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Finance, Economics, and Industry for Sustainable Development

Proceedings of the 4th International
Scientific Conference on Sustainable
Development (ESG 2023), St.
Petersburg 2023

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Editors

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Sustainable Development as a New Paradigm of Economic Security in a Multipolar World



Natalia V. Vasilenko and Vitaly A. Mordovets

Abstract Economic security necessitates the mitigation of threats arising from various factors, demanding diverse approaches as these threats are of a dynamic nature. This study explores the potential use of sustainable development as a theoretical framework for devising measures to safeguard national economic security amid the emergence of a multipolar world. The goal of the study is to justify sustainable development as an integral paradigm for economic security and identify strategies for transforming the Russian economy to uphold national economic security while the world is shifting toward multipolarity. The study employed general research methods, comparative analysis, and historical analysis. Key global factors shaping the need for a new economic security paradigm in the modern era include challenges and threats arising from the potential displacement of national interests during globalization and the worsening environmental conditions affecting the quality of life. The study delineates the extensive overlap between the concepts of national economic security and sustainable development, highlighting the core links between them. It establishes the cohesion of sustainable development as a novel paradigm for economic security and demonstrates its potential in neutralizing contemporary threats to Russia's economic security. The study outlines the pathways for transforming the Russian economy amid the shift to a multipolar world. Further research directions include refining the application of sustainable development as a tool to counter various threats to national security along the way toward multipolarity.

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Introduction

Since the inception of national states, their primary mission has been twofold: safeguarding their populations against external threats and maintaining internal order to foster favorable conditions for economic endeavors. As the division of labor deepened, industrial production grew, markets evolved, and international economic relations strengthened, the importance of ensuring national economic security became paramount. It serves as the foundation for bolstering a nation's geopolitical standing and enhancing the well-being of its citizens.

Shifts in the global order and economic landscape have been generating new challenges and threats. A country's ability to counter these challenges not only determines its position in the international division of labor but also its capacity to shape its own economic development (Leshchenko, 2021). Consequently, the methods and mechanisms for ensuring economic security must adapt and evolve based on a country's specific objectives and economic policies. Despite variations in approaches to economic security across countries (Karsuntseva & Burkina, 2020), certain overarching trends can be discerned. An evolution of these approaches can be traced through the lenses of cameralism, Keynesianism, and de Soto's institutionalism (Latov, 2007).

Most researchers concur on the nonlinear nature of global economic development, characterized by the interplay between relatively stable periods that accumulate changes and transformative phases that mitigate accumulated contradictions to varying extents. This process is reflected in numerous theories and perspectives, including Kondratiev waves (Aivazov, 2013), Glazyev's waves of innovation (Glazyev, 2020), Arrighi's systemic cycles of accumulation, and Schumpeter's theory of creative destruction (Arrighi, 2006; Balatsky, 2018). Concerning the contemporary period, it is noteworthy that the world is transitioning from a unipolar model of global order rooted in capital accumulation (Volkonsky, 2021), global dominance (Orlov, 2020), and liberalism (Shahmin, 2020) to a multipolar world as an alternative to globalization (Glazyev, 2020).

Economic development aims at improving the quality of life worldwide, irrespective of polarity, and is accompanied by growth in the consumption of both goods and resources, which has led to disruptive changes in natural ecosystems and a rise in health issues (Okorokov & Kalchenko, 2015). The Economic Security Strategy of the Russian Federation until 2030 underscores the significant influence of factors linked to global climate change on economic development. These factors may jeopardize food and freshwater supplies for the population and intensify competition among nations for access to natural resources. These developments underscore the potential of sustainable development as a promising approach to shaping a new paradigm of economic security in contemporary circumstances.

The goal of the study is to substantiate sustainable development as an integral paradigm of economic security during the transition to a multipolar world and to determine the directions of transformation of the Russian economy to ensure national economic security in the conditions discussed above.

To achieve this goal, the study addressed the following objectives:

- Identifying global economic development factors that necessitate the need to design a new economic security paradigm amid the transition to a multipolar world
- Describing the essential features of sustainable development that enable its characterization as an integral paradigm for national economic security
- Determining the specific directions for transforming the Russian economy during the transition to a multipolar world, considering the requirements of economic security

Materials and Methods

In the course of this study, general research methods were used, such as analysis and synthesis, induction and deduction, abstraction, comparison, systematization, and a historical approach.

The research methodology is based on the following assumptions.

Economic security is understood as a state of security of an economic system and its elements from both external and internal threats. This state ensures the system's independence, stability, and development, serving the interests of both the economic system itself and its stakeholders. Economic security is considered as part of national security, and safeguarding national interests involves ensuring economic security (Shishov, 2019).

