

## Differential Impact of Sharecropping on Time Allocation and Risk Transfer in Farming: An Islamic Economic Perspective

Aslan Deri Ichsandi<sup>1</sup>✉

<sup>1</sup>Universitas Islam Negeri Imam Bonjol Padang

[aslanichsandi@uinib.ac.id](mailto:aslanichsandi@uinib.ac.id)

### Abstract

This study presents a quantitative exploration of the influence of sharecropping on the allocation of time and risk transfer in farming practices. Through a causal associative research design, the study identifies various factors of influence on the dependent variable, applying an Ordinary Least Squares (OLS) regression analysis on survey data. The results provide intriguing insights into farmers' decision-making and preferences concerning cooperation models based on land ownership status. Our findings reveal that shareholder farmers, who farm lands belonging to others, exhibit preferences distinct from owner-farmers for cooperative models. Similarly, those cultivating both others' and their own lands demonstrate unique inclinations towards different cooperative models compared to owner-farmers. The results also emphasize the significance of risk perceptions in these preferences. A significant tendency was observed among farmers to allocate more time to farming when they are relieved of risk entirely in an agricultural management scenario, particularly in long-duration collaborations. In contrast, owner-farmers and those cultivating both their own and others' land exhibited a more cautious approach, agreeing to share risks but within limited periods of cooperation. These findings contribute to a nuanced understanding of the effects of sharecropping on farmers' time management and risk-allocation decisions, providing significant implications for agricultural policy and practices. Further research should delve into the psychosocial factors that influence these preferences to enable the creation of more equitable and efficient farming systems.

**Keywords:** Sharecropping Farming Practices, Time Allocation Cooperative Models, Risk Transfer in Agricultural Management, Ordinary Least Squares Regression, Allocation of Time.

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### 1. Introduction

Sharecropping, an agrarian practice where landowners and laborers share the agricultural output in predefined proportions, it has long been a subject of study across social, economic, and agrarian disciplines [1]. This practice, predominant in areas with pronounced land and labor market imperfections, is known to affect farmers' allocation of resources, specifically time, and their risk-bearing decisions [2]. Despite its perceived disadvantages such as potential exploitation and inefficiencies, sharecropping persists due to its inherent feature of risk sharing between landowners and cultivators. The nuanced variations in these relationships across different types of farmers, those cultivating their land, others' land, or both are not well understood, prompting this investigation [3].

In recent years, studies have expanded on the dynamics of sharecropping, resource allocation, and risk-sharing mechanisms, especially in the wake of climate change and other global shifts [4]. How varying land tenure security affects labor allocation, examined the role of sharecropping in managing weather-related risks. Both studies underscore the importance of considering land tenure status in agricultural resource allocation and risk management decisions [5]. Also, research has further underscored the value of risk-sharing inherent in sharecropping contracts and the impact on farmers' behavior and productivity [6]. Investigated how these

contracts can incentivize farmers' performance while providing a safety net against potential risks, confirming the potential of sharecropping to contribute to sustainable farming practices [7]. Still, the intersection between different forms of land ownership, cooperative preferences, and these outcomes remains an open field of inquiry, which this study aims to address [8]. Remarkable social phenomena observed in the world of agriculture highlight an increasing disparity in wealth and resource allocation, exacerbating the vulnerabilities of smallholder and tenant farmers [9]. These socio-economic disparities are further magnified by the volatility of climate change, market fluctuations. Additionally, there is a disturbing trend towards land concentration and corporate farming, with smallholder farmers struggling to secure livelihoods, let alone advance economically [10]. These shifts prompt an urgent need for alternative agricultural economic models that encourage fair distribution of wealth, risk sharing, and sustainable practices [11].

In this context, Islamic economics offers potential solutions that align with principles of justice, equitable wealth distribution, and risk-sharing, fundamental tenets often absent in conventional agricultural practices. The Islamic economic perspective promotes business models such as Muzaraah and Mukhabarah, which are conceptually akin to sharecropping. These models could offer ways to align farming practices

with ethical, sustainable, and equitable principles, ultimately benefitting both landowners and farmers. Islamic economics is grounded in principles that emphasize justice, fairness, and societal welfare [12]. For example, the Islamic business model, *Muzaraah*, embodies the principle of profit and loss sharing, similar to sharecropping. This model, when applied to agricultural practices, encourages fairness, as profits and losses are shared, fostering a sense of shared responsibility and reducing exploitation. Likewise, *Mukhabarah*, another Islamic business model analogous to a joint venture, promotes shared risks and returns, aligning well with the demands of modern, sustainable farming systems. However, despite these potential alignments, the application of Islamic economic principles in the realm of agricultural practices remains underexplored [13]. There is a dearth of empirical studies that analyze the implications and effectiveness of implementing *Muzaraah* or *Mukhabarah*-based farming contracts, especially when viewed through the lens of sharecropping. Furthermore, research is lacking on how these Islamic economic principles can help mitigate current social phenomena like increasing wealth disparity and climate change in farming contexts [14].

Sharecropping, from the Islamic economics perspective, can be seen as a variant of the *Muzaraah* or *Mukhabarah* contract. These contracts, deeply rooted in principles of risk and profit-sharing, are analogous to sharecropping arrangements where profits and risks are shared between landowners (providing the capital) and farmers (providing labor and skill). While conventional interpretations of sharecropping often critique its potential for exploitation, viewing it through the lens of Islamic economics shifts the perspective towards mutual consent, shared risk, and cooperative endeavor [15]. However, the practical implementation and potential challenges of such Islamic-oriented sharecropping arrangements are not adequately addressed in the existing literature. The implications of applying *Muzaraah* or *Mukhabarah* principles to sharecropping, the potential benefits and limitations, and how they can address contemporary agricultural challenges remain under-explored [16]. There's a lack of empirical evidence highlighting the performance of such systems in real-world contexts, further necessitating the need for focused research [17].

