Do Global Value Chains Enhance Economic Upgrading? A Long View.

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Motivation

- Slow industrialization in many developing countries (e.g., Rodrik, 2016)
- Global value chain (GVC) participation as panacea for development (e.g., Baldwin, 2014; World Bank, 2017)
- Scepticism (e.g., Gereffi, 1999; 2014)

Do Global Value Chains Enhance Economic Upgrading?

Cross-country studies for recent periods and limited sets of countries. We provide **long-run** (1970-2008) and **wide coverage** (58 countries, 39 non-high income).

Complement to case studies and firm-level evidence.

Operationalization

Economic Upgrading

- Labor productivity growth: *value added per worker* (see Rodrik, 2013 on unconditional convergence)
- Employment growth: *workers in formal manufacturing* (see Sen, 2017 on scale effects)

GVC approach

- Focus on value added and employment in exporting industry, but also in all industries *contributing indirectly*
- Here: *formal manufacturing* industries

Domestic value added in exports
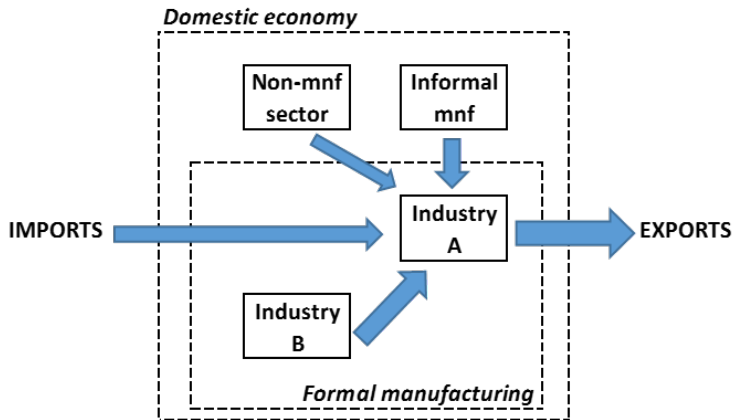
Main variables

Manufacturing value added: $MVA_p = \mathbf{v_{Mfg}} * (\mathbf{I} - \mathbf{A_{dom}})^{-1} * \mathbf{e_p}$

Manufacturing employment: $MEMP_p = \mathbf{emp_{Mfg}} * (\mathbf{I} - \mathbf{A_{dom}})^{-1} * \mathbf{e_p}$

Labour productivity: $MLP_p = MVA_p / MEMP_p$

GVC participation: $VAXDr_p = \mathbf{v} * (\mathbf{I} - \mathbf{A_{dom}})^{-1} * \mathbf{e_p} / e_p$

(bound between 0 and 1, see also Hummels et al., 2001; Koopman et al., 2012)

Data

1. *National Input-output tables* between 1970 and 2008 with 14 manufacturing industries and 5 broad sectors (from Pahl and Timmer, 2018).

2. Formal manufacturing output, value added and employment series from *UNIDO's Indstat2* (2016), *after harmonization*.

- 14 manufacturing industries
- 58 countries, 39 non-high income
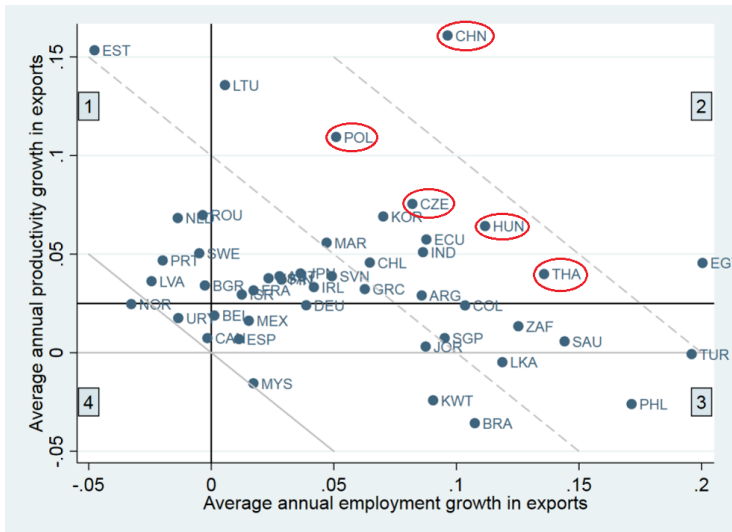- Baseline analysis: average growth over 10-year periods

