



Natural resource funds, institutional quality and governance: A systematic literature review

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Abstract

In recent years, there has been an international debate on the effectiveness of resource funds in the context of the “resource curse”. One aspect of assessing the effectiveness of these funds, which is receiving increasing attention, is determining the relationship between the funds and institutional quality and governance. The objective of this study is to systematically evaluate all available evidence regarding the relationship between the effectiveness of natural resource funds, institutional quality and governance in the context of countering the “resource curse”. The study employed the SLR technique to examine 40 carefully selected articles for the period 1990–2023. In order to enhance the credibility of the analysis, an up-to-date information map derived from the literature was generated using the VOSviewer software. The study found that the analysed issue is both new and relevant, with many aspects lacking unanimous solutions. It was observed that the relationship between funds and institutional quality and governance exists, as indicated by both qualitative and quantitative research. The most significant studies on this topic emerged after 2005. The literature is largely concentrated on the significance of institutional quality and governance for fund effectiveness. An area that could be explored by future researchers is the relationship between savings resource funds (funds for future generations), investment resource funds and institutional quality and governance.

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Keywords

- natural resource funds
- governance
- institutional quality
- resource curse
- systematic literature review

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Introduction

Having substantial natural resource wealth can be a significant factor in a country's economic growth and development. However, many resource-exporting nations² face the paradox of the "resource curse". For many years, they have achieved worse economic development outcomes compared to countries that do not possess such resources. The "resource curse" has been extensively studied from various angles and is supported by the findings of both quantitative and qualitative research (including Arezki & van der Ploeg, 2007; Auty, 2001; Dymitrowska, 2015; Neumayer, 2004; Sachs & Warner, 2001; Sala-i-Martin & Subramanian, 2013; van der Ploeg, 2011).

In recent years, researchers, international organisations and governments of resource-rich countries have focused their attention on seeking ways to address the paradox of the "resource curse". One of the means that has sparked much discussion in the last decade for countering the "resource curse" is the natural resource fund. Resource funds, most commonly in the form of stabilisation funds, were predominantly introduced in resource-rich countries during the 1970s–1990s. Since then, they have seen significant development, with numerous funds established, each having varying forms and operational principles. Since 2010, there has been a noticeable trend of creating a new type of natural resource fund, known as future generation funds (also known as savings funds), in both advanced economies and emerging/developing economies. The importance of resource funds in the international financial market has also grown. They constitute over half of all sovereign wealth funds, with the current value of assets worldwide estimated at approximately USD 11.887 billion, according to 2023 data from the Institute of Sovereign Wealth Funds (SWFI, n.d.). Comprehensive multidimensional studies on the effectiveness of resource funds are, therefore, of significant importance, both for the development of resource-rich countries and for global development in general.

Within the framework of the new institutional economics, institutions are regarded as a crucial factor in economic development (North, 1990). Following this line of thought, the issue of the "resource curse" has taken on an entirely new dimension, with numerous studies dedicated to assessing the significance of institutional quality and governance for the development of resource-rich countries (Auty, 2001; Baland & Francois, 2000; Bhattacharyya & Hodler, 2010; Brunnschweiler, 2008; Karl, 1997; Leite & Weidmann, 1999). It has been noted that countries specialising in the export of natural resources, especially strategic ones (such as fuels

² In this research, the definitions of a resource-rich country, a resource-exporting country and an economy based on the extraction and export of natural resources are approached with clarity. These nations are categorised by meeting the following criteria: either the average annual revenues of the mining industry (as a percentage of GDP) exceed 25%, or natural resources account for at least 25% of the average annual exports (Dymitrowska, 2015).

and minerals), grapple with increased rent-seeking, corruption and deteriorating institutional quality. From this perspective, lower governance and institutional quality in resource-based economies are considered one of the significant causes of the “resource curse” phenomenon (Dymitrowska, 2015).

