Climbing up the ladder: Transformation in exports structure of South-South trade

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Outline

1. Introduction
2. Stylised Facts
3. What’s new here?
4. Empirical methodology
5. Results
6. Conclusions

Journey begins

Introduction

- Developing economies' merchandise exports grew from 1.4 trillion USD in 1995 to 5.2 trillion USD in 2007
  - The transformation of developing countries exports structure has been diverse leading to a differential level of impact on their national economic growth and development.
- Two key issues:
  - The proponents of open-global economy and free trade argue that product diversification help accelerate economic growth and development in countries which favored these set of policies.
  - On the other hand, another set of economists argue that a cautious approach in conjunction with good and strategic domestic economic policies can better help countries to obtain fruits of export diversification leading to rising skill/technology content of products help countries to transform their domestic production structure.

Prebisch-Singer

Classical arguments

- Prebisch-Singer (1950) hypothesis indicate that (trade) concentration is linked to deteriorating terms of trade, income volatility, shrinking production structure that lead to low-level equilibrium trap.
- Trade (export) diversification and skill/technology content in production process is key for developing countries to overcome domestic economic and structural bottlenecks, especially in Africa

- **Welfare impacts**: economic growth and employment creations
- **Sectoral implications**: Depending on the institutional linkages and stages of development, welfare implications tend to be higher in high skilled/technology content industries, and new issues related to intensive and extensive margin
- **Domestic economic linkages**: Forward and backward linkages with domestic firms leading to a productive capacity and expand structure

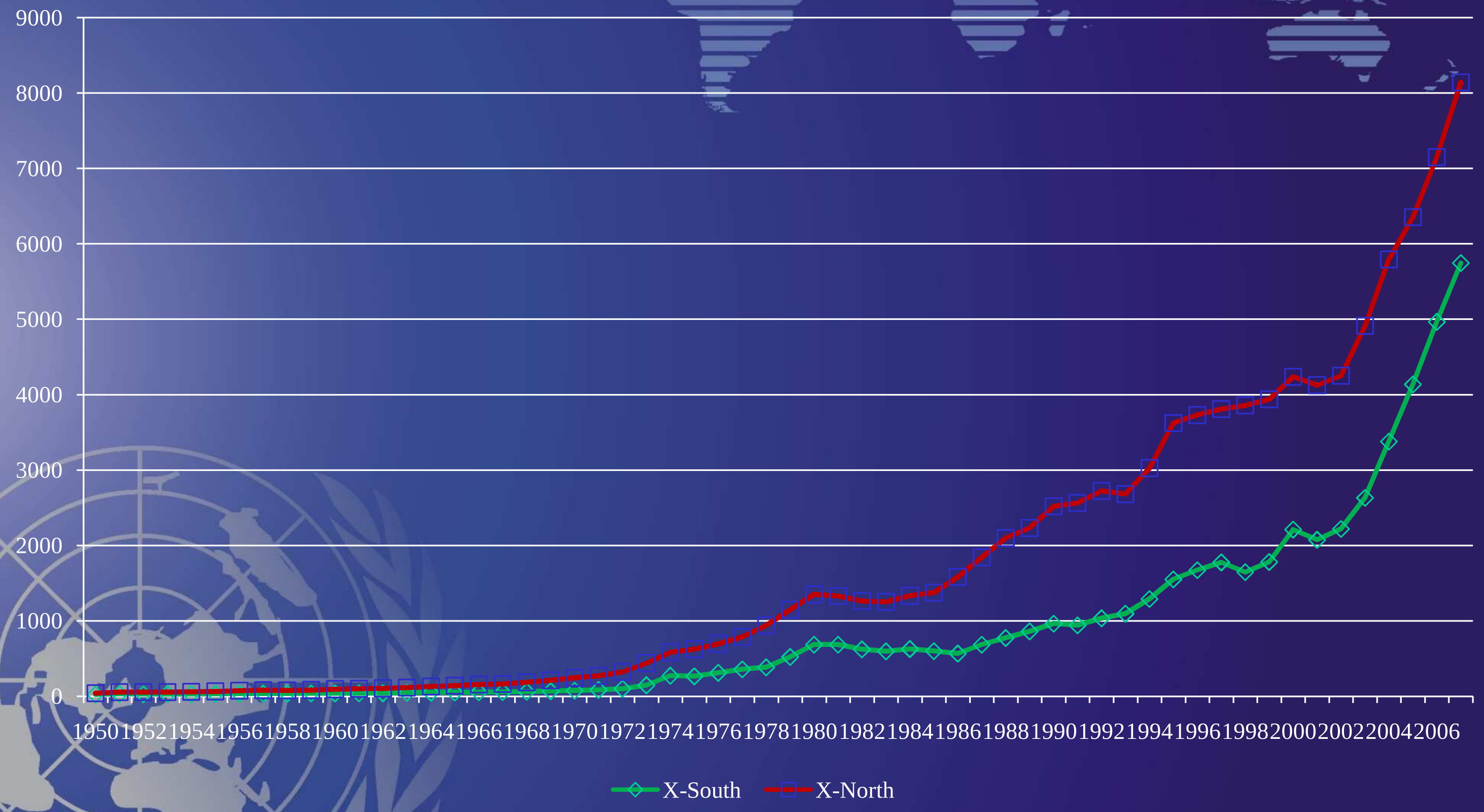
Literature Review

- Harschman (1945), ***United Nations (1950)***, Michaely (1958), Massell (1964), Grossman and Helpman (1991), Sachs and Warner (1995), Lall (2000), ***Wood and Mayer (2001)***, Lederman and Maloney (2003), Imbs and Wacziarg (2003), Hausman and Rodrik (2003), ***Collier (2003)***, ***Sachs et al. (2004)***, Hausman, Hwang and Rodrik (2005), Melitz and Ottaviano(2005), Rodrik (2006), ***UN Africa (2007)*** and ***UNCTAD (2002, 2008 & 2009)***

Trade rising

Stylised Facts

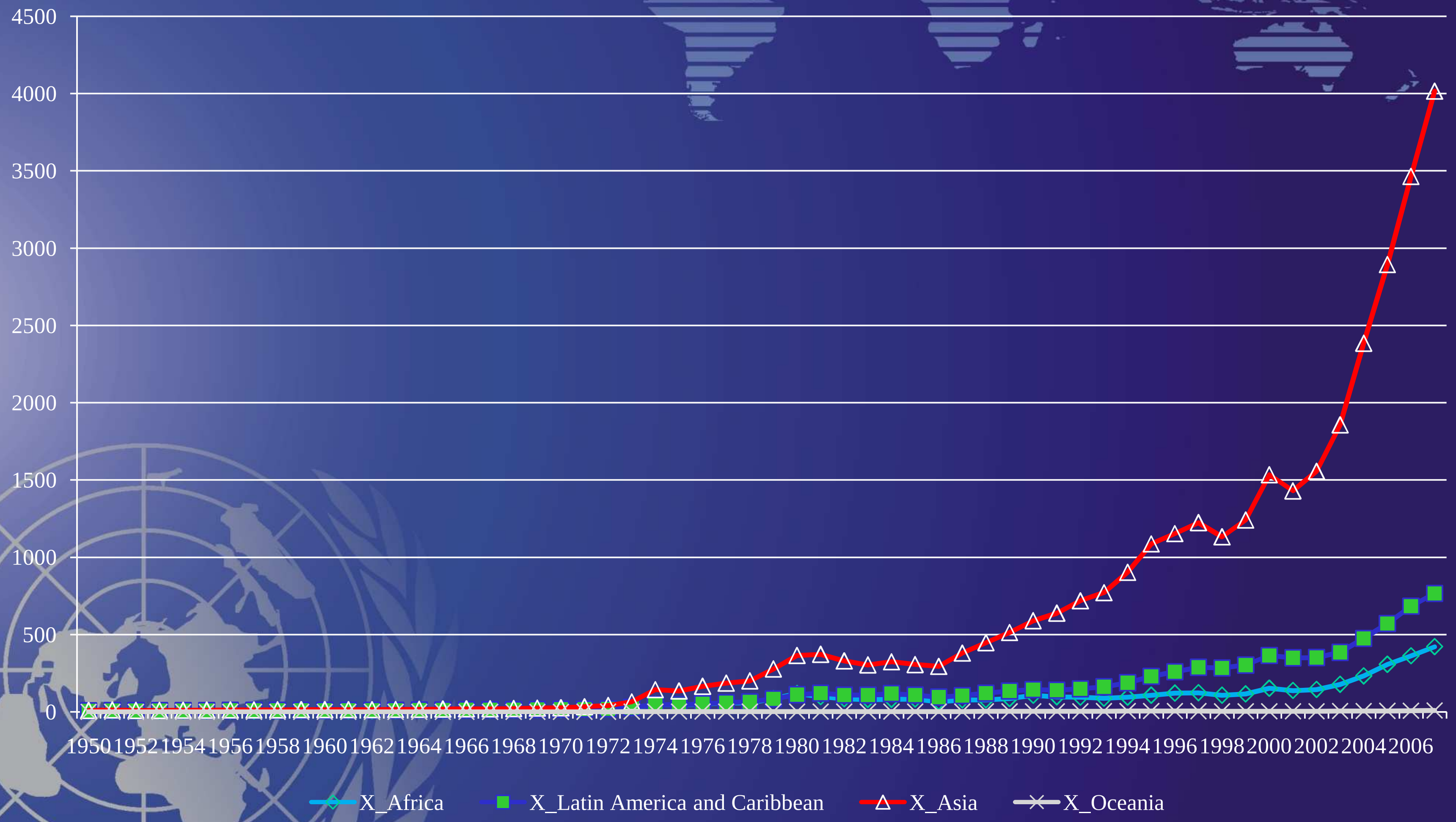
South-South on rise ($billion)



