



IATRC

INTERNATIONAL AGRICULTURAL
TRADE RESEARCH CONSORTIUM

Policy Brief

Regional Integration, Sustainability and Food Security in South Asia

Munisamy Gopinath, Poornima Varma, and Sandro
Steinbach

October 14, 2024

IATRC Policy Brief #PB2024-10



Regional Integration, Sustainability and Food Security in South Asia

Munisamy Gopinath, Poornima Varma, and Sandro Steinbach

South Asia – encompassing Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka – faces pressing challenges related to food security and sustainability. With a population exceeding one-fourth of the global total, the region has the highest number of undernourished people worldwide, accompanied by low per capita gross domestic product (GDP). Additionally, the region’s agricultural sustainability is threatened due to declining freshwater resources and arable land, further strained by the impacts of climate change. Regional integration within South Asia has been limited, with high tariffs and geopolitical tensions hindering economic cooperation, which have restricted the potential for growth and efficiency gains to alleviate food insecurity. Globally, shifting trade dynamics and environmental concerns add layers of complexity, making it imperative for South Asia to explore new pathways for sustainable agricultural and economic development. This policy brief summarizes the proceedings of the 2024 IATRC Summer Symposium, held on August 2nd under the auspices of the International Conference of Agricultural Economists (ICAE), New Delhi. Drawing on keynote addresses, contributed papers and a panel discussion at the Symposium, this brief examines the potential for economic integration to drive growth, improve food security, and foster sustainable agricultural practices, offering insights into the challenges and opportunities that lie ahead for South Asia.

Food security remains a challenge in South Asia since GDP per capita averaged US\$ 2,308 in 2023, the second-lowest among all regions as per the World Bank’s World Development Indicators. Moreover, this region holds the largest number of undernourished people (281 million or 13 percent of the population in 2023) according to the Food and Agriculture Organization.

Simultaneously, sustainability of agricultural production with a changing climate has emerged as an additional challenge in recent times. For instance, South Asia’s renewable internal freshwater resource per capita has fallen from over 3000 to about 1000 cubic meters between 1961 and 2020, accompanied by a 68 percent decline in arable land (hectares) per person (World Development Indicators).

Collectively, this region has high average tariffs on agricultural and non-agricultural goods (World Trade Organization). Formal agreements on economic integration, regionally and globally, have been limited, affecting a key pathway to efficiency and productivity growth with implications for both food security and sustainability.



Box 1: The South Asian Context

¹ Distinguished Professor of Agricultural Marketing, Department of Agricultural and Applied Economics, University of Georgia. *Corresponding author: m.gopinath@uga.edu.

² Assistant Professor, Center for Management in Agriculture, Indian Institute of Management Ahmedabad.

³ Associate Professor and Director, Center for Agricultural Policy and Trade Studies, Department of Agribusiness and Applied Economics, North Dakota State University.

Economic Integration and Food Security

In the morning keynote, **Dr. David Laborde**, Director of the Agri-Food Economics Division at the Food and Agriculture Organization (FAO), provided an overview of the global food security situation, and contrasted it with that in South Asia.¹ Across measures – chronic hunger, chronic food security and unaffordability of healthy diets – and across surveys – food balance-sheet based and food insecurity experience scale – the global food security situation has worsened since the middle of the 2010-20 decade.¹ An additional 152 million people were added to the ranks of undernourished since 2019, according to FAO. Interestingly, this is not a food availability problem since global food supply in the aggregate and on a per capita basis have grown significantly over the past two decades. Structural changes such as a slowdown of agricultural productivity and rising inequalities (more so in low-income countries) interacting with disruptive forces of climate change and conflicts are likely reasons for the deterioration in the other three pillars of food security: access, stability and utilization.



Figure 1: Trade as a Catalyst and Accelerator

Arguing that trade is a catalyst and accelerator for change, Dr. Laborde dispelled several myths about food security and dependency on food imports. Trade is not only critical to medium- and long-term growth prospects but also serves to absorb short-term shocks. For example, when Sri Lanka faced an economic shock with shortage of many staples during 2021-22, rice imports from India alleviated hunger. The recent episode of export restrictions is another case in point: food price inflation and weather conditions tend to be key sources of such restrictions, but their consequences, i.e., high food prices, mostly affect low-income countries, including those in South Asia. Dr. Laborde concluded that trade based on comparative advantage, rules and trust will greatly aid in reversing the worsening global and South Asian food security situation.

