

Social Innovation as a Bridge: The Impact of Social Expenditure, Trade Openness, Economic Disparity, and Institutional Reform on Social Welfare in Asean Countries

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Abstract

Developing countries in the ASEAN region face complex challenges in achieving inclusive and sustainable development, amid socioeconomic inequality, institutional limitations, and global trade dynamics. Social innovation has emerged as an alternative approach capable of bridging various structural factors to improve community welfare. This study aims to analyze the mediating role of social innovation in the relationship between Social Expenditure, socio-economic conditions, trade openness, income inequality, and institutional quality in five ASEAN countries (Indonesia, Malaysia, Thailand, Singapore, and the Philippines). The research method employs a ten-year panel data design (2014–2024) using secondary data from the World Development Indicators (World Bank). Analysis is conducted using Structural Equation Modeling (SEM) to estimate direct and indirect effects. The results show that social innovation plays a significant role in improving community welfare and inclusive economic performance, especially when supported by social expenditure, institutional quality, and conducive socio-economic conditions. Conversely, trade openness and income inequality do not have a direct effect on social innovation. These findings confirm that social innovation is more effective as a mediator when supported by strong structural factors. The recommendations from the findings emphasize the importance of strengthening institutional capacity, providing a sustainable innovation ecosystem, and integrating social innovation into national development strategies to accelerate the realization of inclusive and sustainable development in the ASEAN region.

Keywords: Social innovation; community welfare; socio-economic outcomes; trade openness; institutional quality

1. Introduction

Most ASEAN member countries are classified as developing countries, such as Indonesia, which face various classic problems such as high unemployment rates, inflation that is not in line with targets, and uneven development across regions, resulting in suboptimal GDP growth and economic growth that does not meet targets (Pushp & Ahmed, 2023). Currently, developing countries are facing complex challenges in achieving inclusive and sustainable development (Bedemo Beyene, 2024; Delechat et al., 2024). This region was selected because it exhibits diverse economic, social, and institutional conditions, relatively rapid economic growth, and the relevance of development policies that can serve as a model for other developing countries.

Among the main obstacles to this process are significant income inequality, limited access to adequate public services, weak institutional capacity and integrity, and wide social and economic disparities (Malliaros et al., 2025; Hay et al., 2022). This condition is further complicated by the growing globalization and free trade, which not only opens up opportunities, but also creates new pressures for developing countries. In such a situation, governments are required to demonstrate a strong and consistent commitment through innovative policies and measures that are able to respond to these structural challenges with effective and welfare-oriented solutions for the wider community.

In facing the dynamics of organizational development in the modern era, innovation has a very important role and cannot be ignored (Campopiano & Bassani, 2021; Dionisio & de Vargas, 2020). The progress of a country is highly dependent on the competitiveness of its companies and industries, where the ability to continuously innovate and improve competencies is a major factor in determining the competitive position of a nation in the global arena. National excellence and prosperity are no longer determined solely by the abundance of natural resources or strategic geographical location, but by the extent to which a country is able to effectively manage its potential and create value-added products and services through innovation (Adomako & Tran, 2022; Song & Zhao, 2024). On this issue, social innovation comes as a new approach that emphasizes economic growth while also highlighting the values of togetherness, active participation, and community empowerment. Social innovation brings a new dimension to the creation of policies, ideas and practices that can improve the quality of life of people, especially vulnerable and often marginalized groups (Avelino et al., 2019; Millard & Fucci, 2023; Adomako et al., 2024).

One of the most widely referenced definitions of social innovation is cited in Grilo & Moreira (2022), which states that social innovation is a new solution to a social problem that is proven to be more effective, efficient, or fairer than pre-existing solutions, where the main benefits are felt by the wider community, not just certain individuals. In addition, they also describe social innovation as activities and services that are innovative and driven by the desire to meet unmet social needs. This definition emphasizes that the success of social innovation lies in its ability to deliver tangible impacts that benefit the collective.

The government's commitment to promoting social and economic development plays a crucial role in determining the effectiveness of policies and the extent to which development outcomes can be realized by the current public apparatus (Mazzucato et al., 2020). While policies have been launched and large budgets allocated, many developing countries still face serious challenges in realizing the tangible benefits of these commitments for the welfare of their people (World Bank, 2023). The gap between policy promises and actual outcomes has prompted many researchers to explore the role of intermediary mechanisms that may strengthen or hinder the effectiveness of government action in creating desired social outcomes (Grozev & Easterbrook, 2024; Lasarov et al., 2023).

In this regard, social innovation has emerged as a prominent intermediary mechanism, as it offers an alternative approach to addressing social needs through original ideas and models of cooperation involving actors outside formal bureaucratic structures (Merlin-Brogniart et al., 2022; Lundberg et al., 2020). Social innovation is able to generate solutions that are not only oriented towards economic growth, but also emphasize aspects of sustainability and social justice. Through this approach, new practices are introduced to reduce inequality, minimize the unequal use of resources, and strengthen sustainable development.

Different from standardized and rigid policy instruments, social innovation has the advantage of flexibility and proximity to the local context. It is able to tailor interventions based on the needs and characteristics of a particular region, while utilizing the strength of existing social assets in the community. In addition, social innovation encourages long-term community

engagement, creating a broader and more sustainable participatory space (Jungsberg et al., 2020; Flores & Martos, 2023). With a creative and collaborative approach, social innovation not only aims to solve social problems, but also transform existing patterns of social relations, making it highly relevant in bridging Social Expenditures with tangible outcomes that can be measured socially and economically (Kang et al., 2024).

However, the extent to which social innovation is able to bridge the influence of various structural factors such as Social Expenditure, socioeconomic conditions, trade openness, income inequality, and institutional quality, is still an important topic and deserves further empirical study. Social Expenditure is the main foundation in supporting the success of social innovation, because policy direction and program sustainability depend on the extent to which the government shows seriousness in supporting social change (De Pieri & Teasdale, 2021). Governments that are highly committed to solving social problems will generally be more open to providing space, incentives and regulations that encourage the emergence of innovative initiatives in society (Castro-Arce & Vanclay, 2020).

Previous research also shows that political and policy frameworks have a major influence on institutional ecosystems and governance patterns, which in turn shape the space for civil society initiatives (Sharma, 2023). Under these conditions, social innovation is considered to achieve optimal results when there is synergistic collaboration between the government, intermediary organizations, and local actors. In addition, it is also important to reflect on how the social dimension is defined in social innovation strategies, especially since there is still a lack of studies linking social innovation with social sustainability policies.

The socio-economic conditions of the community also greatly influence participation in the social innovation process. In regions with low levels of education, limited access to technology and high economic dependency, social innovations need to be contextually designed to be acceptable and sustainable (Terstriep & Rehfeld, 2020). Research by (Chu & Hoang, 2020; Lee & Wang, 2021; Sepehrdoust et al., 2022) indicates that increasing economic complexity is associated with decreasing income inequality. However, some other studies such as (Hasanvand et al., 2022) show the opposite result, namely that economic complexity can actually increase income inequality. This suggests that developing countries with simple economic structures face limitations in providing productive employment opportunities, making efforts to address inequality more challenging.

Trade openness also plays an important role in strengthening social innovation. Access to global markets, increased competition, and cross-border flows of information and technology enable new forms of innovation. Increased trade can support economic growth through improved resource allocation and increased production efficiency (Mazorodze, 2025). Developing countries can benefit from the import of technology and intermediate goods from developed countries, which opens up space for the adoption of knowledge and innovation models that suit local needs (Mtar & Belazreg, 2023; Jóźwik et al., 2025). Research by Arshad et al. (2023) examined the causal relationship between trade openness and public innovation, and found that public innovation can promote trade openness, although the reverse is not always true. Hagedoorn et al. (2023) also showed that the use of external knowledge sources plays a role in strengthening the link between social innovation and commercial and social objectives, and supports more open and hybrid organizing.

In relation to income inequality, high levels of inequality can be a major obstacle to the effective implementation of social innovations in sustainable development. Sharp inequalities tend to hinder the access of vulnerable groups to the benefits of social innovations, and create social tensions that disrupt collaboration and inclusion (Sari & Rudi Purwono, 2021). Inequality is also known to negatively impact important aspects such as education, health, and human development in general, although paradoxically it can also accelerate population growth and

unemployment rates. Napolitano et al., (2022) show that high inequality reduces a country's capacity to generate complex innovations. Meanwhile, another study by Law et al., (2020) reveals that while innovation interacts positively with inequality, innovation alone is not effective in reducing income inequality.

Institutional quality is the last important factor affecting the success of social innovation. Strong institutions are able to implement policies more innovatively and efficiently. Quality institutions ensure that resources are well allocated, avoid bureaucratic inefficiencies, and minimize opportunistic practices that can undermine innovation incentives (Yang et al., 2024; Hwang & Venter, 2025). With good governance, institutions are able to create a market climate conducive to increased investment, innovation, and equitable distribution of resources (Sweidan, 2021; Aracil et al., 2022). A study by Coccia (2021) also shows that high institutional quality is correlated with reduced poverty and inequality. Furthermore, Le et al. (2025) found that improved institutional quality can strengthen the influence of intellectual capital on green innovation, which is an important part of the sustainability agenda. Thus, improving institutional quality can be an important catalyst for the success of social innovation in addressing development challenges.