Differences remain..

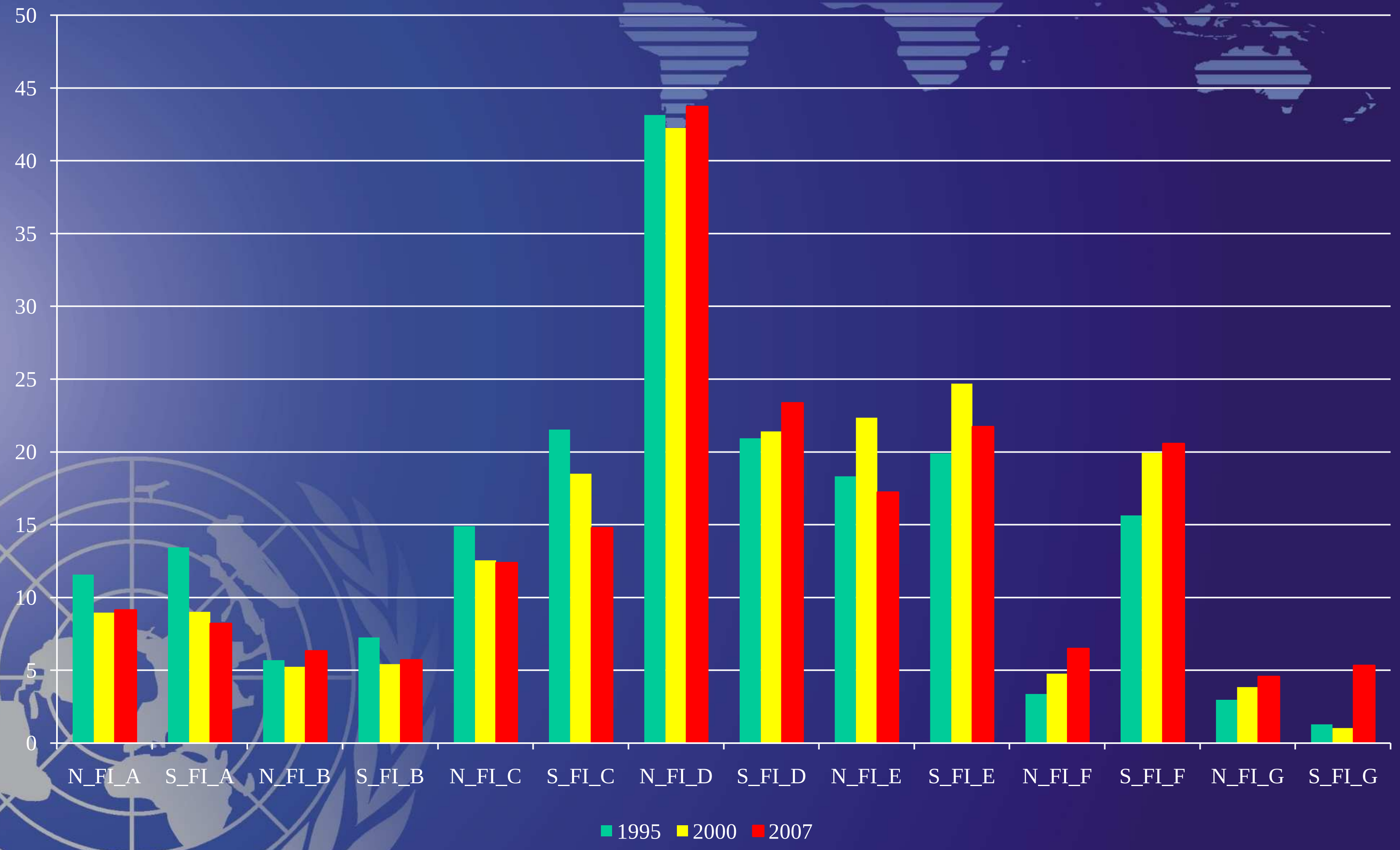
Stylised Facts

Within South-South($billion)



North-South Divide continues?

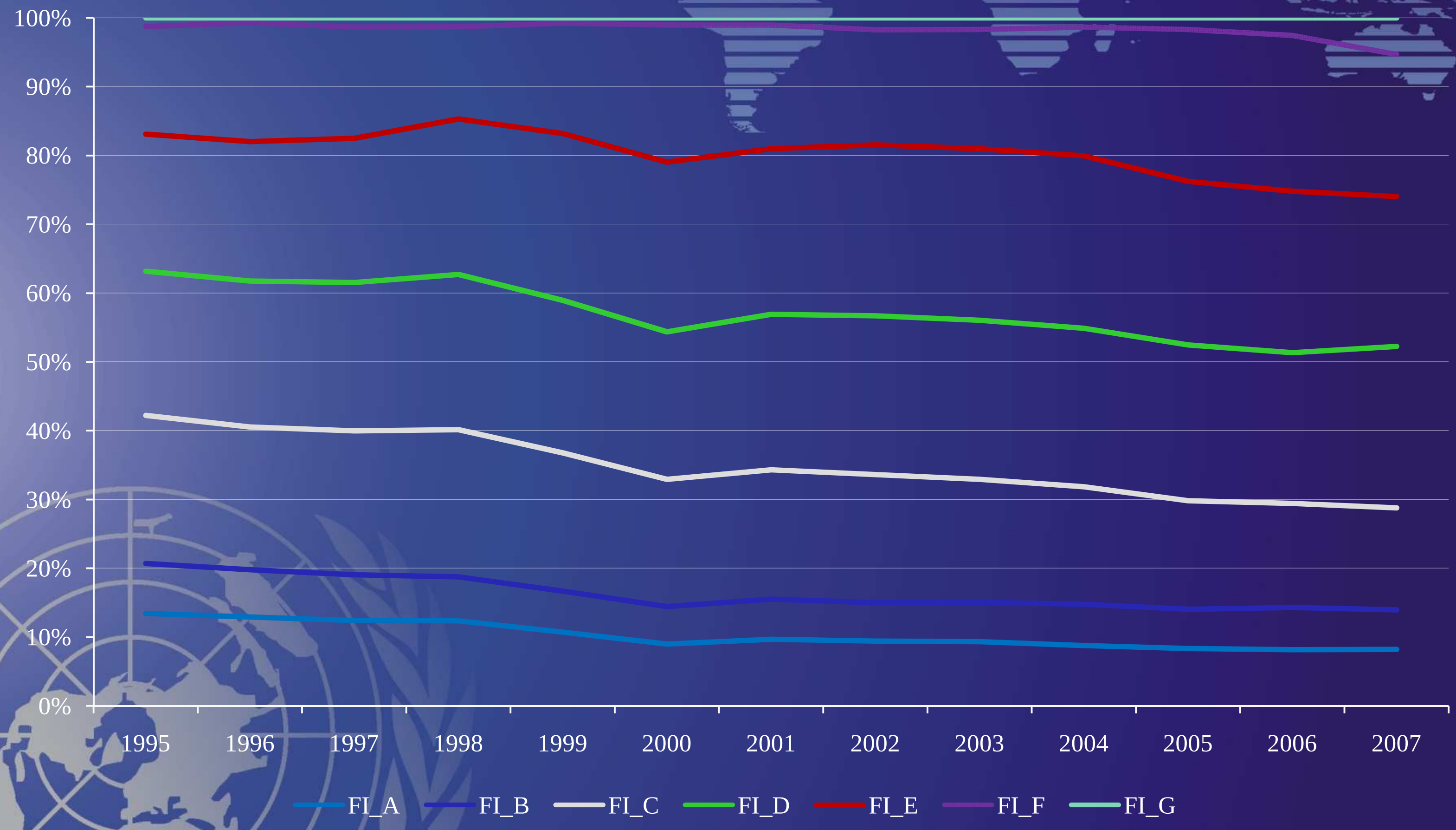
Exports share with different factor intensities (%)



