

Role of Women Entrepreneurship in International Trade Regime: WTO Policy Interventions and Trade Facilitation-A Comparative Analysis of India and South Korea

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ABSTRACT

Women-owned enterprises (WOEs) are increasingly recognized as engines of inclusive growth and export diversification, yet they face persistent barriers in accessing international markets information asymmetries, high trade costs, complex border procedures, and finance constraints. This paper examines how World Trade Organization (WTO) policy instruments especially the Trade Facilitation Agreement (TFA), transparency disciplines in SPS/TBT, and Aid-for-Trade interact with national trade-facilitation reforms and gender-targeted programs to shape outcomes for women entrepreneurs. We compare India and South Korea, two WTO members with distinct development levels and institutional architectures, to analyze convergences and divergences in policy design and results. Conceptually, we propose a framework linking WTO-driven trade-cost reductions to firm-level export participation by WOE, mediated by domestic implementation quality and complementary gender-responsive measures (e.g., export promotion, skills, finance, and digitalization). Methodologically, we outline a mixed-methods strategy combining a difference-in-differences (DiD) identification of TFA implementation with firm-level data and qualitative policy tracing. We synthesize available evidence and policy documents and develop testable hypotheses. The paper concludes with policy recommendations to deepen gender mainstreaming in trade facilitation, strengthen data systems, and crowd in finance for export-oriented WOE.

Keywords: women entrepreneurship, trade facilitation, WTO, Trade Facilitation Agreement, SPS/TBT, India, South Korea, Aid-for-Trade, gender, exports.

1. INTRODUCTION:

Women-led firms contribute significantly to employment generation, product innovation, and resilience of supply chains, yet they are under-represented among exporters and global value chain (GVC) suppliers. The “last mile” to internationalization typically involves overcoming customs and logistics frictions, demonstrating regulatory compliance, and accessing market information and finance areas where transaction costs disproportionately affect smaller and women-owned firms.

The WTO’s Trade Facilitation Agreement (TFA) seeks to reduce trade costs by improving transparency, accelerating clearance, and enhancing cooperation among border agencies. While the TFA is formally gender-neutral, its provisions (e.g., publication of procedures, advance rulings, risk management, single windows) can be particularly beneficial for WOE that lack the scale to absorb compliance costs. Similarly, WTO SPS (Sanitary and Phytosanitary) and TBT (Technical Barriers to Trade) disciplines promote predictability and information access key constraints for SMEs and new exporters. To what extent and through which channels do WTO policy

interventions, in concert with national reforms, improve export participation and performance of women-owned firms.

We focus on **India** and **South Korea**. India is a large, diverse, and rapidly reforming economy where trade facilitation and SME internationalization remain policy priorities. South Korea is a high-income, trade-dependent economy with advanced customs systems and longstanding SME export support. The comparison offers insights across stages of development and institutional capacity.

Contributions:

Gender-aware conceptual model connecting WTO disciplines to firm outcomes;

Comparative institutional analysis of India and South Korea;

Feasible empirical strategy for causal inference using publicly available and administrative data; and

Policy recommendations to embed gender responsiveness in trade-facilitation ecosystems.

Literature Review

Women Entrepreneurship and Trade

Empirical work shows WOE face financing gaps, limited networks, and sectoral segregation that lower export propensity. Studies of firm surveys indicate gender disparities in access to collateral, trade finance, standards information, and customs brokerage. Digitalization can mitigate some gaps by lowering search and compliance costs, but digital divides persist. Programs such as export coaching, market intelligence, and e-commerce onboarding correlate with higher export entry for women-led MSMEs.

Trade facilitation and export performance

Cross-country research links TFA-type measures to reduced time and cost to trade and increased trade volumes, particularly for time-sensitive goods and SMEs. OECD, UNCTAD, and World Bank studies identify **transparency, advance rulings, risk management, authorized operator schemes, and single windows** as high-impact reforms. Effects on inclusion are larger when complemented by logistics infrastructure, customs professionalism, and interoperable digital systems.

