

Table S1 presents the variables included in the empirical models, their definitions, data sources, and applied transformations. Table S2 presents descriptive statistics for the independent variables included in the regression analysis. To justify their inclusion, the table also reports representative studies that found each variable to be a statistically significant determinant of GVC participation at the aggregate level and in the agri-food sectors. While general GVC participation models often include structural controls such as factor endowments or geography, such variables are less sector-relevant in the context of agri-food GVCs.

Table S1. Overview of Variables Used in Final Models

Variable	Description	Source	Transformation
Dependent variables:			
Agriculture/Food Forward GVC participation	Share of domestic value added embodied in products that are further processed and re-exported in sectoral gross exports	Own calculation based on TiVA ICIOT	Differentiated if non-stationary
Agriculture/Food Backward GVC participation	Share of foreign value added in sectoral gross exports	Own calculation based on TiVA ICIOT	Differentiated if non-stationary
Independent variables:			
GDP per capita	GDP per capita (in current US\$)	World Bank	Log-transformed Differentiated
Development	Country income classification: High-income = 1, Lower-/Upper-middle income = 0	World Bank	Dummy
Deep trade agreements	Number of trade agreements with depth index 5–7	Design of Trade Agreements (DESTA)	Levels
Agriculture/Food FDI outflow	Agriculture/Food FDI outflow as % of sectoral GDP	Own calculation based on FAO and TiVA ICIOT	Levels
Agriculture/Food Tariffs MFN	Most-Favored Nation (MFN) Tariffs (weighted average in %) for: agricultural raw materials (agriculture) and for food products (food)	WITS	Levels

Agriculture/Food share of GDP	Agriculture/Food GDP as % of GDP	Own calculation	
		based on TiVA	Levels
		ICIOT	

Source: own compilation

Table S2. Descriptive Statistics and Literature References for GVC Participation Drivers

Variable	Mean	Std. Dev.	Min	Max	General GVC studies	Agri-food GVC studies
D_ln_GDP per capita	0.05889	0.10589	-0.30913	0.82331	(World Bank, 2020; Xu <i>et al.</i> , 2022)	(Kim & Steinbach, 2025)
Development	0.67424	0.46891	0.00000	1.00000	(Rahman <i>et al.</i> , 2024)	Not directly analyzed (Kim <i>et al.</i> , 2024a;
Deep trade agreements	2.29437	3.92756	0.00000	15.00000	(Cheng <i>et al.</i> , 2022)	Steinbach and Zurita, 2025)
FDI outflow agriculture	0.00617	0.13928	-1.18949	3.62094	(Li <i>et al.</i> , 2021)	no studies
FDI outflow food	0.02588	0.97023	-19.30360	18.28112	(Li <i>et al.</i> , 2021)	no studies
Tariffs MFN agriculture	1.67961	2.23630	0.00000	12.57045	(Yanikkaya <i>et al.</i> , 2024)	no studies
Tariffs MFN food	16.47677	13.14141	0.00000	224.82470	(Yanikkaya <i>et al.</i> , 2024)	no studies

Source: own compilation based on the STATA 15 calculations.

Table S3. Variance inflation factors results for agriculture sector models

Variable	VIF	1/VIF
Development	1.43	0.701576
Tariffs	1.30	0.769167
D_ln_GDP per capita	1.09	0.918606
Deep trade agreements	1.06	0.944439
FDI share of GDP	1.00	0.998400
Mean VIF	1.17	

Source: own compilation based on STATA 15 calculations.

Table S4. Variance inflation factors results for food sector models

Variable	VIF	1/VIF
Development	1.12	0.889071
D_ln_GDP per capita	1.09	0.917641
Deep trade agreements	1.08	0.923121

Tariffs	1.03	0.974542
FDI share of GDP	1.00	0.999491
Mean VIF	1.06	

Source: own compilation based on STATA 15 calculations.

Table S5. Pesaran CD diagnostic tests results for cross-sectional dependence for variables

Variable	CD	p-value
GDP per capita	107.14	0.000
Development	4.40	0.000
Deep trade agreements	13.94	0.000
FDI share of GDP agriculture	0.14	0.886
FDI share of GDP food	3.11	0.002
Tariffs agriculture	14.34	0.000
Tariffs food	16.30	0.000
Backward participation agriculture	50.68	0.000
Forward participation agriculture	31.50	0.000
Backward participation food	65.84	0.000
Forward participation food	30.95	0.000

Source: own compilation based on STATA 15 calculations.

Table S6. Pesaran CD diagnostic tests results for fixed effect residuals in models

Dependent variable	CD	p-value
Backward participation agriculture	-2.18	0.029
D_Forward participation agriculture	4.05	0.000
D_Backward participation food	-1.49	0.136
D_Forward participation food	5.69	0.000

Source: own compilation based on STATA 15 calculations.