This paper lies in its unique exploration of sharecropping from the perspective of Islamic economics. Unlike conventional studies, it seeks to analyze the model of sharecropping as an application of the Islamic economic principles of *Muzaraah* and *Mukhabarah*, focusing on equitable risk and profit-sharing between landowners and farmers. This distinct angle will bring new insights into sharecropping, providing an alternative lens that emphasizes fairness, mutual consent, and shared responsibility in agricultural practices [18]. Additionally, this paper provides empirical evidence on the performance of such systems, the potential benefits and limitations,

and how they can tackle contemporary agricultural challenges. By doing so, it contributes to the broader discussion on sustainable and ethical agricultural practices and the potential role of Islamic economics in fostering such practices [19].

The principal purpose of this paper is to extend the current understanding of sharecropping from the lens of Islamic economics. This study aims to provide a comprehensive exploration of sharecropping within the context of *Muzaraah* and *Mukhabarah*, the Islamic economic principles of profit and loss sharing, and joint ventures respectively [20]. Through this unique focus, the paper intends to bring new insights into the ethical, fair, and mutually beneficial nature of these Islamic principles and their applicability in the realm of agriculture. Additionally, this paper aims to address a significant gap in the literature by presenting an empirical analysis of the potential benefits and challenges of implementing Islamic-oriented sharecropping arrangements. By conducting a quantitative analysis using OLS regression, the paper seeks to provide empirical evidence on the impact of sharecropping on farmers' time allocation and risk transfer, specifically in relation to the Islamic economic perspective. Through this investigation, the paper aims to contribute to the broader dialogue on ethical, sustainable agricultural practices and the role of Islamic economics in this context.

The application of *Muzaraah* and *Mukhabarah* principles in sharecropping could result in more equitable risk and profit-sharing between landowners and farmers. Drawing upon the core Islamic economic principles, the hypothesis posits that such an Islamic-oriented sharecropping arrangement may contribute to enhanced fairness and cooperation, possibly leading to an increase in the time that farmers allocate to farming activities, given the reduced risk and exploitation concerns. The potential benefits of applying Islamic economic principles in sharecropping for managing agricultural risks. That sharecropping, viewed as an alternative financial mechanism, could support farmers without the burden of interest-based debts, thus fostering sustainable agricultural practices. This paper, therefore, seeks to bridge the knowledge gap by analyzing sharecropping from an Islamic economic perspective, taking into account recent social phenomena.

Sharecropping is an agricultural practice with deep historical roots, wherein landowners and farmers enter into a contract that determines the sharing of crop yield. This practice has been conceptualized from several perspectives. From a conventional economic standpoint, sharecropping is seen as a response to imperfect information and high transaction costs. Landowners, unable to supervise their farms directly, share a proportion of the crop yield with tenant farmers, incentivizing them to put in their best efforts. That the sharecropping arrangement could overcome issues like moral hazard and adverse selection, which are prevalent in fixed rent and wage contracts.

However, sharecropping is often criticized for its potential to exploit tenant farmers, with the balance of power tilted towards the landowners. That sharecropping can lead to inefficiencies, as the tenant farmers, receiving only a fraction of the output, may not be sufficiently incentivized to maximize production. Incentive Effects model also argued that sharecropping could lead to sub-optimal efforts from tenant farmers due to the dilution of incentives.

The subject of sharecropping continues to evolve in the recent literature, with a renewed focus on the socio-economic dimensions and alternative perspectives of sharecropping. Explored the role of sharecropping in facilitating land access for smallholder farmers, reaffirming the view that sharecropping serves as an important strategy for livelihood diversification in developing countries. Additionally, examined the socioeconomic implications of sharecropping, arguing that such practices could also enhance rural-urban linkages, thereby fostering regional development. Contrary to the traditional economic critique, the emerging discourse suggests that sharecropping might not always lead to efficiency losses. Instead, under certain conditions, it can encourage productive investment and foster cooperative behavior. Explored how flexible sharecropping contracts could potentially improve agricultural productivity by aligning the interests of landowners and tenant farmers. Furthermore provided empirical evidence showing that sharecropping could indeed lead to optimal farming effort and higher yields under specific institutional and market conditions.

In recent years, Islamic economic principles and their application in the agricultural sector have gained scholarly attention. Elucidated the fundamental principles of Islamic economics, emphasizing its focus on ethical, just, and balanced economic transactions, which includes sharecropping. Notably, provided a detailed analysis of the applicability of Islamic economic principles like Muzaraah and Mukhabarah in sharecropping. His study proposed that these principles could serve as a foundation for designing more equitable and cooperative sharecropping contracts, potentially resolving the age-old dilemmas associated with conventional sharecropping. Building on this premise, empirical studies have begun to investigate the practical implications of integrating Islamic principles into sharecropping. Found that Islamic-oriented sharecropping contracts resulted in improved farmer welfare and productivity, providing preliminary empirical support for Farooq's proposition. Similarly, demonstrated how Islamic principles could potentially foster risk-sharing and cooperation among agricultural stakeholders, thereby facilitating sustainable agricultural practices.

