# STRUCTURE AND TRADE EFFECTS OF INDIA'S TARIFF PROTECTION: EVIDENCE FROM WTO TARIFF PROFILES

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## Abstract

This paper examines the structure and trade effects of India's tariff protection using evidence from the World Trade Organisation (WTO) Tariff Profile. It analyses differences between bound and applied tariffs across agricultural and non-agricultural sectors, the extent of binding overhang, and the dispersion of tariffs across product groups. The findings reveal a sharp asymmetry: agricultural products face substantially higher bound and applied tariffs than non-agricultural goods, with a large gap between commitments and actual rates, creating policy flexibility but also trade policy uncertainty. Tariff dispersion concentrates protection in selected sectors, suppressing imports in highly protected lines while trade flows toward lower-tariff products. On the export side, India's non-agricultural goods face relatively low tariffs in major markets, whereas agricultural exports encounter higher barriers and limited preferences. Overall, the evidence suggests that India's tariff regime balances protection and openness but may generate inefficiencies and uncertainty that affect long-term competitiveness.

**Keywords:** India; Tariff Protection; Binding Overhang; Agricultural Protection; Export Competitiveness.

## 1.1. Introduction

Standard neoclassical trade theory posits that tariffs and other protectionist measures impose welfare costs on the imposing economy. Early partial-equilibrium models demonstrate that tariffs generate deadweight losses by distorting consumption and production decisions and by driving a wedge between domestic and world prices (Harberger,m1954; Bhagwati, 1971). Although optimal tariff theory shows that large countries may, under restrictive conditions, exploit terms-of-trade externalities to their advantage (Johnson, 1953; Bagwell and Staiger, 1999), the dominant conclusion in the literature is that for most economies particularly developing countries protectionism results in net efficiency losses. These distortions are further formalised in general-equilibrium frameworks. Models of monopolistic competition and heterogeneous firms highlight how trade barriers limit variety expansion and impede the reallocation of resources toward more productive firms, thereby reducing aggregate productivity and welfare (Krugman, 1980; Melitz, 2003). Departing from the assumption of benevolent welfare-maximising governments, the "new political economy" literature endogenises trade policy by emphasising the role of distributional conflicts and lobbying. A seminal contribution is the Protection for Sale model of Grossman and Helpman (1994), which shows how equilibrium tariffs emerge from a trade-off between governments' valuation of aggregate social welfare and their reliance on political contributions from organised interest groups. This framework helps explain the persistence of high protection in sectors such as agriculture and textiles, where import-competing producers are politically organised and capable of exploiting governments' fiscal needs or electoral vulnerabilities (Rodrik, 1995; Baldwin, 1987). The World Trade Organization's system of tariff bindings plays a central role in constraining discretion, reducing tariff dispersion, and limiting policy reversals (Bagwell and Staiger, 2002; WTO, 2025). By locking in liberalisation, binding commitments reduce trade policy uncertainty, which Handley and Limão (2017) and Piermartini *et al.* (2023) identify as a distinct and quantitatively significant barrier to investment and trade. Consequently, reducing the extent of "water in the tariff" the gap between bound and applied rates serves not only to enhance market access but also to dampen volatility and foster a more predictable global trading environment.

Empirical work on developing countries documents a common pattern of relatively high applied tariffs in agriculture and labour-intensive manufactures, together with substantial binding overhangs that grant governments policy flexibility but also heighten trade policy uncertainty (Francois and Martin, 2004; Bchir *et al.*, 2006; Kee *et al.*, 2009). Studies of India's trade reforms since the early 1990s show that tariff reductions have been associated with increased import penetration, productivity gains in liberalised sectors, and reallocation toward more efficient firms, although the magnitude of these gains depends critically on complementary reforms, infrastructure quality, and factor market conditions (Topalova and

Khandelwal, 2011; Goldberg *et al.*, 2010; Amiti and Konings, 2007). At the same time, other work emphasises that India continues to maintain some of the highest agricultural tariffs among major economies particularly on sensitive products such as dairy, cereals and sugar reflecting persistent food security concerns and political economy pressures to protect farm incomes (Anderson and Martin, 2006; Panagariya, 2004; WTO, 2025).

India's comparatively high tariff bindings provide negotiating space for further liberalisation under both multilateral and preferential trade frameworks (Francois and Martin, 2004; Bchir *et al.*, 2006; WTO, 2025), but also give rise to tensions with trading partners demanding deeper access in politically sensitive agricultural and manufacturing sectors (Anderson and Martin, 2006; Martin and Messerlin, 2007). At the same time, tariffs applied to Indian exports in major markets have fallen markedly (Nicita and Rollo, 2015), yet tariff peaks remain concentrated in agriculture and textiles (Jean *et al.*, 2010), with important implications for India's export structure and diversification(Feenstra,2004).