Table S7. Pesaran Panel Unit Root Test results for different variables

Variable	Trend	Lag	CIPS	Critical values at		
				10%	5%	1%
GDP per capita	No	1	-1.029	-2.04	-2.11	-2.23
GDP per capita	Yes	1	-1.573	-2.54	-2.61	-2.73
GDP per capita	No	2	-1.180	-2.04	-2.11	-2.23
GDP per capita	Yes	2	-2.060	-2.54	-2.61	-2.73
ln_GDP per capita	No	1	-2.165	-2.04	-2.11	-2.23
ln_GDP per capita	Yes	1	-1.840	-2.54	-2.61	-2.73
ln_GDP per capita	No	2	-2.204	-2.04	-2.11	-2.23
ln_GDP per capita	Yes	2	-2.055	-2.54	-2.61	-2.73
D_ln_GDP per capita	No	1	-3.327	-2.04	-2.11	-2.23
D_ln_GDP per capita	Yes	1	-3.511	-2.54	-2.61	-2.73
D_ln_GDP per capita	No	2	-3.327	-2.04	-2.11	-2.23
D_ln_GDP per capita	Yes	2	-3.511	-2.54	-2.61	-2.73
FDI share of GDP agriculture	No	1	-2.507	-2.04	-2.11	-2.23
FDI share of GDP agriculture	Yes	1	-2.867	-2.54	-2.61	-2.73
FDI share of GDP agriculture	No	2	-2.305	-2.04	-2.11	-2.23
FDI share of GDP agriculture	Yes	2	-2.887	-2.54	-2.61	-2.73
FDI share of GDP food	No	1	-2.944	-2.04	-2.11	-2.23
FDI share of GDP food	Yes	1	-3.351	-2.54	-2.61	-2.73
FDI share of GDP food	No	2	-2.839	-2.04	-2.11	-2.23

FDI share of GDP food	Yes	2	-3.376	-2.54	-2.61	-2.73
Tariffs agriculture	No	1	-2.351	-2.04	-2.11	-2.23
Tariffs agriculture	Yes	1	-3.257	-2.54	-2.61	-2.73
Tariffs agriculture	No	2	-2.683	-2.04	-2.11	-2.23
Tariffs agriculture	Yes	2	-3.338	-2.54	-2.61	-2.73
Tariffs food	No	1	-2.584	-2.04	-2.11	-2.23
Tariffs food	Yes	1	-2.864	-2.54	-2.61	-2.73
Tariffs food	No	2	-2.589	-2.04	-2.11	-2.23
Tariffs food	Yes	2	-2.924	-2.54	-2.61	-2.73
Backward participation agriculture	No	1	-2.324	-2.04	-2.11	-2.23
Backward participation agriculture	Yes	1	-2.790	-2.54	-2.61	-2.73
Backward participation agriculture	No	2	-2.331	-2.04	-2.11	-2.23
Backward participation agriculture	Yes	2	-2.997	-2.54	-2.61	-2.73
Forward participation agriculture	No	1	-2.279	-2.04	-2.11	-2.23
Forward participation agriculture	Yes	1	-2.436	-2.54	-2.61	-2.73
Forward participation agriculture	No	2	-2.333	-2.04	-2.11	-2.23
Forward participation agriculture	Yes	2	-2.469	-2.54	-2.61	-2.73
D_Foward participation agriculture	No	1	-4.633	-2.04	-2.11	-2.23
D_Foward participation agriculture	Yes	1	-4.661	-2.54	-2.61	-2.73
D_Foward participation agriculture	No	2	-4.655	-2.04	-2.11	-2.23
D_Foward participation agriculture	Yes	2	-4.661	-2.54	-2.61	-2.73
Backward participation food	No	1	-2.176	-2.04	-2.11	-2.23
Backward participation food	Yes	1	-2.233	-2.54	-2.61	-2.73
Backward participation food	No	2	-2.228	-2.04	-2.11	-2.23
Backward participation food	Yes	2	-2.336	-2.54	-2.61	-2.73
D_Backward participation food	No	1	-4.110	-2.04	-2.11	-2.23
D_Backward participation food	Yes	1	-4.135	-2.54	-2.61	-2.73
D_Backward participation food	No	2	-4.131	-2.04	-2.11	-2.23
D_Backward participation food	Yes	2	-4.169	-2.54	-2.61	-2.73
Forward participation food	No	1	-1.935	-2.04	-2.11	-2.23
Forward participation food	Yes	1	-2.306	-2.54	-2.61	-2.73
Forward participation food	No	2	-2.007	-2.04	-2.11	-2.23
Forward participation food	Yes	2	-2.396	-2.54	-2.61	-2.73
D_Foward participation food	No	1	-4.378	-2.04	-2.11	-2.23
D_Foward participation food	Yes	1	-4.422	-2.54	-2.61	-2.73
D_Foward participation food	No	2	-4.378	-2.04	-2.11	-2.23
D_Foward participation food	Yes	2	-4.422	-2.54	-2.61	-2.73

Source: own compilation based on STATA 15 calculations.

Table S8. Diagnostic Test Results

Model	Heteroskedasticity (Wald Test)	Serial Correlation (Wooldridge Test)
Forward participation agriculture	Present (Prob > chi2 = 0.0000)	Present (Prob > F = 0.0000)
Backward participation food	Present (Prob > chi2 = 0.0000)	Present (Prob > F = 0.0000)
Forward participation food	Present (Prob > chi2 = 0.0000)	Present (Prob > F = 0.0000)
Backward participation food	Present (Prob > chi2 = 0.0000)	Present (Prob > F = 0.0080)

Source: own compilation based on the STATA 15 calculations.