Despite increasing attention to the role of social innovation in public policy in the theoretical realm, the availability of supporting empirical evidence is still relatively limited and often shows conflicting results. This is especially true in developing countries, which have significantly different institutional structures compared to developed countries. Many existing studies tend to only highlight the direct relationship between government interventions and the development outcomes achieved, without exploring in depth how the mediation process involving various social and institutional dynamics actually affects the effectiveness of policies in changing the socio-economic conditions of society. Another aspect that is less explored in the literature is the importance of social and economic inclusion. In fact, this inclusion is not only a driving factor, but also an outcome of the practice of social innovation itself, which is directly related to the success of sustainable development.

The Association of Southeast Asian Nations (ASEAN) represents one of the most dynamic regions in the developing world, showing rapid economic growth yet facing persistent social inequality and institutional disparity. Five ASEAN countries consisting of Indonesia, Malaysia, Thailand, Singapore, and the Philippines were selected for this study because they represent developing and newly industrialized nations with active governmental involvement in inclusive development policies (World Bank, 2023). Despite achieving moderate to high economic growth rates, these countries continue to experience challenges in reducing inequality and ensuring inclusive welfare. According to the UNDP (2024), the average Gini Index across the five countries ranges between 35 and 45, with Indonesia and the Philippines recording higher inequality levels compared to Singapore and Malaysia. This inequality is further reflected in disparities in education, access to digital infrastructure, and social expenditure effectiveness (Bedemo Beyene, 2024; Delechat et al., 2024).

The five countries also exhibit distinct institutional and socio-economic characteristics that justify their inclusion as comparative cases. Singapore demonstrates strong institutional quality and high innovation capacity, reflected in its Global Innovation Index ranking among the top 10 globally (WIPO, 2024). Malaysia's development model emphasizes social redistribution and industrial diversification, while Thailand integrates social innovation into its creative economy and community-based tourism strategies (Avelino et al., 2019; Millard & Fucci, 2023). In contrast, Indonesia and the Philippines continue to face fiscal transparency issues, spatial inequality, and uneven social policy implementation (Coccia, 2021). This diversity offers an opportunity to empirically explore how social innovation functions as a bridging mechanism between structural factors such as social expenditure, trade openness, and institutional quality and the realization

of social welfare.

Moreover, ASEAN's policy agenda under the ASEAN Vision 2025 and the Sustainable Development Goals (SDGs) emphasizes inclusive and sustainable growth, where social innovation is increasingly recognized as a key driver (Mazzucato et al., 2020). However, empirical research comparing how social innovation operates within different institutional and economic contexts of ASEAN countries remains scarce. Prior studies have focused more on innovation policy and governance structures rather than on social innovation as a mediating mechanism that translates structural inputs into tangible welfare outcomes (Merlin-Brogniart et al., 2022; Grozev & Easterbrook, 2024). Therefore, studying these five countries provides not only theoretical relevance but also practical implications for designing evidence-based policies that promote inclusive welfare through institutional and social innovation reform.

This study aims to explore the role social innovation as a mediating variable linking social expenditure, socio-economic conditions, trade openness, income inequality and institutional quality to community welfare in developing countries. Specifically, this study seeks to answer how social innovation can bridge the influence of these factors in improving community welfare, thereby providing a more comprehensive understanding than previous studies that have emphasized the direct relationship between structural variables and welfare.

Based on these objectives, this study formulates the following research questions:

1. Do social expenditure, socio-economic conditions, trade openness, income inequality and institutional quality have a direct effect on community welfare
2. Do these factors indirectly effect community welfare through social innovation as a mediating variable?

Thus, this study not only examines the direct relationship between structural factors and welfare, but also the indirect relationship mediated by social innovation, providing deeper empirical insights into the dynamics of public policy in resource-constrained countries.

2. Literature Review

Social Expenditure

The commitment shown by the government plays a crucial role in creating a climate that supports the growth of social innovation. When the government actually implements inclusive policies, provides incentives, provides supportive regulations, and makes social investments, the opportunity for creative solutions to various social problems becomes greater. The government's role in driving social and economic development determines the success of policies, as well as the extent to which development outcomes can be realized by current public institutions (Mazzucato et al., 2020). This means that the success of social innovation depends heavily on the seriousness of the government in directing policies and ensuring program sustainability (De Pieri & Teasdale, 2021). Governments that have a high level of commitment to solving social issues tend to be more open in creating space, providing incentives, and forming regulations that support the emergence of innovative initiatives from the community (Castro-Arce & Vanclay, 2020).

From a Keynesian perspective, social spending acts as an instrument to drive economic growth and improve public welfare, as the government plays an active role in providing public services and redistributing resources (Jumayeva, 2025). Conversely, the neoliberal perspective from Milton Friedman emphasizes that excessive social spending can become a fiscal burden and limit market efficiency, so the government should limit intervention and encourage market mechanisms to regulate distribution (Bruff & Starnes, 2019). Meanwhile, the institutional economics perspective views social spending as a means to create an inclusive economy that enhances the capacity of individuals and communities, thereby achieving more equitable social welfare (Uddin et al., 2023).

Previous research confirms that political structures and public policy directions directly influence institutional ecosystems and governance, which in turn determine the space for civil society to innovate (Sharma, 2023). Social innovation will also achieve optimal results if supported by synergistic collaboration between the government, intermediary organizations and local actors. In addition, it is important to pay attention to how the social dimension is formulated in social innovation strategies, given the limited studies that link social innovation with the social sustainability agenda. Therefore, it is not enough for the government's commitment to be shown symbolically, but it must be the main basis for encouraging innovative social transformation. Based on this description, the proposed hypotheses are:

H1: Social Expenditure has a positive effect on social innovation

H6: Social Expenditure has a positive effect on community welfare

Socio-economic

A country's social and economic conditions such as education levels, income, and employment play a major role in shaping people's ability to create innovations that address social problems. People with higher living standards generally have more adequate resources, such as free time, social networks, and access to technology, which help them to actively participate in the social innovation process. Conversely, in environments with poor socio-economic conditions, the space for people to develop creative solutions is limited (Terstriep & Rehfeld, 2020). Various studies (Hasanvand et al., 2022; Lee & Vu, 2020) show that economic complexity can widen the income gap. This indicates that developing countries with unorganized economic structures tend to face challenges in providing decent and productive employment, making efforts to address inequality more difficult. Considering the large influence of socio-economic conditions on social innovation, the hypotheses proposed in this study are:

H2: Socio-economic conditions have a positive effect on social innovation

H7: Socio-economic conditions have a positive effect on community welfare

Trade Openness

Openness to international trade can be an important driver for the emergence and development of social innovation. From Adam Smith's perspective in classical economic theory (Smith, 2023), international trade enables specialization and division of labor across countries, thereby increasing production efficiency and optimizing resource allocation, which in turn creates space for the emergence of innovative practices in the social and economic sectors. Alfred Marshall's neo-classical theory emphasizes the importance of economic agglomeration and knowledge transfer through markets (Konzelmann, 2023); countries connected to global networks are quicker to adopt innovative strategies, such as SME development, participatory public governance, and poverty alleviation programs, due to broader access to ideas, technologies, and best practices. Meanwhile, the institutional economics perspective emphasizes that economies that emphasize the role of institutions, both formal and informal, in shaping economic behavior and influencing economic outcomes (Adam et al., 2025); international trade facilitates the flow of information and technology that institutions can utilize to create adaptive and sustainable social policies. With increased trade activity, resource allocation becomes more efficient and production processes more optimal, which strengthens economic growth (Mazorodze, 2025). Developing countries, in particular, benefit from importing technology or intermediate goods from developed countries, as this enables the transfer of knowledge and the application of innovative models that are appropriate to the local context (Mtar & Belazreg, 2023; Jóźwik et al., 2025).

Research conducted by Arshad et al. (2023) found a reciprocal relationship between trade openness and public innovation. Interestingly, the study concluded that public innovation can promote trade openness, but not necessarily the other way around. The findings of Hagedoorn et al. (2023) also corroborate that the utilization of knowledge sources from outside the

organization plays an important role in integrating social innovation with commercial and social goals, while supporting the formation of a more open and flexible organizational structure. Based on this, the hypotheses that can be proposed are:

H3: Trade openness has a positive effect on social innovation

H8: Trade openness has a positive effect on community welfare

Income Inequality

Income inequality is a major issue that requires alternative approaches beyond conventional policies, and one increasingly relevant avenue is through social innovation. According to Kuznets' theory, in the early stages of economic development, inequality tends to increase before eventually declining with growth and industrialization, suggesting that inequality can be a temporary consequence of the development process (Baymul & Sen, 2020). Piketty emphasizes that inequality tends to increase in the long term if capital accumulation is not balanced by redistribution mechanisms (Jakurti, 2025). While Stiglitz highlights that free markets without adequate regulation often exacerbate inequality, making institutional intervention important to ensure inclusivity (Sémanne, 2025). Amartya Sen, from an institutional economics perspective, emphasizes the importance of individual capabilities and abilities to fully participate in economic and social activities (Ragkousis, 2024). This means that high inequality can limit vulnerable groups' access to social innovation while also causing social tensions that hinder collaboration and inclusivity (Sari & Rudi Purwono, 2021). In this context, social innovation serves as a mechanism to bridge gaps, expand community participation, and create more equitable and sustainable solutions.

In addition, inequality has a negative impact on crucial aspects such as access to education, health services, and the quality of human development. In fact, paradoxically, inequality can trigger population growth rates and rising unemployment rates. Napolitano et al., (2022) show that high inequality can weaken a country's capacity to generate forms of innovation. On the other hand, according to the findings of Law et al., (2020), although there is a positive interaction between innovation and inequality, innovation alone is not enough to effectively reduce income disparity. Therefore, the hypothesis in this study is formulated as follows:

H4: Income inequality has a positive effect on social innovation

H9: Income inequality has a positive effect on community welfare

Institutional Quality

High institutional quality that includes principles such as transparency, accountability, efficiency in bureaucracy, and adequate legal protection are important factors that support the success of social innovation. Well-governed institutions are able to implement public policies in a more effective and innovative way. Strong institutions also ensure optimal resource allocation, minimize bureaucratic bottlenecks, and prevent opportunistic behavior that could hinder innovative initiatives (Yang et al., 2024; Hwang & Venter, 2025).