The fundamental approach in addressing threats entails their identification and subsequent neutralization. A crucial bridge in this process is the theoretical concept of economic security, which facilitates the proactive understanding of potential threats. This understanding, occurring between the emergence of a threat and the formulation of countermeasures, paves the way for the development of effective national economic policies (Latov, 2007).

The study pinpoints the following as the most important factors determining the need for a new economic security paradigm:

- The transition from a unipolar to a multipolar world with its greater opportunities for considering national interests; this transition is pivotal in achieving the independence, stability, and growth of the national economy (Burovsky, 2022; Goliney, 2019).
- Deterioration of environmental conditions, which negatively affects the quality of life and requires a shift toward achieving the sustainable development goals (SDGs) (Vyakina, 2018).

The sustainability of a multipolar world hinges on striking a balance of interests among nations and their alliances. The transition to such a world critically depends on the role of the state as the primary agent ensuring national economic security (Glazyev, 2020; Orlov, 2020; Volkonsky, 2021).

Results and Discussion

The Need to Design a New Economic Security Paradigm in the Context of the Transition to a Multipolar World

Lazov (Latov, 2007) conducted an analysis of three historical concepts of economic security that emerged in different epochs and were responses to threats pertinent to their respective eras.

The cameralist concept of economic security, originating in the 1840s in the works of Friedrich List and later revived by left-wing economists in the 1970s, primarily focused on external threats to national markets from foreign goods. This concept emphasized achieving economic independence through the development of national productive forces and the implementation of protective government policies.

The Keynesian concept of economic security, proposed by John Maynard Keynes in the 1930s, concentrated on shielding the economy from internal macroeconomic threats, which became clearly vivid during the economic crisis of the time and resulted from cyclical economic developments. Keynesian theory sought socioeconomic stability amid market failures through direct government regulation of production, employment, and monetary circulation.

The institutional concept of economic security, developed by Hernando de Soto in the 1980s, identified administrative barriers (“market failures”) as internal threats to business activities. It advocated combating bureaucracy and corruption as primary strategies for fostering business activity.

A comparative analysis of these concepts revealed the following:

- All three concepts aim at safeguarding national interests, emphasizing the creation of conditions for developing productive forces within the country through diverse governmental policies.
- Over time, the focus of understanding threats to economic security shifted from predominantly external to internal concerns, driven by globalization, a trend which eroded institutional differences between nations and facilitated a more fluid movement of resources, capital, and intellectual property across national borders.

The neutralization of so-called market failures and state failures propelled the widespread adoption of market economic models, ushering in a unipolar world by the early twenty-first century (Khazin, 2012). In this scenario, a single dominant superpower, equipped with abundant resources, advanced technology, geopolitical advantage, a robust financial system, and flourishing industry, holds sway over key economic sectors and industries. Consequently, this dominant position allows the superpower to prioritize its economic interests over those of other nations, shaping global economic strategies and policies to its advantage.

In this unipolar setting, non-dominant countries face external threats, risking loss of independence and stability, while internal challenges from market failures and

state failures persist. Existing approaches to ensuring economic security proved inadequate, as evidenced by trade restrictions due to sanctions and violations of private property rights, which are foundational elements of market economic systems (Khalova & Illeritskiy, 2023). The solution is seen in the transition to a multipolar world, which involves economic cooperation between countries and the development of economic policies based on a balance of national economic interests.

In addition, the environmental situation is deteriorating, which is manifested in desertification, depletion of the ozone layer, gradual climate change, and natural disasters causing widespread destruction and loss of life. Other challenges include issues of welfare, inequality, resource scarcity, and migration risks. All of the above constitutes another group of challenges that are global in nature (Vyakina, 2018). Counteracting these global threats necessitates collaborative efforts from multiple countries, tailored to each nation's unique interests.

In light of these complexities, it becomes evident that a new economic security paradigm is imperative. This paradigm should harmonize with historical concepts while enabling the protection of national interests in the modern world. The authors contend that such a paradigm can find its foundation in the concept of sustainable development.

Sustainable Development as a New Integral Paradigm of Economic Security in a Multipolar World

The concept of sustainable development, which dates back to the 1980s, gained formal recognition at the international level in 2015, when the UN General Assembly adopted the document "Transforming our World: The 2030 Agenda for Sustainable Development," which outlined the Sustainable Development Goals (SDGs) (UN, 2023).

Achieving these SDGs necessitates transforming the lives of populations while harmonizing divergent interests within a triune framework (Starikova, 2017). In the context of competition for limited resources, attaining financial well-being, social stability, and environmental sustainability becomes crucial for both sustainable development and economic security (Vyakina, 2018). Such objectives can only be met through the collaborative efforts of the international community, nations, businesses, and individual citizens.