Dynamism growing

South-South transformation

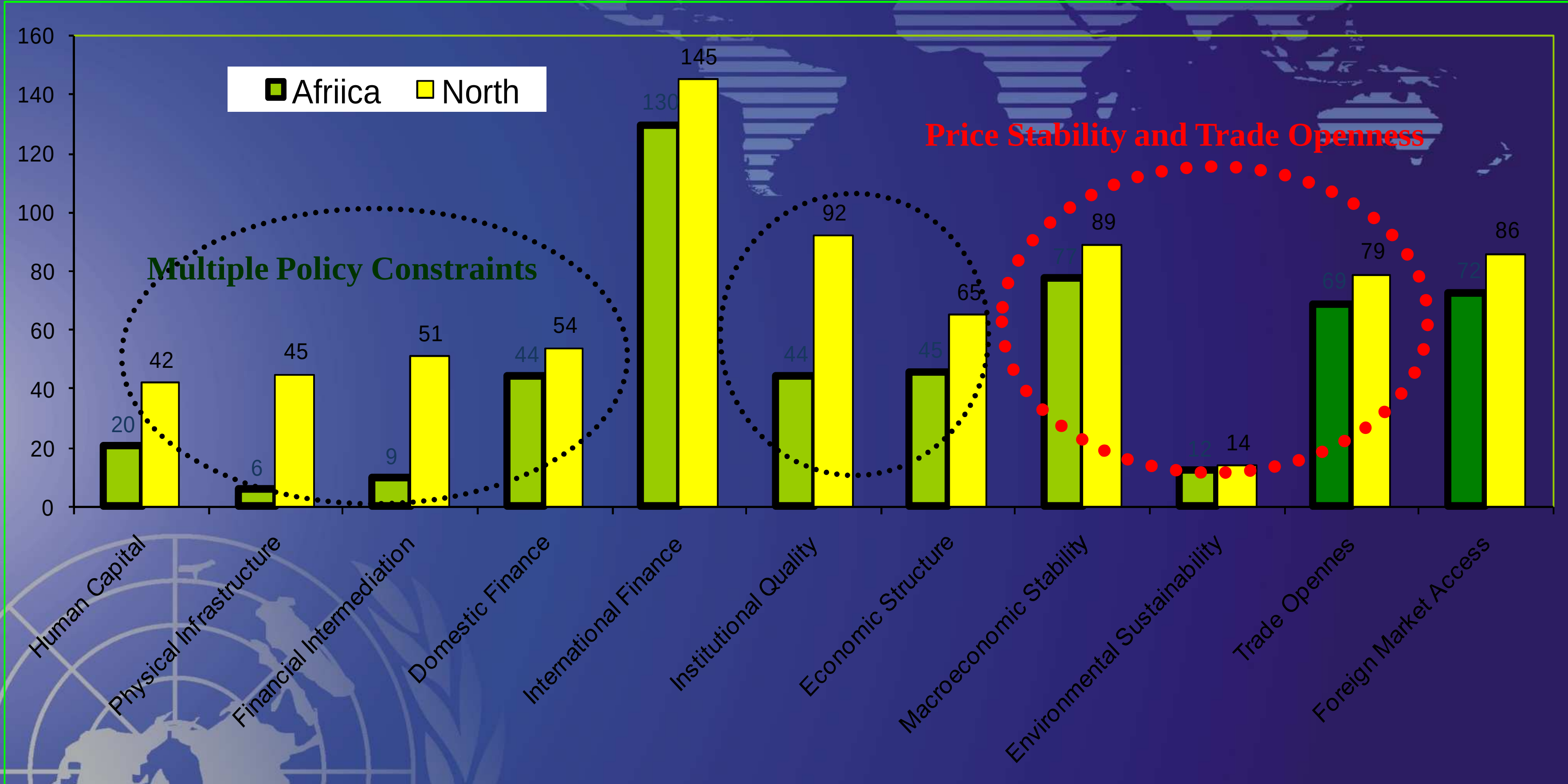
Exports share with different factor intensities (%)



Identifying Constraints

Trade and Development Index:

Determinants of trade expansion and transformation



Source: Developing Countries in International Trade 2007: Trade and Development Index. United Nations, UNCTAD, Geneva and New York, 2007

Identification

What's new here?

- Three key issues:
  - New database and measures
  - Exploring importance of institutions along with economic polices, infrastructure, and geography as determinants of factor intensity differences in developing countries
  - These results are robust to different specifications, estimation methods, and additional control variables
    - Cross section model
    - Panel model
    - 178 countries
    - Period of analysis 1995-2007

Exploration

Database and Measures

- ***178 countries***
- ***Time periods:***
  - 1995 to 2007
  - Four time periods: 1995-1997, 1998-2000, 2001-2003, and 2004-2007
- ***Trade database***
  - UNCTAD South-South Trade Information System (SSTIS)
  - Product Classification at HS-6 digit level
  - Time series ensured soon
- ***Institutional Quality Index***, ***Economic Policy and Geography:***
- ***Factor intensity categories***:
  - UNCTAD SSTIS database, HS-4 digit level
- ***Other data*** (Economic policy, Infrastructure, Geography etc):
  - UNCTAD, World Bank, IMF, WTO, HF/Cato, CIRI, and other sources

Factor intensity

Measuring factor intensities

- ***Harmonised System of trade classification, HS-4 digit level, based on UNCTAD SSTIS***
- ***Factor intensity categories: A to G.***

A:Primary commodities
B:Labour intensive and resource based manufactures
C:Manufactures with low skill and technology intensity
D:Manufactures with medium skill and technology intensity
E:Manufactures with high skill and technology intensity
F:Energy products
G:Unclassified products

Institutions

Constructing '*new*' measure of *Institutions*

Institutional Quality Index (IQI)

Political Rights, Civil Liberties, Measures of democracy and autocracy, Physical Integrity measures, parliamentary process and political participation

Political Institutions

Measures of women's empowerment, Labour rights, social rights and press freedom

Social Institutions

Property Rights, Rule of law, Corruption, Financial measures, Investment measures , Business accesses, Trade institutions

Economic Institutions

Institutions

Measuring Institutions

Methodology of computing IQI:

-Multivariate Statistical Method of latent variable (LV) approach as proposed in Nagar and Basu (2002), Basu, Klein and Nagar (2005)

-A composite weighted average measure of standardized indicators for each country for each period defined, without scaling the final index values

-IQI is a latent variable, and linearly determined by many exogenous variables say, X1, …, X_K.

-Variation in these variables explain variation in IQI

-Weights are obtained to compute weighted average of IQI

Comparability over time and across countries :

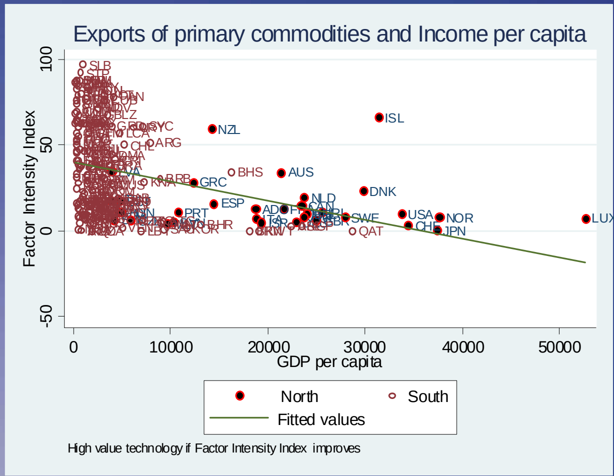
-Using sample minimum and maximum values

