

The Job Content of Exports by Gender:
A Comparative Analysis of Developing Asia, Europe, and
Sub-Saharan Africa

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International Input-Output Conference, 2026

Distribution of occupations and female shares within the occupations in electronics

Occupation	Germany		Vietnam	
	% jobs	% female	% jobs	% female
2000				
Managers	5.0	13.8	2.6	0.0
Prof. & Tech.	37.2	22.9	22.4	51.4
Clerks & Sales	14.1	63.7	17.9	53.6
Production	42.8	19.8	54.5	40.0
Elementary	1.0	3.2	2.6	75.0
2018				
Managers	6.4	16.0	2.6	16.3
Prof. & Tech.	39.4	22.8	28.8	48.6
Clerks & Sales	15.7	61.4	14.9	55.8
Production	37.8	17.8	49.8	43.0
Elementary	0.7	3.7	4.0	44.3

Electronics export jobs: **Germany** 289k → 405k | **Vietnam** 7k → 600k

Female share overall: **Germany** 27% → 26% | **Vietnam** 45% → 46%

What do we do in this paper?

- **Core question:** How have export-related jobs changed for women and men over the past two decades — and, more specifically: in which occupations did women's share rise, and which driver moved it?
- **Scope:**
 - ↪ Developing Asia: Pakistan, Philippines, Thailand, Vietnam
 - ↪ Europe : Germany, Netherlands, Czechia, Slovakia
 - ↪ Sub-Saharan Africa : Cameroon, Nigeria, Senegal
- **Approach:**
 - ↪ Decompose job content of exports by gender and occupation-industry
 - ↪ Apply **Structural Decomposition Analysis (SDA)** (2000–2018) to decompose job changes into three drivers:
 1. **Labor Intensity** (jobs per unit of exports)
 2. **Production Structure** (process innovations, input mix)
 3. **Foreign Demand** (scale effects of growth in gross exports)
 - ↪ We examine the change in export-related employment growth for women and men by occupation, then the change in the **female share** of export-related employment by occupation.

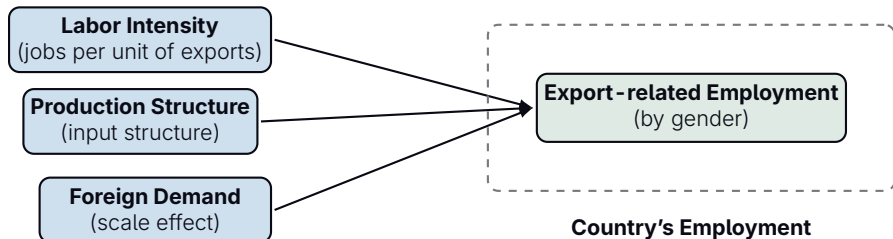
(Some of the) related literature

Job content of exports	Reijnders & de Vries (2018); Pahl et al. (2022); Horvát, Webb, and Yamano (2020)
Gendered trade outcomes	Rueda-Cantuche and Sousa (2017); Saraçoğlu et al. (2018); Calvo-Calvo, Duarte & Sarasa (2025); Chiapin Pechansky et al. (2025)
Trade & female employment	Berik (2000); Gaddis & Pieters (2017); Kis-Katos et al. (2018); Juhn et al. (2014)

This paper

- Combines occupation–industry–gender data with intercountry input–output tables for 11 countries, 2000–2018.
 1. *Across* industries: which sectors women's export jobs sit in.
 2. *Within* industries, across occupations: the dimension the sectoral lens misses.
- Shifts the question from *whether* export employment grew to whether women's **position relative to men** improved — the female share, by occupation.
- Uses SDA to identify **which driver** moves that change in share: labor intensity, production structure, or foreign demand — we do not capture discrimination, norms, or institutions, which enter only indirectly.