The importance of governance and institutional quality is also increasingly emphasised in research on the effectiveness of natural resource funds. Some scholars even point out that they are among the primary determinants of fund efficiency (e.g. Bacon & Tordo, 2006; Hjort, 2006; Le Borgne & Medas, 2007; Sugawara, 2014). The reverse perspective is also intriguing – namely, the impact of funds on the level of governance and institutional quality (Tsani, 2013, 2015). Unfortunately, the literature on this subject is fragmented and requires organisation.

The aim of this study is to systematically evaluate all available evidence regarding the relationship between the effectiveness of natural resource funds, institutional quality and governance in the context of countering the “resource curse”.

The study employed the systematic literature review (SLR) method, through which 250 articles for the period 1990–2023 were examined. As a result of a detailed analysis, 40 publications most closely related to the research topic, according to specified criteria, were identified and subjected to further in-depth analysis. To enhance the credibility of the assessment, the VOSviewer program was utilised to create an up-to-date information map derived from the literature (Figure 2).

To the best of the author’s knowledge, this is the inaugural study employing the systematic literature review technique to assess the literature concerning the effectiveness of natural resource funds, governance and institutional quality. The research encompasses both qualitative and quantitative literature published between 1990 and 2023. Furthermore, it organises all accessible evidence on this topic and highlights significant research areas requiring further exploration, which could be beneficial for both academics and policymakers.

The paper consists of three parts, preceded by an introduction and summarised by a conclusion. The first part of the research is dedicated to providing an initial brief overview of natural resource funds and their significance for the economic development of resource-rich countries. In the next part of the paper, the research methods used to achieve the research objectives have been elaborated upon in detail. The following sections present the results of the study and the discussion.

1. Natural resource funds: A brief overview

In the 1970s and 1980s, following a severe crisis in the international energy commodity market, a broad academic community, as well as international organ-

isations and policymakers, turned their attention to the issues surrounding the development of countries rich in natural resources. In 1993, Richard Auty (1993) presented a work titled *Sustaining development in mineral economies: the resource curse thesis*, in which he first described the phenomenon and presented the term “resource curse”. Since then, the paradoxical relationship concerning the economic development of resource-rich countries has generated significant interest among researchers in economics, political science, international relations, development studies and other fields. The issue of the “resource curse” is interdisciplinary and multidimensional, encompassing economic, political, institutional, social, cultural, ecological and other aspects.

In the 1970s, a new economic policy tool was proposed to counteract the “resource curse”, particularly aimed at protecting the domestic economy from the significant volatility of the global commodity market. This tool was the resource fund, initially taking the form of a stabilisation fund. These funds were introduced, with varying degrees of success, in many resource-rich countries, both in advanced economies and emerging/developing economies. The growing popularity of this instrument drew researchers’ attention to the issue of assessing the effectiveness of resource funds.

In the 1970s, Norway discovered rich oil and natural gas deposits in the waters of the North Sea. In the early years of extraction and export, the country established a resource fund, initially named the Norwegian Oil Fund, but it changed its name in 2006 to the Norwegian Government Pension Fund Global to emphasise its innovative character and the role it should play in the Norwegian economy and society. Although the so-called savings resource funds (alternatively referred to as funds for future generations) and investment resource funds had been established earlier (e.g. Alberta Heritage Savings Trust Fund, Alaska Permanent Fund), it was the great success of the Norwegian fund that drew the attention of a broad spectrum of policymakers and researchers to this economic policy tool in the context of countering the “resource curse”.

Initially, it was believed that funds for future generations, modelled after the Norwegian approach, where all proceeds from resource sales are accumulated in the fund’s account and invested in a wide range of foreign long-term investments, using only a specified percentage of the fund’s earnings domestically, could be effective exclusively in advanced economies (e.g. Dymitrowska, 2015). However, a new trend of establishing savings natural resource funds is now visible in both advanced economies and emerging/developing economies. There are 21 savings funds. Although the Texas Permanent University Fund, the oldest among the savings funds, was founded in 1876, more than 52% of them were established after 2005, with over 38% created after 2010 (Dymitrowska, 2023a). The effectiveness of savings funds operation has once again become the subject of extensive international discussions.