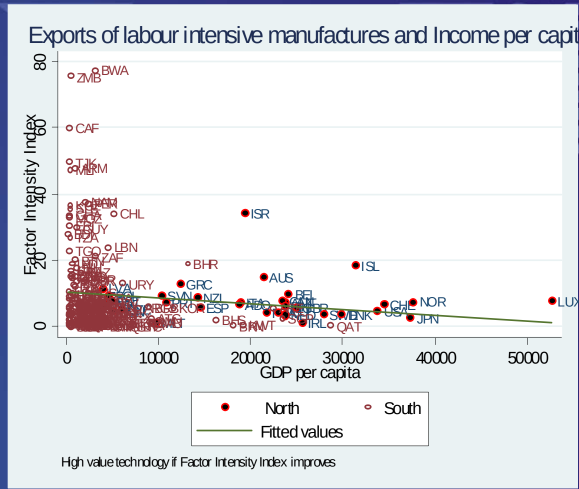
-Period-wise computation of weights and indices

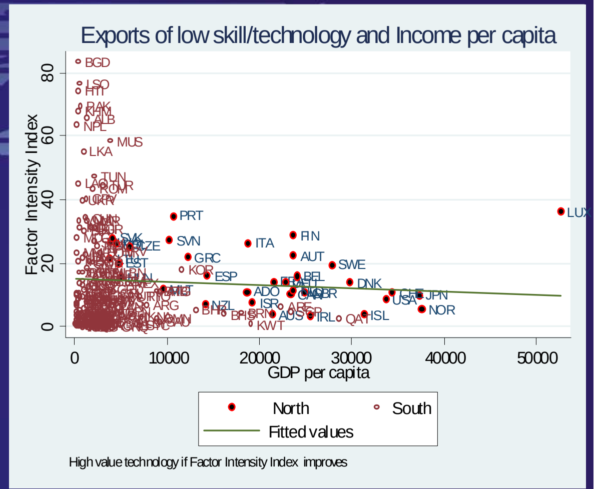
Higher values of IQI implies better institutional quality

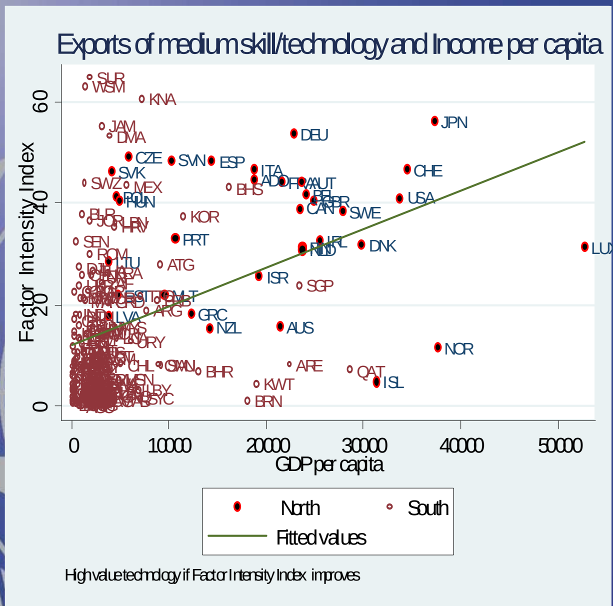
Level of development

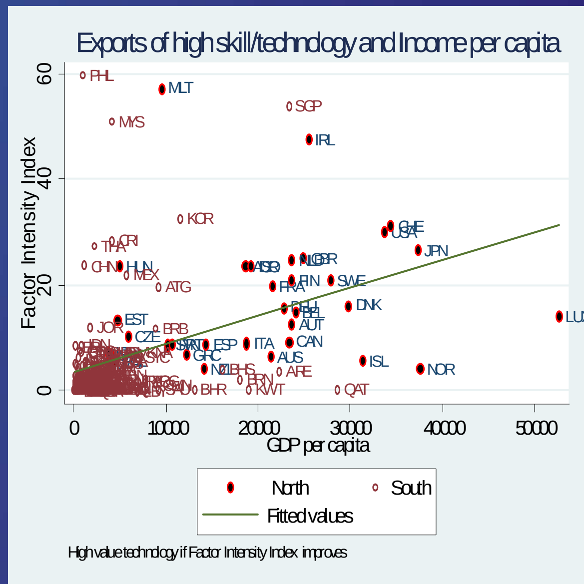
Some correlates (all countries)

