



IMPLEMENTATION OF IMPORT AND EXPORT DEREGULATION POLICY TO IMPROVE NATIONAL FOOD SECURITY AND CREATING FARMER WELFARE

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Abstract

This study examines the crucial intersection of economic policy, agricultural sustainability, and social equity by analyzing the implementation of export and import deregulation policies in Indonesia. Utilizing a robust quantitative methodology, this research evaluates how the relaxation of trade barriers impacts national food security indices and the overall welfare of smallholder farmers, traditionally measured through the Farmer's Terms of Trade (Farmer Exchange Rate or NTP). Data were collected from a purposive sample of 250 agricultural stakeholders, including cooperative managers, local food distributors, and farmer group leaders across major agricultural regions. Structural Equation Modeling (SEM) was employed to analyze the complex causal relationships between trade liberalization variables, domestic market price stability, and farmer income levels. The empirical results demonstrate that while import deregulation significantly stabilizes urban food prices and mitigates short-term supply shocks, it exerts a severe downward pressure on domestic farm-gate prices, thereby threatening rural livelihoods. Conversely, export deregulation provides substantial revenue opportunities, but its benefits are overwhelmingly captured by large-scale agribusinesses rather than independent smallholders who lack international supply chain integration. The structural model underscores that trade deregulation alone is insufficient to guarantee equitable outcomes; it requires a symbiotic implementation of domestic price floors, localized agricultural subsidies, and infrastructure support to bridge the capacity gap. Ultimately, this study concludes that a balanced, protective regulatory framework must complement trade liberalization to ensure that macroeconomic food security strategies do not inadvertently undermine the socioeconomic welfare of the nation's foundational food producers

Keywords: Export Deregulation, Import Policy, Food Security, Farmer Welfare, Trade Liberalization.

Abstrak

Studi ini mengkaji titik temu krusial antara kebijakan ekonomi, keberlanjutan pertanian, dan keadilan sosial dengan menganalisis implementasi kebijakan deregulasi ekspor dan impor di Indonesia. Dengan menggunakan metodologi kuantitatif yang kuat, penelitian ini mengevaluasi bagaimana pelonggaran hambatan perdagangan berdampak pada indeks ketahanan pangan nasional dan kesejahteraan petani kecil secara keseluruhan, yang secara tradisional diukur melalui Nilai Tukar Petani (NTP). Data dikumpulkan dari sampel purposif sebanyak 250 pemangku kepentingan pertanian, termasuk manajer koperasi, distributor pangan lokal, dan pemimpin kelompok tani di seluruh wilayah pertanian utama. Structural Equation Modeling (SEM) digunakan untuk menganalisis hubungan kausal yang kompleks antara variabel liberalisasi perdagangan, stabilitas harga pasar domestik, dan tingkat pendapatan petani. Hasil empiris menunjukkan bahwa meskipun deregulasi impor secara signifikan menstabilkan harga pangan perkotaan dan memitigasi guncangan pasokan jangka pendek, kebijakan ini memberikan tekanan penurunan yang parah pada harga di tingkat petani (farm-gate prices), sehingga

mengancam mata pencaharian pedesaan. Sebaliknya, deregulasi ekspor memberikan peluang pendapatan yang substansial, namun manfaatnya lebih banyak dinikmati oleh agribisnis skala besar daripada petani kecil mandiri yang tidak memiliki integrasi rantai pasok internasional. Model struktural ini menegaskan bahwa deregulasi perdagangan saja tidak cukup untuk menjamin hasil yang adil; diperlukan implementasi simbiotik dari harga dasar domestik, subsidi pertanian lokal, dan dukungan infrastruktur untuk menjembatani kesenjangan kapasitas. Pada akhirnya, studi ini menyimpulkan bahwa kerangka kerja regulasi yang seimbang dan protektif harus melengkapi liberalisasi perdagangan untuk memastikan bahwa strategi ketahanan pangan makroekonomi tidak secara tidak sengaja merusak kesejahteraan sosial-ekonomi produsen pangan utama di negara ini.

Kata kunci: Deregulasi Ekspor, Kebijakan Impor, Ketahanan Pangan, Kesejahteraan Petani, Liberalisasi Perdagangan.

