Poznań University of Economics and Business
Research Papers in Economics and Finance *Vol. 8, No. 1, 2024: 21–38*
https://ref.ue.poznan.pl *https://doi.org/10.18559/ref.2024.1.924*

How institutions are related to agriculture? Systematic literature review

Michał Barszczewski[1]

Abstract

In this paper, the author reviews the literature on institutions and their relations with agricultural economics. The aims of the article are to clarify the definition of an institution, indicate its relevance from the perspective of agricultural economics and propose a method of institution classification. Using the PRISMA method, 35 articles were selected out of 238 articles from the Web of Science database that met the established requirements (i.e. they were simultaneously related to institutions, economic performance and the agricultural sector). Based on the identified articles as well as the preliminary literature review it can be concluded that there is a lack of research that precisely defines institutions and examines the historical context at the same time. There are not many papers in which authors assess relations between institutions. Furthermore, authors rarely associate directly with any theory, especially with institutionalism or new institutional economics. That may be a pragmatic approach, but at the same time results are less comparable with other papers written in the same manner. The contribution made by this article is a synthetic presentation of the issue of institutions in agricultural economics and a classification of institutions, with an indication of which type of institutions will be viable when assessing the relations of institutions with the farming sector.

Keywords

- institutions
- systematic review
- agriculture
- economic performance
- farms

Article received 12 November 2023, accepted 19 April 2024.

Suggested citation: Barszczewski, M. (2024). How institutions are related to agriculture? Systematic literature review. *Research Papers in Economics and Finance*, *8*(1), 21–38. https://doi.org/10.18559/ref.2024.1.924

[1] Poznań University of Economics and Business, al. Niepodległości 10, 61-875 Poznań, Poland, Michal.Barszczewski@phd.ue.poznan.pl

Introduction

Even though agriculture has become almost marginal, at least in terms of the statistical perspective in modern Europe, it is still important for diversity and European identity (Wilkin, 2016). For example, the important role of agriculture in counteracting poverty is noted (Mellor, 2018). Agriculture is a sector that has been present in the economy since the beginning. More productive agriculture is responsible for the development of a country. The agricultural sector provides key goods for the survival of the population, while also employing many people (especially in less developed countries). Due to the dependence of production on land, which is a scarce and specific good that requires appropriate management (Marks-Bielska et al., 2017, p. 15), a key factor in agricultural development is technology through which productivity can be increased. Knowledge makes it possible for farmers to utilise the most recent technology. At the same time, knowledge is strongly dependent of institutions (Wójcik et al., 2019).

The following article is largely based on the tenets of new institutional economics (NEI), which was founded on institutionalism (Ratajczak, 2012). The object of studies of representatives of both NEI and institutionalism is primarily the concept of "institution".

It is reasonable to point to specific types of institutions together with the conditions for which a particular way of stratifying them has been adopted. Thus, one can distinguish between formal and informal institutions, institutions concerning the economic, social or political sphere, as well as institutions of free and restricted access.

Institutions are changing and evolving. The speed with which change proceeds varies according to the type of institution. As a rule, informal institutions change slower than formal institutions (Williamson, 2000).

Arbitrary and systematic review have been conducted. Compared to an arbitrary expert review, a systematic review maintains its greatest advantage – the transparency of the procedure and its repeatability (Wolski, 2017). The systematic review used the PRISMA method (Page et al., 2021) where applicable. As the method was originally developed for meta-analysis in the medical sciences, some steps, such as assessing the risk of bias, were omitted. Even without these steps, however, PRISMA can be used as a tool for conducting a systematic review of the economic sciences (Staniszewski & Matuszczak, 2023).

Within the framework of the present study, the aim was to create a methodological workshop through which it would be possible to classify institutions based on the authority of the main representatives of new institutional economics, institutionalism and the latest research in the subject).

The following specific objectives served to realise the above-mentioned goals:

- indicating how institutions are defined in the economic sciences, with an emphasis on new institutional economics
- presenting studies that point to the relevance of institutions in the agricultural sector and evaluating the authors' positions
- presenting a coherent view of institutions and proposing their classification.

The contribution of the article is the identification of the research gap in the literature on institutions in agricultural economics as well as the classification and identification of institutions based on the conclusions of the literature review. This will allow the reader to better understand what an institution is in economic sciences and how to identify it in economic research studies, especially in agricultural economics. That, in turn, will further develop research on institutions in economics.

1. Methodology

The systematic review using the PRISMA method proceeded as follows: regarding the eligibility criteria for the review, only already published scientific articles were considered. It was decided not to impose any temporal or spatial restrictions. As agricultural economics is qualified as a social science, the Social Sciences Citation Index (SSCI) was used to select the database from which the articles would be selected. SSCI is an index which allows for the selection of social science articles, available in the Web of Science database. Due to the wider scope of the selection, there was lower risk of missing a valuable article (the process is shown in Figure 1).

The source of information for this review was a query retrieved on 11.03.2023 from the Web of Science database. The query was formulated as follows: ALL = (AK(institution* AND ("agricultur* sector" OR "agricultur*" OR "farm*"))) OR ALL = (AP(institution* AND ('agricultur* sector' OR 'agricultur*' OR 'farm*'))). It was also decided to limit the study to papers published in English, as these have the greatest impact on the international research agenda. It was decided to select articles from the collection in which:

- institutions are the object of study and are used to explain differences in economic performance;
- issues in economics and finance are addressed;
- the scope of the paper is the agricultural sector, provided that crop growing or animal husbandry is addressed in the context of the agricultural sector.

