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Industrial Policy (ISSN-2757-9840) is the prime outlet for research on industrial policy and its impact on the society. The INDPOL publishes high quality research on the process of economic and technological development, in particular industrialization. INDPOL is published via OJS and DergiPark platforms. INDPOL is indexed by Google Scholar.

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Contents

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Reshaping the Industrial Policy Framework of Türkiye: Integrating Exports at the Core of AI-Driven Development

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Abstract

This study explores the evolving landscape of industrial policy amid deglobalization, protectionism, and the technological revolution driven by artificial intelligence (AI). The shift in industrial policies across the US and EU, driven by geopolitical tensions, climate change, and economic rivalry, has resulted in increased protectionist measures. The US, once an advocate of free-market principles, now implements policies like the CHIPS Act to enhance domestic manufacturing and reduce reliance on China. For developing countries like Turkiye, integrating exports into industrial policy is crucial. Despite Turkiye's significant export growth, challenges such as low R&D spending and a small share of high-tech exports persist. The article emphasizes the need for a dedicated institution, the Industrial Policy Institutes of Turkey (TEPE), to focus on innovation, competitiveness, and sustainable development. TEPE would encompass various sub-institutions dedicated to high technology, energy, defense, and digitalization. AI can play a strategic role in analyzing sectors, optimizing supply chains, and enhancing export competitiveness. By leveraging AI, Turkiye can transform its industrial policies and position itself more robustly in the global market, ensuring economic resilience and growth.

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1. Introduction

A specter is haunting the Western world—specifically the U.S. and EU, the pioneers of the free market and globalization. That specter is deglobalization.

Industrial policy has recently become one of the most controversial topics in the global arena. As interconnected and interdependent global trade has evolved, it has created trade surpluses for some countries while causing trade deficits for others. It is hardly possible to consider international trade independently of the geopolitical axis. Disruptive geopolitical events are pushing the world back into a commercial and political east-west polarization. Consequently, global economic challenges and geopolitical developments are bringing industrial policy back into focus for many countries (Yülek & Akkemik, 2023). To this contention, the massive technological revolution of artificial intelligence has been added. This complex chain of events necessitates that developing countries, which have integrated into the world through globalization, reassess their own situations. Even developing countries that have not fully caught up with the industrial and subsequent electronic revolutions in recent centuries may succeed in leveraging the power of artificial intelligence (AI) technologies from risks into opportunities.

The debate between state intervention and free-market principles in industrial policy has intensified. As competition for economic superiority has become a priority, nations are increasingly adopting protectionist measures. The growing economic and technological rivalry between countries has led to a reassessment of the role of government in shaping industrial development. Traditionally a bastion of free-market ideology, the US has recently implemented numerous

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regulations aimed at steering strategic investments toward domestic market, ranging from policies that promote manufacturing within the country to initiatives like the CHIPS Act. These measures reflect a shift in the US approach to industrial policy, recognizing the importance of government intervention in key sectors to maintain competitiveness and protect national interests (FT, 2024).

Protectionism has recently become a severe measure, particularly against China and Chinese products, imposed by the US and European trade barriers (FT, 2024). The US Treasury Secretary has stated that Chinese products pose a significant risk to factories worldwide. The EU appears to have some hesitation regarding these harsh measures, while the US blames China's industrial policy for this trade tension. China's industrial policy could prompt EV manufacturers to shift production to Europe and the US in response to recent trade barriers imposed by the US.

Promoting selected industries for the national security or economic competitiveness is defined as industrial policy (Siripurapu & Berman, 2023; Hillman & Manak, 2023). Industrial policy aims to advance the development of strategic industries through various measures, such as subsidies, tax incentives, and regulatory support. Reynolds (2024) underlines that the tools of industrial policy have not changed significantly over time which are subsidies, loans, tax incentives, tariffs, infrastructure development, R&D and regulation. However, apart from those tools, this article aims to focus on maybe not a new tool but an efficient tool for developing countries: export. Exporting is critically important for developing countries as it transforms a semi-closed and dependent country into open and resilient one with the paths from export to FDI.

In the light of these global changes and challenges, this study first examines recent policy changes in the context of industrial policy. It then explores how export should be positioned within industrial policy in the age of artificial intelligence. Finally, it presents arguments for the necessity of establishing a national industrial policy center to adapt to increasingly complex competitive environment.

2. The Return of Industrial Policy in the Western World

2.1 Recent Global Challenges

After green, digital, and geopolitical changes, industrial policy, a taboo since the 1970s, is back and vital for governments (Criscuolo & Lalanne, 2024). Climate change compels the world to take macro-level precautions and implement detailed plans. The Net-Zero Industry Act of the European Commission not only aims to comply with environmental challenges but also creates jobs and economic growth by turning climate policies into industrial opportunities, enhancing the EU's energy resilience (Deloitte, 2023; EU, 2024).

Trade policy uncertainty has become a viable source of economic uncertainty since 2016 (Handley & Limao, 2022). Handley and Limao (2022) underline that the notable events such as Brexit and election of President Trump who challenged the trade with China for their argument. However, their analysis does not include recent great incidents such as Covid-19 pandemic and AI revolution that was triggered by OpenAI and its competitors.

In the western world (US & EU), opinions about industrial policy have changed due to recent significant developments (Aiginger & Ketels, 2024; Garcia-Herrero & Krystyanczuk, 2024; Reynolds, 2024; Juhasz, Lane & Rodrik, 2023):

- **Pandemic:** The fragility of global value chains led protectionism.
- **Climate Change:** Accelerated the green transition through regulations and industrial transformation.
- **Geopolitical Tensions:** Intensified by Ukraine-Russia and Israel-Palestine conflicts.
- **Rising GDPs of Developing Countries:** Increased the global trade share of developing countries like the BRICS.
- **Changing Demographics:** Demographical trends such as ageing society, middle-class squeeze and immigration change the priorities and policies of western governments.
- **New Technologies:** Technologies like AI create destructions in many layers of the industry
- **New Sector-Specific Subsidies and Tariffs:** The recent action of the US such as Inflation Reduction Act and CHIPS Act play significant role in the world trade balance and order. In 2024, the US has also increased EV tariffs against Chinese products.

2.2 Trade Policy Uncertainty and Protectionism

More than 80% of semiconductor chips are manufactured in Asia, which has become a critical concern for Western countries. The concentration of such a crucial industry in a single region brings significant risks to the global supply chain and national security for the western block. Disruptions and limitation of medical products during the Covid-19 pandemic also gave first signals of world-wide trade crisis. While China, South Korea, and Taiwan made significant investments in semiconductor sector, share of the US on semiconductor production capacity declined from 37% to 12%. In response, the US issued the CHIPS Act in 2022 to provide substantial incentives to support domestic production. The western block aims to reduce dependence on Asia (Gelsinger, 2024).

As manufacturing operations moved overseas, the US lost its domestic critical skills, knowledge, and innovation capacity. Debates on the free-market economic model have been increasing while the level of protectionism in the Western world is on rise. The global success of Chinese companies, which was result of a well-designed industrial policy implementation, raised questions about the effectiveness of a free-market approach in western landscape (FT, 2024). The western block aims to reduce critical dependencies from China where this country implemented industrial policy for decades (Garcia-Herrero &

Krystyanczuk, 2024). China's emergence as 'the world's factory' initially stemmed from Western corporations' initiatives. This strategic move by Western companies laid the foundation for China's rapid industrial growth and global dominance in manufacturing. With the capability to manufacture millions of products quickly and distribute them globally in a fast and low cost, China has significantly exceeded the old paradigm of 'designed in the USA, made in China. China's manufacturing competences have evolved beyond simply being a low-cost production hub for Western designs. It has developed its industrial ecosystem through technology transfers from Western nations and a workforce that is both highly skilled and Western-educated. The quality perception of past Chinese products has undergone a total transformation, allowing Chinese brands to now compete effectively with established Western global players. In addition to Chips Act of 2022, the US government has recently taken new precautions against China by increasing tariffs (CNN, 2024).

The unpredictable nature of trade policies with the tools such as tariffs, quotas, and trade agreements significantly impact businesses' decision-making processes and investment strategies. For developing countries that are in the middle of this trade war, trade uncertainty is increasing.

3. The Call for Developing Countries

3.1 The Need for Strategic Industrial Policy

If the US aggressively focuses on the new 'Modern American Industrial Strategy' (Reynolds, 2024), which plays a vital role in the global economy, then the rest of the world will need to reconsider their industrial policies. In addition to rise of China, increasing economic inequality, challenges of climate change and Covid-19-based supply-chain shocks have changed the direction of free-market policies to governmental interventions in the US (Siripurapu & Berman, 2023). These factors have highlighted the need for targeted government support in critical sectors.

3.2 Export as Strategic Tool

The knowledge and competitive advantage of developed countries over developing ones are rapidly increasing due to several factors (McKinsey, 2023; World Bank 2024; Georgieva, 2024): The knowledge and competitive advantage of developed countries over developing ones are rapidly increasing due to several factors (McKinsey, 2023; World Bank 2024; Georgieva, 2024):

i. The migration of advanced human and manufacturing capital to developed countries.
ii. The use of complex AI as a strategic tool by globally dominant high-tech companies, which have gathered extensive data over decades. This data continues to grow exponentially as individuals and corporations contribute a diverse range of information, from Excel files to images and videos, for analysis.
iii. Developing countries are still at some different stages of modern the industrial revolution and now face the additional challenge of adapting to the AI era.

Developed countries often offer better opportunities, higher wages, and a suitable environment for innovation, attracting highly skilled professionals and advanced manufacturing capabilities from developing countries. This situation widens the knowledge and technology gap between developed and developing nations. Tech giants in developed countries have a significant advantage in AI due to higher amount of data ownership and advanced computational resources. As individuals and companies generate more data, these tech companies enhance their AI expertise and dominance. Developing countries are still in the late industrial era and have not fully transformed their economies into knowledge-base one (Georgieva, 2024; World Bank 2024; McKinsey, 2023).

Developing countries can increase their economic competiveness by promoting selected industries in export markets. Governments can use exports in their policy settings. Policy instruments on exports are divided into two subgroups (Evenett et al., 2024):

- Export barrier: export bans, tariffs and quotas, export licensing and other export-related trade barriers.
- Export incentives: tax-based export incentives, unit-based export subsidies, trade financing and other financial export promotion.

Industrial policy and export strategy are two crucial elements of a nation's economic development framework. Industrial policy focuses on promoting the development of specific industries within a country, while export strategy aims to increase the competitiveness of a nation's products in international markets (Holslag, 2016). The alignment between a nation's industrial policy and its export strategy is often imperfect in practice (Feng, Li & Swenson, 2017). Export strategy should be aligned with the priorities and objectives set out in a nation's industrial policy (Feng, Li & Swenson, 2017; Zhou & Wen, 2022; De Sousa, Disdier & Gaigne, 2020). By aligning their industrial policy and export strategy around AI and other emerging technologies, developing countries can position themselves to compete effectively in the global economy and bridge the knowledge and technology gap with developed nations (UNCTAD, 2023; Google, 2024).

Exporting provides valuable lessons in resilience, resistance, and survival within the competitive business landscape. Engaging in international trade not only strengthens a firm's capabilities but also significantly enriches the domestic market environment (Zhu & Ye, 2023; Cali et al., 2022; Economist, 2023):

Adaptability and Flexibility: With its rich variety of consumer preferences and competitive forces, export markets are different than the domestic market. Thus, firms that export can develop adaptability skills. By learning to adjust their offerings and strategies, firms can become more responsive to changes.

Risk Management: Operating in the international arena exposes firms to a variety of risks, including currency fluctuations, political instability, and supply chain disruptions. By learning to navigate these challenges, firms can significantly enhance their resilience.

Market Diversification: Exporting companies play a crucial role in diversifying the markets for their products.

Innovation: Participating in diverse international markets can significantly enhance a firm's capacity for innovation.

Cultural Competence: Business transactions and relationships with different cultures through exporting can enhance firms' negotiation capabilities, marketing strategies, and customer service.

Strategic Management: Operating in multiple countries necessitates thorough management. Firms that export are likely to develop more sophisticated strategic management capabilities.

Financial Strength: Sustainable exporting enhances the revenue and profit levels of firms. At macro and national level, inflow of foreign currency into the domestic economy empowers the trade balance and is very crucial for Türkiye which gives negative balance.

Powerful Networks: Interaction with multiple players from customers to suppliers can increase firm's capabilities in different assets and skills.

Knowledge Transfer: Through their international operations, firms grasp new methods and knowledge that they can bring these innovations back to their domestic operations, it can lead to productivity improvements and enhanced capabilities across the domestic supply chain.

Enhanced Quality: International operations necessitate higher level of quality standards. This uplift in quality standards can make the entire local industry more competitive both domestically and internationally.

Economic Growth: Firms that engage in exporting their goods and services tend to increase economic growth, productivity, and wages in the domestic market.

4. Industrial Policy and Integration of Exporting of Turkiye in the AI Era: a new Framework

Enhancing industrial policies and effectively integrating them with export strategies can significantly increase the competitiveness of companies (Juhasz, Lane & Rodrik, 2023). This not only helps reduce imports but also provides the growth of the domestic market. In a developing economy like Turkiye, adopting such an approach is crucial. To reduce its reliance on foreign goods and enhance its competitive edge, Turkiye requires a novel framework.

The historical trajectory of Turkiye's industrial policy design and implementation highlights several missed opportunities. Both Turkiye and South began implementing industrial policies in the automotive industry around the same period. However, South Korea has significantly outpaced Turkey in this sector (Yülek et. al., 2020). In Turkiye, import-substitution industrialization, which started with government support in the 1930s, was followed by development plans from the 1960s onwards. By the 1980s, the focus shifted to export-led growth. Institutional reforms after the 2001 financial crisis enhanced the state's regulatory capacity. Despite these efforts, Turkiye's industrial policies aimed at promoting technology-intensive exports did not achieve the desired outcomes. This shortfall can be partly attributed to global macroeconomic instabilities and geopolitical issues (Toksoz, 2023). While South Korea transformed its state capacity through export orientation, becoming a global player, Turkiye did not effectively utilize the potential of exports to enhance its internal development and international position (Yülek et al., 2020).

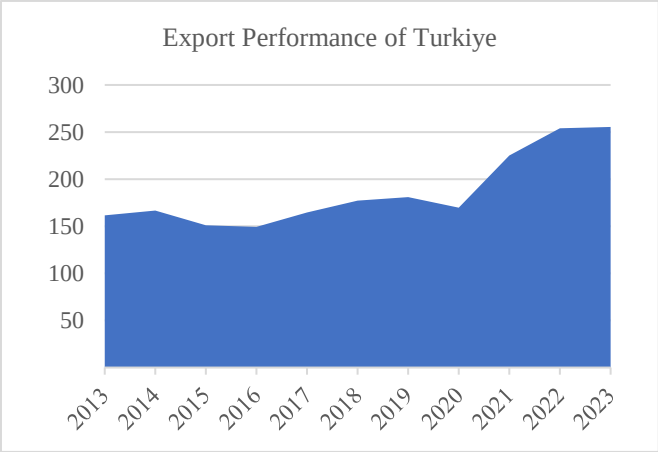
As the world faces transformative challenges like the COVID-19 pandemic, climate and energy crises, disruptions in global supply chains, demographic shifts, and emerging geopolitical conflicts, the security and prosperity of nations have been significantly impacted. To navigate these challenges effectively, countries need to prioritize the creation and strategic application of knowledge. The generation of scientific knowledge, coupled with its successful commercialization, is crucial for the survival and sustainable growth of national economies. By advancing innovation and knowledge production, nations can enhance their resilience against global crises (Fraunhofer, 2024). Japan's Ministry of Economy, Trade and Industry (METI) acknowledges that the highlighted issues above have led to a future outlook filled with growing uncertainty. Considering this increasingly unpredictable situation, METI has fundamentally been reassessing its conventional policies and formulating new economic and industrial policy approaches (METI, 2021). In addition to the developments listed above, Japan's lower growth compared to other advanced countries since the 1990s has also led a country specialized in industrial policies like Japan to reconsider these policies. Similarly, The Korea Institute for Industrial Economics and Trade (KIET), which is Korea's sole national policy research institute, enhances industrial resilience by synchronizing the Korean industry with global trade, in response to shifts in the global industrial landscape (KIET, 2024). Launched in April 2018 by the Department for Science, Innovation and Technology, UK Research and Innovation (UKRI) manages various institutes and councils in order to create synergy between research and innovation across the UK (UKRI, 2024).

4.1 Current Status of Turkiye's Exports

Share of Turkiye in global exports has been increasing continuously for decades (Statista, 2023). Turkiye's exports increased from 36 billion USD in 2022 to 256 billion USD by the end of 2023 (TIM, 2024). However, considering the export value per kilogram and Turkiye's share in global trade, there is a room to grow in export markets. Despite the defense industry' contribution, kilogram export value is around at 1.5 USD and Turkiye's share in global trade remaining at 1% levels, these figures have remained stagnant (Ekonomim, 2023). Additionally, the share of high-tech exports in Turkiye's total exports is only 4.6%. This ratio stands at 35-

40% in Vietnam, Malaysia, and South Korea (The World Bank, 2024). As shown in Table 1, Turkiye's export performance has increased in recent years, indicating its high potential.

Table 1. Turkiye's Recent Export Performance



Source: TUIK (2022). (Export figures in billion USD)

4.2 The Need for a New Framework:

Developing countries like Turkiye, lacking abundant natural resources, must optimize the utilization of their available assets. This necessitates the creation of a specific-dedicated institution in formulating industrial policies that promote economic growth and innovation. A proposed organization dedicated to industrial policy, akin to TÜSEB (TÜSEB, 2024), might be named the 'Industrial Policy Institutes of Turkiye' (TEPE - Türkiye Endüstri Politikaları Enstitüleri Başkanlığı). TEPE would be strategically focused on addressing the nation's industrial and technological needs, promoting innovation, and enhancing international competitiveness. It would actively involve the community and all stakeholders in the research and innovation ecosystem, ensuring the optimal use of national resources within a framework of strategic prioritization. TEPE's scope could encompass a range of institutes, including those specializing in high technology, energy technologies, defense and aerospace, and digitalization, as illustrated below (PSBT, 2023):

Sub-Institutions of TEPE:

1. Turkish Institute of High Technology:
   - Focuses on the research and development of next-generation technologies.
   - Main areas: artificial intelligence, robotics, nanotechnology, and biotechnology.
2. Turkish Institute of Automotive and Transportation Technologies:
   - Develops innovations in the automotive and transportation technology sectors.
   - Works on electric vehicles, autonomous driving systems, and smart transportation networks.
3. Turkish Institute of Energy Technologies:
   - Focuses on developing renewable and sustainable energy sources.
   - Conducts projects in solar energy, wind energy, and hydrogen technologies.
4. Turkish Institute of Defense and Aerospace:
   - Enhances national capacities in defense and aerospace technologies.
   - Works on military equipment, satellites, and unmanned aerial vehicles.
5. Turkish Institute of Material Science:
   - Develops new materials and improves existing ones.
   - Focuses on nanomaterials, composites, and performance materials.
6. Turkish Institute of Industrial Transformation and Digitalization:
   - Integrates Industry 4.0 and further next-coming technologies.
   - Works on digital transformation, smart factories, and data analytics.
7. Turkish Institute of Environment and Sustainability:
   - Develops eco-friendly technologies and reduces environmental impacts.
   - Researches waste management, recycling technologies, and environmental monitoring systems.

Given the relationship between education policy and industrial policy (Yülek & Akkemik, 2023), a top-level institution is needed to design industrial policy using a bottom-up approach, a task that will be challenging and demanding.