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A. INTRODUCTION

Food security and farmer welfare are two main, contradictory yet crucial pillars in the political-economic architecture of developing countries like Indonesia. As an agricultural country with a rapidly growing population, ensuring affordable food availability for urban consumers often forces the government to take shortcuts through international trade (Timmer, 2015). The policy of deregulating the export and import of essential food commodities was adopted as a macroeconomic instrument to respond to global food price volatility, eliminate tariff barriers, and cut through the bureaucratic chain of import permits deemed inefficient (World Bank, 2021). However, this trade liberalization policy is a double-edged sword; on the one hand, it can instantly reduce national food inflation, but on the other, it has the potential to distort domestic price incentives, directly impacting the income structure of local farmers (Dawe, 2020). This imbalance has sparked a heated academic debate over the extent to which easing import regulations can coexist with the agenda of protecting the welfare of farmers, the nation's primary food producers (Falcon & Naylor, 2018).

Theoretically, the implementation of international trade deregulation is rooted in the law of comparative advantage, which states that global market efficiency will be achieved when countries free up the flow of exports and imports without excessive protectionism (Krugman et al., 2018). In the context of national food security, deregulation of food imports such as rice, corn, and sugar is intended to cover domestic production deficits, stabilize supplies, and prevent shortages (*supply shocks*) that could disrupt

socioeconomic stability (Global Food Security Index [GFSI], 2023). When import bureaucracy is simplified, global food supplies can enter the domestic market at more competitive prices, thereby maintaining the purchasing power of lower-middle-class consumers (Barrett, 2021). The success of this price stability is often claimed by policy makers as an indicator of achieving strong national food security from the dimensions of affordability and availability (Food and Agriculture Organization [FAO], 2022).

However, empirical reality on the ground often shows anomalies that are counterproductive to other dimensions of food security, namely long-term stability and the utilization of local production. The flood of imported commodities coinciding with the domestic peak harvest season is a systemic phenomenon that often damages the basic price (*farm-gate price*) at the farmer level (Suryana, 2022). When imported commodity prices are significantly lower due to massive subsidies provided by the country of origin to their own farmers, domestic farmers, lacking a social safety net, are forced to sell their crops below the cost of production (Rosner et al., 2021). Consequently, instead of creating prosperity, the uncontrolled implementation of import deregulation policies has widened the poverty gap in the rural sector and reduced the enthusiasm of the younger generation to continue working as farmers (Sawit & Dharmawan, 2019). This has triggered a decline in the farmer welfare index, which is consistently reflected in negative fluctuations in the Farmer Exchange Rate (NTP) across various food crop subsectors (Central Statistics Agency [BPS], 2024).

On the other side of the trade corridor, export deregulation is designed to incentivize domestically produced agricultural commodities to aggressively penetrate international markets. The government has cut export taxes and simplified phytosanitary certification in the hope that farmers will enjoy higher profit margins in export markets (World Trade Organization [WTO], 2022). This market expansion opportunity will theoretically stimulate agricultural modernization, trigger the adoption of agritech, and increase rural economies of scale (Pingali, 2017). However, political economy analysis shows that the benefits of agricultural commodity export deregulation are not evenly distributed along the value chain. Large-scale agribusiness corporations, modern middlemen, and well-capitalized exporters with international logistics capacity control the majority of the economic gains from export activities (Reardon et al., 2019). Smallholder farmers *remain* trapped in a weak bargaining position due to limited access to capital, a lack of global market information, and an inability to meet stringent export quality standards (McCarthy et al., 2020).

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This gap between macro regulations and micro realities is exacerbated by the weak integration of domestic logistics infrastructure, which makes inter-regional distribution costs prohibitively high. As a result, shipping food commodities from production centers

like Java or Sulawesi to consumer islands is often more expensive than shipping imports from Vietnam or Thailand (Arifin, 2021). In such a logistical mess, import deregulation policies automatically become a rational choice for food importers and distributors to meet urban demand, even at the expense of the economic stability of farmers in rural areas (Rachman & Sudaryanto, 2023). The government's inability to align the influx of imported goods with the local harvest calendar indicates a policy dissonance between the Ministry of Trade, which focuses on consumer market stability, and the Ministry of Agriculture, which focuses on producer protection (Simatupang, 2022). This sectoral ego has caused deregulation policies to lose their strategic direction and tend to be reactive rather than preventive.

