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Research Article

Agricultural marketing in Pakistan: A bibliometric analysis

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ABSTRACT

For the last decade, agricultural marketing has been becoming tremendously more discussable in the food industry in Pakistan. Agriculture is directly or indirectly linked with the backbone of Pakistan's economy. This paper plans to highlight the extensive literature present on agricultural marketing. A bibliometric review method was applied for this purpose. Scopus database we retrieved for bibliometric data analysis under th PRISMA guidelines. The bibliometric data was examined twice in order to address research issues. Firstly, a science mapping study was conducted to investigate the conceptual structure of the research, later, a performance analysis was conducted to illustrate the publication patterns. The data was filtered through these keywords: "Markeing, agricultural marketing, Agriculture, Pakistan ". The results of current research suggested that agriculture marketing has been facing a plethora of challenges since ages in Pakistan. Agriculture requires a proper marketing system in Pakistan especially in terms of finances, investments, and implementation of strategies. As it is a vital sector of Pakistan's economy and, is a precious tool for economic development, furthermore , all other sectors depend on this sector. A well-organized backward and forward agricultural integration will lead Pakistan toward global competition. The agricultural system in Pakistan can become stable through accurate and superior management policies and value-added processing activities. This study takes out previous and present summaries of agricultural marketing in Pakistan.Moreover, Critical challenges and future recommendations for agricultural marketing are also explained.

Keywords: Agricultural Marketing, Marketing, Agriculture, Pakistan, Sustainable, Bibliometric analysis

INTRODUCTION

Agricultural marketing in Pakistan holds immense significance due to its critical role in the country's economy and the livelihoods of millions of people. Pakistan's economy heavily relies on agriculture, with a significant portion of the population engaged in farming activities (Rehman et al., 2015).

Effective agricultural marketing ensures that farmers receive fair prices for their produce, improving their income levels and reducing poverty in rural areas. Agricultural marketing channels contribute to the efficient distribution of food products, ensuring food security for the growing population. Furthermore, agricultural marketing is crucial in promoting economic growth and development by enhancing the agricultural sector's competitiveness. Through efficient marketing practices, Pakistan can increase its agricultural exports, thereby earning foreign exchange and improving the country's balance of trade (Nasir & Subhan, 2020). Additionally, investments in agricultural marketing infrastructure, such as transportation networks, storage facilities, and market information systems, can stimulate rural development and improve living standards in agricultural communities. Agricultural marketing in Pakistan is essential for addressing global challenges such as food insecurity and climate change.

By implementing sustainable agricultural marketing practices, Pakistan can contribute to environmental conservation and mitigate the adverse effects of climate change on agricultural production. Furthermore, efficient marketing systems can ensure the availability of nutritious food products, thereby, improving public health outcomes and contributing to overall societal well-being. Agricultural marketing involves the processes, channels, and services moving agricultural products from producers to consumers (Saha et al., 2023). With agriculture being the backbone of Pakistan's economy, understanding the dynamics of agricultural marketing is crucial for ensuring the sector's sustainability and growth. The agricultural marketing system comprises various stakeholders, including farmers, traders, wholesalers, retailers, and government agencies. Producers, or farmers, are central to the agricultural marketing system, as they cultivate various food items for self-consumption and sale in domestic and international markets (Blandon et al., 2009).

Agricultural marketing in Pakistan faces numerous challenges that hinder its efficiency and effectiveness, impacting the livelihoods of millions of farmers and the country's overall economic growth. The sector faces inadequate infrastructure, limited access to market information, post-harvest losses, and fragmented supply chains (Blandon et al., 2009). These challenges limit farmers' income potential and contribute to food insecurity and economic instability. To enhance agricultural marketing, there is a need for greater collaboration between farmers, government agencies, input suppliers, traders, and retailers to streamline the supply chain and improve market access for smallholder farmers (Trebbin, 2014). The lack of coordination among various stakeholders in the agricultural marketing system exacerbates the challenges faced by the sector. Farmers often struggle to access markets due to poor transportation networks and inadequate storage facilities, leading to significant post-harvest losses (Kasso & Bekele, 2018). Additionally, the absence of standardized grading and pricing mechanisms further complicates the marketing process, making it difficult for farmers to receive fair compensation for their produce (Barrett et al., 2012). Furthermore, the impact of climate change on agricultural production adds another layer of complexity to the marketing landscape in Pakistan. Erratic weather patterns, water scarcity, and extreme temperatures pose significant challenges to farmers, affecting crop yields and market availability (Lu et al., 2019).

The sector faces numerous challenges, including inadequate infrastructure, limited access to market information, and fragmented supply chains. These challenges hinder agricultural marketing efficiency and limit farmers' income potential. To address these challenges and unlock the full potential of Pakistan's agricultural sector, it is imperative to conduct a comprehensive review of agricultural marketing practices and identify future directions for improvement. By leveraging technology, enhancing market information systems, and promoting sustainable agricultural practices, Pakistan can build a resilient and competitive agricultural marketing system that benefits farmers, consumers, and the economy as a whole.

