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Progressive Industrial Policy for Philippine Agribusiness

A Case Study of Rice Production

Jose P. Tabbada



Political Economy Program

ISSN 2619-7448 (PRINT)
ISSN 2619-7456 (ONLINE)

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UP CIDS DISCUSSION PAPER SERIES
2026-52

UP CIDS Discussion Paper Series is published by the

University of the Philippines
Center for Integrative and Development Studies

Lower Ground Floor, Ang Bahay ng Alumni
Magsaysay Avenue, University of the Philippines
Diliman, Quezon City 1101

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ISSN 2619-7448 (Print)
ISSN 2619-7456 (Online)

Cover Image Credit

Traditional and mechanized land preparation in Philippine rice farming: a carabao-drawn wooden plow (left) and a hand tractor (right). Illustration generated by Claude, Anthropic, October 15, 2026.

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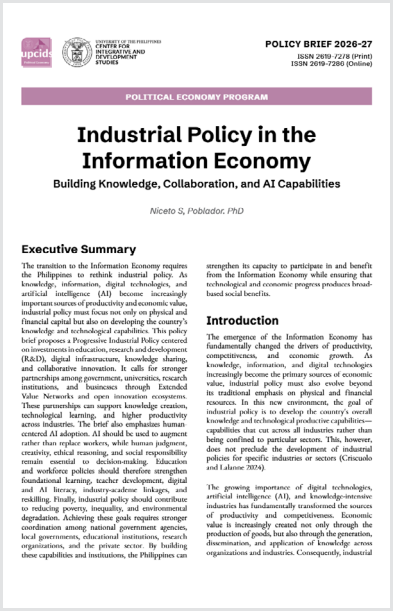
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POLICY BRIEF 2026-27
ISSN 2619 -7278 (Print)
ISSN 2619-7286 (Online)

POLITICAL ECONOMY PROGRAM

Industrial Policy in the Information Economy

Building Knowledge, Collaboration, and AI Capabilities

Niceto S. Poblador, PhD

Executive Summary

The transition to the Information Economy requires the Philippines to rethink industrial policy. As knowledge, information, digital technologies, and artificial intelligence (AI) become increasingly important sources of productivity and economic value, industrial policy must focus not only on physical and financial capital but also on developing the country's knowledge and technological capabilities. This policy brief proposes a Progressive Industrial Policy centered on investments in education, research and development (R&D), digital infrastructure, knowledge sharing, and collaborative innovation. It calls for stronger partnerships among government, universities, research institutions, and businesses through Extended Value Networks and open innovation ecosystems. These partnerships can support knowledge creation, technological learning, and higher productivity across industries. The brief also emphasizes human-centered AI adoption. AI should be used to augment rather than replace workers, while human judgment, creativity, ethical reasoning, and social responsibility remain essential to decision-making. Education and workforce policies should therefore strengthen foundational learning, teacher development, digital and AI literacy, industry-academe linkages, and reskilling. Finally, industrial policy should contribute to reducing poverty, inequality, and environmental degradation. Achieving these goals requires stronger coordination among national government agencies, local governments, educational institutions, research organizations, and the private sector. By building these capabilities and institutions, the Philippines can strengthen its capacity to participate in and benefit from the Information Economy while ensuring that technological and economic progress produces broad-based social benefits.

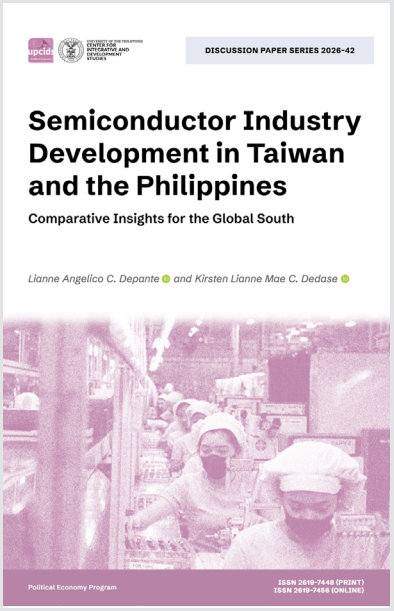
Introduction

The emergence of the Information Economy has fundamentally changed the drivers of productivity, competitiveness, and economic growth. As knowledge, information, and digital technologies increasingly become the primary sources of economic value, industrial policy must also evolve beyond its traditional emphasis on physical and financial resources. In this new environment, the goal of industrial policy is to develop the country's overall knowledge and technological productive capabilities—capabilities that cut across all industries rather than being confined to particular sectors. This, however, does not preclude the development of industrial policies for specific industries or sectors (Criscuolo and Lalanne 2024).

The growing importance of digital technologies, artificial intelligence (AI), and knowledge-intensive industries has fundamentally transformed the sources of productivity and competitiveness. Economic value is increasingly created not only through the production of goods, but also through the generation, dissemination, and application of knowledge across organizations and industries. Consequently, industrial

POLICY BRIEF

Industrial Policy in the Information Economy: Building Knowledge, Collaboration, and AI Capabilities



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Semiconductor Industry Development in Taiwan and the Philippines

Comparative Insights for the Global South

Lianne Angelico C. Depante and Kirsten Lianne Mae C. Dedase

Political Economy Program

ISSN 2619-7448 (PRINT)
ISSN 2619-7456 (ONLINE)

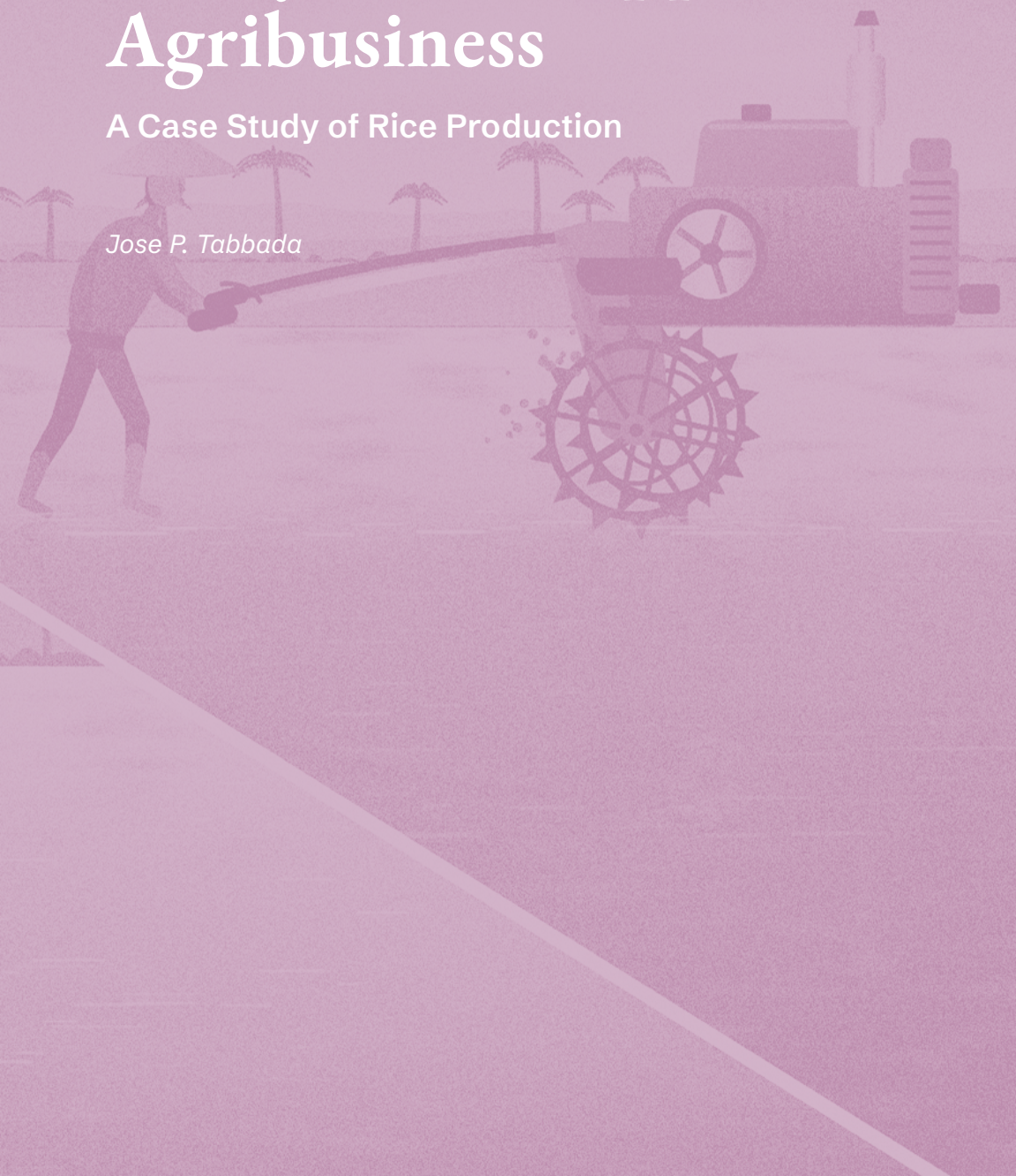
DISCUSSION PAPER

Semiconductor Industry Development in Taiwan and the Philippines: Comparative Insights for the Global South