The primary condition for the functioning of a national economic system is development, which requires change, which, in turn, requires a transition to a new state of equilibrium of the national economy, assessed through the balance of multidirectional interests. National economic security in a multipolar world implies that both development and balance can be achieved only if the national interests of various countries are taken into account. Consequently, economic security and sustainable development intersect significantly.

The key intersections between the concepts of national economic security and sustainable development are outlined in Table 1.

Comparing the concepts presented in Table 1 reveals that ensuring economic security can be construed as a strategic goal in the formation of a multipolar world. Sustainable development emerges as a well-suited method for achieving this goal.

The paradigmatic nature of sustainable development in this context is linked to its integrity. The integrity of sustainable development is underpinned by several factors (Karsuntseva & Burkina, 2020; Okorokov & Kalchenko, 2015):

- Universality, complementarity, and complexity of the SDGs
- Focus on ensuring both national and global economic security
- Aiming to achieve a long-term balance between the needs of current and future generations

The universality, complementarity, and complexity of the SDGs require specific strategies for practical implementation:

- Providing SDG achievement indicators in the areas that are most relevant for the current state of each national economy; in Russia, for example, 90 indicators from the global list were included in the monitoring plan by the Federal State

Table 1 Key intersections between the concepts of national economic security and sustainable development

Comparison criterion	Sustainable development	Economic security
Stability of economic systems	Provides the ability to meet current needs while preserving resources and opportunities for future generations	Aims to ensure stability and sustainability of the economy, which is an important component of sustainable development
Balanced economic growth	Both concepts strive to achieve balanced economic growth that takes into account the needs of the economy, society, and the environment	
Rational use of resources	Calls for more efficient and sustainable use of natural and economic resources	Helps manage risks and threats associated with inefficient use of resources
Management of risks and threats	Economic security helps to identify and manage economic risks and threats that may affect the sustainability of development	
Long-term planning	Emphasizes the need to anticipate and manage future risks	Contributes to long-term planning of economic activity as part of a strategic approach
Innovation and technology	Supports innovation and the use of new technologies to ensure sustainable development	Promotes conditions for creating innovations and their safe implementation
Social and economic justice	Puts forward the goal of ensuring social and economic justice	Includes measures to combat inequality and social conflict, which contributes to the achievement of sustainable development

Source: Compiled by the authors

Statistics Service in 2017, and a 2020 study examined the integration of the SDGs into the system of public administration (Tolstykh & Kondratyeva, 2021).

- Decomposition of global economic systems into national, regional (Starikova, 2017), and corporate levels within the framework of ESG principles (Sokolova & Teymurov, 2021), which corresponds to the levels of economic security.

Sustainable development assesses factors that may impact future well-being, striving to mitigate potential risks and threats. Economic security, on the other hand, seeks stability and protection of societal interests. It can be achieved by measures aimed at eliminating economic instability threats, reducing financial crisis risks, and ensuring stability in both national and global economies.

Directions for the Transformation of the Russian Economy in the Transition to a Multipolar World, Considering Economic Security Requirements

Ensuring economic security demands a consideration of factors shaping the state, developmental trajectories, challenges, and threats within a national economy. Consequently, the formulation of public policy measures in economic security for each country in the evolving context of a multipolar world necessitates a nuanced blend of the previously discussed concepts of cameralism, Keynesianism, institutionalism, and sustainable development.

Table 2 presents the outcomes of a comparative analysis of current threats to the economic security of the Russian Federation, as outlined in the Economic Security Strategy of the Russian Federation for the period until 2030, ratified in 2017, across the four economic security concepts.

The data in Table 2 reveals that out of the 25 threats to national economic security, cameralism can address 11, Keynesianism is applicable to 9, and institutionalism addresses 7 threats. Notably, almost every threat to Russia's national economic security aligns with one or more SDGs. Achieving these goals aids in neutralizing the corresponding threat.

Despite all the limitations of the analysis, several key conclusions can be drawn:

- To address the challenge of ensuring economic security in the contemporary landscape of a multipolar world, a combination of theoretical economic security concepts is necessary, with an example applicable to Russia presented in Table 1.
- The concept of sustainable development aligns best with the threats to Russia's economic security; this alignment underscores the integral nature of sustainable development and its promising application as a new paradigm of economic security in modern conditions.