6. Conclusion

Recent global policy changes necessitate a new framework for Turkiye's industrial policy. Trends like deglobalization, protectionism and technological revolutions bring new risks and opportunities for developing countries. Developing countries need to integrate their exporting activities into their industrial policy framework with the help of AI and tools. For domestic companies, accessing to foreign markets is vital to develop their various skills from finance to marketing. Operating in heterogeneous markets will enhance the resilience of companies and their nations. For the case of Turkiye, a clear industrial policy framework can be built by a dedicated institution that provides strategic insight for the domestic market and foreign market expansion. Reshaping the industrial policy framework of Turkiye to integrate exports at the core of AI-driven development provides a promising pathway to economic resilience and global competitiveness. By leveraging traditional industrial policy tools, such as subsidies, tax incentives, and regulatory support, alongside a strategic focus on export promotion, Turkiye can transform its economic landscape.

The establishment of a dedicated institution like 'Industrial Policy Institutes of Turkiye' (TEPE) shall be beneficial to compete in a fragile world. This dedicated institution shall

increase innovation and high-tech development by using the national resources in an optimal way. By integrating AI and other emerging technologies into its industrial and export strategies, Turkiye can reduce the knowledge and technology gap with developed nations.

As a result, export-focused industrial policy can enhance Turkiye's global competitiveness by transforming industries, making them resilient and innovative with the utilization of AI. This approach seems a necessity to adapt to the rapidly changing world. Future research can present the practical implementation of this framework and impact on different sectors in a quantitative way.

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Empirical Evidence Transformation into Local Agro-Governance Pathways for Enhanced Agro-Productivity in Rural Mid-Hills of Nepal

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Abstract

Agriculture with livelihood is vital for the Nepalese economy. The primary sector contributes approximately 27% to the national GDP and acts as a safety net in economic woes. However, this sector faces various challenges. State restructuring from unitary to federal governance enables sustainable and resilient agro-governance even from local levels. Thus, local agro-governance has a crucial role in identifying policy constraints and enhancing land productivity. Thus, this study tries to explore different observed variables of local agriculture governance and agriculture production. Structured questionnaires were distributed to farmers and primary data was collected (285 samples) from rural mid-hill; Tamakoshi Rural Municipality, Dolakha for the study. This quantitative research design integrates diverse constructs encompassing agro-production and local agro-governance while estimating land productivity through Structural Equation Modeling (SEM) employing multiple regression analysis. The competencies of policy implementation hinge primarily on socioeconomic indices; the findings highlighted the mechanization policies, farm inputs, efficient use of production factors, and governance enrichment to enhance land productivity. Thus, it's crucial to minimize policy shocks and implement targeted and tailored approaches with multi-stakeholder engagement. Focusing on agro-specific and sensitive long-term strategies; it's essential to pursue state and non-state actors' governing pathways to enhance land productivity and foster comprehensive agro-development.

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1. Introduction

The agriculture sector (agriculture, forest, and fisheries) remains the primary sector of the Nepalese economy supporting 29,164,578 population among them 48.9 percent are males and 51.1 percent are females (NSO, 2023). Nepal has raised the bar for defining poverty: compared to the old poverty line from 2011 to 2023, the new line raises the bar by 70% to NPR 72,908 showing 20.27% of the population being under the line of poverty. The urban areas have slightly lower poverty incidence (18.34%) than that of rural areas (24.66%) (NLSS, 2022-23). In the Himalayan foothills and rural areas, agriculture underscores the economy employing approximately 65% of the population. Despite being a cornerstone of the economy, agriculture's productivity remains stagnant due to disjointed governance across pre- and post-farming activities, resulting in reduced benefits for the populace. The local government may foster an institutional bricolage, for implementing agro-policies, improving socio-economic indices, and enhancing environmental sustainability. Despite Nepal's rich agricultural potential; lower production and productivity, inefficient governance,

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inadequate farm inputs, climate change, and global warming have led to stagnant progress (MoALD, 2020).

In the agricultural realm; over the course of decades, it has been stressed that both formulating and implementing agricultural development policies are vital for improving productivity and fostering growth (Abro et al., 2014; Mueller & Mueller, 2016). Similarly, agriculture diversification and commercialization (Pradhanang et al., 2015), and reduction of poverty via agro-development (World Bank, 2016; Corral et al., 2017) are also crucial. Correspondingly, efficient governance for agricultural development (Saint et al., 2017; Sidibé et al., 2018), agriculture development to resolve conflicts (Singh, 2012), and environment-friendly and Climate-Resilient Agriculture: CRA (Blanco et al., 2017; Babu et al., 2018) seem cross-cutting in recent days.

Implementing appropriate agricultural policies and efficient governance is crucial for rural development in Nepal (Chaudhary, 2018). Agro-growth serves as the precursor to unprecedented poverty reduction and a vital chariot for the growth of pro-poor (Gauchan, 2008). Aligned with prevailing constitutional provisions and legal frameworks, the transformation of unitary governance into three tiers: the federation, provinces, and local governments; since the promulgation of the new constitution in 2015 has provided opportunities to enhance agro-governance practices, even at the local level, ensuring sustainability and resilience (FIARCC, 2016). Likewise, many scholars have made substantial contributions to exploring diverse viewpoints on agricultural development in Nepal: such as factors influencing agricultural mechanization (GC et al., 2019) and agro-productivity and reduction in poverty (Devkota & Upadhyay, 2013). Similarly, various facets of rice cultivation and productivity were examined by Thapa et al. (2020); Bedari et al., (2020); Upreti (2010); Basnet (2010a & 2010b) in their research. Equally, rice production policies, mechanization, and use of ICT were reviewed by respectively Bhandari et al. (2017) and Sigdel et al. (2022a & 2022b). Similarly, agro-policies, institutions, and functions were reviewed within the framework of sectoral restructuring in Nepal (Bishwakarma, et al. (2021); Tamang et al. (2020); Khanal et al. (2020). Likewise, Kharel et al. (2022) reviewed appropriate agro-practices for food safety and agro-sustainability in Nepal. Chhetri et al. (2023) studied forest, agriculture, and migration: contemplating the future of forestry and agriculture in the middle hills of Nepal. Nyaupane (2023) studied the contribution of expenditure to agriculture growth in Nepal. Bhatt et al. (2024) made a comparative economics of main season and spring rice production in Kanchanpur district, Nepal. Pokhrel et al. (2024) assessed the economic and energy use efficiencies of hybrid and inbred rice varieties through the omission-plot technique in Lamjung, Nepal. Such efforts have demonstrated significant benefits in promoting agricultural development. As a result, local governance and related institutions in Nepal offer promising opportunities to tackle the challenges of agro-development effectively.

Based on the targeted and tailored approaches for local agriculture development, multiple facets should be juxtaposed properly. Thus, it's crucial to align agro-production and local agro-governance in empirical research based on the newly federalized context of Nepal. This study aims to explore how local governance influences agricultural productivity, particularly in the rural mid-hills of Nepal. It employs a quantitative approach to analyzing variables of agriculture production and local agriculture governance focusing on enhancing land productivity in paddy production. Additionally, it fills research voids and offers practical solutions to policymakers and stakeholders, thereby shaping Nepal's local agricultural facets.

The paper is outlined into major four chapters to accomplish such aims. The Introduction (study location, sample selection including methods of data collection, and methodology are explained in the first section. The materials and methods (analytical framework, measurement of variables, and coding details) are explained in the other section. Subsequently, the Results and discussions (coefficients, and explanations) are presented with some cross-validations. The last chapter is Conclusion; which concludes with the key findings and pragmatic implications for local agricultural development and sustainability.

1.1 Study Location

The study location was Tamakoshi Rural Municipality of Dolakha district in Bagmati Province. Dolakha has a Latitude 27°47′37.68″ North to Longitude of 86°11′03.48″ East, which is located in the middle of the Nepalese territory. It covers an area of 2191 km^2 (Survey Department, 2023), with a population of 172,767 (males 48.5% and females 51.5%.). The average family size is 3.49, the population density is approximately 79 persons per km^2, and the annual population growth rate is reported as 0.74% (NSO, 2023).

Within Dolakha district, Tamakoshi Rural Municipality is situated in the southern part, characterized by a temperate and humid sub-tropical climate. The primary occupation in this RM is subsistence farming, although some individuals also engage in commercial crop harvesting, foreign employment, and construction work. The Tamakoshi River plays a crucial role as a water source for irrigation in several wards. This study covers all seven wards of Rural Municipality. The political and administrative map of Nepal locating study area is shown in Figure 1.

Table 1. Socio-demographics of study location

Location	Local Level	Ward No. and Villages	Total Population		Area (km^2)
			Male	Female	
Bagmati Province, Dolakha	Tamakoshi Rural Municipality	1 (Bhirkot)	1030	1077	17.48
		2 (Jhule)	819	891	9.35
		3 (Japhe)	1489	1513	12.7
		4 (Malu)	918	1047	8.81
		5 (Shahare)	1109	1263	13.5
		6 (Chyama)	1035	1104	8.26
		7 (Hanwa)	917	951	19.05
		Total	**7317**	**7846**	**89.15**

Source: NSO (2023)

Table 1 summarizes the brief socio-demographics and geographical information of the study location. The total population of Tamakoshi RM, Dolakha is 15,163 (male 48.3% and female 51.7%). The sex ratio is 93.26 males per 100 females and the literacy rate is 74.0% (male 83.5% and female 65.3%). The total number of households is 4,485, the average family size is 3.38, and the population density is 99 persons per km^2 (NSO, 2023).

Figure 1. The political and administrative map of Nepal (with study area located by author)

Source: Survey Department, 2023

1.2 Sample Selection

The total number of farmer families in the study location noted was 4177, among them 2526 grow paddy (NSO, 2023a). The structured questionnaires were distributed (March 2023) to the farmers randomly and 285 samples were collected with a response rate of 87.7%. The data was collected from each ward (1-7) based on the information provided by the Rural Municipal Office. The number of samples collected from wards 1-7 respectively is 41 (14.4%), 34 (11.9%), 59 (20.7%), 34 (11.9%), 34 (11.9%), 50 (17.5%), 33 (11.6%). As Ward No. 3 has the largest population density among the seven wards: thus, more samples were collected from this ward. Field observation illustrates that more people are involved in farming and have surplus agricultural land for farming. In all the wards, the population of women is greater than males, but in this survey sample population of women is less than that of men. This may indicate that the women are more engaged in household activities and other stuff. This fact is also supported by the data given by the National Sample Census of Agriculture Nepal, 2021/22.

2. Materials and Methods

A quantitative research model was designed by integrating observed and latent variables. Structural Equation Modeling (SEM) using the software IBM AMOS V23 employing multiple regression analysis was used to scrutinize the impact of latent variables on land productivity.

2.1 The Analytical Framework

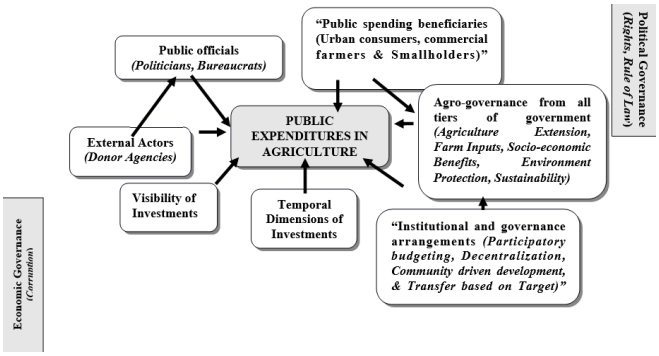
The study is based on the Mogues and Erman (2016) framework (cited by Goyal & Nash, 2017, p. 271), and contextual improvisation relying on Nepalese circumstances (Figure 2). Four prominent institutional arrangements included in their study are participatory budgeting, community-driven development programs, decentralization, and targeted transfers. Targeting spending in more unequal societies, and also based on political affiliation, creates vulnerability to capture. Over-representation, elite capturing, and political targeting are major hurdles in transfer programs (Goyal & Nash, 2017, p. 275). Thus, participatory budgeting, community-driven development programs, and decentralization have actual effects on responsiveness and pro-poor resource allocation (Goyal & Nash, 2017, p. 271).

By considering the spirit of the Nepalese constitution, fruitful coordination and cooperation among all tiers of government is the legal benchmark. The federation is responsible for integrated agro-ecological mapping (Lillesø et al., 2005; Ranjit et al., 2006; Karki et al., 2020; Khanal et al., 2020; Subedi et al., 2022) and the development of overall agricultural policies. On the other hand, the provinces deliver specific and sectoral programs based on the targeted geographical potential (Oldekop et al., 2018; Lewison et al., 2019; Shrestha et al., 2020). Local levels, being the governments in the vicinity of people, are accountable for providing farm inputs, delivering agriculture extension services (FIARCC, 2016), and promoting agriculture from the grassroots by considering production and productivity (MoAD, 2014), environment-friendly agro-activities (Basnet, 2012), and sustainable agro-practices (MoALD, 2020).

The significance of elasticities in the Nepalese milieu can be analyzed by incorporating agro-governance from all tiers of government into the 'Framework for Political Economy Determinants of Agricultural Public Spending' by Mogues and Erman (2016). Various dimensions of agro-governance in each tier of government have a mutual relationship with

institutions and governance arrangements. The functions and impacts of public spending cover smallholders', commercial farmers, customers, and urban consumers as well. Thus, political economy determinants and agricultural public spending framework can be improvised in the Nepalese context as follows:

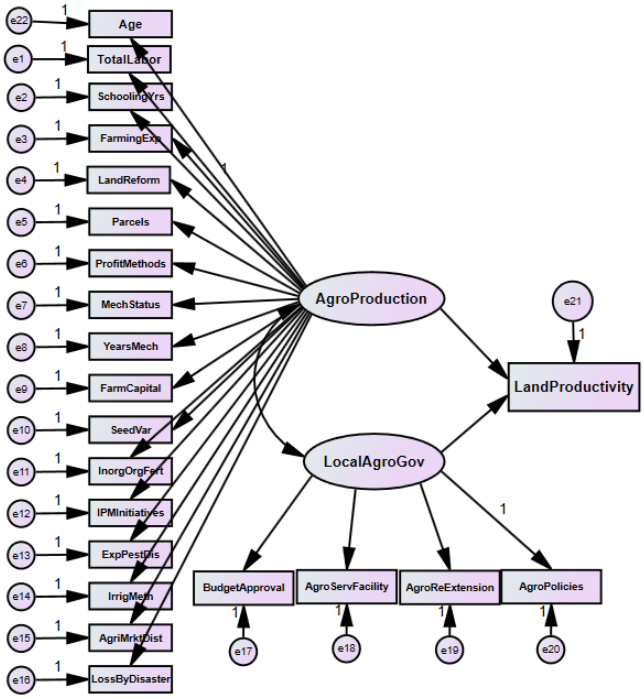
Figure 2. Improvisation of mogues and Erman's framework



Source: Author's improvisation in the Nepalese context based on existing laws and pertinent literature

Based on the conceptual framework (Figure 2) current study model was designed. The model consists of seventeen observed variables that are linked with the latent construct of agro-production, while another latent variable, local agro-governance, is characterized by four observed variables, and land productivity serves as an endogenous variable (Figure 3).

Figure 3. Path diagram of the study



2.2 Variables Description

Observed variables of agriculture production were selected by an extensive review of pertinent literature and existing rules and regulations. Similarly, local agricultural governance variables were extracted from the Unbundling Report (FIARCC, 2016). The decision to prioritize agricultural development over the livestock regime for future studies was made among various local agro-constitutional rights. The agriculture development was chosen, leaving the livestock regime for future studies, among the constitutional rights of local levels related to agriculture. The agriculture development was chosen, leaving the livestock regime for future studies, among the constitutional rights of local levels related to agriculture. The measurement of variables is shown in Table 2.

2.2.1 Agriculture Productivity

The selection of diverse productivity measures and their associated factors depends on the specific purpose for which productivity is being measured. The ratio of output volume to inputs is productivity (OECD, 2001). It is a rise in the per capita output of agricultural produce within an economy during a given period. Many scholars studied agro-productivity such as Abro et al. (2014) examined family income, farm capital, extension services, land-labor ratio, as well as land and labor productivity for productivity growth and poverty reduction in rural Ethiopia. Ivanic and Martin (2018); Awoyemi et al. (2017); and Kaur (2013) analyzed the productivity and growth of people. Devkota and Upadhyay (2013) explored multiple extents of poverty reduction and agriculture productivity, and the constraints in the Nepalese context have been identified. Similarly, Nyaupane (2023) studied the contribution of expenditure to agriculture growth in Nepal.

Basnet (2012) underscored the central role of rice/paddy (Oryza Sativa L.) in the food basket for more than fifty percent of the world's population as a major staple food; thus, focused on productivity studies. Coping with current global food demand, rice production must increase by 70% by 2050 (Basnet, 2012), which depends on multiple factors such as plot preparation, seeds (age, type, numbers, planting geometry), fertilizers, irrigation, insecticides, and temperature all together integrated into rice productivity.

In this research, land productivity is studied by SEM employing a multiple regression model. The measure of land productivity (YieldQt./Rp.) employed quantifies the production of rice in Quintals (Qt.) per unit area of cropped land in Ropani (Rp.) (Abro et al., 2014; Kapri & Ghimire, 2020). Farmer's age can significantly influence the mindset in their approach to supplying labor and also managing rice farms, thereby impacting productivity (Fitri et al., 2022). Thus, agricultural tasks performed by minors are omitted from consideration, with a focus on major-scale activities, reflecting a gender-based division of labor within the

agricultural process. Consequently, this study recognizes and values the equal participation of both males and females, acknowledging their respective socio-cultural roles and multi-faceted contributions. Given that, Sam (2013) explained productivity as the ratio of total farm output to total input value in farm production.

The National Sample Census of Agriculture Nepal (2021/22) entails some farmers' information on Tamakoshi Rural Municipality. The 3984 farmer families have agriculture as a major, and 283 have non-agriculture income sources. Similarly, 2203 farmer families do not get sufficient food for the whole of the year by the annual income of agriculture produces (NSO, 2023a). As cropped land has been decreasing day-by-day due to new city development, urbanization, and haphazard land-use policies in developing democracies. Furthermore, increasing agro-production, and productivity considering production factors is of ultimate need. Thus, this research considers productivity studies by focusing on agro-production and local agro-governance construct together.

2.2.2 Agro-Production

This latent variable consists of seventeen observed variables of different categories such as farming practices, mechanization, farm inputs, and CRA. The level of education can affect the adoption and innovation of new technologies, farming experience affects the ability to plan farming (Fitri et al., 2022). The significance of human resources in agricultural operations was emphasized in the National Agricultural Policy (2004). Farming techniques and methods of increasing agricultural profits hold equal significance (Abro et al., 2014). The agricultural literacy level of farmers is a critical factor influencing their decision-making ability and the implementation of better farm activities.

Land reform techniques are central to farming activities. CBS (2013) defined land being used as agricultural holdings (Chalan gareko jagga) and land parcels. Choudhary et al. (2022), and Upreti (2010) analyzed land fragmentation, the number of parcels within the cropped area, and improved soil chemistry in paddy farming leading to enhanced productivity. Similarly, the study of Devkota and Upadhyay (2013) establishes a positive output of land reform on productivity. Basnet (2012) also critically states "Grow paddy with soil fertility, wheat with fertilizers."

Farm mechanization enhances agricultural productivity through the use of tools, implements, and machinery (FAO, 2018) and significantly promotes higher output and profitability (Ghosh, 2010). Mechanization can be employed when a high land-labor ratio and be a panacea for a scarce labor force (GC et al., 2019; Devkota & Upadhyay, 2013; and Upreti, 2010); thus, essential for modern agriculture (Rasouli et al., 2009. Nepal's National Agriculture Policy (2004) emphasizes the adoption of machinery such as tractors, mini-power tillers, other heavy machines, threshers, seeders, motorized pumps, and sprayers to advance farm mechanization. Abro et al. (2014) studied the effect of the total number of machines as farm capital assuming farm assets are homogenous among households.

CBS (2013) categorized seeds, fertilizers, and pesticides as farm inputs; and seed use patterns of local seeds or/and high-yield seeds at the sowing time are considered. Seed varieties and cultivars underscore the agricultural harvests (Kaur, 2013; Abro et al., 2014; Jones et al., 2017 and Goyal & Nash, 2017, pp. 189-191). By considering the pivotal role of seeds in farming Basnet (2012) quotes "Healthy seedlings are responsible at least for half of the yields." Fertilizer use patterns of chemical/minerals/inorganic fertilizers (Urea, DAP, MoP) and organic/local fertilizers (Compost, FYM), or mixed approaches are studied in Nepal.