Progressive Industrial Policy for Philippine Agribusiness

A Case Study of Rice Production

Jose P. Tabbada



Nature and Scope of the Study

Agribusiness is a broad subsector that spans the entire food and fiber system, from farm inputs (e.g., fertilizers, machinery, and seeds) and agricultural production to processing, marketing, distribution, and related services such as agricultural finance, agricultural research, extension services, and agritourism. It likewise encompasses livestock, fisheries, and forestry. Agribusiness therefore extends beyond farming and serves as an important link connecting agriculture with manufacturing, trade, logistics, finance, and other service industries, making it a critical component of industrial development (Food and Agriculture Organization [FAO] 2024; United Nations Industrial Development Organization [UNIDO] 2024).

This case study focuses on agribusiness in general and rice production in particular. Agribusiness is important for several reasons. First, the majority of the poor in the Philippines are found in the agriculture and fisheries sectors. In agriculture alone, there were approximately 2.4 million farmers as of 2020, representing more than 10 million Filipinos when their dependents are included. Improving agricultural productivity and increasing farmers' incomes therefore remain essential strategies for reducing rural poverty and promoting more inclusive economic development (Philippine Statistics Authority [PSA] 2024).

Second, food security remains one of the country's foremost development priorities. The volatility of both domestic agricultural production and international food markets highlights the importance of maintaining a productive and resilient agricultural sector capable of ensuring a stable food supply. Recent reports of the Food and Agriculture Organization emphasize that resilient agrifood systems require sustained investments in productivity, mechanization, technological innovation, climate adaptation, and stronger linkages between producers and markets in order to ensure long-term food security (FAO 2021, 2022, 2024).

Third, agriculture is one sector where the University of the Philippines (UP), working in partnership with other state universities and colleges (SUCs), local government units (LGUs), government agencies such as the Department of Agriculture (DA), farmers' organizations, and the private sector, can make a significant contribution through education and training, research and innovation, technology transfer, extension services, and evidence-based policy advocacy. Strengthening these linkages between research institutions and agricultural producers is essential for accelerating innovation and improving productivity throughout the agricultural value chain (Organisation for Economic Co-operation and Development [OECD] 2023).

Viewed from the perspective of progressive industrial policy, agribusiness should not be regarded merely as a traditional agricultural sector but as a strategic production system capable of generating employment, stimulating technological innovation, strengthening domestic value chains, and promoting broad-based economic development. This case study forms part of the broader Progressive Industrial Policy project and incorporates insights from the project's roundtable discussions (RTDs), which brought together stakeholders to identify key constraints, opportunities, and policy directions for Philippine agriculture and agribusiness. These discussions provide additional inputs to the analysis, particularly on the challenges posed by small and fragmented farms, weak coordination across agricultural value chains, and limited linkages between primary agricultural production and downstream processing and manufacturing. Rice production provides an appropriate case study because of its central role in Philippine food security, its extensive backward and forward linkages with manufacturing and service industries, and its direct impact on rural livelihoods. By examining the opportunities and constraints facing the rice sector, this paper seeks to identify policy interventions that can simultaneously improve agricultural productivity, reduce rural poverty, enhance environmental sustainability, and strengthen the country's long-term industrial competitiveness (UNIDO 2024; OECD 2023).

The Challenge of Low Agricultural Productivity

One of the major challenges confronting Philippine agriculture is its persistently low productivity relative to several of its Asian neighbors. Using rice production as an example, productivity in the Philippines compared with other rice-producing Asian countries is as follows (in metric tons per hectare): Philippines, 4.11 metric tons (MT); Vietnam, 6.15 MT; Malaysia, 3.54 MT; Thailand, 2.98 MT; Cambodia, 3.64 MT; India, 4.31 MT; China, 7.1 MT; Indonesia, 5.29 MT; and Japan, 6.96 MT, with the global average ranging from about 4.6 to 4.9 MT. Philippine rice productivity is slightly below the global average and considerably lower than that of Vietnam, China, Indonesia, and Japan. Surprisingly, however, Philippine productivity remains higher than that of Thailand, one of the world's leading rice exporters. This suggests that agricultural competitiveness depends not only on productivity but also on the broader policy environment, including production systems, logistics, value chain development, and market access (OECD 2023; FAO 2024).

Table 1. Selected Demographic and Agricultural Statistics of Selected Asian Countries, 2024

Country/ Statistics	Total Population (millions)	Total Production (million MT)	Area Planted w/ Rice (in million has)	Yield Per Hectare (in MT)	Rice Export (million MT)
Philippines	115.6	19.1	4.6	4.11	nil
Vietnam	101	43.4	7.1	6.15	6.4
Malaysia	35.6	2.1	5.9	3.54	0.1
Thailand	71.7	33.6	11.2	2.98	8.5
Cambodia	17.6	14.2	3.9	3.64	0.6
India	1,451	217.9	50.1	4.31	16.5
China	1,409	209.2	29.2	7.1	1.1
Indonesia	284.5	53.1	10.0	5.29	nil
Japan	124	10.1	1.5	6.96	nil
Global Average:		4.6–4.9			

With domestic rice production falling short of domestic consumption, the Philippines has continued to rely heavily on rice imports to meet the supply gap. In 2025, rice imports reached approximately 4 million metric tons, involving substantial foreign exchange expenditures. These resources could otherwise be utilized for capital investments, strategic imports, or other national development priorities. More importantly, continued dependence on imported rice reflects persistent structural weaknesses in domestic agricultural productivity and competitiveness that require long-term policy interventions rather than temporary importation measures (PSA 2024; FAO 2024).

But why choose rice production? Rice is, first of all, the country's principal staple food and perhaps the single most important commodity in the diet of ordinary Filipinos, particularly low-income households. Consequently, any change in the production level, availability, or price of rice has an immediate and significant impact on food security, inflation, household welfare, and poverty. Because of its strategic importance, rice has long occupied a central place in Philippine agricultural policy and remains one of the most politically and economically significant agricultural commodities in the country.

Secondly, rice production has extensive backward and forward linkages. On the input side, it stimulates demand for farm machinery, fertilizers, irrigation systems, seeds, pesticides, and other agricultural inputs. On the output side, it supports food processing, warehousing, transportation, logistics, retail trade, hospitality, and distribution industries. Expansion or contraction of the rice sector therefore generates multiplier effects throughout the economy, illustrating how agriculture interacts closely with manufacturing and services. From a progressive industrial policy perspective, these linkages are particularly important because the objective is not simply to increase agricultural output, but to connect primary production more effectively with domestic industry, technological upgrading, processing, value addition, and higher-value economic activities. This interconnectedness makes rice production an appropriate case study for examining progressive industrial policy (UNIDO 2024).

Third, success or failure in addressing the challenges facing the rice sector provides a useful indicator of the country's broader capacity to address structural development problems. Policies that successfully increase agricultural productivity while improving farmers' incomes, protecting the environment, and strengthening rural institutions may likewise serve as useful models for other agricultural commodities and productive sectors. The rice sector therefore provides a concrete setting in which the principles of progressive industrial policy can be examined—from interventions at the level of farm production

to the development of stronger value chains and linkages with processing and manufacturing. What is true of rice is likewise true of many other agricultural commodities. Domestic demand frequently exceeds local production for products such as coffee, onions, garlic, selected vegetables, pork, poultry, and fisheries products, resulting in continued dependence on imports. These recurring shortages indicate that productivity constraints are not unique to rice but reflect broader structural problems affecting Philippine agriculture.