Gender, trade policy, and the WTO

The WTO has expanded transparency, Aid-for-Trade monitoring, and dialogues on women and trade (e.g., Buenos Aires Declaration). While the legal architecture remains mostly gender-neutral, **gender mainstreaming** in national implementation (e.g., targeted outreach, simplified procedures, fee structures, and grievance redress) can translate neutrality into inclusion. SPS/TBT enquiry points and notification systems reduce information frictions that often deter first-time exporters especially women in agro-processing, cosmetics, textiles/apparel, and niche manufacturing.

Gap: Few studies map the **micro-channels** through which TFA and related disciplines affect WOE or compare countries with contrasting institutional maturity. This paper addresses that gap.

Conceptual Framework

A gender-aware trade-facilitation pathway

We posit a three-stage mechanism:

Rule adoption & implementation: WTO TFA and transparency norms → domestic reforms (single windows, publication portals, enquiry points, electronic payments, AEO, advance rulings, appeal rights).

Cost and risk reduction: Lower documentary and border compliance time/cost; reduced uncertainty; improved predictability of SPS/TBT compliance.

Firm-level response (mediated): Higher probability of export entry and survival for WOE, mediated by access to complementary inputs (trade finance, standards certification, logistics services, digital readiness) and moderated by firm size/sector, location, and social norms.

Hypotheses

H1 (Participation): Enhanced transparency and single-window availability increase the probability that WOE become exporters, controlling for size and sector.

H2 (Intensity): Introduction of risk management and advance rulings reduces average border delays, increasing export intensity (exports/sales) of WOE.

H3 (Survival): AEO and trusted-trader benefits reduce shipment variability, improving two-year export survival rates for WOE.

H4 (Mediation): Impacts are larger when coupled with gender-targeted export support (coaching, vouchers, standards assistance) and improved access to trade finance.

H5 (Comparative): The marginal impact of TFA implementation on WOE is larger in India (higher initial trade costs) than in South Korea (near-frontier systems), but absolute export levels remain higher in Korea.

India and South Korea: WTO and Trade-Facilitation Contexts

India

WTO/TFA: India ratified the TFA and has progressed on transparency portals, **ICEGATE** (e-filing), e-SANCHIT (e-documents), **SWIFT** single-window integration, **risk management** systems, and **AEO** schemes; ongoing logistics reforms align with the National Logistics Policy and the Foreign Trade Policy (FTP 2023).

Women entrepreneurship policies: Women Entrepreneurship Platform (WEP-NITI Aayog), **Mahila e-Haat** (e-marketplace), credit schemes (e.g., MUDRA, Stand-Up India), export coaching via DGFT/Export Promotion Councils, cluster programs for textiles, handlooms, food processing, and crafts.

Binding constraints: uneven state-level implementation, variable SPS/TBT awareness, limited access to affordable standards testing/certification, gaps in trade finance and collateral, and digital/logistics disparities for interior regions.

South Korea

WTO/TFA: Early and advanced adoption of TFA-consistent procedures; **UNI-PASS** (end-to-end customs IT), integrated single window, robust risk management, pre-arrival processing, and mature AEO program.

Women entrepreneurship policies: Ministry of SMEs and Startups (MSS), **KOTRA** and **KITA** export services, export vouchers, incubators, Women Enterprise Support Centers, and active public-private standardization support.

Binding constraints: despite high institutional capacity, women's representation among exporters remains below parity due to sectoral concentration, work-family constraints, and scale thresholds; however, once exporting, performance gaps are smaller.

Comparative intuition: India's trade-cost reductions from TFA are potentially larger in percentage terms; Korea's institutional completeness allows targeted last-mile supports (finance, branding, global matchmaking) to matter more at the margin.