Similarly, Integrated Pest Management (IPM) incorporates the use of various methods including pesticides, fungicides, fumigants, herbicides, rodenticides, and other materials to control pests and diseases (CBS, 2013). The consistent challenge of timely access to seeds, fertilizers, and pesticides in Nepalese agriculture, whether due to their unavailability or inadequacy, directly impacts the yield of agricultural produce. Irrigation is defined as intentionally providing water on land, it does not include natural floods by rain or overflows from rivers but includes meticulous collection and use of rainwater (CBS, 2013). The ponds, rivers, or lakes (by pumping or by gravity), reservoirs or dams, boring or tube wells, others (springs and wells), and mixed sources are major means of irrigation.

The duration of one-way travel ranged from ten minutes to three hours, and transportation methods encompassed travel by rickshaw, bicycle, tempo or motorcycle, bus or car, on foot, or a combination up to the closest agriculture market (CBS (2013). Access to the market is also essential for enhancing the annual farm income of families.

Basnet (2012) argues that the risk of climate change and its multiplier effect threaten water resources, food security, and agricultural systems in the coming days. The technologies resilient to the changed environment, Agricultural Systems Modeling, and investment in CRA must be the agricultural frontier (Basnet, 2012; Blanco et al., 2017; Babu et al., 2018). Weather insurance is argued to be more crucial than crop insurance in preventing production loss from disasters, given the dismal results of crop insurance worldwide. Weather insurance should be promoted by the government as a better management tool because of its objectivity, transparency, and administrative ease (Kaur, 2013). Nevertheless, Basnet (2010a) argues for environmental sustainability while chasing enhanced productivity.

2.2.3 Local Agro-Governance

This latent variable consists of four different observed variables such as timely budget approval at the Rural Municipality (RM), the agro-service facility provided, agri-research and extension, and agro-policies for sustainability. Ensuring adequate agricultural incentives for farmers is crucial in developing democracies (Kaur, 2013). Sidibé et al., (2018); Barkley and Barkley (2020, pp. 12-15); Khanal et al.

(2020); Bishwakarma et al. (2021) also highlighted the requirements of farmers' subsidies. Mogues and Erman (2016); Jones et al. (2017); Goyal and Nash (2017, p. 271); and Swinnen (2018) advocated the political economy and necessity of efficient public spending in agriculture.

Nepalese farmers receive support from numerous government policies that have been enacted. Constitutional jurisdiction (Schedule-8, Schedule SN. 15 & 18) envisioned agricultural incentives channeled through local levels, yielding significant production outcomes and fostering positive agro-governance impacts. Agricultural extension (outreach, training, farming techniques, awareness, and support) is under the jurisdiction of local governments (FIARCC, 2016). Local levels are governments in the vicinity; they comprehend the necessities, delivering effective services to the people through appropriate governance setups. Timely approval of annual budgets by local levels and the formulation and implementation of appropriate agro-policies are crucial for agricultural development and sustainability.

Table 2. Measurement of variables

Latent Variable	Observed Variables /Indicators	Items and coding details
Agro-production	Total labor [TotalLabor]	Total labor force (male and female)
	Schooling Years [SchoolingYrs]	Total schooling years of the Head of Households (Higher Secondary or/and above: 12, SEE/SLC: 10; Primary Level: 5, Non-formal education: 3 (Abro et. al, 2014), Not been to school: 0)
	Farming Experience [FarmingExp]	Total farming experience (Years)
	Land Reform [LandReform]	Improving soil fertility by applying methods beyond tillage, may include land pooling and consolidation (1: Yes, 0: No/Just Tillage)
	Parcels [Parcels]	Number of parcels within the cropped area
	Profit-making methods [ProfitMethods]	Any one method for making agricultural profits known (models of productivity, value-addition, creating value chain, others-if) (1: Yes, 0: Not at all)
	Mechanization Status [MechStatus]	At least a machine (tractor, mini-power tiller, motorized pump, thresher) used on the farm
	Years of mechanization [YearsMech]	Total years of mechanization
	Farm Capital [FarmCapital]	Total number of machines used in farming (farm capital: Abro et al., 2014)
	Seed Varieties [SeedVar]	Uses of high-yield seeds (also mixed) (1: Yes, 0: Local Seeds)
	Inorganic Organic Fertilizers [InorgOrgFert]	Uses of inorganic and organic fertilizers (mixed)
	IPM Initiatives [IMPInitiatives]	Implementation of Integrated Pest Management initiatives prioritized by rural municipality (1: Yes, 0: Otherwise)
	Expenses in Pests [ExpPestDis]	Annual expenditure (in NPR) on pest and disease control.
	Methods of Irrigation [IrrigMeth]	Water deliberately supplied, excluding rainfall, through canal systems or other methods. (1: Yes, 0: Rainfed farming)
	Agriculture Market Distance [AgriMrktDist]	Distance to the nearest agriculture market (km)
	Loss by Disaster [LossByDisster]	Natural disasters and climatic hazards causing significant losses (also partial) in agricultural fields and crop yields (1: Yes, 0: Not at all)
	Budget Approval [Budget Approval]	Timely approval of the annual budget by the Rural Municipality (1: Yes, 0: Otherwise)
Local agro-governance	Agro-service Facility [AgroServFacility]	Subsidies and/or at least an agro-service (Outreach, Agro-technician field inspection, and others-if) received by farmers (1: Yes, 0: Not at all)
	Agri-research and Extension [AgroReExtension]	Agricultural research and extension provided by the RM (Likert Scale Question)
	Agricultural Policies [AgroPolicies]	Agricultural policies employed by RM and sustainability for agricultural development (Likert Scale Question)

3. Results and Discussions

Eighty-three percent of males and sixteen percent of females engaged in the farming process represent females are more engaged in pre-specified roles (socio-cultural) including household activities. The majority of farmers have completed just primary education, and the average years of farming experience is 17.6 (range: 5 to 36) years. The level of education (formal, non-formal) significantly enhances socio-economic status, particularly concerning farm experiences, thereby facilitating better farm decisions. Likewise, average farming experience shows majority have been farmers for a

long. Eighty-two percent of farmers do not have another occupation and rely on subsistence farming, complementing the sample selection in the study. Beyond the catchment of local government subsidy programs; five percent of farmers still use just animal-based power for farm reform activities, which justifies the role and influence of socio-economic indices for the adoption of mechanization. The average distance to the nearest agricultural market is 6.2 km (range: 3 to 9) showing farmers are still on foot for accomplishing many of the pre-and post-farm activities. Despite agro-services and extension facilities harvesting paddy once a year might signify diversification into other, and, commercial crops, labor shift dynamics, and the rise of other sectors.

The frequency analysis of agri-research, incentives, and extension provides a mean (M) of 3.32 and a standard deviation (SD) of 0.77. Similarly, for overall agricultural policies, the M = 2.43 with an SD = 0.79. The higher values in the case of agri-research, incentives, and extension represent the pragmatic efforts of the rural municipality for agricultural development and sustainability.

Structural Equation Modeling (SEM) was performed for the multiple regression analysis. The p-value (0.99), greater than the significance level (0.05) obtained by the Kolmogorov-Smirnov Test, fulfills the criteria of normality. The preliminary analysis was conducted to ensure the goodness of fit model. The obtained values are shown below (Table 3).

Table 3. Model fit tests

Model Fit Parameters	Value	Info
Chi-Square/df	2.40	Ideal
GFI	0.92>0.90	Fit
AGFI	0.83>0.80	Fit
TLI	0.92>0.90	Fit
CFI	0.96>0.90	Fit
IFI	0.96>0.90	Fit
NFI	0.93>0.90	Fit
RMSEA	0.072<0.08	Fit

The values of Chi-Square/df, GFI, AGFI, TLI, CFI, IFI, NFI, and RMSEA, also show the achievement of ideal values, and most of the model eligibility tests in this study indicate an excellent fit of the model (Collier, 2020, pp. 66-68). The regression weights of the observed variables of agro-production and local agro-governance, with productivity, are presented in Table 4.

Table 4. Summary of regression weights

Items		Variables	Standardized Estimate	S.E.	C.R.	P
YearsMech	<---	AgroProduction	.225	.023	9.880	***
MechStatus	<---	AgroProduction	.015	.004	4.036	***
ProfitMethods	<---	AgroProduction	.044	.006	7.362	***
Parcels	<---	AgroProduction	.317	.022	14.570	***
LandReform	<---	AgroProduction	.024	.005	4.580	***
FarmingExp	<---	AgroProduction	-.235	.085	-2.771	.006**
SchoolingYrs	<---	AgroProduction	.135	.062	2.168	.030*
TotalLabor	<---	AgroProduction	1.000			
FarmCapital	<---	AgroProduction	.498	.025	19.883	***
SeedVar	<---	AgroProduction	.042	.007	6.189	***
InorgOrgFert	<---	AgroProduction	.069	.002	41.103	***
IPMInitiatives	<---	AgroProduction	.006	.002	2.511	.012*
ExpPestDis	<---	AgroProduction	180.145	12.983	13.875	***
IrrigMeth	<---	AgroProduction	.018	.005	3.438	***
AgriMrktDist	<---	AgroProduction	-.029	.022	-1.339	.181
LossByDisaster	<---	AgroProduction	-.013	.009	-1.550	.121
AgroPolicies	<---	LocalAgroGov	1.000			
AgroReExtension	<---	LocalAgroGov	.795	.067	11.901	***
AgroServFacility	<---	LocalAgroGov	-.343	.054	-6.369	***
BudgetApproval	<---	LocalAgroGov	-.352	.064	-5.480	***
Age	<---	AgroProduction	.416	.121	3.435	***
LandProductivity	<---	AgroProduction	.624	.012	51.262	***
LandProductivity	<---	LocalAgroGov	.077	.064	1.200	.230

Note: *p < 0.05, ** < 0.01, and, ***< 0.001, Standard Error (S.E.), Critical Ratio (C.R.)

The mechanization status (0.015), years of mechanization (0.225), and farm capital (0.498) have positive and significant effects on agro-production. The previous studies: Sigdel et al. (2022b); GC et al. (2019); and Takeshima and Liu (2018) also support these results. The rural landscape and limited budgetary resources of local government may not support the massive mechanization.

Similarly, agricultural profit-making methods (0.044), land parcels (0.317), and land reform techniques (0.024) also significantly affect agro-production. This result finds additional support in previous studies conducted by Choudhary et al. (2022); Bedari et al. (2020); Thapa et al. (2020); Devkota and Upadhyay (2013); and Upreti (2010). Well-defined land parcels and land reform enable agro-production, thus enhancing agricultural profits. However, it is appropriate to consider tipping points by thoroughly comprehending and carefully recognizing all the underlying realities and factors in play: and sustainable land use (Sachs et al., 2019). Beyond the expectation farming experiences (-0.235) showed a negative and significant relationship. One possible reason could be that after federalization, the institutionalization of agricultural development at rural levels is still lacking; the cost of production, and improper post-production facilities: resulted in volatility in paddy farming among farmers.

The schooling years (0.135), and age of farmers (0.416) have a positive and significant relationship. Devkota and Upadhyay (2013) argue that dedicated farmers have an edge over naive ones, who may benefit from some agricultural training to improve efficiency. The education level of farmers plays a fundamental role in the farming process (Fitri et al., 2022); as better crop selection and rotation, optimizing resource management, innovation, appropriate farm decisions, adaptability, and resilience also get supported. Labor significantly influences production and productivity through its impact on the efficiency of agricultural operations, from planting and cultivation to harvesting and processing, by relating to the production factors. Thus, regression weight 1 was given to total labor, by considering the direct and proportional effect of the one-unit increase in the observed variable, the outcome increases by one unit.

The farm inputs (seed varieties (0.042), mixed fertilizers (inorganic and organic fertilizers, 0.069), Integrated Pest Management (IPM) initiatives by rural municipality (0.006), expenses on pests and disease control, irrigation methods (0.018) have a significant effect in agro-production. In this context, farmers made expenses independently and also received subsidies, including farm materials, from the rural municipality. Similarly, limited irrigation infrastructure and insufficient irrigation literacy among respondents in the study area may exhibit a weaker but significant relationship. Thus, it's reasonable that coefficients in the study might be weaker, despite still having a positive and significant relationship. This suggests that while subsidies may positively influence farm-related activities, the degree of impact may be moderated by the level of self-financing by farmers themselves. The timely unavailability of high-yield seeds and chemical fertilizers is a prevailing, unresolved, and sluggish problem. The inadequacy of inorganic (chemical) fertilizers pushes farmers to choose alternative options, such as mixing with local or organic fertilizers, and also leads them to rely on Farm Yard Manures, compost, and other alternatives. Similarly, in the alternatives of adequate high-yield seeds farmers use local seeds. NSO (2023a) reveals that 846.8 Hectare land is irrigated within 2458.1 Hectare, which is just 34.5%. Similarly, 68% of farmer families use local seeds, 6.5% use high-yield seeds, and 25% use hybrid seeds. Just 13.7% use proper insecticides. While 16.2% of farmer families rely on local/organic fertilizers. While, 0.04% use chemical/inorganic fertilizers. In the absence of chemical fertilizers many of them (83.4%) use mixed fertilizers (NSO, 2023a). The descriptive analysis of this study also reveals similar results to National Sample Census of Agriculture Nepal (2021/22). These data and the study results related to all farm inputs align with prior research conducted by Choudhary et al. (2022); Gairhe et al. (2018); Devkota and Upadhyay (2013); and Timsina et al. (2012).

An insignificant relationship was found with the loss in yield by the disaster in this fiscal year. It's a well-known truth that favorable climatic conditions and weather are crucial for paddy farming. The farmer families who are informed about climate change and its effects within the rural municipality are 28.4% (NSO, 2023a). Thus, rural municipality should adopt appropriate mitigations for resilience; such as weather insurance (Kaur, 2013). In contrast, several factors can account for the negative relationship with the nearest agricultural market, including the relatively long average distance (6.2 km), lack of consistent public transport, low market integration, and improper pricing mechanisms. Under such circumstances, farmers may be motivated to explore alternative networks and rely on community marketing channels instead.

Appropriate agro-policies have a strong and direct relationship leading to proportional and sustained change in productivity levels, by considering broader socio-economic and environmental dynamics. Thus, regression weight 1 was assigned to agro-policies and sustainability, while formulating convenient modeling of this study. No Agricultural Service Centers (ASC) were established in the rural municipality, and the varieties of agro-services provided were not adequate; furthermore, even when received, they incurred costs to the farmers. The farmer families who received formal agricultural trainings are 1523 (NSO, 2023a), which is less in number compared to a total number of farmers. Thus, agro-service facilities (-0.343) have a negative significant relationship in this study. The agri-research and quality extension have a positive and significant (0.795) relationship with local agro-governance. The targeted and tailored approach employed by the rural municipality for the benefit of farmers results in better outcomes. These results are in alignment with previous studies by Choudhary et al. (2022); Tasmin and Yusriadi (2022); Awoyemi et al. (2017); Jones et al. (2017); Mogues and Erman (2016); Abro et al. (2014); Devkota and Upadhyay (2013); and Kaur (2013).

The trend of the black-box approach in project selection, approval of cumulative amounts from the assembly keeping line items unbundled, lacking proper implementation framework, and cosmetic monitoring and evaluation have been increasing, Although the Local Government Operation Act (2017) clearly mentions the Standard Operating Procedure of budget approval for a Fiscal Year at local levels in Nepal. This may be in thirst of gerrymandering and pork barreling, over-politicization of development agenda, and administrative incompetence. These approaches significantly diminish the active participation and meaningful engagement of people in governance. The rising trend of malpractices in the project cycle management and budgetary processes may have the potential to hinder the agriculture development and overall perception and satisfaction of farmers on local agro-governance and delivery. Thus, the negative relationship of timely budget approval by the rural municipality (-0.352) holds implications. Therefore, Goyal and Nash (2017, p. 232) state that 'the shorter spectrum of actual spending and initially planned involve multiple partners in budget management, and as such, will require consensus building to achieve tangible progress.' Hence, ceteris paribus, the yardstick competitions; a bottom-up approach (Salmon, 2019, pp. 1-7), always play a major role in navigating the future of democratic local governance.

The latent variable agro-production demonstrates a positive and significant relationship (0.624) with land productivity. However, while some observed variables show positive significance, others exhibit negative significance with local agro-governance. Notably, the latent variable, local agro-governance does not exhibit a significant relationship with productivity in this study. Recognizing that observed variables of local agro-governance also contribute to enhanced agro-production, reversely ground reality of agro-production values navigates local agro-governance policies. Thus, the complex interlinkage among these observed and latent variables underscores the necessity for active participation and meaningful engagement of multiple stakeholders in local agro-governance for agricultural development, resilience, and sustainability.

Thus, the improvisation of Mogues and Erman's framework and study in the new federal structure of Nepal holds significance, focusing on agro-governance in all tiers, and, institutional and governance arrangements. Agro-specific and sensitive programs fall under multi-sectoral jurisdictions for comprehensive oversight and impact optimization. Sidibé et al. (2018) argue that ensuring effective multiscale governance heavily relies on the execution of appropriate laws formulated at the national level, serving as an eminent institutional mechanism. In many instances, the blanket approaches may not meet pragmatic circumstances and contradict local judgment (Sidibé et al., 2018). The federalized structures are facing similar issues in Nepal, numerous laws are yet to be formulated. Furthermore, Bishwakarma et al. (2021) mention that even after the enactment of new acts, there is a notable delay in the formulation and implementation of supportive and concerned regulations, directives, and working procedures.

4. Conclusion

The influence and effects of observed variables on latent variables, and ultimately, the impact of latent variables on agricultural productivity was analyzed by Structural Equation Modeling and regression. The observed variables: mechanization (years and farm capital), farm inputs (organic and inorganic fertilizers, seed varieties, IMP), irrigation, labor force with appropriate schooling, and working-age potentiality of land reform techniques containing latent variable agro-production have a significant relationship with land productivity in the study area. Similarly, the observed variable of local agro-governance significantly predicted the latent variable; however latent variable proportionally failed to predict productivity, leaving the facets for governance improvement. The wider frame of reference, comprehensive understanding, and efficient management of production factors are central to augmenting land productivity in paddy production and promoting sustainable agricultural practices.

The limited sample size (285) is one of the limitations of this study, assuming homogeneous socio-economic indices, farm capital, agro-practices, and climatic environments in the study area. Nonetheless, these study results leave significant footprints for local agricultural development, provide policy input for stakeholders, and offer avenues for future researchers. Thus, it's crucial to minimize policy shocks and implement targeted and tailored approaches with multi-stakeholder engagement. Focusing on agro-specific and sensitive long-term strategies long-term strategies; it's essential to pursue state and non-state actors' governing pathways to enhance land productivity and foster comprehensive agro-development.

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Role of Small and Medium Enterprises in Managing Financial Liquidity in Corporate Sector: A Case Study of Pakistan

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Abstract

This study recognizes the importance of small and medium enterprises in improving the financial liquidity in the corporate sector. These enterprises play an important role in the sale of finished products on credit and managing the inventories of merchandizing goods. Consequently, the burden of inventory holding and receivables from consumers is transferred from large-scale industries to small and medium enterprises (SMEs). In such ways, they facilitate the large-scale manufacturers. Large-scale firms can focus on investment in fixed assets. This mechanism promotes the expansion of business activities in the economy. The small and medium enterprises in Pakistan play also an important role in earnings from exports. To identify these linkages is the main concern of the study. The study identifies the determinants of inventories, receivables, exports, and spending on employment. The study is based on 6 years' data from 398 companies listed on the Pakistan Stock Exchange, while panel least square techniques have been applied to estimate the parameters.