Low agricultural productivity has far-reaching economic and social consequences. It contributes directly to low farmers' and farm workers' incomes, making rural poverty one of the country's most persistent development challenges. Limited agricultural production also reduces the domestic supply of food, contributing to higher food prices, particularly in urban areas where transportation and distribution costs further increase retail prices. High food prices reduce the purchasing power of households, especially the poor, and contribute to food insecurity and malnutrition. Poor nutrition, particularly among children, has been associated with stunting, which adversely affects educational attainment, labor productivity, and long-term economic opportunities. In this way, low agricultural productivity perpetuates an intergenerational cycle of poverty and inequality (PSA 2024; FAO 2021).

The challenge of low agricultural productivity extends beyond increasing crop yields alone. It requires addressing interconnected constraints involving technology, infrastructure, farm size, financing, governance, research, extension services, environmental sustainability, and market development. Consequently, improving agricultural productivity demands a comprehensive industrial policy that simultaneously strengthens production systems, rural institutions, value chains, and innovation ecosystems rather than relying solely on commodity-specific interventions (UNIDO 2024; OECD 2023).In the context of progressive industrial policy, agricultural productivity is thus not an end in itself but a foundation for diversification, value addition, stronger agriculture-industry linkages, and broader structural transformation.

Causes of Low Rice Productivity

To address the problem of low income and persistent poverty among farmers and fisherfolk, this paper proposes a three-pronged agricultural strategy. The first is to raise farm productivity through improved technology, mechanization, research, and better farming practices. The second is to encourage diversification into crops other than the primary commodity in

order to reduce production risks and provide farmers with additional and more stable sources of income. The third is to promote greater processing and value addition of agricultural products so that farmers and rural communities can participate in higher-value segments of the agricultural value chain rather than remaining solely producers of raw commodities. Together, these strategies seek to increase farm incomes, improve rural employment, and strengthen food security while supporting broader industrial development (UNIDO 2024).

To illustrate how productivity can be enhanced through progressive industrial policy, this paper uses rice production as a case study. Although rice is perhaps the most extensively studied agricultural commodity in the Philippines, it remains one of the sectors where successive post-war administrations have achieved only limited and often short-lived success. One clear manifestation of this continuing challenge is that the Philippines has become one of the world's largest rice importers despite possessing suitable climatic conditions, extensive agricultural land, and internationally recognized agricultural research institutions. Domestic rice consumption consistently exceeds domestic production, resulting in a growing dependence on imports to meet national demand (PSA 2024).

Several factors account for this persistent production gap. These include the gradual reduction in agricultural land devoted to rice cultivation due to urbanization and land conversion, rapid population growth that continually increases domestic demand, widespread rural poverty that makes rice the dominant staple food among low-income households, and decades of relatively stagnant productivity. Addressing these structural constraints requires more than increasing production alone. It calls for coordinated interventions that improve technology adoption, strengthen institutions, modernize farming systems, and promote greater efficiency throughout the rice value chain (OECD 2023). From a progressive industrial policy perspective, these constraints are interconnected: weaknesses in primary production affect the development of processing, logistics, input industries, and other downstream and upstream activities, while weaknesses in these supporting industries can in turn constrain farm productivity and farmers' incomes.

Although Philippine rice productivity has remained relatively stagnant for much of the past half century, there have been two notable periods during which this trend was temporarily reversed. The first occurred during the late 1960s with the introduction of the so-called Green Revolution. The development of the high-yielding rice variety IR8 by the International Rice Research Institute

(IRRI) in Los Baños, Laguna, together with expanded irrigation, fertilizer use, and improved crop management, significantly increased rice yields and enabled the Philippines to export rice in 1968. This period demonstrated how scientific innovation and technological development can substantially improve agricultural productivity when supported by appropriate institutions and government policies (IRRI 2020).

A second breakthrough occurred through the implementation of the Masagana 99 Program in 1973 following severe flooding and insect infestation that threatened domestic rice production. The program sought to increase average rice yield from 40 to 99 cavans per hectare through government support in the form of subsidized inputs, production credit, and technical assistance (Esguerra 1981). Similar to the Green Revolution, Masagana 99 temporarily enabled the Philippines to attain rice self-sufficiency and even export rice for two consecutive years. However, the gains proved difficult to sustain because the program required substantial government subsidies and relied heavily on chemical fertilizers, pesticides, and insecticides that imposed significant fiscal and environmental costs. Over time, these factors reduced both the financial and ecological sustainability of the program.

The experiences of the Green Revolution and Masagana 99 offer important lessons for contemporary agricultural policy. Both demonstrated that productivity can be significantly increased through coordinated investments in research, technology, financing, extension services, and government support. At the same time, they illustrate that productivity gains are unlikely to be sustained unless they are accompanied by sound institutions, responsible environmental management, and financially viable policy interventions. Progressive industrial policy therefore requires balancing productivity enhancement with long-term sustainability, resilience, and inclusive rural development rather than focusing exclusively on short-term production targets (FAO 2024; UNIDO 2024).

These historical experiences are also relevant to the broader Progressive Industrial Policy project and the issues raised in its roundtable discussions. The challenge is not simply to reproduce earlier episodes of rapid production growth, but to identify how public policy can support productivity improvements while simultaneously strengthening farmer organization, domestic value chains, technological capabilities, processing and value addition, and linkages between agriculture and industry. In this sense, rice provides a concrete case through which the broader principles of progressive industrial policy can be translated into sector-specific interventions.

The proposed strategy outlined in this paper builds upon these lessons. Rather than relying on a single intervention, it advocates a comprehensive approach that simultaneously raises productivity, diversifies rural economic activities, promotes value addition, strengthens institutions, and improves environmental sustainability. Such an approach recognizes that agricultural transformation is not solely a production challenge but also an institutional, technological, and industrial development challenge requiring coordinated action across government, research institutions, universities, the private sector, and farming communities. The following discussion therefore examines the specific constraints that continue to limit rice productivity and the areas in which coordinated policy intervention is required.

Productivity and Environmental Sustainability

Why is productivity in Philippine agriculture—particularly rice productivity and production—generally low relative to domestic demand and compared with several neighboring countries? The reasons are complex and interconnected. No single factor adequately explains the country's relatively low productivity. Rather, agricultural performance reflects the combined effects of technological, economic, institutional, environmental, and governance constraints that have accumulated over several decades. Addressing only one constraint while neglecting the others is therefore unlikely to produce sustained improvements in agricultural productivity (OECD 2023).

The first major constraint is the high cost and limited use of agricultural inputs, including farm machinery, fertilizers, pesticides, insecticides, irrigation facilities, certified seeds, and fuel. Many agricultural inputs, particularly inorganic fertilizers, continue to be imported. This dependence exposes domestic fertilizer availability and costs to developments in international fertilizer markets (Briones 2017). Recent increases in petroleum prices have likewise contributed to higher fertilizer prices because many synthetic fertilizers are petroleum-based. As production costs increase, many farmers reduce fertilizer application or delay other farm operations, resulting in lower yields and reduced profitability (FAO 2024).

The experience of many rice farmers illustrates this problem. A substantial portion of the value generated from rice production is absorbed by production costs, leaving farmers with only modest net returns despite months of labor. Even under relatively favorable production conditions, annual farm income often remains insufficient to lift farming households out of poverty. The Philippine Rice Research Institute (PhilRice

2020) estimates similarly show that production costs consume a large proportion of gross returns from rice farming, highlighting the continuing challenge of making rice production economically viable for smallholder farmers.

Heavy dependence on inorganic fertilizers also raises concerns regarding environmental sustainability. While synthetic fertilizers have contributed significantly to increasing agricultural production over the past several decades, prolonged and excessive application may gradually reduce soil fertility, disrupt soil biological activity, contaminate water resources, and increase production costs. These concerns have encouraged renewed interest in more sustainable nutrient management strategies, including organic and regenerative farming approaches that seek to restore long-term soil health while maintaining agricultural productivity (Moyer et al. 2020; FAO 2024).

