

Assessing the Status and Prospects of Spice Exports from Nepal

Krishna P. Timsina^{1, 2,*} and Ram N. Acharya³

¹Nepal Agricultural Research Council, Nepal

²New Mexico State University, USA

³New Mexico State University, USA

Abstract history:

Received: May 14, 2024

Revised: August 14, 2024

Accepted: December 25, 2024

Keywords: Domestic trade, Endogeneity, Policy variables, PPMLHDFE,

Trade balance

For more than three decades, countries like Nepal have been losing access to developed markets due to the scarcity of a skilled workforce and the inability to innovate and adopt appropriate technologies to ensure the quality and safety of their food products. After its first revision in 2009, the trade policy of Nepal (1992), attempted to increase trade by creating a friendly environment for Nepali products to compete internationally and by increasing exports to reduce the trade deficit. The government of Nepal (GoN) developed a trade strategy in 2023 (National Trade Integration Strategy or NTIS) to increase the trade-to-GDP ratio from 48.1 percent in Fiscal Year (FY) 2021/22 to 55 percent in FY 2027/28. The GoN also prepared the National Trade Deficit Minimization Action Plan (2023) to increase the production of cardamom (*Elettaria cardamomum* & *Amomum subulatum*) and ginger (*Zingiber officinale*). These crops are gaining a significant market share in the world spice market. Recently, Nepal was ranked as the world's 5th largest producer of cardamom and ginger; and 5th and 41st largest exporter of these spices, respectively. NTIS has focused on building a supportive environment for trade by revisiting multilateral and bilateral treaties and agreements, exploring opportunities for free trade agreements, and seeking engagements with world players to diversify export markets. Moreover, the GoN has focused on food quality and safety issues by harmonizing standards for pesticide residues and developing food safety protocols, including for meat and meat-based products, and standardizing inspection procedures for the import and export of tea, coffee, spices, and other food products. Nepal's graduation from the Least Developed Country (LDC) status in 2026 will likely result in the loss of some of the preferential trading arrangements provided to LDCs, significantly affecting the terms of trade for commodities. Therefore, the objective of this study was to identify the effects of discriminatory trade agreements and non-discriminatory (most favored nation tariffs) trade policy variables on the spice trade of Nepal.

A comprehensive literature review on agricultural trade was conducted with a primary focus on the spice trade to develop a structural gravity model. The gravity model is widely used to analyze trade because it accommodates endowment differences, technological differences, population, GDP, trade policies, domestic trade flow, and trade costs to explore the effects of these factors on trade. We used the Poisson pseudo maximum likelihood (PPML) model and PPML with high-density fixed effects (PPMLHDFE), i.e., exporter time and importer time, to estimate and compare the models. The PPML estimator is widely used because it generates consistent estimates in heteroskedasticity and tackles the zero-trade problem, a critical issue in international trade studies. We used

recently released bilateral trade data to analyze the spice trade between Nepal and its 35 trading partners. The global database used in this study was an aggregate value of different spices, including pepper (*Piper* spp.), pimento (*Pimenta dioica*), vanilla (*Vanilla planifolia*), cinnamon (*Cinnamomum zeylanicum*), cloves (*Syzygium aromaticum*), fennel (*Foeniculum vulgare*), cardamom, and ginger. The explanatory variables used in the models were sourced from the United States International Trade Commission's Dynamic Gravity Dataset and several other sources. The Generalized System of Preference (GSP) database was constructed by authors based on the available literature.

The results obtained from three different specifications of the gravity models are presented in Table 1. The estimated coefficients of economic size and other gravity variables, including gross domestic product (GDP), population, and the common language were found positive in all model specifications except for origin country GDP, implying that trade increases as the value of these variables rise. Moreover, the distance variable, as expected, showed a negative sign indicating that countries tend to trade less with distant countries. In the PPML model, the impact of non-discriminatory trade policy variable (MFN tariffs) was negative ($p < 0.01$) as expected. The effect of a free trade agreement (FTA), World Trade Organization (WTO) membership, European Union (EU) membership, and GSP membership showed a positive effect. At the same time, the impact of the trade agreement (PTA) on trade flow was negative ($p < 0.01$).