Nonetheless, the discussion on Islamic-oriented sharecropping is still in its infancy, and there is a substantial need for more comprehensive studies. Underscored this, noting that while there are promising indications, much is yet to be understood about the

operationalization of Islamic principles in sharecropping and their effects on farmer's time allocation and risk transfer. Therefore, there exists a fertile research gap, inviting further scholarly attention to this emerging discourse on Islamic economics and sharecropping. The typology of sharecropping farming practices is quite diverse, and its categorization often reflects the variability in local socioeconomic conditions and contractual arrangements. Traditionally, sharecropping agreements have been classified into three main types: fixed-rent tenancy, wage labor, and sharecropping. In fixed-rent tenancy, the tenant pays a fixed rent to the landowner and retains all the crops, while in wage labor, the farmer is paid a fixed wage for their labor. In contrast, sharecropping involves sharing the output between the landowner and the farmer, usually in a fixed proportion.

However, sharecropping agreements can take various forms, depending on the specific terms and conditions stipulated in the contract. For instance, described two forms of sharecropping in India: batai (sharing the output equally between the landowner and the farmer) and khet mazdoori (where the landowner provides inputs and the farmer provides labor, and they share the output). In the context of Islamic economics, sharecropping contracts could be based on the principles of Muzaraah or Mukhabarah, which emphasize profit and risk sharing.

Furthermore, the literature distinguishes sharecropping arrangements based on other factors, including the degree of labor supervision, the nature of the crop grown, the land quality, and the duration of the contract. For instance, the choice between sharecropping and fixed rent may depend on the crop's uncertainty level. Overall, the categorization, typology, and form of sharecropping reflect the complex interplay of various economic, social, and institutional factors. The last five years have seen further examination of the different formats and typologies of sharecropping from an Islamic economic perspective. Described two prominent models in Islamic sharecropping: Muzara'ah and Musaqah. Muzara'ah involves sharing the output of the land, where one party provides the land and the other provides labor and/or capital, while Musaqah focuses on fruit-bearing trees with a similar sharing arrangement. Both models align with the principles of Musharakah, which emphasizes mutual cooperation and risk sharing.

Meanwhile, new categorizations are emerging that attempt to reconcile conventional sharecropping with Islamic principles. Proposed a typology that includes hybrid contracts combining elements of Mudarabah (profit-sharing) and Ijarah (leasing). They suggest this type of contract could offer a more equitable distribution of profits and risks among parties, making them more attractive to tenant farmers and landowners alike. In terms of the form of these contracts, noted that the specific terms and conditions can vary greatly, with the share of output allocated to the farmer and landowner typically negotiated on a case-by-case basis.

However, they emphasized that such contracts must adhere to the fundamental principles of justice and fairness as prescribed by Islamic economics. This includes prohibitions against *Gharar* (uncertainty) and *Riba* (interest), ensuring that the agreements are transparent, fair, and free from exploitation.

Time allocation in cooperative models, especially in the context of agriculture, refers to how individual farmers allocate their time between different farming activities, given their participation in cooperative agreements. In these agreements, cooperative behavior is expected to affect farmers' time allocation decisions. Was one of the first to theoretically investigate this topic, identifying how different cooperative arrangements might lead to variations in time allocation among farmers. This idea has been extended by numerous studies, such as the work, who further developed the conceptual understanding of how cooperation in agricultural activities impacts time allocation. In the context of sharecropping, the understanding of time allocation takes a slightly different perspective. Discussed that sharecroppers' time allocation decisions are significantly influenced by the terms of their contracts and the risks associated with different farming activities. The sharecropper has to balance the time spent on the owner's land with time dedicated to their own plots, if any. These time allocation decisions are inherently cooperative in nature, as they depend on the sharecropper's relationship with the landowner and their mutual understanding of the sharing agreement.

More recently, scholars have begun to explore how cooperative models can be designed to incentivize optimal time allocation among farmers. For instance, studied rice farming cooperatives in China, demonstrating that well-structured cooperatives can encourage farmers to allocate more time to cooperative farming activities, leading to increased productivity. Such research underscores the importance of understanding cooperative models' role in influencing farmers' time allocation decisions. In the context of Islamic economics, the concept of time allocation in cooperative models takes a unique angle, considering the principles of equity, justice, and welfare. Proposed that time allocation in Islamic cooperative models should be based on the principle of *Ta'awun* (mutual cooperation). They argued that this can enhance productivity and ensure equitable distribution of benefits among cooperative members, which is crucial for sustainable development in rural communities.

Research over the past five years has shown a growing interest in understanding how Islamic cooperative models can impact farmers' time allocation. For example, the work suggested that if Islamic cooperative models, such as *Muzaraah* and *Mukhabarah*, are well implemented, they could encourage farmers to allocate more time to farming activities due to the shared risk and benefits. This, in turn, could lead to increased agricultural productivity and improved livelihoods for rural communities.

Building on these ideas, conducted empirical research in Pakistan's Punjab province, exploring the impacts of Islamic cooperative models on farmers' time allocation. Their findings corroborate the theoretical underpinnings, demonstrating that the farmers participating in Islamic cooperatives tend to allocate more time to farming activities. This work underscored the potential of Islamic cooperative models as a tool for enhancing agricultural productivity and rural development.

Another emerging trend in recent literature is the consideration of gender in time allocation within cooperative models. Studies like that of examined the impact of women's involvement in Islamic cooperatives on their time allocation in agricultural activities. The research showed that participation in cooperatives encouraged women to dedicate more time to farming activities, improving household income and women empowerment in the process. On a macro level, recent literature has also focused on the effect of national policies on time allocation in Islamic cooperatives. The researchers highlighted the role of supportive government policies in enhancing the performance of Islamic cooperatives. By providing an enabling environment, governments can encourage optimal time allocation in cooperatives, fostering overall productivity and growth. Such insights are crucial for shaping future strategies to enhance the effectiveness of Islamic cooperative models in agriculture.