The review of agricultural marketing in Pakistan identifies existing challenges and proposes innovative solutions and future directions to address them effectively. By leveraging technology, improving infrastructure, enhancing market information systems, and promoting climate resilience, Pakistan can unlock the full potential of its agricultural sector, empower farmers, and contribute to sustainable economic development.

LITERATURE REVIEW

A substantial number of investigations have been conducted on the functioning and performance of agricultural marketing in Pakistan by the researchers. The literature gained by the researchers through different previous studies will be viewed in this portion to develop an understanding of the topic. Demand for agricultural goods is directly proportional to income, population growth, urbanization, and liberalization, as all these factors will increase simultaneously. The supply of goods has increased due to better production and well-established processing plants and channels of distribution (Ballou et al., 2000). Commercial demand for agricultural produce increases due to income, population growth, urbanization, and trade liberalization. Marketed supply simultaneously rises due to productivity improvements in production, post-harvest processing, and distribution systems. Therefore, a key component of rural development is the reconstruction of new agricultural institutions complementary to the market and the state in reaction to the deinstitutionalization of rural areas that followed state compression. Private or cooperative organizations have manifested this (Selvaraj & Ibrahim, 2012). Mainly, contracts with retailers, agro exporters, and downstream processors have been designed. Many of these projects are arranged through farmer associations. They are widely viewed as a way to get around the flaws in the market that caused the macroeconomic and sectorial adjustment strategies to fail.

Market reforms lead to a rise in commodity prices, which spurs an increase in production, particularly of export crops (Akiyama et al., 2003). Price increases make the development of supermarket chains, cooperatives, export-oriented plans, processing zones, and general agro-industrialization stimulation in developing nations easier. Cooperatives have a significant role in India's rural economy, covering many rural producers, generating business turnover, and promoting members' financial well-being (Dwivedit, 1996). The private companies are now primarily responsible for developing better seed varieties, producing and distributing inputs, post-harvest operations, and retailing through supermarkets in nations like China, India, and South Africa (Naik & Suresh, 2018). Cooperative management authority is still limited because state agencies remain the primary purchasers of products and providers of input. Members are involved in decision-making on the farm to a significantly larger extent (Altman, 2022).

However, Karim and Biswas (2016) contended that the lack of food processing and storage causes the customer to pay an unnecessarily higher price during the lean season while depriving the grower of a reasonable price for his goods during the peak marketing season. The positive trend of economic liberalization and the ensuing sector opening up has led to a significant drop in structural rigidities in the Indian economy. This trend should serve as the foundation for future agricultural reform in India. The global market directly and significantly impacts the agricultural sector. For Indian farmers to meet international demand, their products must be of superior quality. Marketers must devise innovative solutions, such as e-marketing, to address issues with physical distribution, channel management, promotion, and communication daily in rural areas. The "anytime-anywhere" benefit of e-marketing promotes effective price discovery, provides trading with economies of transaction, and creates a more open and competitive environment. On the other hand, providing value-added food to the public is conceivable while guaranteeing farmers fair pricing by utilizing innovative methods to establish an efficient and effective supply chain. The structural advancements have also helped Indian agriculture increase output and productivity (Gulati & Juneja, 2022). The growth of the industry's products and the development of agriculture constitute agriculture's contribution to national growth (Pingali, 2007). Additionally, agricultural development fosters the growth of other industries by supplying goods for domestic and global markets.

Agricultural Marketing System in Pakistan

The agricultural marketing system in Pakistan is crucial for ensuring efficient distribution, fair pricing, and sustainable growth of the agricultural sector. However, addressing challenges such as weak infrastructure and exploitation of farmers remains essential for its improvement and development. The agricultural marketing system in Pakistan encompasses the following processes and infrastructure. Producers or farmers play a central role in the agricultural marketing system. They are responsible for cultivating and producing various agricultural products. Institutions like the Agriculture Marketing Information Service (AMIS) provide crucial market intelligence and price information to farmers and other stakeholders,

aiding decision-making (Bhutta et al., 2019). Despite market infrastructure, weaknesses in the agricultural marketing system lead to challenges for farmers. These challenges include inadequate pricing power for farmers and exploitation due to a weak marketing system. The agricultural marketing policy in Pakistan focuses on promoting competition and creating an accessible marketing environment while regulating private agricultural markets through provincial policies. One of the primary goals of the agricultural marketing system is to ensure price stability for agricultural outputs and fair prices for farmers, thereby promoting a sustainable and equitable agricultural sector (Ghafoor et al., 2022).

Moreover, agricultural marketing can be categorized based on various aspects, including market functionaries, market types, and policy options. The markets can be classified based on their structure, from perfectly competitive to pure monopoly or monopsony. This classification helps understand the level of competition and market dynamics. Agricultural marketing involves various functionaries, including producers (farmers), intermediaries (intermediaries), wholesalers, retailers, and consumers (Bateman, 1976). These are local markets where farmers gather periodically to sell their produce. Despite the efforts to modernize agricultural marketing, Pakistan still faces numerous challenges in this sector. One major issue is the lack of market infrastructure, including storage facilities, transportation networks, and market information systems(Saha et al., 2023). Limited credit and finance access also hinder farmers' ability to invest in agricultural marketing activities. Additionally, the dominance of intermediaries and traders in the supply chain often results in price volatility and unfair practices (Ghafoor et al., 2022).

