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Trends in Income Inequality and Economic Growth: a Bibliometric Analysis

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Abstract

Despite the empirical and theoretical work that has been done, the impact of economic growth on income inequality remains a matter of debate, and conclusions regarding these relationships are still far from consensus. The review of the literature revealed that different model specifications, different datasets, and different estimation methods can influence the relationship between economic growth and income inequality. Moreover, when it comes to developing countries, the debate becomes even more intense, even if most authors argue that there is a negative relationship between them. This study aims to review the academic literature to identify key concepts and themes in the field of income inequality and its relationship to economic growth. Also, the purpose of the article is to identify gaps in this topic for future research. A bibliometric analysis of the literature was carried out using the R-package Biblioshiny tool. The sample includes 1 431 publications from the Scopus database. Articles are analyzed against annual scientific production, most important sources, most relevant organizations, a network of coincidences, and thematic mapping and evolution to understand trends in the body of knowledge about income inequality. As a result of the analysis, the main factors influencing economic growth, and subsequently the growth of income differentiation, were identified. A gap in the reviewed studies is the lack of knowledge of the factors determining the quality of economic growth, which subsequently affect income inequality. This research gap will be the direction of future research.

Keywords: Income Inequality, Economic Growth, Literature Review, Bibliometrix Analysis, Biblioshiny

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Табыс теңсіздігі және экономикалық өсу бойынша трендтер: библиометриялық талдау

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Түйін

Қазіргі уақытта жүргізілген эмпирикалық және теориялық жұмыстарға қарамастан, экономикалық өсудің табыс теңсіздігіне әсері әлі де пікірталас тақырыбы болып қала береді және бұл қатынастарға қатысты тұжырымдар әлі де консенсустан алыс. Әдебиеттерді шолу әр түрлі модель спецификациялары, әртүрлі деректер жинақтары және әртүрлі бағалау әдістері экономикалық өсу мен табыс теңсіздігі арасындағы қатынасқа әсер етуі мүмкін екенін көрсетті. Оның үстіне, дамушы елдерге келетін болсақ, авторлардың көпшілігі олардың арасында теріс қатынас бар деп есептесе де, пікірталас одан сайын күшейе түседі. Бұл зерттеу табыс теңсіздігі және оның экономикалық өсумен байланысы саласындағы негізгі ұғымдар мен тақырыптарды анықтау үшін академиялық әдебиеттерді шолуға бағытталған. Сондай-ақ, мақаланың мақсаты – болашақ зерттеулер үшін осы тақырыптағы олқылықтарды анықтау. R-package Biblioshiny құралы арқылы әдебиеттерге библиометриялық талдау жасалды. Таңдамаға Scopus дереккорындағы 1 431 жарияланым кіреді. Мақалалар жылдық ғылыми өнімге, ең маңызды дереккөздерге, сәйкес ұйымдардың көпшілігіне, сәйкестіктер желісіне және табыс теңсіздігі туралы білімдер жиынтығындағы тенденцияларды түсіну үшін тақырыптық карта мен эволюцияға қатысты талданды. Талдау нәтижесінде экономикалық өсуге, нәтижесінде табыс дифференциациясының өсуіне әсер ететін негізгі факторлар анықталды. Қаралған зерттеулердегі олқылық экономикалық өсу сапасын анықтайтын, кейіннен табыс теңсіздігіне әсер ететін факторлардың аз зерттелуі болып табылады. Бұл зерттеу олқылығы болашақ зерттеулердің бағыты болады.