Given the multidimensionality of the “resource curse” issue, it should be emphasised that an important dimension of contemporary research in the context of the development of resource-rich countries is the institutional dimension. The aspect of the significance of institutional factors in the context of the “resource curse” was already noted in the 1990s. It has been recognised that significant revenues from natural resource exports lead to weakening of democracy (Bhattacharyya & Hodler, 2010; Karl, 1997; Ross, 2001), destruction of healthy competition, a reduction in economic freedom, a rise in corruption and rent-seeking (Baland & Francois, 2000; Leite & Weidmann, 1999). In current research, this dimension remains significant, and its inclusion in analyses holds substantial importance.

2. Methodology

To achieve the research objective, the study employed the Systematic Literature Review (SLR) method (Cooper et al., 2019; Tranfield et al., 2003). This method has been gaining popularity among researchers recently (sample articles: Deku et al., 2019; Garg & Shukla, 2021), offering several advantages such as: objectivity and systematicity, comprehensiveness and reproducibility, knowledge synthesis, minimising the risk of excluding essential sources, identifying inconsistencies and knowledge gaps, as well as enhancing the quality of the research.

According to the general guidelines for conducting SLR in the social sciences, in the first stage of the study, the following research tasks were defined:

1. Determining the relationship between the effectiveness of natural resource funds, institutional quality and governance.
2. Systematising all available research (both qualitative and quantitative) for the years 1990–2023 related to the effectiveness of resource funds, institutional quality and governance.
3. Identifying research gaps in the literature and determining directions for future research.

The study adopted a research period starting from the year 1990 due to the fact that, although the oldest resource fund, the Texas Permanent University Fund, was established in 1876 (Dymitrowska, 2023a), most of the initial resource funds were established in resource-rich countries during the 1970s–1990s. As in Ouoba (2020), this study assumes that it takes ten years for a fund to accumulate long-term capital and have a tangible effect after its establishment. After an initial review of the literature, it was also noted that the first significant research on

the analysed topic dates back to 1997 (Chalk et al., 1997). It was determined that the year 1990 should be the starting point of the research period. The individual stages of the SLR process are presented in Figure 1.

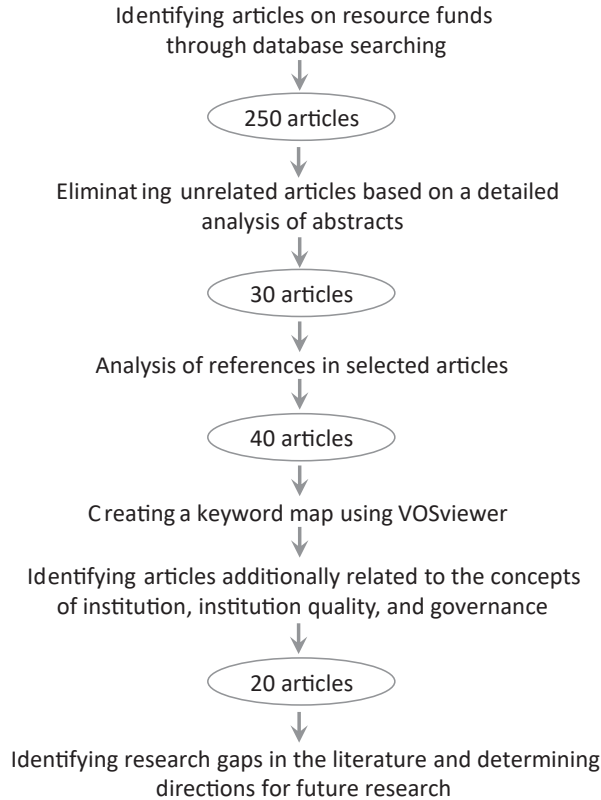


Figure 1. Stages followed in the systematic literature review

Source: own study.

The study was decided to begin with searching the data in the Web of Science database. This database is a respected source of scientific and research information with international coverage, containing millions of scientific articles, conference papers, reviews, books and other scholarly materials, providing access to a variety of information sources. Keywords “resource funds” and “oil funds” were employed. The first of the selected phrases best reflects the research direction. However, it was decided to add the keyword “oil funds” due to the attention drawn during preliminary analyses that it had been used in many publications.

