

Structural Change and Productivity Growth

--in Latin America, Asia, and Turkey

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Merih Celasun Memorial Lecture

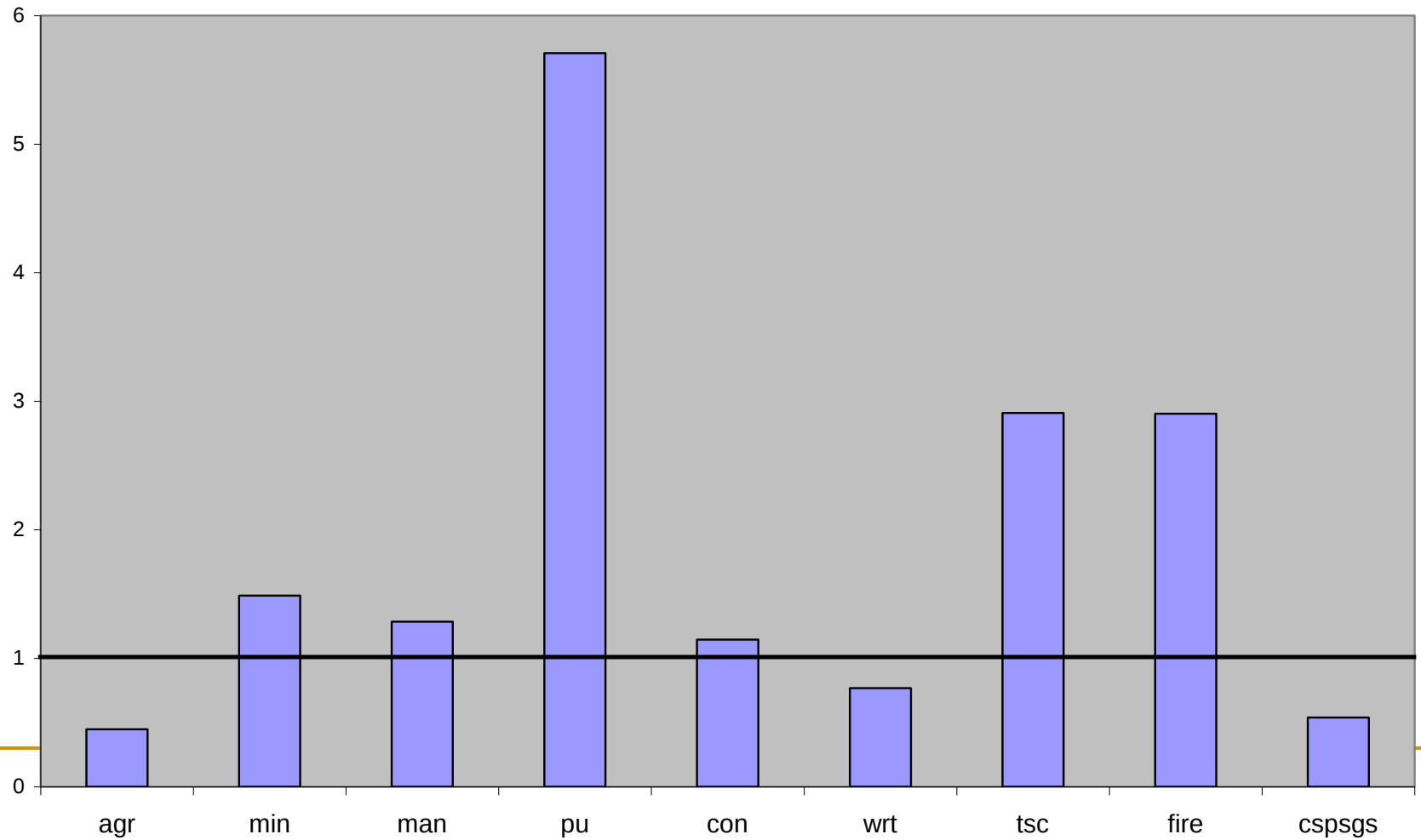
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Structuralism is back

- Not in the sense of distrust of markets or underestimation of the role of incentives
 - But greater appreciation of the role that “economic structure” plays in *facilitating* and *constraining* economic development
 - As evidenced by work on:
 - Inter-sectoral and inter-firm gaps in productivity
 - “dualism”
 - The export-diversification challenge
 - Innovation as “self-discovery” rather than R&D
 - Structural change as engine of development
 - Developing economies are not just radially-shrunk versions of advanced economies
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Labor productivity gaps: Turkey