A second major constraint is the small size and fragmentation of agricultural landholdings (Briones 2023). The average Philippine farm has continued to decline in size because of population growth, land subdivision, agrarian reform, and conversion of agricultural land to residential, commercial, and industrial uses. Small and fragmented farms often prevent farmers from taking advantage of economies of scale, limiting opportunities for mechanization, efficient irrigation, and coordinated production planning. Although scholars continue to debate the precise relationship between farm size and productivity, fragmented production generally increases operating costs and complicates the adoption of modern technologies (OECD 2023).

These concerns were likewise raised during the roundtable discussions conducted for the Progressive Industrial Policy project. Participants highlighted the constraints associated with small and fragmented farms, particularly in relation to mechanization, production at scale, and effective participation in agricultural markets. These concerns strengthen the case for policy mechanisms such as farm clustering, cooperatives, shared facilities, and other forms of collective production that can generate economies of scale without necessarily altering individual land ownership. In this way, progressive industrial policy can address the limitations imposed by fragmented landholdings while preserving farmers' ownership and strengthening their collective productive capacity.

A third factor is the relatively low level of agricultural mechanization. Although mechanization has improved in recent years, many Filipino farmers continue to rely heavily on manual labor for land preparation, planting, harvesting, drying, and postharvest operations. This reliance increases production costs, reduces labor productivity, and limits the amount of land that can be cultivated efficiently. Modern agricultural machinery not only reduces labor requirements but also improves timeliness of farm operations, minimizes postharvest losses, and increases overall

productivity. Recognizing these benefits, the Department of Agriculture (DA 2019) has continued to promote mechanization through equipment support, common service facilities, and technology adoption programs.

Closely related to mechanization is the limited domestic capacity to manufacture affordable agricultural equipment. Because many machines or their components are imported, acquisition costs remain beyond the financial capacity of many smallholder farmers. Strengthening domestic farm equipment manufacturing therefore represents not only an agricultural policy concern but also an industrial development opportunity capable of generating employment, technological innovation, and stronger domestic value chains (UNIDO 2024). This illustrates an important dimension of progressive industrial policy: agricultural modernization can simultaneously create demand for domestic manufacturing and technological capabilities rather than relying predominantly on imported machinery and equipment.

A fourth constraint is the weakness of agricultural extension services. Farmers require continuous access to updated information on crop management, soil fertility, pest control, mechanization, climate adaptation, and market opportunities. Following the devolution of agricultural extension services to local government units, however, many municipalities experienced shortages of agricultural specialists because of financial and technical limitations (Briones 2023). Consequently, many farmers receive only limited technical support despite rapid advances in agricultural science and technology. Strengthening extension systems remains one of the most cost-effective strategies for improving agricultural productivity because it facilitates technology transfer and encourages wider adoption of improved farming practices (FAO 2021).

Weather and climate variability likewise continue to constrain agricultural production. The Philippines is frequently affected by typhoons, floods, and droughts that damage agricultural production, particularly rice farming (Israel, 2012). Climate change has further increased production uncertainty by altering rainfall patterns, increasing temperatures, and intensifying extreme weather events. Building climate resilience therefore requires investments in irrigation, climate-resilient crop varieties, water management, and climate-smart agricultural practices that reduce farmers' vulnerability while maintaining productivity (FAO, 2024).

Beyond production constraints, weaknesses in logistics and market infrastructure continue to constrain the efficiency of Philippine agricultural value chains and the movement of agricultural products from producers to consumers (Adriano and Adriano 2022). Every additional peso spent on transport increases marketing costs that are eventually passed on to consumers while reducing the share of the final selling price

received by farmers. Thus, improvements in farm productivity must be accompanied by investments in the infrastructure and logistical systems that connect farms to processors, markets, and consumers.

Another longstanding concern is the number of actors involved between primary producers and final consumers. Traders, aggregators, processors, logistics providers, wholesalers, and retailers perform necessary functions within agricultural value chains, but weak coordination among these actors can reduce value-chain efficiency and leave primary producers as one of the weaker links in the chain. Strengthening producer organizations, market linkages, processing, logistics, and other forms of value-chain coordination can help farmers capture greater value from agricultural production (Adriano and Adriano 2022).

The roundtable discussions further highlighted that the problem extends beyond the efficiency of agricultural production itself. Participants pointed to weak linkages between primary agricultural producers and downstream activities such as food processing, manufacturing, logistics, and organized marketing. Agricultural products are often sold with limited processing or value addition, restricting the income captured by farmers and rural communities. These observations reinforce the need to move Philippine agriculture beyond the production and sale of raw commodities toward stronger linkages with processing, manufacturing, and other higher-value agribusiness activities. From a progressive industrial policy perspective, strengthening these linkages can allow agricultural productivity gains to generate wider employment, investment, technological development, and income opportunities throughout the domestic economy.

Institutional factors likewise influence productivity. Insecure property rights discourage long-term investment in agricultural land because farmers become uncertain whether they will fully enjoy the benefits of investments in irrigation, tree crops, soil improvement, and farm infrastructure. Historical experience from many countries demonstrates that secure property rights encourage investment, innovation, and productivity growth by providing farmers with greater confidence in undertaking long-term improvements to their land (Acemoglu and Robinson 2012).

Finally, weak governance and institutional capacity can undermine agricultural development by reducing the effectiveness of public programs and investments intended to support farmers. Fragmented responsibilities, weak coordination, implementation problems, and inadequate monitoring can prevent otherwise sound agricultural policies from achieving their intended outcomes. Agricultural modernization therefore requires not only appropriate policies but also transparent institutions, effective implementation, accountability, and good governance. As

emphasized by Acemoglu and Robinson (2012), inclusive institutions remain fundamental to sustained economic development because they create incentives for investment, innovation, and productive economic activity.

Taken together, these constraints demonstrate that low agricultural productivity cannot be attributed to any single cause. Rather, it reflects the interaction of technological limitations, institutional weaknesses, environmental pressures, and market failures. The findings raised in the Progressive Industrial Policy roundtable discussions reinforce this interconnected character of the problem: farm fragmentation affects mechanization and scale; weak value-chain coordination limits the gains captured by producers; and inadequate connections with processing and manufacturing restrict opportunities for value addition. A progressive industrial policy therefore requires coordinated interventions that simultaneously strengthen productivity, sustainability, governance, innovation, value chains, and rural development instead of relying on isolated policy measures.

Review of Existing Agricultural Policies

The problems that constrain Philippine agricultural development, particularly in rice production, have long been recognized by policymakers. Over the past several decades, successive administrations have introduced numerous laws, executive issuances, and government programs intended to modernize agriculture, improve productivity, increase farmers' incomes, and strengthen food security. Collectively, these policies demonstrate that the challenge facing Philippine agriculture is not simply the absence of legislation but also the effectiveness, coordination, and consistency of policy implementation. The following discussion reviews several of the country's major agricultural policies and assesses their contribution to the broader objectives of productivity, sustainability, and progressive industrial development.

1. Comprehensive Agrarian Reform Law (CARL)

The Comprehensive Agrarian Reform Law (CARL) of 1988 remains one of the most significant social and economic reforms implemented in the Philippines. The law mandates the redistribution of agricultural lands to qualified beneficiaries while providing support services intended to improve agricultural productivity and rural welfare. Through the Comprehensive Agrarian Reform Program (CARP), the government sought not only to address inequitable land ownership but also to empower small farmers by granting them access to productive assets.

Despite these objectives, the overall contribution of agrarian reform to agricultural productivity remains a matter of continuing debate. While land redistribution has improved land access for many beneficiaries, the fragmentation of agricultural landholdings associated with land subdivision and successive land reforms has also complicated farm consolidation and the realization of economies of scale in agricultural production and downstream processing (Briones 2023). As a consequence, land redistribution alone has proven insufficient to eliminate rural poverty without complementary investments in infrastructure, credit, technology, extension services, and market access (OECD 2023). From a progressive industrial policy perspective, the challenge is therefore to preserve the social objectives of agrarian reform while developing mechanisms such as clustering, cooperatives, and shared facilities that allow small farmers to achieve some of the benefits of scale without requiring the reconcentration of land ownership.