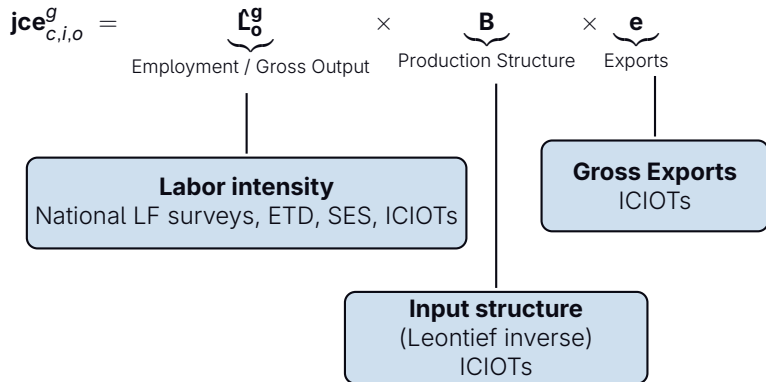
Conceptual Framework and Hypothesis: What impacts change in export-related employment and gender differences



- H1 Foreign demand dominates.** It is the main positive driver of changes in women's export-employment share in both regions.
 - H1a Magnitude:* demand outweighs labor intensity and production structure.
 - H1b Direction:* the sign depends on the gender-intensity of the expanding sectors.
- H2 Labor intensity is the brake.** Falling labor intensity offsets gains — binding hardest in **Europe**, only partially in **Developing Asia**.
- H3 Development stage conditions the pattern.** **Developing Asia:** broad-based demand keeps women's share near parity. **Europe:** composition and productivity move it unevenly, below the economy-wide share.

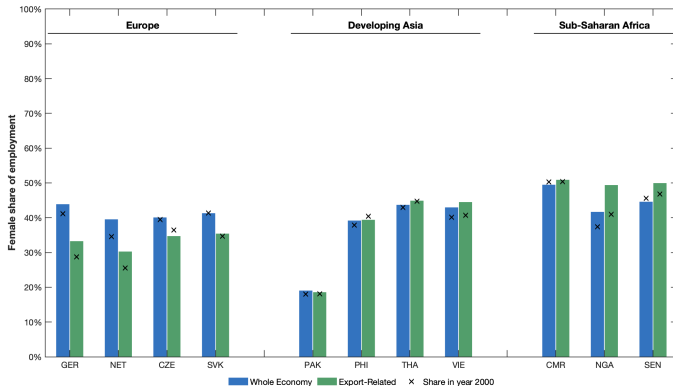
Measuring Export-related Employment: Job Content of Exports by Gender

- We adapt the accounting framework in Koopman et al. (2014) and Los et al. (2016) to measure domestic employment embodied in gross exports (the job content of exports) by occupation, industry, and gender



Do exports matter for women's employment, and does it differ by levels of economic development?

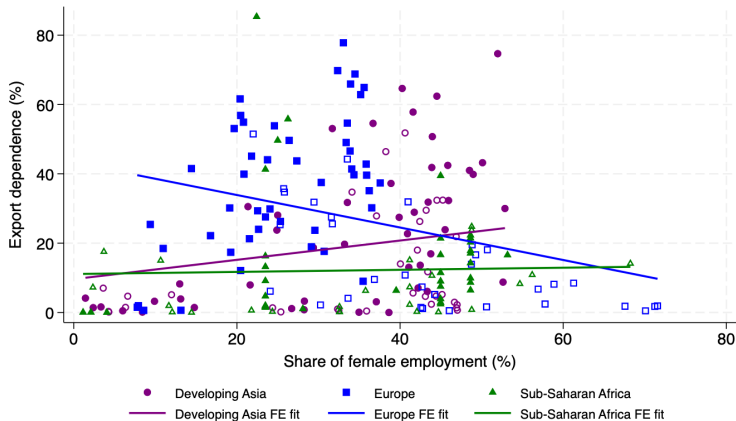
Figure 1: Female Employment Shares in Europe and Developing Asia in 2018



→ In developing Asia and Sub-Saharan Africa gender gaps in export related employment are smaller than in whole economy employment, but larger in Europe.

Do export-intensive industries create jobs for women?