Labor productivity in relation to average productivity, 2005



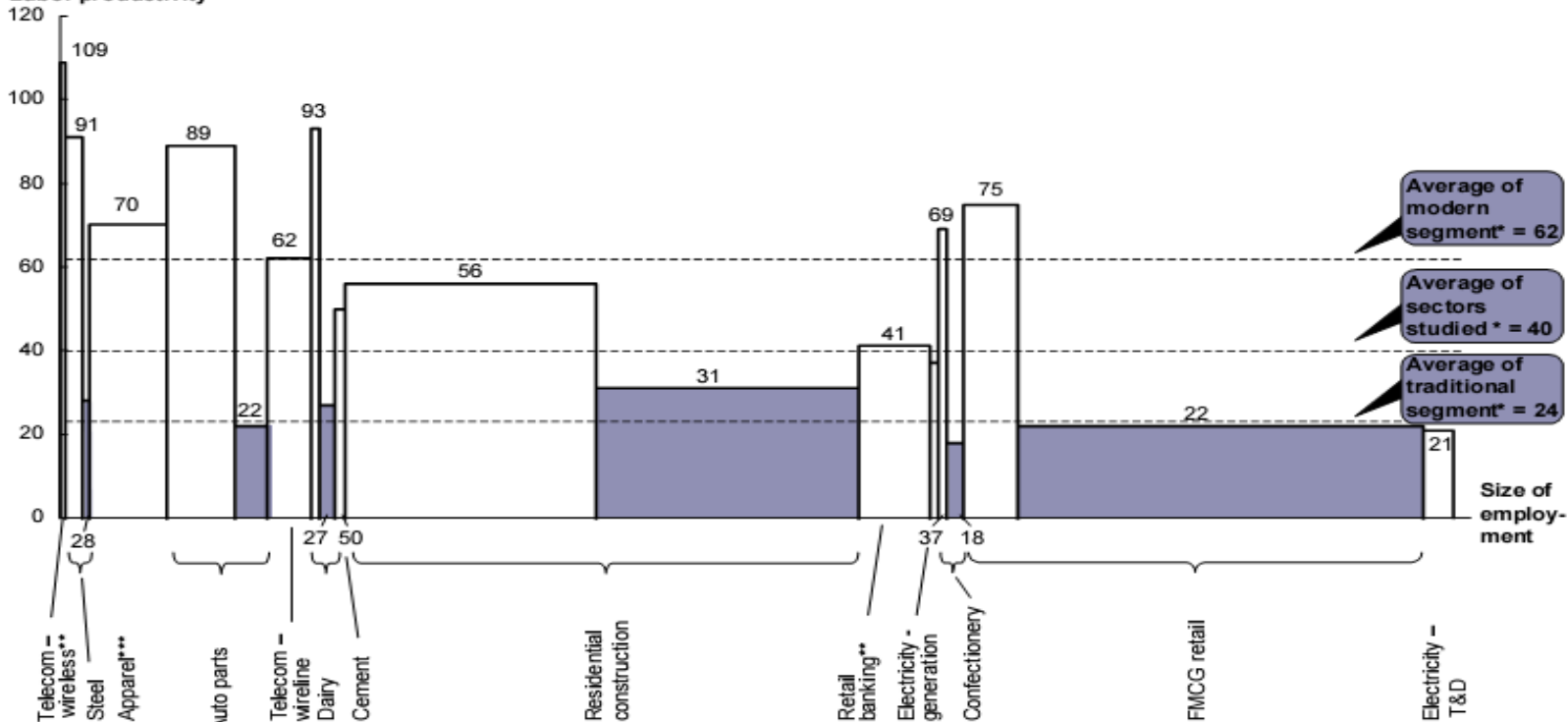
Dualism within sectors

Exhibit 5

DUAL ECONOMY OBSERVED IN SECTORS STUDIED

Indexed, US = 100

Labor productivity



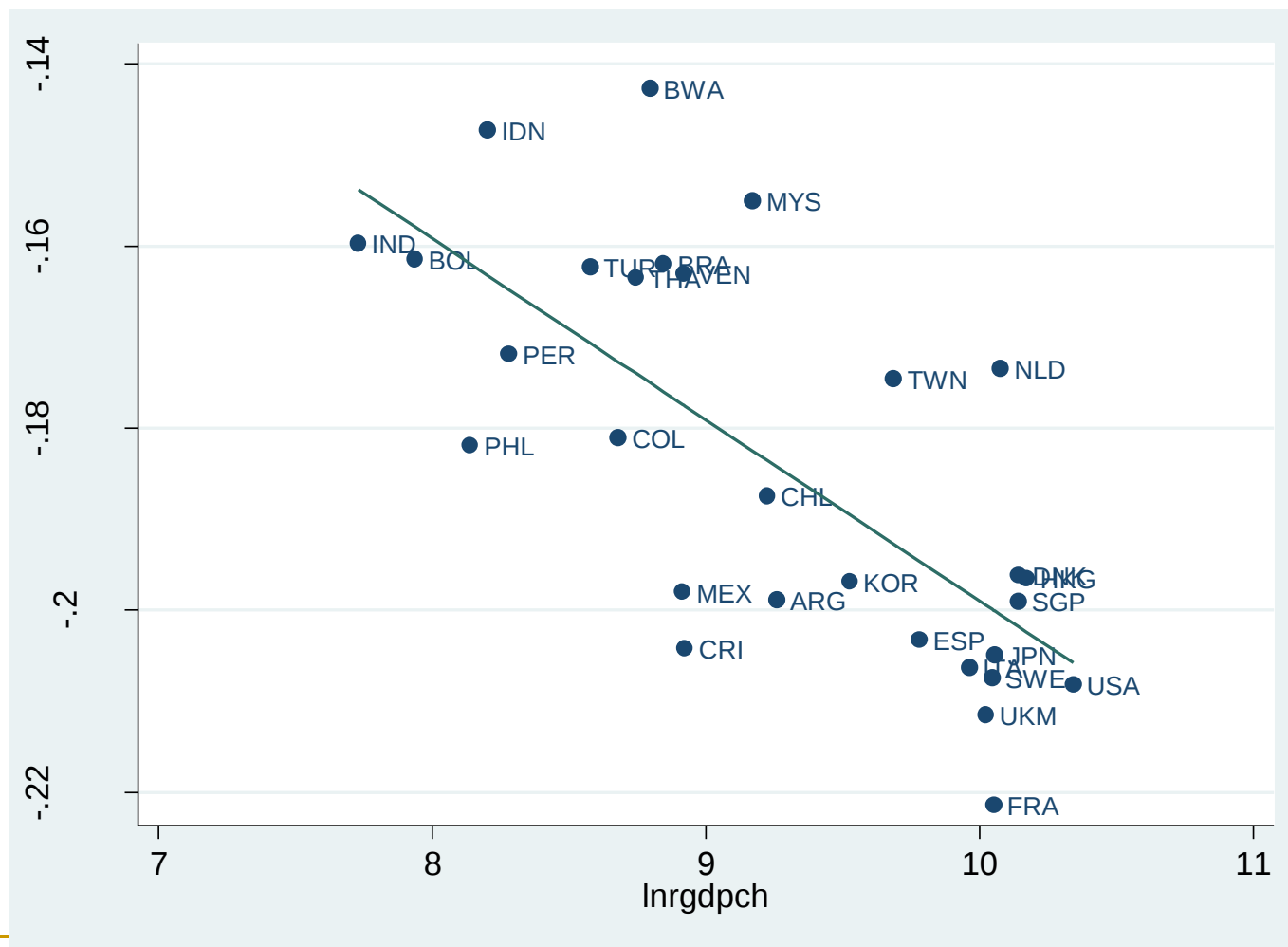
* Productivities of sectors weighted to generalize to total non-agricultural economy, considering sector shares in three aggregate sectors: utilities, manufacturing, and services

** Year 2002 data

** Year 2002 data; Productivity is benchmarked vs. Italian apparel sector

Source: Sector case studies

Inter-sectoral productivity gaps diminish over the course of development



Coefficient of variation of (log) sectoral labor productivity against per-capita income

How does inter-sectoral structural change contribute to overall productivity growth?