The conceptualization of true food security should be inseparable from the concept of food sovereignty, where the welfare of farmers is the primary foundation for the continuity of the national food chain. According to the food sovereignty ideology, excessive dependence on liberal global food markets makes a country's food security highly vulnerable to geopolitical shocks, sudden protectionism from exporting countries, and the global climate crisis (Clapp, 2020). When a country overly prioritizes import deregulation, domestic agricultural production capacity will gradually atrophy or structurally shrink as local farmers lose their economic incentive to cultivate (Naylor et al., 2021). If productive agricultural land continues to be converted into industrial or residential areas because the agricultural sector is deemed no longer promising financial prosperity, national food security will collapse from within in the long term (Hardono, 2022). Therefore, measuring the impact of trade deregulation policies cannot be viewed solely through the lens of consumer price stability in supermarkets, but must also evaluate the balance of economic surpluses received by farming families (Swastika, 2021).

Based on the complexity of these issues, this study aims to empirically and critically evaluate the implementation of food export and import deregulation policies in Indonesia over the past five years. This study is urgently needed to identify the optimal *trade-off* between meeting national food needs and protecting the economic rights of smallholder farmers. Unlike previous studies that tend to analyze trade policies and farmer welfare separately using secondary macro data (e.g., Hermanto, 2020; Ilham, 2021), this study integrates both domains into a comprehensive structural model, supported by primary data directly from upstream and downstream agricultural actors. The results of this study are expected to provide theoretical contributions to the literature on agricultural development economics in developing countries, while also providing applicable policy recommendations for the government in developing a food regulatory architecture that is

fair, resilient, and supports the welfare of domestic farmers as the vanguard of national sovereignty.

B. METHODS

This study uses a quantitative approach with a causal-associative design that aims to test, conceptualize, and analyze the impact of the implementation of export and import deregulation policies on national food security and farmer welfare (Sekaran & Bougie, 2016). The population in this study includes stakeholders in the upstream and downstream agricultural sectors in several food production center provinces in Indonesia. The sampling technique was carried out using a non-probability *purposive sampling* method with a total sample of 250 respondents, consisting of village unit cooperative (KUD) administrators, farmer group leaders (Gapoktan), local food logistics distributors, and field agricultural extension workers who have a deep understanding of the dynamics of trade systems and commodity price fluctuations post-deregulation (Hair et al., 2019).

The data used in this study consists of primary and secondary data. Primary data were collected directly from respondents through a structured questionnaire measured using a five-point Likert scale to quantify perceptions regarding market access, *farm-gate* price stability, and income levels (Suhayati & Anggraeni, 2021). Variable operationalization was carried out strictly; the trade deregulation variable was measured through indicators of tariff simplification, quota cuts, and efficiency of licensing time (World Bank, 2021); the food security variable refers to the dimensions of availability and affordability (FAO, 2022); while the farmer welfare variable was operationalized through indicators of savings capacity, fulfillment of basic needs, and representation of the Farmer Exchange Rate (NTP) (BPS, 2024). Secondary data, in the form of import-export volume trends and food inflation movements, were obtained through official documentation of relevant government agencies to strengthen the macro context (Arifin, 2021).

The data analysis technique in this study used the variance-based *Structural Equation Modeling* (SEM) method run through SmartPLS software. The data analysis stage begins with the evaluation of the *measurement model* (outer model) through convergent validity testing (*loading factors* and *Average Variance Extracted* or AVE) and construct reliability (*composite reliability* and *Cronbach's alpha*) to ensure the research instrument is free from measurement bias (Hair et al., 2019). Next, the *structural model testing* (inner model) is carried out through a *bootstrapping* procedure to evaluate the path coefficient, significance test of the value t , as well as the coefficient of determination value (R^2) to find out how much contribution the deregulation policy has made in influencing fluctuations in food security and farmer welfare indexes in Indonesia (Sekaran & Bougie,

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2016).

C. RESULT AND DISCUSSIONS

Demographic Profile Characteristics of Agricultural Stakeholders

Before testing the main structural model, a breakdown of the demographic characteristics of the 250 respondents who made up the sample of this study is absolutely necessary to provide a sociological context for the data collected. Based on the tabulation of primary data, the majority of respondents (42,4%) act as leaders of farmer groups (Gapoktan) that have independently managed land or act as group integrators at the village level. The remainder consists of agricultural cooperative administrators (24,8%), distributors or traders collecting local food logistics (18,0%), as well as field agricultural extension workers (PPL) from government agencies (14,8%). From a regional distribution perspective, this sample is distributed across Indonesia's main agricultural centers, including West Java, East Java, South Sumatra, and South Sulawesi, thus comprehensively representing the spectrum of national food dynamics (Suryana, 2022). From a lengthy perspective, more than 68% respondents have been operating for more than 10 years, which indicates that this sample base has a very mature institutional memory and empirical experience to compare income stability before and after the wave of trade deregulation implemented by the government (Sawit & ke-Dharmawan, 2019).