Articles selected for further review had to meet all of the above conditions simultaneously. In the selection process, all titles, abstracts and full texts were checked by one reviewer and analysed in English. The entire selection process is

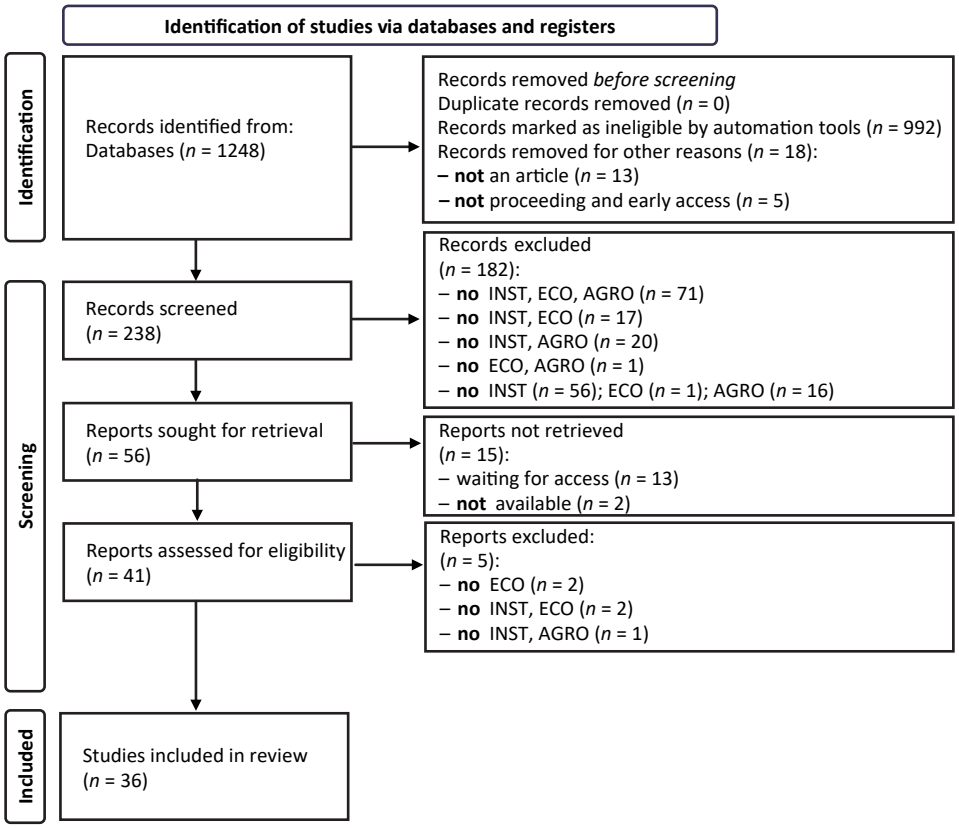

Figure 1. PRISMA flow diagram – selecting articles

Source: own elaboration based on the PRISMA systematic review of the Web of Science database.

shown in Figure 1. In the data collection process, the articles were categorised based on the expertise of the reviewer.

The first stage of the review conducted was the selection of the database from which the records would be extracted. Firstly, it was decided to rely on a single database due to potential technical difficulties in merging data (Kryszak et al., 2021). The Web of Science database was chosen, among other things, due to the prevalence of its use in systematic reviews of the literature on agricultural economics (Bathaei & Štreimikiene, 2023; Malapaneet al. 2022; Mizik, 2023; Poczta-Wajda & Sapa, 2021). As Malapane et al. (2022) point out, Web of Science is a highly reliable tool, giving access to a wide variety of scientific material, and is well suited to data-intensive, large-scale research.

After entering a query in the Web of Science database, 1248 records were obtained. Automatic article selection tools available in Web of Science were used. By considering only articles with the Social Sciences Citation Index (SSCI), 992 records

were eliminated. Subsequently, scientific papers that were not scientific articles (13 records) and articles that had not yet been officially published (5 records) were excluded from further study. As an outcome of the preliminary screening of abstracts (abstract screening) and the titles of the papers, 182 articles were rejected and 56 articles were provisionally accepted, if they met the requirements (i.e. they were about institutions, they fell within the subject matter of economics and finance, they were about the agricultural sector and agricultural production: crop cultivation, animal husbandry). Articles in which institutions were not the object of study and were not used to explain differences in economic performance (not INST), articles whose subject matter did not relate to economics and finance (not ECO), and those in which the agricultural sector was not the scope of the subject matter, including plant growing and animal husbandry (not AGRO), were rejected. Of the 238 articles, 71 did not meet any conditions, 17 were not about INST and ECO, 20 were not about INST and AGRO, and 1 was not about ECO and AGRO. In addition, 56 records were not including INST 1 did not consider ECO, and 16 neglected AGRO problematics.

After an initial review of the abstracts, the remaining articles were reviewed for full-text availability. It turned out that at the time of writing this paper, it was not possible to access 13 full texts. Steps were taken to access the full version of 13 out of 14 articles (for one record it was not possible to take these steps). As can be seen in Figure 1, 41 records were eventually included in the full-text analysis of the articles. After reviewing the full texts of the articles, it was decided to exclude 5 more articles, 2 of which did not address ECO, 2 did not address the issues of ECO and INST at the same time, and 1 article was not about INST and AGRO. Thus, the 36 selected articles are further analysed in this subsection.

As a supplement to the systematic literature review, a supporting literature review based on the Google Scholar and Scopus databases was conducted. Newer, frequently cited articles (published after 2010) and review articles (published after or before 2010) were selected to compare its conclusions with the systematic literature review. The conclusions from the supplementary literature review were coherent with the systematic literature review. Keywords for Google Scholar and Scopus were: agricultur* AND institution* OR farm*.

