network visualization form 1 cluster consisting of 13 items, namely assessment, commentary, computable general equilibrium, demography, disaster, economic resilience, growth path, local system, modeling regional economic resilience, radical political economics, review, theory, water service disruptions.

Figure 3 shows the network visualization of economic resilience with 12 items, namely assessment, commentary, computable general equilibrium, demography, disaster, growth path, local

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system, modeling regional economic resilience, radical political economics, review, theory, water service disruptions.

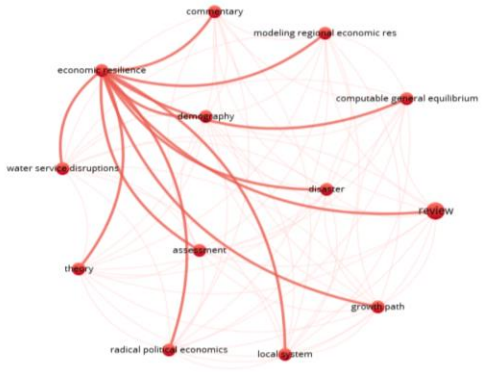

FIGURE 3
NETWORK VISUALIZATION OF TERMS IN THE TITLE OF ECONOMIC RESILIENCE WITH 12 ITEMS DIRECTLY

The density visualization map is used to see the depth of the publication. In Figure 4 it can be seen that the lightest color indicates that a topic is widely used in research related to economic resilience, while the light color means that few topics are used in research related to economic resilience. Density visualization map on economic resilience is presented in Figure 4.

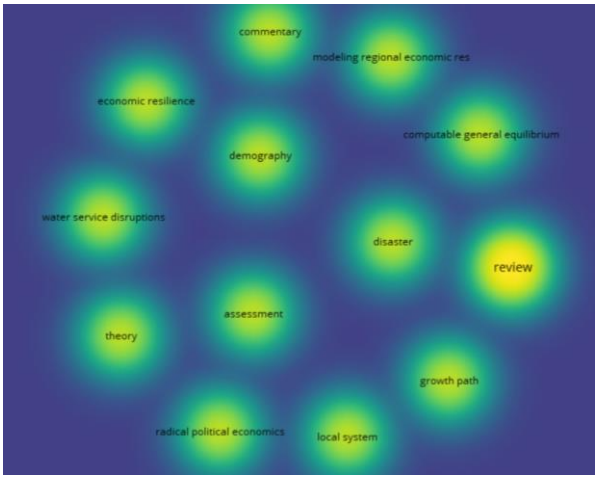

FIGURE 4
THE DENSITY VISUALIZATION MAP ON ECONOMIC RESILIENCE

Based on the density map, it can be seen that there has been no research on the topic of economic resilience which suggests a level of disturbance and unwanted conditions. This triggers researchers to conduct research on models of economic resilience that indicate the level of disruption, and unwanted conditions.

Based on a comprehensive literature study, there is no study that determines economic resilience using disturbance level and unwanted conditions specifically. The formulation of the problem in economic resilience study is that the economic resilience index is not the only appropriate tool to determine the economic resilience of a city. This fact shows that a new approach

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is needed in assessing the level of economic resilience of a city that takes into account the interrelation between three groups of variables are disturbance variable, control variable, and concern variable.

Validation

The mathematical model of economic resilience is formulated and validated using secondary data published by Central Bureau of Statistics and various accountable formal institutions. Validation is an activity to prove an instrument. Validation is to prove the extent of the accuracy of a measuring instrument in carrying out its measuring function. The purpose of validation is to produce a model that is representative of the reality system and increase the credibility of the model.

Data collection to formulate a relational model of economic resilience based on three types of variables, namely disturbance variable, modifier variable, concern variable, is carried out through searching data from the internet (web base data collecting).

CONCLUSION

Based on the results of the analysis using Publish or Perish obtained information on the number of papers, citations, researchers, h-index, g-index, journals, and using VOS viewer information on visualization maps was obtained. Based on a comprehensive literature study, there is no study that determines economic resilience using disturbance level and unwanted conditions specifically. Economic resilience indicates a disturbance because without disturbance there is no economic resilience issue, resilience indicates unwanted condition and disturbance level. Economic resilience must be placed in the context of the control model. The method used in formulating the economic resilience model is based on a method based on the relationship of three types of variables, namely disturbance variable, control variable, and concern variable. Researchers measure economic resilience by formulating a new model that takes into account the interrelation between the disturbance variable, the modifier variable, the concern variable and the unwanted condition as well as the disturbance level. The results showed that there is still wider open research that can be done related to the problem economic resilience and from these results will be used as study material and reference to formulate model of economic resilience in Indonesia based on three types of variables.

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