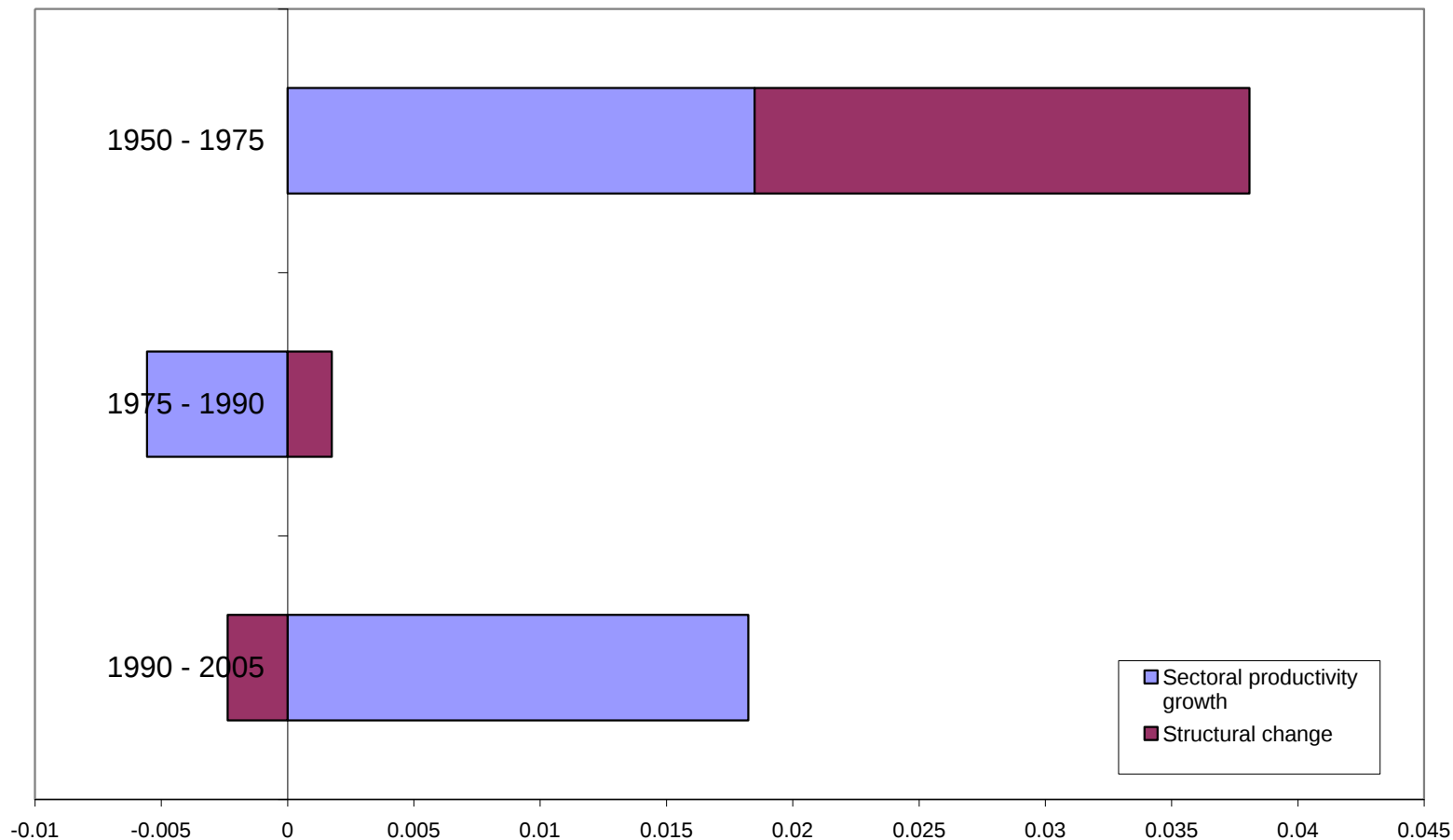
$$\Delta P_t = \sum_{i=n} \theta_{i,t-k} \Delta p_{i,t} + \sum_{i=n} p_{i,t} \Delta \theta_{i,t}$$

“within”

“structural change”

The Latin American paradox

**Productivity decomposition in Latin America across different periods
(annual growth rates)**



Based on data from Carmen Pages, ed., The Age of Productivity, IDB, 2010.

Implications

- Post-1990 growth constrained by adverse structural change
 - “growth reducing structural change”
- Consequence of economic liberalization: positive within effects, negative overall effects?
 - Empirical work on productivity consequences of trade liberalization within manufacturing
 - What happens if displaced labor ends up in sectors with even lower productivity
 - Informality, traditional services, etc.

A more detailed, comparative look: the data

Latin America	Asia	High-income
ARG	HKG	DNK
BOL	IDN	ESP
BRA	IND	FRA
CHL	KOR	ITA
COL	MYS	JPN
CRI	PHL	NLD
MEX	SGP	SWE
PER	THA	UKM
VEN	TWN	USA

+ TUR

	Sector	Full name
1	AGR	Agriculture
2	MIN	Mining
3	MAN	Manufacturing
4	PU	Public utilities
5	CON	Construction
6	WRT	Wholesale & retail trade
7	TSC	Transport & communication
8	FIRE	Finance & business services
9	CSPSGS	Government & public services

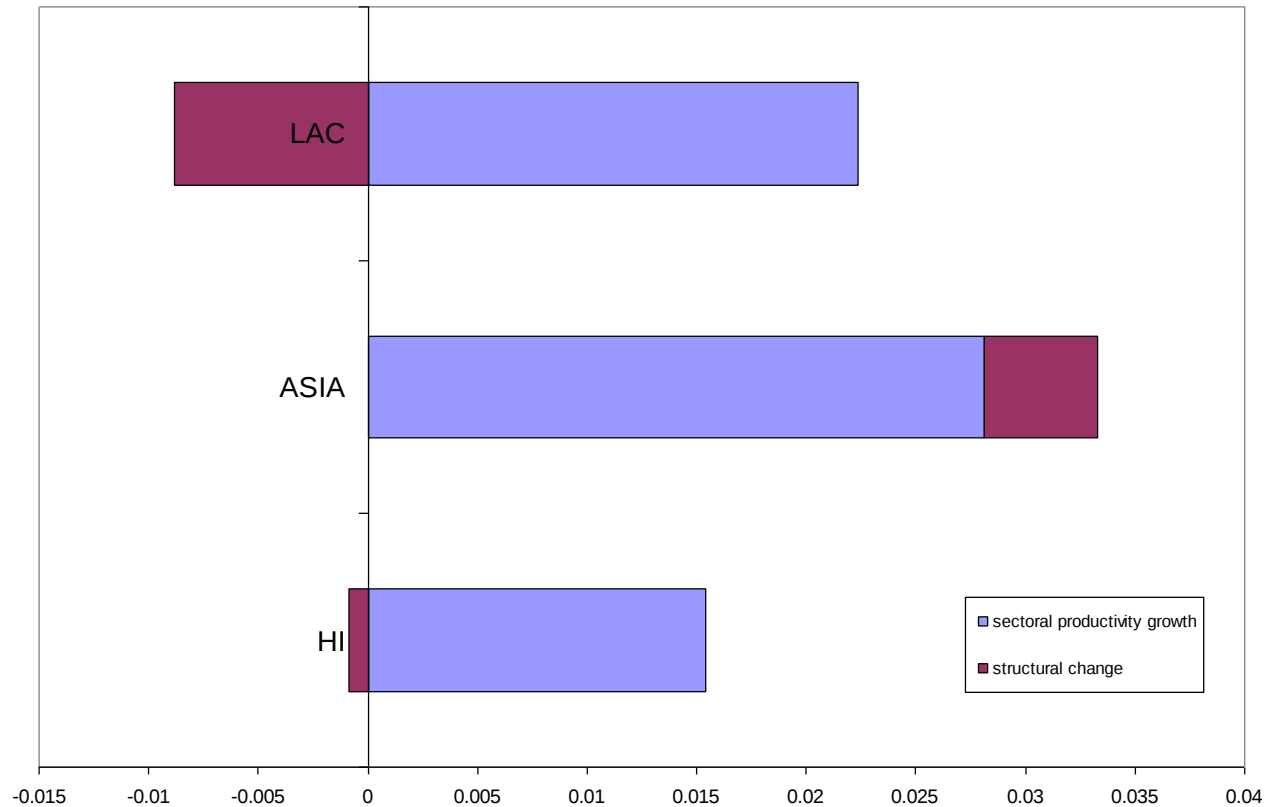
TUR not included in this data set. I used data from TUIK to include TUR in the analysis.