Analyzing the aforementioned threats and concepts, we can identify the primary directions for transforming the Russian economy during the transition to a multipolar world, taking economic security requirements into account:

Table 2 Current threats to Russia's economic security through the lenses of different economic security concepts

Threats to economic security	Concept for neutralizing threats			Sustainable Development Goals
	Cameralism	Keynesianism	Institutionalism	
1. Developed nations leveraging their economic and technological advantages for global competition	+			No. 17
2. Growing imbalances in the global economy and financial system	+			No. 17
3. Discriminatory measures against key sectors of Russia's economy	+			
4. Potential for conflicts in areas of Russia's economic interests, including regions near its borders	+			No. 17
5. Substantial fluctuations in global commodity and financial markets	+			No. 17
6. Shifts in global energy demand and energy mixes; advancements in energy-saving and green technologies	+			Nos. 7, 12 13–15
7. Trade, economic, financial, and investment regulation activities of international economic associations formed without Russia's participation	+			No. 17
8. Exposure of Russia's financial system to global risks and vulnerabilities in the information infrastructure of the financial and banking system	+			
9. Exhaustion of the export-driven model of economic development based on raw materials; a sharp decline in the role of traditional factors supporting economic growth due to changes in science and technology		+		Nos. 7, 9, 12
10. Absence of Russian non-resource companies among the global economic leaders	+			

(continued)

Table 2 (continued)

Threats to economic security	Concept for neutralizing threats			Sustainable Development Goals
	Cameralism	Keynesianism	Institutionalism	
11. Limited investment in the real economy due to an unfavorable investment climate, high business costs, administrative barriers, and ineffective property rights protection		+	+	Nos. 9, 13
12. Limited innovations, lag in developing and implementing new technologies, and the shortage of skilled staff		+		Nos. 8, 9
13. Mineral resource depletion		+		Nos. 7, 9, 12
14. Limited non-resource exports due to low competitiveness, underdeveloped market infrastructure, and modest participation in global value chains	+		+	No. 9
15. Low economic growth rates due to internal factors, including restricted access to long-term financial resources and underdeveloped transport and energy infrastructure		+		No. 9
16. National budget imbalance		+		No. 10
17. Inefficient public administration			+	No. 16
18. High levels of criminalization and corruption in the economy			+	No. 16
19. Continued presence of a significant shadow economy			+	No. 16
20. Growing income disparity		+		Nos. 1, 2, 10
21. Reduction in the quality and accessibility of education and medical care, leading to a decrease in human potential quality		+		Nos. 3, 4
22. Growing international competition for highly qualified staff	+			Nos. 3, 4, 8
23. Labor shortage		+		

(continued)

Table 2 (continued)

Threats to economic security	Concept for neutralizing threats			Sustainable Development Goals
	Cameralism	Keynesianism	Institutionalism	
24. Differentiation among regions and municipalities in terms of socioeconomic development levels			+	Nos. 10, 11
25. Too stringent environmental regulations; growing costs to meet consumer and environmental standards			+	Nos. 6, 7, 13–15

Source: Compiled by the authors based on <https://rosstat.gov.ru/econSafety> and UN data (UN, 2023)

- Diversification of the economy, which involves upgrading production, enhancing product quality, encouraging innovation, and reducing dependence on raw material exports in order to make the Russian economy more stable, mitigate vulnerability to global market fluctuations, and counter pressures from sanctions.
- Intensifying economic relations with countries and regions such as China, India, Latin America, and Africa to diversify exports and attract investment from a variety of sources.
- Developing critical infrastructure, including transport routes, communications, energy, and digital technologies, to foster economic growth and interactions between Russian regions and friendly nations, boost productivity, and attract foreign investments.
- Prioritizing education, science, healthcare, and social welfare to enhance human capital, improve labor productivity, and bolster the economy as a whole.
- Engaging actively in international organizations such as BRICS, SCO, and ASEAN and supporting international trade treaties and agreements to coordinate global positions, particularly in shaping new world order models.

Conclusion

The emergence of a multipolar world is a response to the recognition of threats and challenges faced by national economic security in contemporary conditions. A comparative analysis of theoretical concepts of national economic security, which developed in the nineteenth and twentieth centuries, reveals their inadequacy in addressing the complexities of ensuring national economic security. This inadequacy is particularly evident when considering threats generated by globalization and the worsening environmental conditions impacting people's lives. The interdependence of national economies necessitates collaborative efforts for continued socioeconomic development, with security requiring stability across different levels of the

hierarchy, be it national or global. In this context, we advocate for the adoption of sustainable development as a broader and more integral approach to ensuring national economic security. This concept has the capacity to counter contemporary threats effectively.

Both economic security and sustainable development rely not only on the availability of resources and material capabilities but also on purposeful and organized actions. Both concepts share the common goal of fostering stability and prosperity. Their synergy has the potential to pave the way for a more sustainable and secure future within the framework of a multipolar world, taking into account diverse national interests.

The results of this study can be advanced in the future by conducting case studies as to how the concept of sustainable development is used to neutralize various threats to national security. This research direction involves considering the unique economic development characteristics of individual countries.