In the study, it was decided to initially prioritise identifying studies related to the efficiency of resource funds, within which subsequent recognition was given

to research dedicated to the importance of institutional quality and governance. The efficiency of resource funds indeed holds a paramount significance in the chosen research topic. Additionally, when considering additional keywords “institutional quality” and “governance” in the initial stage of the study, the results displayed in the database significantly deviated from the chosen research theme.

Additional criteria were also applied. The “topic” filter was used instead of “title” because it provided more results, encompassing searches in title, abstract, author keywords and Keywords Plus. The second criterion was narrowing the research period to the years 1990–2023. As a result, 600 different publications were found. Following the suggestion from Web of Science, several additional keywords were added: “petroleum fund”, “natural resource funds” and “oil fund”, which increased the obtained result to 654 publications. The list of publications was narrowed down to those from the fields of economics, energy fuels, political science, international relations and development studies. The refined list provided 250 publications.

In the second stage of the study, based on a detailed analysis of the abstracts of individual publications, articles unrelated to the chosen research theme were eliminated. Thirty publications focusing on the analysis of the efficiency of resource funds in the context of the “resource curse” phenomenon were identified.

In the subsequent third stage, a detailed analysis of the reference lists of the individual works highlighted in the previous stage was conducted in order to identify omitted publications. In total, 10 additional articles were added to the research list, taking the final count of selected works to 40.

The selected articles were next exported into a Resource Information System (RIS) tab-delimited text file using the Mendeley reference manager. A tab-delimited text file was then imported into VOSviewer, which is a tool for visualising and analysing scientific data, particularly for examining relationships among keywords, authors and publications in scientific databases. VOSviewer allows the creation of graphical network representations of scientific data, facilitating the understanding of connections and patterns among various elements such as keywords, authors or publications. VOSviewer enabled the creation of an information map of the main keywords highlighted by the authors of the publications identified in the previous stages of the study. The information map was created to assess the position and importance of the concepts of “institutional quality” and “governance” within the context of the effectiveness of resource funds in the “resource curse” framework.

In the next stage, a detailed reanalysis of the abstracts of the 40 selected articles was conducted to identify those that are associated with the concepts of institution, institution quality and governance. A final list of 20 publications was identified, which were then thoroughly examined to identify research gaps in the literature and determine directions for future research.

3. Results and discussion

Table 1 presents a list of 40 articles identified in the third stage of the study, considering the following classification criteria:

- type of study: qualitative, quantitative,
- year of publication,
- source type: journal article, working paper, book, conference article,
- type of resource fund analysed: stabilisation, investment, savings.

In the study, the classification of resource funds was adopted as in Dymitrowska (2023a; 2023b). According to this classification, funds are divided into stabilisation funds, investment funds and savings funds (alternatively referred to as funds for future generations). Inclusion of this classification is significant due to the fact that stabilisation funds, which were created initially, differ significantly from investment and savings funds. In recent years, savings funds (funds for future generations) have gained increasing popularity in both advanced economies and emerging/developing economies. These funds make up a substantial share of all resource funds, with most of them being established after 2010 (Dymitrowska, 2023a).

Table 1. Research dedicated to the effectiveness of natural resource funds in the context of countering the “resource curse”

Authors and year	Type of study		Source type				Type of resource fund		
	qualitative	quantitative	journal article	working paper	book	conference article	ST	IN	SAV
Chalk et al., 1997	X			X			X	X	X
Engel & Valdes, 2000	X			X			X	X	X
Fasano-Filho, 2000	X			X			X		
Davis et al., 2001	X			X			X		
Clemente et al., 2002	X			X			X		
Eifert et al., 2002	X			X			X	X	X
Barnett & Ossowski, 2002	X			X			X		
Crain & Devlin, 2003		X				X	X		
Tsalik, 2003	X				X		X	X	X
Devlin & Titman, 2004	X		X				X	X	X
Kalyuzhnova, 2006	X		X					X	
Bacon & Tordo, 2006	X		X				X	X	X