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1. Importance of Small and Medium Enterprises in Aggregate Business Activities

The strategic location, global connectivity, a large market with a growing population, fertile land, tourist places, and rich mineral resources are those advantages that provide the basis of attractive economic growth to Pakistan. However, ineffective policies, unrealistic planning, and lack of coordination are the major hindrances to the economic development and growth of Pakistan's economy. For instance, the major part of economic activities in Pakistan belongs to the small and medium enterprises (SMEs) but it is one of the negligible areas in monetary and fiscal policies. Major exporting sectors in Pakistan including textiles, garments, agriculture, food processing, light engineering, surgical goods, sports goods, leather, footwear, and furniture belong to small and medium enterprises (SMEs). These enterprises are major contributors also to domestic economies through wholesale and retail activities, construction, education, hotels and hospitality services, transport, and tourism activities.

The small and medium enterprises (SMEs) are globally recognized as engines of growth. According to the World Economic Forum (2022), small and medium enterprises (SMEs) including mid-sized companies represent around 90% of all firms globally. Their contribution to global GDP is around 70%. Their role is significant in determining the nature of growth innovation and sustainability in global and domestic economies.

In Pakistan, there were more than 5 million small and medium enterprises (SMEs) in 2021 (SMEDA: 2021, Najib: 2021). According to the State Bank of Pakistan (2021), small

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and medium enterprises (SMEs) constitute 90% of the economic establishments, contributing 30% to GDP and 25% to export earnings. The sector also employs 78% of Pakistan's non-agricultural labor force. However, the Small and Medium Enterprise Development Authority (SMEDA) has reported a 40% contribution of SMEs in GDP.

Gallup (2004) mentioned that manufacturing units in SMEs constitute 30% of the total value of manufacturing in the country. These units employ more than 60% of the total labor force in the manufacturing sector. The number of manufacturing units in SMEs is more than 98% of the total manufacturing units in the country. Interestingly, 59% percent manufacturing units are in rural areas. The data from the latest sources confirm the growing participation of SMEs in the national economy of Pakistan.

Another important role of small and medium enterprises (SMEs) in Pakistan is to facilitate large-scale industries in managing their working capital. To understand this point it is important to know that the majority of sports goods manufacturers, surgical instruments units, leather products manufacturers, garments manufacturers, textile processing, dying and bleaching, bed wear manufacturing, and towel manufacturing units belong to the small and medium enterprises (SMEs) in Pakistan. The textile brokerage houses which export the textile products also belong to the SMEs. These small and medium-scale brokerage houses buy exportable products from large-scale companies after receiving confirmed orders from abroad.

Mehar (2022) and Mehar (2007) have identified that investment requirements in the various stages of the textile chain in Pakistan are highly dependent on the types of products and compliance with local and global standards and regulations. The spinning (yarn manufacturing), weaving (fabric manufacturing), and composite (vertically integrated companies) units are considered capital-intensive sectors. But they produce intermediate products and are known as mainstream industries. While downstream industries are involved in textile processing, coloring and bleaching, garments manufacturing, towel manufacturing, brokerage houses for exports, and stitching. The downstream industries in the textile and clothing sector are less capital-intensive and such businesses can be launched by small and medium-sized enterprises (SMEs). There are two main advantages of investment in such downstream industries: (1) They add value to the intermediate products and earn more foreign exchange for the country; (2) the SMEs in downstream industries are closely associated with skilled and educated human resources. The marketing abilities, branding, cross-cultural linkages, expertise in the effective utilization of information technology, and knowledge of the grading, standardization, and compliance of various standards, rules, and regulations are closely related to human resource development. This area is more important for export-oriented firms which belong to downstream SMEs. Almost similar linkages can be observed in other sectors including chemical, leather, steel manufacturing, and auto industries.

The corporate assets can be classified into 3 categories: (1) Fixed assets (Plant, machinery, land, and building, etc.), (2) Liquid current assets (Cash, bank balance, and marketable securities), and (3) Illiquid current assets (Receivables and inventories). Financial liquidity is defined as the ease at which an asset can be converted into cash. Fixed assets, inventories, and receivables cannot be easily converted into cash, so they are not considered liquid assets. However, liquid and illiquid current assets constitute the working capital that is required for day-to-day payments for running business activities. The higher volume of inventories and receivables can reduce the volume of liquid assets. Small and medium enterprises (SMEs) provide an intermediating point between large-scale manufacturers and consumers. Sometimes, small and medium enterprises (SMEs) buy semi-finished or intermediate products from large-scale industrial units and convert them into finished goods. In some cases, they work as wholesalers, agents, or suppliers. In such ways, they facilitate the large-scale manufacturers through instant buying of their products. Consequently, the burden of inventory holding and receivables from consumers is transferred to the small and medium enterprises (SMEs). Identifying this linkage is the main concern of the study.

This study identifies the determinants of inventories, receivables, exports, and spending on employment. The significant positive impact of small and medium enterprises on receivables and inventories will reflect their role in facilitating large-scale manufacturers to improve their liquidity position. The availability of cash to large-scale industries may induce investment in fixed assets and enhancement in business activities. Similarly, the higher export sales by small and medium enterprises (SMEs) show their significant role in foreign exchange earning which is also an indicator of liquidity in the monetary system. The inflow of foreign exchange will increase the supply of money in the domestic economy which improves financial liquidity. The higher benefits to the employees may also lead to growth in aggregate consumption and savings in the domestic economy.

The next section of this paper describes the SME-related issues and facilitations in Pakistan. Section: 3 explains the structure of data related to this study. The methodology to test the hypothesis has been described in section: 4, while section: 5 discusses the empirical findings. The last section recommends some policy measures and highlights the limitations of empirical findings.

2. SMEs in Pakistan: Issues and Facilitative Measures

Despite the importance of SMEs in domestic and external sectors, these enterprises are facing several issues and barriers to their growth and survival. The fiscal and monetary system does not support SMEs in Pakistan. The banks' lending to SMEs in Pakistan is around 5 percent of total banks' lending. This ratio is 25 percent in India and 40 percent in Bangladesh. It shows a systematic bias against the SMEs in Pakistan. Japan International Cooperation Agency – JICA (2018) has reported

that the size and structure of the financial sector are important in financing small and medium enterprises in Pakistan. According to its report (JICA: 2018), the financial sector in Pakistan is limited among comparable emerging market economies despite the significant development in Pakistan's financial sector from 1993 to 2018. According to an assessment by JICA (2018), the banking sector dominates the financial sector with its assets accounting for 75% of the sector's total assets. While 16% of assets belong to the national saving schemes (NSS), 5% in insurance companies, 4% in nonbank institutions, and 0.1% in microfinance institutions (MFIs).

Sherazi, Muhammad, Muhammad, Kashif, and Syed (2013), Mehar (2005d) and Mehar (2005c) have pointed out the financial constraint as the top obstacle in the growth of SMEs in Pakistan, while corruption was ranked second. The other obstacles determined through principal component analysis are social and technological constraints, lack of training, structure of management, and inadequate infrastructure. Ahmad and Karim (2015) profiled the flow of credit to manufacturing SMEs and their subsectors in Pakistan. They noted a growth in SME financing between 2006 and 2014. However, its share in total financing to industry was declining. Moreover, the flow of credit is concentrated in a few subsectors, which reflects the low level of diversification. It highlights that further diversification and growth are required to accelerate the country's economic development.

In the past, several initiatives have been taken by different institutions to boost the role of small and medium enterprises (SMEs) in Pakistan. World Bank spent USD 137 million on a 'Financial Inclusion and Infrastructure Project (FIIP)' from 2017 to 2022. The purpose of this project was to increase access and usage of digital payments and financial services for households, micro, small and medium enterprises (MSMEs), and other businesses. Due to this initiative, it is expected that the market potential of digital finance services in Pakistan will cross 36 billion USD by 2025, providing a 7% boost to the GDP, creating 4 million new jobs, and resulting in 263 billion USD additional deposits.

World Bank spent USD 100 million on the 'Punjab Jobs and Competitiveness Program' in 2016-2021 to support the implementation of the Punjab Growth Strategy (PGS) for manufacturing growth in the province. The project supported the regulatory reforms related to business registration, permits and licensing, contract enforcement, and property registration. World Bank has launched also a 'Developing Artisanal Livelihoods' program with USD 2.8 million in rural areas of Pakistan in 2014-18. The objective of this program was to demonstrate the effectiveness of a crafts-based cluster approach to alleviate poverty and improve the living conditions of weavers and embroiderers in rural areas of Pakistan.

Department for International Development (DFID) United Kingdom established 'Karandaaz' in Pakistan in 2014. 'Karandaaz' is a non-governmental organization (NGO) registered with the Securities and Exchange Commission of Pakistan (SECP) under the Enterprise and Assets Growth Program (EAGR). The aim of this program was to improve the micro, small, and medium enterprises (MSMEs) access to finance. Department for International Development (DFID) has invested USD 50 million through a wholesale credit business and direct investment in equities. 'Karandaaz' contributed around 38% capital of the Pakistan Microfinance Investment Company (PMIC) which provides loans to microfinance providers. The Bill and Melinda Gates Foundation has funded USD 32 million through the 'Karandaaz Digital program. This program promotes the digitalization of government payments, which reduces the barriers to customers' access to finance.

The Development Credit Authority (DCA) started its business in Pakistan in 2014. The authority (DCA) guarantees up to 50% of the principle, which enables commercial banks to extend a total of USD 60 million of credit. Many commercial banks in Pakistan are utilizing this facility. USAID contributed USD 5 million to increase the outreach of SME finance by increasing utilization of the CDA partial guarantee extended to Khushali Microfinance Bank. Asian Development Bank (ADB) has approved a loan of USD 20 million to Khushhali Microfinance Bank to expand access to credit for agriculture and micro, small, and medium-sized enterprises.

To provide equity capital to SMEs in partnership with local private equity firms a joint initiative in collaboration of USAID, Abraaj Group, Indus Basin Holding, JS Private Equity Management, and Pakistan Private Investment Initiative (PPII) was launched by USD 100 million. The initiative was started in 2016. A 'Small & Medium Enterprise Activity (SMEA)' project was implemented by Chemonics. This project was initiated by USAID with USD 35 million from 2017 to 2022. The objective of this initiative was to improve the financial and operational performance of SMEs in 7 sub-sectors (information and communications technology, light engineering, textile, hospitality, minerals, packaging, and leather).

The 'Innovation Challenge Fund for selection of innovative ideas in 2018, a 'Multi-Donor Trust Fund (MDTF)' to improve the competitiveness of marble and food processing sectors in Khyber Pakhtunkhwa (KP) in 2013, 'South-South Global Assets and Technology Exchange (SS-GATE)' system by United Nations Development Program (UNDP) in 2008, SME Business Support Fund (BSF) by Government of Pakistan in 2007 and Pakistan Export Finance Guarantee Agency Limited (PEFGAL) with the help of Asian Development Bank (ADB) in 1999 are included in the initiatives to support the SME sector in Pakistan.

To promote small and medium enterprises (SMEs), the State Bank of Pakistan (SBP) is focusing on leveraging technology not only in payments but also in modernizing lending platforms. SBP is also promoting an enabling regulatory environment for new players and forming new contractual relationships between financial institutions and third parties. The State Bank of Pakistan has established a

'Challenge Fund for SMEs (CSF)'. It aims to support banks to leverage technology and innovation to develop new or amend existing financial products and services and delivery platforms that will enhance access to finance in the SME sector. This fund provides an opportunity for banks to implement innovative digital banking products and services to improve access to finance to SMEs either individually or in collaboration with non-banking financial institutions (NBFIs)/ Fintech/ Electronic Money Institutions (EMIs)/ software houses. Commercial Banks are eligible to apply for CFS, however, the CFS Evaluation Committee will analyze the proposal based on feasibility, relevance, and impact on SME financing. The state bank has constructed a point-based criterion to assess the role of commercial banks in promoting financing for SMEs.

After these facilitative measures, commercial banks and other financial institutions are expected to facilitate small and medium-sized enterprises to generate employment and GDP growth. To automate the monthly reporting of SME financing data, the State Bank of Pakistan (SBP) has launched a data reporting portal in the name of 'SME financing' on its 'Data Acquisition Portal (DAP)'. The SBP has advised banks and development finance institutions (DFIs) to submit small and medium enterprise (SME) financing data in the prescribed format on a monthly basis with effect from the reporting period of June 2022 and onwards (SBP: 2023). The SBP has also issued guidelines for feeding the SME financing data. Due to regulatory requirements, several incentives, and facilitative measures by the State Bank of Pakistan the outstanding SME financing reached Rs.524 billion in December 2021 as compared to Rs.284 billion in December 2013. However, information asymmetries, high transaction costs, and lack of tangible collateral are those barriers that restrict the growth of SMEs in Pakistan.

In Pakistan, the responsibility for facilitating SME policy development lies with the Small and Medium Enterprises Development Authority (SMEDA), which is a constituent body of the Ministry of Industry and Production. It was explored by the government of Pakistan (2013) that there is a lack of coordination and regular information exchange mechanism among institutions which constrains their collective ability to deliver in the SME development process. So, a network of institutions stimulating the growth of SMEs was proposed (Government of Pakistan: 2013).

The government of Pakistan (2021) has formulated a National SME Policy in 2021. This Policy provides a set of recommendations to support SME growth as part of a holistic and integrated framework. Several policy interventions have been recommended in this policy. These include access to finance, regulations and tax regimes, skills, industrial infrastructure, and promoting entrepreneurship culture, amongst others. The Policy framework is based on two central pillars – reforming the Policy and regulatory environment and addressing SME market constraints, both demand and supply side. Within the Policy and regulatory environment, the focus is on creating enabling and business-friendly policies, regulatory simplification, and instituting a regime that allows easy entry & and exit of firms and start-ups to flourish. The supply side focuses on fiscal and monetary incentives, SME facilitation, entrepreneurship and innovation, credit and skills, and infrastructural provisions necessary for SME growth. Demand-side recommendations belong to the ease of market access and the role of public procurement in creating demand for SME products and services.

Table 1. Analysis of SME financing in Pakistan (Billion PKR unless specified)

Financing Category	**As of 30th June**	
	2022	**2023**
Aggregate Financing from Financial Institutions		
Outstanding SME Financing	484.8	457.1
Domestic Private Sector Financing	8,438.2	8,761.4
SME Financing as % of Domestic Private Sector Financing	5.7	5.2
SME Non-performing Loans Ratio (%)	16.5	17.1
Number of SME Borrowers (Thousand)	169	154
Composition of SME Financing: By Utilization		
Fixed Investment	147.1	150.0
Working Capital	293.8	275.0
Trade Finance	43.8	32.0
Composition of SME Financing: By Source of Financing		
Domestic Private Banks	332.9	281.9
Public Sector Commercial Banks	101.7	118.5
Islamic Banks	37.1	44.0
Specialized Banks & and others	8.8	8.0
DFIs	4.3	4.7

Source: State Bank of Pakistan (2023)/ Author's presentation

The Policy recommends the adoption of a unanimous SME definition by all stakeholders and the issuance of an SME size certificate (based on voluntary registration on the SME Registration Portal) that allows for the identification of SMEs and supports building a National SME Database. Notably, different definitions of SMEs have been used for different purposes in Pakistan. However, at the international level (according to the International Finance Corporation), a small unit means a unit with 10 to 50 employees, and total assets from 0.1 to 3 million USD and annual turnover from 0.1 to 3 million USD, while a medium unit means a unit with 50 to 300 employees and total assets from 3 to 15 million USD and annual turnover from 3 to 15 million USD. While a hybrid model is used to classify the enterprises by the World Economic Forum. According to this model, less than 10

employees and 1 million USD in annual revenue are defined as micro-enterprises. Less than 49 employees and/ or annual revenue below 5 million USD are defined as micro-enterprises. Medium-sized enterprises are the business with 50 to 250 employees and/ or annual revenue below 50 million USD. Mid-size enterprises are those business entities that cover 250 to 4999 employees and/ or have annual revenue below 1.75 billion USD. Business entities with more than 5,000 employees and/ or $1.75 billion annual revenue are classified as large enterprises.

In Pakistan (according to the Small and Medium Enterprise Development Authority -SMEDA) a unit with 10 to 35 employees or productive assets of Rs. 2 to 20 million was considered a small unit, while a medium unit covering 36 to 99 employees or productive assets of Rs. 20 to 40 million. The definition of small and medium units by the SME bank is based on the value of total assets. A unit with total assets less than Rs.20 million is considered a small unit while the value of total assets of a medium unit is ranged between Rs.20 to Rs, 100 million. A unit with less than 10 employees is defined as a small unit by the Federal Bureau of Statistics. According to the State Bank of Pakistan: (SME Prudential Regulations) a manufacturing entity that does not employ more than 250 persons with total assets at cost excluding land and building up to Rs.100 million, or a trade/ services concern that does not employ more than 50 persons with total assets at cost excluding land and buildings up to Rs 50 million, or a concern (trade, services or manufacturing) with net sales not exceeding Rs.300 million as per latest financial statements is considered as small or medium enterprise. Enterprises exporting up to 2.5 million USD per annum are considered small by the State Bank of Pakistan. An entity engaged in handicrafts or manufacturing of consumer or producer goods with fixed capital investment up to Rs.10 million including land & and building is defined as a small or medium enterprise by the Sindh Government (Department of Industries). A unit with a fixed investment of up to Rs.20 million excluding land and building is defined as a small or medium enterprise by the Punjab Small Industries Corporation.

The latest SME policy (Government of Pakistan: 2021) has redefined small and medium enterprises. According to the new policy, a unit will be categorized as 'small' if annual its sales turnover is up to PKR 150 million. The unit will be categorized as 'medium' if its annual sale is above PKR 150 million but less than PKR 800 million. While a small or medium enterprise up to 5 years old will be considered a Start-up small enterprise or Start-up medium enterprise (SMEDA: 2021).

3. Structure of Data and Macroeconomic Trends

The study is based on 6 years' data from 398 companies listed on the Pakistan Stock Exchange. The data was extracted from the annual reports of these companies (SBP: 2023). Table: 2 shows the classification of companies in the sample. This table shows the sector-wise distribution of companies in the sample, 116 out of 398 companies are classified as small and medium enterprises. The classification of companies is based on the definition of small and medium enterprises (SME) in the latest SME policy formulated by the Government of Pakistan (2021). According to this definition, a company will be considered a small or medium enterprise if its annual sale is less than 800 million Pak rupees (PKR). In this case, the company will be qualified to avail those advantages which are available to small and medium enterprises in Pakistan. The ease of compliance with regulatory and listing requirements and concessional borrowing from commercial banks are included in these advantages. To capture the effect of SME status on export sales, inventories, receivables, and benefits to employees, a dummy variable has been created in this research. The numeric value of this dummy variable is equal to '1' if a company is classified as small or medium enterprise (SME) and '0' otherwise. The list of variables with their abbreviated names and sources of data has been presented in Table: 3.

The reported data in annual accounts are based on standard accounting policies and procedures. There are some discrepancies in the definitions of some variables in accounting procedures and finance theory. For instance, preference shares capital is included in equity in accounting statements, while it cannot be considered a part of equity according to finance theory. So, before applying the statistical techniques for empirical findings, some variables have been recalculated. In this analysis, preference shares capital is not a part of owners' equity. Similarly, the surplus on the revolution of assets has been treated as a separate variable- it is not included in equity. Notably, operating assets are a major part of fixed assets, however, some non-operating assets are also included in the fixed assets. In this analysis, land buildings and vehicles for administrative uses are included in non-operating fixed assets.

Based on data in the sample, table: 4 envisages the importance of small and medium enterprises (SMEs) in Pakistan. It is envisaged that 72% of their total sales revenues are generated through exports, while 31% of their sales revenues are spent on payments of salaries and other benefits to the employees. So, their services for the inflow of foreign exchange and employment of labor are important for the economy of Pakistan. Their investment in assets (in terms of assets to sales revenue ratio) is more than 5 times as compared to large firms. They require more working capital as compared to large firms because their current assets in terms of current assets to sales ratio are significantly higher than large firms. The higher need for cash and bank balance, receivables from customers, and merchandizing inventories are visualized in Table: 4. The descriptive statistics of the variables have been shown in Table: 5. This table shows the significant difference between small and medium enterprises (SMEs) and large-scale firms.