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Sustainable Agriculture for Muslim Farmers in Thailand: Blending Islamic Principles of Sustainable Living



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Abstract Environmental challenges have heightened concerns about sustainability in Thailand. However, the current sustainability initiatives have limited focus and only benefit specific farming communities while neglecting others. To address this issue, embracing a comprehensive approach that considers diverse cultural and religious perspectives is essential. This article proposes a life course model that emphasizes the significance of Islamic sustainability principles for encouraging Thai Muslim farmers to adopt sustainable agriculture. The paper suggests exploring the long-term consequences of incorporating Islamic sustainability principles into agricultural practices using the proposed model as theoretical underpinning. It also endorses investigating the impact of policies, institutions, and religious and cultural organizations in fostering an environment conducive to sustainable agriculture based on Islamic values. Ultimately, this research highlights the transformative potential of Islamic sustainability principles, presenting a promising approach to help advance agriculture in Thailand.

Introduction

The concept of sustainability has emerged as a crucial issue in contemporary society as the world faces pressing natural and human-induced environmental challenges. Sustainability involves taking proactive measures to meet the immediate needs of the present while securing future generations' needs (Moldan et al., 2012; Purvis et al., 2019). This overarching principle is based on proactive and innovative decision-making to maintain balance across various aspects of society. These aspects include ecological stability, economic growth, political justice, and cultural vitality, all contributing to a harmonious world. As such, sustainability is an

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essential concept that requires attention and action from individuals, organizations, and governments alike.

The concept of sustainability consists of three vital dimensions: environmental, economic, and social (Purvis et al., 2019). The first dimension pertains to environmental sustainability, which involves responsible management of natural resources, such as reducing pollution, mitigating nonrenewable resource depletion, and responsibly using renewable resources. The second dimension, economic sustainability, focuses on preserving economic growth, production, and consumption levels without adversely affecting the well-being of future generations. Lastly, social sustainability evaluates the overall well-being of society. This dimension encompasses preserving social justice and cohesion and improving societal conditions and opportunities for all members. Each dimension's interdependence and reciprocal influence highlight the need for a balanced sustainability approach (James & Magee, 2016; Purvis et al., 2019).

The interdependence of environmental, economic, and social sustainability is an observable phenomenon in modern society. Economic growth often leads to societal changes that can have far-reaching implications for the environment and people's well-being (Coulibaly & Li, 2020; Deribew, 2020; Laiprakobsup, 2023). For example, as cities expand, agricultural land is often converted into non-agricultural uses (e.g., conversion of farmland into residential, industrial, or commercial areas), limiting the ability to produce food locally and losing fertile farmland crucial for maintaining food production (Coulibaly & Li, 2020; Laiprakobsup, 2023). While this expansion can contribute to economic growth and development, it negatively impacts sustainability and food security.

Moreover, the dwindling availability of arable land could result in intensified agricultural practices, exacerbating environmental issues such as soil degradation, water pollution, and loss of biodiversity (Lal, 2015; Ray & Ray, 2011). These alterations in the economic and agricultural landscape have significant implications that extend beyond environmental concerns and have significant effects on society at large.

The reduction in available agricultural land has profound impacts on farmers' livelihoods, their communities, and their way of life (Coulibaly & Li, 2020; Laiprakobsup, 2023), potentially leading to social unrest and further economic inequalities (Gana, 2012; Hellin & Fisher, 2019). Additionally, changes in land usage can disrupt the availability of locally sourced and culturally significant foods, thus influencing dietary habits and food security in affected regions (Parven et al., 2022; Qureshi et al., 2015).

It is crucial to recognize that these trends and challenges will escalate unless addressed efficiently. Understanding these concerns, Thailand, in recent years, has demonstrated a solid commitment to tackling sustainability challenges in its agricultural sector. However, despite the implementation of various initiatives designed to boost sustainability efforts, they have often been narrowly focused on specific issues such as crop yields and environmental concerns (e.g., Liao et al., 2022; Npueng et al., 2023; Prasara-A et al., 2019). This limited perspective has failed to consider the broader sustainability impacts of farmers' behaviors and cognitive

processes that profoundly affect their farming practices. Furthermore, these initiatives have tended to prioritize Buddhist-majority farming communities, inadvertently neglecting regions where Muslim farmers make significant contributions to the agricultural landscape. This oversight highlights the need for a more inclusive and holistic approach to sustainable agriculture in Thailand that encompasses diverse cultural and religious perspectives.

The purpose of this article is to present a comprehensive and rigorous conceptual model that can help address the pressing need for a holistic approach to sustainability challenges in the agricultural sector of Thailand, specifically in regions with significant Muslim farming communities. By integrating Islamic sustainability principles with life course concepts, this model offers actionable frameworks for promoting sustainable farming practices among Thai Muslim farmers. The model consists of key propositions that aim to provide clarity on the following inquiries:

1. How do the current sustainability issues in agriculture affect the well-being of Thai Muslim farmers?
2. What adaptation processes are necessary to address current sustainability issues related to agriculture, and what are the roles of Islamic principles of sustainable living in these processes?
3. What are the roles of cultural and religious institutions and communities in promoting sustainable agricultural practices?
4. Will the adaptation processes inspired by the Islamic principles of sustainable living help encourage farmers to embrace sustainable agricultural practices?