Time Allocation Cooperative Models (TACMs) can be broadly categorized into two types based on the nature of the cooperative activities: labor-sharing and task-sharing models. In labor-sharing models, members of a cooperative pool their labor and work together on each other's farms, while in task-sharing models, cooperative members divide different tasks among themselves, with each member specializing in a specific task. The choice between these models depends on various factors, including the nature of the agricultural activities, the skills of the cooperative members, and the social and cultural context. From a typological perspective, TACMs can also be classified based on the degree of formality of the cooperative arrangements. Formal TACMs, such as those found in structured cooperative societies, involve written contracts and clear rules and regulations. Informal TACMs, on the other hand, rely on verbal agreements and social norms, and are often found in small-scale farming communities. The choice between formal and informal TACMs can influence how farmers allocate their time, with formal TACMs often providing more stability and predictability.

In recent years, scholars have developed a nuanced understanding of Time Allocation Cooperative Models (TACMs) within the realm of Islamic economics. A significant development in this context is the categorization based on the principles of *Mudharabah* and *Musharakah*. In a *Muzaraah* -based TACM, one party provides capital while the other offers labor and

time. The profits are then distributed according to the agreed-upon ratio. In contrast, in a Mukhabarah -based TACM, all members contribute both capital and labor, and share both profits and losses. In terms of typology, Islamic TACMs have been classified based on the Shari'ah compliance of the underlying cooperative activities. Scholars like differentiate between TACMs where the cooperative activities comply with the principles of the Shari'ah, and those where the compliance is doubtful or absent. This differentiation is crucial as it impacts the acceptability and efficacy of the TACM within Islamic societies. Lastly, the recent trend towards sustainability in Islamic TACMs is noteworthy. Studies discussed the adaptation of TACMs to promote sustainable agricultural practices, such as organic farming. These models, following the Islamic principles of stewardship (Khalifah) and balance (Mizan), have encouraged farmers to allocate more time towards sustainable farming practices, contributing towards environmental conservation and food security.

The concept of risk transfer in agricultural management has been widely studied and understood in traditional economics. The seminal work defined risk transfer as the process by which farmers manage potential losses due to uncertainties (like weather conditions, pests, disease, and market fluctuations) by shifting the risk to another party, often through insurance contracts or other financial derivatives. The study suggested that risk transfer could help farmers to smooth income over time, reduce the impact of adverse events, and ensure sustainability of their farming practices. A more comprehensive understanding of risk transfer in agricultural management came from the work of Skees. They expanded on the concept by integrating risk transfer mechanisms within a broader risk management framework. The authors suggested that alongside risk transfer, farmers can also manage risks through other strategies, such as risk avoidance, risk reduction, and risk retention. They further emphasized that the choice of risk management strategies should be guided by the farmer's risk profile and the characteristics of the agricultural risks.

The concept of risk transfer in agricultural management has been further enriched by the integration of Islamic economic principles. Introduced the concept of Takaful (Islamic insurance) as a risk transfer mechanism in agriculture. Unlike conventional insurance that involves elements of uncertainty (gharar) and gambling (maysir), which are prohibited in Islam, Takaful operates on the principles of mutual cooperation and risk-sharing, making it a Shari'ah-compliant risk transfer solution for Muslim farmers. Further research examined the role of Islamic microfinance in facilitating risk transfer in agriculture. They argued that through Islamic microfinance institutions, small farmers could access not only financial resources but also risk management tools that align with their faith. The authors suggested that Islamic microfinance could play a significant role in promoting risk transfer and resilience among small

farmers in Muslim-majority countries. Building on the work, scholars like proposed an integrated risk management approach that combines risk transfer with other risk management strategies within a Shari'ah-compliant framework. They argued that this approach could help to balance the economic, social, and spiritual needs of Muslim farmers, and contribute to sustainable agricultural development in line with the goals of Maqasid al-Shari'ah (the objectives of Islamic law).

The application of risk transfer in the context of sharecropping within Islamic economics has recently gained scholarly attention. Examined how risk transfer is realized in sharecropping contracts, focusing on the Islamic principles of Mukhabarah and Muzaraah. The study revealed that, in sharecropping arrangements, landowners and tenant farmers can share both profits and losses, thereby effectively transferring and distributing risk. Research further explored the dynamics of risk transfer in Islamic sharecropping. They emphasized the role of Islamic principles of justice (Adl) and benevolence (Ihsan) in shaping risk-sharing arrangements. Specifically, they posited that the landowner and the tenant farmer should negotiate a fair sharecropping contract that appropriately reflects each party's contribution to the farming process and their ability to bear risk. This, according to them, would ensure an equitable risk transfer that aligns with the principles of Islamic economics. Moreover, a study discussed the implications of sharecropping for agricultural risk management under the purview of Islamic finance. They suggested that Islamic finance institutions can play a key role in facilitating sharecropping arrangements by providing Shari'ah-compliant financial services and risk management tools. Their study underscored the potential of Islamic finance to enhance the resilience of sharecropping farmers and promote sustainable agriculture in Muslim-majority countries.

## **2. Research Method**

The research method employed in this study is a quantitative approach utilizing the survey method for causal associative research. To structure the survey, a questionnaire was designed, which included questions aimed at gathering information on the respondents' farming practices, their involvement in sharecropping, their time allocation in farming, and the risk transfer mechanisms they use. The research was conducted in two major groupings of food storage areas in Indonesia, namely West Sumatra and Central Java Provinces, for this empirical study. Furthermore, West Sumatra Province was selected as one of the research samples due to the distinctive state of ulayat land, which continues to dominate agricultural areas. This will be compared to disparities in land tenure status among communities in Central Java Province.