METHODOLOGY

Due to its effectiveness in providing a synthesis of the current status and emerging trends of the research issue, the bibliometric analysis approach was used to do the systematic review. But, this approach has drawbacks as well. To start, it only examines research that Scopus has indexed, and scholarly work can introduce biasness. When examining research using quantitative and statistical methods, bibliometric analysis is an essential tool. Insights on authors, national collaborations, science mapping, trend topic mapping, etc. are provided by this open-source tool for scientometrics and bibliometrics.

Table 1. Sources of papers

Type of Document	Numbers
Journal articles	27
Conference Paper	3
Book Chapter	1
Review Paper	1
Total	32

The bibliometric data was examined twice in order to address research issues. Firstly, a science mapping study was conducted to investigate the conceptual structure of the research, later, a performance analysis was conducted to illustrate the publication patterns.

RESULTS AND DISCUSSION

It can be observed from the Figure 1. that in 1984 two research studies were published, setting a precedent. Subsequently, a consistent trend of one publication annually persisted from 1985 to 1996, with the exception of 1989. Starting in 2006, there was a consistent output of at least one publication per year. Remarkably, the years 2013, 2019, and 2022 stood out with the highest number of publications, each yielding 4. A marginal upsurge in publications occurred from 2010 to 2013. However, in the ensuing years, the quantity of publications fluctuated, indicating variability in output. This fluctuation suggests a nuanced pattern in publication trends over time, with certain years witnessing markedly higher or lower publication counts, reflecting the dynamic nature of scholarly output.

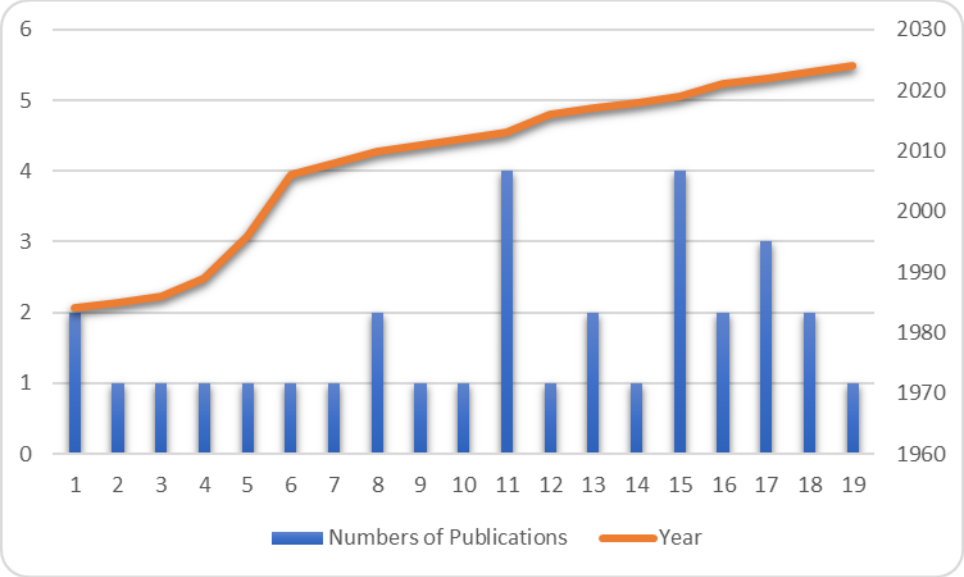

Figure 1. Scientific production in each year

The Table 2 provides detailed information about various publications, including journals, books, and conference proceedings, along with their respective attributes. Each row represents a distinct publication, identified by a serial number. The "Frequency of Paper" column denotes the number of papers associated with each publication, indicating their prevalence or impact within the academic community. The "Source Name" column specifies the title of the publication, such as journals like "Acta Horticulturae" or "Annals of the Association of American Geographers," books like "Cities and Nature," and conference proceedings like "Proceedings - 2021 International Conference on Public Management and Intelligent Society, PMIS 2021." Additionally, the "Type" column distinguishes between journals, books, and conferences.

Table 2. Most relevant sources

Sr. No.	Number of Paper Published	Source Name	Type	H-index	SJR	Quartile	Country	Publisher
1	1	Acta Horticulturae	Journal	71	0.149	Q4	Belgium	International Society for Horticultural Science
2	1	African Journal of Biotechnology	Journal	103	0.279	-	Kenya	Academic Journals
3	1	AMA, Agricultural Mechanization in Asia, Africa and Latin America	Journal	15	0.118	-	Japan	Farm Machinery Industrial Research Corp.
4	1	Annals of the Association of American Geographers	Journal	137	1.51	Q1	United Kingdom	Taylor and Francis Ltd.
5	1	Australian Journal of Basic and Applied Sciences	Journal	44	0.126	-	Pakistan	INSInet Publications
6	1	Basic life sciences	Journal	12	0.242	-	United States	Springer GmbH & Co,