Like the PPML model results, the PPMLHDFE analysis with exporter time fixed effect and country pair clustering showed a positive impact of variables reflecting the free trade and membership in trade organizations. The effects of MFN tariffs were negative, as in PPML, without a fixed effect. We also estimated another robust model with both the exporter time and importer time fixed effect and country pair clustering to deal with the issues of Multilateral resistance terms (MRTs). The effects of MFN tariffs were negative (-0.952 ; $p < 0.01$), which implies that MFN tariffs are significant impediments to international trade for spices. The estimate of MFN tariffs implies an elasticity of substitution of 0.952 or an import-demand elasticity with respect to MFN tariffs of -0.952 . The coefficient of discriminatory trade policy variables such as free trade agreements was found positive (0.825), and preferential trade agreement was found negative (-0.842 ; $p < 0.01$), whereas coefficient of joint membership of WTO was positive (0.731; $p < 0.1$).

The preliminary results presented in this study indicate that policy variables such as participation in free trade and reduced tariff rates (e.g., MFN tariffs) can enhance spice trade. Since most free trade agreements

* Corresponding author. E-mail address: krishnatimsina2000@gmail.com

strengthen trade among member countries at the expense of domestic sales, it is also vital to consider the impacts of trade agreements on both domestic and international markets. Our preliminary results suggest that

discriminatory trade policy variables like participation in free trade and membership in international trade organizations, can enhance Nepal's spice trade.

Table 1. The effect of trade policy variables on the spice trade of Nepal.

Variables	Model 1	Model 2	Model 3
Log (Origin Country GDP)	-0.535** (0.213)		
Log (Destination Country GDP)	0.634*** (0.114)	0.746*** (0.103)	
Log (Origin Country Population)	1.508 (1.203)		
Log (Destination Country Population)	-0.0824 (0.0983)	-0.101 (0.0790)	
Log (Distance between Country Pair)	-0.575*** (0.153)	-0.944*** (0.143)	-0.987*** (0.113)
Receives EU's Generalized System of Preference	0.803*** (0.203)		
Log (MFN tariffs)	-1.027*** (0.178)	-0.739*** (0.160)	-0.952*** (0.131)
Free Trade Agreement	0.912*** (0.287)	0.715** (0.318)	0.825*** (0.221)
Preferential Trade Agreement	-1.119*** (0.279)	-1.368*** (0.290)	-0.842*** (0.200)
Landlocked Country	-0.447 (0.516)		
Common Language	0.796*** (0.209)	0.593*** (0.208)	1.042*** (0.129)
Common WTO Membership	0.872*** (0.235)	1.560*** (0.419)	0.731* (0.392)
EU Membership	1.278*** (0.392)	1.117*** (0.315)	0.471 (0.287)
Log (Labor Availability)	-0.371 (1.159)		
Youth Dependency Ratio	0.662 (0.869)		
Constant	2.816 (16.63)	0.278 (1.392)	11.63*** (0.902)
Observations	18,590	18,541	18,436
R/Pseudo-squared	0.726	0.905	0.941

Note: Robust standard errors in parentheses; * p<0.1; **p<0.05, *** p<0.01. Model 1 is a PPML model without fixed effect; Model 2 includes exporter time fixed effect and country pair clustering, and Model 3 includes exporter time, importer time fixed effects and country pair clustering.

Citation: Timsina, K. P., & Acharya R. N. (2024). Assessing the status and prospects of spice exports from Nepal. *Global Journal of Agricultural and Allied Sciences*, 5(S1), 7-8. <https://doi.org/10.35251/gjaas.2024.007>