Background

Agriculture in Thailand

Agriculture plays a vital role in Thailand's economy and is a primary livelihood source for a significant portion of the population (International Trade Organization, 2022; Mata et al., 2021). In addition, Thailand's significant presence in the global agricultural export market (Jongwanich, 2020; Romyen et al., 2023) underscores its critical role in providing food for people worldwide. Nevertheless, achieving a balance between economic reliance on agriculture and environmental responsibility is crucial, necessitating the adoption of sustainable agricultural practices. It is, therefore, essential to recognize and prioritize the paramount importance of sustainable agriculture, not just for Thailand but also as a global imperative that transcends geographical boundaries.

Sustainable agriculture, characterized by practices that harmonize ecological equilibrium, preserve natural resources, and foster the welfare of farming communities, is a critical global imperative (Brooker et al., 2021; Francis & Porter, 2011). Unfortunately, conventional agricultural practices prevalent in Thailand, which include intensive herbicide and pesticide applications (Kwonpongsagoon et al.,

2021; Toolkiattiwong et al., 2023) and extensive irrigation (Baird et al., 2019; Fung et al., 2019), have significantly disturbed this delicate equilibrium, resulting in adverse consequences such as water pollution, nutrient depletion, and reduced abundance of freshwater fish. These adverse effects jeopardize the long-term sustainability of agriculture and emphasize the urgent need for a transformative shift towards sustainable practices in the Thai agricultural sector.

Thailand's transition towards sustainable agriculture holds profound significance for several compelling reasons. Sustainable agricultural practices play a pivotal role in mitigating environmental degradation, ensuring the preservation of natural resources essential for the long-term viability of agriculture (Brooker et al., 2021; Shah & Wu, 2019). Moreover, these practices align with global efforts to combat climate change and safeguard ecosystems (Malik et al., 2020). Beyond environmental benefits, sustainable agriculture fosters economic resilience by diversifying crop cultivation and income sources, enabling farming communities to withstand market fluctuations and external shocks better (Gai & Yang, 2023; Kliem, 2022). Ultimately, the well-being of these farming communities is intricately linked to the success of sustainable agriculture, offering the promise of improved livelihoods, enhanced food security, and stronger social cohesion as potential rewards of this pivotal transition (Cidón et al., 2021; Löhr et al., 2021).

Muslim Farmers in Thailand

In 2022, Thailand's population exceeded 66 million individuals (Thailand Board of Investment, 2023). While constituting only about 7% of the total population (Pew Research Center, 2023), the Muslim community holds significant importance, especially in the southernmost provinces of Satun, Yala, Pattani, and Narathiwat (Benbourenane, 2021; Shobron et al., 2020). These provinces feature a unique demographic landscape, where over 50% of the inhabitants depend on agriculture as their primary source of income (Benbourenane, 2021). Beyond the southern provinces, there are over 600,000 Thai Muslims residing in central Thailand, with a substantial concentration in Bangkok's eastern district of Minburi (Thongsawang, 2022; Woodward & Scupin, 2021), where farming is one of their principal occupations (Thongsawang, 2022).

These demographic insights highlight the need to integrate Islamic principles and values into sustainable agriculture practices, particularly to address the unique needs and preferences of this significant segment of Thailand's population, especially those actively engaged in the agricultural sector. Such integration is crucial to align sustainable agriculture efforts more effectively with these communities' sociocultural and economic realities, ultimately promoting their well-being and supporting the broader goals of agricultural sustainability.

Islamic Principles of Sustainability

Islamic teachings deeply integrate the principles of sustainable living, which play a significant role in shaping the daily lives of millions of Muslims worldwide. The Islamic faith values stewardship, ethical conduct, and environmental preservation. These principles extend beyond religious rituals and encompass responsible resource management, ethical treatment of animals, and waste reduction (Abdelzaher et al., 2019; Abdul-Matin, 2010; Al-Damkhi, 2008; Khan et al., 2018). Islamic sustainability principles guide devout Muslims to align their daily activities with the broader goal of fostering a sustainable and balanced world. When internalized, these principles can transcend faith boundaries and contribute to a more environmentally conscious and ethically grounded society, positively impacting our planet and future generations.