Several contributed papers also delved deeper into the trade and food security nexus in the South Asian and broader contexts. **Dr. Bharat Ramaswami** (Ashoka University, New Delhi, with co-author **Sutirtha Bandyopadhyay**, IIM Indore) presented his findings on the spatial welfare effects of India's edible oil imports, which unlike other food and agricultural commodities, has witnessed a dramatic change in import volume accompanied by a drastic decline in border price. That is, the share of imported edible oil, primarily palm oil, in total consumption has increased to about 60 percent, while border prices fell by 37 percent over the past two decades. Should the Indian policymakers be concerned about the spillover effects on raw oilseed production (not imported due to SPS barriers), agricultural employment and wages? Employing the share of oilseeds in cultivated area as representing trade exposure, Dr. Ramaswami, examined the pass-through of border prices to domestic prices, real agricultural wages, agricultural employment and a few other welfare indicators.

⁴ According to FAO, Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

⁵ Progress towards SDG 2.1.1 "By 2030, end hunger and ensure access to all" has been rated as moderate distance to target by FAO <https://www.fao.org/sustainable-development-goals-data-portal/data/indicators/2.1.1-prevalence-of-undernourishment/en>.

The district-level data used in the study come from the National Sample Survey Organization (NSSO) employment and consumer expenditure surveys (1993-94 to 2011-12). Results show that border price transmission was greater in areas specializing in oilseeds, but the analysis did not uncover significant differences in pass-through to wages. Producers adjusted their cropping pattern, i.e., relative to areas that do not grow much oilseeds, the oilseeds area in regions that grow it came down in response to the decline in border price. While the data did not permit a direct examination of employment shifts within agriculture, the observed strong production impacts may have muted the wage impact. He concluded that, on average, import competition compressed edible oil prices but did not leave a statistically significant impact on wages or agricultural employment; as such, significant benefits accrued to Indian consumers from edible oil imports via the availability and access pillars of food security.

Drs. Poornima Varma and Vidya Vemireddy, and Ms. Drishti Sharma (Indian Institute of Management Ahmedabad) examined the impact of trade openness on the nutrition transition from cereals to non-cereals in India in recent years, i.e., between 2014 and 2018. As a fast-growing, emerging economy with a sizable middle-class, understanding India's nutrition transition and the underlying factors has implications for South Asia and other developing countries. They employed the Consumer Pyramids Survey (Centre for Monitoring Indian Economy) along with UN's COMTRADE and Government of India data to estimate a dynamic panel model of expenditure shares of cereals, non-cereals, total food, pulses, edible oil, meat, fish and eggs, and fruits and vegetables. The hypothesis here is that changes in consumption arise from per capita income and relative price changes, attributable to trade openness. As expected, the results showed that trade openness has a statistically significant and positive impact on the consumption expenditure shares of all food items, except cereals. That is, trade openness positively and significantly affected the consumption of non-cereals, pulses, edible oil, meat, fish and egg, fruits and vegetable consumption expenditures. Total food consumption also increased because of trade openness. In the case of cereals, trade openness resulted in a decline in consumption expenditure because of the availability of a large variety of non-cereal food items. They find that cereal consumption is price elastic, i.e., a 1 percent increase in in cereal prices resulted in the decline of cereal consumption by 23 percent. Unlike other studies, an increase in income by 1% resulted in a decline in cereal consumption by 2.3 percent. For two essential food items, pulses and edible oil – in which India is heavily dependent on imports – trade openness enhanced their domestic consumption. The findings show that a dietary transformation is taking place in India due to trade openness and the major channels through which the changes are taking place are per capita income and relative prices. The broad implication here is that in addition to improving availability and access of food, trade likely improved the nutritional quality of Indian diets (utilization pillar).