Questions

- Is this something due to post-1990 global conjuncture?
 - How does Asia compare?
 - Where does Turkey stand in comparison to Latin America and Asia?
 - How can we explain these patterns?
-

Basic results

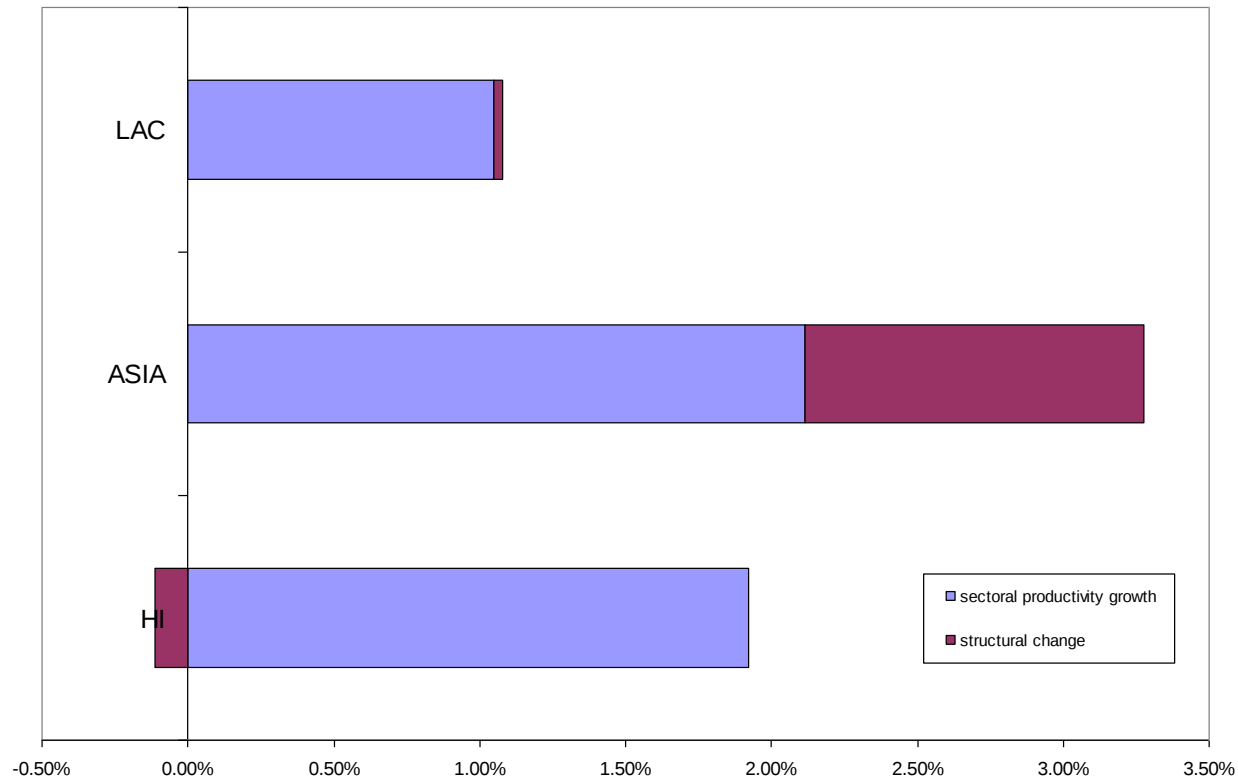
Decomposing productivity change, 1990-2005



region	overall productivity growth	sectoral productivity growth	structural change
LAC	1.35%	2.24%	-0.88%
ASIA	3.33%	2.81%	0.52%
HI	1.46%	1.54%	-0.09%

Basic results (weighted data)

Decomposing productivity growth, 1990-2005 (weighted data)



region	overall productivity growth	sectoral productivity growth	structural change
LAC	1.08%	1.05%	0.03%
ASIA	3.28%	2.12%	1.16%
HI	1.81%	1.92%	-0.11%

Countries ranked by:

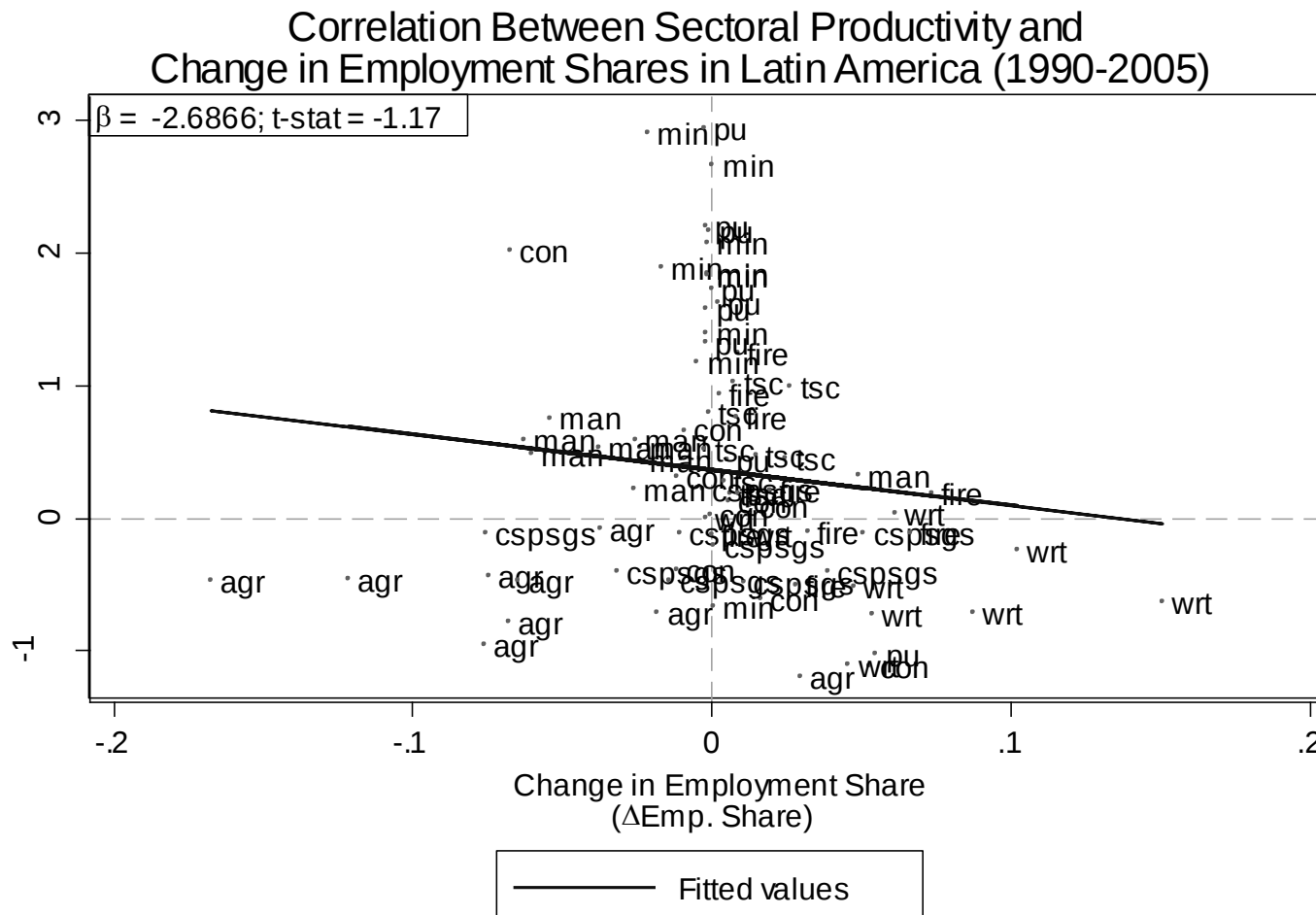
Contribution of sectoral:

country	region	total	within	structural
KOR	ASIA	0.038972	0.052947	-0.013975
PER	LAC	0.034072	0.038536	-0.004465
CHL	LAC	0.029252	0.038205	-0.008953
SGP	ASIA	0.037079	0.037853	-0.000775
MYS	ASIA	0.040816	0.035871	0.004946
TWN	ASIA	0.039907	0.03448	0.005427
BOL	LAC	0.008808	0.033657	-0.024849
IND	ASIA	0.042316	0.032409	0.009906
VEN	LAC	-0.003542	0.032048	-0.03559
ARG	LAC	0.023534	0.029429	-0.005896
HKG	ASIA	0.03272	0.020182	0.012538
TUR	TURKEY	0.031586	0.017353	0.014233
IDN	ASIA	0.027799	0.017228	0.010571
THA	ASIA	0.030511	0.013835	0.016676
CRI	LAC	0.0125	0.008725	0.003775
MEX	LAC	0.01067	0.008339	0.002331
PHL	ASIA	0.009455	0.00809	0.001365
BRA	LAC	0.004444	0.006957	-0.002513
COL	LAC	0.001849	0.00529	-0.00344
ETH	AFRICA	0.018733	0.003935	0.014798

Contribution of structural change:

country	region	total	within	structural
THA	ASIA	0.030511	0.013835	0.016676
ETH	AFRICA	0.018733	0.003935	0.014798
TUR	TURKEY	0.031586	0.017353	0.014233
HKG	ASIA	0.03272	0.020182	0.012538
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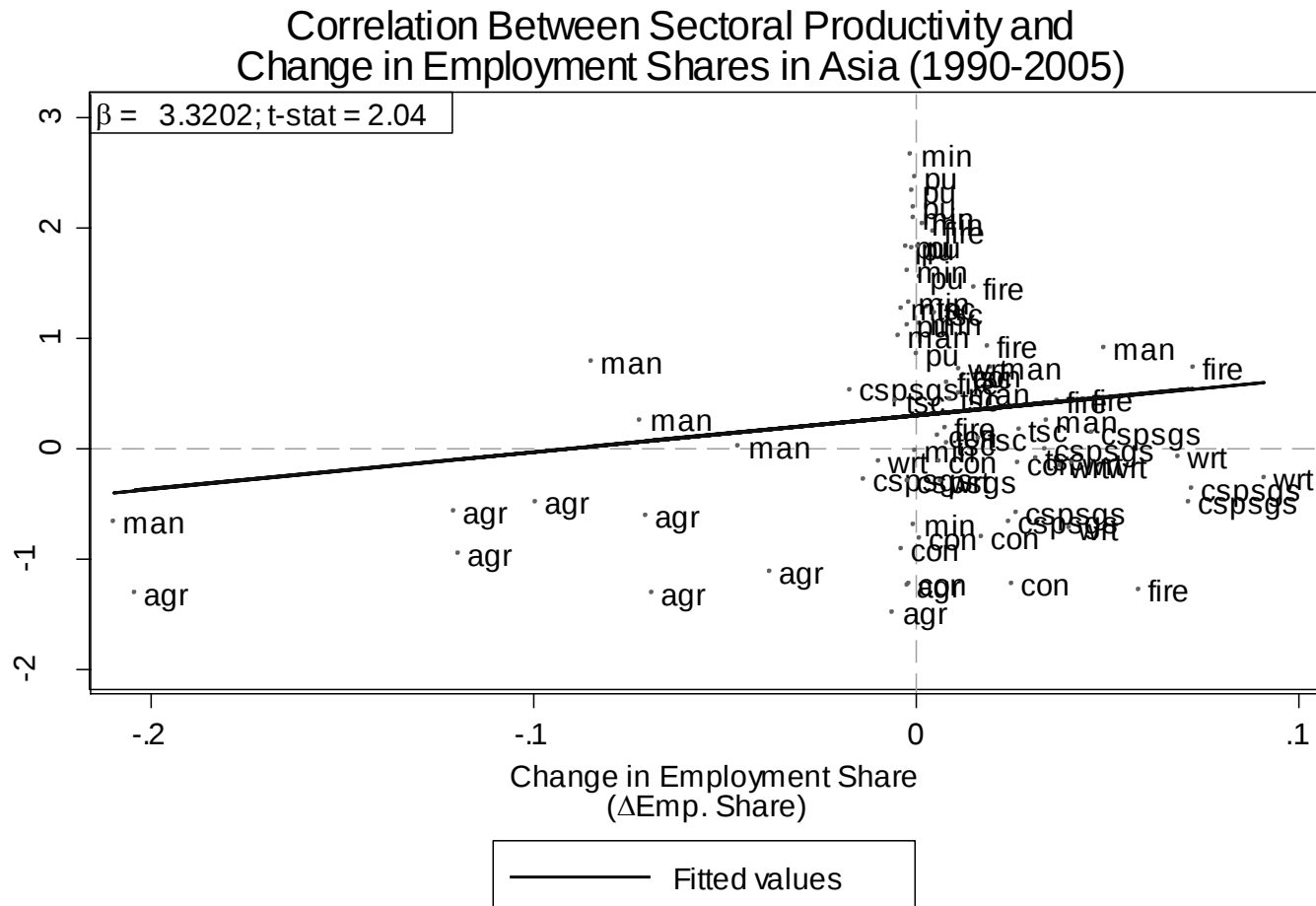
Looking closer at “structural change” term: LAC



*Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) = \alpha + \beta \Delta \text{Emp. Share}$