2. Literature review

Institutionalism took shape in the United States in the second half of the 19th century. Representatives of this economic school were the first to begin to study and define the institution and to recognise its crucial importance for the econom-

ic system. They relied on a holistic, interdisciplinary approach to economic issues (Stankiewicz, 2004, pp. 15–25). New institutional economics derives partly from institutionalism. It sets itself the task of answering the questions of what determines the emergence of specific institutions and what impact do they have on the economic performance of economic agents (Alston, 2018). Economic performance can be seen as the total labour input, the real income of factors in agriculture per annual labour unit, and the gross value added of the agricultural industry and animal production (Rađenović et al., 2022, p. 6).

An institution, according to Hodgson (2006), is a system of established and universal social rules that shape social interactions. Language, money, law, the system of weights and measures, as well as savoir vivre, are all institutions (Hodgson, 2006, p. 2). In this article, interpretation of the perception of institutions based primarily on the definitions proposed by representatives of the new institutional economics and by Hodgson, has been implemented. Thus, institutions are defined as established and widespread rules of conduct in a given community that shape interpersonal relations and social interactions (including organisations). Furthermore, institutions influence transaction costs, which may contribute to better or worse economic performance.

North (1991) points out the division of institutions into formal institutions, i.e. norms resulting from rules written in the law, and informal institutions, occurring as certain unwritten, community-established norms of behaviour (p. 97). Supplementing the conceptual apparatus regarding institutions in addition to the distinction between informal and formal ones (North, 1991; Ostrom, 2008), it is important to point out an additional division suggested, among others, by North together with Wallis and Weingast (2009, p. 56). They specify two types of institutions: institutions that restrict access to economic surplus and political life as well as inclusive institutions that provide actors with equal opportunities (North et al., 2009). Based on North's (1990) definition, three types of institutions can be further distinguished by their sphere of influence. These are economic, political and social institutions. For this paper, however, it was decided to include a third type of institutions, i.e. social institutions, as initially outlined by North (1990). Economic institutions determine the availability of community members to conduct business and take advantage of business opportunities (Mousseau, 2023, p. 119). Political institutions influence the "rules of the game" in which political decision-makers, those responsible for legislating and making policy, are participants (Besley & Persson, 2018). Social institutions are social practices established through norms that determine the status and conduct of actors who are part of a community (Tuomela, 2003). In this article, the author suggests viewing a social institution as the most general concept, which includes political and economic institutions. Furthermore, there may be purely social institutions, when they do not concern the economic or political sphere. Culture and social capital can also

be included in this set due to their specificity. Culture is a level of trust in others, a marker of status in society, beliefs about the appropriate trade-off between efficiency and fairness or established roles for men and women (Fernández, 2018). Social capital is a person's network of social ties (social bonds), providing access, mobilisation and use of the material and immaterial resources accumulated in the network, which enable and/or facilitate the realisation of specific economic goals (Sławecki, 2009, p. 59).

Very helpful in understanding the phenomenon of evolution and institutional change is the model proposed by Williamson (2000). Williamson presents four levels of analysis of social phenomena: at level one, change occurs very slowly (100 to 1000 years), at level two it occurs more rapidly (10 to 100 years), at levels three and four change occurs relatively rapidly (1 to 10 years) and continuously. At the same time, the first level is informal institutions, customs, traditions and religious norms. The second level is formal rules. Level three concerns governments and level four is about incentives for changes in the market and allocation of resources.

North (1991) indicates that economic change is path-dependent. He assesses that path persistence is more than an evolutionary process. He points out that the largest players may capture surpluses for themselves, with no incentive to do so to support development (North, 1991). In many publications regarding the topic of 'institutional change', Acemoglu (along with other researchers) developed North's insights. In their later work, Acemoglu et al. (2021) point to the continuing inability to explain the mechanisms involved in this phenomenon. Nevertheless, a situation of "institutional stagnation" has been recognised as an extreme, model example of institutional sustainability. This is a situation in which institutions do not change at all.

Agricultural economics emerged from a combination of company theory as well as marketing and organisation theory in the 19th century. In the 20th century, it developed into an empirical branch of economics. From the 1960s onwards, agricultural economics also began to address issues such as the development of poor countries, trade and the effects of government-led macroeconomic policies in wealthy countries. In later years, issues of production, consumption, environmental protection or natural resources also began to be studied within agricultural economics (Runge, 2018).

In the supporting literature review, the authors present which components of the agricultural sector institutions affect the factors of production.

In the supporting (non-systematic) review of the Scopus database, 22 articles on the relevance of institutions in agricultural economics were analysed. Three articles dealt with the impact of institutions on economic performance, and the content of 2 articles dealt with the relevance of institutions in trade. The link between institutions and economic performance was seen in the largest number of articles, 6 out of 22 examined. In 2 articles, the occurrence of specific institutions

was linked to the amount of transaction costs, also in 2 articles the role of institutions in stimulating innovation in the agricultural sector was highlighted. The relevance of institutions from an agricultural policy perspective was demonstrated in 4 articles. A potential relationship between institutions and the availability of capital was noted in 3 articles. Given that the articles from the Scopus database review largely focused on developing countries, the contribution of productivity, agricultural policy effectiveness, economic performance or capital availability as important characteristics of the agricultural sector that should be influenced by institutions was not surprising. Developing countries are in the early stages of economic transition and base their system primarily on the agricultural sector (Mellor, 2018). At the same time, the agricultural sector absorbs a significant share of the means of production in these countries. By increasing productivity/efficiency, it is possible to achieve economic results at a lower cost and free up the means of production with the possibility to develop other sectors of the economy.

Both articles from Google Scholar and the Scopus supporting literature review recognise the relevance of state policy and its effectiveness, as well as the importance of innovation. Summing up, the topic of institutions as an important factor influencing the agricultural system remains topical, which is reflected in scientific literature. Depending on the specifics of the studied region, researchers are interested in other spheres of influence of institutions. At the same time, however, it is possible to notice serious problems in articles which deal with institutions: often the institution is not defined, and the definitions presented in various articles differ significantly. In the following section, the aim is to conduct a systematic literature review to further investigate this problem.