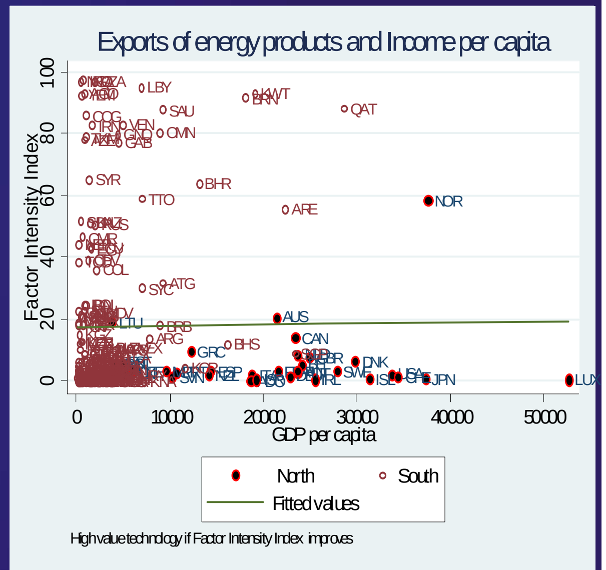






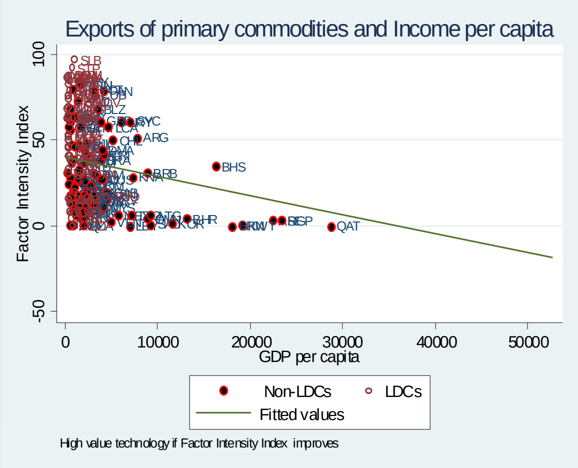


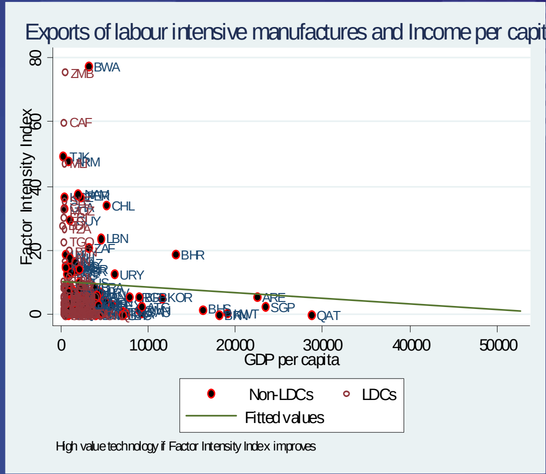


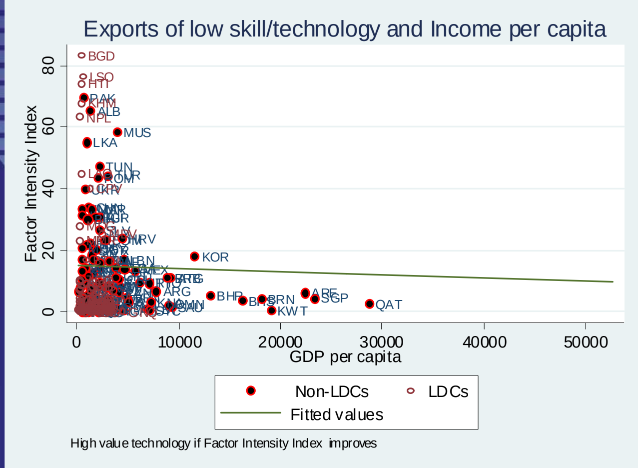


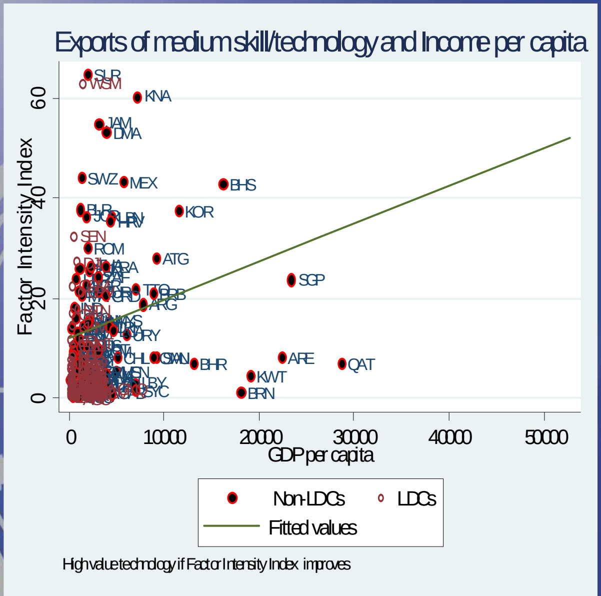
Level of development

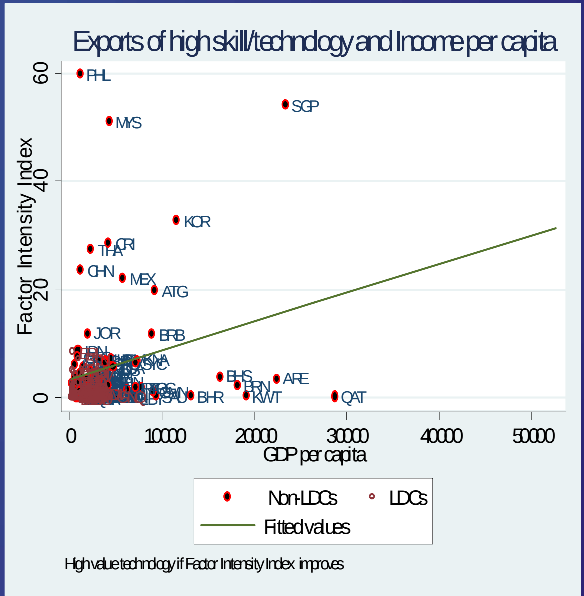
Some correlates (Developing)

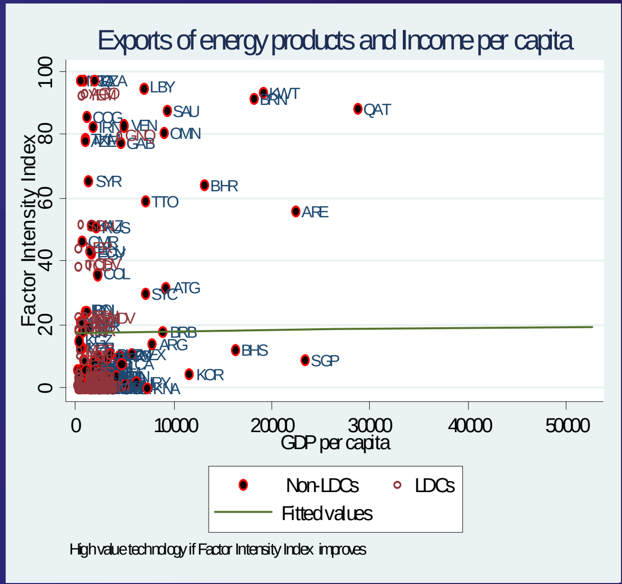






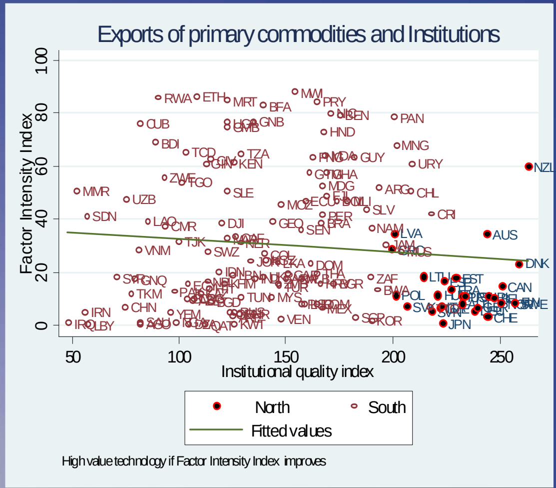


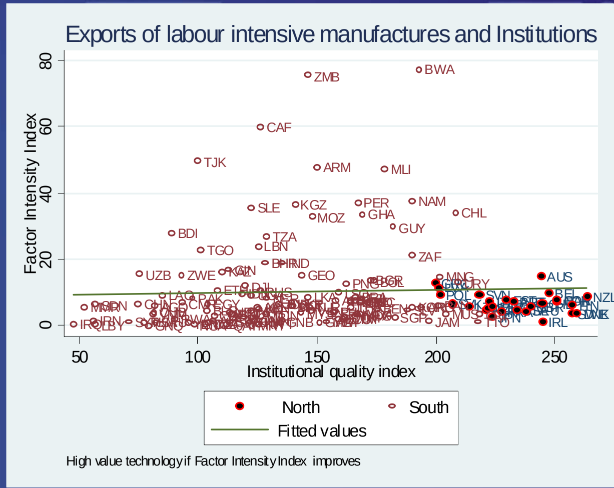


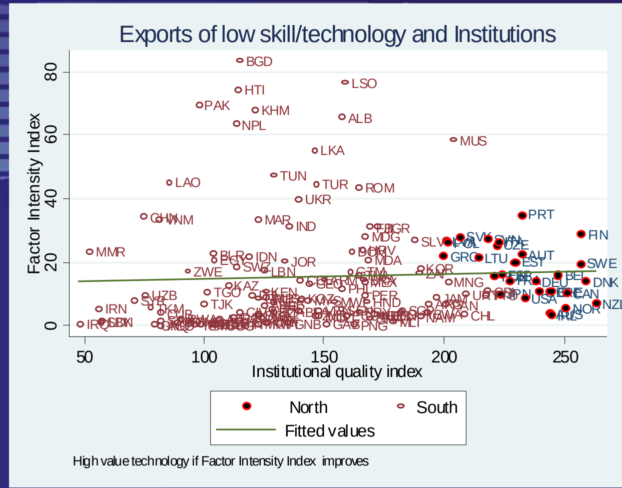


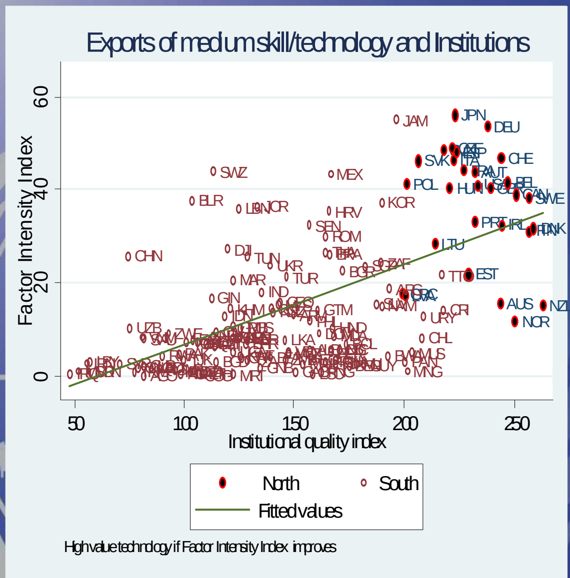
Quality of Institutions

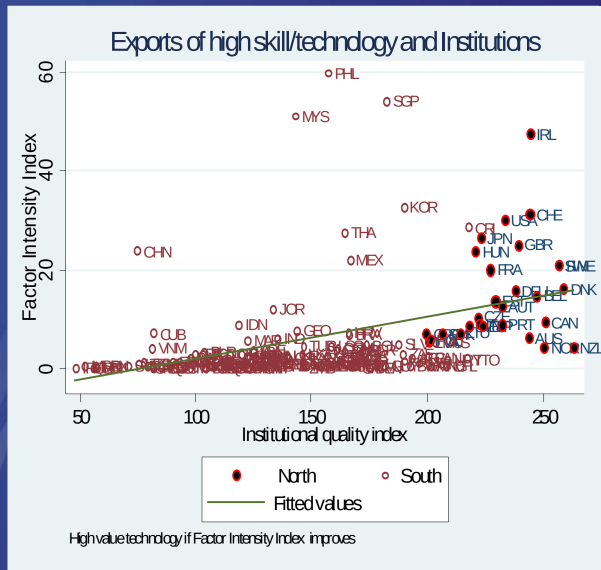
Some correlates (all countries)