Quality governance creates a market climate that supports innovation, increased investment, and equitable distribution of resources (Sweidan, 2021). Coccia (2021) also found that good institutional quality is closely related to reduced poverty and social inequality. In addition, according to Le et al. (2025), when institutional quality improves, the contribution of intellectual capital to innovation will become more significant. Therefore, institutional strengthening has great potential in accelerating the success of social innovation as an answer to various development challenges. Thus, the hypotheses proposed in this study are:

H5: Institutional quality has a positive effect on social innovation

H10: Institutional quality has a positive effect on community welfare

Social Innovation

Social innovation has the main objective of improving people's lives, especially those who are in vulnerable groups and are often left untouched by the market system or rigid government

policies (Avelino et al., 2019; Millard & Fucci, 2023). Through its community-focused approach, encouraging active participation and social impact orientation, social innovation is able to offer more flexible and tailored solutions to address issues such as poverty, education, health and the environment (Grilo & Moreira, 2022). Thus, the role of social innovation is crucial in supporting the overall improvement of community welfare.

Various studies have shown that social innovation can bring about sustainable social change because it involves the community directly as the main actors, not just as beneficiaries. In addition, social innovations strengthen social ties within communities and expand access to basic public services. This has a positive impact on various welfare indicators, such as improved health, income and social participation (Jungsberg et al., 2020; Flores & Martos, 2023). Therefore, social innovation not only serves as a complement to public policy, but also as a major driving force in creating more inclusive and equitable development. Therefore, the hypotheses proposed in this study are:

H11: Social innovation has a positive effect on community welfare

Social innovation can mediate the relationship between social expenditure and community welfare. In the literature on social development and public policy, social expenditure is seen as the government's main instrument for improving community welfare. Social expenditure allocated to the social protection, education, and health sectors plays an important role in expanding access to basic services and improving the quality of life of the community. Various empirical studies show that effectively managed public spending contributes positively to welfare indicators, such as the human development index and increased access to public services. Research on regional public expenditure in Indonesia also confirms a positive relationship between education spending and improvements in the human development index, although not all components of social expenditure have a significant direct impact on community welfare (Farid & Putri, 2025).

Contemporary literature further emphasizes that the impact of social expenditure on community welfare is not only determined by the size of the budget, but also by how the expenditure is implemented and integrated with social innovation. Social innovation, understood as the development of new solutions that are more effective, inclusive, and sustainable in meeting social needs, acts as a mediating mechanism that connects social expenditure policies with community welfare outcomes. Through increased community participation, cross-sector collaboration, and local empowerment, social innovation can transform social spending into programs that are more adaptive and responsive to the real needs of the community. Various empirical and conceptual studies show that social innovation bridges the objectives of public policy with social dynamics at the community level, thereby expanding the impact of social spending towards more inclusive welfare. These findings are in line with a study on community welfare governance in Thailand, which shows that community-based social innovation system with public funding support can shape a more responsive and sustainable welfare system (Angasinha, 2025). Therefore, the hypotheses proposed in this study are:

H12: Social expenditure affects community welfare mediated by social innovation

Social innovation can mediate socio-economic conditions affects community welfare. Socio-economic conditions, which include education levels, income, employment opportunities, and access to basic services, are consistently linked to community welfare levels. Socio-economic components such as education, health, and employment are interrelated and collectively shape the quality of life of a community. Inequalities in these aspects, such as poverty and unemployment, can directly reduce community welfare if not addressed through appropriate policies. Conversely, better economic conditions contribute to economic growth and a more equitable distribution of income, which ultimately promotes sustainable improvement in the standard of living of the community (Ismanto & Merly, 2024).

However, literature confirms that the relationship between socioeconomic conditions and community welfare is not always linear, but can be influenced by other mechanisms, one of which is social innovation. Social innovation is understood as the development and application of new and effective solutions to address complex social issues through cross-sector collaboration and community empowerment. Various studies show that social innovation can strengthen the capacity of communities to respond to social and economic challenges and create broader access to opportunities through the active participation of the community and local stakeholders (Castro-Arce & Vancly, 2020). The practice of social innovation in rural communities, for example, has been proven to improve economic welfare through collaborative approaches, the utilization of local resources, and the strengthening of community capacity in overcoming limitations in market and technology access (Badriyah et al., 2024). These findings confirm that social innovation acts as a mediating mechanism that enables socio-economic conditions to be translated into more inclusive community welfare. Therefore, the hypotheses proposed in this study are:

H13: Socio-economic conditions affect community welfare mediated by social innovation

Social innovation can mediate trade openness affects community welfare. In development economics literature, trade openness is seen as an important factor affecting community welfare because involvement in international markets can drive economic growth, increase income, create jobs, and expand access to technology and goods at more competitive prices. A number of empirical studies show that trade openness has a positive impact on various welfare indicators in various countries through increased global economic participation and domestic productive capacity. However, the magnitude of this impact is highly dependent on structural conditions and domestic policies that regulate trade and the mechanisms for distributing its benefits (Adegboye et al., 2021). Analysis of trade globalization in Indonesia also shows that trade openness can have both positive and negative effects on people's welfare, particularly through its impact on the education and health sectors and on people's ability to compete in the global market. Therefore, a more comprehensive approach is needed to ensure that the benefits of trade are felt evenly by local communities (Aini et al., 2018).

Further literature emphasizes that the impact of trade openness on community welfare is not only determined by trade policy itself, but also by the capacity of communities and institutions to adapt, absorb, and take advantage of the economic opportunities it generates. In this context, social innovation acts as a mediating mechanism that bridges trade openness with community welfare. Social innovation, as a process of developing and implementing new and effective solutions to address complex social needs, can strengthen the impact of trade openness by increasing the community's ability to access new economic opportunities, develop local entrepreneurship, and build collaborative networks that expand the benefits of trade in an inclusive manner. Various studies show that social innovation can drive local economic transformation through the empowerment of vulnerable groups, the creation of community-based enterprises, and the facilitation of adaptation to macroeconomic changes (Haugh & O'Carroll, 2019). Thus, social innovation enables the benefits of trade openness to be distributed more evenly and sustainably, thereby contributing directly to improving community welfare.

Therefore, the hypotheses proposed in this study are:

H14: Trade openness affects community welfare mediated by social innovation income

Social innovation can mediate inequality affects community welfare. Inequality is understood as an imbalance in the distribution of income, opportunities, access to basic services, and resources, which if left unchecked can reduce the quality of life and welfare of the community. Inequality not only has an impact on economic aspects, but also on social dimensions, such as decreased social mobility and increased social stratification that limits vulnerable groups' access to education, health services, and employment opportunities (Lee,

2023). This condition of inequality poses a serious challenge to social development because it causes some communities to be left behind from the benefits of broader development.

However, the negative impact of inequality on community welfare is not always deterministic if there are mechanisms capable of overcoming it in innovative ways. In this case, social innovation is understood as a process of developing and implementing new solutions that are effective and inclusive in responding to complex social challenges, thereby acting as an important mediator in the relationship between inequality and community welfare. Through a collaborative approach involving various social actors, social innovation is able to open up access to economic opportunities, increase community empowerment, and design social intervention models that are more responsive to the needs of vulnerable groups. This approach contributes to reducing disparities in access to resources and services, thereby minimizing the negative impact of inequality on welfare and ensuring that the benefits of development are felt more evenly by all members of society (Mafra et al., 2024). Scientific literature also shows that social innovation strategies do not only focus on technical solutions, but also emphasize the importance of active community participation in the decision-making process in order to create a more equitable and sustainable community welfare. Therefore, the hypotheses proposed in this study are:

H15: Inequality affects community welfare mediated by social innovation

Social innovation can mediate institutional quality affects community welfare. Institutional quality is understood as the level of effectiveness of the system of government, regulation, law enforcement, and accountability that directly affects the provision of public services and the distribution of welfare in society. Various empirical studies show that better institutional quality, which includes control of corruption, rule of law, and government effectiveness, is positively correlated with improvements in multidimensional community welfare, including reduced inequality and improved quality of life. Cross-country research also indicates that improving institutional quality plays an important role in supporting sustainable development and achieving long-term social welfare goals, while weak institutions are often a major obstacle to the equitable distribution of development benefits (Barbier & Burgess, 2021).

However, the relationship between institutional quality and community welfare does not always occur directly without involving other supporting mechanisms. In this case, social innovation acts as a mediator that bridges the impact of institutional quality on community welfare. Social innovation, understood as the process of creating and implementing new solutions that are responsive to complex social challenges, can strengthen the capacity of institutions to respond to community needs more effectively and inclusively. Through social innovation, institutional quality can be translated into more participatory, collaborative, and adaptive public service delivery practices, while also encouraging community empowerment and solving social problems that have not been addressed by conventional approaches. The literature on institutions and innovation also shows that the interaction between formal institutions and social innovation affects the ability of community actors to access resources, knowledge, and opportunities, which ultimately expands the positive impact of institutional quality on sustainable community welfare (Franco-Leal et al., 2020). Therefore, the hypotheses proposed in this study are:

H16: Institutional quality affects community welfare mediated by social innovation

3. Methods

3.1 Data Description

This study uses secondary panel data sourced from the World Development Indicators (WDI) published by the World Bank, the Gini Index, and the Worldwide Governance Indicators



(WGI). The data was selected because of its global credibility, consistent reporting standards, and broad coverage of macroeconomic and development indicators across countries. The study focuses on five ASEAN countries: Indonesia, Malaysia, Thailand, Singapore, and the Philippines, which are classified as developing or newly industrialized countries with active government involvement in inclusive development policies. The data covers the period 2014–2024, allowing for cross-sectoral and time series analysis. This panel structure supports the analysis of short- and long-term effects both within and between countries.