This analysis is based on 6 years data from 398 companies, however, data for some variables are not available in some cases. The number of observations for each regression has been reported in the results. All data has been reported in thousand rupees (PKR) unless specified.

The coronavirus pandemic in 2020 affected GDP growth and businesses all over the world. Pakistan is not exempted from these adverse effects. The effect of the coronavirus pandemic (COVID) on sales revenue and receivables has been tested through dummy variables which is equal to '1' for the year 2020-21 and '0' otherwise. The coronavirus pandemic has also affected GDP growth which is an explanatory variable in this analysis.

Table: 6 summarizes the macroeconomic situation from 2016 to 2021. The higher fluctuation in the growth of manufacturing production, industrial production, and GDP is envisaged in Table: 6. The rate of inflation also highly fluctuated during the period (2016 to 2021). The Covid-19 pandemic is one of the causes of fluctuation in growth and inflation. But, no significant improvement in domestic credit was observed.

Figures: 1 to 2 reflect the association of sales revenue and macroeconomic conditions. It is an interesting observation that despite lower GDP growth and a higher rate of inflation during corona pandemic period in Pakistan, export sales show steady growth. The reason is obvious: The declining exports of intermediate products from Pakistan during the coronavirus pandemic period (mainly yarn and fabric) provided an opportunity for downstream industries to convert these products into finished goods (garments, towels, bed sheets, and other consumer products). The downstream industries which mainly belong to small and medium enterprises (SMEs) took advantage of this situation. Consequently, the export sales do not show a declining trend in the pandemic period. However, the role of monetary policy was not supportive in this period. There was not a significant change in the magnitude of domestic credit to the private sector in the pandemic period. While domestic credit to the private sector is much lower in Pakistan as compared to the global average. Even it is lower than in South Asian countries.

Figures: 3 and 4 visualize the difference between large-scale firms and small and medium enterprises (SMEs). Small and medium enterprises (SMEs) require more investment in current assets including liquid assets. They need more spending on receivables from customers and merchandizing inventories. However, their contributions to exports and benefits to employees are more important.

Table 2. Sample specification: (Year: 2016-21)

Sector	No. of Companies
Textile: Spinning, weaving and finishing	121
Textile: made-ups, garments, and clothing	4
Fibers (Including jute, synthetic, silk and rayon)	10
Sugar	28
Food products	24
Chemicals and Pharmaceuticals	44
Manufacturing	41
Mineral products	10
Cement	18
Motor vehicles, trailers, and auto parts	22
Fuel & Energy	22
Information, communication & transport services	16
Coke and refined petroleum products	11
Paper and paperboard products	10
Electrical machinery and apparatus	6
Other services activities	11
Total	**398**
SMEs	**116**

Source: State Bank of Pakistan (2023)/ Author's presentation

Table 3. List of variables and sources of data

Abbreviation	Description	Source
BNFTS	Expenses on salary, wages and other benefit to employees: temporary and permanent	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
CGS	Cost of goods sold	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
COVID	Dummy variables equal to '1' for the Covid-19 years (2020 and 2021) and '0' otherwise	Author's depiction
DCPS	Domestic credit to private sector as % of GDP	International Financial Statistics, International Monetary Fund (2023)
DIVDND	Cash dividends	Financial Statement

		Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
EAT	Earing after tax	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
EQUITY	Shareholders' equity (excluding preference shares capital)	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
EXCHRAT	Official exchange rate (Local currency units per USD)	World Development Indicators; World Bank (2023)
FXDAST	Fixed assets at cost	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
GR	The dummy variable is equal to '1' if a company belongs to garments manufacturing and '0' if otherwise	Author's depiction based on State Bank of Pakistan (2023)
GROW	GDP growth (annual %)	World Development Indicators; World Bank (2023)
ICT	The dummy variable is equal to '1' if a company belongs to information and communication technology and '0' if otherwise	Author's depiction based on State Bank of Pakistan (2023)
INDGRW	Growth in Industry (including construction) value added (%)	World Development Indicators; World Bank (2023)
INFLCPI	Rate of inflation based on consumer prices (annual %)	World Development Indicators; World Bank (2023)
INVNTRY	Closing inventory of raw materials, work-in-progress, and finished goods	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
LVRG	Leverage ratio: Ratio of total assets to shareholder's equity	Author's calculations
MNFGROW	Growth in manufacturing value added (%)	World Development Indicators; World Bank (2023)
PAIDUP	Paid-up capital (Ordinary shares capital)	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
PAYOUT	Cash dividend to earning after tax	Author's calculations
PRTEXCH	Price level ratio of PPP conversion factor (GDP) to market exchange rate	World Development Indicators; World Bank (2023)
RCVBLS	Trade debit and other accounts receivables	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
REER	Real effective exchange rate index (2010 = 100)	World Development Indicators;

		World Bank (2023)
SALES	Total sales revenue	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
SALEXPT	Export sales (Net)	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
SME	The dummy variable is equal to '1' if the annual sales revenue of the company is less than Rs.800 million, and '0' otherwise.	Author's depiction based on the Government of Pakistan (2021)
SP	The dummy variable is equal to '1' if a company belongs to textile spinning and/or weaving and '0' if otherwise	Author's depiction based on State Bank of Pakistan (2023)
SRVLUTN	Surplus on revaluation of fixed assets	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)
TOTAST	Total Assets (Equity & Liabilities)	Financial Statement Analysis; State Bank of Pakistan/ Pakistan Stock Exchange (2023)

Source: Author's depiction

Table 4. Financial comparison: large firms versus small and medium enterprises (Based on aggregate data)

Financial Indicator/ Ratio	**Large Firms**	**Small and Medium Enterprises**
Cash and bank balance to sales revenue	0.04	0.15
Merchandizing inventories to sales revenue	0.11	0.62
Trade credits and receivables to sales revenue	0.27	0.56
Current assets to sales revenue	0.50	1.88
Exports as % of total sales revenue	7.8	72.0
Employees' benefits and salaries as % of earnings after tax	5.5	31.0
Total assets to sales revenue	1.16	5.59
Interest expenses as % of long-term borrowing*	16.9	18.6
*' Including other financial charges		

Source: Author's calculations

Table 5. Financial and operational indicators descriptive statistics (In million PKR unless specified)

Variable	**Large Scale Companies**			**Small and Medium Enterprises**		
	Mean	**Median**	**Standard Error**	**Mean**	**Median**	**Standard Error**
Earning from exports	2397.2	315.7	213.1	1364.3	132.6	222.4
Total sales revenue	18625.8	4949.9	1602.3	232.1	156.8	8.6
Cost of goods sold	13404.0	2490.1	1455.6	2477.5	378.9	251.5
Salaries and other benefits to employees	1351.4	294.3	107.1	320.8	63.7	44.7
Earning after tax	1024.1	96.7	213.8	256.8	2.6	117.1
Reserves and surplus	7238.9	761.8	1389.1	715.1	38.8	146.4
Surplus on the revolution of assets	1512.1	358.2	190.6	649.9	214.9	77.3
Owners' equity	6657.3	1295.0	1178.3	1619.4	232.2	216.6

Paid up capital	1582.1	122.7	173.6	469.2	28.7	85.0
Long-term borrowing	3182.6	232.5	545.6	554.8	78.3	82.7
Leverage ratio	2.3	2.2	0.4	1.6	1.9	0.6
Current liabilities	8303.2	1345.3	892.1	1472.9	258.5	177.0
Payables	5576.7	553.1	731.4	654.1	122.3	99.7
Receivables	5162.3	289.3	800.8	490.8	48.6	147.8
Cash and bank balance	758.6	62.8	86.1	124.1	9.8	19.4
Inventories	2176.8	469.2	166.2	567.4	111.6	58.5
Current assets	9276.4	1605.2	985.6	1557.9	249.1	243.0
Fixed Assets at cost	9461.7	1754.7	862.4	2186.9	422.6	245.2
Intangible assets	482.6	6.4	90.9	71.3	2.9	22.9
Operating assets at cost	10762.2	2258.3	1045.2	2408.0	443.4	245.3
Operating assets after depreciation	6375.1	1436.5	566.1	1717.4	309.6	187.5
Total assets	21653.6	3453.1	2231.7	4626.8	569.5	1041.2

Source: Author's estimations

Table 6. Macroeconomic factors

Year	Domestic Credit to Private Sector (% of GDP)	GDP growth (%%)	Industrial Growth (%)	Growth in Manufacturing (%)	Rate of inflation-Consumer Prices (%)
2016	14.68	5.53	5.69	3.69	3.77
2017	15.31	4.43	4.67	4.87	4.85
2018	16.63	6.15	9.18	7.79	5.79
2019	15.69	2.50	0.25	4.52	1.58
2020	15.33	-1.27	-5.75	-7.80	9.74
2021	15.35	6.49	7.81	1.52	9.50

Source: World Bank (2023)

Figure 1. Economic growth and exports

Figure 2. Macroeconomic trends and sales revenues

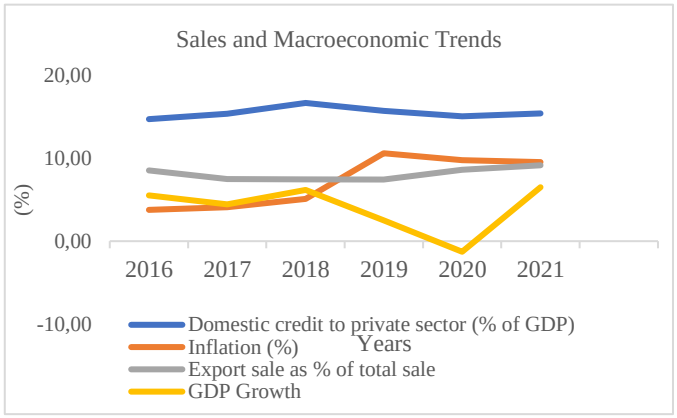


Figure 3. Role in firms in exports and employees' benefits

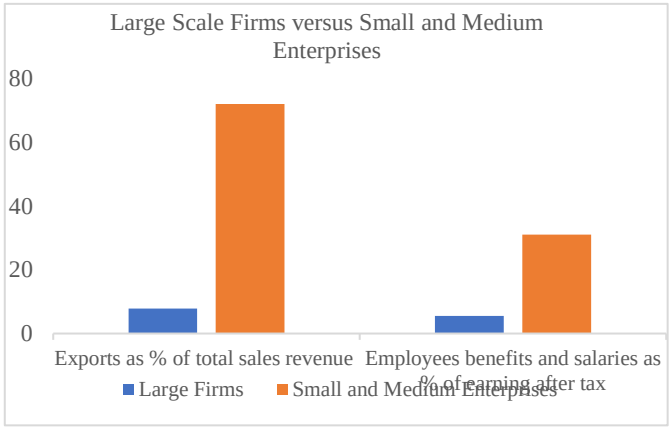
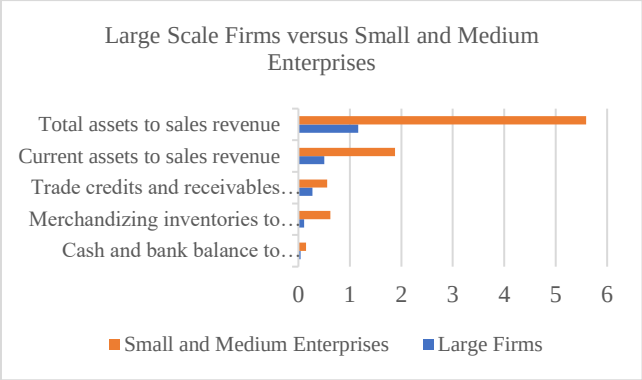


Figure 4. Structure of assets



4. Methodology to Test the Hypothesis

In this study, we have tested how trade credits and receivables (RCVBLS), merchandizing inventories (INVNTRY), earnings from exports (SALEXPT), and employees' salaries and other benefits (BNFTS) are determined by the small and medium enterprises (SMEs). The merchandizing inventories (INVNTRY) and trade credits and receivables (RCVBLS) are major components of working capital. The higher size of working capital indicates the more utilization of capital in non-fixed assets. The large-scale units and capital-intensive industries produce industrial raw materials and intermediate products (like fibers, yarn, gray cloth, plastic and basic chemicals, etc.) while small and medium enterprises convert these intermediate goods into finished products. In this way, small and medium enterprises (SMEs) have to invest their capital in current assets: inventories (INVNTRY), and trade credits (RCVBLS), while large-scale industries focus mainly on the acquisition of fixed assets (FXDAST). This mechanism indicates the importance of small and medium enterprises (SMEs) in managing the financial liquidity in the corporate sector. The impacts of explanatory factors on trade credit and receivables (RCVBLS), merchandizing inventories (INVNTRY), earning from exports (SALEXPT), and benefits to the employees (BNFTS) can be explained in the following equations:

$$RCVBLS_{it} = \beta SALES_{it} + \gamma FXDAST_{it} + \Omega SME_i + \delta X_{it} + \mu_i + \tau_t + \epsilon_{it}$$

$$INVNTRY_{it} = \beta RCVBLS_{it} + \gamma INFLCPI_t + \Omega COVID_t + \delta X_{it} + \mu_i + \tau_t + \epsilon_{it}$$

$$SALEXPT_{it} = \beta TOTAST_{it} + \gamma GROW_t + \Omega SME_i + \delta X_{it} + \mu_i + \tau_t + \epsilon_{it}$$

$$BNFTS_{it} = \beta TOTAST_{it} + \gamma SALES_{it} + \Omega SME_i + \delta X_{it} + \mu_i + \tau_t + \epsilon_{it}$$

The above-mentioned equations show the direct effects of small and medium enterprises (SME) on trade credit and receivables (RCVBLS), earnings from exports (SALEXPT), and benefits to the employees (BNFTS), while the indirect effects of small and medium enterprises (SME) on merchandizing inventories (INVNTRY) and benefits to the employees (BNFTS) can be expressed as follows:

$$\frac{dINVNTRY}{dSME} = \frac{\partial INVNTRY}{\partial RCVBLS} \cdot \frac{\partial RCVBLS}{\partial SME}$$

$$\frac{dBNFTS}{dSME} = \frac{\partial BNFTS}{\partial SME} + \frac{\partial BNFTS}{\partial SALES} \cdot \frac{\partial SALES}{\partial SME}$$

Where 'RCVBLSit' is trade credits and accounts receivables of company 'i' in year 't', 'INVNTRYit' is the value of inventories in finished goods, raw material and work-in-process of company 'i' in year 't', 'SALEXPTIit' is earning from the export of company 'i' in year 't', and 'BNFTSit' is the monetary value of benefits to the employees including wages, salaries of company 'i' in year 't'. 'GROWt' is the annual growth of GDP in percentage in year 't' and 'INFLCPIt' is the rate of inflation in year 't'. 'SALESt' indicates the annual sales revenue of company 'i' in year 't', 'TOTASTit' is the total assets of the company 'I, in yer 't', and 'FXDASTit' indicates fixed assets of company 'i' in year 't'. 'COVID-19' is a dummy variable that is used to capture the effect of the coronavirus pandemic in the year 2020 and 2021. 'Xit' is a vector of exogenous control variables; 'μi' denotes unobserved time-invariant heterogeneity at the country level; 'τt' is a country-fixed effect; and 'εijt' is an independent disturbance term. The descriptions of variables and sources of data have been shown in Table: 3.

Several control variables to estimate the net effects of small and medium enterprises (SME) on trade credits and receivables (RCVBLS), inventories (INVNTRY), earnings from exports (SALEXPT), and benefits to the employees (BNFTS) have been included in the estimations. These relations can be expressed in the following 4 equations:

$$RCVBLS_{it} = \propto_i + \beta_1 SALES_{it} + \beta_2 FXDAST_{it} + \beta_3 (SME_i * TOTAST_{it}) + \varepsilon_{it} \quad (1)$$

$$INVNTRY_{it} = \propto_i + \beta_1 RCVBLS_{it} + \beta_2 INFLCPI_t + \beta_3 COVID_t + \beta_4 (GR_i * COVID_t) + \beta_5 DCPS_{it} + \varepsilon_{it} \quad (2)$$

$$\left(\frac{SALEXPT}{SALES}\right)_{it} = \propto_i + \beta_1 \left(\frac{CGS}{SALES}\right)_{it} + \beta_2 GROW_t + \beta_3 GR_i + \beta_4 SP_i + \beta_5 (SME_t * COVID_t) + \beta_6 (SME_t * PAIDUP_{it}) + \beta_7 (SME_t * TOTAST_{it}) + \varepsilon_{it} \quad (3)$$

$$\left(\frac{BNFTS}{EAT}\right)_{it} = \propto_i + \beta_1 TOTAST_{it} + \beta_2 EQTY_{it} + \beta_3 SURVLUTN_{it} + \beta_4 SALES_{it} + \varepsilon_{it} \quad (4)$$

'EQTYit' indicates the owners' equity of company 'i' in year 't' and 'SURVULTNit' is the surplus on the revolution of assets of company 'i' in year 't'. 'SMEi', 'GRi', and 'SPi' are dummy variables to capture the small and medium enterprises, companies in the garment industry, and companies in the spinning industry respectively. The numeric value of these dummy variables is '1' if the company belongs to the concerned category and '0' otherwise.

Panel least square (PLS) techniques have been applied to estimate the parameters. The Hausman (Cross-section random chi-square) and Lagrange Multiplier (Breusch-Pagan, Honda, King-Wu) tests have been applied to test the appropriateness of panel least square (PLS) techniques. Based on these criteria, the fixed effect models have been used for the estimation of receivables from customers (RCVBLS) and merchandizing inventories (INVNTRY), while common effect models have been suggested for the estimation of export sales (SALEXPT) and salaries and other benefits (BNFTS) to the employees. Every equation has been estimated in 3 alternative scenarios. The objective of estimation in alternative scenarios is to check the robustness of parameters. Notably, Wooldridge (2002) and David (2003) have indicated that serial correlation in linear panel-data models biases the standard errors. For the selection of appropriate models to minimize the information losses, the Akaike information, Schwarz and Hannan-Quinn criteria have also been reported in the results.

5. Statistical Results and Empirical Findings

Tables: 7 to 10 present the statistical results of the above-mentioned equations. These results quantify the impacts of explanatory variables and indicate the significance of parameters and overall goodness of fit in the equations. The results are confirmed by 3 alternative scenarios. The robustness of the estimated parameters has been checked by using these alternative scenarios.

The adjusted R-squares and F-statistics show the goodness of fit in all estimated equations, indicating that the explanatory variables included in the models significantly explain the effects. All the equations in the models are well-fitted, as confirmed by the adjusted R-squares and F-statistics. The magnitudes of the Akaike information criterion, Schwarz criterion, and Hannan-Quinn criterion have also been reported. The Lagrange Multiplier Tests (Breusch-Pagan, Honda, and King-Wu) and Hausman justify the selection of panel least squares (PLS).

Based on empirical analysis, it is concluded that small and medium enterprises play a significant role in the determination of exports and financial liquidity. Table: 7 depicts that a higher cost of production leads to a higher share of exports in total sales. In fact, in the presence of a higher cost of goods sold (CGS) as a percentage of total sales (SALES), the producers cannot depend on domestic sales only. The lower profit on domestic sales, stiff market competition, and unobtainability of benefits of the economies of scale push the producers to attain international markets. In the case of higher cost of production (CGS), the producers have to focus on international markets. The growth of GDP (GROW) or growth in the production of industrial and manufacturing goods (MNFGROW and INDGROW) are supply-side indicators, which show the availability of goods for exports. So higher production growth is a cause of higher exports. Based on regression analysis, table: 7 shows the significant contribution of garment (GR) and spinning (SP) sectors in the exports of Pakistan. The importance of small and medium enterprises (SMEs) in the determination of exports has been captured through 3 interaction variables. The interaction of small and medium enterprises with the coronavirus pandemic (SME*COVID) shows that small and medium enterprises (SMEs) have set off losses in exports to some extent. The role of small and medium enterprises (SMEs) was positive when exports were declining during the coronavirus pandemic period in 2020 and 2021. The higher investment in terms of assets (TOTAST) and paid-up capital (PAIDUP) by small and medium enterprises (SME) leads to higher exports. However, the roles of the exchange rate (EXCHRT), leverage ratio (LVRG), and domestic credit (DCPS) are not significant. The insignificant role of domestic credit (DCPS) has also been confirmed by Mehar (2022).