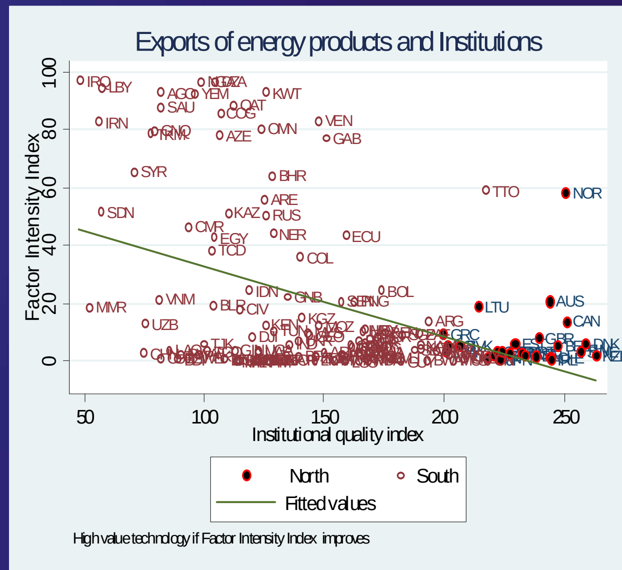






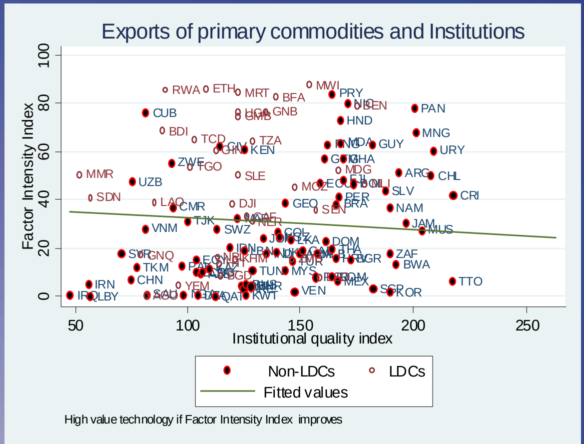


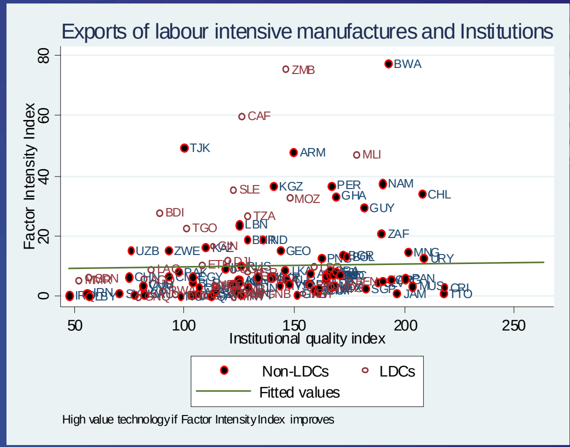


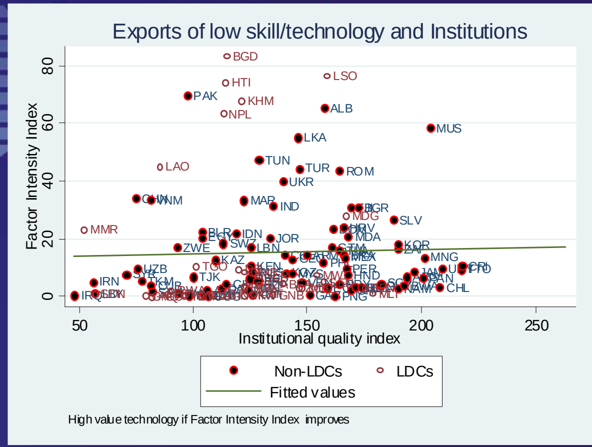


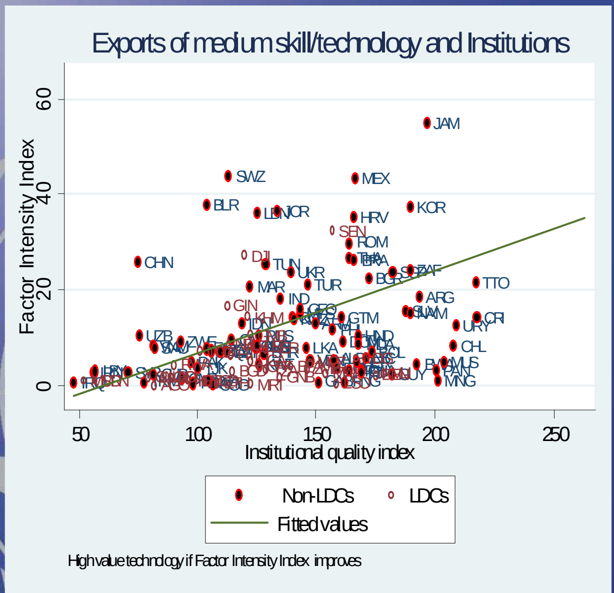
Quality of Institutions

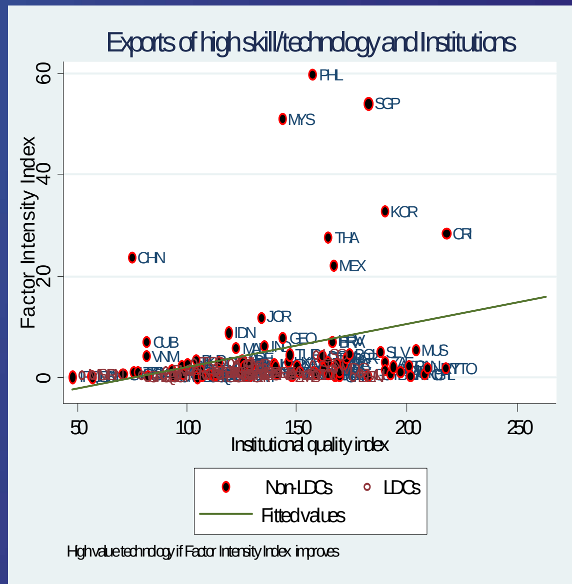
Some correlates (developing)