								Auslieferungs-Gesellschaf
7	1	Cities and Nature	Book	N/A	N/A	N/A	United States	Springer Nature
8	1	Climate	Journal	47	0.763	Q2	Switzerland	Multidisciplinary Digital Publishing Institute (MDPI)
9	1	Environmental Management	Journal	141	0.827	Q1	United States	Springer New York
10	1	Environmental Science and Pollution Research	Journal	179	1.006	Q1	Germany	Springer Nature
11	1	Genetic Resources and Crop Evolution	Journal	78	0.442	Q2	Netherlands	Springer Nature
12	1	GeoJournal	Journal	83	0.645	Q2	Netherlands	Springer Nature
13	1	International Journal of Agricultural Extension	Journal	5			Pakistan	EScience Press
14	1	International Journal of Water	Journal	19	0.116	Q4	United Kingdom	Inderscience Enterprises Ltd
15	1	International Studies	Journal	18	0.192	Q3	India	Sage Publications
16	1	Journal of Agriculture and Rural Development in the Tropics and Subtropics	Journal	23	0.239	Q3	Germany	University of Kassel
17	1	Journal of Animal and Plant Sciences	Journal	42	0.213	Q4	Pakistan	Pakistan Agricultural Scientists Forum
18	5	Pakistan Development Review	Journal	34	0.129	Q4	Pakistan	Pakistan Institute of Development Economics
19	2	Pakistan Journal of Agricultural Sciences	Journal	28	0.217	Q3	Pakistan	Pakistan Association of Advancement in Agricultural Sciences
20	1	Proceedings - 2021 International Conference on Public Management and Intelligent Society, PMIS 2021	Conference	N/A	N/A	N/A	China	Institute of Electrical and Electronics Engineers Inc.
21	1	Proceedings of the International Conference on Computer Science and Information	Conference	N/A	N/A	N/A	Singapore	Institute of Electrical and Electronics Engineers Inc.

		Technology, ICCSIT 2008						
22	1	Sarhad Journal of Agriculture	Journal	12	0.19	Q3	United Kingdom	ResearchersLinks Ltd
23	1	SpringerPlus	Journal	83	0.125	-	Germany	Springer Science and Business Media Deutschland GmbH
24	2	Sustainability (Switzerland)	Journal	169	0.672	Q1	Switzerland	Multidisciplinary Digital Publishing Institute (MDPI)
25	1	Sustainable Development	Journal	91	2.283	Q1	United Kingdom	John Wiley and Sons Ltd
26	1	Technology in Society	Journal	88	2.249	Q1	United Kingdom	Elsevier Ltd

Key metrics such as "H-index" and "SJR (SCImago Journal Rank)" provide insights into the publications' academic influence and prestige. The "SJR Quartile" categorizes publications based on their SJR rankings, ranging from Q1 (highest) to Q4 (lowest). Moreover, the table includes information about the countries of publication and respective publishers, shedding light on the global distribution and editorial affiliations of these scholarly works. This comprehensive overview facilitates the assessment and comparison of various publications within the academic landscape.

The Table 3 presents a diverse array of research publications related to agriculture and socioeconomic aspects in Pakistan, showcasing varying levels of academic impact as indicated by the number of citations each document has received. Notably, "Farmer Perceptions of Climate Change, Observed Trends and Adaptation of Agriculture in Pakistan" by Abid et al. (2019) stands out with the highest number of citations (132), highlighting the significance of understanding farmers' perspectives on climate change and adaptation strategies. Additionally, "The role of social networks in agricultural adaptation to climate change: Implications for sustainable agriculture in Pakistan" by Abid et al. (2017) and "Influence of mobile phone and internet technology on income of rural farmers: Evidence from Khyber Pakhtunkhwa Province, Pakistan" by Khan et al. (2022) have garnered notable attention, with 60 and 56 citations respectively, indicating the growing interest in social networks and technology adoption in agriculture. Other publications in the table range from various topics such as supply chain management, socioeconomic characteristics, and policy analysis, each contributing to the broader understanding of agricultural sustainability and development in Pakistan.

Table 3. Most influential source documents/papers

Authors	Title	Year	Source title	Citations
Abid M.; Scheffran J.; Schneider U.A.; Elahi E.	Farmer Perceptions of Climate Change, Observed Trends and Adaptation of Agriculture in Pakistan	2019	Environmental Management	132
Abid M.; Ngaruiya G.; Scheffran J.; Zulfiqar F.	The role of social networks in agricultural adaptation to climate change: Implications for sustainable agriculture in Pakistan	2017	Climate	60
Khan N.; Ray R.L.; Zhang S.; Osabuohien E.; Ihtisham M.	Influence of mobile phone and internet technology on income of rural farmers:	2022	Technology in Society	56