Түйін сөздер: табыс теңсіздігі, экономикалық өсу, әдебиеттерге шолу, библиометриялық талдау, Biblioshiny

Тенденции в неравенстве доходов и экономическом росте: библиометрический анализ

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Аннотация

В настоящее время, несмотря на проведенную эмпирическую и теоретическую работу, влияние экономического роста на неравенство доходов остается предметом дискуссий, и выводы, касающиеся этих взаимосвязей, все еще далеки от консенсуса. В результате обзора литературы было выявлено, что разные спецификации моделей, разные наборы данных и разные методы оценки могут влиять на взаимосвязь экономического роста и неравенство доходов. Более того, когда речь идет о развивающихся странах, споры становятся еще более интенсивными, даже если большинство авторов отстаивают точку зрения о том, что между ними отрицательная связь. Данное исследование направлено на проведение обзора научных трудов для определения основных концепций и тем в области неравенства доходов и его связи с экономическим ростом. Также целью статьи является выявление пробелов в данной тематике для будущих исследований. Был проведен библиометрический анализ литературы с помощью инструмента R-package Biblioshiny. Выборка включает в себя 1 431 публикацию из базы данных Scopus. Статьи проанализированы в отношении годовой научной продукции, наиболее важных источников, наиболее релевантных организаций, сети совпадений, а также тематического картирования и эволюции, чтобы понять тенденции в совокупности знаний о неравенстве в распределении доходов. В результате анализа определены основные факторы, влияющие на экономический рост, и в последствии на рост дифференциации доходов. Пробелом в рассмотренных исследованиях является недостаточная изученность факторов, определяющих качество экономического роста, которые впоследствии влияют на неравенство доходов. Данные исследовательский пробел станет направлением будущих исследований.

Ключевые слова: неравенство доходов, экономический рост, обзор литературы, библиометрический анализ, Biblioshiny

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Introduction

The question of whether a country can achieve higher economic growth with lower income inequality goes back to classical political economists. Even though this question was formulated many centuries ago, it is always present in political circles, political decisions of governments, and academia. Recently, many authors have shown renewed interest in researching whether income inequality is bad or perhaps good for future economic growth. Our time is characterized by the unequal distribution of income and resources among the population in many countries. A widening gap exists between the rich and the poor in developed and developing countries.

Given the already high levels of income inequality, the upward trend in many countries, and the potentially negative effects on the economy, a significant body of literature has explored the causes of income inequality and its implications for economic development. The study of economic growth currently includes assessment and analysis of not only its quantitative aspects, but also its impact on the structure of the national economy, the productivity of production elements, the well-being of people, their pleasure with their life, and the quality of the institutional environment. This makes the research issue relevant. In this regard, it is vital to define the nature and parameters of the relationship between the quality of economic growth, considering its variety of manifestations and the inequality in population incomes.

Through bibliometric analysis, an attempt has been made in this study to conduct a comprehensive analysis of the literature related to income inequality and economic growth. Bibliometric analysis is an open-source tool for conducting a comprehensive mapping analysis of scientific literature, which allows to performance of a full range of analyses of literary information and visualization of the results.

This article aims to identify the main directions of research, concepts, and topics in the field of income inequality and its relationship with economic growth and to identify gaps in existing publications for future research. The remaining parts of the article are organized as follows: the literature review section provides a critical analysis of the theoretical basis for the relationship between income inequality and growth, section 3 details the methodology and data used for the study, section 4 presents the results of a bibliometric analysis of the literature, and section 5 provides conclusions research and directions for future research.

Literature Review

As evidenced in a large body of literature on the relationship between inequality and growth, various transmission mechanisms have been identified that connect income inequality to economic growth. Among them are the level of economic development, the level of technological development, socio-political unrest, the savings rate, the imperfect nature of the credit markets, the political economy, institutions, and the birth rate. These models show that there might be a positive, negative, or ambiguous link between income inequality and growth. Theories concerning the progression of economic and technological development show that as the level of development varies, the relationship between inequality and growth shifts from positive to negative. The inconclusive results also echo the sociopolitical unrest model, which argues that sociopolitical unrest resulting from high-income inequality can either hinder or boost growth. Income disparity is also demonstrated to be negatively correlated with growth by political economics theories, flaws in institutions, credit market defects, and the birth rate. The savings rate theory is the only one that continues to maintain a favorable relationship between income disparity and growth (Mdingi & Ho, 2021).