3. Results and discussion

In the systematic review of literature, thirty-six articles were examined. The topic of institutions in the context of their impact on farm economic performance appeared to be the most widely used in developing countries. The largest number of records comes from the Middle East and India (12): these are largely case studies, evaluating the effectiveness of policies in place and forecasting the effectiveness of solutions planned for the future. There are also a number of articles on Africa (9). A few articles were devoted to Europe (4). Same number were considereing South America continent (4).. In addition, 3 articles covered the Far East and China region. The fewest articles were either not related to any specific country or region (2) or concerned North America (1). Thus, as can be seen, only 5 articles out of 33 (not counting articles of a general nature) relate to regions

where developed countries predominate. The final selected set of articles was used to create a list of institutions influencing economic performance (Figure 2) in the agricultural sector and allowed comparison with the typology of institutions suggested in the preliminary literature review.

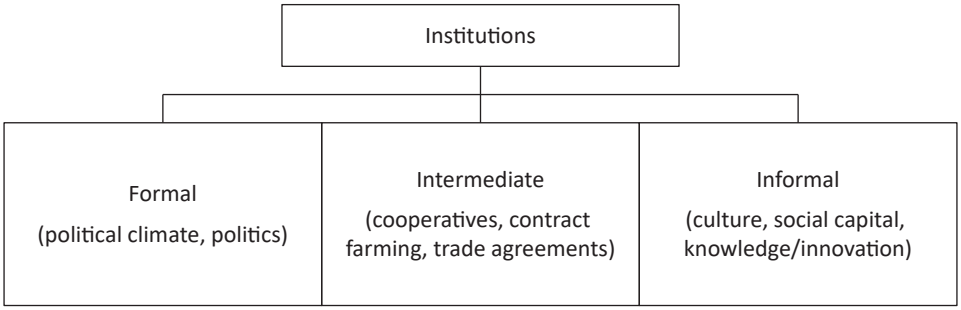

Figure 2. Proposed classification of institutions

Source: own compilation based on a comprehensive literature review.

Due to the emergence of institutions whose classification did not fully correspond either to formal or informal institutions (for example, producer organisations or formally concluded contracts), it was decided to create a cluster called "intermediate institutions". Intermediate institutions are characterised by being under state regulation, but at the same time free to contract. For instance, a producer group can be seen as a formal as well as an informal institution at the same time (Dal Belo Leite et al., 2014).

While a large proportion of articles focus on only one category (about 77%), there is also a noticeable proportion of articles that examine both formal and informal institutions or institutions of an intermediate nature (about 23%).

When comparing the institutions examined in the systematic review with the typology of institutions from the supporting review, it was noted that the manner of classification coincides with the conclusions of the PRISMA review to a large extent. Nevertheless, after a synthesis of conclusions of both reviews, doubts were raised in the context of formal institutions, in particular concerning active state interventions in the economic sector. The term "economic policy" has been suggested for such state activities, which would allow similar formal institutions to be harmonised. It is also more specific than just "policy". Another term that, in the author's opinion, better reflects the political reality along with the changes taking place in the system is the concept of "political climate". This term combines certain cyclical changes in the context of the power system. In the end, it was decided to simplify and at the same time complete the division of institutions. It was decided to have a maximum of 3 levels, simultaneously limiting the examples to the key ones. Figure 2 shows the categories of institutions distinguished by the authors.

The potential impact of the system of government in which the community operates on the agricultural sector was widely indicated in the works used in the review. Reference was made to how elections are conducted (Klomp & de Haan, 2013), as well as to political stability (Ebanyat et al., 2010), democracy and institutional quality (Fosu, 2013). The problem has also been looked at from a regional perspective, examining the local governance habits of the population (Ng'ang'a et al., 2016). The established legal system and functioning organisations of the state were identified as important for the sustainability of aquaculture food production (Manlosa et al., 2021). The important role of the power system was also pointed out by Baker et al. (2018). The paper notes that it is crucial to reconcile local institutions with those of the state; government programs can assist in this.

The papers also attempted to distinguish explanatory variables in terms of variously understood farm characteristics and to test a separate model in each case. In their study, Falconnier et al. (2015) separated farms in terms of how resource-rich they were (poor, moderate, rich), but also separated farms that were rich in resources and at the same time had large animal herds. A similar division that took into account only the attractiveness of the resources held was made by Kumar et al. (2017). The authors separated the following classes under the land class category: marginal, small, medium and large. In terms of their role in the market, Manjunatha et al. (2016) identified sellers, buyers and farmers who do not participate in the groundwater trading market. Another interesting breakdown is the identification of farms that entered into varying numbers of trading arrangements with foreign companies (Rambe & Agbotame, 2018). Among cacao farmers, Hernández-Núñez et al. (2022) distinguished between those who have been primarily engaged in it for years (cacao farmers), those who treat cacao cultivation as one of their sources of income (diversified farmers with cacao), and those who are entering the market and looking for opportunities to invest in cacao cultivation (new cacao farmers). Due to their different motivations and business practices, these farmers were characterised by different economic outcomes. Sinha et al. (2021) indicate business size in terms of land ownership. They list the following groups of farms: marginal, small, medium, medium-large and large.