2. Agriculture and Fisheries Modernization Act (Republic Act No. 8435)

The Agriculture and Fisheries Modernization Act (AFMA) of 1997 remains the country's principal framework for agricultural modernization. The law seeks to improve agricultural competitiveness by supporting infrastructure development, irrigation, farm-to-market roads, research, mechanization, credit, postharvest facilities, extension services, and market development. AFMA likewise recognizes the importance of integrating agriculture into broader national economic development through modernization and commercialization.

More than two decades after its enactment, AFMA continues to provide a broad policy framework for agricultural modernization. The challenge lies less in the absence of policy instruments than in ensuring adequate financing, institutional coordination, and effective implementation. Many of the structural constraints identified earlier—including weak extension services, inadequate mechanization, and insufficient infrastructure—are already addressed within the framework of AFMA, suggesting that implementation capacity remains an important concern (Briones 2023). This is particularly relevant to progressive industrial policy, which requires coordination across agricultural production, infrastructure, research, financing, processing, manufacturing, and market development rather than isolated interventions implemented by individual agencies.

3. Agriculture and Fisheries Extension Act of 2025

The proposed Agriculture and Fisheries Extension Act seeks to strengthen agricultural extension services by providing greater technical assistance and institutional support to local government units. The proposal recognizes that following the devolution of agricultural extension under the Local Government Code, many LGUs have experienced shortages of agricultural specialists because of limited financial and technical resources (Briones 2023).

Strengthening agricultural extension is among the most important public investments for accelerating technology transfer, improving farm management, facilitating the adoption of improved crop varieties, and enabling farmers to respond more effectively to changing climatic and market conditions. Strong extension systems also provide an important link between research institutions and farming communities, helping ensure that technological innovations are translated into actual improvements in farm practices and productivity (FAO 2021).

4. Rice Tariffication Law (Republic Act No. 11203)

The Rice Tariffication Law replaced quantitative restrictions on rice imports with tariffs while establishing the Rice Competitiveness Enhancement Fund (RCEF). The law seeks to balance important policy objectives involving domestic agricultural competitiveness, rice supply, and consumer prices. Revenue generated from tariffs finances interventions such as mechanization, certified seed distribution, credit assistance, and extension services intended to improve the competitiveness of Filipino rice farmers.

The establishment of RCEF represents one of the law's most significant interventions, as tariff revenues from rice imports are earmarked for measures intended to improve the competitiveness and productive capacity of domestic rice farmers (Balaoing-Pelkmans 2020). Nevertheless, maximizing the effectiveness of RCEF requires efficient implementation, transparent fund utilization, and continued investments in technology, mechanization, and farmer capability development. Viewed through a progressive industrial policy framework, RCEF also demonstrates how revenues generated by trade policy can be redirected toward strengthening domestic productive capacity rather than functioning solely as a compensatory mechanism for import competition.

5. Free Irrigation Service Act

The Free Irrigation Service Act of 2018 provides irrigation services without charge to qualified small farmers. By reducing production costs, the policy seeks to support agricultural production, particularly among farmers for whom irrigation expenses represent an additional financial burden. Irrigation remains one of the most important determinants of agricultural productivity because reliable water supply can allow farmers to increase cropping frequency while reducing production risks.

However, free irrigation should likewise be accompanied by responsible water management. As water resources become increasingly constrained in many parts of the country, irrigation policies should promote efficient water use, watershed protection, rainwater harvesting, and climate-resilient irrigation systems consistent with long-term environmental sustainability (FAO 2024).

6. Agri-Agra Reform Credit Act

Access to affordable credit remains one of the most persistent challenges confronting smallholder farmers. The Agri-Agra Reform Credit Act of 2022 seeks to improve agricultural financing by strengthening the flow of credit and investment toward agriculture, fisheries, and rural development.

Despite the availability of credit windows, small farmers and fisherfolk continue to face constraints in accessing formal financing. Sustainable agricultural finance therefore requires mechanisms that address financing risks and strengthen the capacity of small producers and their organizations to obtain and effectively use credit (Bayudan-Dacuycuy et al. 2022). Access to finance is particularly important within a progressive industrial policy framework because investments in mechanization, processing, storage, logistics, and other productivity-enhancing activities require longer-term financing that many small producers cannot generate internally.

7. Agricultural and Fisheries Mechanization Law

The Agricultural and Fisheries Mechanization Law, enacted in 2013, seeks to modernize Philippine agriculture through increased mechanization. The law recognizes that improved farm machinery can increase labor productivity, reduce postharvest losses, improve product quality, and enhance overall production efficiency.

Mechanization, however, should be viewed not merely as equipment acquisition but as part of a broader industrial development strategy involving local manufacturing, equipment maintenance, technical training, financing, and innovation. Developing a competitive domestic agricultural machinery industry could simultaneously strengthen agriculture and manufacturing while generating additional employment opportunities (UNIDO 2024). This represents one of the clearest opportunities for progressive industrial policy to connect agricultural modernization with domestic industrial development: increased demand for farm machinery can support local engineering, manufacturing, repair services, skills development, and technological capability if appropriate linkages are deliberately developed.

8. Organic Agriculture Act

The Organic Agriculture Act promotes environmentally sustainable farming by encouraging reduced dependence on synthetic fertilizers and pesticides. Organic agriculture can contribute to improved soil health, biodiversity conservation, environmental protection, and more sustainable food production.

At the same time, the transition toward organic agriculture requires appropriate government support because farmers may initially experience adjustment costs and changes in productivity. Research, extension services, market incentives, and consumer education therefore remain important in facilitating wider adoption of sustainable farming practices (Moyer et al. 2020). Progressive industrial policy should therefore treat environmental sustainability not as separate from productivity and industrial development but as an integral component of agricultural modernization and long-term productive capacity.

The foregoing review demonstrates that Philippine agriculture is supported by a broad set of laws and policy instruments addressing land reform, modernization, financing, mechanization, irrigation, sustainability, and market development. The central policy challenge is therefore not simply to introduce additional programs, but to improve the coherence and implementation of existing interventions while addressing gaps that prevent agriculture from developing stronger connections with processing, manufacturing, logistics, research, and other productive sectors.

This conclusion is also consistent with the concerns raised in the Progressive Industrial Policy roundtable discussions. The constraints identified by participants—including fragmented production, difficulties in achieving scale, weak coordination across agricultural value chains, and insufficient linkages

between primary agriculture and downstream processing and manufacturing—cut across the mandates of several existing policies rather than falling within a single law or government program. The challenge is therefore one of policy coordination as much as policy design.

From a progressive industrial policy perspective, agricultural transformation requires these policies to operate as complementary components of a broader development strategy. Land reform must be connected with mechanisms for collective production and economies of scale; mechanization with domestic manufacturing and technological capability; agricultural credit with productive investment; extension with research and innovation; and increased farm production with processing, logistics, manufacturing, and market development. Successful development therefore depends not only on the existence of appropriate policies but also on the capacity of institutions to coordinate and implement them effectively and consistently (UNIDO 2024; Acemoglu and Robinson 2012).

Proposed Progressive Industrial Policy to Enhance Productivity and Sustainability

The preceding discussion demonstrates that the Philippines does not suffer from a lack of agricultural policies. Rather, the principal challenge lies in strengthening the effectiveness, coordination, and implementation of these policies. Building upon the analysis of the structural constraints facing Philippine agriculture, this paper proposes several policy directions consistent with the principles of progressive industrial policy. These recommendations seek not only to increase agricultural productivity but also to reduce rural poverty, promote environmental sustainability, strengthen domestic industries, and improve the resilience of Philippine agriculture.

The first recommendation is to gradually reduce dependence on imported inorganic fertilizers by promoting greater use of locally produced organic and regenerative alternatives. Heavy dependence on imported chemical fertilizers exposes Filipino farmers to fluctuations in international commodity prices, exchange rates, and geopolitical developments. Recent increases in fertilizer prices illustrate the vulnerability created by excessive reliance on imported inputs. Expanding domestic production of organic fertilizers would reduce production costs, strengthen local enterprises, improve soil health, and decrease dependence on imported agricultural inputs.