The Pareto distribution makes it possible to relate economic growth patterns to income inequality. The Schumpeter growth model with Pareto distribution was developed to study how economic growth and technological progress affect income inequality (Chu et al., 2019; Jones & Kim, 2018). Wang et al. (2022) incorporated the spread of FDI technologies into Schumpeter's economic growth model to explore the impact of FDI inflows on income inequality. The authors found that skill-biased FDI from developed countries would widen the wage gap between skilled and unskilled workers in developing countries. However, the traditional Heckscher-Ohlin scheme argues that FDI inflows benefit relatively abundant factors of production and thus reduce income inequality in FDI host countries.

Anyanwu et al. (2021) suggest that countries rich in natural resources suffer more from income inequality. Using the systemic generalized method of moments and the dynamic panel method, the authors determined that the negative impact of income inequality on economic growth is exacerbated in resource-rich countries. Therefore, it is assumed that reducing income inequality could mitigate the detrimental effect of resource abundance on economic growth.

Also, different model specifications, different datasets, and different estimation methods can influence the relationship between economic growth and income inequality. For example, Yang & Greaney (2017) found that long-term effects may differ from short-term ones. Economic growth increases income inequality for all countries in short to medium term. In the long-term impact, economic growth reduces inequality in developing countries but has the opposite effect in developed countries.

The impact of economic growth on income inequality is inconsistent because different determinants can be included in the model. For example, taking trade openness and human capital as determinants of inequality, Wahiba & El Weriemmi (2014) showed that economic growth in Tunisia is positively associated with inequality. In addition, trade openness has exacerbated and human capital has reduced inequality. In contrast, taking growth volatility and human capital as determinants of inequality, Binatli (2012) found that growth has a negative impact on income inequality. At the same time, he confirmed that higher growth volatility can permanently hurt income inequality, but the size of the effect of growth volatility decreases over time.

It is not unexpected that the empirical evidence supporting the link between income inequality and economic growth is highly contested, given the level of theoretical ambiguity. Inequality has a detrimental effect on economic growth, as evidenced by early empirical studies by Alesina & Rodrik (1994), Perotti (1996), and Persson & Tabellini (1994). This negative association has been confirmed by numerous subsequent studies (Braun et al., 2019; Breunig & Majeed, 2020; Royuela et al., 2019; Wan et al., 2006). The evidence for a negative association, however, has been challenged by studies reporting positive results on the relationship between inequality and growth (Scholl & Klasen, 2019; Shahbaz, 2010). In addition, several studies have provided inconclusive results, with most reporting that the relationship is positive in high-income countries and negative in low-income countries (Brueckner & Lederman, 2018; Fawaz et al., 2014). Several studies have found no relationship between inequality and growth (Benos & Karagiannis, 2018; Niyimbanira, 2017). Therefore, this study is aimed to identify the main directions of research, concepts, and topics in the field of income inequality and its relationship with economic growth and to identify gaps in existing publications for future research.

Methodology

To highlight the main areas of research, concepts, and topics in the field of income differentiation, a bibliometric analysis of the literature was chosen, which was carried out using the Biblioshiny R-package tool. The availability of robust, efficient statistical algorithms, access to high-quality numerical procedures, and integrated data visualization tools make R the language of choice for scientific computing. The method was developed by Aria & Cuccurullo (2017).

A four-step process was used to extract the sample of papers for examination from the Scopus database. Articles published up to and including that time were included in the search, which was done in October 2022.

The scheme of sampling stages is described in Figure 1.