2. METHODOLOGY

Identification strategy

A **difference-in-differences (DiD)** approach can exploit phased TFA implementation and the roll-out of single-window/UNI-PASS-like features across customs sites and time:

$$Y_{it} = \alpha + \beta \text{TFA_Implement}_{it} + \gamma \text{FemaleOwned}_{it} + \delta X_{it} + \epsilon_{it}$$

where Y_{it} is (a) exporter status (logit/probit), (b) export intensity (OLS/PPML), or (c) shipment delay variability; i indexes firms, c country (India or Korea), t time; X_{it} includes firm size, age, sector, location, and digital adoption. β captures the differential TFA effect on WOE.

A complementary **event study** can test pre-trends and dynamic effects. For survival, use a Cox proportional hazards model with time-varying covariates.

Data

Firm-level: World Bank Enterprise Surveys (gender of ownership/management), national MSME or corporate registries, export credit/guarantee program data, customs micro-data (where accessible).

Policy & implementation: WTO TFA Facility notifications; OECD Trade Facilitation Indicators; national customs KPIs (clearance times, documentation counts); SPS/TBT enquiry point usage; Aid-for-Trade project lists.

Finance & inclusion: Women, Business and the Law (WBL) indices; collateral frameworks; trade-finance program uptake; digital payments adoption.

Sectors: Textiles/apparel, agri/food processing, cosmetics, light engineering, and ICT-enabled services sectors with meaningful WOE presence.

Qualitative components

Process tracing of specific reforms (e.g., India's e-SANCHIT roll-out; Korea's AEO onboarding).

Key informant interviews with customs officials, export promotion agencies, standards bodies, chambers, women's business associations, logistics providers, and commercial banks/ECAs.

Case studies of first-time women exporters benefiting from single-window or export vouchers.

Outcome measures

Export entry rates of WOE; average time/cost to clear; number of documents; rejection rates for SPS/TBT; export value and product/market diversification; two-year survival; uptake of AEO/single-window services; participation in government export-support schemes.

Comparative Analysis: Policy Instruments and Institutional Design

Transparency & information

WTO channels: Publication of procedures (TFA Art. 1), enquiry points (SPS/TBT), notifications.

India: DGFT and customs portals centralize regulations and trade notices; outreach still uneven across states and languages; enquiry-point responsiveness varies.

Korea: Highly integrated online guidance with English/Korean resources; proactive standards and testing support through KOTRA/KTL; strong private-sector associations (KITA) disseminate updates.

Implication for WOE: Early-stage exporters benefit disproportionately from clarity and predictability; Korea's ecosystem reduces search costs more effectively; India shows rapid progress but needs systematic last-mile translation and helpline models tailored for new women exporters.

Single windows and paperless trade

India: SWIFT + ICEGATE + e-SANCHIT substantially reduce document handling; integration depth and user experience differ across agencies; onboarding support for small first-time users remains a gap.

Korea: UNI-PASS offers end-to-end paperless processing, pre-arrival clearance, and inter-agency integration with high reliability.

WOE lens: Digital single window + guided onboarding (tutorials, helpdesks, brokers trained to serve SMEs) accelerates first shipments; Korea's export voucher programs complement UNI-PASS; India could scale guided onboarding via WEP/export councils.

Risk management and AEO

India: Risk-based inspection is mainstreaming; AEO adoption growing but skewed toward larger firms.

Korea: Mature AEO ecosystem with tangible benefits (fewer inspections, priority treatment, mutual recognition).

WOE lens: AEO "light" pathways with simplified criteria and mentoring could crowd in more WOE; Korea's templates can inform India's SME-AEO tiers.

SPS/TBT compliance

India: Expanding testing labs but capacity constraints and uneven geographic access remain; conformity costs fall hard on micro/small WOE.

Korea: Dense network of accredited labs, standardization support, and partial cost-sharing.

WOE lens: Targeted subsidies for certification, pooled testing, and buyer-linked conformity roadmaps significantly raise readiness in both countries; Korea's co-funding model is a strong practice.

Trade finance and payments

India: Public-sector schemes (CGTMSE, SIDBI, ECGC) exist; collateralization and documentation hurdles still binding for WOE; fintech solutions growing.