Source: Authors' calculations with data from Timmer and de Vries (2007)

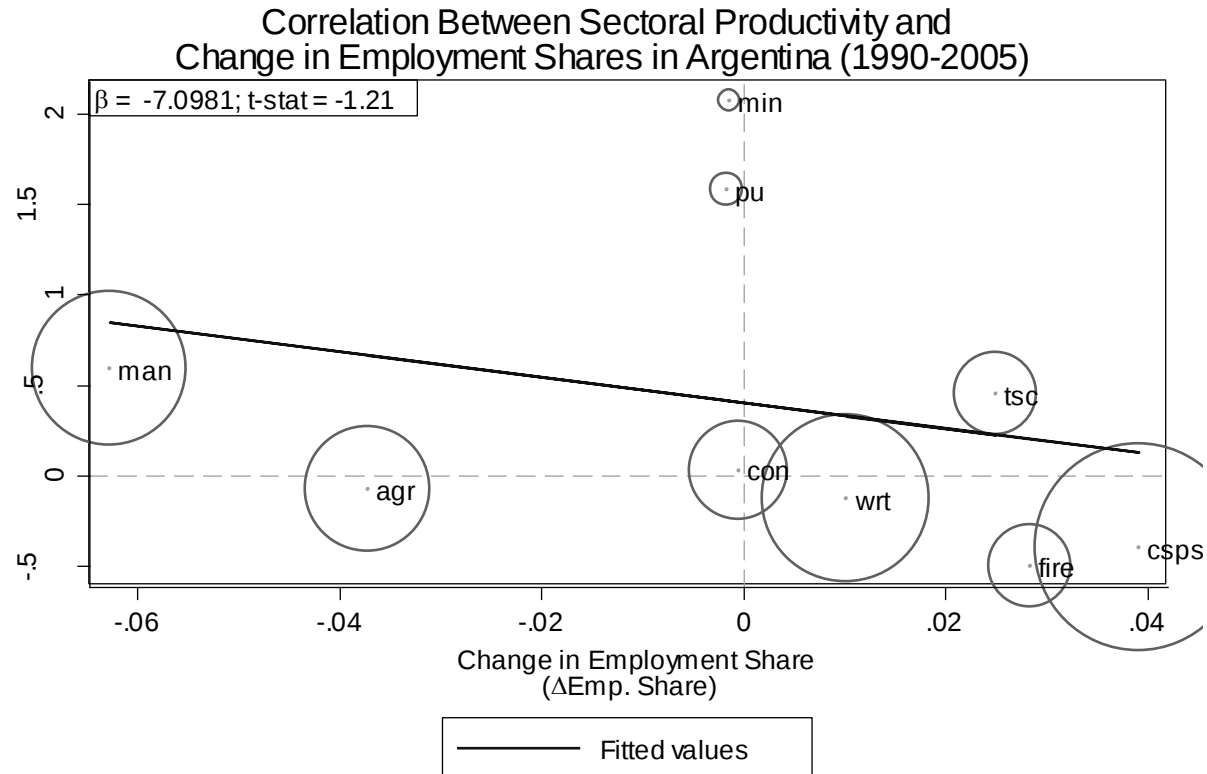
Looking closer at “structural change” term: Asia



*Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) = \alpha + \beta \Delta \text{Emp. Share}$

Source: Authors' calculations with data from Timmer and de Vries (2007)

Selected countries: Argentina

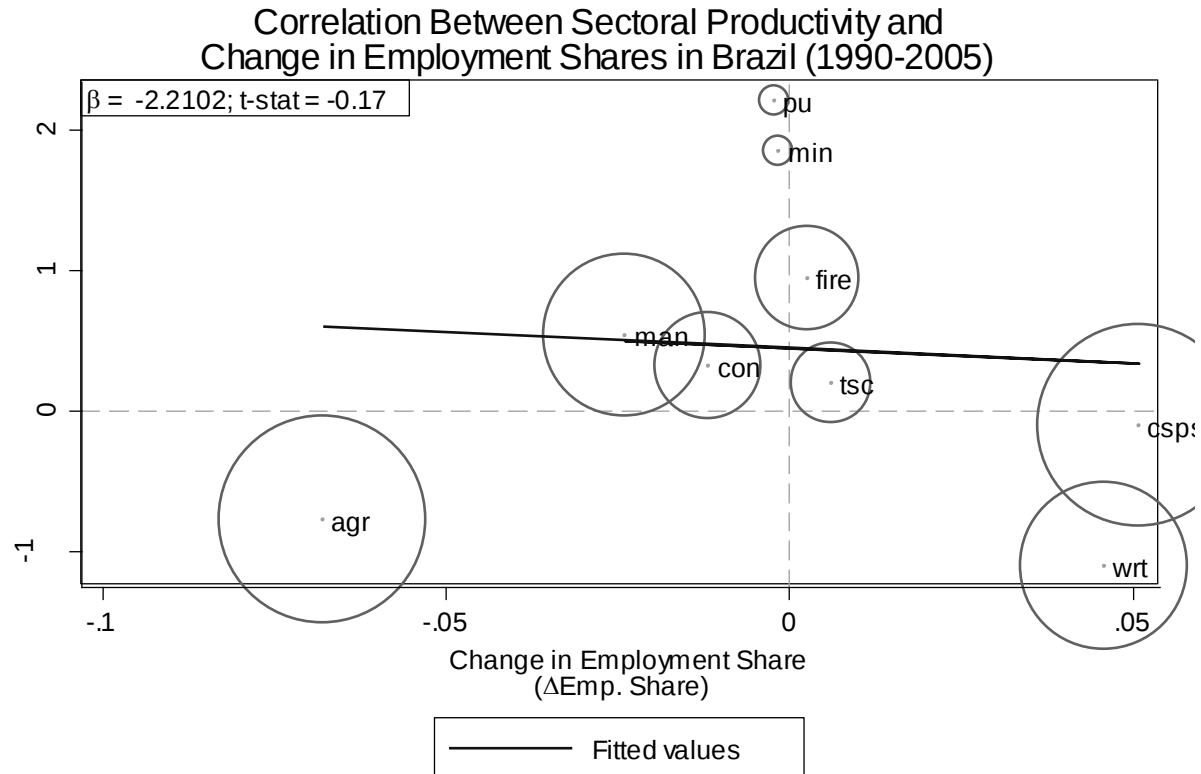


*Note: Size of circle represents employment share in 1990

**Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) \approx \alpha + \beta \Delta \text{Emp. Share}$

Source: Author's calculations with data from Timmer and de Vries (2007)