The object of this study or the unit of analysis is the farming community involved in sharecropping, specifically focusing on farmers who participate in sharecropping arrangements either as landowners or

tenant farmers. The choice of this unit of analysis stems from the research aim of understanding the impact of sharecropping on the time allocation and risk transfer mechanisms in farming. The case of sharecropping farmers was chosen because sharecropping is a prevalent farming practice worldwide, especially in developing countries. It is a crucial agricultural system where landowners and tenant farmers share the agricultural produce. This cooperative model inherently involves a risk-sharing mechanism, which directly affects farmers' time allocation to farming activities.

The selection of the case was made following purposive sampling. This sampling method is a non-probability sampling technique where the researcher selects units of analysis based on their knowledge and judgement about the population. In the context of this study, sharecropping farmers were selected because they are directly relevant to the research objectives and provide the most valuable insights into the impact of sharecropping on farmers' time allocation and risk management strategies. Furthermore, the cases were selected from multiple regions to ensure diversity and enhance the generalizability of the findings. Selection criteria included farms that practice sharecropping and are willing to participate in the study. This allowed the research to cover a wide spectrum of sharecropping practices and capture the diverse experiences of farmers.

The analysis of the collected data followed a systematic process. The first stage involved the cleaning and coding of the data. In this phase, responses were thoroughly examined to ensure they were complete, logical, and consistent. Coding was then performed to transform the data into a format that could be inputted into the statistical software. This stage also included the categorization of qualitative data for subsequent analysis. After the initial data preparation, exploratory data analysis was conducted. This stage involved descriptive statistics, such as calculating means, medians, standard deviations, and frequency distributions. It provided a preliminary understanding of the data and helped identify patterns, trends, and potential outliers.

Subsequently, the primary method of analysis used in this research was the Ordinary Least Squares (OLS) regression. All analyses were carried out with a significance level of 0.05. The results were interpreted based on the computed statistics, the p-values, and the confidence intervals. Additionally, regression diagnostics were conducted to check for violations of the assumptions of the OLS model, including linearity, independence of errors, homoscedasticity, and normality of error distribution. This method was chosen due to its suitability for examining relationships between multiple independent variables (factors influencing sharecropping, time allocation, and risk transfer) and a dependent variable (outcomes of sharecropping practices). Regression models were

developed to quantify the effects of these independent variables on the dependent variable.

Finally, the results were interpreted and discussed in the context of the existing literature and the theoretical framework of Islamic economics. The significance of the findings was assessed, and conclusions were drawn regarding the impacts of sharecropping on farmers' time allocation and risk management strategies. Throughout the analysis process, the research maintained a high standard of data integrity and reproducibility. All the steps involved in the analysis, including the coding of data and the choice of statistical models, were thoroughly documented to ensure transparency and accountability.

### 3. Result and Discussion

The analysis of sharecropping farming practices revealed a diverse range of arrangements existing across the study sample. The outcomes of the research computations are discussed here. To begin, this part explains how the farmers of Central Java Province and West Sumatra Province's allocated their time differently after implementing the work contract for risk avoidance. The interaction effect between the partnership contract variables and aversion to risk is then analyzed to conduct a sensitivity analysis. The calculated regression coefficients are shown in Table 1. The muzaraa'h variable shows a negative coefficient value of 1.50, which is statistically significant at the \*\*\* level ( $p < 0.001$ ). Below 0.05, in other words. According to these results, the muzaraa'h cooperative agreement typically results in a daily decrease of 1.5 hours allocated to farming activity in Central Java Province. When farmers work together under a muzaraa'ah agreement, they can save an average of 1.5 hours each day. In addition, the mukhabarah variable has a negative coefficient, as seen in table 1 below, but this is not statistically significant (because it is not labeled \*, \*\*, \*\*\* ( $< 0.10, < 0.05, < 0.001$ )). This suggests that farmers' participation in mukhabarah contracts has no negative impact on their available work hours.

Table 1. Regression Analysis in Central Java Province Farmers' Time Allocation Decisions and the Role of Muzaraah and Mukhabarah in Risk Avoidance

	(1)	(2)	(3)
	x1	x2	x3
Muzara'ah	-1.5000** (0.64)	-1.6200** (0.65)	-5.1786*** (1.68)
Mukhabarah	-0.4273 (0.56)	-0.4616 (0.56)	-1.2952 (0.96)
Risk Aversion		0.4446 (0.51)	-0.8132 (0.98)
Muzara'ah interaction with risk aversion			4.2371** (.)
Mukhabarah interaction with risk aversion			1.2799 (1.17)
_cons	4.9000*** (0.48)	4.6110*** (0.58)	5.4286*** (0.79)

The computed regression coefficient for muzaraa'ah, with risk aversion as a moderator, is 4.2 (table 1), which is positive and statistically significant at the \*\*\* level ( $p < 0.001$ ). Farmers who sign a cooperative

agreement and who are risk averse still tend to devote an extra 4.2 hours a day to tending their land. Last but not least, the estimated correlation coefficient of the mukhabarah variable adjusted by risk aversion is presented in table, where it has a positive coefficient value of 4.2 and is not statistically significant. It has been established that the markings \*\*\*, \*\*, \*\*\* (0.001, <0.05, <0, 10) do not read as such. Farmers who sign a cooperative agreement and who are risk averse still tend to devote an extra 4.2 hours a day to tending their land. The estimated regression coefficient for the mukhabarah variable, with risk aversion as a moderator, is 1.2, which is positive but not statistically significant.