This paper uses the WTO Tariff Profile for India to examine the level, dispersion and sectoral pattern of India's tariff protection and to analyse the tariffs applied by key trading partners to Indian exports. The focus is on three interrelated questions: (i) how India's bound and applied tariffs compare across agricultural and non-agricultural sectors; (ii) how tariff dispersion across product groups shapes the pattern of imports; and (iii) how major partners' tariffs on Indian exports influence India's export competitiveness in agricultural and non-agricultural markets.

## 1.2. Data and Methodology

The empirical analysis is based on the WTO Tariff Profile for India, which provides a comprehensive overview of tariff bindings, MFN applied tariffs, and import values across broad product groups, as well as detailed information on tariffs faced by Indian exports in major destination markets. The profile reports separate statistics for agricultural and non-agricultural products in accordance with WTO classifications and presents multiple indicators of tariff protection, including simple averages, trade-weighted averages, duty-free shares, and frequency distributions across tariff ranges.

The analysis proceeds in three steps. First, it compares bound and applied tariffs at the aggregate level and by broad sector (agricultural versus non-agricultural) to characterise the level of protection and the size of the binding overhang. Second, it examines the frequency distribution and the product-group breakdown of tariffs to understand how protection is concentrated across different sectors and to identify tariff peaks and escalation. Third, it investigates the tariffs faced by Indian exports in major markets, contrasting agricultural and non-agricultural products and discussing how these external tariffs interact with India's own tariff structure. While the paper is primarily descriptive, the structure of the data lends itself to an implicit gravity-style interpretation: high tariffs on imports can be seen as increasing bilateral trade costs, while low tariffs on exports in partner markets enhance competitiveness, conditional on other factors. The descriptive analysis thus sets the stage for future econometric work linking tariff levels and dispersion to bilateral trade flows.

## 1.3. India's tariff structure: Levels and overhang

India's simple average final bound tariff of 50.8 per cent indicates a high overall ceiling on protection under WTO commitments. The asymmetry between agriculture and non-agriculture is striking: agricultural products have an average bound rate of 113.1 per cent, while non-agricultural products are bound at an average of 36.0 per cent. This reflects India's long-standing emphasis on food security and farm incomes, with bound rates often set at very high levels in sensitive lines.

Applied MFN tariffs are substantially lower than bound levels, with a simple average of 16.2 per cent in 2024 across all products. However, the sectoral pattern remains highly uneven: agricultural products face an average applied tariff of 36.7 per cent, compared with only 13.0 per cent for non-agricultural goods. The trade-weighted averages show a similar but somewhat lower pattern, with an overall trade-weighted tariff of 12.0 per cent, driven by 64.3 per cent in agriculture and 9.2 per cent in non-agriculture. These figures indicate that India's imports are concentrated in relatively lower-tariff non-agricultural items, while high tariffs on agricultural products reduce their import penetration.

The gap between bound and applied tariffs constitutes India's binding overhang: for all products, the difference between the bound average (50.8 per cent) and the applied average (16.2 per cent) is 34.6 percentage points. In agriculture, the overhang is particularly large, with a gap of about 76.4 percentage points between the bound (113.1 per cent) and applied (36.7 per cent) averages. In non-agricultural sectors, the overhang is smaller but still sizeable at 23.0 percentage points. Such overhang provides policy flexibility, but can also generate uncertainty for traders who fear that applied rates could be raised closer to bound levels in response to domestic pressures.

India's import structure underscores the importance of non-agricultural sectors in overall trade: in 2023, total imports reached 676.7 billion US dollars, of which 642.1 billion were non-agricultural and only 34.6 billion were agricultural. The combination of high agricultural tariffs and modest agricultural imports suggests that tariffs are an effective barrier in many farm-related sectors, while non-agricultural imports are driven more by demand and competitiveness than by tariff ceilings.

## 1.4. Tariff dispersion and duty ranges

Beyond averages, the distribution of tariffs across duty ranges reveals how protection is allocated across products. For agricultural products, the WTO profile shows that in terms of tariff lines, only a small share is duty-free, while a large proportion falls in high tariff brackets. The frequency distribution indicates that, under MFN applied rates in 2024, agricultural lines are heavily concentrated in the 25–50 per cent and 50–100 per cent ranges, with a non-trivial share exceeding 100 per cent in some cases. At the same time, imports of agricultural products are concentrated in lines with relatively moderate tariffs, implying that very high tariffs suppress trade in the most protected items.