Dr. Sangeeta Bansal (Jawaharlal Nehru University, New Delhi, and co-author **David Zilberman**, University of California Berkeley) reminded the audience about the need for a broader focus on nutritional status beyond the trade and availability/access links. Her presentation highlighted the rising global obesity trends and their implications, particularly in low and middle-income countries, where the prevalence of obesity and associated non-communicable diseases like diabetes and hypertension is increasing rapidly. Results from her study, using data from 183 countries during 2000-2016, show that life expectancy generally decreases as body mass index (BMI) moves away from the optimal range, forming a concave relationship. This relationship varies significantly between OECD and non-OECD countries, and between men and women, suggesting that socioeconomic factors and gender play critical roles in health outcomes related to BMI. For instance, the turning point for BMI, where life expectancy starts to decline, is around a BMI of 25. The findings also reveal significant regional differences; for instance, while the Maldives has surpassed the healthy BMI range, leading to potential future losses in life expectancy, countries like India and Bangladesh continue to suffer from the negative effects of low BMI. The study also finds that health expenditure positively impacts life expectancy, with more pronounced effects on women in developing countries and men in developed countries. The economic and social costs of malnutrition, both underweight and overweight, call for differentiated strategies, both across and within countries, to effectively address the unique challenges posed in these contexts. The broader understanding of how macroeconomic factors like health expenditure interact with BMI to influence life expectancy offered valuable insights for South Asian policymakers and beyond.

With South Asia and India playing a large role in global food markets (large exporters of rice and tropical products as well as large importers of edible oil and pulses), **Dr. Erwin Corong** (Purdue University, along with **Munisamy Gopinath**, University of Georgia, Athens) offered insights on additional economic integration options for SAARC countries to grow their per capita incomes further. The South Asian Free Trade Area (SAFTA) agreement, established in 2006, aimed to reduce tariffs and enhance economic cooperation among SAARC nations. However, the effectiveness of SAFTA has been a subject of debate. Studies suggested that while SAFTA has led to some welfare gains, particularly for larger economies like India, it has also resulted in trade diversion effects, which may reduce overall regional welfare. Additionally, non-tariff barriers and high intraregional trade costs have limited the potential for deeper economic integration. Using computable general equilibrium (CGE) modeling, Dr. Corong laid out the impact of deeper integration within SAFTA. This analysis further confirmed that deeper SAFTA's benefits are relatively small and unevenly distributed among member countries. He then explored the potential benefits of integration beyond SAFTA. Results suggest that integrating with other regional economies, such as those in Southeast Asia (ASEAN) or East Asia (RCEP), could lead to more significant gains for SAARC countries. Improvements in trade facilitation, infrastructure, and policy reforms could further amplify these benefits. The overall conclusion is that while SAARC has made some progress in regional economic integration, much more must be done to realize the potential benefits fully.

Broadly classifying the efforts to address those three challenges into individual and bundled strategies, Dr. Birthal provided insights into their welfare consequences. Irrigation and insurance offered downside risk protection, but such benefits waned over time for the former but were highly variable for the latter. Crop diversification offered various benefits: higher productivity and lower risk, especially in arid and semi-arid regions. Furthermore, bundling these strategies offered increased productivity and lower risk relative to employing them individually. Dr. Birthal emphasized the critical need for climate finance in advancing these strategies: adopt new technologies and remunerative cropping patterns, invest in soil and water conservation, and purchase new inputs (and combinations thereof). He further argued for better valuation of ecosystem services from improved agricultural practices to help re-purpose support to agriculture. Specifically, agricultural support should be directed towards micro-irrigation, fertilizer use as per the soil health card program, and payments for ecosystem services. Dr. Birthal pointed out the declining support for agricultural R&D and the need to invest in technologies for climate resilience. To meet the dual mandates of food security (all four pillars) and sustainability, agriculture would need a lot more resources than currently deployed.

