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POLICY BRIEF

YOUNG ECONOMISTS' PERSPECTIVE

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Impact of Agricultural Trade Liberalization on Food Consumption Patterns in the Philippines

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The study analyzed the relationship between agricultural trade measures, through tariff and non-tariff measures (NTMs), and Filipino household expenditures shares for rice, meat, fish, and dairy & eggs from 2009 to 2021 using the Seemingly Unrelated Regression and Almost Ideal Demand System. Estimates revealed that fish and rice are necessities for all deciles, while meat and dairy & eggs are luxuries for the bottom 60% and 30%, respectively. Tariffs are negatively associated with meat, fish, dairy & eggs while positively associated with rice. Import NTMs were associated with an increase in all food shares, while export NTMs were linked to an increase in meat and fish and a decrease in rice and dairy & eggs. Welfare changes, measured by Compensating and Equivalent variation, showed that higher price reductions led to higher increases in expenditure shares, especially for the bottom 20%. Our findings suggest promoting trade openness to enhance food availability and affordability for households.

Policy Recommendations

In developing the recommendations for policy, the study divided the discussion into three parts to outline the specific action plans of the involved economic agents and their roles in effectively implementing the recommended strategies. These segments include (1) government, (2) stakeholders, which comprise

farmers and agro-producers/suppliers, and (3) future researchers. Therefore, the researchers recommend the following policy implications:

1. The government must focus on improving regional and/or free-trade agreements

The government's role is crucial in adapting regulatory frameworks for agricultural trade. The Philippines should focus on trade creation reforms through regional and free trade agreements (RTAs and FTAs). Current FTAs aim to negotiate non-tariff measures (NTMs) for imports. To benefit from these measures and lower costs, it is recommended to enhance cooperation and compliance capabilities. Effective negotiations can reduce or eliminate tariffs and barriers, especially benefiting lower-income groups by making food more affordable.

2. The government must negotiate NTM clauses within the RCEP

The Philippines' involvement in the Regional Comprehensive Economic Partnership (RCEP), which supports tariff liberalization among ASEAN members, highlights the need for improved NTM compliance. This approach aligns with CGE model estimations by Cororaton et al. (2021), that lower-income households benefit from tariff and non-tariff reductions, potentially improving market efficiencies and food security.

3. Agri Stakeholders (agribusinesses, farmer cooperatives) to actively engage in National Food Hubs

To enhance competitiveness and operationalize trade liberalization domestically, agribusinesses and farmer cooperatives should actively participate in the system of National Food Hubs. These hubs streamline food distribution, reduce reliance on intermediaries, and improve logistics for both local and imported produce. By consolidating distribution networks and improving access to storage and facilities, National Food Hubs make trade liberalization policies more effective on the domestic level. This approach lowers market prices, increases food accessibility, and boosts farmer incomes. Engaging in this initiative allows stakeholders to contribute to a more efficient food system, aligning with trade liberalization goals and benefiting both producers and consumers.

Introduction

Agriculture has been a cornerstone of the Philippine economy for decades, significantly contributing to exports and national income (Senate Economic Planning Office, 2012; Mopera, 2016). Despite abundant agricultural resources, a substantial proportion of the population experienced moderate to severe food access shortages, making the Philippines the most food-insecure country in Southeast Asia (CNN, 2020). The sector's growth was limited by technological issues, leading to low productivity and high costs (Galang, 2019). This resulted in a reliance on imports and reduced domestic output (International Trade Administration, 2024). To protect the domestic sector, the government implemented various trade policies, including tariff and non-tariff measures.

A study by the National Food Research Institute (NFRI) reported that trade policies significantly affected Filipino households' average daily per capita food consumption of rice, meat, fish, and dairy & eggs (Figure 1). While these measures aim to ensure a sustainable food supply, they can also lead to rising prices of food commodities, impacting consumption patterns, especially for low-income households. Therefore, the primary objective of this research is to investigate the impact of agricultural trade liberalization on household food consumption patterns across income decile groups in the Philippines.