The shift toward more sustainable farming systems should not be viewed merely as an environmental objective but as an important industrial policy strategy. Regenerative agriculture, in particular, seeks to restore soil fertility, improve biodiversity, enhance water retention, and strengthen ecosystem resilience while maintaining agricultural productivity. Unlike conventional farming systems that rely heavily on synthetic inputs, regenerative agriculture recognizes soil as a productive asset that must continuously be restored and protected. Although further research remains necessary regarding its large-scale application under Philippine conditions, its underlying principles are consistent with long-term agricultural sustainability and climate resilience (Moyer et al. 2020; FAO 2024).

Second, government should actively promote farm consolidation and clustering while respecting existing land ownership arrangements. Small and fragmented farms continue to limit mechanization, irrigation efficiency, and economies of scale. Without necessarily reversing agrarian reform, farmers can be encouraged to cooperate through clustering arrangements, production cooperatives, contract farming, shared machinery pools, and common service facilities. Such arrangements enable small farmers to enjoy many of the advantages of larger production units while retaining ownership of their individual farms (OECD 2023).

Third, agricultural extension services should be substantially strengthened. Modern agriculture increasingly depends on scientific knowledge, climate information, digital technologies, precision farming, and improved farm management. Farmers therefore require continuous technical assistance rather than occasional training activities. The proposed Agriculture and Fisheries Extension Act represents an important step toward restoring technical capacity at the local level. Pending its enactment, the Department of Agriculture may operationalize mobile extension teams or "Agriculture on Wheels," composed of crop specialists, soil scientists, engineers, veterinarians, and agricultural economists who can provide on-site technical assistance to farming communities throughout the country (FAO 2021).

Fourth, the government should strengthen domestic agricultural mechanization by supporting the local manufacture, assembly, financing, and maintenance of farm machinery. Mechanization should not simply involve importing foreign equipment but should form part of a broader industrial strategy that develops local engineering capabilities, manufacturing industries, repair services, and technical skills. Fiscal incentives, concessional financing, technology transfer,

and research partnerships with universities can encourage the emergence of a competitive domestic agricultural machinery industry capable of supplying affordable equipment appropriate for Philippine farming conditions (DA 2019; UNIDO 2024).

Access to affordable financing should likewise accompany mechanization. Many farmers remain unable to purchase tractors, harvesters, dryers, and other equipment because of limited capital and restricted access to formal credit. Government financial institutions such as the Land Bank of the Philippines may therefore expand long-term, low-interest financing programs specifically designed for agricultural mechanization and postharvest technologies. These investments should be viewed not merely as agricultural expenditures but as productive investments capable of increasing efficiency, reducing postharvest losses, and improving national food security.

Fifth, agricultural policy should promote diversified rural livelihoods in order to reduce dependence on a single commodity. Rice production alone often provides insufficient income to sustain farming households throughout the year. Complementary livelihood opportunities—including livestock production, vegetable farming, aquaculture, food processing, agroforestry, ecotourism, handicrafts, and rural enterprises—can provide additional income while increasing household resilience against production shocks and price fluctuations. Diversification likewise strengthens local value chains and creates employment opportunities beyond primary agricultural production.

Sixth, stronger linkages should be developed between agricultural production and domestic processing and manufacturing. The roundtable discussions emphasized that increasing farm output alone will not necessarily translate into substantially higher rural incomes if agricultural commodities continue to be marketed primarily as raw or minimally processed products. Industrial policy should therefore encourage investments in food processing, storage, packaging, cold-chain facilities, logistics, product development, and other downstream activities that increase the value generated from domestic agricultural production. Stronger connections between farmers, cooperatives, processors, manufacturers, retailers, research institutions, and financial institutions can enable agricultural communities to participate in higher-value segments of the agribusiness chain.

Seventh, traditional and climate-resilient crop varieties should be conserved and further developed alongside high-yielding modern varieties. Although modern rice varieties have substantially increased production over the past several decades, traditional varieties often possess desirable characteristics such as drought tolerance, flood resistance, pest resistance, superior nutritional value, and premium market prices. Continued investment in agricultural research, seed development, and biodiversity conservation will enable farmers to benefit from both productivity improvements and greater climate resilience.

Eighth, government institutions involved in food security, particularly the National Food Authority (NFA), should continuously review their mandate to ensure that they effectively contribute to stabilizing rice supply, protecting farmers, and safeguarding consumers against excessive price fluctuations. Any expansion of government intervention, however, should be accompanied by improvements in institutional efficiency, transparency, accountability, and professional management to minimize fiscal burdens and governance risks.

Finally, government should adopt a more active promotional role in encouraging agricultural innovation. Product fairs, demonstration farms, technology competitions, farmer innovation awards, and stronger partnerships among government agencies, universities, research institutions, cooperatives, and private enterprises can accelerate the dissemination of productivity-enhancing technologies throughout the country. Agricultural modernization ultimately depends not only on technological breakthroughs but also on the speed with which knowledge is transferred from research institutions to farmers and agricultural entrepreneurs.

Taken together, these recommendations reflect the central premise of progressive industrial policy: that agricultural development requires coordinated public investment, technological innovation, capable institutions, environmental stewardship, and active collaboration among government, academia, industry, and farming communities. Rather than treating agriculture as an isolated sector, these recommendations position agribusiness as a strategic driver of inclusive industrial transformation capable of generating employment, strengthening domestic industries, improving food security, and reducing rural poverty.

Proper Implementation and Good Governance as Key Factors

Even the most well-designed agricultural policies will produce limited results if they are not implemented effectively. As the preceding discussion has shown, the Philippines already possesses a comprehensive body of legislation addressing agricultural modernization, irrigation, mechanization, agricultural finance, organic farming, agrarian reform, and food security. The principal challenge therefore lies less in the absence of policy than in ensuring that existing laws are implemented consistently, efficiently, transparently, and in a manner that produces measurable improvements in agricultural productivity and farmers' welfare. Progressive industrial policy emphasizes that capable institutions and effective governance are indispensable complements to sound policy design (UNIDO 2024).

One of the most persistent obstacles to effective policy implementation is weak governance, including institutional fragmentation, coordination problems, and implementation weaknesses. Assessments of Philippine agricultural policy have identified fragmentation and coordination problems that can reduce the effectiveness of public expenditure and agricultural support programs (Briones 2023). When programs are poorly coordinated or inadequately implemented, scarce public resources may fail to generate their intended developmental outcomes. Farmers who do not receive adequate irrigation, farm-to-market infrastructure, machinery, postharvest facilities, extension services, or other forms of production support remain constrained despite the existence of otherwise well-designed agricultural policies.

Transparency and accountability are likewise essential to the effectiveness of industrial policy because they strengthen institutional credibility and help ensure that public resources reach their intended purposes. Public investments intended to promote agricultural modernization generate the greatest developmental returns when they are implemented efficiently, monitored effectively, and directed toward clearly defined productive objectives. Weak accountability, by contrast, can diminish the developmental impact of public expenditures and reduce public confidence in government institutions. Strengthening transparency and accountability should therefore be viewed not merely as an administrative reform but as part of building the institutional capacity necessary for sustained economic development (Acemoglu and Robinson 2012).

Closely related to these governance concerns are institutional fragmentation and coordination problems across agricultural programs and implementing agencies. Fragmented responsibilities can weaken the coherence and effectiveness of agricultural interventions and complicate the delivery of support to farmers and other value-chain actors (Briones, 2023). While regulatory oversight remains necessary, administrative efficiency is equally important in ensuring that public programs, investments, and services reach farmers and agricultural enterprises in a timely manner.

Recognizing the broader importance of administrative efficiency, the Philippine government enacted the Anti–Red Tape Act and subsequently strengthened the country's ease-of-doing-business framework through Republic Act No. 11032, which established the Anti–Red Tape Authority (ARTA). These reforms seek to simplify administrative procedures, establish processing timelines, improve government efficiency, and strengthen accountability in the delivery of government services. For agriculture and agribusiness, more efficient administrative systems can contribute to a more enabling environment for investment, enterprise development, technology adoption, and the timely delivery of government support. Nevertheless, the long-term effectiveness of these reforms ultimately depends upon sustained implementation, continuous institutional learning, adequate resources, and strong institutional commitment.