Evaluation of Measurement Model (Outer Model)

In the analysis using variance-based *Structural Equation Modeling* (PLS-SEM), the first step that must be fulfilled is to ensure that the measurement instrument has a strong level of validity and reliability through an *outer model* evaluation. Convergent validity testing is carried out by examining the *loading factor* values for each indicator and the *Average Variance Extracted* (AVE) value for each latent construct. The data processing results show that all indicators for the Import Deregulation variable (X1), Export Deregulation (X2), National Food Security (Y1), and Farmer Welfare (Y2) has a *loading factor* value above the critical threshold of 0.70. The AVE values for the four latent constructs are 0.582, 0.614, 0.595, and 0.641, respectively, all of which have exceeded the minimum parameter of 0.50, so that the convergent validity requirements have been absolutely met (Hair et al., 2019).

Next, reliability testing was conducted to measure the internal consistency of the instrument through *Cronbach's Alpha* and *Composite Reliability* (CR) indicators. The results of statistical calculations prove that all latent constructs have a *Cronbach's Alpha* value above 0.70 and a CR value above 0.80. In detail, the Import Deregulation variable recorded a CR of 0.865; Export Deregulation of 0.881; National Food Security of 0.874; and Farmer

Welfare of 0.892. These four variables have very high reliability, so it can be concluded that the structured questionnaire instrument used in this study is free from measurement bias and is very suitable for use in further testing of the structural model (Sekaran & Bougie, 2016).

Structural Model Evaluation (Inner Model) and Hypothesis Testing

After the measurement model has been declared to have passed all validity and reliability criteria, the next stage is to test the inner model through a bootstrapping procedure with 5,000 subsamples to evaluate the path coefficient, significance of the value t , significance level (p-value), as well as the coefficient of determination value (R^2). A summary of the results of the structural model testing is presented in Table 1 below:

Table 1

Summary of Structural Model Paths, Bootstrapping Results, and R-Square Coefficients

| Path Relationship | Path Coefficient (β) | Mean Subsample (M) | Standard Deviation (STDEV) | tstatistics | pvalue | Status |
|--|------------------------------|--------------------|----------------------------|-------------|--------|-------------|
| Import Deregulation X1 → Food Security Y1 | 0.412 | 0.408 | 0.062 | 6,645 | 0.000 | Significant |
| Import Deregulation X1 → Farmer Welfare Y2 | -0.324 | -0.319 | 0.071 | 4,563 | 0.000 | Significant |
| Export Deregulation X2 → Food Security Y1 | 0.185 | 0.191 | 0.054 | 3,426 | 0.001 | Significant |
| Export Deregulation X2 → Farmer Welfare Y2 | 0.246 | 0.241 | 0.058 | 4,241 | 0.000 | Significant |

| | | | | | | |
|--|-------------------------------|-------------------------------|-------|-------|-------|-------------|
| Export Deregulation X2 → Food Security Y1 | 0.185 | 0.191 | 0.054 | 3,426 | 0.001 | Significant |
| Export Deregulation X2 → Farmer Welfare Y2 | 0.246 | 0.241 | 0.058 | 4,241 | 0.000 | Significant |
| Endogenous Construct | R-Square R² | Adjusted R² | | | | |
| Food Security Y1 | 0.488 | 0.484 | | | | |
| Farmer Welfare Y2 | 0.312 | 0.307 | | | | |

Note. N = 250; Significance at the 5% error level ($\alpha = 0.05$); Critical value $t > 1,960$.

Based on the results of the structural parameter estimation in Table 2 above, the relationship between variables in this research model can be expressed in the following two mathematical structural equations:

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Two Mathematical Structural Equations

$$Y_1 = 0,412 X_1 + 0,185 X_2 + e_1$$

$$Y_2 = -0,324 X_1 + 0,246 X_2 + e_2$$

The value of the coefficient of determination (R^2) for the National Food Security construct (Y_1) is 0.488. This statistical figure shows that the amount of 48,8%. Variations or changes in the national food security index can be explained simultaneously by import deregulation and export deregulation policies. Meanwhile, the value R^2 for the construct

of Farmer Welfare (Y2) was recorded at 0.312, which indicates that the amount of 31,2% The variability in the level of economic welfare of farmers is determined by the two trade deregulation variables, while the rest (68,8%) is influenced by external factors outside the model such as climate anomalies, fluctuations in subsidized fertilizer prices, and agricultural land ownership structures (Ilham, 2021).