For agricultural products, the distribution of final bound tariffs is even more skewed: virtually no agricultural lines are bound at low levels, and a majority are bound at rates above 50 per cent, with a significant cluster above 100 per cent. This amplifies the policy space in agriculture and underscores the political sensitivity of tariff reductions in WTO negotiations or preferential trade agreements.

In non-agricultural products, the tariff distribution is more moderate but still exhibits peaks. The MFN applied tariffs in 2024 show that a notable share of non-agricultural tariff lines remains in the 10–15 per cent and 15–25 per cent ranges, with relatively few duty-free lines compared to advanced economies. However, the distribution of imports across these ranges shows that a large portion of import value occurs at lower tariff bands, consistent with tariff-sensitive demand and substitution toward less protected products.

The difference between the frequency distribution of tariff lines and that of imports indicates the presence of classical tariff-induced trade distortions: high-tariff lines account for a large share of potential products but a relatively small share of actual trade, while lower-tariff lines dominate import values. This pattern can generate allocative inefficiency, protect less competitive domestic industries, and encourage lobbying to maintain peaks in specific sectors such as automobiles, textiles and certain consumer goods.

## 1.5. Tariffs and Imports by Product Group

Part A.2 of the WTO profile provides tariff and import indicators by broad product groups, spanning agricultural sub-sectors and non-agricultural categories such as petroleum, chemicals, textiles, clothing, and machinery. For each group, the profile reports the average applied tariff, the share of duty-free lines, the maximum tariff, the binding coverage, and the share of imports that are duty-free.

The data show that many agricultural sub-sectors such as cereals and food preparations, dairy products, sugar and confectionery, and certain fruits and vegetables are characterised by very high average tariffs and low duty-free shares. Maximum tariffs in these groups often reach 150 per cent or more, and binding coverage is complete, reflecting the full integration of agricultural tariffs into WTO commitments. However, the share of imports that enter duty-free or at low tariffs is small, suggesting that high protection significantly restricts trade in sensitive farm products.

In non-agricultural groups, tariff levels vary widely. Petroleum products tend to have relatively low average tariffs, reflecting the importance of energy inputs, while chemicals, textiles and clothing show higher average protection and limited duty-free coverage. Machinery and transport equipment often have lower average tariffs and higher duty-free import shares, which is consistent with India's objective of facilitating access to capital goods and intermediate inputs for industrial development. Maximum tariffs in some non-agricultural groups, however, can still reach 40 per cent or higher, indicating the presence of tariff peaks.

The pattern of tariffs and imports across product groups supports the view that India's tariff regime is both protective and developmental: highly protected sectors include agriculture and selected manufacturing segments, while lower tariffs are applied to key inputs and investment goods. This structure shapes the composition of imports, with higher penetration in lower-tariff groups and suppressed trade in sectors where tariffs reach or approach the maximum levels.

### 1.6.Exports and Tariffs Faced in Major Markets

Part B of the WTO profile reports India's exports to major trading partners and the tariffs those partners apply, separately for agricultural and non-agricultural products. For agricultural exports in 2023, India's leading markets include the European Union, the United States, Saudi Arabia, the United Arab Emirates and China. Export values to these partners range from approximately 2.1 to 3.5 billion US dollars, with the European Union importing around 3.45 billion and the United States about 3.08 billion in Indian agricultural products.

Average tariffs on Indian agricultural exports in these markets are relatively moderate but non-trivial. The European Union's simple average tariff on Indian agricultural exports is 12.1 per cent, with a trade-weighted average of 5.5 per cent, indicating that tariff peaks exist but much of trade occurs in lower-tariff lines. The United States applies a simple average of 5.2 per cent and a trade-weighted average of 2.2 per cent on Indian agricultural goods, with a reported preference margin of zero, suggesting that India largely faces MFN rates. Saudi Arabia's and the UAE's average tariffs are in the range of 5–8 per cent, while China's simple average tariff on Indian agricultural exports reaches 12.8 per cent with a trade-weighted average of 16.3 per cent, indicating concentration of exports in some higher-tariff lines.

For non-agricultural products, India's export volumes to major markets are much larger. In 2023, India exported about 79.7 billion US dollars in non-agricultural products to the United States and 63.8 billion to the European Union, with significant exports also to the United Arab Emirates (28.2 billion), China (16.5 billion) and the United Kingdom (13.3 billion). The number of tariff lines at the HS 2-digit and HS 6-digit levels is high, reflecting broad diversification of India's non-agricultural export basket.