Selected countries: Brazil

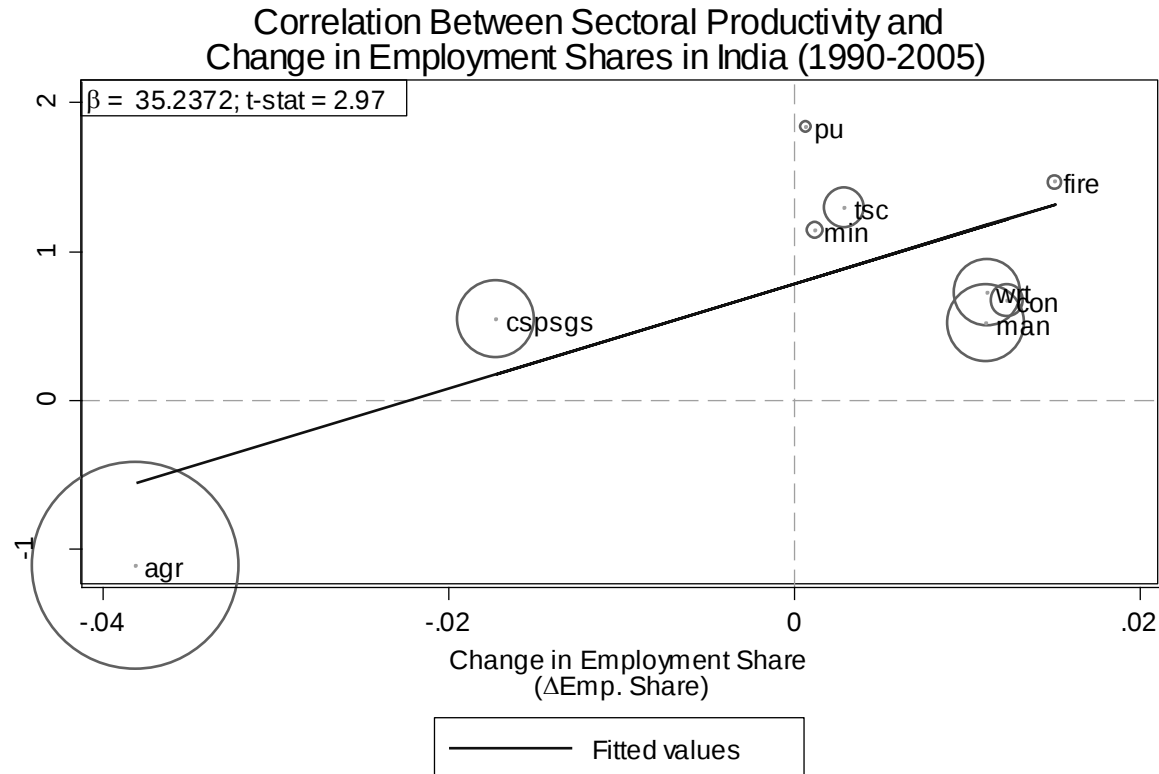


*Note: Size of circle represents employment share in 1990

**Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) = \alpha + \beta \Delta\text{Emp. Share}$

Source: Author's calculations with data from Timmer and de Vries (2007)

Selected countries: India

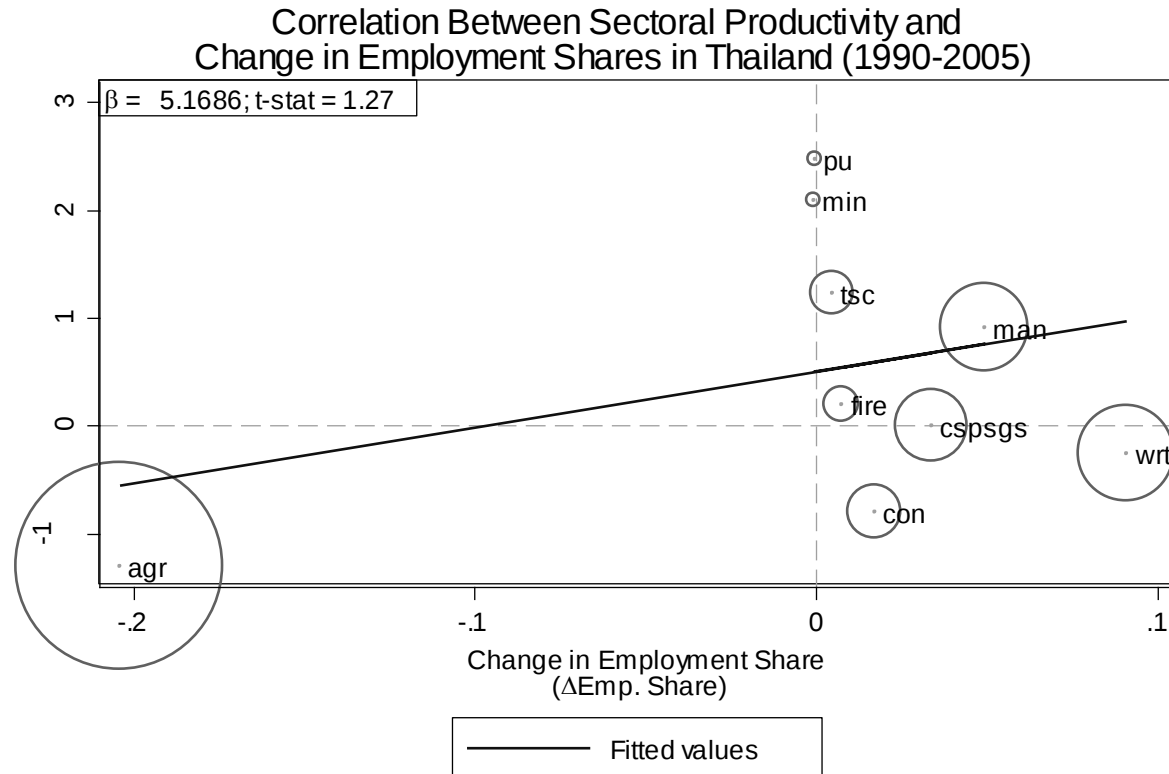


*Note: Size of circle represents employment share in 1990

**Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) \alpha + \beta \Delta\text{Emp. Share}$

Source: Author's calculations with data from Timmer and de Vries (2007)