3.2 Methods

This study employs a quantitative research design. Data were collected from the official portal of the World Bank DataBank (WDI and WGI). Each indicator was selected based on its complete annual availability in five ASEAN countries over the period 2014–2024.

Table 1 Research variable

Conceptual Variables	Measurement Indicators	Source	Unit of Measurement
Social Expenditure	Government spending on education	WDI	(% of government expenditure)
	Government expenditure on health	WDI	(% of GDP)
	Primary government expenditures as a proportion of original approved budget	WDI	(% of GDP)
Socio-Economic Conditions	Age dependency ratio	WDI	(% of working-age population)
	Unemployment rate	WDI	(% of total labor force)
	School enrollment, primary	WDI	(% gross)
Trade Openness	Exports of goods and services	WDI	(% of GDP)
	FDI net inflows	WDI	(% of GDP)
Income Inequality	Gini index	WDI	Scale 0–100
Institutional Quality	Poverty headcount ratio	WDI	Poverty headcount ratio at \$3.65/day (%)
	Rule of law	WGI	Index Scale (-2.5 to 2.5)
	Control of Corruption Index	WGI	Index Scale (-2.5 to 2.5)
	Government Effectiveness Index	WGI	Index Scale (-2.5 to 2.5)
Social Innovation	Access to clean fuels and technologies for cooking	WDI	(% of population)
	New business density	WDI	(new registrations per 1,000 people ages 15–64)
	High-technology exports	WDI	(% of manufactured exports)
	Research and development expenditure	WDI	(% of GDP)
	Researchers in R&D (per 1M people)	WDI	Number per 1,000,000 population
	Life expectancy at birth, total	WDI	Years
Community Welfare	Primary completion rate, total	WDI	(% of relevant age group)
	Prevalence of undernourishment	WDI	(% of population)
	Poverty reduction (1 - Poverty rate)	WDI	Index Scale (0–1)
	People using at least basic sanitation services	WDI	(% of population)

The data were downloaded, cleaned, and formatted for panel analysis using data processing software such as Microsoft Excel, STATA, and AMOS. No data imputation was done for missing values; the indicators used were selected because they had high data completeness

across countries and years of observation. The analysis was conducted using a panel data-based Structural Equation Modeling (SEM) approach. SEM allows simultaneous estimation of direct and indirect (mediating) effects between variables, and accommodates time and country dimensions simultaneously (Dash & Paul, 2021). The data presented describes the variables used in the study and the indicators used to measure them. All research data comes from internationally recognized sources, namely World Development Indicators (WDI), Gini Index, and Worldwide Governance Indicators (WGI).

The variables in this study are Social Expenditure, Socio-economic conditions, Trade openness, Income Inequality, Institutional Quality, and Social Innovation as mediating variables.

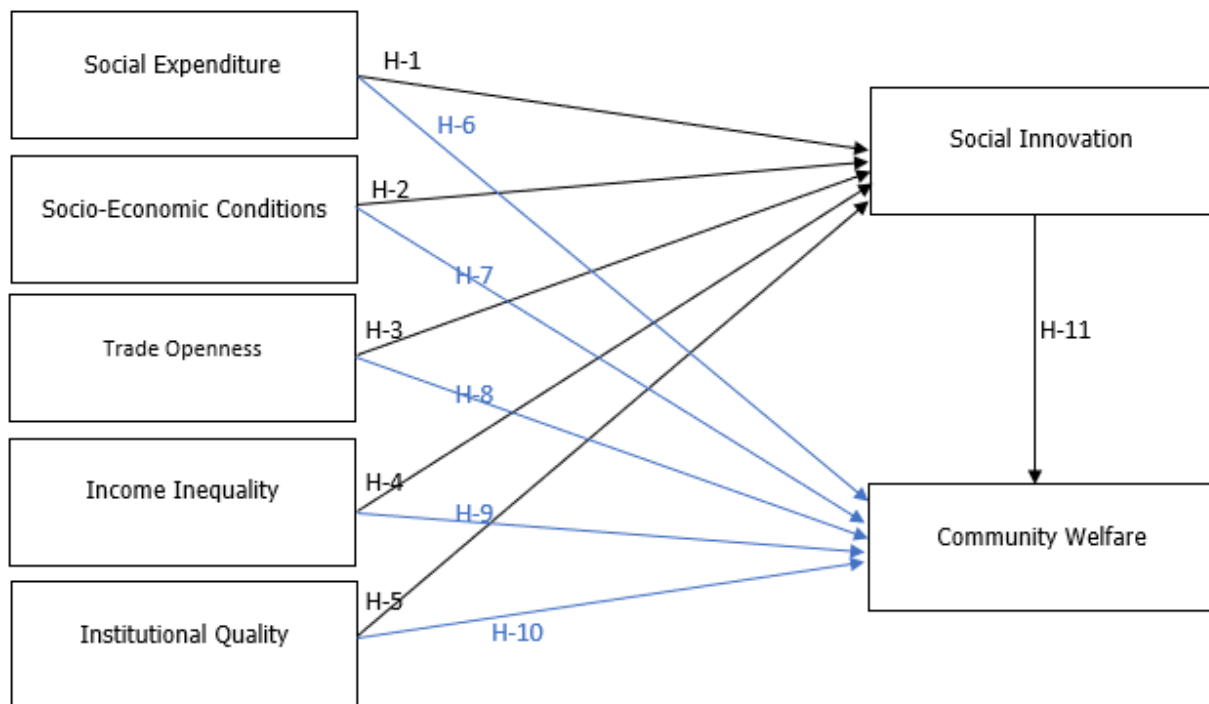


Figure 1: Research Framework

Prior to the SEM analysis, descriptive statistics and correlation analysis were conducted to understand the trend and strength of the relationship between variables. The basic model used in this study is described as follows:

$$Y1 = f(X1, X2, X3, X4, X5) \dots \dots \dots (1)$$

$$Y2 = F(X1, X2, X3, X4, X5, Y1) \dots \dots \dots (2)$$

The functions in equations (1) and (2) are then rewritten in logarithmic form as follows:

$$\ln Y1 = \alpha_0 + \alpha_1 X1 + \alpha_2 X2 + \alpha_3 X3 + \alpha_4 X4 + \alpha_5 X5 + \varepsilon_1 \dots \dots \dots (3)$$

$$\ln Y2 = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \beta_6 Y1 + \varepsilon_2 \dots \dots \dots (4)$$

This structural model places Y1 (Social Innovation) as a mediating variable influenced by X1–X5 (Social Expenditure, Socio-Economic Conditions, Trade Openness, Income Inequality, and Institutional Quality) through regression coefficients α_1 – α_5 , with constant α_0 and error ε_1 . Furthermore, Y1 influences Y2 (Social Welfare in ASEAN) through the coefficient β_1 , with the constant β_0 and error ε_2 , so that social innovation functions as a link between structural factors and inclusive social welfare.

4. Results

This study identifies social expenditure, socioeconomic conditions, trade openness, income inequality, and institutional quality as structural factors that shape the environment for social innovation to flourish, which in turn acts as a mediating variable in improving community welfare. Social spending, socio-economic conditions, and trade openness influence the capacity of communities and institutions to create innovative solutions, while income inequality and institutional quality determine their level of inclusiveness and effectiveness. Through community participation, knowledge capacity, and institutional collaboration, social innovation becomes an important mechanism that bridges public policy and social needs, thereby contributing to the improvement of community welfare.

Measurement Model (Outer Model)

Table 3 Outer Loading

Item	Indicator Description	Outer Loading
SE1	Government spending on education	0,531
SE2	Government expenditure on health	0,611
SE3	Primary government expenditures as a proportion of original approved budget	0,577
SEC1	Age dependency ratio	0,752
SEC2	Unemployment rate	0,723
SEC3	School enrollment, primary	0,689
TO1	Exports of goods and services	0,719
TO2	FDI net inflows	0,834
II1	Gini index	0,854
II2	Poverty headcount ratio	0,794
IQ1	Rule of law	0,760
IQ2	Control of Corruption Index	0,733
IQ3	Government Effectiveness Index	0,847
SI1	Access to clean fuels and technologies for cooking	0,537
SI2	New business density	0,810
SI3	High-technology exports	0,757
SI4	Research and development expenditure	0,810
SI5	Researchers in R&D (per 1M people)	0,728
CW1	Life expectancy at birth, total	0,739
CW2	Primary completion rate, total	0,870
CW3	Prevalence of undernourishment	0,851
CW4	Poverty reduction (1 - Poverty rate)	0,814
CW5	People using at least basic sanitation services	0,777

Table 4 Average Variances Extracted

Variabel	Average Variance Extracted (AVE)
Social expenditure	0,468
Socio-economic conditions	0,515
Trade openness	0,628
Income inequality	0,579
Institutional quality	0,565
Social innovation	0,541
Community welfare	0,659

All variables in this study show values that are above the critical limit, which is more than 0.5. In addition, the Average Variance Extracted (AVE) value has also exceeded the 0.5 threshold, and the cross loading results show that the relationship between constructs and indicators in the same variable is stronger than the correlation with indicators from other variables. Thus, all indicators in this study have met the requirements of convergent validity and discriminant validity.