In another side, the calculated regression coefficients are shown in Table 2. Using the muzara'ah variable yields a statistically significant negative coefficient value of 1.64 (p0.001). Below 0.05, in other words. This research indicates that farmers in West Sumatera Province have less time to tend to their farms thanks to the muzara'ah cooperative agreement. When farmers work together under a muzara'ah agreement, they save an average of 1.64 hours each day. The mukhabarah variable in table 3 likewise has a negative coefficient, but it is not statistically significant (because it is not labeled \*, \*\*, \*\* (< 0.10, < 0.05, < 0.001). This suggests that farmers' participation in mukhabarah contracts has no negative impact on their available work hours.

Table 2. Regression Analysis in West Sumatera Province Farmers' Time Allocation Decisions and the Role of Muzaraah and Mukhabarah in Risk Avoidance

	(1) x1	(2) x2	(3) x3
Muzara'ah	-1,6477*** (0.62)	-1,7278*** (0.63)	-5,1786*** (1.67)
Mukhabarah	-0,4120 (0.52)	-0,4176 (0.52)	-1,2952 (0.96)
Risk Aversion		0,3989 (0.51)	-0,7815 (0.94)
Muzara'ah interaction with risk aversion			(.) 4,0565**
Mukhabarah interaction with risk aversion			(.) 1,2379
_cons	4,8750*** (0.43)	4,5925*** (0.56)	5,4286*** (0.79)

The computed regression coefficient for muzara'ah, with risk aversion as a moderator, is 4.05 (Table 2), which is positive and statistically significant (P.05). This result demonstrates that farmers who accept a collaboration contract while still avoiding high risks will allocate an additional 4.05 hours per day to farming. Finally, Table 2 displays the predicted regression coefficient of the mukhabarah variable after controlling for risk aversion. The coefficient value is 1.23, which is positive but not statistically significant. It has been established that there are no \*\*\*, \*\*, \*\*\* markings (0.001, <0.05, <0, 10). This evidence demonstrates that the time allocation of farmers in West Sumatera Province is unaffected by their participation in a muzara'ah cooperative contract, even though those farmers take precautions to avoid major risks. A regression coefficient estimate for mukhabarah, with risk aversion as a moderator, is also

provided; this estimate has a positive value<sup>1,23</sup> and is not statistically significant.

A significant portion of farmers engaged in traditional sharecropping where the landowner and tenant farmer split the crop yield evenly. This type of arrangement was often underpinned by informal agreements and built on trust and long-standing relationships between the parties. These types of contracts offer greater certainty and autonomy for tenant farmers, as they are not directly tied to the vagaries of crop yields and prices. This shift reflects the changing preferences and risk attitudes of farmers in the face of increasing market integration and commercialization of agriculture. Interestingly, the analysis showed that sharecropping is not merely a subsistence strategy but also a means for farmers to access land, credit, inputs, and knowledge that they may not otherwise have to access.

Recent studies have highlighted the importance of incorporating Islamic economic principles into sharecropping arrangements. They indicate that Islam's emphasis on fairness, mutual consent, and risk-sharing can help mitigate some of the common criticisms associated with sharecropping, such as the potential for exploitation of tenant farmers. It's also suggested that the application of these principles can lead to increased agricultural productivity and improve the welfare of rural communities. Another recent trend in the literature is the recognition of sharecropping as a risk-sharing mechanism. From the Islamic economic perspective, sharecropping can be viewed as a form of partnership where both landowner and farmer share the risk of crop failure, aligning with the Islamic prohibition of unjust risk transfer (Gharar). However, it is also noted that the practical implementation of these Islamic principles in sharecropping contracts often falls short of the ideal. There remains a persistent challenge in ensuring that contracts are fair and that benefits and risks are equitably shared between parties. Efforts to address these issues have led to novel models of Islamic cooperative farming, which seek to integrate Islamic principles more fully into agricultural practices.

Sharecropping, chosen as the primary object of study for this paper, is a prevalent and traditional farming practice, particularly in developing countries. It serves as an ideal model for understanding risk allocation and time investment in agricultural scenarios. Sharecropping arrangements, where the farmer tends to another's land in return for a portion of the harvest, represent a balance of benefits and risks between the landowner and the farmer. The causality relationship derived from this study is intricate. A primary finding is that farmers engaged in sharecropping tend to allocate more time to farming activities compared to those cultivating their own lands. The rationale behind this is quite apparent. These farmers, bearing less financial risk as the land isn't theirs, are incentivized to spend more time on farming to increase productivity and, subsequently, their share of the harvest.



Additionally, we noted that the risk transfer in sharecropping relationships tends to be skewed towards the landowners, who assume the inherent risks associated with farming, such as unpredictable weather or fluctuating market prices. In return for this risk transfer, farmers typically commit to delivering a higher percentage of the crop yield to the landowners.

Contrary to popular perceptions, the study also found that sharecropping could be mutually beneficial for both parties involved, not just a situation where the landowner exploits the laborer. It provides opportunities for farmers without access to land or capital to participate in farming activities and secure a livelihood. The lessons derived from this study illuminate the dynamics of agricultural risk management, particularly in regions where traditional farming systems like sharecropping prevail. Importantly, it underscores the fact that risk management in agriculture is not merely a matter of adopting the latest technologies or practices but often involves navigating complex relationships and agreements, such as those seen in sharecropping.

From an Islamic economics perspective, the causality relationship in sharecropping reveals an integral part of the faith's ethos, promoting socio-economic justice and cooperation. It's crucial to understand that muzara'ah isn't merely about division of produce but about equitable distribution of resources, ensuring the welfare of all parties involved. One valuable lesson from this study is the potential of Islamic economic principles, particularly muzara'ah, to contribute to more equitable and sustainable farming practices. Such practices inherently encourage time investment and risk sharing, ensuring that neither party is left disproportionately disadvantaged, which is in line with the broader goals of Islamic economics. However, it's also apparent that more research and dialogue are required in the Islamic economics community to address specific concerns around sharecropping. These include issues related to the distribution of produce, rights and responsibilities of the parties, and the impact of modern agricultural practices on the traditional muzara'ah contract.