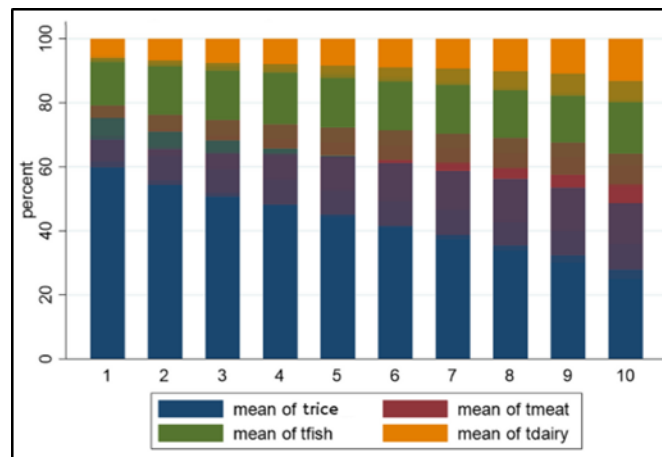


Figure 1: Average Food Expenditure Per Income Decile

Model Specification and Results

The study employed several models to analyze household food expenditure patterns and the effects of trade liberalization. The base panel regression, inspired by Sunge and Ngepah (2022), examined expenditure shares for different food groups across income deciles. It incorporated variables for household

characteristics, trade variables, and food prices, using a pseudo-panel approach to address inconsistencies in longitudinal data.

To handle contemporaneous correlations among related equations, the study applied the Seemingly Unrelated Regression (SURE) model. This model estimates multiple equations simultaneously, considering changes in household food expenditures may be related. The Quadratic Almost Ideal Demand System (QUAIDS), extending the AIDS framework, introduced quadratic elements for non-linear demand curves and incorporated sociodemographic factors. The QUAIDS model, along with Generalized Almost Ideal Demand Systems (GAIDS), adapted Linear Expenditure Systems (LES) to reflect price and income dependencies in food expenditure. Finally, the study utilized compensating and equivalent variation methodologies to measure welfare changes due to price variations based on estimates from the QUAIDS model.

Regression Analysis (SURE)

The SURE regression analysis demonstrated that non-tariff measures (NTMs) and specific tariff values (STVs) significantly influenced food expenditures across household income deciles. For rice, import-related NTMs led to higher expenditures across all deciles, especially the lowest ones, while export-related NTMs had the opposite effect. Tariffs raised rice costs, leading to increased expenditure shares, particularly in Decile 4.

In the case of meat, higher-income deciles were more affected by tariffs, which reduced their meat expenditure shares. Generally, NTMs increased meat expenditure, except in Deciles 1 and 9. Fish expenditure decreased with higher tariffs but increased with import-related NTMs, indicating strong demand despite regulatory barriers. Export-related NTMs also had a positive but smaller effect on fish expenditure. For dairy and eggs, tariffs mostly reduced expenditure shares, with Decile 9 being an exception. Import-related NTMs boosted expenditures in most deciles, notably Decile 8, while export-related NTMs generally led to decreased spending.

Overall, NTMs and STVs played crucial roles in shaping food expenditure patterns. Lower-income households were more sensitive to these measures, particularly for staple foods like rice, while higher-income households showed varied responses depending on the type of food and measure implemented.

QUAIDS

The QUAIDS findings are determined to identify any interdependencies in household consumption behavior across deciles. The results are measured through elasticities. Rice consumption varied across income groups, with all deciles regarded as an essential staple. The lower 60% of households showed a positive correlation between rice price and expenditure share, indicating a strong reliance on rice despite price increases. The upper 50% demonstrated a negative relationship, spending less on rice as its price rose, likely due to a more varied diet.

Meat and fish prices influenced rice expenditure, showing interdependencies. For the bottom 60%, meat was considered a luxury with elastic demand, leading to reduced expenditure when prices rose. Fish consumption was generally price-inelastic but showed sensitivity among higher-income groups (Deciles 7 and 8).

Dairy and eggs, treated as substitutes for meat by lower-income households and complements for rice by higher-income groups, exhibited varied expenditure patterns based on price changes and income levels.