Effective governance likewise requires better coordination among government agencies. Agricultural development involves the DA, the Department of Agrarian Reform (DAR), the Department of Environment and Natural Resources (DENR), the Department of Trade and Industry (DTI), the National Irrigation Administration, the NFA, local government units, state universities and colleges, government financial institutions, and numerous regulatory agencies. While each institution performs important functions, fragmented implementation and overlapping mandates may reduce overall policy effectiveness. A whole-of-government approach that strengthens planning, information sharing, monitoring, and evaluation would improve policy coherence while reducing duplication of programs and administrative costs (OECD 2023).

Such coordination becomes particularly important from a progressive industrial policy perspective because agricultural transformation extends beyond the mandate of the DA alone. Increasing farm productivity requires coordination with institutions responsible for land reform, infrastructure, financing, science

and technology, education, trade, industry, environmental management, and local development. Likewise, strengthening the linkages between primary agricultural production and downstream processing and manufacturing requires closer coordination between agricultural and industrial policy.

Monitoring and evaluation should likewise become integral components of agricultural policy implementation. Government programs should not simply be assessed according to budget utilization or the number of beneficiaries served but also according to measurable improvements in productivity, farm incomes, poverty reduction, environmental sustainability, technology adoption, and food security. Developing performance indicators and regularly evaluating policy outcomes would enable policymakers to identify successful interventions, improve or discontinue ineffective programs, and allocate public resources more efficiently. Evaluation should therefore focus not only on whether government programs were implemented, but also on whether they contributed to building productive capabilities among farmers, enterprises, institutions, and agricultural value chains.

The private sector, farmers' organizations, cooperatives, civil society organizations, and academic institutions also have important roles in strengthening governance. Public participation improves transparency, facilitates accountability, and enables government programs to respond more effectively to the needs of farming communities. Universities and research institutions can contribute independent policy evaluation, generate evidence for decision-making, and facilitate knowledge transfer between researchers, policymakers, and agricultural producers. Such collaborative governance is consistent with the principles of progressive industrial policy, which emphasize partnerships among government, industry, academia, and civil society in promoting long-term economic transformation (UNIDO 2024).

The roundtable discussions conducted under the Progressive Industrial Policy project further underscore the importance of such coordination. The concerns raised regarding fragmented production, difficulties in achieving scale, weak value-chain coordination, and limited connections between agriculture and downstream processing cannot be addressed by any single government institution or policy instrument. Translating these concerns into effective interventions therefore requires sustained coordination among public institutions and meaningful engagement with farmers, cooperatives, industry, research institutions, and other stakeholders.

Ultimately, good governance should not be viewed merely as an administrative concern but as a productive economic asset. Countries with capable institutions, transparent governance, effective regulation, and accountable public administration are generally better positioned to implement development policies, encourage productive investment, stimulate innovation, and sustain long-term economic growth. For Philippine agriculture, strengthening governance therefore represents an important component of improving productivity, competitiveness, food security, and rural development. As Acemoglu and Robinson (2012) argue, inclusive and well-functioning institutions provide the foundation upon which sustained economic development is built. For progressive industrial policy, the quality of implementation is therefore as important as the quality of the policy itself: coordination, institutional capability, accountability, monitoring, and continuous learning ultimately determine whether policy interventions translate into lasting productive transformation.

The Role of the University of the Philippines in Enhancing Agricultural Productivity and Industrial Development

UP, as the country's national university, occupies a unique position in advancing agricultural development and progressive industrial policy. Beyond its traditional functions of instruction, research, and public service, UP possesses scientific expertise, multidisciplinary capabilities, and an institutional network that can support agricultural modernization, technological innovation, evidence-based policymaking, and sustainable rural development. As such, UP can serve not merely as a producer of knowledge but also as an active development partner in transforming Philippine agriculture.

The most fundamental contribution of UP is the education and training of future agricultural professionals, scientists, engineers, economists, planners, entrepreneurs, and public administrators. Through its constituent universities, particularly UP Los Baños, UP Visayas, UP Mindanao, UP Diliman, and UP Manila, the University develops human resources capable of addressing the increasingly complex challenges confronting Philippine agriculture. These include food security, climate change, biodiversity conservation, biotechnology, mechanization, rural development, agribusiness management, public health, and agricultural economics. Human capital development remains one of the most important long-term investments in national competitiveness because

technological innovation ultimately depends upon the availability of highly trained professionals capable of generating and applying new knowledge (UNIDO 2024).

Research and innovation constitute another major area in which the University can contribute. Historically, Philippine agriculture has benefited enormously from scientific research undertaken by institutions such as the IRRI, whose development of high-yielding rice varieties helped initiate the Green Revolution. Building upon this tradition, UP should continue expanding research not only in crop breeding but also in climate-smart agriculture, regenerative agriculture, sustainable soil management, water resource conservation, digital agriculture, artificial intelligence, biotechnology, precision farming, agricultural robotics, renewable energy for agriculture, and postharvest technologies. Such research should respond directly to the needs of farmers and agribusiness enterprises while supporting national industrial development priorities (FAO 2024).

Equally important is the translation of research findings into technologies that can actually be adopted by farming communities. Scientific discoveries produce limited developmental impact if they remain confined to academic journals, laboratories, or conferences. The University's research agenda should therefore be accompanied by stronger mechanisms for technology transfer, demonstration farms, pilot projects, extension programs, and partnerships with government agencies, cooperatives, and the private sector. The author's example of the double-root technique illustrates this concern: technologies and farming practices developed or studied within research institutions generate limited developmental benefits when they are not effectively disseminated and translated into forms that farmers can readily adopt. Bridging the gap between research and field application should therefore become a strategic institutional priority.

Extension and community engagement likewise deserve greater emphasis. Agricultural extension should not be viewed merely as the dissemination of technical advice but as a continuous process of knowledge exchange between researchers and farming communities. Farmers possess valuable practical knowledge regarding local production conditions, indigenous farming practices, climate variability, and market realities that can enrich scientific research. Universities should therefore promote two-way learning rather than one-way technology transfer. Through regular field visits, community-based participatory research, farmer field schools, digital extension platforms, and long-term institutional partnerships, UP can contribute directly to improving agricultural productivity while ensuring that research remains responsive to local needs (FAO 2021).

UP can likewise make significant contributions to evidence-based policymaking. As an independent academic institution, the University is well positioned to evaluate existing agricultural programs, assess policy effectiveness, conduct impact evaluations, and provide objective recommendations to Congress, national government agencies, and local governments. Policy research should extend beyond technical agricultural issues to encompass land use, food systems, rural finance, industrial policy, environmental sustainability, institutional governance, and regional development. Such interdisciplinary research is essential because agricultural development increasingly requires coordinated solutions that integrate economic, environmental, technological, and social considerations.

Another important role of UP is to strengthen collaboration among government, industry, and academia. Progressive industrial policy recognizes that innovation rarely occurs within a single institution. Instead, technological progress emerges through collaboration among universities, government research agencies, private firms, farmers' organizations, financial institutions, and civil society organizations. UP is uniquely positioned to serve as a convenor of these diverse stakeholders by facilitating research partnerships, innovation networks, technology incubation, policy dialogues, and collaborative problem-solving initiatives. Such partnerships can accelerate knowledge transfer while improving the practical relevance of university research (OECD 2023).

The Progressive Industrial Policy project and its roundtable discussions provide a practical example of this convening role. By bringing together perspectives from academe, government, industry, farmers, and other stakeholders, the RTDs provide a venue for identifying constraints that may not be fully captured by sectoral statistics or policy documents alone. In the case of agriculture, the discussions helped surface concerns regarding fragmented production, difficulties in achieving scale, weak coordination across agricultural value chains, and limited linkages between primary production and downstream processing and manufacturing. Incorporating these stakeholder insights into research and policy development illustrates how the University can connect academic inquiry with practical development concerns and translate dialogue into policy-relevant recommendations.