Average tariffs on Indian non-agricultural exports in these markets are relatively low. The United States applies a simple average tariff of 4.2 per cent and a trade-weighted average of 2.3 per cent, with a preference margin of zero, indicating MFN treatment. The European Union applies simple and trade-weighted averages of 4.5 and 3.0 per cent respectively, with a small positive preference margin, while the UAE's averages are 4.6 and 4.0 per cent, reflecting somewhat higher applied rates. China's simple average tariff on Indian non-agricultural exports is 6.0 per cent (trade-weighted 3.7 per cent), and the United Kingdom applies 3.4 and 2.4 per cent respectively, with noticeable preference margins.

These figures suggest that external tariff barriers on Indian non-agricultural exports are generally modest, though tariff peaks remain in specific sectors. For agricultural exports, tariff barriers in major markets are somewhat higher, and the absence of deep preference margins for India limits its competitive advantage relative to other suppliers. The interaction of India's own protective tariffs and the tariffs its exports face abroad thus shapes the overall pattern of trade flows and negotiation priorities.

## Comparative Overview: India's Tariffs and Partner Tariffs

The table below summarises key indicators for India's own tariffs and the tariffs faced by its exports in selected major markets.

**Table 1: Tariff Indicators for India and Major Partners**

| Indicator / Market | Agriculture (Ag) | Non-agriculture (Non-Ag) |
|---|---|---|
| India final bound simple average | 113.1 per cent | 36.0 per cent |
| India MFN applied simple average 2024 | 36.7 per cent | 13.0 per cent |
| India trade weighted average 2024 | 64.3 per cent | 9.2 per cent |
| India imports 2023 (billion US dollars) | 34.6 | 642.1 |
| EU tariff on Indian exports (simple avg) | 12.1 per cent | 4.5 per cent |
| EU tariff on Indian exports (trade-weighted) | 5.5 per cent | 3.0 per cent |
| US tariff on Indian exports (simple avg) | 5.2 per cent | 4.2 per cent |
| US tariff on Indian exports (trade-weighted) | 2.2 per cent | 2.3 per cent |
| China tariff on Indian exports (simple avg) | 12.8 per cent | 6.0 per cent |
| China tariff on Indian exports (trade-weighted) | 16.3 per cent | 3.7 per cent |

**Figure 1: India's Tariff Structure and Market Access**
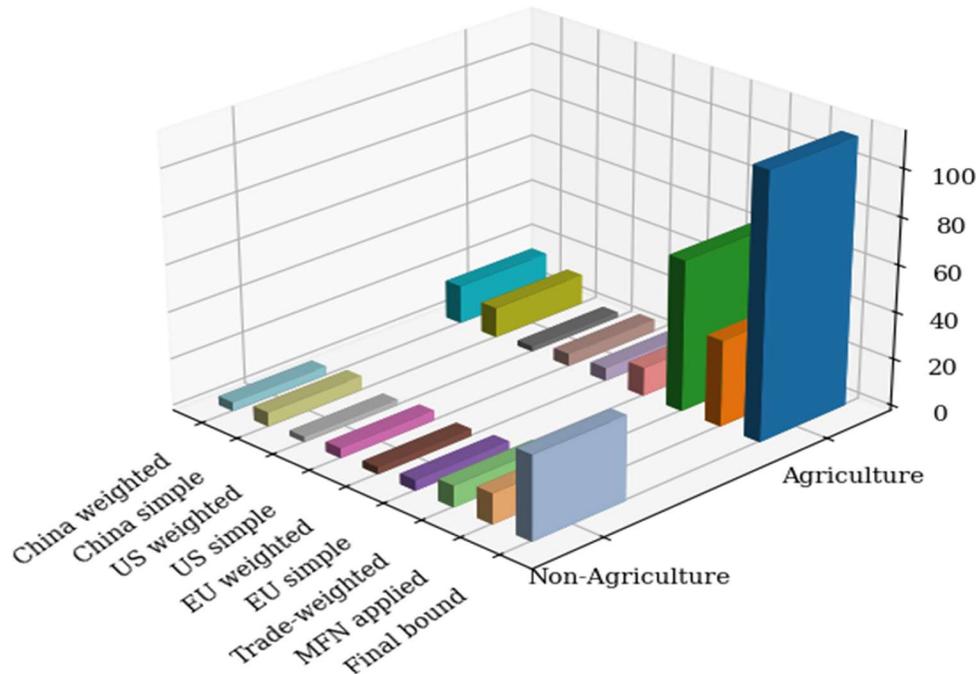
This comparative picture highlights the asymmetry between India's high tariff protection, especially in agriculture and the relatively low tariffs applied by major partners on Indian non-agricultural exports. For agriculture, both India's own tariffs and partner tariffs are higher, creating a doubly protected environment that restricts trade in farm products more than in manufactures.