Building on the sustainability theme, **Dr. Arpita Mukherjee** (*Indian Council for Research on International Economic Relations*, New Delhi) laid out the variety of programs, schemes, and projects under the sustainable “food” systems umbrella, again in the context of India, but certainly applicable to the broader South Asian context. India is a leading producer and exporter of agricultural products, particularly in categories like milk, rice, pulses, and spices, with exports reaching over 70 countries. Unsurprisingly, India invested in the sustainable food production agenda while embracing the EU’s farm-to-fork and aligning with the United Nations’ Agenda 2030. Dr. Mukherjee touted several government initiatives, such as the National Mission for Sustainable Agriculture (NMSA), Pradhan Mantri Krishi Sinchai Yojana, and Blue Revolution, to promote sustainability in agriculture, fisheries, and water management. Additionally, she highlighted state-level efforts, including Sikkim’s 100% organic policy and various other regional schemes that focus on organic farming, animal health, and nutrition. However, she also identified significant challenges hindering the full realization of sustainable food systems in India. These include coordination issues between agencies, unclear regulations, insufficient budget allocations, and gaps in infrastructure. For example, remedies to trade-related challenges, such as product rejections in key export markets, require multiple bureaucracies, and there are limited interactions on sustainability even with neighboring South Asian countries. Dr. Mukherjee recommended a strategic shift from sustainable agriculture to a more integrated sustainable food system approach to address these issues. This would involve closing existing bureaucratic gaps, continued funding, enhancing trade interactions, and positioning India as a stronger player in the global food system, especially in South Asia.

Drs. S.J. Balaji and R. Sendhil (respectively at the National Institute of Agricultural Economics and Policy, New Delhi, and Pondicherry University, Puducherry) examined how climate variability, particularly temperature changes, affected agricultural productivity, GDP, and food security in India. Their study highlighted the significant impacts of both global and idiosyncratic temperature components on agricultural GDP across different Indian states. Their analysis used historical data from 1971 to 2014 and projected future trends until 2050. Results showed that the systemic temperature component, which refers to the broader, more predictable changes in temperature due to global climate change, is the most significant factor influencing agricultural GDP. This systemic component, along with distinctive, state-specific temperature variations, creates a complex climate impact profile that varies widely across different regions of India. While some states exhibit positive impacts, others show adverse effects due to temperature variations, indicating a heterogeneous impact across regions. Overall, the findings underscore the critical need for policies that address the diverse and region-specific challenges posed by climate change to ensure sustainable agricultural growth and food security in India.

Panel Discussion

After several hours of keynotes and contributed papers, a panel discussion followed with lead-off comments from **Dr. David Laborde**, **Dr. Sangeeta Bansal**, and **Dr. Sachin Kumar Sharma** (Center for WTO Studies, Indian Institute for Foreign Trade, New Delhi). The discussion centered around the complex interplay between trade, sustainability, and food security, specifically focusing on South Asia, particularly India. The panelists’ comments revolved around the challenges of regional integration, climate change’s role, food security policies’ intricacies, and the potential for policy innovation in India.

On trade, Dr. Laborde emphasized the importance of regional integration in South Asia, drawing parallels to the European Union’s integration efforts. He noted that India, given its economic power, has the potential to lead regional integration. However, this leadership would require India to accommodate the priorities of its neighbors and promote solidarity. The discussion also touched on the challenges posed by asymmetry in economic power within regions, such as the dominance of India in South Asia, Brazil in Latin America, and Nigeria in West Africa. He further suggested that a model for integration needs to be invented, as current structures are insufficient for real integration. On sustainability, Dr. Laborde highlighted the uncertainty surrounding climate outcomes by 2050 and the need for policies that allow flexibility and adaptability. He advocated for trade to manage this uncertainty, as it provides the flexibility necessary to adjust to changing conditions. The discussion also pointed out the differences in climate impacts across regions in India, with some areas already facing severe challenges while others are less affected.

Dr. Sangeeta Bansal focused on the multifaceted nature of food security, emphasizing that it goes beyond mere availability to include aspects of nutrition, health, affordability, and access. Despite the Green Revolution's success in increasing productivity, hunger and malnutrition persist in several parts of the world. Dr. Bansal stressed the importance of addressing food waste and post-harvest losses, particularly in developing countries lacking infrastructure and storage facilities. The discussion also explored the political economy of food security policies. Dr. Bansal pointed out the difficulties in changing entrenched policies, such as India's Minimum Support Price (MSP) system.