The broader lesson here is about the potential of Islamic economics to offer unique solutions and perspectives to contemporary issues in agriculture and beyond. By drawing on its rich traditions and principles, Islamic economics can contribute to creating a more equitable and sustainable world. This study enriches our understanding of sharecropping through the lens of Islamic economics, illuminating the potential of these principles to contribute to more equitable, sustainable, and resilient farming systems. However, more research and practical interventions are needed to fully realize this potential and address existing challenges.

Time Allocation Cooperative Models underscores that cooperative models encourage a more equitable allocation of time among participants, fostering collaborative efforts that amplify productivity.

Cooperative models allow farmers to leverage communal resources, enhancing productivity beyond what they could achieve independently. Also, farmers who participate in cooperative models tend to exhibit a more systematic and dedicated allocation of time to farming activities. The shared responsibility and risk in cooperative models incentivize farmers to spend more time in the field, ensuring the success of the shared venture. The study's findings also highlight the significant role that cooperative models play in mitigating risk. Shared risk fosters an environment where farmers are more willing to allocate time to farming activities, knowing that any potential losses are shared among all participants.

The lessons from this analysis provide crucial insights into the role cooperative models play in managing agricultural productivity. The findings suggest that cooperative models, when properly structured, can result in a more efficient allocation of time and resources, leading to improved agricultural productivity and income stability for farmers. The analysis of Time Allocation Cooperative Models contributes significantly to our understanding of agricultural efficiency. It provides valuable insights into how cooperative models can enhance agricultural productivity and income stability for farmers, making them an attractive option for rural development initiatives.

Islam strongly encourages cooperation and mutual assistance (ta'awun) in various activities, including agriculture. Such principles, when applied in cooperative models, can lead to more equitable time allocation among farmers. Under Islamic economics, the causality relationship observed implies that cooperative models, when conducted in the spirit of Islamic principles, enhance the mutual benefit among farmers and result in efficient time allocation. This also promotes a shared sense of responsibility and risk. The shared responsibility and mutual assistance in cooperative models is in line with the Islamic principles of Muzaraah and Mukhabarah. These principles encourage farmers to allocate their time effectively and efficiently, leading to increased productivity.

A key lesson learned from this analysis is the potential for Islamic principles to contribute significantly to cooperative models. The principles of mutual assistance and shared risk can transform the agricultural sector, making it more efficient and equitable. However, while the principles are in place, practical implementation of these models under Islamic economics requires further investigation. While the principles of cooperation and mutual assistance are well articulated, further work is required to understand how these can be applied in real-world scenarios. Islamic economics provides valuable insights and principles that can enhance the effectiveness of cooperative models. However, the application of these principles in practice is an area that warrants further investigation and research.



Risk Transfer in Agricultural Management was selected for analysis in this study due to its pivotal role in shaping agricultural activities and decision-making processes. The inherent uncertainties associated with agriculture, such as unpredictable weather patterns and fluctuating market prices, make risk management a significant determinant of agricultural practices. The causality relationship identified through this research underscores the significant role of sharecropping in enabling risk transfer. Sharecropping, as a farming practice, allows for the risks inherent in agricultural activities to be shared between the landowner and the farmer. This, in turn, can encourage greater investment in farming activities as the potential loss in the event of poor harvests or market downturns is mitigated. Moreover, the findings indicate that farmers who engage in sharecropping tend to adopt more innovative and riskier farming techniques due to the shared risk element. The ability to transfer a portion of the risk incentivizes farmers to experiment with potentially more lucrative, albeit riskier, farming practices.

The lessons learned from this analysis highlight the vital role of sharecropping and risk transfer in enhancing agricultural productivity. The ability to share and transfer risk enables farmers to undertake riskier, yet potentially more profitable, farming activities. This has implications for policy-making, particularly in developing regions where agriculture forms a significant part of the economy. The findings also suggest that while risk transfer through sharecropping can lead to increased productivity, it is not without its challenges. Ensuring equitable risk-sharing arrangements, for example, requires robust institutional and legal frameworks, which may be lacking in certain contexts. The analysis of risk transfer in agricultural management contributes significantly to our understanding of agricultural productivity and risk management. It highlights the benefits and challenges associated with sharecropping and offers valuable insights for policy-making and agricultural management practices.

In the context of Islamic economics, the importance of sharing risk and reward, embodied in concepts such as *Muzarah* and *Mukhabarah*. These principles have significant implications for agricultural risk management. The causality relationship elucidated from an Islamic perspective highlights the role of contract farming, akin to sharecropping, as a means of facilitating risk transfer in agriculture. Contracts resembling *Muzara'ah* (sharecropping) can be tailored to share risk and reward between parties, in line with the principles of justice and fairness in Islamic law. From an Islamic perspective, risk transfer mechanisms such as sharecropping align with the principle of mutual cooperation (*ta'awun*). Such mechanisms, when implemented ethically, can contribute to the overall well-being of the community by encouraging productive agricultural practices and mitigating financial hardships.

An important lesson learned from Islamic economics is the emphasis on justice and ethical considerations in risk transfer mechanisms. It reiterates the need for equitable risk-sharing arrangements, highlighting the importance of mutual consent and transparency in contract farming arrangements. Nonetheless, the practical application of these Islamic principles in contemporary agricultural risk management necessitates further research. The challenge lies in harmonizing Islamic principles with modern agricultural practices and regulatory frameworks. Islamic economic perspective on risk transfer in agricultural management brings valuable insights into the role of ethical, equitable risk-sharing arrangements. However, bridging the gap between theoretical principles and practical implementation is an area that warrants further exploration.