Initially, the search was conducted on the keyword "income inequality", as a result of which 12 676 documents were found in the database. After that, the sample was restricted to papers in the "Social Sciences", "Economics, Econometrics and Finance" and "Business, Management, and Accounting", bringing the total number of publications to 10 305. Publications in the Scopus database for this keyword in these fields of knowledge have been since 1961, and since we are interested in publications over the past decade, it was decided to limit the year of publication of documents from 2013 to 2022. This constraint produced 6 453 results. The next stage of the restriction was because the article aims to identify publications that explore what factors of economic growth are associated with the problem of inequality in income distribution. Therefore, another keyword, "economic growth" has been added. As a result, after applying all restrictions, the sample consists of 1 431 publications.
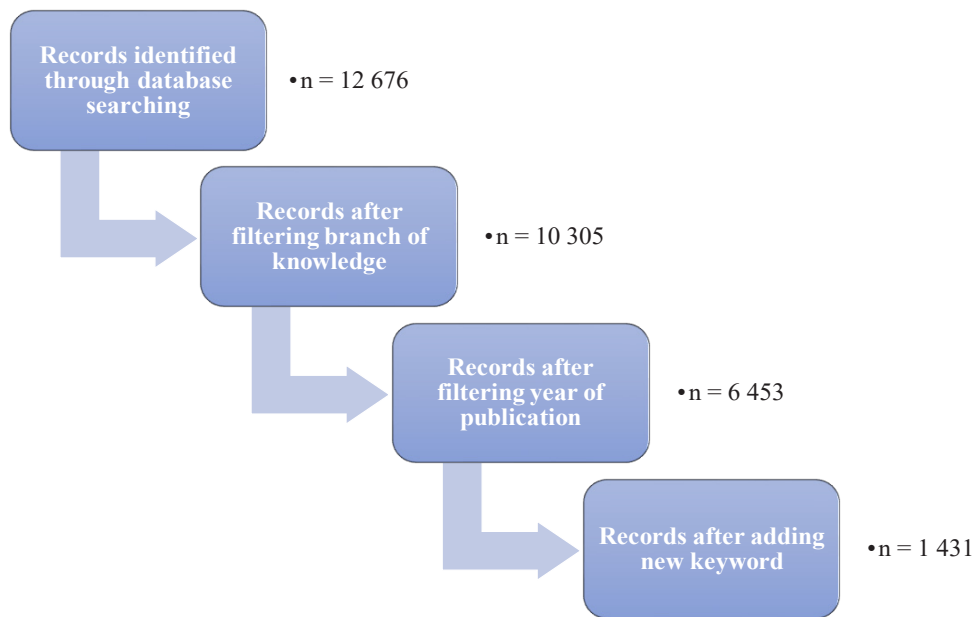
Figure 1 - Scheme of the stages of obtaining a sample

Results and Discussion

To assess trends in the body of knowledge about income inequality, articles are examined by annual scientific production, most relevant sources, most relevant organizations, co-occurrence network, and thematic mapping and evolution.

Figure 2 displays the yearly output of studies on income inequality concerning the effects of economic growth. The data clearly shows the annual growth of publications on this subject. The annual publication growth rate from 2013 to 2022 is 13.69%. Over the past ten years, annual publications have more than tripled from 74 in 2013 to 233 in 2022. The highest publication activity is observed in 2020 – 237 articles were published during the year. It can be assumed that the reason for the increase in the number of studies on the problem of inequality was the pandemic, which even more exposed this problem in many countries.

The association between publication attributes can be seen on the three-fields plot (Countries - Keywords - Sources). Figure 3 illustrates, for instance, which nations and journals are most active in the field of income disparity research. Most of the articles came from China, the USA, UK. The relationship between income inequality and the category of poverty is most studied in Pakistan, Italy, India, and Turkey. Inequality assessment based on the Gini coefficient is mostly carried out in Malaysia, Italy, and Australia. From this, it can be concluded that

both developed and developing countries are involved in the study of the topic. Figure 2 also shows the journals with the most articles on income inequality. Figure 4 shows the number of articles published in these journals for 2013-2022.

The most relevant sources that have published the most articles in the researched area include Social Indicators Research, Sustainability (Switzerland), Applied Economics, Economic Modeling, and others. Nearly 20% of all articles are published in the 10 journals shown in Figure 4.

The co-occurrence network was formed based on the author's keywords with the Louvain clustering algorithm.