Local traditions, culture or religion are among the potentially important factors influencing the agricultural sector. This issue is addressed in the work of Kumar et al. (2017), among others, where they serve as control variables. Ng'ang'a et al. (2016) point to the local governance system known as the "Gada system", where its quality and how much it protects property rights, among others, are important. Mishra et al. (2018a) address the distinctive Indian cultural problem of castes and tribes and their impact on economic performance. Informal institutions such as culture, social roles and tradition are key to explaining water savings in a sociological paper by Oberkircher and Hornidge (2011). Gil et al. (2016) point out that the ability to adopt an innovative cropping system is influenced by culture as well as

historically established norms of behaviour, a certain enduring pattern. Tradition is also appealed to by the proponents of often dysfunctional farming systems (Pinto-Correia et al., 2019). The customs of local people can hinder policy-making if it is inconsistent with such traditions (Baker et al., 2018).

It is also worth pointing out the important role attributed to intervention and state policy in the articles indicated. A beneficial effect of state intervention with a distress relief effect (COVID-19) on farm inputs is observed (Varshney et al., 2021). State programs such as the Farmer FIRST Programme can also contribute to increased productivity and better economic performance (Venkatesan et al., 2023). Programs that allow purchases with subsidies lead to both higher inputs and economic performance (Oldekop et al., 2015). Institutional reforms of market price controls, properly carried out, allow the price of a product (in this case cocoa) to stabilise as a result of changes in its production. The authors point out that this is not absolutely to the advantage in every case (Quarmine et al., 2014). In his theoretical reflections, Barnes (2016) notes that state interventions like food policy can allow for a shift in "production frontiers", i.e. increase production potential. Technical support to farmers offered by the state (extension services) is commonly identified as one of the important factors influencing the agricultural sector (Ayuya et al., 2015; Ebanyat et al., 2010; Manjunatha et al., 2016; Mishra et al., 2018a, 2018b). In addition, Ayuya et al. (2015) point to the potential of certified organic agricultural production to counter poverty, which can be facilitated by state intervention.

Ownership issues have also been highlighted as a potentially important explanatory variable for differences in the characteristics of the agricultural sector. Oldekop et al. (2015) made a distinction between landlords, tenants and renters and indicated that there are important differences in the characteristics of these three types of tenure, which may translate into, for example, economic performance. Security of land tenure has been identified as one of the potential explanatory variables for crop productivity (Ebanyat et al., 2010) but also potential for adaptation (Ng'ang'a et al., 2016). Similarly, land tenure status may influence the potential to adapt innovative solutions (Gil et al., 2016). The very fact of land ownership was considered in Barnes et al.'s (2015) research on long-term and short-term efficiency.

Another important aspect explored in the work was the interconnectedness between actors, the motivation to cooperate, and mutual trust, which can be collectively referred to as "social capital". Different ways of contracting with each other can lead to higher or lower transaction costs (Dissa et al., 2022). Again, the work of Ng'ang'a et al. (2016) points to social capital as a driver of adaptation. Participation in social networks itself has a similar impact (Gil et al., 2016). Dependence on society, but also the possibility of receiving help from loved ones, can have a positive impact on farm profit (Kiani et al., 2021). Social capital, in addition to synergies with other capitals (e.g. cultural, human or political), can positively affect cocoa

production levels (Hernández-Núñez et al., 2022). Trust plays important role for the emergence of beneficial organic farms (Deka & Goswami, 2022). Ayuya et al. (2015) further add to this claim the important role of social capital. In the context of government policy effectiveness, as indicated earlier, it is worth pointing out the synergies: a trusted source of information for the farmer, the convergence of recognised norms of behaviour and social pressure – participation in the government program (Daxini et al., 2019).

Cooperatives are the result of "good" social capital and high trust, so the risks of cooperation are minimal and the benefits are high. A concept at the intersection of the two is "civic society" seen as in the article by Manlos et al. (2021). It consists of farmers' self-organisation and sharing of capital, but also inter-organisational and social connections (networks). They include resource and factor sharing as a control variable (e.g. Kumar et al., 2017; Mishra et al., 2018a). Cooperatives can have a significant impact on transaction costs (Dissa et al., 2022). Value creation on small farms can be significantly influenced by cooperatives (Prosperi et al., 2023). When we consider forms of goal-oriented organisations of farmers, their self-organisation, e.g. in the form of cooperatives, will maximise the benefits of such activities (Sinha et al., 2021).

The relevance of access to capital in the agricultural sector was also widely discussed (Chandio et al., 2020; Gil et al., 2016; Kumar et al., 2017; Mishra et al., 2018a). Contractual arrangements between the farmer and the institution were identified as a potentially beneficial way of entering into commercial arrangements for the agricultural sector (Mishra et al., 2018a, 2018b; Sinha et al., 2021).

Conclusions

An important conclusion of the review is that these classifications do not contradict each other but complement one another's information about the institution. By categorising them in this way, it is not only possible to forecast in what time frame real institutional change will be possible, but also to diagnose in which social aspect the institution is embedded.

When appraising a particular institution, the author suggests the following approach:

1. Classification of institutions based on the criterion of formality (formal/informal/intermediate) (cf. Dal Belo Leite et al., 2014; North, 1991; Ostrom, 2008).
2. Classification of institutions on the basis of the criterion of the sphere of impact (social/economic/political) (cf. Besley & Persson, 2018; Mousseau, 2023, p. 119; North, 1990; Tuomela, 2003).

3. Classification of institutions based on the criterion of the level of analysis of social phenomena (level 1, 2, 3, 4) (cf. Williamson, 2000).
4. Classification of institutions according to the criterion of restricting access (restrictive, inclusive) (cf. North et al., 2009, p. 56). Informal and formal institutions are not independent arrangements from each other, they co-exist and interact with each other. This finding is in line with the literature on the subject, which furthermore points to the greater relevance of informal institutions to which, among other things, policies (formal institutions) should be aligned (Baker et al., 2018; Kiani et al., 2021; Uzuegbunam & Geringer, 2021; van Hecken et al., 2019). In turn, this justifies considering them in a single model when examining their potential impact on the agricultural sector. This allows for taking into account the relationship between informal and formal institutions. It also reduces the risk of omitting important variables from the model. Moreover, it should be taken into account that institutions exist in a certain configuration (van Hecken et al., 2019), which depends on historical factors (Manlosa et al., 2021; Ünal, 2018).