One of the fundamental principles of Islam, *Khalifah*, is particularly significant for environmental stewardship. Essentially, it underscores the role of humans as ethical and moral custodians of the Earth, responsible for ensuring that the planet is well-maintained and preserved for future generations (Abdelzaher et al., 2019; Abdul-Matin, 2010). This Islamic principle aligns harmoniously with the fundamental objectives of sustainable agriculture, which are deeply rooted in fostering enduring economic and social progress while concurrently safeguarding the ecological balance and the well-being of future generations (Brooker et al., 2021; Francis & Porter, 2011). Applying the Islamic principle of *Khalifah* in sustainable agriculture involves avoiding harmful chemicals when farming. Instead, farmers focus on ecofriendly and natural farming methods. For example, they can practice organic farming, eliminating synthetic pesticides and chemical fertilizers. Farmers rely on natural pest control methods like introducing beneficial insects, crop rotation, and using compost as a natural fertilizer in this approach. By avoiding harmful chemicals, they protect the environment, minimize soil and water pollution, and ensure that the land remains fertile for future generations.

Additionally, the Islamic faith places great importance on treating animals ethically, recognizing their inherent rights and deserving of utmost respect and care (Al-Damkhi, 2008; Khan et al., 2018). This principle is deeply ingrained in Islamic teachings and is reflected in various aspects of Muslim life, including agricultural practices and animal husbandry. Adhering to this Islamic principle, Muslim farmers ensure their livestock are well-fed, sheltered, and free from unnecessary suffering. They take meaningful steps to provide comfortable living conditions and minimize animal stress. These individuals fulfill their religious obligations and promote humane and sustainable animal husbandry practices by maintaining ethical standards in daily farming practices. This commitment aligns seamlessly with the broader goals of sustainable agriculture that benefit both farm animals and society (Altieri et al., 2017; Webster & Porritt, 2012).

Another Islamic principle that encourages sustainability is *Israf*, which can serve as a guiding light, illuminating the path towards conscientious resource utilization and waste reduction (Abdelzaher et al., 2019; Al-Damkhi, 2008). This principle

emphasizes the moral responsibility of conserving resources and avoiding unnecessary consumption. It promotes a thoughtful approach to resource management, recognizing the inherent value of responsible resource utilization. Israf inspires individuals to recognize resources as precious assets entrusted to them by a divine power, emphasizing the need to protect and preserve these resources for present and future generations. Ultimately, Israf reminds Muslims that wastefulness contradicts Islamic teachings and disregards the sanctity of resources and the ethical obligation of stewardship (Abdelzaher et al., 2019; Al-Damkhi, 2008).

Muslim farmers who follow the principle of Israf in their agricultural practices employ precise and calculated application methods rather than excessive amounts of chemical fertilizers or pesticides that may deplete resources and harm the environment. They can also efficiently manage water resources, using effective irrigation techniques to minimize waste. Moreover, they can make conscious decisions in crop selection, choosing varieties well-suited to the local climate and soil conditions, thus reducing unnecessary resource consumption. By adhering to Islamic teachings, farmers contribute significantly to sustainable agriculture by conserving vital resources, reducing environmental impact, and ensuring long-term agricultural viability.

Life Course Model

The life course perspective (LCP) is a notable accomplishment in social science, offering a multifaceted, interdisciplinary framework that can help explain various social and behavioral issues (Elder, 1995; Moschis, 2019). Though initially rooted in developmental psychology and sociology, the LCP has evolved to incorporate contemporary theoretical concepts from various disciplines, including psychology, sociology, anthropology, demography, and more. Drawing from this diverse range of theoretical and conceptual streams, the LCP has become an interdisciplinary program for exploring various phenomena of interest to researchers in multiple fields.

Moschis (2019) introduced a comprehensive life course model that builds upon earlier concepts. At its core, the model suggests that an individual's behavior and life path do not solely depend on a single factor or linear progression; instead, they emerge from dynamic interactions among various elements. This model signifies a pivotal shift in developmental psychology and sociology, recognizing the multifaceted nature of human development and behavior and providing a comprehensive framework to explore these complexities. Figure 1 visually illustrates the model's components and their interconnections.

As seen in Fig. 1, the model comprises elements organized into two broad groups. The first group comprises three types of variables crucial for understanding how life events develop and impact long-term behavior. These variables constitute the main components of this model. The first type includes events or changes individuals experience at specific life stages, marked as T1. These events or changes can manifest in various forms, including expected transitions (e.g., settling down and starting