The coincidence network consists of three primary clusters. The "Income Distribution" cluster is the fundamental, primary, and biggest cluster. The second-largest node is "Economic Growth," and as "Economic Growth" is contained within the "Income Distribution" node, these two ideas are interconnected. There fore, the majority of current research may examine these two ideas together. This also holds true for "Poverty" and "Poverty alleviation," which are under the "Income Distribution" node's purview. Other members of the same cluster who are around the main theme, are the names of the methods used to analyze the relationship between income differentiation and economic growth: "panel data", "cointegration analysis", "econometric analysis", and "empirical analysis". It can be assumed that all these methods are basic and relevant to the study of this topic.
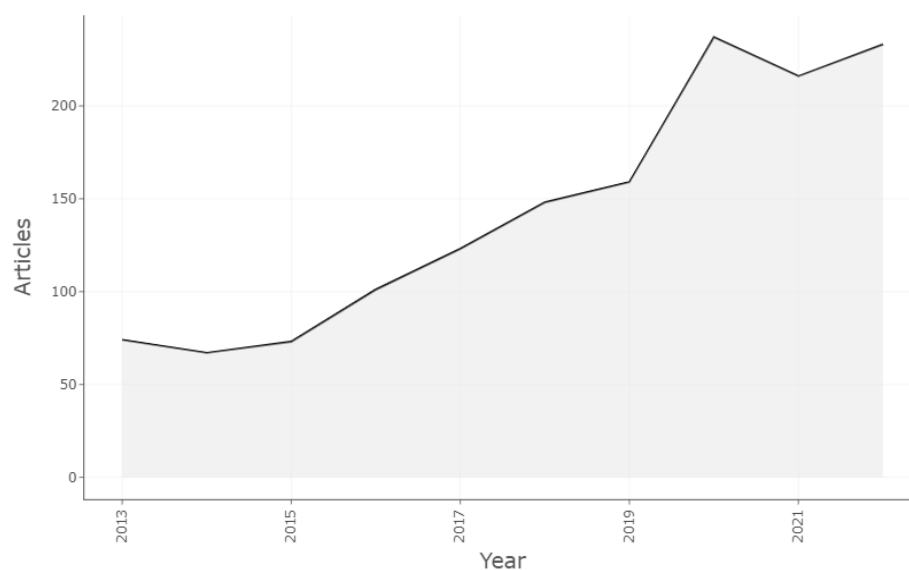
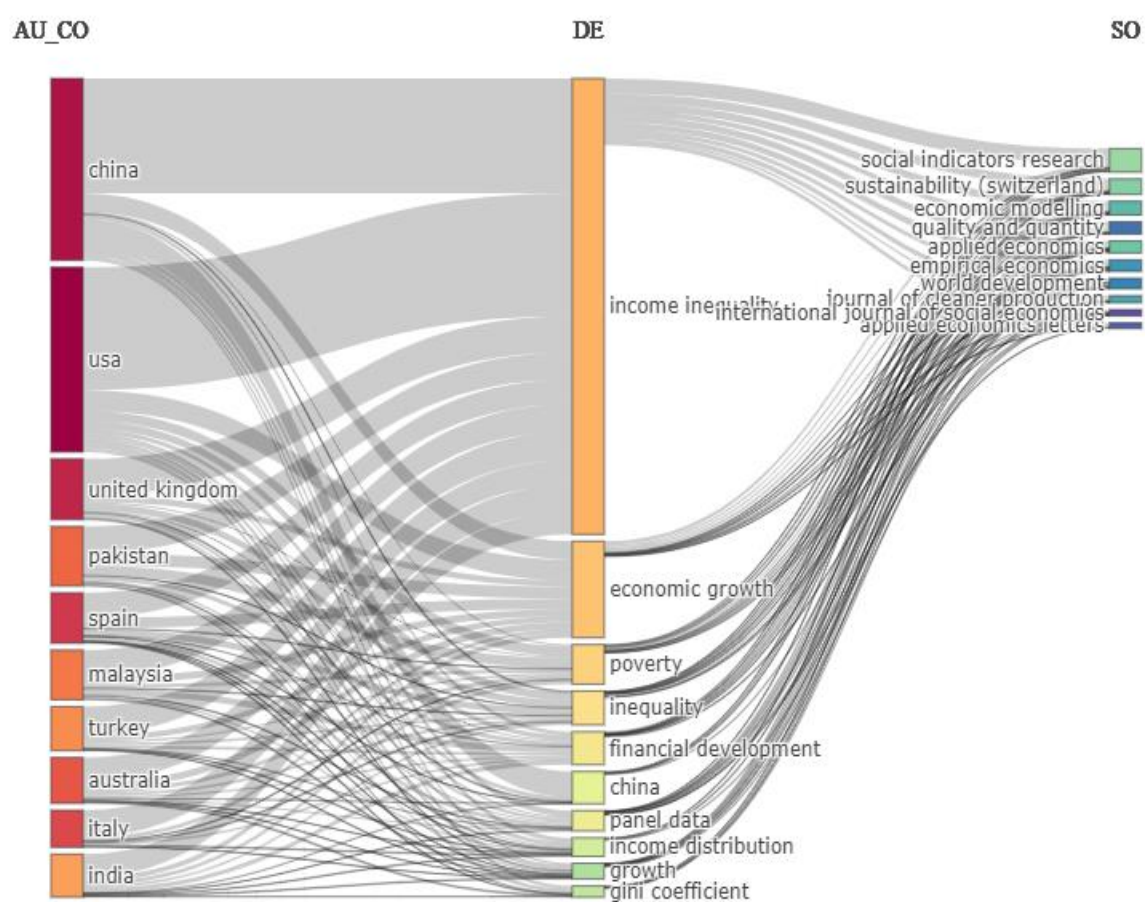**Figure 2** - Annual Scientific Production