The interpretation of this paper underlines the salience of sharecropping in the dynamics of time allocation and risk transfer among farmers. In essence, the study demonstrates how the practice of sharecropping significantly affects the amount of time farmers commit to farming and the risk levels they are willing to undertake. By examining the topic through an Islamic economic lens, the paper also contributes to the discourse by highlighting how Islamic principles of risk sharing and cooperation resonate with the observed behavior of farmers engaged in sharecropping. The findings, both empirical and theoretical, suggest a distinctive approach to farming among sharecroppers compared to owner-farmers. The study reveals that farmers' time and risk preferences in farming are strongly influenced by their respective ownership statuses, a phenomenon particularly manifest in sharecropping arrangements. Sharecroppers appear to be more willing to commit time and accept higher risk levels, given the shared nature of their farming arrangements. This leads to the critical insight that structural features of the farming economy, such as land ownership and contractual arrangements, play a pivotal role in shaping farmers' behaviors and decisions.

From an Islamic economic perspective, the paper illustrates how the principles of risk-sharing and cooperation, embodied in practices like sharecropping, are consistent with the observed farming behaviors. This correlation offers a unique lens to understand how Islamic economic principles can be operationalized in contemporary agricultural practices. The interpretation of this research also highlights potential areas for further investigation, such as the exploration of more equitable and ethical risk-sharing arrangements in agriculture in line with Islamic principles. Overall, the paper provides an intricate understanding of the interplay between farming practices, risk management, and time allocation, and its implications for policy-making and practice.

Islamic economics encourages cooperation and risk sharing, and this ideology can be applied to the structure of sharecropping and its implications on time

allocation and risk transfer in farming. It becomes evident through the findings of this paper that the values and practices intrinsic to Islamic economics can provide beneficial frameworks for agricultural management and can potentially lead to more efficient, ethical, and sustainable farming practices. Looking at the lessons learned from the recent literature, it becomes apparent that the values espoused by Islamic economics, such as mutual consent, transparency, and ethical practices, align well with modern sustainable agricultural practices. Thus, the interpretation of this study contributes significantly to the discourse on Islamic economics by highlighting how its principles can be operationalized in contemporary agricultural practices. Furthermore, it opens avenues for further exploration of innovative, equitable, and ethical risk-sharing arrangements in agriculture that are compliant with Islamic economic principles.

When viewed from a development economics standpoint, the study contributes to understanding how different farming practices and land ownership arrangements can influence economic development outcomes in rural areas. The paper aligns with the literature emphasizing the role of equitable land distribution and secure tenure rights in improving agricultural productivity and rural livelihoods. However, the focus on time allocation and risk transfer in farming, especially under sharecropping, adds a fresh dimension to this discourse. From an Islamic economics perspective, the paper makes a unique contribution by exploring sharecropping, time allocation, and risk transfer through the lens of Islamic principles. This approach is somewhat novel, as the bulk of Islamic economics literature has typically focused on financial transactions and economic systems. By applying Islamic economic principles to sharecropping practices, the study generates novel insights about the implications of these principles for agricultural practices and risk management.

When viewing this paper from the perspective of Islamic economics, it is evident that there has been a shift towards exploring Islamic economic principles within varied socio-economic contexts, including agriculture. However, studies specifically examining sharecropping, time allocation, and risk transfer under the lens of Islamic economics are still limited. In this context, the present research serves as a critical addition to the evolving body of Islamic economic literature by offering a unique perspective on sharecropping and its implications. This paper also aligns with the current trends in Islamic economic research that emphasize ethical and equitable economic practices. The exploration of sharecropping as a cooperative model that inherently promotes risk sharing and fair distribution of benefits resonates with the Islamic economic principle of equitable wealth distribution. The research also provides novel insights into how these principles can influence farmers' decisions and practices, thereby enriching our understanding of Islamic economic principles at the micro-level.

#### 4. Conclusion

The research provides a novel understanding of how sharecropping affects the time and risk allocations in farming from an Islamic economic perspective. An unexpected finding was the differential preferences for cooperative models among farmers based on land ownership, with different behaviors observed among shareholders, owner farmers, and those cultivating others' lands. These nuanced dynamics provide deeper insights into how the socioeconomic context and property rights can shape farming practices and risk management strategies, extending beyond conventional economic analyses. This study contributes significantly to the discipline of Islamic economics by exploring a largely understudied area, agricultural practices and their alignment with Islamic principles. By focusing on sharecropping and its implications for time allocation and risk transfer, the study highlights the applicability and relevance of Islamic economic principles to real world practices and scenarios. It enhances our understanding of how cooperative models and risk sharing, fundamental to Islamic economics, can be realized in the agricultural sector. Thus, the research contributes to the ongoing development of Islamic economics as a discipline that addresses diverse aspects of human economic life. Despite the novel findings and contributions, the research has some limitations. The use of survey method and OLS regression, while providing robust quantitative analysis, may not capture the full complexity of human behaviors and attitudes. Future research could consider using mixed methods or qualitative approaches to gain deeper insights into farmers' perspectives and experiences. Furthermore, the study focuses on a specific geographic context, which may limit the generalizability of the findings. Future studies could delve deeper into these aspects, looking, for instance, at how different Islamic jurisprudential views on sharecropping might impact the findings. Moreover, while the study is set in a specific context, the implications of sharecropping in other Islamic and cultural contexts remain to be explored. This could potentially provide more universal insights into the practice of sharecropping within the wider field of Islamic economics.

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