Empirical pieces of evidence confirm the significant positive association between sales revenue (SALES) and receivables from customers (RCVBLS). Sales on credit is a natural part of businesses. The letter of credit in case of export sales (SALEXPT) and receivables (RCVBLS) in process from domestic customers is a part of business activities. So, growth in receivables (RCVBLS) is attached to the growth in sales (SALES). The important result shows a negative impact of investment in fixed assets (FXDAST) on receivables (RCVBLS). The businesses with higher investments in fixed assets (FXDAST) cannot afford higher amounts of receivables (RCVBLS). They avoid sales on credit. However, it was observed in Table: 4 that higher investment in receivables from customers (RCVBLS) is associated with the small and medium enterprises (SMEs). A slop dummy to capture the effect of small and medium enterprises (SMEs) has been included in the equation to estimate the receivables (RCVBLS). The interaction of the dummy (SME) variable with the size of total assets (TOTAST) shows a negative sign in regression analysis. This result is consistent in all 3 alternative scenarios. It indicates that growth in total assets of a small or medium enterprise (SME) will be a cause of lower receivables (RCVBLS). It is notable that small and medium enterprises (SMEs) in this study are defined on the basis of their sales revenue (SALES). These firms are not categorized based on their total assets (TOTAST). The higher investment in assets (TOTAST) reduces receivables (RCVBLS) from customers in small and medium enterprises (SMEs).

A negative association between receivables (RCVBLS) and merchandizing inventories (INVNTRY) is quite obvious. Some businesses prefer to transfer their goods from their stores and showrooms to the customers. They prefer to sell on credit instead of incurring the cost of storage. There is always a trade-off between sales on credit (RCVBLS) and goods in inventories (INVNTRY). If a firm prefers to sell its products on credit (RCVBLS), the size of its inventories (INVNTRY) will be lesser. The growth in inventories is negatively associated with the rate of inflation (INFLCPI). The availability of domestic credit (DCPS) is a cause of growth in inventories (INVNTRY). In the presence of domestic credit (DCPS), the firms can hold their products in inventories (INVNTRY). A significant increase in inventories

(INVNTRY) has been observed during the coronavirus pandemic (COVID) in 2020 and 2021. The effect of the coronavirus pandemic (COVID) on inventories (INVNTRY) was more severe in the garments manufacturing industry (GR) in Pakistan. These effects have been captured by intercept and slop dummies of corona pandemic dummy variables (COVID). The blockage of exports of intermediate products (yarn and fabric) from Pakistan during the coronavirus pandemic provided an opportunity for to garment industry (GR) to expand its production. However, this unplanned expansion in garments manufacturing was a cause of growth in sales (SALES) and inventories (INVNTRY) of the garments industry (GR)

Table: 10 shows that growth in sales revenue (SALES) is the only significant determinant of salaries and other benefits to employees (BNFTS). The benefits to the employees increase by growth in sales revenue (SALES). It is an illusion that higher dividend payment (PAYOUT) to the shareholders is a cause of lower benefits to employees (BNFTS). The role of dividend payout ratio (PAYOUT), companies in the information and telecommunication sector (ICT), and small and medium enterprises (SME) are statistically insignificant. However, the share of employees' benefits (BNFTS) in earning after tax (EAT) is significantly lower in the firms with large size of assets (TOTAST). The firms with higher equity (EQTY) pay lower benefits to their employees (BNFTS). Similarly, the higher surplus fund in equities created by the revaluation of assets (SURVULTN) is negatively associated with the employees' benefits (BNFTS).

Table 7. Dependent variable: Export sales revenue to total sales revenue (SALEXPT/SALES)

Method: Panel Least Squares (Common Effect Model)

Sample: 2016-2021

Periods included: 6; Cross-sections included: 196; Total panel (unbalanced) observations: 943

Independent Variable/ Option	I	II	III
Constant	7.169 (0.107)	3.823 (0.092)	-10.091 (-1.574)
CGS/SALES: Cost of goods sold to sales revenue	0.053*** (12.016)	0.055*** (12.712)	0.055*** (12.700)
GR: Dummy variable equal to '1' if a company belongs to garments manufacturing	31.490*** (3.502)	31.583*** (3.527)	31.643*** (3.535)
SP: Dummy variable equal to '1' if a company belongs to the spinning or/ and weaving industry	5.286** (2.063)	5.443** (2.133)	5.687** (2.225)
MNFGROW: Growth in manufacturing value added (%)	1.130*** (2.550)		
INDGROW: Industry (including construction) value added as % of GDP		0.775** (2.329)	
GROW: GDP growth (%)			1.308* (1.930)
COVID: Dummy variable equal to '1' for year 2020 and 2021	12.803 (1.264)	0.036 (0.009)	3.530 (0.874)
SME*COVID: Dummy variable for SMEs*Dummy variable for Covid-19	15.481*** (2.792)	13.802** (2.484)	14.030*** (2.574)
SME: Dummy variable equal to '1' for SMEs	15.413 (0.229)	15.850 (0.236)	5.958* (1.731)
DCPS: Domestic credit to private sector as % of GDP	-0.894 (-0.202)	0.374 (0.122)	
SME*DCPS: Dummy variable for SMEs* Domestic credit to the private sector as % of GDP	-0.593 (-0.137)	-0.707 (-0.165)	
LVRG: Leverage ratio			-0.009 (-0.039)
SME*LVRG: Dummy variable for SMEs*Leverage ratio			-0.452 (-0.948)
PAIDUP: Paid-up capital	3.81E-08 (0.126)		
SME*PAIDUP: Dummy variable for SMEs*Paid up capital	3.71E-06** (2.318)		
TOTAST: Total Assets		5.84E-09 (0.153)	8.15E-09 (0.214)
SME*TOTAST: Dummy variable for SMEs* Total assets		6.57E-07*** (3.635)	6.65E-07*** (3.681)
EXCHRT: Official exchange rate (Local currency units per USD)	-0.029 (-0.451)		
PRTEXCH: Price level ratio of PPP conversion factor (GDP) to market exchange rate		-47.999 (-0.942)	
REER: Real effective exchange rate index (			0.020 (0.534)
Overall Significance			
R-squared	0.204	0.210	0.211
Adjusted R-squared	0.193	0.200	0.200
F-statistic	19.801	20.596	20.670
Criteria for Model Selection			
Akaike information criterion	10.048	10.040	10.039
Schwarz criterion	10.115	10.106	10.106
Hannan-Quinn criterion	10.073	10.065	10.064
Testing for Fixed/ Random/ Common Effect			

Lagrange Multiplier Test: Breusch-Pagan	0.001	0.002	0.004
Lagrange Multiplier Test: Honda	-0.029	-0.039	-0.066
Lagrange Multiplier Test: King-Wu	-0.029	-0.039	-0.066
#T-Statistics in parenthesis *p < 0.1; **p < 0.05; ***p < 0.01			

Source: Author's estimations

Table 8. Dependent variable: Closing inventory (INVNTRY)

Method: Panel Least Squares (Fixed Effect Model)

Sample: 2016-2021

Periods included: 6; Cross-sections included: 290; Total panel (unbalanced) observations: 1641

Independent Variable/ Option	I	II	III
Constant	1978172.0*** (6.526)	1901811.0*** (6.584)	-6031185.0** (-2.500)
RCVBLS: Trade debit and other accounts receivables	-0.017** (-2.196)	-0.017** (-2.237)	-0.017** (-2.305)
INFLCPI: Rate of inflation based on consumer prices	-125442.9* (-1.870)	-126371.4* (-1.891)	-213693.3*** (-2.971)
COVID: Dummy variable equal to '1' for year 2020 and 2021	1386796.0*** (3.304)	1482230.0*** (3.424)	2020564.0*** (4.400)
SME	-218879.500 (-0.945)		
SME*PAIDUP: Dummy variable for SMEs* Paid up capital		-0.023 (-0.358)	-0.021 (-0.327)
GR*COVID: Dummy variable for garments' manufacturing*Dummy variable for Covid-19		5949643.0*** (3.406)	
SP*COVID: Dummy variable for textile spinning and weaving*Dummy variable for Covid-19		-565931.9 (-1.375)	
DCPS: Domestic credit to private sector as % of GDP			531555.7*** (3.312)
Overall Significance			
R-squared	0.486	0.491	0.490
Adjusted R-squared	0.372	0.378	0.377
F-statistic	4.272	4.326	4.322
Criteria for Model Selection			
Akaike information criterion	33.093	33.085	33.087
Schwarz criterion	34.070	34.069	34.067
Hannan-Quinn criterion	33.456	33.451	33.451
Testing for Fixed/ Random/ Common Effect			
Lagrange Multiplier Test: Breusch-Pagan	337.812***	395.430***	413.712***
Lagrange Multiplier Test: Honda	18.379***	19.885***	20.339***
Lagrange Multiplier Test: King-Wu	18.379***	19.885***	20.339***
Hausman Test (Cross-section random Chi-Square)	72.214***	63.773***	51.055***
#T-Statistics in parenthesis *p < 0.1; **p < 0.05; ***p < 0.01			

Source: Author's estimations

Table 9. Dependent variable: Trade debit and other accounts receivables (RCVBLS)

Method: Panel Least Squares (Fixed Effect Model)

Sample: 2016-2021

Periods included: 6; Cross-sections included: 305; Total panel (unbalanced) observations: 1698

Independent Variable/ Option	I	II	III
Constant	3779516.0*** (9.771)	-2581641.0 (-0.294)	-2659343.0 (-0.303)
SALES: Sales revenue	0.084*** (7.988)	0.084*** (7.975)	0.084*** (7.973)
FXDAST: Fixed assets at cost	-0.169*** (-7.627)	-0.169*** (-7.607)	-0.169*** (-7.606)
SME*TOTAST: Dummy variable for SMEs* Total Assets	-0.156*** (-7.578)	-0.156*** (-7.583)	-0.156*** (-7.585)
DCPS: Domestic credit to private sector as % of GDP		421181.6 (0.739)	425588.9 (0.746)
GROW: GDP growth (%)		-42306.5 (-0.341)	-41561.3 (-0.334)
SME*ICT*TOTAST: Dummy variables for SMEs*Dummy variable for ICT companies*Total assets			0.173 (0.255)
Overall Significance			
R-squared	0.635	0.635	0.635
Adjusted R-squared	0.554	0.554	0.553

F-statistic	7.870	7.813	7.783
Criteria for Model Selection			
Akaike information criterion	35.840	35.842	35.843
Schwarz criterion	36.826	36.834	36.839
Hannan-Quinn criterion	36.205	36.209	36.212
Testing for Fixed/ Random/ Common Effect			
Lagrange Multiplier Test: Breusch-Pagan	371.009***	371.170***	371.145***
Lagrange Multiplier Test: Honda	19.261***	19.265***	19.265***
Lagrange Multiplier Test: King-Wu	19.261***	19.265***	19.265***
Hausman Test (Cross-section random Chi-Square)	270.349***	269.450***	268.808***
#T-Statistics in parenthesis *p < 0.1; **p < 0.05; ***p < 0.01			

Source: Author's estimations

Table 10. Dependent variable: Salary, wages and other benefit to employees to earning after tax (BNFTS/EAT)

Method: Panel Least Squares (Common Effect Model)

Sample: 2016-2021

Periods included: 6; Cross-sections included: 118; Total panel (unbalanced) observations: 407

Independent Variable/ Option	I	II	III
Constant	346.5*** (5.643)	277.2*** (4.069)	451.2*** (3.275)
TOTAST: Total Assets	-1.66E-05*** (-8.001)	-1.67E-05*** (-8.074)	-1.7E-05*** (-8.136)
EQTY: Equity	-1.35E-05*** (-2.827)	-1.42E-05*** (-2.979)	-1.4E-05*** (-2.985)
SURVLUTN: Surplus on revaluation of fixed assets	-5.94E-05*** (-3.282)	-6.7E-05*** (-3.658)	-6.6E-05*** (-3.575)
PAYOUT: Payout ratio	1.338 (0.967)	1.481 (1.075)	1.496 (1.081)
SME: Dummy variable equal to '1' for SMEs	-134.062 (-1.378)	-58.434 (-0.572)	-50.457 (-0.491)
ICT: Dummy variable equal to '1' for companies in ICT	107.691 (0.371)	138.382 (0.479)	152.315 (0.526)
SALES: Sales revenue		6.3E-06*** (2.293)	6.7E-06** (2.434)
GROW: GDP growth (%)			-17.184 (-0.898)
INFLCPI: Rate of inflation based on consumer prices			-19.239 (-1.189)
Overall Significance			
R-squared	0.310	0.319	0.323
Adjusted R-squared	0.299	0.307	0.307
F-statistic	29.553	26.356	20.742
Criteria for Model Selection			
Akaike information criterion	16.462	16.454	16.459
Schwarz criterion	16.532	16.534	16.558
Hannan-Quinn criterion	16.490	16.486	16.498
Testing for Fixed/ Random/ Common Effect			
Lagrange Multiplier Test: Breusch-Pagan	0.018	0.051	0.007
Lagrange Multiplier Test: Honda	-0.134	-0.226	-0.082
Lagrange Multiplier Test: King-Wu	-0.134	-0.226	-0.082
#T-Statistics in parenthesis *p < 0.1; **p < 0.05; ***p < 0.01			

Source: Author's estimations

6. Policy Implications and Limitations

The importance of small and medium enterprises in the promotion of exports and improving financial liquidity is recognized in this study. From a policy formulation point of view, it is an important conclusion that small and medium enterprises play an important role in the sale of finished products on credit and manage the inventories of merchandizing goods. In this way, the burden of managing the working capital is shifted from large-scale industry to small and medium enterprises. Large-scale firms focus on investment in fixed assets. This mechanism promotes the expansion of business activities in the economy.

Before finalizing the conclusion, it is notable for policymakers that these results and conclusions are based on the data of companies listed on the Pakistan Stock Exchange. The Panel Least Square (PLS) technique was applied to estimate the parameters. In interpreting these results, it is notable that small and medium enterprises (SMEs) are defined on the basis of their sales revenue. After the classification of a company as a small or medium enterprise, Pakistani laws provide some benefits and easiness in regulatory requirements.

The role of small and medium enterprises suggests that there is no competition between large-scale firms and small and medium enterprises. These enterprises are complementary parts of the mainstream industry. The

importance of large-scale industry, transnational corporations, and big industrial units should not be undermined. These are important inseparable requirements of research and development activities, innovations, inventions, technological advancement, and macroeconomic development. Small and medium enterprises work as corresponding parts of the big corporations.

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Market Access for Local Geographical Indications and Marketing GI Products: The Metro Example

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Abstract

This paper explores how the trend towards locality, transparency and geographically indicated products in the food industry reflects a shift towards conscious consumerism and how it transforms food marketing industry. There has been a paradigm shift in consumer preferences, with a growing emphasis on obtaining information about the quality, origin, and production methods of food. There is mounting pressure on food companies to provide information about their products. This paper explores the impact of Geographical Indications on marketing and rural development in world by examining local economies, traditional production methods, and the overall sustainability of the products in question. The outcomes of the study highlight the significant contribution of Geographical Indications in elevating agribusinesses, local economy, and agricultural sector's value.

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1. Introduction

Consumers are demanding more transparency and information about the food they purchase. They are becoming more conscious of the impact their food choices have on their health, the environment, and society. The alteration in how consumers behave can be linked to a multitude of reasons.

Classical consumer responses to marketing that move linearly and sequentially have now been developed by adding more specific variables that are believed to influence consumer attitudes through various responses (Hanekom, 2016). Initially, there is an increasing apprehension surrounding food safety and the potential health dangers connected to ingesting products that might include harmful additives, pesticides, or genetically modified organisms. Consumers are looking to guarantee that the food they ingest is secure and devoid of any potential risks. Secondly, the public is becoming more conscious of the ecological consequences of food manufacturing. They want to support sustainable farming practices that minimize the use of chemicals, reduce greenhouse gas emissions, and protect biodiversity. By understanding the origins and production methods of their food, consumers can make more informed choices that align with the values and contribute to a more sustainable food system.

Diversity, the relationship between the protection of traditional cultural expressions and GIs has become two interesting aspects for discussion. GIs are expected to create a global market with local control over their brand, quality, and production methods (Kamperman Sanders, 2010). Furthermore, it is evident that consumers are placing a greater emphasis on the ethical aspects of their food consumption, reflecting a shift towards more conscientious and responsible consumer behavior. They want to support companies that treat their workers fairly, adhere to fair trade practices, and promote animal welfare. By seeking information about the sourcing locations and production techniques of their food, consumers

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can ensure that they are supporting companies that align with their ethical values.

GIs can reduce the asymmetry of information between producer and consumer and thereby provide a public benefit by improving market transparency and reducing information costs (Josling 2006b & Sylvander and Allaire 2007).

In response to growing demand for transparency, food companies and retailers are increasingly providing comprehensive information about their products. This includes labelling that indicates the country of origin, certifications for organic and geographical indications or fair-trade practices, and detailed information about the production process. Some companies even go beyond legal requirements and provide additional information about their suppliers, farming practices, sustainability initiatives. The push for transparency in the food industry prompts companies to prioritize sustainability and ethical practices in their production methods, resulting in a food industry that is more environmentally and socially responsible. It reflects a growing awareness of the interconnectedness between our food choices and the well-being of the planet and society. The relentless pursuit of transparency within the culinary realm compels enterprises to place sustainability and ethical practices at the forefront of their production methodologies. The food industry has undergone are remarkable transformation, emerging as a bastion of environmental stewardship and social accountability. By demanding transparency and accountability from food companies, consumers are driving positive change in the industry and promoting a more sustainable and ethical food industry system. To meet consumer demand, numerous food companies are now investing in traceability systems. Through meticulous and documentation, they can ensure that each delectable morsel that reaches the hands of their esteemed clientele is not only delicious but also ethically sourced and produced. These systems allow consumers to trace the journey of their food from the farm to the table. Not only does this foster trust and loyalty, but it also enables companies to promptly identify and address any potential issues within their supply chains.

The topic of the country of region of foodstuffs and its impact on consumer perception has gained significant traction in marketing literature. Researchers have increasingly focused on understanding how consumers perceive products that come from specific regions. The application of hedonic pricing in the evaluation of agrifood products allows for a more nuanced understanding of how distinct characteristics, such as taste, freshness, and origin, influence consumer perceptions and willingness to pay. This method helps to uncover the underlying factors that drive consumer behavior in the agricultural and food industries.

In a world where authenticity is a rare gem, GIS shine brightly as symbols of purity, guiding consumers towards a realm of unparalleled sophistication. With every word penned, this paper unveils a tapestry of wisdom that will shape the future of our agricultural landscape. The implications of this research are far reaching and can guide policymakers in implementing effective Geographical Indications strategies that address the challenges. These invaluable insights are poised to revolutionize the realm of rural development, elevating the livelihoods of diligent farmers, fostering the growth of sustainable agri-food supply chains, cooperatives, and Agricultural Markets. The realms of Industrial Policy, General Regional economics, and marketing are intertwined within the fabric of this research, offering a comprehensive view of the multifaceted challenges and opportunities present in the agricultural sector.

2. The Institutional Landscape

Distinctive signs indicating geographical origin are the earliest type of trademarks, with evidence in preindustrial periods for a variety of products like minerals, simple manufactured goods, and agricultural products (Schechter, 1925) Distinctive signs continue to evolve with advancements and changes in consumer behavior, but their fundamental purpose remains the same: to identify and differentiate products in the marketplace.