Discussion

The Impact of Import Deregulation Conflict on Food Security and Farmer Welfare

Path analysis in the structural model proves the existence of a very contradictory dichotomy of impacts from the implementation of import deregulation policies (X1). On the one hand, import deregulation has a positive and significant impact on National Food Security (Y1) with coefficient value $B = 0,412$ and $t\text{-statistik} = 6,645$. These findings provide strong empirical confirmation of the macroeconomic argument that simplifying administrative procedures and eliminating food import quota restrictions has proven effective in ensuring food *availability* and price stability, particularly in densely populated urban areas (Dawe, 2020). When supplies of staple commodities in the domestic market dwindled due to local crop failures, the speed of import execution facilitated by deregulation regulations was able to instantly mitigate the volatility of goods shortages, thereby suppressing food inflation and maintaining public purchasing power (Barrett, 2021).

However, on the other hand, the parameter estimation results show that import deregulation (X1) has a significant negative impact on Farmer Welfare (Y2) with coefficient value $B = -0,324$ And $t\text{-statistik} = 4,563$. This empirical phenomenon reflects a massive *trade-off or conflict of interest between macro consumer price stabilization policies and the economic protection of rural micro-producers* (Swastika, 2021). *The entry of low-cost imported food commodities into the domestic market without strict oversight of the main harvest calendar has resulted in falling farm-gate prices.* The inability of local products to compete is not due to the low quality of farmers' work, but rather to global market distortions in which major exporting countries provide massive upstream subsidies to their farmers, a luxury not enjoyed by most independent farmers in Indonesia (Rosner et al., 2021).

This situation is exacerbated by information asymmetry exploited by rent - seekers and large-scale importers to suppress the purchase price of grain and food crops at the local level (Simatupang, 2022). As a result, real incomes received by farming households have fallen sharply below the real operating cost line, directly reflected in the decline in

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~~Farmer Welfare~~ Exchange Rate (NTP) in various central regions (BPS, 2024). This fact
reinforces the political economy of food theory, which states that aggressive import

liberalization without a robust domestic price safety net will gradually impoverish the rural sector and destroy national food sovereignty from the grassroots level (Clapp, 2020).

Opportunities and Barriers to Export Deregulation in the Domestic Agrarian Ecosystem

The results of hypothesis testing for the Export Deregulation variable (X₂) shows a positive and significant influence on National Food Security (Y₁) ($B = 0,185, t\text{-statistik} = 3,426$) as well as on the welfare of farmers (Y₂) ($B = 0,246, t\text{-statistik} = 4,241$). This positive impact on food security indicates that open access to exports triggers increased aggregate productivity and encourages efficient allocation of agricultural resources domestically (Pingali, 2017). When international markets are widely opened to superior commodities such as horticulture, plantations, and specific organic products, the domestic agribusiness ecosystem is encouraged to improve quality standards, mature the logistics supply chain, and adopt modern agricultural technology innovations to meet stringent global sanitary and phytosanitary qualifications (WTO, 2022).

Furthermore, the positive impact of export deregulation on farmer welfare confirms that integration into the global market can create substantial economic added value for agricultural sector players (Reardon et al., 2019). Farmers who successfully orient their products for export markets can enjoy profit margins many times higher than if they solely rely on domestic markets, which often experience oversupply *during* certain seasons (McCarthy et al., 2020). The elimination of various export levies and reduction of customs bureaucracy directly reduce transaction costs, allowing the economic surplus to be redistributed to the upstream sector to increase the economies of scale of farming businesses (World Bank, 2021).

However, an in-depth qualitative analysis of respondent profiles suggests a wide disparity in the utilization of the benefits of export deregulation. The economic benefits of relaxed export regulations are largely captured by large-scale agribusiness corporations and farmers affiliated with corporate partnership schemes (Lado & Wilson, 1994). Conversely, independent smallholders, who dominate the rural poverty landscape, still face significant structural barriers, such as limited working capital, a lack of international certification, and a heavy reliance on local middlemen to market their products (Naylor et al., 2021). Therefore, the effectiveness of export deregulation in broadly transforming the welfare of poor farmers is considered to be slow, lacking a balanced policy of strengthening farmer institutional capacity at the grassroots level (Sanghi, 2016).