Dr. Sharma focused on regional integration, sustainability, and food security challenges within SAARC countries, particularly highlighting the complexities in India's trade and agricultural policies. For instance, export restrictions, often imposed by India during crises to protect domestic food security, are necessary trade tools. The inconsistency in global trade policies, where importing countries impose high tariffs in normal times but reduce them during crises, exacerbates these challenges. Additionally, the repurposing of agricultural subsidies is contentious, with concerns about the feasibility of eliminating minimum support prices and other subsidies in India due to their deep entrenchment in the political economy. He claimed that while global trade rules exist, each country tailors its agricultural policies to its socio-economic realities, making reforms difficult without comprehensive and balanced approaches that consider all dimensions of sustainability.

Responding to audience questions, the panelists discussed the potential for policy innovation in India, particularly moving away from MSP towards more sustainable and equitable systems like Direct Benefit Transfers (DBTs). However, this transition faces significant challenges, including the political economy and the need for extensive stakeholder engagement. The discussion highlighted the importance of designing socially, economically, and environmentally sustainable policies. The idea of monetizing the MSP and fertilizer subsidies and replacing them with DBTs was also proposed to support farmers while reducing market distortions. The discussion also touched on the role of trade in ensuring food security. The panelists acknowledged that trade could have both positive and negative effects, benefiting consumers while potentially harming farmers in the case of imports (and the opposite for exports). The need for a balanced approach that considers the well-being of both consumers and producers was emphasized. The importance of trust and cooperation between countries in maintaining a stable and fair global trade system was also discussed, with the panelists calling for creative thinking to address the current challenges in international trade governance.

Summary

In summary, the Symposium addressed the critical challenges of regional integration, sustainability, and food security in South Asia. Home to one-fourth of the world's population, this region has the second-lowest GDP per capita globally and the largest number of undernourished people, making food security a pressing concern. Compounding these issues is the declining sustainability of agricultural production, exacerbated by climate change, as evidenced by the significant reduction in per capita freshwater resources and arable land.

The Symposium explored the role of economic integration in enhancing sustainable food security. However, progress within SAARC has been hampered by geopolitical tensions, and global trends such as the U.S.-China trade war and Brexit have further constrained regional and global integration. Trade facilitation and infrastructural constraints also limited intra-SAARC trade. The symposium highlighted that while trade is a catalyst for growth and a buffer against shocks, it also requires trust and fair practices among countries. Key presentations emphasized the importance of policy innovation in India, particularly transitioning from entrenched systems like minimum support prices to more equitable mechanisms like direct benefit transfers. Such changes, while crucial for supporting farmers and reducing market distortions, require in-depth analysis of impacts on agricultural productivity and investment; and implementation and budget feasibility. Additional challenges for these reforms include their political economy and the need for extensive stakeholder engagement.

The Symposium also underscored the urgent need to address climate change and sustainability, focusing on extreme events and resource degradation in South Asia. The discussion advocated a holistic approach integrating agricultural support, climate finance, and ecosystem services to ensure long-term sustainability. There was broad agreement on a balanced approach that considers the socio-economic realities of South Asian countries, promoting regional cooperation, trade, and sustainability to achieve food security. The emphasis is on innovative, adaptable policies that address the complex interplay between trade, climate change, and food security.

Acknowledgments

We gratefully acknowledge financial and in-kind support from the International Agricultural Trade Research Consortium, University of Georgia, Indian Institute of Management Ahmedabad, and North Dakota State University. Sincere thanks to our keynote speakers for setting the agenda, and contributed-paper speakers, panelists and moderators for their thoughtful and supportive contributions. Special thanks to Drishti Sharma and Nikita Gupta (Indian Institute of Management Ahmedabad) for managing the Symposium logistics in India. We are grateful to Missy Sullivan (University of Minnesota) and Jennifer Shelton (Virginia Tech) for administrative management and support. Thanks also to Drs. Matin Qaim and Smita Sirohi (ICAE Organizers) for their support of the Symposium.