The issue of digitalisation and virtual functioning of institutions has not been mentioned directly in the analysed articles. It may have been an issue of keywords and topic restrictions in the systematic review. Nonetheless, the issue has been indirectly included by some of the authors. For example, Ayuya et al. (2015), Ng'ang'a et al. (2016), Mishra et al. (2018b) included phones as an important factor in acquiring information, thus – knowledge. Deka and Goswami (2022) pointed out that online global retailers offer better control over marketing than the conventional method of selling tea; social media makes it easier to exchange knowledge and share information with other tea smallholders. The importance of mass media (radio, television, newspapers and the Internet) has appeared as the most important source of information in case of credit borrowers – agricultural households in India (Kumar et al., 2017). Thus, the issue of digitalisation and virtual functioning of institutions may be a promising area of future research as it appears to be relevant in modern agriculture.

References

Acemoglu, D., Egorov, G., & Sonin, K. (2021). Institutional change and institutional persistence. In: Bisin, A., & Federico, G. (Eds.), *The handbook of historical economics* (pp. 365–389). Academic Press.

Alston, L. J. (2018). New institutional economics. In: *The new Palgrave dictionary of economics* (pp. 9484–9493). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_2468

Ayuya, O. I., Gido, E. O., Bett, H. K., Lagat, J. K., Kahi, A. K., & Bauer, S. (2015). Effect of certified organic production systems on poverty among smallholder farmers: Empirical evidence from Kenya. *World Development*, *67*, 27–37. https://doi.org/10.1016/j.worlddev.2014.10.005

Baker, D. M., Murray, G., & Agyare, A. K. (2018). Governance and the making and breaking of social-ecological traps. *Ecology and Society*, *23*(1), 38. https://doi.org/10.5751/ES-09992-230138

Barnes, A. P., Hansson, H., Manevska-Tasevska, G., Shrestha, S. S., & Thomson, S. G. (2015). The influence of diversification on long-term viability of the agricultural sector. *Land Use Policy*, *49*, 404–412. https://doi.org/10.1016/j.landusepol.2015.08.023

Barnes, A. P. (2016). Can't get there from here: attainable distance, sustainable intensification and full-scale technical potential. *Regional Environmental Change*, *16*(8), 2269–2278. https://doi.org/10.1007/s10113-015-0916-9

Bathaei, A., & Štreimikiene, D. (2023). A Systematic review of agricultural sustainability indicators. *Agriculture*, *13*(2), 241. https://doi.org/10.3390/agriculture13020241

Besley, T., & Persson, T. (2018). Political institutions, economic approaches to. In: *The new Palgrave dictionary of economics* (pp. 10440–10446). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_2096

Chandio, A. A., Jiang, Y., Rauf, A., Ahmad, F., Amin, W., & Shehzad, K. (2020). Assessment of formal credit and climate change impact on agricultural production in Pakistan: A time series ARDL modeling approach. *Sustainability*, *12*(13). 5241. https://doi.org/10.3390/su12135241

Dal Belo Leite, J. G., Bijman, J., van Ittersum, M. K., & Slingerland, M. (2014). Producer organizations, family farms and market connection: Lessons for emerging biodiesel supply chains in Brazil. *Outlook on Agriculture*, *43*(2), 101–108. https://doi.org/10.5367/oa.2014.0159

Daxini, A., Ryan, M., O'Donoghue, C., & Barnes, A. P. (2019). Understanding farmers' intentions to follow a nutrient management plan using the theory of planned behaviour. *Land Use Policy*, *85*, 428–437. https://doi.org/10.1016/j.landusepol.2019.04.002

Deka, N., & Goswami, K. (2022). Organic cultivation and sustainable value chain development for tea smallholders: Findings from Assam, India. *Sustainable Production and Consumption*, *32*, 562–579. https://doi.org/10.1016/j.spc.2022.05.004

Dissa, A., Bijman, J., Slingerland, M., Sanogo, O. M., Giller, K. E., & Descheemaeker, K. (2022). Growing cotton to produce food: Unravelling interactions between value chains in southern Mali. *Development Policy Review*, *40*(5), 1–18. https://doi.org/10.1111/dpr.12605

Ebanyat, P., de Ridder, N., de Jager, A., Delve, R. J., Bekunda, M. A., & Giller, K. E. (2010). Drivers of land use change and household determinants of sustainability in smallholder farming systems of Eastern Uganda. *Population and Environment*, *31*(6), 474–506. https://doi.org/10.1007/s11111-010-0104-2

Falconnier, G. N., Descheemaeker, K., van Mourik, T. A., Sanogo, O. M., & Giller, K. E. (2015). Understanding farm trajectories and development pathways: Two decades of change in southern Mali. *Agricultural Systems*, *139*, 210–222. https://doi.org/10.1016/j.agsy.2015.07.005

Fernández, R. (2018). Culture and economics. In: *The new Palgrave dictionary of economics* (pp. 2514–2523). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_2192

Fosu, A. K. (2013). Institutions and African economies: An overview. *Journal of African Economies*, *22*(4), 491–498. https://doi.org/10.1093/jae/ejt016

Gil, J. D. B., Garrett, R., & Berger, T. (2016). Determinants of crop-livestock integration in Brazil: Evidence from the household and regional levels. *Land Use Policy*, *59*, 557–568. https://doi.org/10.1016/j.landusepol.2016.09.022

Hernández-Núñez, H. E., Gutiérrez-Montes, I., Bernal-Núñez, A. P., Gutiérrez-García, G. A., Suárez, J. C., Casanoves, F., & Flora, C. B. (2022). Cacao cultivation as a livelihood strategy: Contributions to the well-being of Colombian rural households. *Agriculture and Human Values*, *39*, 201–216. https://doi.org/10.1007/s10460-021-10240-y

Hodgson, G., (2006), What are institutions?, *Journal of Economic Issues*, 40(1), 1–25.