	Evidence from Khyber Pakhtunkhwa Province, Pakistan			
Naseer M.A.R.; Ashfaq M.; Hassan S.; Abbas A.; Razzaq A.; Mehdi M.; Ariyawardana A.; Anwar M.	Critical issues at the upstream level in sustainable supply chain management of agri-food industries: Evidence from Pakistan's citrus industry	2019	Sustainability (Switzerland)	38
Rehman F.; Muhammad S.; Ashraf I.; Mahmood K.C.; Ruby T.; Bib I.	Effect of farmers' socioeconomic characteristics on access to agricultural information: Empirical evidence from Pakistan	2013	Journal of Animal and Plant Sciences	37
Sher A.; Mazhar S.; Abbas A.; Iqbal M.A.; Li X.	Linking entrepreneurial skills and opportunity recognition with improved food distribution in the context of the CPEC: A case of Pakistan	2019	Sustainability (Switzerland)	24
Rehman S.U.; Predotova M.; Ahmad Khan I.; Schlecht E.; Buerkert A.	Socio-economic characterization of integrated cropping system in urban and peri-urban agriculture of faisalabad,pakistan	2013	Journal of Agriculture and Rural Development in the Tropics and Subtropics	14
Wood W.B.	Long Time Coming: The Repatriation of Afghan Refugees	1989	Annals of the Association of American Geographers	12
Fatima G.; Khan I.A.; Buerkert A.	Socio-economic characterisation of date palm (Phoenix dactylifera L.) growers and date value chains in Pakistan	2016	SpringerPlus	12
Khan N.P.; Akhtar J.	Competitiveness and policy analysis of potato production in different agro-ecological zones of northern areas: Implications for food security and poverty alleviation	2006	Pakistan Development Review	10
Sohoo S.	ICT initiative of SAARC Agriculture Centre in the SAARC Region	2008	Proceedings of the International Conference on Computer Science and Information Technology, ICCSIT 2008	10
Baloch U.K.	Problems associated with the use of chemicals by agricultural workers.	1985	Basic life sciences	9
Khair S.M.; Culas R.J.	Rationalising water management policies: Tube well development and resource use sustainability in Balochistan region of Pakistan	2013	International Journal of Water	6
Khan A.; Islam M.; Inam-ul-Haq; Ahmad S.; Abbas G.; Athar M.	Technology transfer for cucumber (Cucumis sativus L.) production under protected agriculture in uplands Balochistan, Pakistan	2011	African Journal of Biotechnology	5
Sher H.; Barkworth M.E.; de Boer H.J.	Medicinal and aromatic plant cultivation in the Swat valley, north-western Pakistan, for economic development and biodiversity conservation	2017	Genetic Resources and Crop Evolution	5

Iqbal M.A.; Ping Q.; Zafar M.U.; Abbas A.; Bashir M.K.; Ali A.; Kousar R.	Farm risk sources and their mitigation: A case of cotton growers in Punjab	2018	Pakistan Journal of Agricultural Sciences	5
Faruqee R.; Carey K.	Reforming the government's role in Pakistan's agriculture sector	1996	Pakistan Development Review	4
Abdul-Rehman; Muhammad S.; Chaudry K.M.; Aulakh M.A.; Ahmed Z.	Identification and prioritization of problems faced by rice growers: A case study of tehsil Daska, Sialkot	2012	Pakistan Journal of Agricultural Sciences	4
Tagar H.K.; Panhwar D.I.A.	Agricultural credit in sindh: Issues and recommendations	2010	Australian Journal of Basic and Applied Sciences	2
Yousafzai W.S.; Ullah I.; Ali A.; Iqbal M.; Khan S.	An analysis of allocative efficiency of growing onion in district swat Khyber Pakhtunkhwa	2019	Sarhad Journal of Agriculture	2
Ahmad D.; Afzal M.	Synchronized agricultural credit and diversification adoption to catastrophic risk manage for wheat production in Punjab, Pakistan	2022	Environmental Science and Pollution Research	2
Sargana Munir Ahmad; Chaudhary Amjad Pervez; Afzal Mohammad	Indigenous Production of Agricultural Machinery in Pakistan.	1986	AMA, Agricultural Mechanization in Asia, Africa and Latin America	1
Ali S.; Khan G.A.; Iftikhar M.; Munir H.	Challenges faced by the youth regarding participation in family farming in Punjab, Pakistan	2021	International Journal of Agricultural Extension	1
Sher A.; Mazhar S.; Qiu Y.	Toward sustainable agriculture: The impact of interest-free credit on marketing decisions and technological progress in Pakistan	2024	Sustainable Development	1

A word network constructed on the keyword co-occurrence of authors for better umderstading and data interpretation. the analysis based on key-word concurrence is useful for directing related literature to determine the ties among topics within the field of markeing, particularly, agriculture marketing in Pakistan.

Scholars can find major fields and their connections, by probing into, how keywords co-occur in researchs, which allow them to discover relevant topics more efficiently and effectively. A more vast structure proposes that the keywords are closely coupled. The color of the node represent the cluster where the key word is linked. Both the keywords and relationships state that each cluster is related to a particular subject to study. The most remarkable cluster, which is in blue color has a keyword “Pakistan” which form a network with other subjects such as alternative agriculture, developing world, food production.