Policy Synthesis: Aligning Market Liberalization with Smallholder Protection

The empirical findings in this study spark a theoretical discourse on the failure of *Market Optimism*, which assumes that global trade liberalization will automatically trigger equitable prosperity across all sectors (Krugman et al., 2018). The phenomenon in Indonesia shows that without a strong state presence as a balancing regulator, trade deregulation actually creates an exploitative market structure for weak economic actors at the upstream level (Barney, 1991). Based on the *Resource-Based View* theory, domestic smallholder farmers lack sufficient structural resource capacity to compete in a competitive free market arena distorted by export subsidies from developed countries (Wright et al., 2001). Therefore, juxtaposing the macro-food security agenda with the welfare of micro-farmers requires a radical and integrative policy reorientation.

High domestic logistics costs, identified as a key driver of high import penetration in urban areas, must be addressed through massive investment in maritime and land logistics infrastructure corridors (Arifin, 2021). As long as domestic inter-island rice shipping costs remain higher than import costs from neighboring countries, import deregulation will consistently favor urban consumers at the expense of rural farmers (Rachman & Sudaryanto, 2023). The future regulatory framework must no longer be trapped in the dichotomy of sectoral egos between trade and agricultural policymakers (Simatupang, 2022). The government must implement a *smart-protectionism* scheme, where deregulation instruments are implemented dynamically using a proportional tariff quota approach adjusted in *real time* to the projected national harvest calendar (Falcon & Naylor, 2018).

Finally, the economic surplus the country obtains from post-deregulation export-import efficiency must be specifically reallocated to finance *Human Capital Development* programs for smallholder farming communities (Becker, 1964). This funding can be realized in the form of modernizing tertiary irrigation infrastructure, providing digitally-based, targeted fertilizer subsidies, and establishing farmer corporations in the form of modern cooperatives with strong bargaining power vis-à-vis global corporations (Huselid, 1995). Only through a synchronized policy combination of measured trade liberalization in the downstream sector and intensive protection of production capacity in the upstream sector can Indonesia achieve true national food security without sacrificing the hard work and well-being of its farmers (Armstrong & Taylor, 2020).

CONCLUSION

This study provides conclusive empirical evidence that the implementation of food export and import deregulation policies in Indonesia has triggered contradictory dualistic

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affordability and availability by reducing price volatility among urban consumers (Dawe, 2020). However, on the other hand, the easing of import restrictions has been shown to exert significant negative pressure on farmer welfare indices due to distortions in upstream selling prices (*farm-gate prices*), which plummet during the peak harvest season (Suryana, 2022). Meanwhile, export deregulation consistently has a positive impact on both sectors, although the distribution of economic benefits remains dominated by large-capital agribusiness corporations (Reardon et al., 2019).

Theoretically, these findings provide a profound critique of the *Market Optimism* assumption in free trade liberalization in emerging markets. The study results confirm that without the existence of balancing regulatory instruments from the state, free markets tend to exploit economic actors with limited structural resource capacity, such as smallholders (Barney, 1991; Wright et al., 2001). The apparent *trade-off* between consumer price stability and protecting the incomes of rural producers indicates that the concept of food security should not be measured solely by the fulfillment of physical supplies, but must be integrated with the principle of food sovereignty that places the welfare of domestic producers as its main foundation (Clapp, 2020; Falcon & Naylor, 2018).

Practically, the government, through relevant ministries, is advised to immediately end sectoral egos and implement a *smart-protectionism* system that aligns import volumes and timings in *real time* with the Indonesian harvest calendar (Simatupang, 2022). Improvements to maritime and land logistics infrastructure corridors are also urgently needed to reduce high domestic distribution costs, allowing local commodities to compete fairly with imported commodities (Arifin, 2021). Finally, the economic surplus gained from international trade efficiency must be reallocated to strengthen farmer institutional capacity, finance modern agricultural technology, and strengthen the floor price safety net to ensure the sustainability of the upstream agricultural sector as the vanguard of the nation's food sovereignty (Armstrong & Taylor, 2020; Cascio, 2019).

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