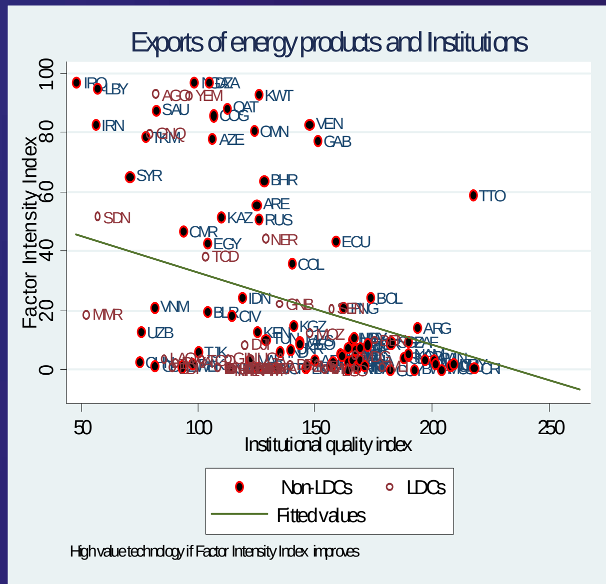






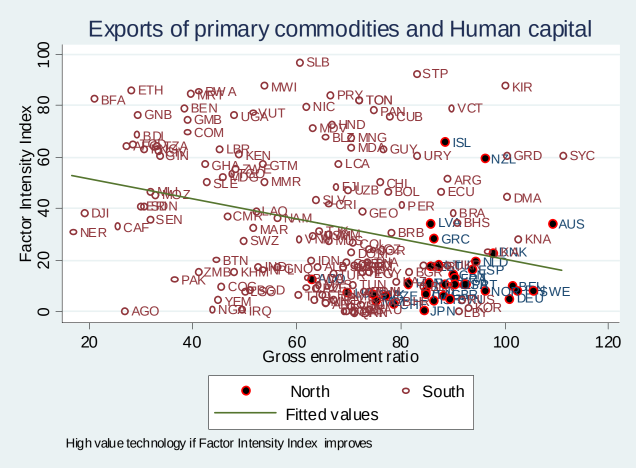


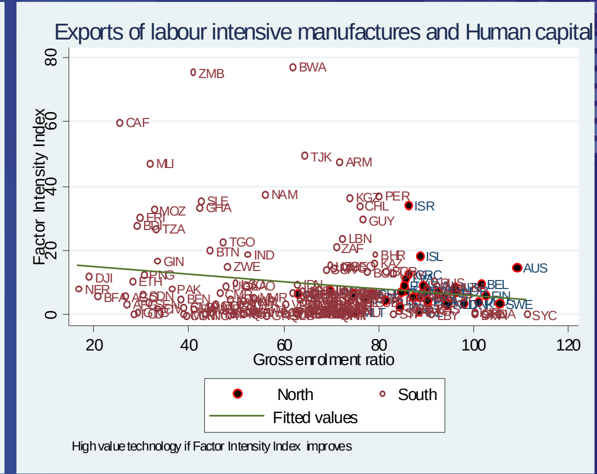


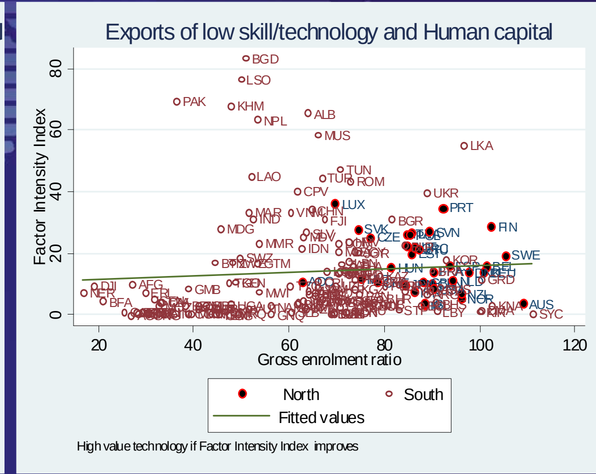


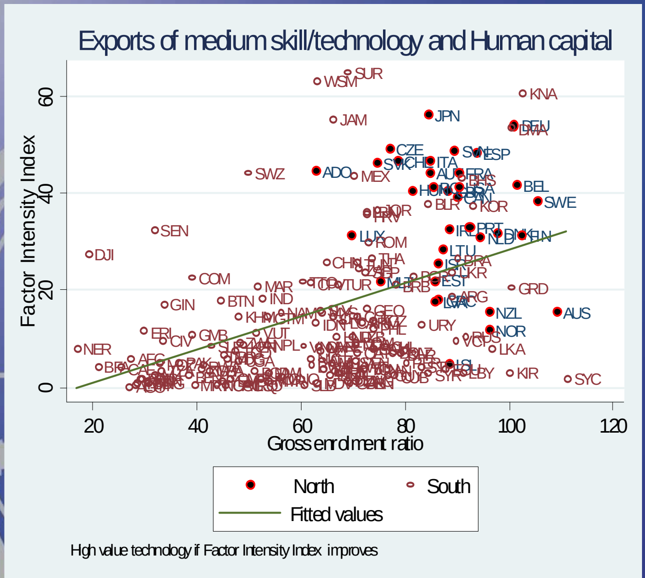
Human Capital

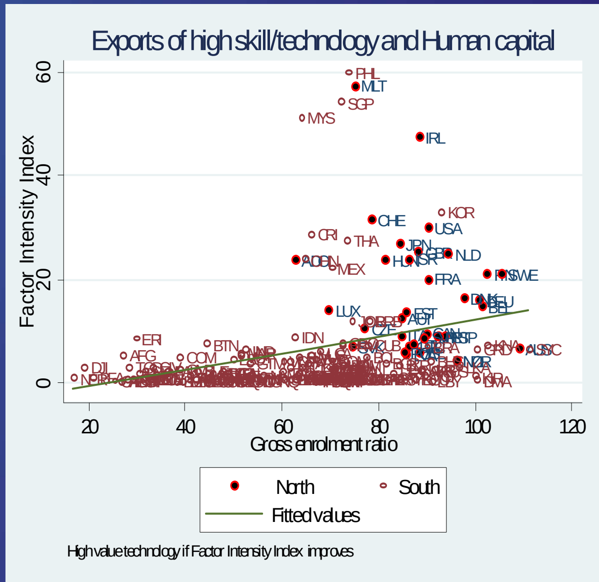
Some correlates (all countries)