Figure 3 - Three-fields plot

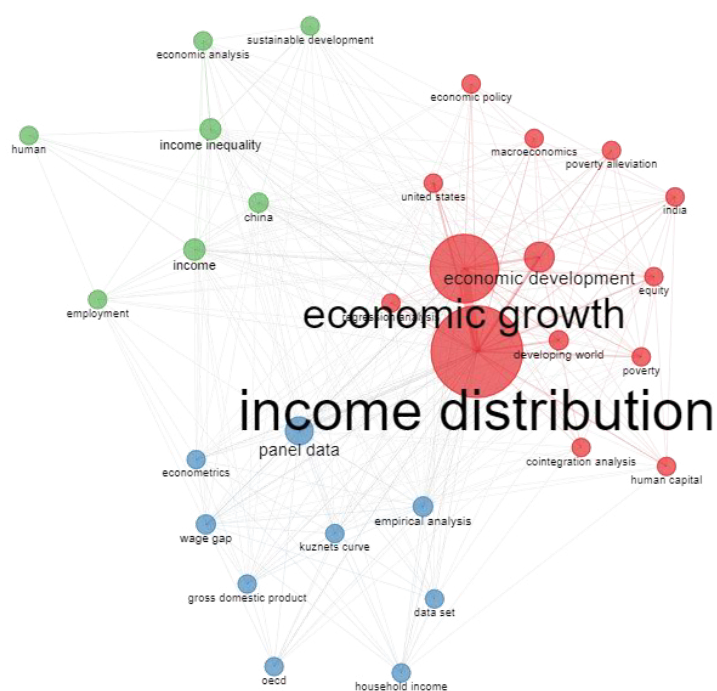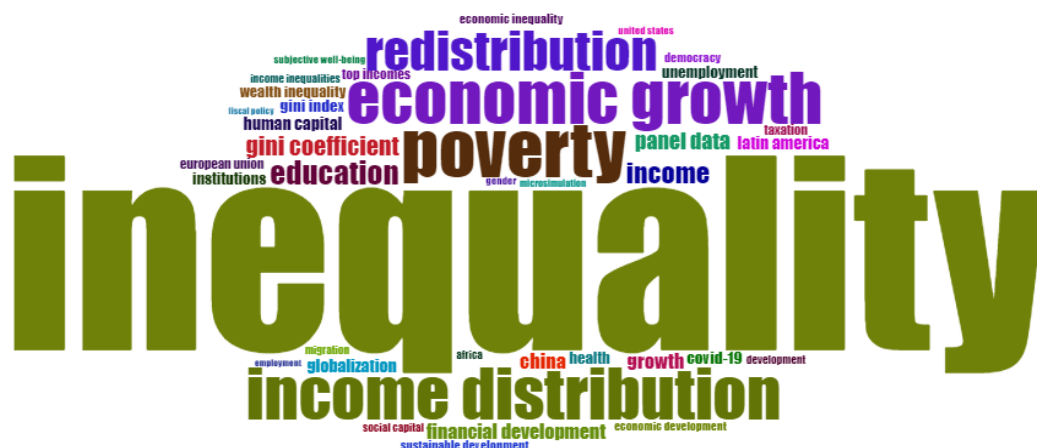**Figure 4** - Most Relevant Sources