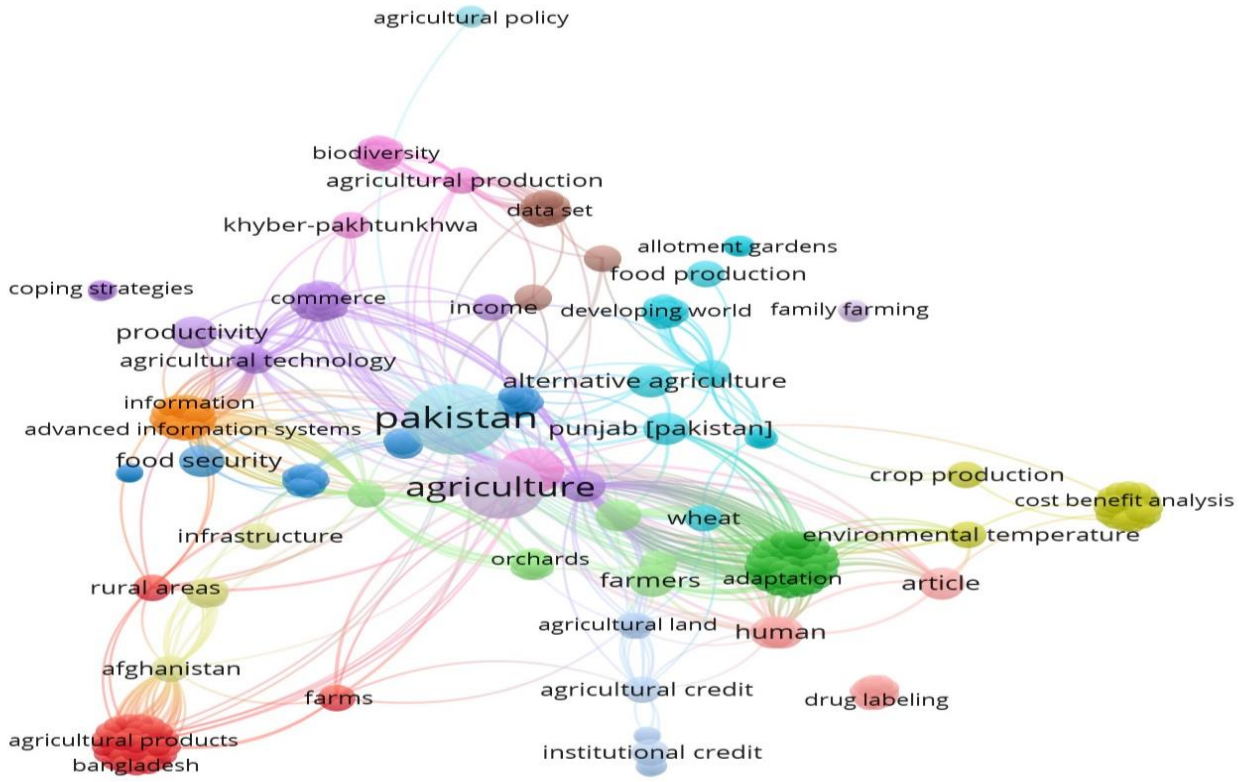

Figure 2. Keword co-occurance

Another keyword "agriculture marketing" which is purple, form a connection with commerce, productivity, agricultural technology, coping strategies, income. Keyword of "Adaptation" is connected with farmers, orchards. Light green color represents crop production, cost benefit analysis, environmental temperature connections. Red color connections are relevant to agricultural products, farms, rural areas.

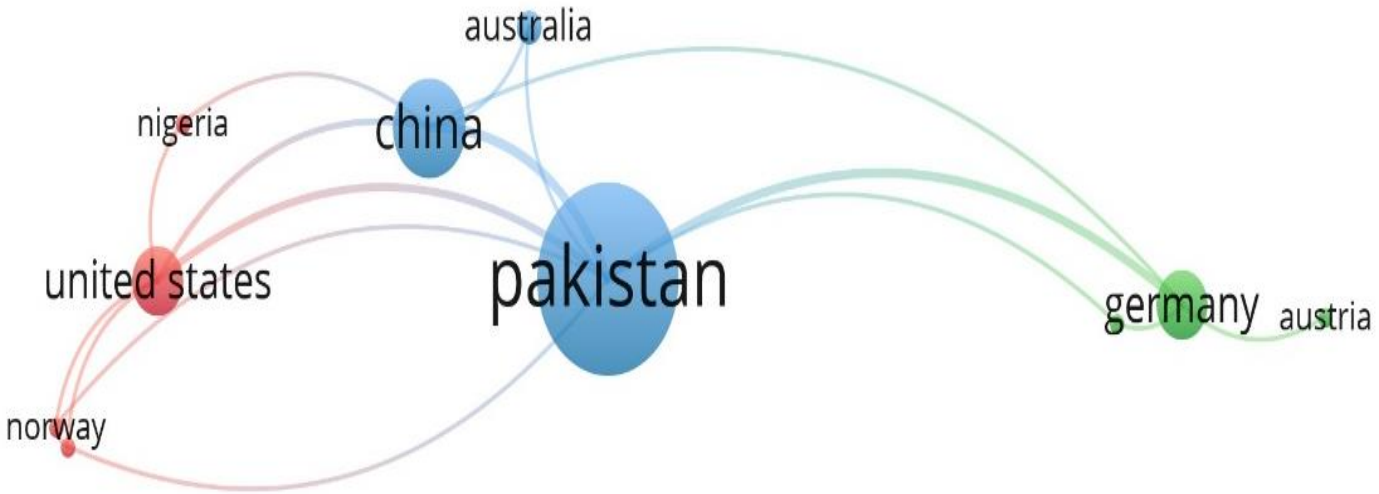

Figure 3. Analysis of country collaborations

The social network of cooperation is a arrangement of system that demonstrates the ties between countries hanging on the frequency with which they perform in a certain context. In regards to these statistics, Pakistan, China, the United States, Autralia, Germany, are the closest collaborators. exclusively, Pakistan, China and United states collaborate more than other countries in graph.