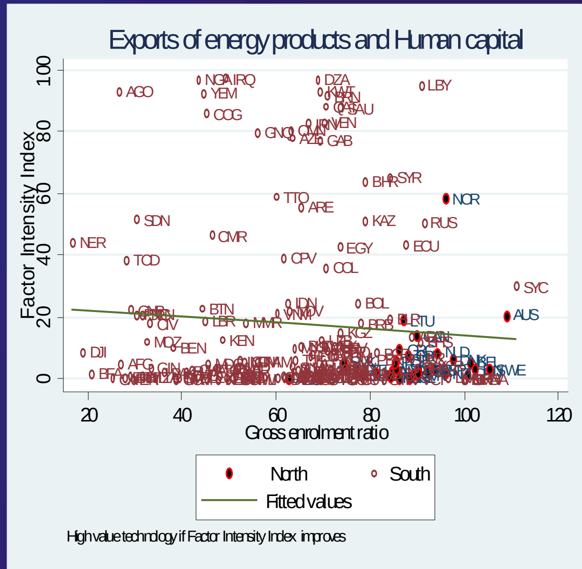






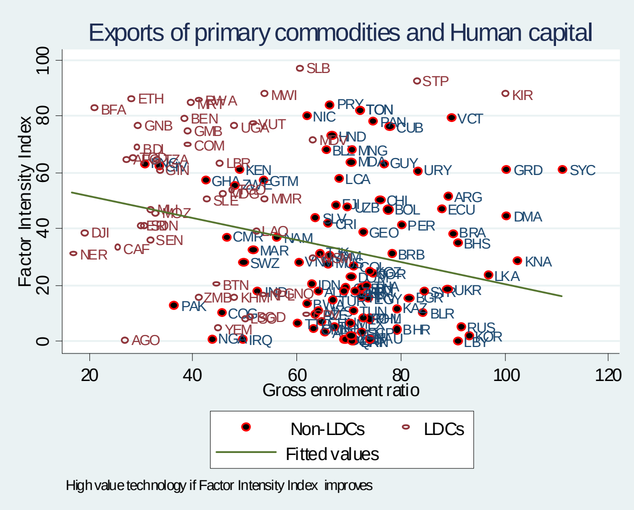


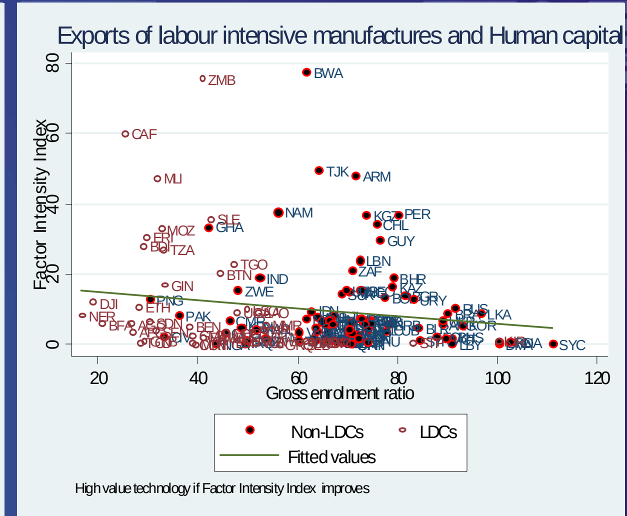


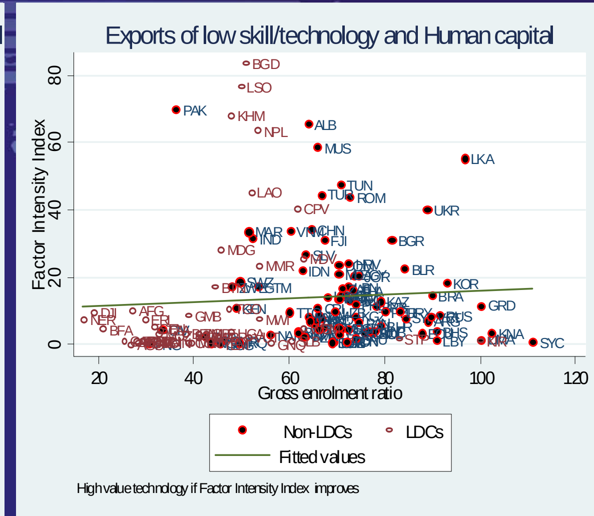


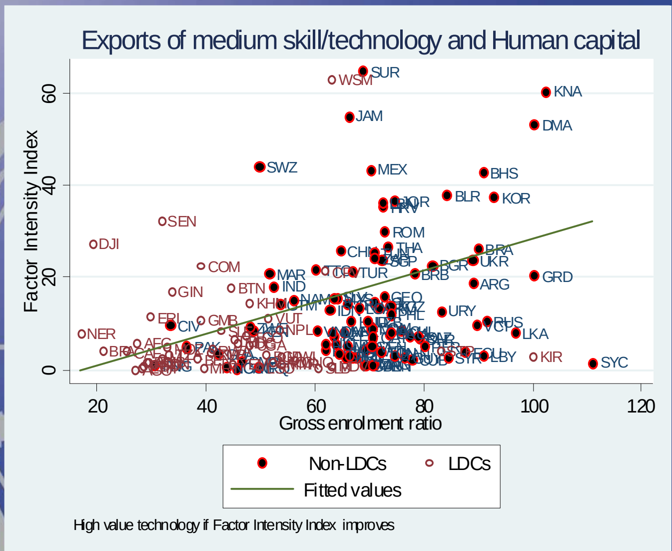
Human Capital

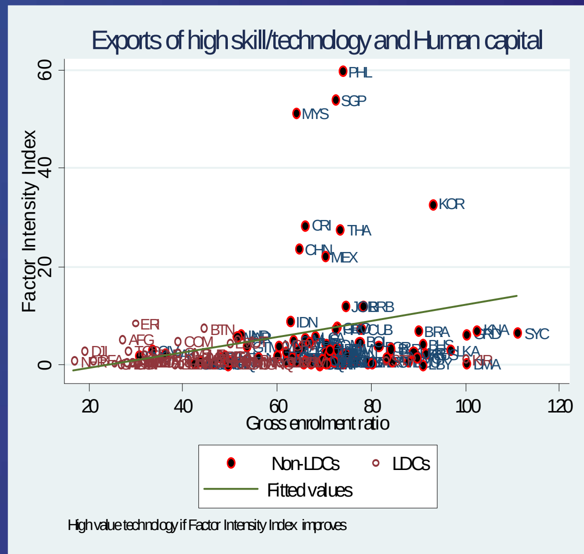
Some correlates (developing)

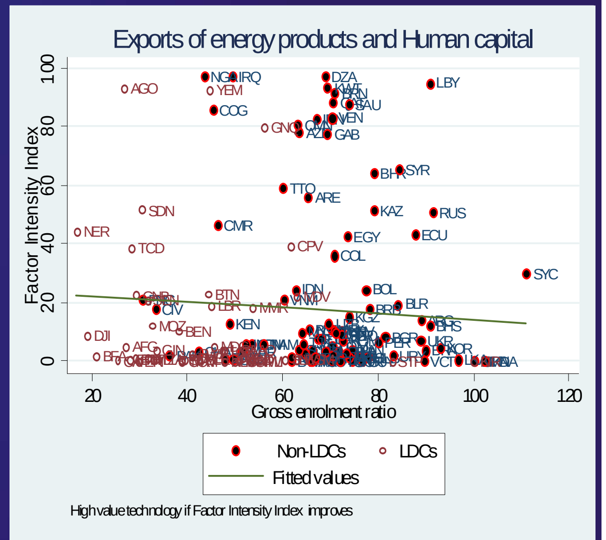












Specifications

Empirical Methodology

- ***Empirical Model Specification***:
  - – Core specification (OLS) in Cross-section analysis
  - – Dep.var: Factor intensity category (A to G)
  - – Indep.Vars: Institutions, economic policies and geography
- ***Further issues:***
  - ***Reverse causality***:
    - – Dealing with endogeneity
    - – 2SLS-IV and GMM-IV specification
    - – Choice of appropriate specifications
  - ***Panel data***:
    - – Fixed effects estimates
    - – System GMM

Empirics

Model specification

- IQI=institutional quality index
- EPOL: economic policy, infrastructure, financial variables
- GEOG: geography variable (distance from equator)

- Core cross-section specification

$$FI_{A-G_i} = \alpha_1 + \alpha_2 IQI + \alpha_3 EPOL_i + \alpha_4 GEOG_i + \varepsilon_i$$

- Reverse causality and instruments

$$IQI_i = \beta_1 + \beta_2 AJR/HJ_i + \beta_3 EPOLC_i + \beta_4 GEOG_i + \varepsilon_{IQI_i}$$
$$EPOL_i = \theta_1 + \theta_2 EPOL_i + \theta_3 AJR/HJ_i + \theta_4 GEOG_i + \varepsilon_{EPOL_i}$$

Model specification: Panel data

- Core panel specification

$$FI_{A-G_{it}} = \alpha_i + \alpha_2 IQI_{it} + \alpha_3 EPOL_{it} + \varepsilon_{it}$$

- Dynamic panel specification (AB/BB)

$$\Delta FI_{A-G_{it}} = \gamma \Delta FI_{A-G_{i,t-1}} + \beta_1 \Delta IQI_{it} + \beta_2 \Delta EPOL_{it} + \Delta \varepsilon_{it}$$

Robustness checks

Further exploration

- Independent variables:
    - **Macroeconomic**: Inflation, REER, Fiscal Balance
    - **Financial**: Credit to private sector
    - **Infrastructure**: Telephone lines, Road, Railway
    - **Geography**: Tropical, Population close to coast
    - **Natural Resource**: Fuel, Arable land
    - **Level of development**: Non-linearity of GDP pc

Cross-section

Dependent variable: Factor intensity, national exports share (%), average 1995-2007						
Panel 1	FI_A	FI_B	FI_C	FI_D	FI_E	FI_F
IQI	-0.04836	.0094253	.0149505	**.1721955*** **	**.0854334*** **	**-.2429435*** **
	-1.32	0.64	0.67	**9.12**	**6.13**	**-5.44**
R-squared	0.0104	0.0014	0.0020	**0.3604**	**0.1749**	**0.1980**
F-stat (p-value)	**0.1873**	**0.5257**	**0.5051**	**0.0000**	**0.0000**	**0.0000**
#Countries	144	144	144	144	144	144
Note : Robust SE, t-stat in parentheses *** Sig 1%, ** Sig 5%, *Sig 10%						

Policy variables

Cross-section

Dependent variable: Factor intensity, national exports share (%), average 1995-2007						
Panel 1	FI_A	FI_B	FI_C	FI_D	FI_E	FI_F
IQI	.1548015***	.0683927**	-.013472	.0961492***	.0205857	-.3250067***
Geography	-.2330471***	-.1260341**	.0769746	.1362626***	.0610164*	.0696848
Human capital	-.3754431***	-.1311935*	.076027	-.0433331	-.0370929	.4724493***
Infrastructure	-.1575253**	.0570512	.0602902	.0772891*	.0028482	-.0340994
Financial market	-.1213637***	-.0708783**	-.0458847	.1158475***	.1582788***	-.0428217
R-squared	0.3909	0.1102	0.0476	0.5672	0.4195	0.2527
F-stat (p-value)	0.0000	0.0924	0.0924	0.0000	0.0000	0.0000
#Countries	132	132	132	132	132	132
Note : Robust SE, Constants are included, ** Sig 1%, ** Sig 5%, *Sig 10%						

Policy variables

Cross-section (developing countries)

Dependent variable: Factor intensity, national exports share (%), average 1995-2007						
Panel 1	FI_A	FI_B	FI_C	FI_D	FI_E	FI_F
IQI	.1806135***	.0819537**	.0192549	.0757046**	.0303518	-.385443***
Geography	-.1276033	-.121688	.1284948	.0743342	.0572822	-.0204501
Human capital	-.380162***	-.132828*	.0662657	-.0238329	-.031013	.4715819***
Infrastructure	-.2079183**	.0690251	.0449361	.081749*	-.0054168	.0118154
Financial market	-.098978	-.0756016	.0033213	.0880937**	.2055736***	-.1290816
R-squared	0.3280	0.0964	0.0489	0.2542	0.3469	0.2526
F-stat (p-value)	0.0000	0.1847	0.2518	0.0000	0.0000	0.0000
#Countries	107	107	107	107	107	107
Note : Robust SE, Constants are included, ** Sig 1%, ** Sig 5%, *Sig 10%						

Summary

Conclusions

- Preliminary results identify the positive role of institutional quality in determining stages of factor-contents of developing countries exports during 1995-2007.
- In the benchmark model specification, the higher level of institutional quality, along with economic policies and other related factors, leads to higher factor-contents of technology related exported products.
- Results can answer some specific issues related to regions that help us to understand the new-geography models of trade theory. It also indicates the key role of supply side factors and/or the domestic policies in understanding the transformation of countries trade structure.
- The analysis is important to understand the climbing up of ladder by South-South economies in new geography of international trade.
- Need to re-emphasize the hand-in-hand approach in making institutional quality and supply-side factors to work together to raise policy coherence and help develop inclusive trade and development strategy at the national level.

Thank you!

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