Table 5 Discriminant Validity

Variabel	SE	SEC	TO	II	IQ	SI
Social expenditure	0,684					
Socio-economic conditions	0,744	0,718				
Trade openness	0,605	0,761	0,792			
Income inequality	0,712	0,745	0,867	0,761		
Institutional quality	0,735	0,685	0,737	0,758	0,751	
Social innovation	0,960	0,821	0,671	0,760	0,705	0,682
Community welfare	0,634	0,687	0,909	0,951	0,718	0,812

Based on the results in table 6, all cronbach's alpha values are recorded to exceed 0.60, and the Composite Reliability value for each construct is also above 0.70. This shows that all constructs in this study meet the reliability criteria, so it can be concluded that the instruments used are consistent and reliable in measuring the variables studied.

Table 6 Composite Reliability

Variabel	Cronbach's Alpha	rho_A	Composite Reliability
Social expenditure	0,773	0,805	0,837
Socio-economic conditions	0,767	0,774	0,841
Trade openness	0,852	0,863	0,894
Income inequality	0,815	0,819	0,872
Institutional quality	0,846	0,857	0,885
Social innovation	0,780	0,793	0,852
Community welfare	0,870	0,877	0,906

Based on the results, all cronbach's alpha values are recorded to exceed 0.60, and the

composite reliability value for each construct is also above 0.70. This shows that all constructs in this study meet the reliability criteria, so it can be concluded that the instruments used are consistent and reliable in measuring the variables studied.

Table 7 Coefficients Model 1

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Information
Social Expenditure -> social innovation	0,813	0,836	0,067	12,119	0,000	Accepted
Socio-economic conditions -> social innovation	0,210	0,184	0,067	3,162	0,002	Accepted
Trade openness - > social innovation	0,032	0,025	0,072	0,441	0,660	Rejected
Income inequality -> social innovation	0,102	0,105	0,083	1,230	0,219	Rejected
Institutional quality -> social innovation	-0,138	-0,134	0,057	2,427	0,016	Accepted

The path coefficient test is used as a basis for testing the hypothesis in this study. A hypothesis is considered accepted if the P value is less than 0.05, and rejected if the P value is more than 0.05. Based on the test results of the hypothesis that has been formulated, the following findings are obtained; 1). Social expenditure affects social innovation as shown by the t-statistic value of 12.119 and a P value of 0.00. Because the P value <0.05, this hypothesis is accepted, 2). Socio-economic conditions affect social innovation as shown by the t-statistic value of 4.163 and a P value of 0.02. Because the P value <0.05, this hypothesis is accepted, 3). Trade openness has no effect on social innovation indicated by a t-statistic value of 0.441 and a P value of 0.660. Because the P value > 0.05, this hypothesis is rejected, 4). Income inequality has no effect on social innovation as indicated by a t-statistic value of 1.230 and a P value of 0.219. Because the P value > 0.05, this hypothesis is rejected, 5). Institutional quality has an effect on social innovation as indicated by a t-statistic value of 2.427 and a P value of 0.016. Because the P value <0.05, this hypothesis is accepted.

Based on the results of the analysis, the research model can be formulated as follows:

$$\ln Y_1 = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \varepsilon_1$$

$$\ln Y_1 = \alpha_0 + 0,813X_1 + 0,102X_2 + 0,138X_3 + 0,210X_4 + 0,032 X_5 + \varepsilon_1$$

The coefficient α_1 of 0.813 indicates that a one-unit increase in social expenditure will increase social innovation by 0.813 units, assuming other variables remain constant. Furthermore, α_2 of 0.102 indicates that a one-unit increase in income inequality will increase social innovation by 0.102 units, while α_3 of -0.138 shows that a one-unit increase in institutional quality will actually decrease social innovation by 0.138 units. The coefficient α_4 of 0.210 shows that a one-unit increase in socio-economic conditions will increase social innovation by 0.210 units, while α_5 of 0.032 indicates that a one-unit increase in trade openness contributes to an increase in social innovation by 0.032 units, assuming other variables remain constant. Meanwhile, ε_1 or the error term describes the influence of other factors not explained in the model on social innovation.

Table 8 Coefficients Model 2

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Information
Social expenditure -> community welfare	0,324	0,312	0,089	3,648	0,000	Accepted
Socio-economic conditions -> community welfare	0,156	0,148	0,073	2,137	0,034	Accepted
Trade openness - > community welfare	0,042	0,038	0,065	0,648	0,517	Rejected
Income inequality -> community welfare	-0,071	-0,068	0,081	0,875	0,382	Rejected
Institutional quality -> community welfare	-0,128	-0,134	0,057	2,427	0,016	Accepted
social innovation - > community welfare	0,682	0,661	0,134	5,081	0,000	Accepted

Table 8 show the structural regression model indicates that social expenditure ($\beta = 0.324$, $p < 0.001$) and socio-economic conditions ($\beta = 0.156$, $p = 0.034$) have significant positive effects on community welfare, confirming that government fiscal commitment and favorable socio-economic environments are the strongest drivers of welfare improvement in ASEAN countries. Social innovation affects community welfare as indicated by the t-statistic value of 5.081 and a P value of 0.00. Because the P value < 0.05 , this hypothesis is accepted.

In contrast, institutional quality ($\beta = -0.138$, $p = 0.016$) shows a significant negative effect, suggesting that rigid or overly bureaucratic institutions may hinder innovation-based welfare transformation. Meanwhile, income inequality ($\beta = -0.071$, $p = 0.382$) and trade openness ($\beta = 0.042$, $p = 0.517$) have insignificant effects, indicating that inequality reduction and market liberalization alone are insufficient to improve welfare outcomes without complementary institutional and innovation reforms. Overall, the model demonstrates that fiscal and socio-economic structures remain the most influential determinants of inclusive welfare in the ASEAN-5 context, while institutional adaptability is crucial to ensuring that public spending and economic progress translate effectively into equitable social outcomes.

Based on the results of the analysis, the research model can be formulated as follows:

$$\ln Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_1 Y_1 + \varepsilon_2$$

$$\ln Y_2 = \beta_0 + 0,324 X_1 - 0,071 X_2 - 0,128 X_3 + 0,156 X_4 + 0,042 X_5 + 0,682 Y_1 + \varepsilon_2$$

The results summarized in reveal the dynamics of structural relationships between social, institutional, and economic factors and their impact on community welfare and inclusive economic performance in the five ASEAN countries studied. The findings show that social expenditure has a strong and significant direct effect on social innovation ($\beta = 0,813$, $p < 0,001$) and also exerts a significant direct influence on Community Welfare ($\beta = 0,324$, $p < 0,001$). Furthermore, the indirect effect of Social Expenditure through Social Innovation is also

positive ($\beta = 0,554$), resulting in the highest total effect ($\beta = 0,878$) among all variables. This indicates that higher government spending not only directly enhances welfare but also indirectly strengthens inclusive economic performance by fostering innovation in social programs and service delivery.

Table 9 Direct Effect, Indirect Effect, and Total Effect of Research Variables

Inter-Variable Influence	Direct Effect	Sign. Value	Significance	Support for Hypotheses	Indirect Effect Through Y_1	Total Effect	Significance	Support for Hypotheses
Social Expenditure -> social innovation	0,813	0,000	Significant	Yes	-	0,813	-	-
Socio-economic conditions -> social innovation	0,210	0,002	Significant	Yes	-	0,210	-	-
Trade openness -> social innovation	0,032	0,660	Insignificant	No	-	0,032	-	-
Income inequality -> social innovation	0,102	0,219	Insignificant	No	-	0,102	-	-
Institutional quality -> social innovation	-0,138	0,016	Significant	Yes	-	-0,138	-	-
Social expenditure -> community welfare	0,324	0,000	Significant	Yes	0,554	0,878	Insignificant	No
Socio-economic conditions -> community welfare	0,156	0,034	Significant	Yes	0,143	0,299	Insignificant	No
Trade openness -> community welfare	0,042	0,517	Insignificant	No	0,022	0,064	Significant	Yes
Income inequality -> community welfare	-0,071	0,382	Insignificant	No	0,070	-0,001	Insignificant	No
Institutional quality -> community welfare	-0,128	0,016	Significant	Yes	-0,094	0,034	Insignificant	No
Social innovation -> community welfare	0,682	0,000	Significant	Yes	-	0,682	-	-

In contrast, income inequality shows an insignificant effect on both social innovation ($\beta = 0,102$, $p = 0,219$) and Welfare ($\beta = -0,071$, $p = 0,382$). The indirect path through Social Innovation is minimal ($\beta = 0,070$), leading to a negligible total effect ($\beta = -0,001$). This suggests that inequality reduction efforts have yet to translate into measurable welfare improvements without the support of institutional and innovative frameworks. Meanwhile, institutional quality exhibits a significant negative direct effect on Social Innovation ($\beta = -0,128$, $p = 0,016$) and a significant negative direct effect on Welfare ($\beta = -0,128$, $p = 0,016$), but its indirect effect through social innovation ($\beta = -0,094$) is insignificant. These findings imply that institutional rigidity and bureaucratic constraints may limit the diffusion of innovation, reducing the efficiency of welfare policies in the ASEAN context.