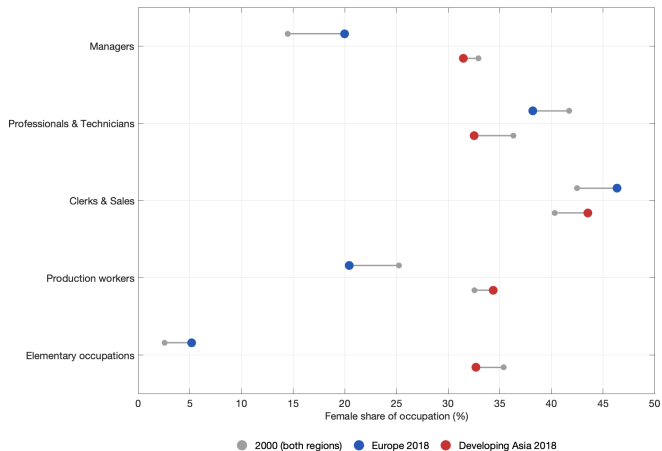
Figure 2: Share of women in employment and export dependence by industry in 2018 across the three regions



→ In Developing Asia and Sub-Saharan Africa, more export-intensive industries tend to employ relatively more women — while in Europe the opposite holds, where export intensity is concentrated in male-dominated goods production and the female-heavy sectors are mostly less export-oriented services.

Did women's share of total export employment rise, by occupation?

Figure 3: Change in female share of export-related employment by occupation 2000 and 2018



→ Two different patterns. Europe: women's share rises in managers, clerks & sales, and elementary — but falls in professionals and production. Developing Asia: shares sit near parity throughout, moving only modestly.

SDA: Decomposing the Job Content of Exports

↪ Where $L_{i,o}^g$ is $\frac{Emp_{c,i,o}^g}{GO_i}$

$$\Delta \mathbf{jce}^g = \underbrace{\frac{1}{2} \left[(\Delta \hat{\mathbf{L}}^g) \mathbf{B}_t \mathbf{e}_t + (\Delta \hat{\mathbf{L}}^g) \mathbf{B}_{t+1} \mathbf{e}_{t+1} \right]}_{\text{Labor Intensity}} + \underbrace{\frac{1}{2} \left[\hat{\mathbf{L}}_t^g (\Delta \mathbf{B}) \mathbf{e}_{t+1} + \hat{\mathbf{L}}_{t+1}^g (\Delta \mathbf{B}) \mathbf{e}_t \right]}_{\text{Production Structure}} + \underbrace{\frac{1}{2} \left[\hat{\mathbf{L}}_t^g \mathbf{B}_t (\Delta \mathbf{e}) + \hat{\mathbf{L}}_{t+1}^g \mathbf{B}_{t+1} (\Delta \mathbf{e}) \right]}_{\text{Foreign Demand}}$$

Change in **Labor Intensity**
Jobs per unit of output
Task reallocation, productivity shifts

Change in **Production Structure**
Leontief coefficients
Process innovation, skill/task bias

Change in **Foreign Demand**
Foreign demand
Scale effect: more exports → more jobs

Results

Results: Drivers of Export-related Employment in Europe

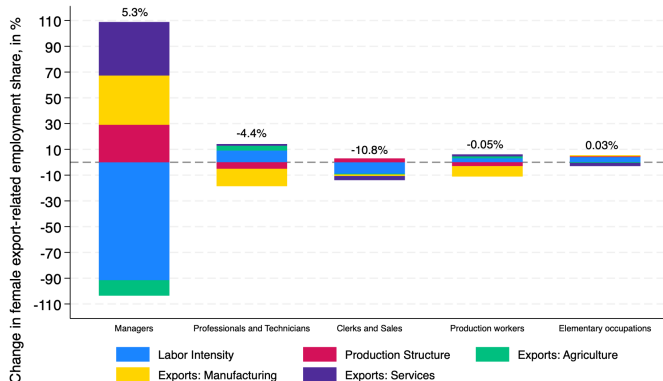
Figure 4: Europe: Growth rate of female and male export-related employment by driver



- Dominant driver: service exports, across all occupations and for both women and men (mainly higher-skill roles).
- Manufacturing exports matter mainly for men — in professional/technical and production roles for both.