Compensating & Equivalent Variation

Changes in consumer welfare are captured in the results of the compensating and equivalent variations (Figure 2). The findings are indicative of higher welfare gains for households in the bottom 20% of the income distribution (deciles 1 and 2) given tariff reductions across all commodities, particularly fish and dairy & eggs. This indicates that more liberalized trade measures, such as 30% and 50% tariff reductions, significantly improve the welfare of Filipino households, especially the lower-income ones, by reducing prices and increasing consumption. Notably, decile 2 households see a 152.5% welfare improvement in dairy & eggs due to a higher initial consumption share.

For rice and meat, welfare changes are positive across all income deciles, with higher-income households (deciles 9 and 10) benefiting more due to greater price reductions. This suggests that while lower-income households gain significantly from price reductions in essential commodities, higher-income groups see more substantial welfare improvements in meat. The lower welfare increase for the bottom 20% in rice may be due to their more diversified food consumption. Overall, Figure 10 illustrates that lower-income groups (deciles 1 and 2) exhibit greater welfare gains across all food commodities. These findings align with existing literature, indicating that lower-income households allocate a significant portion of their budget to staple foods and benefit more from price reductions, enhancing their overall welfare

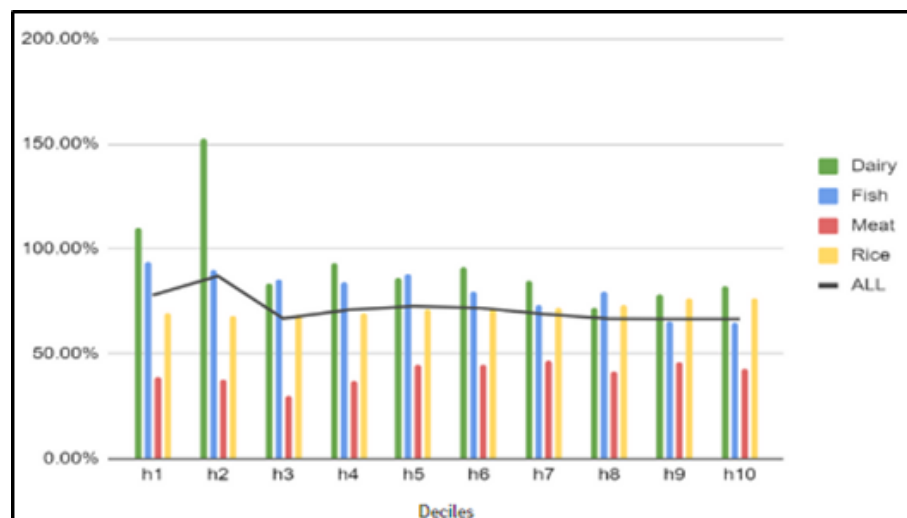


Figure 2. Change % in Consumer Welfare for Overall and Each Food Commodity

Conclusion and Recommendations

Our estimates revealed trade measures in the agriculture sector, particularly tariffs, are negatively associated with meat, fish, dairy & eggs while positively associated with rice. Import NTMs were associated with an increase in all food shares, while export NTMs were linked to an increase in meat and fish and a decrease in rice and dairy & eggs.

Hence, the welfare changes, measured by Compensating and Equivalent variation, showed that higher price reductions led to higher increases in expenditure shares, especially for the bottom 20%. Hence, the findings suggest promoting trade openness to enhance food availability and affordability for households. This underscores how adjustments in trade policies influence food consumption patterns across income groups, highlighting the need for targeted policy measures.

The government should improve regional and free trade agreements (RTAs and FTAs), negotiating NTMs to lower costs and make food more affordable, especially for lower-income groups. Additionally, the Philippines' participation in the Regional Comprehensive Economic Partnership (RCEP) requires better NTM compliance to enhance market efficiencies and food security. Agribusinesses and farmer cooperatives should actively participate in National Food Hubs to streamline food distribution, reduce reliance on intermediaries, and improve logistics for local and imported produce. This initiative lowers market prices, increases food accessibility, and boosts farmer incomes. Implementing these recommendations can enhance

food availability and affordability, positively impacting household food consumption across income decile groups.

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