Socio-economic conditions significantly influence both social innovation ($\beta = 0,210$, $p = 0,002$) and Welfare ($\beta = 0,156$, $p = 0,034$), confirming that favorable socio-economic environments encourage innovation while also directly improving welfare. However, its indirect effect through Social Innovation ($\beta = 0,143$) is not statistically significant, resulting in a total effect of 0.299 that, while positive, remains modest. This result indicates that improvements in socio-economic structures such as employment, education, and income distribution enhance welfare more effectively when combined with innovation-oriented social policies.

For trade openness, both the direct effect on social innovation ($\beta = 0,032$, $p = 0,660$) and the direct effect on Welfare ($\beta = 0,042$, $p = 0,517$) are statistically insignificant, though the indirect effect through social innovation ($\beta = 0,022$) appears slightly positive. Interestingly, the total effect of trade openness ($\beta = 0,064$) is marked as significant, suggesting that while trade liberalization alone does not immediately yield welfare gains, its broader influence when mediated by social innovation can indirectly promote inclusive economic outcomes.

Finally, social innovation demonstrates a strong and significant direct effect on

community welfare and inclusive economic performance ($\beta = 0.682$, $p < 0.001$), confirming its role as a critical mediating variable. This finding reinforces the theoretical expectation that innovation in social systems acts as a transformative mechanism, linking structural inputs (such as fiscal policy, institutional quality, and socio-economic capacity) to tangible welfare outcomes. Collectively, the results suggest that welfare improvements in ASEAN-5 countries are primarily driven by government expenditure and socio-economic progress, while innovation serves as the essential conduit translating these structural drivers into inclusive and sustainable welfare growth.

5. Discussion

Social Expenditure Affects Social Innovation

The results of the study support the hypothesis that social spending has a positive effect on social innovation, which is consistent with the theory that government investment in social programs creates an environment conducive to the emergence of social innovation (Mazzucato et al., 2020). This relationship shows that social spending not only functions as an allocation of resources, but also as a catalyst for communities to develop creative solutions to various social problems. Furthermore, these findings indicate that the success of social innovation is greatly influenced by inclusive and sustainable government policies that provide space for community participation, incentives for local initiatives, and the development of adaptive regulations (De Pieri & Teasdale, 2021; Castro-Arce & Vanclay, 2020).

Positive results from social spending in influencing social innovation at the ASEAN level can occur due to several factors. First, the government's commitment to the sustainability of social programs encourages the creation of a stable innovation ecosystem, where civil society organizations and the private sector can experiment with new solutions without high risk. Second, the political structure and direction of public policy shape institutions that support cross-sector collaboration, making the space for community innovation more open and its governance more adaptive (Sharma, 2023). Third, government incentives and regulatory support encourage the emergence of innovations that are relevant to local needs, while also increasing the accountability and effectiveness of social programs. Thus, the relationship between social spending and social innovation reflects the interaction between public policy, institutional capacity, and community participation, which confirms that inclusive and proactive government strategies are essential in promoting social innovation in the ASEAN region.

Socio-Economic Conditions Affect Social Innovation

The results of the study support the hypothesis that socioeconomic conditions have a positive effect on social innovation, which is in line with the theory that the economic capacity of a community and the quality of its human resources influence its ability to innovate (Terstriep & Rehfeld, 2020). This relationship shows that education levels, income, and job availability form the foundation for communities to create innovative solutions to various social problems. Strong socioeconomic conditions provide adequate resources, including time, access to technology, and extensive social networks, enabling individuals and communities to be more active in developing social innovation.

The findings indicate that the influence of socioeconomic conditions on social innovation at the ASEAN level is influenced by several factors. First, equitable access to education equips communities with the knowledge and skills to understand social problems and develop effective solutions. Second, employment opportunities and income stability provide financial security that helps individuals take risks in testing new ideas or launching social initiatives. Third, the availability of infrastructure and technology supports the dissemination of innovative ideas and collaboration between communities, enabling social innovation to develop more quickly and widely.

Conversely, unfavorable socioeconomic conditions can limit the space for social innovation. Structural barriers, such as inequality in access to education and employment, reduce community participation and narrow opportunities to contribute to innovative activities. Previous research highlights that economic complexity in developing countries often widens income gaps and complicates efforts toward equitable development (Hasanvand et al., 2022). Therefore, the relationship between socioeconomic conditions and social innovation emphasizes the importance of public policies that improve access to education, employment, and technological resources to encourage inclusive and productive community participation.

Trade Openness Affects Social Innovation

Based on the theoretical framework and research hypothesis, trade openness is expected to influence social innovation, as access to international markets, cross-border collaboration, and global knowledge flows can provide resources, ideas, and best practices that trigger the development of innovative social solutions (Hagedoorn et al., 2023). This relationship shows that social innovation does not only depend on local capacity, but also on the ability of communities and organizations to take advantage of opportunities from cross-border economic interactions.

In-depth analysis indicates that at the ASEAN level, trade openness does not always have a direct impact on social innovation due to several structural and institutional factors. First, limited institutional capacity can hamper the ability of communities and organizations to absorb knowledge or technology that comes from international trade. Second, less adaptive policies and regulations can reduce incentives for the public and private sectors to innovate even though access to global markets is open. Third, the uneven distribution of trade benefits can widen social and economic gaps, so that only certain groups in society have the resources to engage in social innovation (Shabbir et al., 2021).

In addition, differences in empirical results across studies show that the impact of trade openness on innovation is highly dependent on national and systemic readiness. Lu et al., (2024) found that trade openness in countries such as China can hinder domestic innovation if local institutions and protection mechanisms are inadequate. Conversely, Arshad et al., (2023) emphasize a reciprocal relationship, whereby public innovation can encourage trade openness. Hagedoorn et al., (2023) add that organizations with open and flexible structures are able to utilize external knowledge sources to strengthen social innovation.

Income Inequality Affects Social Innovation

The empirical analysis results in this study show that income inequality does not have a significant effect on social innovation. In other words, in this study, income distribution is not directly related to the community's ability to create innovative solutions to existing social problems. This finding suggests that income distribution inequality is not always a determining factor in social innovation, possibly due to the dominant influence of other factors, such as institutional strength, access to resources, community capacity, and the presence of supporting actors such as civil society organizations or social institutions. However, this finding differs from the results of Napolitano et al., (2022), which emphasize that high inequality can weaken a country's ability to generate innovation, including in the social sphere. Extreme inequality tends to hinder social collaboration, reduce trust between groups, and weaken the participatory foundation necessary to drive bottom-up innovation.

In addition, according to Law et al., (2020), although there are positive interactions between innovation and inequality in some cases, innovation alone is not strong enough to automatically overcome or reduce income inequality. This confirms that the relationship between social innovation and income inequality is complex and not always linear, depending on the economic, political, and social context of each region or country. Thus, the success of social innovation in the ASEAN region is more influenced by a combination of institutional quality, community

capacity, and support from social actors than by income distribution alone.

Institutional Quality Affects Social Innovation

The results of this study support the hypothesis that institutional quality has a positive effect on social innovation, thus demonstrating that the relationship between variables moves in accordance with the theory that places institutions as the main foundation for the creation of innovation. Institutions that apply the principles of transparency, accountability, legal certainty, and bureaucratic efficiency essentially provide an environment that allows social ideas to develop into structured and impactful solutions. In this case, the quality of public governance plays a role in directing policy, optimizing resource allocation, and reducing administrative barriers and opportunistic practices that often hinder the emergence of creative social initiatives (Yang et al., 2024; Hwang & Venter, 2025).

In-depth analysis shows that the impact of institutions on social innovation works through several key mechanisms. First, legal certainty and protection of rights increase the sense of security for social actors to take risks in designing innovative solutions. Second, transparency and accountability open up access to information and resources necessary for collaboration and public evaluation, so that the resulting innovations are more relevant and sustainable. Third, bureaucratic efficiency and cross-sector policy alignment accelerate the implementation of social initiatives and reduce transaction costs in collaboration. Fourth, strong institutions tend to create public-private-community partnership mechanisms, which enrich innovation through the integration of financial capital, technology, and external knowledge.

These findings are in line with previous studies that highlight the important role of institutions in supporting innovative processes. Sweidan (2021) emphasizes that quality governance creates a healthy market climate, encourages investment, and ensures a more equitable distribution of resources. Coccia (2021) also shows that high-quality institutions contribute to reducing poverty and social inequality, which are important foundations for the emergence of social innovation. Furthermore, Le et al., (2025) add that improving the quality of institutions strengthens the contribution of intellectual capital to innovation, thereby strengthening the nation's capacity to produce knowledge and create new solutions. Thus, institutional strengthening is not only an administrative matter but also a strategic component that accelerates the success of social innovation in responding to community development challenges.

Social Expenditure Affects Community Welfare

The results of this study support the hypothesis that social spending has a positive effect on community welfare, in line with the theoretical framework that places fiscal intervention as the main instrument for improving quality of life and promoting inclusive development. From the perspective of mission-oriented public investment theory, public spending allocated to health, education, and social protection not only improves access to basic services but also shapes institutional and economic conditions that encourage innovative and sustainable initiatives (Mazzucato et al., 2020). In ASEAN, this relationship is consistent with government efforts to achieve SDG targets related to poverty eradication, education, and health services, as well as with empirical evidence showing that adequate social spending can increase productivity and reduce inequality (Delechat et al., 2024).

The analysis indicates several mechanisms that explain why social spending has a strong impact on people's welfare. First, the composition and targeting of spending determine the effectiveness of proportional allocation to basic education, primary health care, and social protection for vulnerable groups, which increases human capacity and reduces vulnerability so that welfare benefits become more widespread and sustainable. Second, administrative and governance capacity influences a country's ability to translate spending into responsive and innovative programs, because spending without good accountability, monitoring, and

evaluation mechanisms tends to produce sub-optimal results.