Results: Which drivers move women's share in export related employment growth? Europe

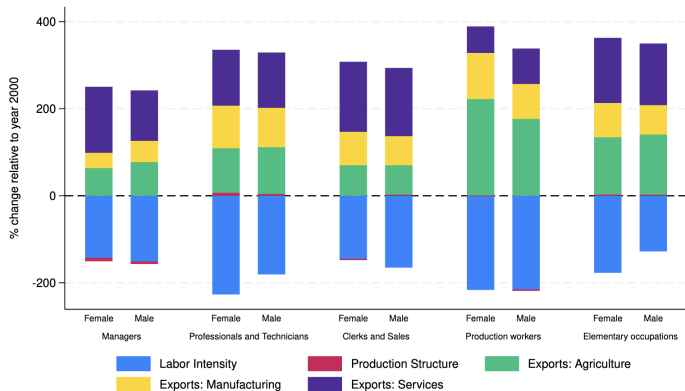
Figure 5: Europe: Change in women's export related employment share by occupation and driver



- ↪ Each driver moves women's and men's employment substantially — but in similar directions — so the net change in women's **share** stays small in most occupations.
- ↪ **Managers**: women's share rises (+5.3pp) — service and manufacturing exports pull it up, partly offset by falling labor intensity.
- ↪ **Production** and **elementary**: essentially flat — drivers offset almost exactly.

Results: Drivers of Export-related Employment in Developing Asia

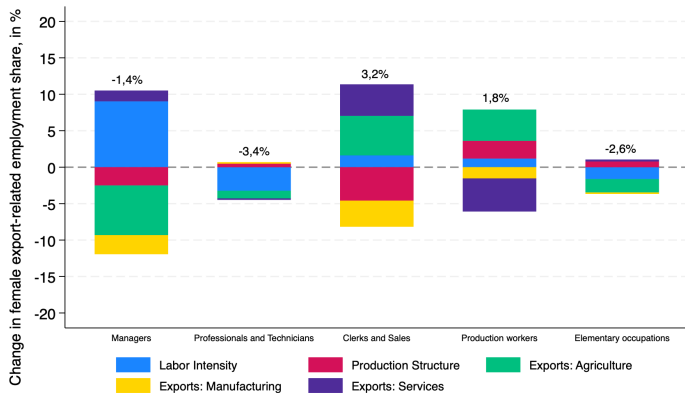
Figure 6: Developing Asia: Change in women's export related employment share by occupation and driver



- Dominant role of exports is more balanced across 3 sectors for employment growth across both genders.
- Labor intensity is a dominant damper of export related employment growth for both genders.

Results: Which drivers move women's share in export related employment growth? Developing Asia

Figure 7: Developing Asia: Growth rate of female and male export-related employment by driver



- Driver contributions are small throughout — women's share moves only modestly in every occupation, consistent with shares sitting near parity across the board.
- **Clerks & sales** (+3.2) and **production** (+1.8) gain, pushed by agriculture and services exports; **professionals/technicians** (3.4) slips as labor intensity offsets demand.

What we learned

The regional contrast

- **Europe:** services-driven gains, partly offset by falling labor intensity — women's share moved up in some occupations and down in others, with no uniform direction.
- **Developing Asia:** broad-based demand across agriculture, manufacturing, and services — women's share stayed close to parity across occupations, moving only modestly.
- In Europe, composition and productivity move women's share in different directions; in Developing Asia, growth is broad and shares stay near parity.

What it means for how we study this

- Gendered trade outcomes cannot be read off industry exposure.
- Within-occupation shares reveal movement that aggregate participation rates hide.