**Conclusion and Policy Implications**

India's tariff profile suggests a trade policy that balances domestic protection, especially for agriculture and selected manufacturing sectors, with openness in non-agricultural imports and broadly favourable access for its exports in key markets. The high binding levels and large binding overhang give policymakers room to manoeuvre but also create uncertainty for traders and partners, potentially constraining the depth of future agreements.

For multilateral and bilateral negotiations, the structure of overhang implies that meaningful liberalisation would require both reductions in bound rates and commitments to limit the use of applied increases, particularly in agriculture. Partners are likely to press for greater predictability and lower peaks in sectors such as cereals, dairy, sugar, textiles and automobiles, while India will seek improved market access in areas where its exports still face tariff peaks or limited preferences.

Domestically, the dispersion of tariffs and the concentration of high protection in particular product groups encourage lobbying and can entrench inefficient producers. At the same time, low tariffs on capital goods and certain intermediates support industrial upgrading and export diversification. A more uniform and predictable tariff schedule, with lower peaks and narrower overhang, could improve resource allocation, reduce policy uncertainty and align India's trade regime more closely with its long-term growth and competitiveness objectives.

**References**

- Amiti, M., & Konings, J. (2007). Trade liberalization, intermediate inputs, and productivity: Evidence from Indonesia. *American Economic Review, 97*(5), 1611–1638.
- Anderson, K., & Martin, W. (2006). *Agricultural trade reform and the Doha Development  Agenda*. World Bank.
- Baldwin, R. E. (1987). Politically realistic objective functions and trade policy: PROFs and tariffs. *Economics Letters, 24*(3), 287–290.
- Bagwell, K., & Staiger, R. W. (1999). An economic theory of GATT. *American Economic Review, 89*(1), 215–248.
- Bagwell, K., & Staiger, R. W. (2002). *The economics of the World Trading System*. MIT Press.
- Bchir, M. H., Jean, S., & Laborde, D. (2006). Binding overhang and tariff-cutting formulas. *Review of World Economics, 142*(2), 207–232.
- Bhagwati, J. (1971). The generalized theory of distortions and welfare. In J. Bhagwati et al. (Eds.), *Trade, balance of payments and growth*. North-Holland.
- Feenstra, R. C. (2004). *Advanced international trade: Theory and evidence*. Princeton University Press.
- Francois, J., & Martin, W. (2004). Commercial policy variability, bindings, and market access. *European Economic Review, 48*(3), 665–679.
- Goldberg, P. K., Khandelwal, A., Pavcnik, N., & Topalova, P. (2010). Imported intermediate inputs and domestic product growth. *Quarterly Journal of Economics, 125*(4), 1727–1767.
- Grossman, G. M., & Helpman, E. (1994). Protection for sale. *American Economic Review, 84*(4), 833–850.
- Handley, K., & Limão, N. (2017). Policy uncertainty, trade, and welfare. *Quarterly Journal of Economics, 132*(2), 683–728.
- Harberger, A. C. (1954). Monopoly and resource allocation. *American Economic Review, 44*(2), 77–87.
- Jean, S., Laborde, D., & Martin, W. (2010). Consequences of alternative formulas for agricultural tariff cuts. *World Economy, 33*(8), 1058–1083.
- Johnson, H. G. (1953). Optimum tariffs and retaliation. *Review of Economic Studies, 21*(2), 142–153.

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- Kee, H. L., Nicita, A., & Olarreaga, M. (2009). Estimating trade restrictiveness indices. *Economic Journal, 119*(534), 172–199.
- Krugman, P. (1980). Scale economies, product differentiation, and the pattern of trade. *American Economic Review, 70*(5), 950–959.
- Martin, W., & Messerlin, P. (2007). Why is it so difficult? Trade liberalization under the Doha Agenda. *Oxford Review of Economic Policy, 23*(3), 347–366.
- Melitz, M. J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica, 71*(6), 1695–1725.
- Nicita, A., & Rollo, V. (2015). Tariff preferences as a determinant for exports from Sub-Saharan Africa. *Journal of African Economies, 24*(4), 556–577.
- Panagariya, A. (2004). India in the 1980s and 1990s: A triumph of reforms. *IMF Working Paper*.
- Piermartini, R., Rocha, N., & Ruta, M. (2023). Trade policy uncertainty and trade. *World Trade Review*.
- Rodrik, D. (1995). Political economy of trade policy. In G. Grossman & K. Rogoff (Eds.), *Handbook of International Economics* (Vol. 3). Elsevier.
- World Trade Organization. (2025). *World Tariff Profiles 2025*. WTO.