Third, connectivity between public spending and the innovation ecosystem, for example through applied research grants, incentives for public digital services, or incubation support for community solutions, facilitates the transformation of fiscal resources into participatory and impactful innovative social programs. Fourth, local absorptive capacity, including the quality of human resources, digital infrastructure, and civil society networks, determines the extent to which public funding can be utilized to generate locally relevant innovations. Fifth, fiscal sustainability and budgetary space play an important role as a long-term commitment to funding the scale and replication of innovative programs so as to provide greater welfare effects over time.

Based on these findings, it is clear that increasing social spending will be more effective in promoting welfare when accompanied by efforts to improve the allocation and targeting of spending, strengthen governance and evaluation mechanisms, build bridges between public budgets and the innovative capabilities of communities/organizations, and strengthen local capacity to absorb and adapt innovative programs. Thus, fiscal policies designed as part of a social innovation strategy, rather than merely nominal increases in spending, have the greatest potential to generate inclusive and sustainable welfare in the ASEAN region.

Income Inequality Affects Community Welfare

Within the framework of theory and hypothesis, income inequality is assumed to affect community welfare. Conceptually, a more equitable distribution of income should open up broader access to education, economic opportunities, and productive social participation. However, empirical findings show that this effect is not significant, meaning that the relationship predicted by theory does not appear in the five ASEAN countries.

The main explanation for this weak relationship can be seen in several factors. Institutional quality is a key factor because without effective governance, redistribution programs are unable to produce real changes in welfare. These findings are consistent with Bedemo (2024), which shows that inequality tends to persist and weaken social cohesion when not supported by strong institutions. In addition, local absorption capacity, such as the quality of human resources and infrastructure readiness, as well as the dominance of the informal sector, means that reducing nominal income inequality does not automatically expand access to social innovation mechanisms. Policy designs that focus only on redistribution without productive investment also limit their impact (Hay et al., 2022).

In addition to these structural factors, the dynamics of time and differences in conditions between countries also have an impact. The impact of reducing inequality on welfare often takes a long time, so it is not immediately apparent in a relatively short research period. On the other hand, political dynamics and certain interests can hinder the effectiveness of redistribution policies. Therefore, although reducing inequality remains important, these efforts need to be accompanied by institutional strengthening, community capacity building, and policies that link redistribution with productive investment in order to promote welfare through social innovation.

Institutional Quality Affects Community Welfare

Furthermore, the hypothesis states that institutional quality should influence public welfare. Theoretically, strong institutions can reduce transaction costs, increase legal certainty, and improve coordination mechanisms between actors, thereby enabling pro-welfare initiatives to grow and have a broad impact. However, the dual pattern of significant negative direct effects and insignificant indirect effects through social innovation indicates that formal institutional strength does not always lead to the expected welfare outcomes when efficiency, flexibility, and empowerment orientation are absent.

The analysis reveals several mechanisms that explain these results. First, excessive bureaucracy and rigid administrative procedures can create obstacles to local initiatives and

slow down the government's response to community needs, thereby reducing the effectiveness of welfare policies. Second, asymmetry between institutional power and administrative capacity, for example when policy instruments are available but implementing agencies lack resources, technical capabilities, or autonomy, results in a gap between policy intentions and implementation in the field. Third, an institutional orientation that emphasizes strict control rather than participatory empowerment tends to weaken the space for bottom-up innovation, because without participatory mechanisms and collaborative incentives, the potential for social innovation as a channel for welfare improvement is not optimally mobilized.

These findings are consistent with Coccia's (2021) research, which emphasizes that institutional efficiency is not merely a formal force determining welfare outcomes, as well as with Avelino et al., (2019), who highlight the importance of collaborative and empowerment-oriented governance to facilitate social innovation. Based on this explanation, the implication is clear: efforts to improve welfare through institutional strengthening must go beyond formal capacity building and include reforms aimed at administrative efficiency, decentralization of implementing authority, participatory mechanisms, and incentives for cross-sector collaboration. Recommended policy practices include simplifying licensing procedures for social initiatives, strengthening the technical capabilities of implementing agencies, improving results-based accountability, and supporting public-private-community cooperation platforms.

Socio-Economic Conditions Affects Community Welfare

The results show that socioeconomic conditions play a significant role in promoting welfare improvement, with progress in social aspects such as education, employment opportunities, and public services proving to be key drivers of community welfare. These findings indicate that a stronger socioeconomic structure can generate direct benefits for welfare, regardless of social innovation as an intermediary.

The analysis identifies several key mechanisms that explain why socioeconomic conditions contribute to well-being, but the indirect pathway through social innovation is less robust. First, geographical imbalances (urban–rural) and interregional disparities hinder the transfer of development benefits, as increases in national socio-economic indicators are not necessarily distributed evenly to the most vulnerable communities, thus limiting local capacity for innovation. Second, the quality and relevance of education determine the extent to which citizens can translate knowledge into innovative practices; irrelevant curricula or a lack of entrepreneurship training reduce the driving effect of education on innovation. Third, access to capital and social networks (including microfinance institutions, community associations, and collaboration platforms) are important catalysts; without adequate financing mechanisms and networks, innovative ideas struggle to scale up into programs with broad impact. Fourth, institutional capacity to integrate local initiatives, for example through technical support, incubation, and procurement, determines whether socioeconomic progress will result in measurable innovation.

These findings are in line with the research by Millard & Fucci (2023) and Flores & Martos (2023), which emphasizes that socioeconomic progress drives community-level innovation when citizens are empowered and social capital and supporting infrastructure are available. Therefore, efforts to improve welfare that also seek to leverage innovation pathways need to include integrated policies, improvements in the quality of relevant education, expanded access to financing and networks, strengthened digital infrastructure in disadvantaged areas, and governance mechanisms that link public investment with operational support for community-based initiatives. With this approach, socioeconomic progress has the potential to not only directly improve welfare but also strengthen an inclusive and sustainable social innovation ecosystem in the ASEAN region.

Trade Openness Affects Community Welfare

The results show that Trade Freedom does not have a significant direct effect on Community Welfare. The analysis identifies several factors that explain this pattern. First, the absorptive capacity of the country and local actors, including the quality of the workforce, technical infrastructure, and the capabilities of small and medium-sized enterprises, determine the extent to which opportunities from open trade can be converted into impactful social innovation. Without this capacity, access to foreign markets and technology does not automatically translate into social benefits.

Second, the quality of domestic institutions and policies (regulations, standards, social protection) moderates the distribution of trade benefits, while openness that is not balanced by inclusive regulations and protection networks risks widening the gap, resulting in asymmetrical welfare impacts. Third, the structure of the value chain and the nature of the sector play a role, so that countries that are integrated at the upstream stage or with high added value tend to reap greater benefits from innovation than countries that are merely suppliers of raw materials. Fourth, multi-actor network connectivity between the government, the private sector, academia, and civil society organizations is important so that the transfer of knowledge and best practices can be adapted locally into innovative social enterprises and public services.

These findings are in line with the observations of Merlin-Brogniart et al., (2022) on the role of openness in shaping multi-actor innovation networks, but also reinforce the World Bank's (2023) warning that without institutional capacity and policy adjustments, trade liberalization risks exacerbating inequality. Therefore, liberalization policies need to be combined with strategies to strengthen local capabilities, inclusive standards and regulations, and investment in infrastructure and human resources to ensure that economic openness truly drives collaborative innovation that improves welfare evenly.

Social Innovation Affects Community Welfare

The results of the study show that social innovation has a significant impact on community welfare. These findings indicate that social innovation is not merely a complement to public policy, but rather a strategic pathway for promoting more inclusive and sustainable social change, especially when communities are involved as key actors in the process of social transformation (Grilo & Moreira, 2022).

Conceptually, this relationship can be explained through several important mechanisms. First, community-based and participatory social innovation encourages social solutions tailored to local needs, making them more adaptive in addressing issues such as poverty, access to education, health, and the environment. This approach opens up space for citizens to play an active role in the process of creating social value, strengthening social capital, and increasing collective capacity to manage resources independently. Second, collaboration between communities, government, and the private sector accelerates the dissemination of innovative ideas and practices, so that social interventions do not stop at the project level but can develop into more systematic public services. Third, social capacity, including education, technological literacy, and social networks, is a factor that strengthens the effectiveness of social innovation in generating broader welfare impacts.

This finding is in line with previous studies that confirm that social innovation can create sustainable social change because it involves the community as the main actors, not just beneficiaries. Social innovation also strengthens social ties within communities and expands people's access to basic public services, which in turn improves welfare indicators such as health, income and social participation (Jungsberg et al., 2020; Flores & Martos, 2023). Therefore, social innovation not only acts as a complement to public policies, but also as a major force driving more inclusive and equitable development.

The Mediating Role of Social Innovation in Community Welfare

Social expenditure affects community welfare mediated by social innovation. The results show that social spending has a direct and significant effect on community welfare, but the indirect effect through social innovation is not significant. This finding indicates that although social spending strongly encourages social innovation, this mediating pathway has not been able to strengthen the impact of social spending on welfare. Thus, community welfare is determined more by the direct effects of social spending than through the mechanism of social innovation. The main reason for these results is related to the direct and consumptive nature of social spending, such as cash assistance, subsidies, and basic services, whose impact is felt directly by the community without requiring an innovative process (Pramisita et al., 2023). Other empirical studies have also found similar patterns in public spending, where indirect effects through other mechanisms are often weak or insignificant because the benefits of social policies are more quickly felt directly by the households or communities targeted by the intervention (direct effects), while indirect effects through additional channels such as community participation or innovative capabilities take longer to be realized significantly in social welfare (Castellacci, 2023). The implication is that the government not only needs to increase the amount of social spending but also direct policy design so that such spending can encourage more productive, sustainable, and community-empowerment-oriented social innovation.