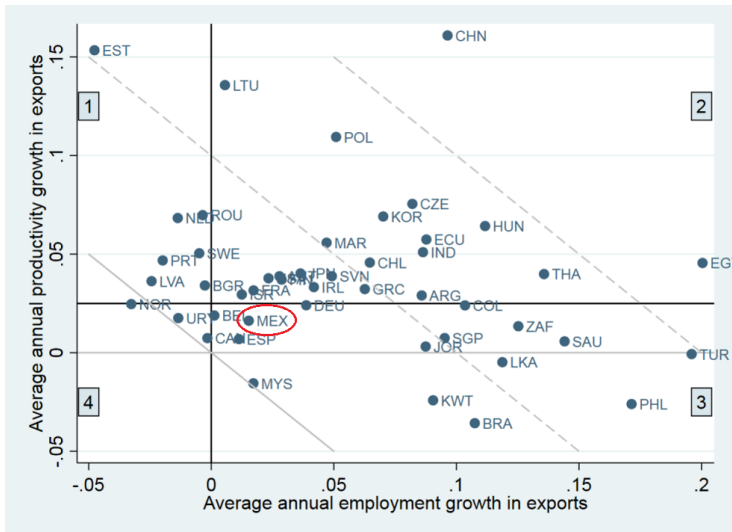# Results

Illustrative example: Automotive value chain 1995 to 2008
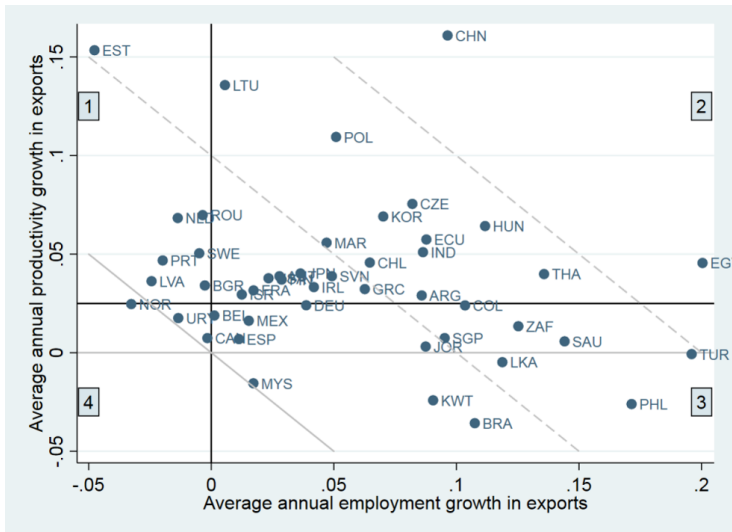
Results

Illustrative example: Automotive value chain 1995 to 2008

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- Developing countries
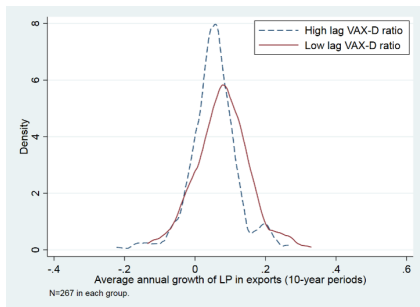
Labor productivity   Employment
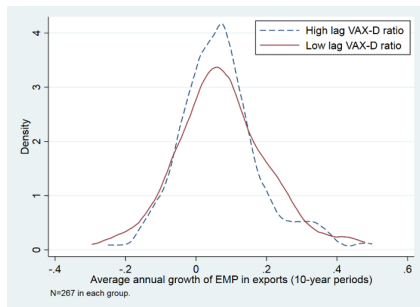
- Labour productivity growth diff-in-means t-value: 4.10
  Employment growth diff-in-means t-value: 0.28

$$g(mlp_{pct}) = \beta_0 + \beta_1 l.V_{pct} + \beta_2 l.mlp_{pct} + \beta_3 (l.mlp_{pct} * l.V_{pct}) + C_c + T_{pt} + \epsilon_{pct}$$

$$g(memp_{pct}) = \beta_0 + \beta_1 l.V_{pct} + \beta_2 l.mlp_{pct} + \beta_3 l.Reg_{ct} + \beta_4 l.Hum_{ct} + T_{pt} + \epsilon_{pct}$$