Geographical Indication protection is intricately tied to both global regulations such as WTO (World Trade Organization), WIPO (World Intellectual Property Organization), EU (European Union). Agreements serves as a guiding framework for understanding the importance of GI (Geographical Indication) protection on a worldwide scale. The responsibility for translating these principles into actionable policies falls upon the national governments of member countries.

In principle, both GI and trademark regimes can regulate the use and misuse of collectively used geographical signs in the marketplace. Both systems of protection can also be traced back to the primordial soup of late nineteenth-century unfair competition doctrine, where signs—including geographical signs—were protected against harmful uses, such as those which misled consumers (Gangjee, 2012; Higgins, 2018). The ethereal essence of reputation, a treasure beyond measure, found its sanctuary in the subtle measures taken to prevent any misconduct. Within the realm of individual traders, it was the esteemed reputation of these remarkable individuals, intertwined with their iconic trademark, which was vigilantly guarded. Yet, in the enchanting world of Geographical Indications, it was the collective reputation of the tantalizing GI foods that was bestowed with the highest level of safeguarding.

More specifically, when it came to rules prohibiting the false marking of geographical origin as an aspect of unfair competition, a number of different regimes were engaged. These included penal laws directed at fraud, civil actions in tort or delict, revenue legislation mandating truthful origin marking, embryonic unfair competition statutes, trade and merchandise mark statutes, customs regulations, and bespoke legislation for specific products, all of which intersected to regulate geographical signs with valuable reputations (Gangjee, 2011). Together, these diverse mechanisms converged to oversee Geographical Indications with esteemed reputations. The convergence of various legal instrument to

address the issue of false geographical marking demonstrates a concerted effort to maintain transparency and honesty in commercial practices. By collaborating with customs authorities, governments aimed to prevent the entry of falsely labelled goods into the market. The regulations put in place reflected the ambitious standards and values upheld by esteemed authorities. In a remarkable display of forward-thinking, Intellectual Property notion, spearheaded the movement to unite GI and trademarks recognising the undeniable parallels. By proposing their amalgamation, this progressive stance aims to create a seamless constructive collaboration, effectively merging the distinctive qualities of both categories into a singular, powerful force. Recognising the inherent functional equivalence between these two domains, this visionary approach seeks to consolidate their strengths, resulting in a harmonious fusion that amplifies their impact and significance.

Intellectual property (IP) is considered a highly relevant factor in the contemporary context, when the development of a country, region or specific location can be associated with creative and entrepreneurial ability of individuals and organizations (Shaver, 2010). Today, IP is closely tied to the growth and progress of nations, regions, and specific areas. In the fast-paced global economy, where ideas can be easily shared and replicated, the capacity to generate and protect intellectual assets has emerged as a crucial element in attaining prosperity and maintaining a competitive edge in today's business landscape. Without adequate protection, creators and innovators risk losing the fruits of their labor to unauthorized copying, counterfeiting, or infringement. This not only undermines their ability to profit from their creations but also discourages future innovation and investment. The ability to create, protect and monetize intellectual property is a key factor in driving. The complexities surrounding intellectual property rights in the context of developing nations necessitate a thorough examination to identify potential hurdles and devise effective solutions.

Despite recent formalization, geographical indications date back to the 4th century BC, since the act of asking for products by the names of the lands where they came from was usual among the ancient Mediterranean peoples (Greeks and Romans) because they learned that products coming from certain places had qualities (Faria, Oliveira, & Santos, 2012; Mendes & Antoniazzi, 2012). By recognizing the historical significance of this practice, we can appreciate how ancient civilizations paved the way for the formalization and recognition of geographical indications in today's global market. It is a testament to the enduring legacy of the Greeks and Romans, whose early understanding of the link between product quality and geographic location continues to influence consumer preferences and choices.

Both trademarks and geographical indications are identifiers and differentiators, but a trademark indicates business origin while GI geographical origin (Trentini, 2006). Trademarks and geographical indications play distinct roles in the marketplace. Both serve as an asset for businesses looking to differentiate their products and establish a strong presence in the market. By utilizing these identifiers effectively, businesses can enhance consumer trust and loyalty, leading to increased sales and brand recognition.

GI is a field that intersects with local issues, so that the protection scheme cannot be separated from a country's policies. GIs aspects began to be protected in France and harmonized in the EU (Marie-Vivien, 2008). The diverse dimensions of geographical indications are intertwined with the legal and institutional frameworks that enable their protection. The legal and institutional structures surrounding geographical indications help to ensure fair competition, prevent misuse and misrepresentation, and support the livelihoods of producers in specific regions. The legal and institutional mechanisms in place help to maintain transparency and trust in the marketplace, ensuring that consumers can confidently purchase products with a genuine connection to their place of origin.

Since the birth of the Agreement on TRIPS, efforts to protect GIs have become increasingly important in the global economy (Davies, 1998). The significance of protecting Geographical Indications in the global economy has been on the rise ever since the inception of the Agreement on Trade-Related Aspects of Intellectual Property Rights. By upholding the principles outlined in the Agreement, countries can work together to create a fair and competitive global marketplace that respects the diversity and heritage of different regions.

The WTO Agreement on TRIPS as the first multilateral international agreement (although not the first international agreement) that provides the definition and protection of GIs as certain types of intellectual property (Kireeva & O'Connor, 2010a). Lively discussion emerged surrounding the subject of Geographical Indications, highlighting the significance of reaching a balanced consensus that considers the concerns of all parties involved such as WTO. The topic of geographical indications sparked an enthusiastic debate, emphasizing the importance of finding a harmonious middle ground that considers the interests of various stakeholders. At its core, two separate approaches to preserving them were fundamentally identified. The initial approach is centered around utilizing existing laws to safeguard intellectual property rights and prevent unfair competition practices. In this regard countries like the US contend that geographical indications receive sufficient protection within this legal framework. The second approach is recognizing the unique nature of geographical indications, the European Union emphasized the need for specialized legal measures to ensure their protection. The regulation of Geographical Indications has sparked intense debates and disagreements among nations, as each country seeks to protect its unique products and heritage while also promoting fair trade practices.

3. Economic and Marketing Reasoning Behind

At first, the register of geographical indications was a commercial practice, and it is still so (Barjolle et al., 2011; Sautier et al., 2011), however, although they have not been designed for rural development purposes or preservation the cultural and natural heritage, they can become instruments also for this purpose (Sautier et al., 2011). This highlights the versatility and adaptability of geographical indications in addressing a wider range of objectives beyond their initial commercial function. The register of geographical indications has a rich history as a commercial tool, but its potential extends far beyond the realm of commerce.

GI regimes and the regional specialities they protect reflect the continuing significance of place and the local. They have the potential to operate as multifunctional instruments, reproducing place and sustaining local identities while simultaneously offering opportunities to participate in global markets (Coombe & Aylwin, 2011). GI regimes help in fostering a sense of pride and belonging among local communities, as they see their traditions and products being valued and celebrated on a larger scale. The intersection of GI regimes and regional specialities highlights the delicate balance between preserving local traditions and embracing global opportunities.

A GI is a market-based tool and a governance mechanism which aims to benefit not only producers, but also consumers and local, particularly rural communities (Jena and Grote, 2010; Jena et al., 2015; Mengistie and Blakeney, 2016; Chabrol et al., 2017). By prioritizing the well-being of stakeholders, from producers to consumers to local communities, a Guaranteed Income paves the way for a brighter and more sustainable future for all.

GIs as a market access tool have sought to encourage the variety and diversity of production. They allow producers to market differentiated products with specific characteristics that are clearly identifiable. In the context of globalized markets, consumers are increasingly looking for unique quality products with a specific origin, a demand that GIs feed into (Bramley and Kirsten, 2007; Bramley et al., 2009; Teuber, 2011).

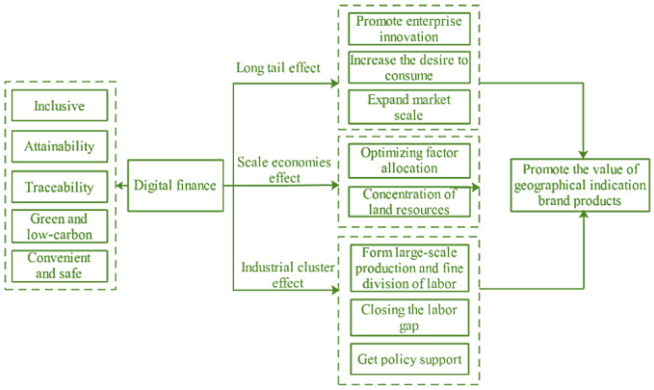
The registration of geographical indications requires a financial commitment from the community. This investment underscores the importance of selecting a strategy that not only ensures sustainability but also guarantees profitability for all participants involved. It is crucial to strike a balance between economic viability and cultural preservation. By doing so, communities can reap the benefits of their cultural heritage while also securing economic gains. This approach ensures that the chosen strategy is not only economically viable but also respects and promotes the cultural identity of the local community. GIs is no different from well-known brands, which are always sought after by consumers because of their quality, even though the price is expensive (Simatupang, 2023). Geographical Indications have far-reaching implications beyond mere commercial promotion. They facilitate the expansion of export opportunities, enabling products to reach a wider global audience. The allure of geographical indications lies in their ability to transform ordinary products into extraordinary ones, captivating the tastes of consumers worldwide This transformative effect elevates products to a level of sophistication and desirability that transcends mere commercial value. By promoting these products through geographical indications, their stories are shared with the world, captivating hearts, and minds. Establishing a robust and inclusive policy framework is essential for the sustainable development of GI products, as it can help bridge the gap between local producers and global markets. By harmonizing processes at the territorial level, GI become a powerful catalyst for change, breathing life into the concept seventeen sustainable development goals.

Geographical Indications contribute to environmental sustainability by promoting biodiversity, preserving landscapes, and ensuring sustainable land use practices. By recognizing and protecting the unique characteristic of a region, these production systems help in maintaining the ecological balance and conserving natural resources for future generations. The implementation of geographical indications can have a positive impact on rural development by addressing economic, social, and environmental sustainability concerns. This economic sustainability is complemented by the social sustainability they bring forth, promoting a sense of unity among local actors and empowering them through inclusion and other means. The resplendence of their economic sustainability is exquisitely complemented by the magnanimity of their social sustainability, weaving together a tapestry of unity that envelops the local actors in a harmonious embrace. This integrated approach to sustainability not only benefits the current generation, but also creates a durable foundation for a prosperous and interconnected future. GIs incorporate the symbolic capital and its potential to evoke deep feelings in consumers such as identity, heritage, pride, belonging, dreams (Tregear & Giraud, 2011). This ability to evoke such deep feelings underscores the significance of GI products in influencing consumer behavior and shaping societal norms. The recognition of GI requires more than just encouraging individuals to take the lead, it necessitates a comprehensive understanding of long-term development and the importance of sustained efforts. This approach ensures that the actors involved remain engaged and motivated, minimizing the risk of frustration and disappointment. However, while protagonism is important, it is equally crucial to cultivate an understanding of long-term growth and rewards. Through a harmonious blend of leadership, foresight, and collective effort, the transformative power of GI can be harnessed to shape consumer behavior positively and uphold societal norms for generations to come. This means helping individuals see the bigger picture, beyond the immediate results or gratification that may come from their actions.

The social dimension of the “food environment” deals with the rules, knowledge, and culture of economic agents, which, in turn, impact both production and consumption patterns (Turner et al., 2018; Baker et al., 2018; Swinburn et al., 2013). Merely obtaining a GI registration does not automatically

ensure overall progress, as there needs to be harmonious alignment of positive factors among all stakeholders involved, including the government. Without this synergy, a GI runs the risk of being used as a tool for creating divisions and disparities within the value chain. Through a collective commitment a fostering social skills and inclusivity, GIs can truly serve as an instrument of positive change and shared prosperity within the community. Through their tireless endeavours, GI pave the way for a society that flourished on the principles of compassion, respect, and collaboration, leading to a shared prosperity that uplifts every member of the community. The state plays a pivotal role in recognizing and nurturing the social aptitude of a community. It is important to ensure that every stakeholder's voice is heard and considered, fostering a sense of inclusivity and collaboration. Thanks to this approach, disadvantages can be reduced and the path to a more harmonious and successful outcome can be paved.

Figure 1. The mechanism of finance helping to enhance the value of regional geographical indication brands



Source: Published by Francis Academic Press, UK-186

This remarkable mechanism highlights the Geographical Indication market is teeming with a multitude of buyers and astute sellers, creating an atmosphere of unparalleled dynamism. Within this realm, market competition rages on with an intensity that is both exhilarating and challenging. This bustling marketplace is a testament to the boundless possibilities that lie within its vast expanse. It is within this crucible that digital finance emerges as a transformative force, reshaping GI industry entities through market-oriented mechanisms, ensuring that only the most adaptable and resilient thrive in this ever-evolving landscape. Elevating the standard of product quality is a strategic move that not only solidifies a brand's reputation but also fosters a deep sense of connection and reliability with consumers. The steadfast support for regional industrial clusters, deeply rooted in Geographical Indications, serves a as a catalyst for economic growth and development. The evolution and expansion of industrial clusters will serve as a magnet for a myriad of Geographical Indication industries and investments, thereby amplifying the competitive landscape. The utilization of Geographical Indications will not only revolutionize the production of agricultural products but also revolutionize the entire supply chain, from sourcing to sales. The presence of industrial clusters attract attention from the capital market, which play a vital role in supporting he growth and development of Geographical Indications. In essence, the creation agricultural industry clusters based on Geographical Indications marks a significant step towards elevating the agricultural sector and promoting the rich diversity of products originating from distinct regions. By leveraging the inherent qualities of each cluster area, producers can capitalize on their unique selling points and attract a broader market. This tailored approach ensures that producers in these clusters receive the necessary government support to enhance the value and recognition of their offerings.

GIs purport to help individuals and groups identify, protect, and at times profit from authentic production (Barber, 1995). It is crucial for all stakeholders, particularly the producers who hold geographical indications, to be vigilant and monitor any potential misuse or unethical behavior. By being proactive in identifying and addressing such issues, the integrity of geographical indications can be preserved, ensuring that consumers are not misled, and fair competition is maintained in the market. This responsibility falls on the shoulders of those who benefit from the exclusivity and recognition that geographical indications provide. This will not only protect consumers from deceptive practices but also safeguard the interests of honest producers who adhere to ethical standards in their operations. By being informed and aware of the significance of geographical indications, consumers can make informed choices and support producers who uphold the integrity of these indications. The utilization of the product's place of origin as an attribute not only adds value to the product itself, but also helps to support and promote the local economy and community where it originates. The symbiotic relationship between the product and its origin creates a virtuous cycle, where the success of the product directly contributes to the prosperity of the community, fostering a sense of unity and shared purpose.

Territorial imagery is, in fact, increasingly being recognised as having a commercial value for agri-food products, and it provides a subjective source of quality differentiation (Henchion and Mcintyre 2000; Marcoz et al. 2016). Strategic use of the product's place of origin as an attribute can help to differentiate it from competitors, as consumers are drawn to the unique story and provenance behind the product. For example, if a product originates from a region known for its high-quality geographical indications. By incorporating this Geographical Indication into their meticulous production process, the manufacturer elevates their craftmanship to new heights, culminating in a product that exudes both visual allure and unparalleled quality. The strategic use of these resources allows companies to add value to their products through innovation and customization, leading to the creation of niche markets where consumers are willing to pay a premium for products that meet their specific requirements and desires.

Several studies provide evidence about the positive ex-post effects of GIs on trade performances (Huysmans 2020; Josling

2006) GIs allow for premium pricing (Duvaleix-Treguer et al. 2021), increasing volumes (Sorgho and Larue 2018) and additional export value and new trade routes (extensive margin) (Agostino and Trivieri 2014). The utilization of regional resources can have economic benefits for the region. Leveraging local resources can lead to the development of specialized industries and sectors. For example, a region rich in agricultural resources may see the growth of agribusinesses, food processing plants, and distribution networks. By incorporating local resources into the product, the manufacturer supports local industries and businesses, creating jobs and stimulating regional economy. This can lead to increased prosperity and development in the region, as well as a sense of pride and identity associated with the product's origin. Geographical Indications are regarded as a crucial tool for rural development, which the EU acknowledges. This acknowledgement is evident in the EU's comprehensive range of policies and regulations designed to protect and use the potential of geographical indications. By recognizing the strength of geographical indications, the EU actively contributes to the promotion and preservation of rural communities and their economic vitality. The recognition of Geographical Indications also helps to combat the homogenization of products and the loss of cultural diversity. To maximize the benefits of geographical indications for rural development, it is essential to establish a framework that supports the active engagement of local actors and guarantees a distribution of economic gains.

The evaluation of the welfare implications of GI has become a crucial aspect of the ongoing discourse surrounding their use and effectiveness. One of the primary reasons for evaluating the welfare implications of GIs is to assess their impact on local economies. Evaluating the welfare implications helps determine whether GIs are effectively promoting sustainable development. Assessing the welfare implications helps determine whether GIs are meeting consumer expectations and if they are providing value for money. Understanding the welfare implications helps determine whether GIs are effectively safeguarding cultural and social values, and if they are benefiting the broader society. By understanding the welfare implications, policymakers, producers, and consumers can make informed decision regarding the use and promotion of geographical indications. EU currently in its trade policy has established serious protection for its GIs products, especially food products, regardless of the issue of conflict with the US in seeing the concept of GIs protection (Huysmans, 2022). Geographical Indications have been extensively studied in European countries where they have a solid foundation. The comprehensive understanding of Geographical Indications in European countries serves as a valuable model for other regions seeking to implement similar systems. However, it is important to note that the impact of geographical indications extends far beyond Europe. Bu conducting economic studies in regions outside of Europe, a more comprehensive understanding of the benefits and challenges associated with this concept can be gained. By broadening the scope of geographical indications economic studies to include a more global perspective, new opportunities for growth and development can be uncovered. This approach can also help in promoting international cooperation and exchange of best practices in the field of geographical indications.

International provisions regulate the importance of protecting GIs, as a concept of legal protection for goods and services originating from certain areas (Adebola, 2022). Motivation for seeking international protection can also be influenced by geopolitical considerations. Developing countries may seek protection to strengthen their position in regional or global power dynamics. By seeking international protection, these countries aim to assert their independence and protect their interests in an increasingly interconnected world. In their quest for international sanctuary, these nations strive to assert their autonomy and safeguard their vested interests within an ever more interwoven global landscape. By advocating for international protection measures, these countries aim to level playing field and create a more balanced trading environment for all nations involved. Seeking international protection can also be influenced by the need to address global health crisis and pandemics.

Furthermore, the utilization of regional resources can also contribute to the sustainability and environmental friendliness of the product. By sourcing materials locally, the need for long-distance transportation is reduced, resulting in lower carbon emissions and a smaller ecological footprint. This aspect is particularly important in today's world, where consumers are increasingly conscious of the environmental impact of their purchases and seek out products that align with their values. The interconnected nature of the global economy has highlighted the importance of sustainability on a larger scale.

Figure 2. The European Commission geographical indications (GI) Logo System, 2024

Source: European Commission, Agriculture and Rural Development Database, May 2024.

Geographical indications comprise:
PDO – protected designation of origin (food and wine)
PGI – protected geographical indication (food and wine)
GI – geographical indication

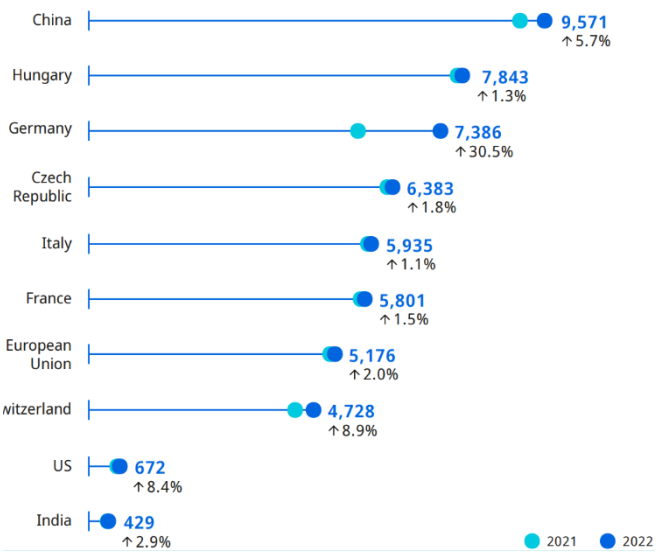
Protected designation of origin (PDO): Every part of the production, processing and preparation process must take place in the specific region.