cont. Table 1

Authors and year	Type of study		Source type				Type of resource fund		
	qualitative	quantitative	journal article	working paper	book	conference article	ST	IN	SAV
Hjort, 2006	X		X				X	X	X
Le Borgne & Medas, 2007	X			X			X		
Shabsigh & Ilahi, 2007		X		X			X		
Usui, 2007	X		X				X		
Ossowski et al., 2008		X		X			X		
Merlevede et al., 2009		X	X				X		
Gould, 2010	X		X				X	X	X
Villafuerte et al., 2010	X			X			X		
Lücke, 2011	X		X				X	X	X
Bagattini, 2011		X		X			X	X	X
Barma et al., 2012	X				X		X	X	X
Baena et al., 2012	X		X				X	X	X
Tsani, 2013		X	X				X	X	X
Sugawara, 2014		X		X			X		
Tsani, 2015		X	X				X	X	X
Koh, 2016		X	X				X		
Ouoba, 2016		X	X				X		
Asik, 2017		X				X	X		
Torvik, 2018	X		X				X	X	X
Allegret et al., 2018		X		X			X		
Bortolotti et al., 2020	X			X			X	X	X
Dymitrowska, 2020	X		X				X	X	X
Ouoba, 2020		X	X				X		X
Medina-Bueno et al., 2021	X		X				X	X	X
James et al., 2022	X		X				X	X	X
Taguchi & Ganbayar, 2022		X	X				X	X	X
Çiçekçi & Gaygısiz, 2023		X	X				X		
Dymitrowska, 2023b		X	X						X

Note: ST – stabilization fund, IN – investment fund, SAV – savings (future generations) fund.

Source: own study.

While analysing the articles presented in Table 1, it is important to note a significant conclusion. The majority of these publications are dedicated to the study of stabilisation funds. When analysing each of the articles separately, it should be mentioned that in the case of most of the studies in which a reference to all types of funds was made in Table 1, the research mostly pertained to the entirety of funds without their division into individual categories. Investment funds, and especially savings funds (funds for future generations), received limited attention. There is, therefore, a significant disproportion between the number of savings funds, which have emerged in the last decade, and the number of studies dedicated to them, representing a significant research gap.

Based on the articles presented in Table 1, an information map of keywords most frequently highlighted by authors was created using the VOSviewer software, as shown in Figure 2.

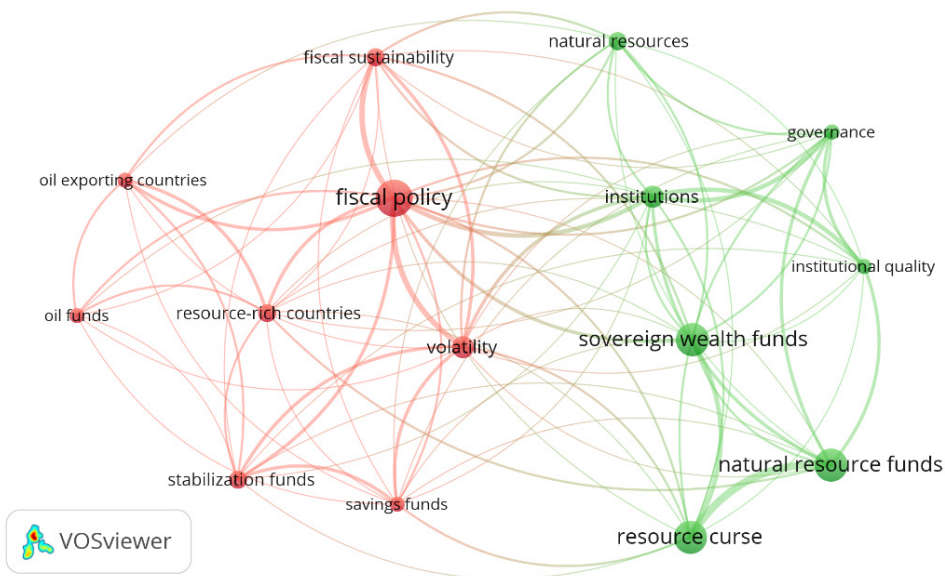


Figure 2. Information map of keywords referring to the topic of effectiveness of natural resource funds in the context of countering the “resource curse”

Source: own study using the VOSviewer software.