Recent Developments in Agricultural Marketing

Agricultural marketing in Pakistan involves various stakeholders and systems to facilitate the sale and distribution of agricultural products. The country's agricultural marketing system is predominantly managed by the private sector, with provincial food departments and parastatals also playing significant roles (Bai-Yung, 1985). Producers, mainly farmers, are central to this system, as they cultivate various food items for self-consumption and commercial purposes (Clapp, 2017). However, the informal credit market, facilitated by financiers known as "arthis," also supports small farmers by providing necessary financial assistance. The importance of agriculture in Pakistan's economy cannot be overstated. It serves as the primary food source for many of the population and provides raw materials for various industries (Baig & Khan, 2006).

Agricultural marketing encompasses a range of activities, including assembling, storage, processing, transportation, packaging, grading, and distribution of agricultural products (Bhargav, 2017). Modernization efforts in agricultural marketing include adopting technologies and practices to enhance efficiency and productivity across the entire value chain. Improving the agricultural marketing system is essential for enhancing farmers' income, ensuring food security, and stimulating economic growth. These initiatives involve addressing challenges such as market access, infrastructure development, and the role of intermediaries in the marketing process (Shiferaw et al., 2011). By promoting transparency, efficiency, and inclusivity within the agricultural marketing system, Pakistan can harness its agricultural potential more effectively for sustainable development and prosperity.

Trends in Agricultural Marketing

The following research trends can be observed in Pakistan's agricultural marketing in the current era. Firstly, digital transformation, recent studies highlight the increasing adoption of digital technologies in agricultural marketing in Pakistan. Digital platforms facilitate direct farmer-consumer interactions, improving market access and reducing intermediary costs (Liu et al., 2024). Secondly, regarding sustainable practices, scholars emphasize the importance of sustainable agricultural marketing practices in mitigating environmental degradation and ensuring long-term viability. Sustainable practices such as organic farming and fair trade initiatives are gaining traction (Pretty, 2008). Thirdly, market information systems, current research focuses on developing robust market information systems to provide farmers with real-time pricing and market trends. Such systems enhance decision-making and market transparency.

Fourthly, climate resilience: researchers are exploring strategies to make agricultural marketing more resilient to climate change impacts. This includes promoting climate-smart agricultural practices and implementing risk management strategies (Shahid & Mubeen, 2021). Firstly, market information services: Initiatives like the Agri Marketing Information Service (AMIS) provide policymakers and stakeholders with reliable data on area, production statistics, and price trends, aiding decision-making (Schaap et al., 2020). Sixthly, in stakeholder analysis, various studies focus on understanding the roles and dynamics of stakeholders within the agricultural marketing system, including producers, farmers, traders, and policymakers. Seventhly, agrochemicals market research delves into the trends and dynamics of the agrochemicals market in Pakistan, forecasting future developments and analyzing historical data (Rasheed & Liu, 2024).

Lastly, there is increasing interest in agricultural marketing cooperatives, exploring their role in enhancing market access, improving bargaining power, and promoting collective action among farmers (Hellin et al., 2009). These trends indicate a growing emphasis on data-driven decision-making, stakeholder engagement, and adopting cooperative models to enhance the efficiency and sustainability of agricultural marketing in Pakistan.

Contemporary Practices and Challenges

Recent trends in Pakistani agriculture point towards a notable uptake of modern agricultural equipment, indicating improved efficiency and productivity among farmers. Furthermore, there is a growing emphasis on value-addition

strategies such as processing and packaging, enabling farmers to command higher prices and expand their market reach (Poulton et al., 2010). The advent of e-commerce platforms in Pakistan has facilitated direct communication between farmers and consumers, potentially reducing dependence on traditional intermediaries. Additionally, adopting contract farming agreements offers farmers stability by ensuring access to markets and predetermined pricing structures. These developments collectively signify a shift towards modernization and innovation within Pakistan's agricultural sector, promising enhanced market outcomes and economic sustainability (Ahmad, 2020).

Numerous challenges plague Pakistan's agricultural marketing landscape, impacting farmers and the overall economy. Infrastructure deficiencies, including inadequate transportation, storage facilities, and market infrastructure, hamper the efficient movement of agricultural products (Ghafoor et al., 2022). Moreover, a significant market information gap exists, limiting farmers' access to timely and accurate market data, thereby hindering informed decision-making regarding production and marketing strategies (Ayat-Ullah et al., 2020). Price volatility poses additional risks, with fluctuating prices due to market instability, seasonal variations, and external factors threatening farmers' income and livelihoods (Hussain et al., 2020). Fragmented supply chains and the lack of coordination among stakeholders contribute to inefficiencies and higher transaction costs within the agricultural sector (Carbone, 2017).