Kiani, A. K., Sardar, A., Khan, W. U., He, Y., Bilgic, A., Kuslu, Y., & Raja, M. A. Z. (2021). Role of agricultural diversification in improving resilience to climate change: An empirical analysis with gaussian paradigm. *Sustainability*, *13*(17). 9539. https://doi.org/10.3390/su13179539

Klomp, J., & de Haan, J. (2013). Conditional election and partisan cycles in government support to the agricultural sector: An empirical analysis. *American Journal of Agricultural Economics*, *95*(4), 793–818. https://doi.org/10.1093/ajae/aat007

Kryszak, Ł., Świerczyńska, K., & Staniszewski, J. (2021). Measuring total factor productivity in agriculture: A bibliometric review. *International Journal of Emerging Markets*, *18*(1), 148–172. https://doi.org/10.1108/IJOEM-04-2020-0428

Kumar, A., Mishra, A. K., Saroj, S., Joshi, P. K., & Carey, W. P. (2017). *Institutional versus non-institutional credit to agricultural households in India. Evidence on impact from a national farmers' survey.* IFPRI Discussion Paper, 01614. https://ebrary.ifpri.org/digital/collection/p15738coll2/id/131084/

Malapane, O. L., Musakwa, W., Chanza, N., & Radinger-Peer, V. (2022). Bibliometric analysis and systematic review of indigenous knowledge from a comparative African perspective: 1990–2020. *Land*, *11*(8), 1167. https://doi.org/10.3390/land11081167

Manjunatha, A. V., Speelman, S., Aravindakshan, S., Amjath, A. B., & Mal, P. (2016). Impact of informal groundwater markets on efficiency of irrigated farms in India: A bootstrap data envelopment analysis approach. *Irrigation Science*, *34*(1), 41–52. https://doi.org/10.1007/s00271-015-0485-1

Manlosa, A. O., Hornidge, A. K., & Schlüter, A. (2021). Institutions and institutional changes: Aquatic food production in Central Luzon, Philippines. *Regional Environmental Change*, *21*(4), 1–14. https://doi.org/10.1007/s10113-021-01853-4

Marks-Bielska, R., Kisiel, R., & Lizińska, W. (2017). Uwarunkowania polityki polskiego rządu odnośnie rynku ziemi rolniczej w kontekście zakończenia okresu przejściowego nabywania nieruchomości rolnych przez cudzoziemców. *Problemy Drobnych Gospodarstw Rolnych*, *3*, 15–27. https://pdgr.urk.edu.pl/zasoby/98/2017_z3_a02.pdf

Mellor, J. W. (2018). Agriculture and economic development. In: *The new Palgrave dictionary of economics* (pp. 215–222). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_331

Mousseau, D. (2023). The impact of economic institutions on government policy: Does contract-intensive economy promote impartial governance? *Journal of Institutional Economics*, *19*(1), 119–136. https://doi.org/10.1017/S1744137422000248

Mishra, A. K., Kumar, A., Joshi, P. K., & D'Souza, A. (2018a). Production risks, risk preference and contract farming: Impact on food security in India. *Applied Economic Perspectives and Policy*, *40*(3), 353–378. https://doi.org/10.1093/AEPP/PPY017

Mishra, A. K., Shaik, S., Khanal, A. R., & Bairagi, S. (2018b). Contract farming and technical efficiency: Evidence from low-value and high-value crops in Nepal. *Agribusiness*, *34*(2), 426–440. https://doi.org/10.1002/agr.21533

Mizik, T. (2023). How can precision farming work on a small scale? A systematic literature review. *Precision Agric*, *24*, 384–406. https://doi.org/10.1007/s11119-022-09934-y

North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge University Press. https://doi.org/10.1017/CBO9780511808678

North, D. C. (1991). Institutions. *Journal of Economic Perspectives*, *5*(1), 97–112. https://doi.org/10.1257/jep.5.1.97

North, D. C., Wallis, J. J., & Weingast, B. R. (2009). Violence and the rise of open-access orders. *Journal of Democracy*, *20*(1), 55–68. https://doi.org/10.1353/jod.0.0060

Ng'ang'a, S. K., van Wijk, M. T., Rufino, M. C., & Giller, K. E. (2016). Adaptation of agriculture to climate change in semi-arid Borena, Ethiopia. *Regional Environmental Change*, *16*(8), 2317–2330. https://doi.org/10.1007/s10113-016-0940-4

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, A. E., Brennan, A. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Manoj, M., Li, T., Loder, E. W., Mayo-Wilson, E., … & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Prosperi, P., Galli, F., Moreno-Pérez, O. M., Chiffoleau, Y., Grando, S., Karanikolas, P., ... & Brunori, G. (2023). Disentangling the diversity of small farm business models in Euro-Mediterranean contexts: A resilience perspective. *Sociologia Ruralis*, *63*(1), 89–116. https://doi.org/10.1111/soru.12407

Poczta-Wajda, A., & Sapa, A. (2021). Food security in new European Union member states – a systematic literature review approach. *Annals of the Polish Association of Agricultural and Agribusiness Economists*, 23(3), 77–86.

Rađenović, Ž., Krstić, B., & Marković, M. (2022). Economic performance of agriculture in the European Union countries / Wyniki ekonomiczne w rolnictwie w krajach Unii Europejskiej. *Zagadnienia Ekonomiki Rolnej / Problems of Agricultural Economics*, *370*(1), 5–21. https://doi.org/10.30858/zer/145686

Ratajczak, M., (2012), Ekonomia instytucjonalna i jej współczesny podział. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Współczesne Problemy Ekonomiczne. Globalizacja. Liberalizacja. Etyka*, *750*(4), 93–101.