Socio-economic conditions affects community welfare mediated by social innovation. Empirical findings show that socioeconomic conditions have a significant direct impact on community welfare, while indirect impacts through social innovation are insignificant. This indicates that improvements in welfare are largely due to improvements in basic conditions such as income, education, and employment opportunities, without social innovation playing a major role. These results can be explained by the nature of socioeconomic conditions, which inherently determine the ability of individuals and communities to meet their basic needs (Hasanvand et al., 2022). When these conditions improve, well-being automatically increases without having to wait for social innovation to emerge. These findings are consistent with the literature showing a strong relationship between socioeconomic status and various quality of life indicators; for example, health studies show that education and income are key determinants of individual health outcomes and quality of life, which are important components of broader well-being (Ismanto & Merly, 2024).

The implication is that welfare improvement policies still need to prioritize basic socioeconomic improvements, while making social innovation a supporting tool rather than the only avenue for intervention. This is in line with conceptual discussions in the social innovation literature that position innovation as a tool to fill service gaps and expand access to existing opportunities, especially in the context of social inequality, but not as a substitute for improving basic conditions. Thus, although social innovation plays an important role in addressing wicked problems and adding value to development efforts, empirical evidence shows that economic fundamentals remain the main drivers of public welfare and need to continue to be the main focus of public policy.

Trade openness affects community welfare mediated by social innovation. The results of the study show that trade openness does not have a direct effect on community welfare, but has a significant indirect effect through social innovation. These findings confirm that social innovation plays an important mediating role in bridging the benefits of international trade to community welfare. The reason for this finding is that the benefits of trade openness are often macroeconomic in nature and not immediately felt by the community, especially vulnerable groups. The direct benefits of trade openness on domestic welfare often take time to materialize because they are linked to structural changes in production, investment, and technological

capacity, which do not always directly reach local communities at the micro level. Empirical studies show that trade openness can enhance a country's innovative capacity because openness to global markets creates competitive pressure, technology transfer, and knowledge accumulation that strengthen local innovation processes, an important element in social innovation that then spreads these benefits to the level of public welfare (Arshad et al., 2023).

Social innovation facilitates local adaptation processes, the creation of community-based economic opportunities, and the strengthening of social capacity so that the benefits of trade can be realized in improved welfare. In other words, trade openness creates opportunities for the adoption of new ideas and technologies, but without social mechanisms capable of internalizing these opportunities into the local context, the impact on empirical welfare often does not appear immediately. For example, research on trade openness and innovation performance in European Union countries found that trade openness correlates with increased innovation (including technological and process innovation) due to the influx of global knowledge and accumulation of human capital, which in a social context can be translated into forms of social innovation that ultimately contribute to community welfare (Loučanová et al., 2025). The implication is that trade policy needs to be accompanied by the strengthening of social innovation so that its impact is more inclusive and equitable.

Income inequality affects community welfare mediated by social innovation. The findings show that income inequality does not have a significant effect on community welfare, either directly or through social innovation. This indicates that in this study, variations in income inequality are not strong enough to explain changes in community welfare. These results may be due to compensatory mechanisms such as social policies, community solidarity, or government interventions that are able to mitigate the negative effects of inequality. However, international literature also emphasizes that deep-rooted inequality structures often pose a major challenge to long-term welfare improvement, especially when such inequality relates to access to education, health, and equitable economic opportunities. Studies on the relationship between inequality and health outcomes and social capital show that the negative effects of inequality on certain aspects of welfare (such as physical and mental health) can still arise through other channels, for example through low social capital and a lack of community solidarity, even if they do not directly affect the welfare indicators used in a particular study (Mulugeta Woldegiorgis, 2022). The implication is that efforts to improve welfare in conditions of inequality require stronger redistributive policies and structural reforms, rather than relying solely on social innovation.

Institutional quality affects community welfare mediated by social innovation. The results show that institutional quality has a significant direct but negative effect on community welfare, while the indirect effect through social innovation is insignificant. These findings indicate that improvements in institutional quality have not been fully accompanied by improvements in welfare, and that social innovation has not been able to effectively mediate this relationship. The reason for these results is related to the orientation of institutions that place greater emphasis on administrative efficiency, regulation, or macro stability than on the social needs of the community. Empirical literature shows that although institutional quality is often identified as an important factor in development and reducing welfare gaps, its effects can vary substantially depending on the context and policy focus. For example, research examining the relationship between institutional quality and regional welfare inequality finds that the effect of institutions on multidimensional welfare is complex and influenced by other public factors such as expenditure levels and interactions between different institutional dimensions (Ferrara & Nisticò, 2019). This research shows that improving institutional quality does not always automatically lead to a reduction in welfare inequality without the support of appropriate local policies.

In addition, other studies comparing institutional quality across countries show that good governance and institutional effectiveness are associated with social development progress and the achievement of long-term development goals that include public welfare. However, this study also emphasizes that these relationships are often influenced by other policy structures such as social budget distribution, transparency, and accountability in public service delivery. Without a broader combination of policies, institutional quality alone may not be sufficient to directly trigger improvements in welfare (Barbier & Burgess, 2021). This is in line with findings that deep social innovation requiring strong integration with institutional reform has not been able to become an effective mediating pathway in connecting institutional quality with community welfare. The implication is that improving welfare requires synergy between institutional quality and the strengthening of social innovation so that institutional policies are more responsive and oriented towards community welfare.

6. Conclusion

Based on the path analysis results, this study concludes that social innovation is a key variable that plays the most dominant role in improving community welfare, as reflected in its highly significant and strong direct influence. Several variables have a significant direct influence on social innovation, namely social expenditure and socio-economic conditions with a positive direction, and institutional quality with negative direction, while income inequality and trade openness do not show a significant direct influence. On the path to community welfare, social innovation has proven to be the main determinant with a significant direct effect, followed by significant effects from social expenditure and socio-economic conditions with positive direction, and institutional quality with negative direction, while trade openness and income quality have no direct effect. However, another important finding shows that trade openness makes a significant indirect contribution through social innovation, becoming the only variable with a significant mediating effect, while other variables do not show mediation through social innovation. Overall, the results of this study confirm that strengthening social innovation is a strategic path to improving community welfare, and that the effectiveness of economic and institutional variables in promoting welfare is highly dependent on the ability of social systems to generate and absorb innovation.

7. Implication of research

The results of this study have important implications for policymakers in developing ASEAN countries. The finding that social innovation acts as an effective mediator indicates the need for development strategies that focus not only on macroeconomic growth, but also on creating ecosystems that encourage community participation, creativity, and cross-sector collaboration. Governments need to strengthen institutions, maintain economic stability, and improve the quality of social policies to ensure that social innovation can thrive and have a tangible impact on societal well-being. Thus, inclusive, transparent, and long-term oriented policies are essential prerequisites for social innovation to function as a catalyst for sustainable development.

The contribution of this research also transcends the regional context and provides added value to the global community. Findings from five ASEAN countries show that social innovation can be an important instrument for bridging the structural gaps often faced by developing countries. This offers valuable lessons for other countries with similar conditions, highlighting that the achievement of inclusive development is not solely determined by traditional economic indicators but also by a country's ability to integrate social innovation into its national development strategy. Thus, this research contributes to the global literature on sustainable development by emphasizing that social innovation can serve as a catalyst for relevant socio-economic transformation for developing countries across the globe.

8. Limitation of study and future research

This study has several substantial limitations that need to be considered when interpreting the results. First, the variables used to represent inclusive development, social innovation, and structural factors such as Social Expenditure, institutional quality, and socioeconomic conditions still rely on aggregate macroeconomic indicators. This approach has the potential to oversimplify more complex social dynamics, so that the results obtained do not fully capture local variations or social innovation practices at the community level. Second, the use of secondary data from the World Development Indicators, although credible, has limitations in explaining qualitative aspects such as institutional capacity, policy effectiveness, and community participation in driving social innovation. Thus, the results of this study emphasize structural and macro relationships, while the nuances of implementation in the field are not fully captured. Third, the quantitative method using a panel approach and SEM does provide an overview of direct and mediating relationships, but it is insufficient to explain the deeper causal mechanisms between structural factors and the success of social innovation. Therefore, the results of this study need to be complemented with qualitative and contextual studies to provide a more comprehensive understanding of the role of social innovation in inclusive development.

Other limitations include the incomplete availability of macroeconomic data, especially in Indonesia and the Philippines' central government debt data for the 2020-2023 period, which limits a thorough fiscal analysis. The absence of such data makes it difficult to evaluate fiscal capacity to support social innovation, especially amid fluctuating inflation and moderate foreign investment flows. To improve the validity and explanatory power of the mediation model, future research is recommended to use a longitudinal design, a multi-method approach that combines quantitative evidence and qualitative case studies, and expand replication to different developing country contexts. These efforts are expected to clarify causal relationships, distinguish constructs more explicitly, and capture the true dynamics of fiscal support for social innovation.

Authors' contributions and responsibilities

All authors were actively involved in conceptual discussions and interpretation of findings, and contributed to critical revisions of the intellectual content. All three authors approved the final version of the article and take full responsibility for all aspects of the work, including data accuracy, scientific integrity, and contribution to evidence-based policy development.

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Competing interests

No potential conflicts of interest were reported by the authors.

Data availability statement

The data used and analyzed in this study are available from the corresponding author upon reasonable request.

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