Inadequate infrastructure exacerbates post-harvest losses, as the cold chain infrastructure, storage facilities, and transportation networks fall short of meeting industry needs. Knowledge asymmetry further compounds farmers' challenges, leaving them susceptible to manipulation by intermediaries. Additionally, limited market access forces smallholder farmers to rely on local intermediaries who may exploit them (Kumar & Kalita, 2017). Meeting quality standards for domestic and international markets requires investments in technology and infrastructure, resources often lacking among smallholders (Poulton et al., 2010).

Policy and regulatory constraints, including inconsistent policies, regulatory hurdles, and bureaucratic red tape, impede the development of efficient agricultural marketing systems (De Jong & Van Witteloostuijn, 2015). Limited financial access restricts farmers' ability to invest in modernizing their farming practices and accessing markets. Climate change impacts exacerbate existing vulnerabilities, increasing climate variability and extreme weather events affecting crop yields (Thornton et al., 2014). Land fragmentation reduces economies of scale and efficiency in production and marketing activities (Rahman & Rahman, 2009). Regulatory processes introduce bureaucratic hurdles, increasing administrative burdens and transaction costs (May 2005). Furthermore, the potential for corruption among market participants undermines fair competition and market integrity (Langseth et al., 1997).

RECOMMENDATIONS AND FUTURE DIRECTIONS

In order to address the challenges of agricultural marketing in Pakistan, several measures can be implemented. Firstly, the government needs to invest in improving the agricultural marketing infrastructure, including developing modern storage facilities, transportation networks, and market information systems. This would help reduce post-harvest losses, enhance product quality, and ensure timely delivery of agricultural products to markets. Secondly, efforts should be made to regulate agricultural markets effectively to protect the interests of both farmers and consumers. This can be achieved through implementing transparent pricing mechanisms, establishing farmer-friendly policies, and enforcing regulations to curb exploitative practices by intermediaries. Additionally, initiatives to provide farmers access to credit, market intelligence, and training on modern farming techniques should be prioritized to enhance their productivity and competitiveness. Thirdly, promoting value addition and diversification in agriculture can help increase farmers' incomes and create new opportunities for agricultural marketing in Pakistan. Encouraging the establishment of agro-processing industries, supporting the adoption of organic farming practices, and facilitating market linkages for niche agricultural products can enhance the value chain and contribute to the sustainable growth of the agricultural sector. By implementing these measures, Pakistan can overcome the challenges in agricultural marketing and unlock the sector's potential for economic development and poverty reduction. Lastly, policymakers and stakeholders should focus on several key areas.

Despite these challenges, recent research highlights efforts to modernize agricultural marketing practices using digital technologies. However, there is still a need for more significant investment in infrastructure and capacity building to enhance market access and efficiency (Bisbey et al., 2020). Through the implementation of strategic initiatives on various fronts, the agricultural sector in Pakistan has the potential to experience tremendous progress. First, there is an essential requirement for implementing contemporary technology, including digital platforms and precision agriculture techniques, to improve both productivity and efficiency (Subeesh & Mehta, 2021).

Furthermore, it is vital to encourage stakeholder engagement within the agricultural marketing system to streamline processes and improve market access effectively. Furthermore, a significant increase in agricultural output can be achieved by concentrating on increasing productivity through the implementation of technology upscaling, the enhancement of seed production, and the optimization of irrigation. This can be accomplished by addressing restrictions, improving market efficiency, and stimulating growth by implementing initiatives to transform agricultural produce markets based on research supported by evidence (Poulton et al., 2010).

Smallholder farmers can improve their production techniques and efficiently market their products to contribute to the general growth of agriculture (Altieri et al., 2012). This is made possible through the facilitation of technology transfer to smallholder farmers. In addition, farmers can significantly improve their profitability and resilience to market shocks by capitalizing on expanding local demand and export potential, as well as by adopting new technologies and diversifying their market presence. Furthermore, supportive government policies, public-private partnerships, capacity training, institutional changes, and sustainable practices all play critical roles in driving the development of agricultural marketing and assuring the industry's long-term viability. These directions aim to modernize agricultural marketing practices, improve productivity, and ensure sustainable growth in Pakistan's agricultural sector.

CONCLUSION

The agricultural sector in Pakistan plays a crucial role in the economy, providing livelihoods for millions of people and contributing significantly to the country's GDP. However, the sector faces various challenges in its marketing aspect, hindering its full potential. One of the significant challenges is the lack of efficient marketing infrastructure and systems, leading to inefficiencies in the distribution of agricultural products—this results in low profitability for farmers and unreliable food supply chains, impacting producers and consumers.

Moreover, the prevalence of unregulated markets and intermediaries further exacerbates the challenges farmers face in Pakistan. These intermediaries often exploit farmers by offering low prices for their produce and selling them at inflated rates to consumers. As a result, farmers receive inadequate returns for their hard work, leading to economic hardships and discouragement from investing further in agriculture. Additionally, the lack of access to market information and technology further complicates the situation, limiting farmers' ability to make informed decisions and adopt modern agricultural practices. Similarly, by leveraging these trends and addressing existing challenges, Pakistan can enhance the competitiveness of its agricultural sector, improve farmer livelihoods, contribute to overall economic growth, and ensure fair prices for farmers and sustainable growth for the sector as a whole.

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