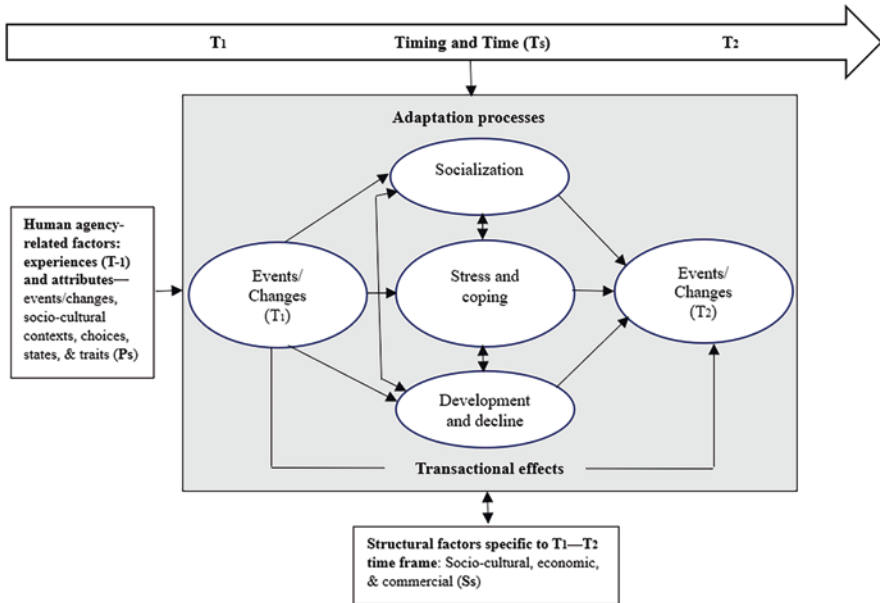


Fig. 1 The general life course model (Adopted from Moschis (2019))

a family, having a job, or retiring) and unforeseen occurrences (e.g., natural disasters). The second type involves three interconnected adaptation processes often triggered by these experienced or anticipated events at T1. These processes encompass socialization (e.g., acquiring knowledge and skills from various sources), coping responses to stress (both acute and chronic), and changes in human capital, encompassing both growth and development and declines in cognitive resources (e.g., knowledge and mastery). The third type comprises outcomes from the three aforementioned processes and earlier events and experiences at T1. These outcomes manifest at later points in time, referred to as T2. Similar to events at T1, these outcomes can assume various forms, encompassing single choices and abrupt or gradual changes in thoughts and behaviors. A high degree of interdependence exists between these life events and adaptation processes, where one experience may enhance or diminish the likelihood of another (Moschis, 2019).

The second group of elements within the life course model encompasses three types of contextual factors that collectively describe the circumstances individuals have encountered. The first contextual factor pertains to the timing and duration of events or changes, encompassing the age at which an individual experiences these events and the length of time over which they occur, measured in various units (e.g., months, years) (Ts). The second type of contextual factor focuses on individual characteristics and experiences (at T1), including social and cultural circumstances, events, and choices made. Lastly, the third type of contextual factor encompasses socio-structural contexts, such as market conditions and family and social structures that may remain stable or change during the T1–T2 period. During a specified

period from T1 to T2, a person's experience, interpretation, and response to various changes or events that occur at T1 and their ability to adapt to them are moderated by these three types of contextual factors (Moschis, 2019).

Scholars have employed Moschis' life course model to gain meaningful insights into the impact of various factors on peoples' behavior and overall well-being (e.g., Prakitsuwan & Moschis, 2021; Suttharattanagul et al., 2022). This versatile model has proven to be particularly insightful in understanding how consumers navigate life's journey, considering their unique experiences, developmental trajectories, and contextual milieu. An article by Moschis et al. (2020) has also highlighted the model's usefulness in explaining the intricacies of sustainable food consumption and guiding individuals in making more sustainable dietary choices. However, despite its effectiveness in explaining and comprehending traditional consumer behavior, the life course model remains underutilized in understanding broader societal changes, such as shifts in environmental consciousness or adopting sustainable agricultural practices. There is a need to explore further the model's potential in these areas in academic research.

Integration and Research Propositions

Moschis' life course model is renowned for its capacity to explain life transitions, adaptation processes, and behavioral and cognitive changes across various life domains. While the model is primarily employed to examine life events and alterations that impact consumers' behaviors, cognitions, and overall well-being (Prakitsuwan & Moschis, 2021; Suttharattanagul et al., 2022), this article introduces an innovative approach that integrates Islamic sustainability principles into the model's concepts to expound the connections among events or changes and adaptation processes leading to agriculture-related behavioral and cognitive shifts. Consequently, this integration gives rise to research propositions offering fresh and insightful perspectives, which may enhance our comprehension of the factors influencing Thai Muslim farmers' adoption of sustainable farming practices.

Consequences of Events/Changes in T1

This article posits that changes and events occurring during T1, whether planned or unforeseen, significantly impact Thai Muslim farmers' current agricultural practices. For instance, a planned transition at T1 might involve a Thai Muslim farmer shifting from traditional rice cultivation to organic farming methods due to a heightened awareness of environmental sustainability. Conversely, an unforeseen occurrence during T1, such as a prolonged drought caused by climate change, may force farmers to adapt their irrigation and crop strategies to cope with water scarcity. Both types of events during T1 can prompt significant changes in agricultural practices