- **V**: GVC participation (VAX-D ratio)
- **mlp**: labour productivity
- **Interaction term**
- **Controls**: product-time dummies (T), country dummies (C) or country-level variables

Table 3. Explaining Growth of formal manufacturing labour productivity in exports

VARIABLES	(1)	(2)	(3)	(4)
	Growth of formal manufacturing labour productivity in exports			
Lag VAX-D ratio (ln)	-0.0191***	-0.0415***	-0.178***	-0.152***
	(0.00621)	(0.0107)	(0.0441)	(0.0482)
Lag manufacturing labour productivity in exports (ln)			-0.0107***	-0.0603***
			(0.00203)	(0.00381)
Interaction: Lag VAX-D ratio x lag labour productivity			0.0183***	0.0145***
			(0.00470)	(0.00515)
Constant	0.0905***	0.111***	0.182***	0.606***
	(0.00658)	(0.0178)	(0.0202)	(0.0361)
Observations	1,965	1,965	1,965	1,965
Adjusted R-squared	0.172	0.416	0.238	0.570
Time-product Dummies	Yes	Yes	Yes	Yes
Country Dummies	No	Yes	No	Yes

Note: Robust standard errors to heteroscedasticity in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Variables as described in the main text.

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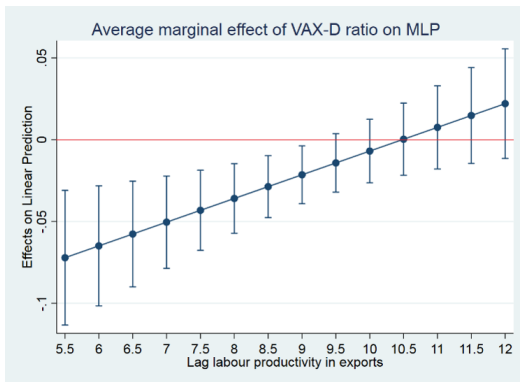
Growth of labour productivity in exports: marginal effects

Results
Growth of employment in exports

Table 4. Explaining Growth of formal manufacturing employment in exports

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Lag VAX-D ratio (ln)	0.0114	0.0465*	0.0252*	0.0367	-0.137	-0.0861
	(0.0125)	(0.0239)	(0.0132)	(0.0242)	(0.0843)	(0.0920)
Lag manufacturing labour productivity in exports (ln)			0.000311	0.0322***	0.00640	0.0370***
			(0.00336)	(0.00826)	(0.00478)	(0.00907)
Lag human capital			-0.0633***		-0.0648***	
			(0.00741)		(0.00758)	
Lag regulatory institutions			0.00307		0.00253	
			(0.00213)		(0.00219)	
Interaction: lag VAX-D ratio x lag labour productivity					0.0175**	0.0137
					(0.00849)	(0.00918)
Constant	0.0274***	-0.00325	0.148***	-0.271***	0.0993***	-0.316***
	(0.0103)	(0.0217)	(0.0256)	(0.0721)	(0.0343)	(0.0805)
Observations	1,965	1,965	1,965	1,965	1,965	1,965
Adjusted R-squared	0.074	0.223	0.136	0.232	0.137	0.233
Time-Value Chain Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country Dummies	No	Yes	No	Yes	No	Yes

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Results
Growth of employment in exports: marginal effects

Average marginal effect of VAX-D ratio on MEMP

Conclusion
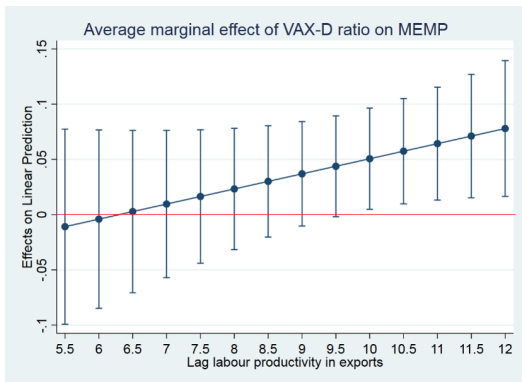
- **GVC participation** supposedly offering quick route to productivity and employment generation.
- **Main contribution**: long-run macro evidence on a large set of developing countries.

- **Positive** association with **labour productivity growth**, in particular in poorer countries.
  However, effect relatively small.
- **No evidence** for positive effect on **employment growth**

- *GVCs provide opportunities for upgrading, but it is not automatic.*

Thank you for your attention!

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