When analysing the results presented in Figure 2, it is important to note that the highlighted keywords reflect the essence of the “resource curse” problem (e.g. keywords: volatility, fiscal sustainability, natural resources, oil exporting countries, resource-rich countries), as well as the significance of research aimed at finding solutions to the “resource curse” (e.g. keywords: fiscal policy, natural resource

funds, stabilisation funds, savings funds). It is also worth noting the connection between the topic of natural resource funds and sovereign wealth funds. The results presented on the information map also confirm the previously stated conclusion that savings funds receive less attention in research. Although the keyword has appeared on the information map, its significance on it is not substantial.

The most significant conclusion drawn from Figure 2 is the importance of institution, institution quality and governance within the context of the effectiveness of natural resource funds in countering the “resource curse”. All three keywords appeared on the information map, with the keyword “institution” being the most frequent. The obtained results confirm the significant importance of the institutional dimension in the examined topic.

Figure 3 presents a list of 20 articles identified in the fifth stage of the study, considering the following classification criteria:

- type of study: qualitative, quantitative,
- number of countries studied,

	Natural resource fund											
	ST	IN	SAV									
<i>effective</i>	Baena et al. (2012) (2); Tsani (2013; 2015) (27)	<table border="1"> <thead> <tr> <th>ST</th> <th>IN</th> <th>SAV</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;"> Tsalik (2003) (2); Bacon & Tordo (2006) (15); Hjort (2006) (1); Gould (2010) (4); Bagattini (2011) (12) </td> </tr> <tr> <td style="text-align: center;"> Fasano-Filho (2000) (6); Crain & Devlin (2003) (71); Le Borgne & Medas (2007) (9); Usui (2007) (2); Ossowski et al. (2008) (21); Sugawara (2014) (68); Koh (2016) (42); Taguchi & Ganbayar (2022) (54); Çiçekçi & Gaygisiz (2023) (32) </td> <td style="text-align: center;"> Kalyuzhnova (2006) (2); Taguchi & Ganbayar (2022) (54) </td> <td></td> </tr> </tbody> </table>		ST	IN	SAV	Tsalik (2003) (2); Bacon & Tordo (2006) (15); Hjort (2006) (1); Gould (2010) (4); Bagattini (2011) (12)			Fasano-Filho (2000) (6); Crain & Devlin (2003) (71) ; Le Borgne & Medas (2007) (9); Usui (2007) (2); Ossowski et al. (2008) (21) ; Sugawara (2014) (68) ; Koh (2016) (42) ; Taguchi & Ganbayar (2022) (54) ; Çiçekçi & Gaygisiz (2023) (32)	Kalyuzhnova (2006) (2); Taguchi & Ganbayar (2022) (54)	
		ST	IN	SAV								
Tsalik (2003) (2); Bacon & Tordo (2006) (15); Hjort (2006) (1); Gould (2010) (4); Bagattini (2011) (12)												
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<i>ineffective, lack of effect</i>	<table border="1"> <tbody> <tr> <td style="text-align: center;">Torvik (2018)</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Barnett & Ossowski (2002)</td> <td></td> <td></td> </tr> </tbody> </table>	Torvik (2018)			Barnett & Ossowski (2002)			Torvik (2018)				
Torvik (2018)												
Barnett & Ossowski (2002)												

Note: Empirical studies are highlighted in bold. The number of analysed funds/countries is presented in parentheses marked in italics after each study. The arrow indicates the direction of influence. ST – stabilisation fund, IN – investment fund, SAV – savings (future generations) fund.

Figure 3. Research dedicated to natural resource funds, institutional quality and governance

Source: own study.

- type of resource fund analysed: stabilisation, investment, savings,
- effect: effective, ineffective, lack of effect,
- direction of influence: significance of institutional quality and governance in relation to the effectiveness of resource funds, as well as the inverse relationship – the importance of resource fund activities for institutional quality and governance in the context of countering the “resource curse”.