Why composition matters — three channels

- **Trade policy.** The gender outcome depends on *which* sectors and occupations expand, not on export exposure as such — composition is itself a distributional lever. Diversification toward labor-absorbing, skill-upgrading activities (services, light manufacturing) is what broadens female participation; undifferentiated export promotion does not.
- **Human-capital policy.** The occupational structure of export growth signals where skills demand is heading. Where women's gains concentrate in clerical, sales, and production roles, targeted training and access to inputs determine whether they move into higher-value work — making trade and skills policy complementary, not separate.
- **Resilience.** Because falling labor intensity can erode export-linked jobs even as exports grow, the durability of women's gains depends on adjustment capacity — retraining and mobility into expanding occupations. Most binding in Europe, but it conditions sustainability everywhere.

Appendix

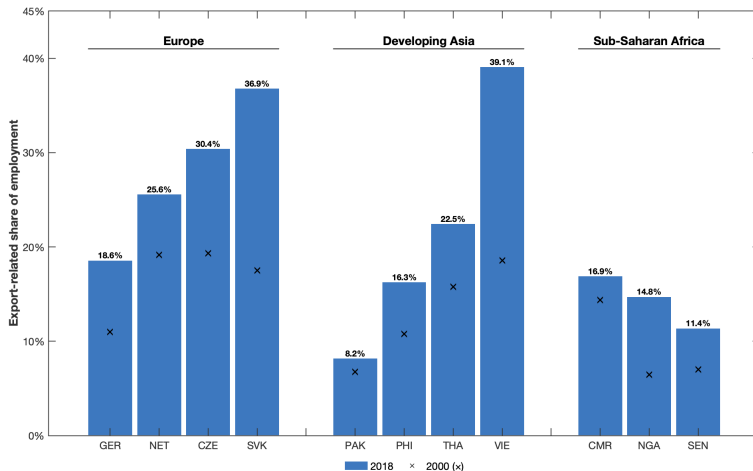
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<i>All occ.</i>		26.7			44.9	
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Prof. & Tech.	39.4	22.8	159.8	28.8	48.6	172.8
Clerks & Sales	15.7	61.4	63.4	14.9	55.8	89.1
Production	37.8	17.8	153.0	49.8	43.0	298.5
Elementary	0.7	3.7	2.9	4.0	44.3	23.7
<i>All occ.</i>		26.4			45.9	

Vietnam 2000 (grey) rests on only 7k jobs — shown for reference. % fem. = female job content ÷ total within each occupation; electronics only; jobs in thousands.

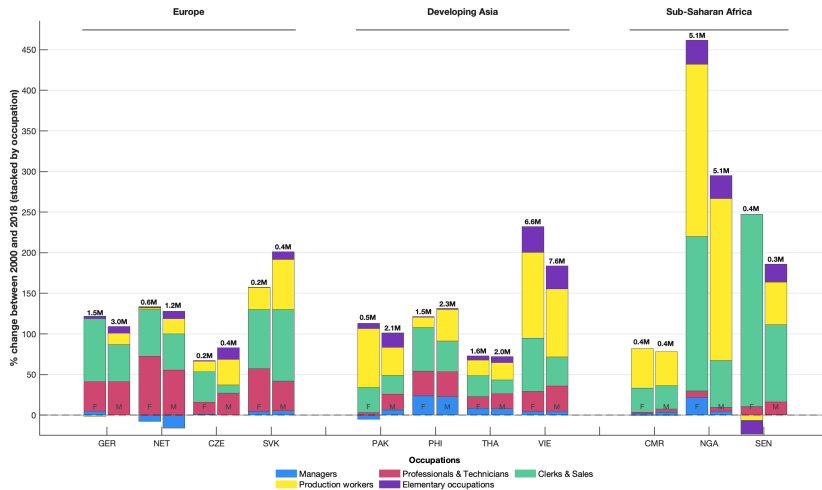
Are exports important for employment in these economies?

Figure 8: Share of Export-Related Employment in Overall Employment, 2000 and 2018



Data Description: Employment growth by occupation and gender across regions (2000–2018)

Figure 9: Employment growth by gender since 2000, stacked by occupation



Left bar = Female | Right bar = Male

Results: Drivers of Export-related Employment in Sub-Saharan Africa

Figure 10: Europe: Growth rate of female and male export-related employment by driver