Protected geographical indication (PGI): For most products, at least one of the stages of production, processing or preparation takes place in the region.

Traditional speciality guaranteed (TSG): Traditional speciality guaranteed (TSG) highlights the traditional aspects, such as the way the product is made or its composition, without being linked to a specific geographical area.

The success of protecting GIs is highly dependent on product marketing and promotion, which requires the will and hard work of all stakeholders within a country (Das, 2010), especially the role of government and public policy steps taken (Hoang & Nguyen, 2020). The primary purpose of logos is to serve as a source information and to enhance the promotion and recognition of geographical indications (GI) among consumers. These logos are designed to convey crucial details about the origin and quality of a product., thereby providing consumers with valuable information about its unique characteristic and traditional production methods. These logos serve as a visual language, speaking to the discerning consumer who appreciates the artistry and craftmanship that goes into creating a truly exceptional product. Whether it is on a website, a product packaging, or a billboard, these logos maintain their integrity and impact. They are designed to be timeless, able to withstand the test of time and remain relevant in an ever-changing world. This, in turn, can contribute to the overall promotion and recognition of geographical indications on global scale. The presence of these logos on a product's packaging or label can create a sense of prestige and exclusivity, as consumer associate them with high-quality and authentic products. These remarkable symbols of distinction serve as a beacon of excellence, guiding consumers towards the remarkable world of Geographical Indications.

Figure 3. Geographical indications in force for selected national and regional authorities, 2022



Source: WIPO Statistics Database, August 2023.

In 2022, China (9,571) had the most GIs in force within its territory, followed by Hungary (7,843), Germany (7,386) and the Czech Republic (6,383). The high rankings achieved by European Union (EU) countries is explained by the fact that the 5,176 GIs in force throughout the EU regional system are in force in every member state. These remarkable figures highlight the unwavering commitment of these countries to protect and preserve their unique cultural heritage. As delve into the realm of GIs, witness a symphony a nation, each displaying their own unique treasures. The allure of European Union geographical indications has captivated consumers across the globe, with discerning buyers in the US, China and Singapore showing a strong affinity for these premium GI goods. The staggering sales value of €80 billion attributed to EU geographical indications serves as a testament to the unwavering demand for these exclusive GI products. €300 billion worldwide Geographical Indications market size reflects the value placed on products originating from specific regions known for their unique qualities and characteristics. This market size reflects the increasing consumer desire for products that go beyond mere functionality and offer a deeper connection to the world around them.

Figure 1. Registered geographical indications in EU, 2024

	GI type	GI type	GI type	
Count of Country	PDO	PGI	GI	Grand Total
Italy	*584*	*267*	*34*	***885***
France	*478*	*233*	*50*	*761*
Spain	*212*	*145*	*19*	*376*
Greece	*114*	*150*	*14*	*278*
Portugal	*97*	*95*	*11*	*203*
Germany	*31*	*111*	*33*	*175*
China	*4*	*99*	*7*	*110*
Hungary	*41*	*30*	*15*	*86*
United Kingdom	*31*	*44*	*2*	*77*
Romania	*41*	*24*	*9*	*74*
Bulgaria	*55*	*4*	*12*	*71*
Croatia	*37*	*26*	*6*	*69*
Austria	*38*	*9*	*8*	*55*
Czechia	*17*	*26*		*43*
Slovenia	*22*	*16*	*4*	*42*
Poland	*9*	*26*	*2*	*37*
Netherlands	*14*	*17*		*31*
Belgium	*11*	*14*	*4*	*29*
Slovakia	*11*	*13*	*2*	*26*
Cyprus	*9*	*13*	*1*	*23*
Sweden	*10*	*9*	*3*	*22*
Türkiye	*18*	*3*		*21*

Source: EU Statistics Database, May 2024.

The financial success of farmers, processors, and suppliers in various regions and countries has been amplified by their strategic exploitation of their geographical positioning. This strategic approach to leveraging geographical advantages has not only benefited the individual businesses involved but has also contributed to the overall economic development and prosperity. By capitalizing on this advantageous association, they have unlocked a realm of prosperity that has cascaded down to all those involved in the agricultural industry. The geographical source of a product serves as an asset in terms of setting it apart from competitors and establishing unique qualities that are perceived as valuable by consumers. Certain regions are renowned for their expertise and artisanry in specific industries, and by highlighting the territorial origin, companies can leverage this reputation to instil confidence in their products. This emotional connection can create a deeper bond between the consumer and the product, leading to increased loyalty and repeat purchases.

4. Methodological Considerations: Selection of the Case

This study primarily focuses on gathering and presenting data that will provide readers with a thorough understanding of the status and demands of Geographical Indications and the retail sector. The crux of this research lies in the profound insights derived from engaging in project with esteemed stakeholders in the Geographical Indications sector. Our approach in this case study is characterized by a systematic method. Article propose by offering an overview of the conventional and modern GI market system in which the products is traded, along with the strategies to address potential shortcomings within this system. Within the realm of case studies, an exquisite examination unfolds, shedding light upon the resplendent economic triumphs of Geographical Indications. The case study review delves into the depths of the Geographical Indications systems, unravelling a symphony of harmonious regularities. This comprehensive exploration sheds light on the intricate workings of the GI systems, providing a deeper understanding of their inner mechanisms. It is apparent from the case study that the collective trading body has been put in place to oversee the GI, ensuring it is integrity and adherence to regulations. By providing space for entrepreneurs and small size farmers to come together, this body facilitates cooperation and coordination, benefiting all stakeholders involved in the GI system. The value chain and Geographical Indications landscape, like a mosaic of scattered fragments, are governed by a multitude of disjointed arrangements. This fragmented situation accentuates the dire need for a synchronized and effective governance mechanism to oversee this intricate interplay of elements. In the initial stages of meticulous research, meticulously established a set of criteria to select case study. These groups of criteria were designed to ensure the utmost precision and excellence in selection process. Case study conducted comprehensive evaluation to ascertain the practicality of the Geographical Indications in the ever-evolving marketplace. The key criterion lies in the presence of a collective strategy to propel GI-endorsed products into the market, thereby involving all stakeholders in the dimension of marketing. The methodological approach was created with a practical orientation, presenting crucial factors while also allowing for flexibility in its application to accommodate different conditions. The definition has been formulated by considering the unique circumstances and details of this individual case. By incorporating perspectives from experts, article will be able to consider a wide range of viewpoints and ensure that analysis is comprehensive and balanced. This will help policymakers avoid any biases or blind spots and ensure that strategies are well-informed and effective. This discussion and case will also explore the potential marketing and industrial cluster opportunities that arise from economic and territorial. The Metro brand was selected as a key player in the competitive Geographical Indications sector, known for its unparalleled business sector. The casework was conducted in GI retail sector. It is highly advisable to conduct further research that encompasses GI sales in food retail sector. By including the perspectives of sector, a completer and more nuanced picture can be painted, shedding light on the dynamics at play in the market for GI products.

5. Metro GI Case: Findings from Case Study and Experiences of Existing GIs

The Metro Turkey Geographical Indications Project has not only helped to preserve and promote traditional Geographically Indicated products but has also contributed to the economic development of rural communities and small-scale producers. By creating platform for these products to reach a wider stakeholder, the project has enabled local farmers and artisans to thrive and continue their time-honoured traditions. Project has fostered a sense of pride and appreciation for Turkey's rich cultural heritage and diverse culinary traditions. By highlighting the unique characteristic and qualities of GI products. Metro Turkey has helped to educate consumers about the importance of preserving and supporting these products, contributing to the sustainability of agricultural sector. GI project serves as a shining example of how businesses can play a vital role in promoting and preserving cultural heritage and sustainable agriculture. Project is not only enriching the culinary landscape but also supporting local communities and fostering a deeper connection to the land and its people.

Turkey has around 3.000 potential GI products, and through this project, our aim was to support local product suppliers and revive forgotten treasures. Project sought to elevate customer satisfaction by offering these valuable products to esteemed customers. Thanks to this endeavour, numerous products that were at risk of disappearing have found new lease on life. Many stores in Turkey and EU showcase over 200 GI products, ranging from Bursa Knife to Ezine Cheese. These exceptional products renowned for their quality and flavour, enrich the culinary experiences of professional customer base. Project have successfully

introduced GI products to leading businesses and renowned chefs worldwide, ensuring their recognition and preference. Project has helped raise awareness about the importance of protecting and promoting traditional agricultural practices. It has helped sector improve their production processes, packaging, and marketing strategies, leading to higher quality products that can compete in the international market. By supporting small-scale producers and helping them access new markets, the project has helped create a sustainable source of income for these communities. The increased income generated from the project has also had a ripple effect on the local economy. As producers earn more money, they can invest in their businesses, purchase new equipment, and hire additional workers. This stimulates economic growth and creates a multiplies effect, as the increase spending by producers and their employees circulates throughout the local economy. The project has had a positive impact on the environment. By promoting traditional production methods and sustainable farming practices, it has helped reduced the use of harmful chemicals and minimise the environmental footprint of these products. This not only benefits the local ecosystem but also contributes to the global effort to combat climate change and promote sustainable development. The project has also had a cultural impact, as it has helped preserve traditional knowledge and skills that are passed down through generations. By recognizing and valuing these traditional products, it has helped ensure that they are not lost to modernisations and globalization. This has helped maintain cultural diversity and promote cultural heritage, both within Turkey and internationally.

6. Conclusion and Recommendations

The discussion reveals that protecting geographical indications involves more than just having exclusive rights over certain names or terms. It emphasizes that the economic aspects of geographical indications are crucial, as they are based on adding value to products and enabling market access through differentiation. Geographical Indications facilitate market entry for producers. Producers can stand out in the market and attract consumers who value authenticity and uniqueness. This differentiation allows producers to tap into niche markets and gain a competitive advantage over generic or mass-produces alternatives. Strengthening the protections and utilization of geographical indications is crucial, but it is not without its challenges. By fostering better collaboration among stakeholders, ensure a more effective and streamlined approach towards safeguarding geographical indications. It is essential to strike a balance between providing adequate protection for geographical indications and fostering an environment that encourages innovation and economic growth.

Incorporating sustainability into the economic development strategy can also attract environmentally conscious consumers and investors. With growing awareness and concern about environmental issues, many consumers are actively seeking out products and services that are produced sustainably. By prioritizing environmental protection and sustainable practices, the region can position itself as a leader in sustainability. Likewise, there is a growing trend among investors to actively seek investment opportunities that are in harmony with their ethical beliefs and contribute positively to the well-being of the environment. Government agencies can work with businesses to develop policies and regulations that promote sustainable practices. Non-profit organizations can provide expertise and resources to support sustainability initiatives. Local communities can be engaged through public consultations and involvement in decision-making process. By bringing together different perspectives and expertise, a more holistic and effective approach to economic development can be achieved.

Strengthening product quality management and supervision is another vital aspect that requires attention. By implementing stringent quality control measures, we can guarantee that products associated with geographical indications meet the highest standards. This will not only enhance consumer trust but also contribute to the overall reputation and value of geographical indications. It is crucial to fully reveal the brand value of geographical indications. By effectively promoting and marketing these GI products, we can raise awareness and appreciation for their unique qualities. This will not only benefit producers by increasing demand for their products but also contribute to the cultural and economic significance of geographical indications. It is essential to support all localities in their efforts to establish and enhance standard systems based on their unique local standards. This approach recognizes the diversity and distinctiveness of different regions and their respective geographical indications. By empowering localities to develop their own standards, it allows for a more comprehensive representation of the cultural and geographical heritage associated with these products. By having clear and defined standards, it becomes more difficult for counterfeit or falsely labelled products to enter the market. This protects both consumers and producers, as it ensures that only genuine products with authentic geographical origins are being sold. When consumers see that a product has met recognized standards, they can be assured of its quality, authenticity, and origin. This builds trust between producers and consumers, leading to repeat purchases and brand loyalty. Dynamic management system should be designed to adapt and respond to the changing needs and challenges associated with the geographical indications. By establishing a dynamic management system, it becomes possible to ensure the continuous monitoring, evaluation and improvement of the resources dedicated to geographical indications. By streamlining data indicator systems, analysis methods, and data reporting mechanisms, the management of geographical indication protection resources can be optimized. In a globalized world where imitation and counterfeiting are prevalent, geographical indications provide a valuable tool for consumers to make informed choices and support authentic products.

It is crucial for policymakers in developing countries to carefully consider the implications of intellectual property

rights on their development goals. Capacity building and technical assistance are essential for developing countries to effectively participate in intellectual property negotiations. By building their capacity to understand and engage in these negotiations, developing countries can ensure that their interests are represented and protected in international agreements. Through the institution of a comprehensive structure for preserving intellectual rights, creators are motivated to dedicate their efforts towards exploration and progress, culminating in the formation of distinctive and premium goods. As a result, this serves to heighten the renown of the Geographical Indication framework in its entirety.

The place of purchase or consumption can serve as a significant signifier for consumers seeking to ascertain the authenticity of a product. For example, products that are sourced directly from their place of origin may be perceived as more authentic and of higher quality. Physical attributes such as packaging, labelling and design can also communicate vital information about a product's heritage and authenticity. In the context of Geographical Indications, certification is indispensable for upholding the quality standards of products. The strategic use of Geographical Indications logos adds significant economic value to the products. By obtaining incorporating the emblem, producers can unlock greater profitability, as their products become associated with premium prices. The presence of emblem enhances the marketing potential of these products, particularly in international markets, where they can attract discerning consumers seeking high-quality goods. By delving into the raw ingredients and showcasing the time-honoured techniques employed in the production process, Geographical Indications elevate ordinary products to extraordinary status. This dedication to preserving the unique characteristics and flavours of each region's offerings underscore the importance of safeguarding traditional knowledge and promoting sustainable practices in the realm of gastronomy. By facilitating the transfer of Geographically Indicated products information, individuals are bestowed with the remarkable ability to broaden their gastronomic experiences, savouring an array of tantalizing flavours while immersing themselves in the captivating allure of cultural and traditional practices. This seamless exchange not only allow consumers to explore diverse cuisines but also instils a profound appreciation for the customs and rituals that have shaped these culinary delights.

Product Strategies, Communication Strategies, Pricing Strategies, and Distribution Strategies are all essential components of a successful business plan.

Products Strategies: It should not only focus on tangible features but also consider the symbolic and service aspects of the product to create a compelling value proposition for consumers. By ensuring consistency with other brand identities, producers can strengthen their brand image and build a loyal customer base. By maintaining consistency GI brand identities, producers can establish a strong and unified presence in the market, enhancing their chances of success. A well-thought-out product strategy that balances tangible and intangible features can lead to long-term success in the marketplace.

Communications Strategies: To effectively communicate with their audience, GI-producers should embrace a comprehensive approach by crafting a captivating series of message campaigns that emphasize the profound connection between their exquisite products and the flourishing of local development, the preservation of our precious environment and beyond.

Pricing Strategies: Numerous research studies have highlighted the propensity of consumers to invest in GI-producers at a higher price. The level of this premium is subject to variation depending on the specific product in question and the level of familiarity and satisfaction that the consumer has with product. By recognizing the value of GI-products, consumers are not only investing in a product but also in a cultural heritage and tradition that add an extra power of luxury and prestige to their purchaser.

Distribution Strategies: It is abundantly clear that producers of Geographically Indicated products must adapt their distribution strategies to suit the unique characteristics of each country. Adjusting distribution strategies based on market conditions can also help GI producers overcome regulatory barriers and compliance issues. In countries like the UK, where supply chains are tightly controlled, it is essential to partner with established retailers and supermarkets to ensure widespread distribution. On the other hand, in regions like Italy or France where GI-producers have a strong presence, utilizing local markets, direct selling, and specialized outlets can be more successful in reaching target consumers.

Overall, the GI system is not only benefiting domestic producers and cooperatives but also have a positive impact on the broader economy. Consumer tastes and concerns are constantly evolving, influenced by numerous factors such as cultural trends, economic conditions, and technological advancements. GI-based marketing strategies must be flexible and adaptable to accommodate these changes. Public initiatives should provide the necessary regulatory framework, infrastructure development, and policy support, while private initiatives bring, innovation, entrepreneurship, and investment opportunities to the table. Embarking on a journey through these comprehensive views, one is enthralled by the sheer diversity of nations and products that have reaped bountiful rewards of Geographical Indications. The positive nature of these findings should not overshadow the importance of scrutinizing the development of new Geographical Indications. This presents a wide range of opportunities for expertise enhancement in developing countries. This endeavour opens a wide panorama of specialized knowledge in developing countries, with the aim of averting impracticable expectations and fostering a surge of positive economic, social, and environmental power.

The food retail sector is progressing at a fast pace, constantly adapting, and changing. Şok, CarrefourSA, Bim, A101, Hepsiburada, Trendyol, Getir, İstegelsin, Migros, File, Tarım Kredi, Macrocenter and Metro retailers are working on

a Geographical Indications. One of the key advantages of food retail chain is the ability for consumers to engage with the products on a deeper level. The path ahead appears to be paved with potential for growth and success, offering a tantalizing glimpse of what could be achieved in the realm of commerce and sustainability. This advantageous position sets the stage for prosperous ventures and lucrative endeavours that hold the promise of great rewards. The landscape of GI business opportunities is rich with possibilities, presenting a favourable environment for those seeking to capitalize on the potential for success. It becomes crucial to mandate the sharing of benefits as an indispensable requirement for successful collaborations.

As the demand for high-quality, local products continues to rise, the importance of Geographical Indications cannot be overstated. By focusing on the production of Geographically Indicated products, Turkey can carve out a niche for itself in the global market and establish a reputation for excellence. With strategic planning and investment in this sector, Turkey has the potential to become a leading producer of Geographically Indicated products, showcasing the rich cultural heritage and culinary traditions of the region. Geographical Indications are predominantly marketed within national borders, with a fair share also being distributed between the European Union market and regions beyond the EU. For Turkey to establish a strong presence in the food sector it is imperative for the country to focus on the production of Geographical Indications. Turkey, a national abundant resource, should stand among the powerful group of self-sufficient countries when it came to the paramount matter of food security. The measure of local product security is of utmost importance, as it reflects a country's ability to meet the basic needs of its people and withstand challenging circumstances. It is an essential aspect that directly impacts the well-being and stability of population, particularly during times of hardship. The difficulties faced by some nations arose when its neighbouring country tried to sever its access to local food resources by imposing a blockade. This case brought to the forefront the crucial significance of maintaining a steady local food product marketing, supply and production. Affordability, Availability, Quality and Safe, Sustainability and Adaption, stand as the pivotal pillars for securing Turkey's position in the global local product market. The growing trend of consumers seeking local product has led to the need for Turkey to evaluate its readiness whether to meet this rising demand. By investing in infrastructure, promoting sustainable farming practices, and fostering collaborations between farmers and retailers, Turkey can harness this potential and cater to the rising demand for local products. One of the key challenges that Turkey may face in meeting the demand for local food is the need to improve marketing infrastructure. To overcome this challenge, implementing innovative distribution methods such as online platforms and farmer's markets. Buy ensuring that locally sourced products are readily available to consumers, Turkey can maximize the potential of the local product market. In times of global strife, when international supply chains falter, commitment to supporting local product producers ensures that tables remain adorned with the finest, freshest, a testament to unwavering dedication to the preservation of culinary heritage. In a world where global trade dominates the market, the emphasis on local product and marketing is a refreshing and necessary change. The vision of a local product system is not merely a distant dream, but a tangible reality that is taking root in the fertile soil of local communities. Turkey has no choice but to realize a "*NATIONAL LOCAL FOOD PRODUCTS MOVE.*"

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