Figure 5 - Co-occurrence Network

Figure 6 - Word Cloud

As a result of the analysis of the keywords in Figure 6, it is determined that this problem is being widely studied in the European Union, China, Latin America, and Africa countries. In scientific works, the factors influencing the growth of income differentiation, such as employment, unemployment, social capital, human capital, the Gini coefficient, as well as globalization, migration, taxation, fiscal policy, and COVID-19, have been studied. Also, all these indicators are considered factors affecting the country's economic growth. However, the figure shows no factors reflecting the quality of economic growth.
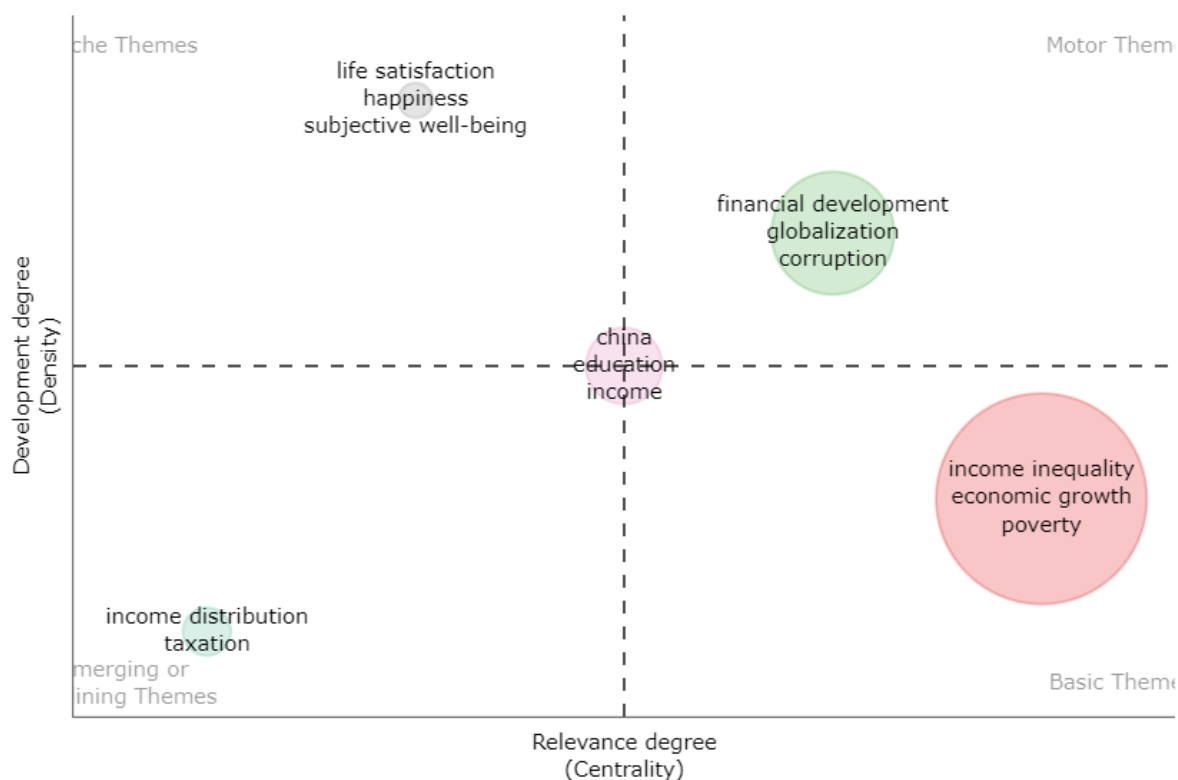
Figure 7 - Thematic map