Runge, C. F. (2018). Agricultural Economics. In: *The new Palgrave dictionary of economics* (pp. 170–182). Palgrave Macmillan. https://doi.org/10.1057/978-1-349-95189-5_655

Sławecki, B. (2009). *Rola kapitału społecznego w zatrudnianiu pracowników w mikroprzedsiębiorstwach województwa wielkopolskiego* [unpublished doctoral dissertation]. Uniwersytet Ekonomiczny w Poznaniu.

Staniszewski, J., & Matuszczak, A. (2023). Environmentally adjusted analysis of agricultural efficiency: A systematic literature review of frontier approaches / Analiza skorygowanej środowiskowo efektywności rolnictwa–systematyczny przegląd literatury wykorzystującej podejście graniczne. *Zagadnienia Ekonomiki Rolnej / Problems of Agricultural Economics*, *374*(1), 20–41. https://doi.org/10.30858/zer/162644

Stankiewicz, W. (2004). *Ekonomika instytucjonalna. Narodziny i rozwój*. Wydawnictwo Biura Badań Strategicznych Prywatnej Szkoły Businessu i Administracji.

Oberkircher, L., & Hornidge, A. K. (2011). "Water Is Life" – farmer rationales and water saving in Khorezm, Uzbekistan: A lifeworld analysis. *Rural Sociology*, *76*(3), 394–421. https://doi.org/10.1111/j.1549-0831.2011.00054.x

Oldekop, J. A., Chappell, M. J., Peixoto, F. E. B., Paglia, A. P., do Prado Rodrigues, M. S., & Evans, K. L. (2015). Linking Brazil's food security policies to agricultural change. *Food Security*, *7*(4), 779–793. https://doi.org/10.1007/s12571-015-0475-4

Ostrom, E. (2008), Institutions and the environment. *Economic Affairs*, *28*(3), 24–31. https://doi.org/10.1111/j.1468-0270.2008.00840.x

Pinto-Correia, T., Muñoz-Rojas, J., Thorsøe, M. H., & Noe, E. B. (2019). Governance discourses reflecting tensions in a multifunctional land use system in decay; Tradition versus modernity in the Portuguese Montado. *Sustainability*, *11*(12), 3363. https://doi.org/10.3390/su11123363

Rambe, P., & Agbotame, L. A. K. (2018). Influence of foreign alliances on the performance of small-scale agricultural businesses in South Africa: A new institutional economics perspective. *South African Journal of Economic and Management Sciences*, *21*(1). a2011. https://doi.org/10.4102/sajems.v21i1.2011

Tuomela, R. (2003). Collective acceptance, social institutions, and social reality. *American Journal of Economics and Sociology*, *62*(1), 123–165.

Quarmine, W., Haagsma, R., van Huis, A., Sakyi-Dawson, O., Obeng-Ofori, D., & Asante, F. A. (2014). Did the price-related reforms in Ghana's cocoa sector favour farmers? *International Journal of Agricultural Sustainability*, *12*(3), 248–262. https://doi.org/10.1080/14735903.2014.909639

Uzuegbunam, I., & Geringer, J. (2021). Culture, connectedness, and international adoption of disruptive innovation. *Journal of International Management*, *27*(1), 1–23. https://doi.org/10.1016/j.intman.2020.100807

Ünal, E. (2018). An institutional approach and input–output analysis for explaining the transformation of the Turkish economy. *Journal of Economic Structures*, *7*, 1–38. https://doi.org/10.1186/s40008-017-0101-z

Varshney, D., Kumar, A., Mishra, A. K., Rashid, S., & Joshi, P. K. (2021). India's COVID-19 social assistance package and its impact on the agriculture sector. *Agricultural Systems*, *189*. 103049. https://doi.org/10.1016/j.agsy.2021.103049

Van Hecken, G., Merlet, P., Lindtner, M., & Bastiaensen, J. (2019). Can financial incentives change farmers' motivations? An agrarian system approach to development pathways at the Nicaraguan agricultural frontier. *Ecological Economics*, *156*, 519–529. https://doi.org/10.1016/j.ecolecon.2016.12.030

Venkatesan, P., Sivaramane, N., Sontakki, B. S., Rao, C. S., Chahal, V. P., Singh, A. K., Sivakumar, P. S., Seetharaman, P., & Kalyani, B. (2023). Aligning agricultural research

and extension for sustainable development goals in India: A case of Farmer FIRST Programme. *Sustainability*, *15*(3), 2463. https://doi.org/10.3390/su15032463

Sinha, A. A., Behera, H. C., Behura, A. K., & Swain, B. B. (2021). Land allocation choice in both contract and non-contract farming: A study of potato growers in West Bengal, India. *Sage Open*, *11*(3). https://doi.org/10.1177/21582440211047593

Wilkin, J. (2016). *Instytucjonalne i kulturowe podstawy gospodarowania. Humanistyczna perspektywa ekonomii*. Wydawnictwo Naukowe Scholar.

Williamson, O. E. (2000). The new institutional economics: taking stock, looking ahead. *Journal of Economic Literature*, *38*(3), 595–613.

Wolski, O. (2017). Zastosowanie systematycznego przeglądu literatury w badaniach geograficznych na przykładzie studiów nad odnową wsi. *Słupskie Prace Geograficzne*, *14*, 223–240.

Wójcik, M., Jeziorska-Biel, P., & Czapiewski, K. (2019). Between words: A generational discussion about farming knowledge sources. *Journal of Rural Studies*, *67*, 130–141.