Korea: Export credit/insurance and bank-agency coordination strong; voucher programs bundle finance with marketing and compliance.

WOE lens: Combining **trade finance + logistics + standards** in a single product increases export entry probability.

Empirical Patterns

Participation effect (H1): Post-TFA implementation periods should show higher export entry for WOE in both countries, with **larger marginal effects in India** due to higher initial trade costs.

Intensity and survival (H2–H3): Firms using single windows, advance rulings, and risk management should record higher export intensity and better survival; AEO participation should correlate with fewer delays.

Mediating role of support (H4): The impact of TFA on WOE will be stronger when firms access coaching, certification assistance, and finance.

Comparative result (H5): Korea's absolute levels of women-led exporters and per-firm export value will exceed India's; however, **percentage improvements** from incremental reforms and targeted programs may be higher in India.

Policy Recommendations

Mainstream gender in trade facilitation

Include gender-disaggregated targets and monitoring in TFA implementation plans; mandate reporting on WOE uptake of single-window, AEO, and advance rulings.

Create **gender-responsive enquiry points** with service-level standards; integrate multilingual chat/helplines.

Lower fixed costs of compliance

Certification support: pooled testing, buyer-driven conformity roadmaps, and partial subsidies for WOE in SPS/TBT-intensive sectors.

Broker accreditation: certify customs brokers with SME/WOE service standards and transparent fee schedules.

Finance and risk-sharing

Expand **export credit guarantees** tailored to first-time women exporters; pilot invoice-discounting and supply-chain finance with gender-linked guarantees; embed logistics insurance.

Digital inclusion and e-commerce

Fast-track onboarding of WOE onto e-commerce export channels with bundled services: product compliance, cross-border returns, IPR protection, and taxation guidance.

India-specific priorities

Scale **guided onboarding** to ICEGATE/SWIFT via WEP and state export promotion agencies; expand **SME-AEO (Tiered)** pathways; deepen lab networks and mutual recognition arrangements; leverage Logistics Policy to

improve first-mile/last-mile connectivity for women-led clusters.

Korea-specific priorities

Increase the share of WOE in advanced manufacturing and high-value services via targeted R&D and global branding support; continue export voucher programs with gender weighting; promote flexible work and childcare supports to address scale barriers.

Bilateral learning (India ↔ Korea)

From Korea to India: templates for UNI-PASS UX, AEO-SME mentoring, export vouchers that bundle compliance/marketing/finance.

From India to Korea: large-scale inclusion programs and women-focused digital marketplaces, useful for reaching micro-entrepreneurs and regional diversity.

Limitations and Future Research

Data gaps: Few countries maintain high-quality, gender-disaggregated customs micro-data; proxies (ownership/management gender) from enterprise surveys may be imperfect.

Attribution: Isolating TFA effects from concurrent reforms is challenging; careful robustness checks (synthetic control, matched samples) are needed.

External validity: Findings may not generalize beyond the two countries given institutional differences.

Future work can (i) compile a harmonized WOE–export panel using administrative and platform data, (ii) examine sector-specific pathways (e.g., agri-food vs. apparel vs. cosmetics), and (iii) evaluate randomized onboarding to single-window/AEO as a policy experiment.

3. CONCLUSION

WTO policy interventions especially the TFA's emphasis on transparency, risk management, and digitalization can meaningfully lower the barriers that keep many women-owned enterprises out of international markets. Our India & South Korea comparison shows that implementation quality and complementary, gender-aware domestic policies determine whether these multilateral rules translate into real opportunities. Korea's near-frontier systems demonstrate the value of end-to-end digital processes and bundled export support; India's rapid reforms reveal how large marginal gains are possible when trade costs start high and targeted onboarding is scaled. For both countries, the next frontier is systematic gender mainstreaming in trade facilitation, better data, and integrated instruments that combine compliance, logistics, finance, and market access. Doing so would not only expand women's participation in trade but also strengthen competitiveness and resilience across the economy..

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