The University can also contribute to developing the next generation of agricultural entrepreneurs. Agricultural development should no longer be viewed solely in terms of increasing farm production but also in terms of creating competitive agribusiness enterprises capable of generating

employment, increasing value addition, and strengthening domestic industries. Through entrepreneurship education, business incubation, innovation hubs, cooperative development, and industry partnerships, UP can help transform agricultural graduates from job seekers into job creators capable of establishing innovative enterprises throughout the agricultural value chain. This entrepreneurial role is particularly relevant to progressive industrial policy because stronger linkages between agriculture and processing, manufacturing, logistics, and technology will require enterprises capable of converting agricultural resources and scientific knowledge into commercially viable products and services.

Finally, UP has an important responsibility in shaping public discourse on agriculture and industrial development. Universities serve society not only through research and instruction but also by participating actively in national conversations regarding public policy. By organizing policy forums, roundtable discussions, technical working groups, public lectures, and stakeholder consultations, UP can facilitate constructive dialogue among policymakers, farmers, industry leaders, researchers, and civil society organizations. The RTD process undertaken as part of the Progressive Industrial Policy project demonstrates how such engagements can complement academic research by incorporating stakeholder experience into the identification of policy problems and possible interventions. Such engagements strengthen evidence-informed policymaking while ensuring that agricultural policies consider both rigorous research and diverse stakeholder perspectives.

Ultimately, the contribution of the University of the Philippines extends far beyond the classroom or laboratory. By integrating education, research, innovation, extension, technology transfer, entrepreneurship, stakeholder engagement, and evidence-based policymaking, the University can play a transformative role in building a more productive, sustainable, and inclusive agricultural sector. The Progressive Industrial Policy project itself illustrates how these functions can be brought together: research provides the analytical foundation, stakeholder discussions contribute practical insights, and policy analysis translates these inputs into possible directions for agricultural and industrial development. In the context of progressive industrial policy, UP should therefore be viewed not merely as an educational institution but as a strategic national partner in promoting innovation-led agricultural and industrial transformation capable of improving food security, reducing rural poverty, and strengthening long-term national competitiveness.

Conclusion

This case study has argued that the persistent problems confronting Philippine agriculture, particularly the rice sector, are fundamentally structural rather than merely technical or production-related. Low productivity, widespread rural poverty, food insecurity, environmental degradation, fragmented landholdings, inadequate mechanization, weak extension services, limited access to financing, and governance deficiencies are closely interconnected and therefore cannot be addressed through isolated policy interventions. Instead, they require a comprehensive and coordinated strategy that integrates agricultural development with broader industrial transformation.

Using rice production as a case study demonstrates both the challenges and opportunities facing Philippine agriculture. Rice occupies a unique position within the Philippine economy because of its central role in food security, household welfare, employment, and rural livelihoods. Its extensive backward and forward linkages likewise illustrate how agriculture interacts with manufacturing, logistics, research, finance, processing, marketing, and other service industries. Consequently, improving productivity and competitiveness in the rice sector has implications that extend beyond primary agricultural production and into the broader domestic economy.

The review of existing agricultural legislation further demonstrates that the Philippines does not lack laws, programs, or policy instruments intended to support agricultural modernization. Successive administrations have enacted legislation addressing agrarian reform, mechanization, irrigation, agricultural finance, extension services, organic agriculture, market development, and food security. Collectively, these policies provide a broad institutional and policy framework for agricultural transformation. The more fundamental challenge lies in translating these policy intentions into effective implementation through adequate financing, capable institutions, interagency coordination, transparency, accountability, and policy continuity.

The policy recommendations advanced in this paper therefore emphasize a balanced approach that simultaneously pursues productivity, sustainability, and inclusiveness. Raising agricultural productivity remains essential because increasing farm output can contribute to higher farm incomes, greater food security, and improved national competitiveness. However, productivity should not be pursued at the expense of environmental sustainability or social equity. Long-term agricultural development requires healthy soils, sustainable

water use, biodiversity conservation, climate resilience, and farming systems capable of supporting future generations. Progressive industrial policy therefore calls for integrating economic development with environmental stewardship and social development rather than treating these objectives as competing priorities.

Equally important is the recognition that agriculture should no longer be viewed as an isolated sector concerned solely with food production. Modern agribusiness encompasses an extensive network of production, processing, manufacturing, logistics, finance, technology development, marketing, and knowledge generation. Strengthening these linkages enables agriculture to contribute more substantially to industrial development, employment generation, technological innovation, and regional economic growth. In this context, investments in mechanization, research and development, digital agriculture, extension services, postharvest technologies, rural infrastructure, and domestic equipment manufacturing should be viewed not merely as agricultural expenditures but as strategic investments in national productive and industrial capability (United Nations Industrial Development Organization [UNIDO], 2024).

The roundtable discussions conducted under the Progressive Industrial Policy project reinforce this broader perspective. Participants raised concerns regarding fragmented and small-scale production, difficulties in achieving scale, weak coordination across agricultural value chains, and insufficient linkages between primary agricultural production and downstream processing and manufacturing. These stakeholder insights complement the analysis presented in this case study and underscore that increasing agricultural output alone is unlikely to produce the full developmental benefits expected from agricultural modernization. Productivity improvements must be accompanied by stronger producer organization, more efficient value chains, greater processing and value addition, and deeper linkages between agriculture and domestic industry.

The paper likewise underscores the indispensable role of institutions. Effective implementation ultimately depends upon transparent governance, efficient public administration, secure property rights, accountable public institutions, and meaningful collaboration among government agencies, universities, research institutions, farmers' organizations, cooperatives, civil society organizations, and the private sector. Good governance is therefore not simply

an administrative concern but a necessary condition for achieving sustained agricultural productivity and long-term economic development (Acemoglu and Robinson 2012). **For progressive industrial policy, institutional capacity is particularly important because the transformation envisioned in this paper requires coordination across agriculture, industry, trade, science and technology, finance, education, infrastructure, and environmental policy rather than action by a single government agency.**

The University of the Philippines also occupies a strategic position in this transformation. Through education, research, innovation, technology transfer, extension, stakeholder engagement, and evidence-based policymaking, the University can contribute significantly to addressing the structural challenges confronting Philippine agriculture. More importantly, it can serve as a bridge connecting scientific knowledge with public policy and practical applications in farming communities. **The Progressive Industrial Policy project and its roundtable discussions illustrate one way in which the University can perform this role by bringing together research and stakeholder perspectives in the development of policy directions.** Strengthening these linkages can help ensure that knowledge and innovations generated within universities produce tangible improvements in agricultural productivity, rural livelihoods, and national development.

Ultimately, the success of progressive industrial policy should not be measured solely by increases in agricultural production or economic output. Rather, its success should be evaluated according to its ability to reduce poverty, improve food security, generate quality employment, strengthen domestic productive capabilities, protect the environment, and enhance the well-being of Filipino communities. These objectives are mutually reinforcing and collectively define a more inclusive and sustainable model of development.

The recommendations presented in this paper are neither exhaustive nor intended to represent definitive solutions to the complex challenges facing Philippine agriculture. Instead, they are offered as policy directions that may contribute to continuing discussions on how the Philippines can build a more productive, resilient, sustainable, and inclusive agricultural sector. Future research may further examine commodity-specific interventions, regional differences in agricultural performance, institutional innovations, and emerging technologies that can support the country's long-term agricultural and industrial development.

The central argument of this case study is therefore straightforward: improving Philippine agriculture requires more than producing more rice or increasing yields per hectare. It requires building the productive capabilities, institutions, technologies, value chains, and agriculture-industry linkages that allow productivity gains to translate into higher rural incomes, greater value addition, stronger domestic industries, and improved food security. Progressive industrial policy provides a framework for bringing these objectives together by treating agricultural development not as an isolated sectoral concern but as an integral component of the country's broader structural transformation.

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The UP CIDS currently has twelve research programs that are clustered under the areas of education and capacity building, development, and social, political, and cultural studies. It publishes policy briefs, monographs, webinar/conference/forum proceedings, and the Philippine Journal for Public Policy, all of which can be downloaded free from the UP CIDS website.

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The Political Economy Program (PEP) seeks to contribute to building the momentum for development policies and programs that promote domestic production, higher productivity, and the just distribution of development resources. It however also recognizes that such initiatives often fall by the wayside due to factors such as lack of resources and public awareness, policy gaps, vested interests, partisan politics, and the dominance of the free market orthodoxy in policy circles.

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