Analysing the results obtained in the study, it is important to note that research has been conducted on two perspectives in the literature: the significance of institutional quality and governance concerning the effectiveness of resource funds, as well as the importance of resource fund activities for institutional quality and governance. However, the latter relationship has received significantly less attention. There are essentially only two important quantitative studies dedicated to this topic, both conducted by a single author (Tsani, 2013, 2015). In both articles, based on advanced quantitative analysis, the author found that policymakers could find resource funds to be valuable tools when addressing the deterioration of governance and institutional quality caused by resource abundance. The outcomes provide evidence supporting the perspective that resource funds serve as effective safeguards against the negative effects of the “resource curse”, especially with regard to the deterioration of governance and institutional quality.

The vast majority of research is dedicated to the importance of institutional factors for the effectiveness of resource funds, with a clear predominance of stabilisation funds.

Analysing the examined articles, it should be noted that the majority of researchers confirm the effectiveness of stabilisation resource funds (Figure 3). There are also a few studies whose results confirm the effectiveness of investment funds (e.g. Kalyuzhnova, 2006; Taguchi & Ganbayar, 2022). In the case of savings funds, the effectiveness of their operation has not been confirmed to date. At the same time, it has not been justified that they are ineffective.

In the significant majority of studies listed in Figure 3, the crucial role of institutional quality and governance in the effective operation of stabilisation resource funds is emphasised. Taguchi & Ganbayar (2022) provide evidence that the operation of stabilisation funds reduces the volatility of government expenditure by 13.6%, and their operation under high governance reduces it by 33.2%. Meanwhile, the operation of investment funds increases the investment rate by 9.8%, and their operation with high governance increases it by 46.8%. Similar conclusions are presented by Sugawara (2014), who clearly states in his article that political institutions and fiscal rules in managing stabilisation funds are significant factors in reducing government expenditure volatility. In the latest study by Çiçekçi & Gaygisiz (2023), the authors concluded that for the desired countercyclical policy, adequately high institutional quality is needed to manage natural

resource funds and fiscal policy effectively. The importance of institutional capacity in the success of funds is highlighted in developing nations by Bacon & Tordo (2006), Le Borgne & Medas (2007) as well as Hjort (2006). It is also worth noting the emphasised importance of transparency for fund management in studies by Tsalik (2003), Gould (2010) and Kalyuzhnova (2006).

Conclusions

The aim of the article was to systematically evaluate all available evidence regarding the relationship between the effectiveness of natural resource funds, institutional quality and governance in the context of countering the “resource curse”.

To achieve this objective, the study utilised the systematic literature review (SLR) method in order to analyse 40 carefully chosen articles for the period from 1990 to 2023. To bolster the reliability of the analysis, an updated information map derived from the literature was created with the assistance of VOSviewer software.

The research has shown that the issue of resource fund effectiveness is current and significant, with several aspects lacking consensus solutions. The results obtained confirm the substantial importance of the institutional dimension in the subject under examination. Institutional quality and governance are recognized by many researchers as a significant determinant of the effective operation of resource funds in resource-exporting countries in the context of countering the “resource curse”.

It is important to note that the majority of studies are dedicated to the examination of stabilisation funds. In recent years, savings funds (funds for future generations), which differ significantly from stabilisation funds, have gained increasing popularity in both advanced economies and emerging/developing economies. These funds constitute a substantial share of all resource funds, with most of them being established after 2010. There is, therefore, a significant disproportion between the number of savings funds, which have emerged in the last decade, and the number of studies dedicated to them, representing a significant research gap. Limited attention in research has also been given to investment resource funds, which also constitute an important and interesting direction for future research.

It is also worth noting that in the examined topic, in addition to the aspect of the importance of institutional quality and governance for the effectiveness of the resource fund, the issue of the reverse relationship is also addressed, namely the significance of fund activities for the level of institutional quality and governance. This perspective also represents a significant direction for future research, as it has received very little attention in the literature.

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