Figure 7 shows the state of the research on the problem of inequality. The author's keywords were employed, and a minimum clustering frequency of 5 points was chosen in order to produce a thematic map.

The basic themes for the entire period under review are "Income inequality", along with "Economic growth" and "Poverty".

The "China" cluster along with the key-words "Education", and "Income" is about to become the central theme. That is, in developing countries, more and more attention is paid to the study of this topic and the issue of the level of education of the population is considered as one of the causes of inequality.

As for the motor themes, this category includes the only cluster "Financial develop-ment" along with "Globalization" and "Corruption", that is, these topics are conside-red as the main factors leading to income inequa-lity, but at the same time, it should be noted that these indicators reflect only quantitative economic growth, not its quality. On the contrary, indicators reflecting precisely the quality of economic growth and contributing to the reduction of inequality "Life satisfaction", "Happiness" and "Subjective well-being" remain peripheral topics.

As a result, a gap in research has been identified, which consists of the fact that the issue of the influence of the quality of economic growth, including the structure of the national economy, the effectiveness of the functioning of basic economic and political institutions on inequality in income distribution has not been sufficiently studied. The issue of the quality of economic growth is very important, since economic growth, which maintains a clearly expressed unequal access of citizens to educatio-nal and medical services, or the inefficient operation of basic institutions, will naturally lead to the differentiation of their general and specific human capital. And this, in turn, will mean a high level of inequality in the distribution of mone-tary incomes of the population, all other things being equal.

Conclusion

The study aimed to identify key research areas, concepts, and the issue of income inequa-lity and its relationship to economic growth and to identify research questions for future research. A bibliometric analysis of a sample of 1 431 articles published in the Scopus database over the past 10 years was carried out to achieve the goal.

As a result, it was determined that interest in this topic has steadily grown over the past decade and the basic topics are income inequality, poverty, and their relationship with economic growth.

The relationship between income disparity and economic growth has been researched for the European Union, China, Latin America, and Africa. The main factors influencing economic growth, and subsequently the growth of income differentiation, were employment, unemployment, social capital, human capital, the Gini coefficient, globalization, corruption, migration, taxation, fiscal policy, and, in recent years, the pandemic. These factors describe only quantitative econo-mic growth.

A gap in the reviewed studies is the insuffi-cient knowledge of the quality of economic growth and its forming factors, which subsequent-ly affect income inequality. It is assumed that high-quality economic growth contributes to achieving several social goals, including impro-ving health care, education, employment, security, and the welfare of the population.

The literature analysis also showed disagreement regarding the link between econo-mic growth and income inequality; the resear-chers provide evidence for both a positive and a negative relationship. One reason for these divergent opinions is that most studies have relied on data from various countries collected over multiple periods, ignoring factors like the heterogeneity of data and measurement stan-dards, aggregation issues, and variations in the level of development of multiple nations. In this regard, a hypothesis is put forward that for developed economic systems, an increase in the quality of economic growth, subsequently an increase in the productivity of the factors of production used, should be accompanied by a decrease in the degree of differentiation of incomes of the population, which is the basis for improving the standard of living. In developing economic systems, this relationship can be represented by other ratios due to the weakness of the institutional environment and the raw material specialization of the national economy. This hypothesis will be tested in future studies.

The limitation of the research is that only 2000 publications can be analyzed and mapped in R-package Biblioshiny.

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