Selected countries: Thailand



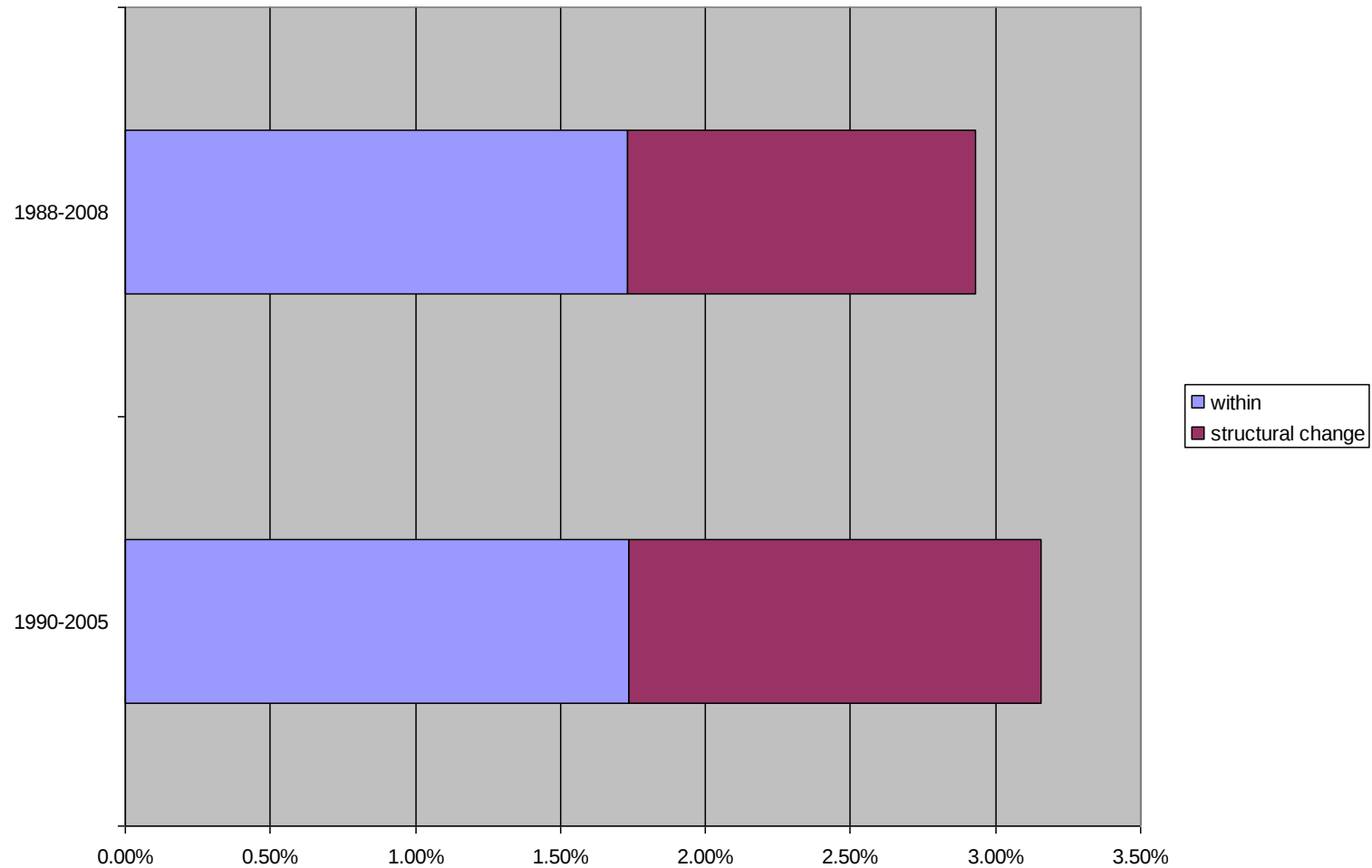
*Note: Size of circle represents employment share in 1990

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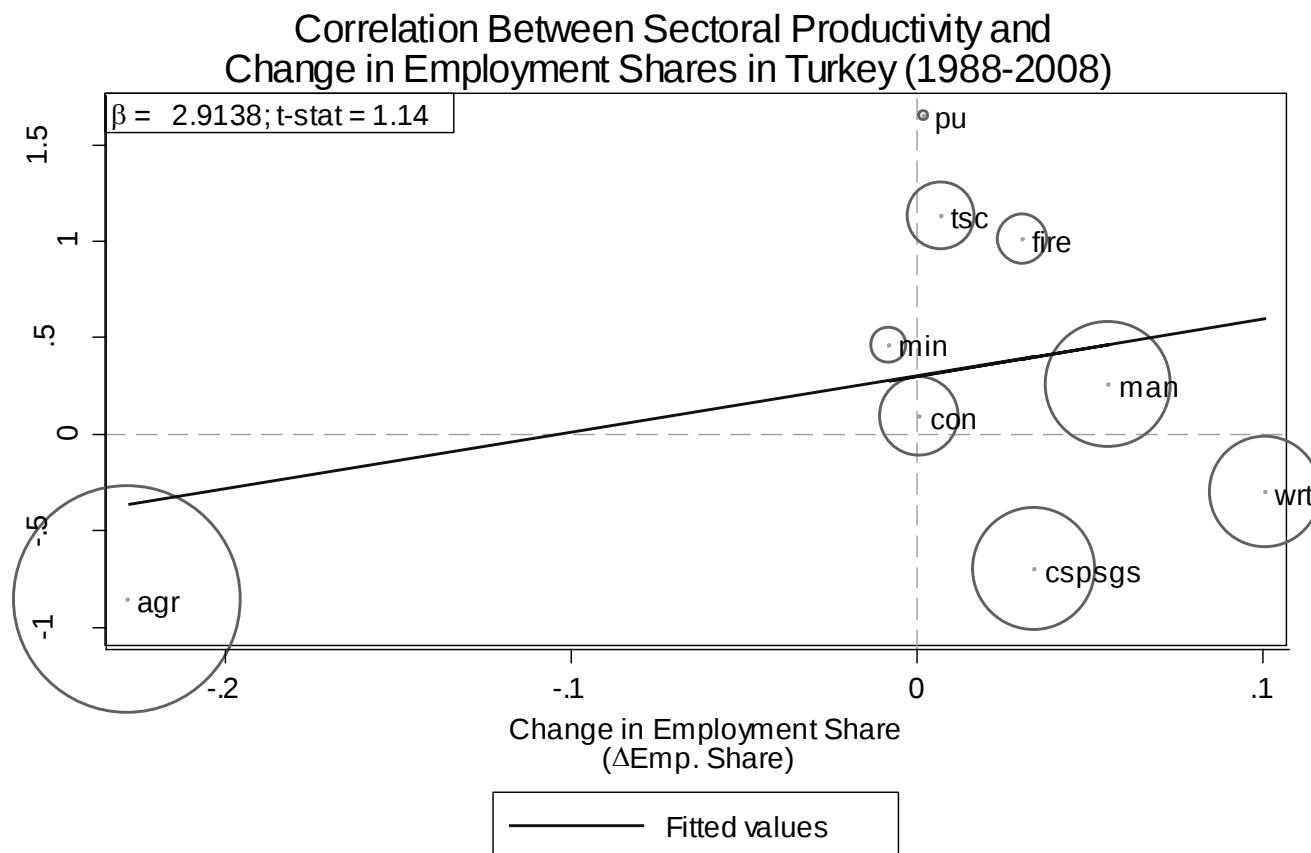
Source: Author's calculations with data from Timmer and de Vries (2007)

How does Turkey compare?

Decomposition of productivity growth, Turkey



Selected countries: Turkey



*Note: Size of circle represents employment share in 1988

**Note: β denotes coeff. of independent variable in regression equation:
 $\ln(p/P) = \alpha + \beta \Delta \text{Emp. Share}$

Source: Authors' calculations with data from the Turkish Statistical Institute

Some intermediate conclusions

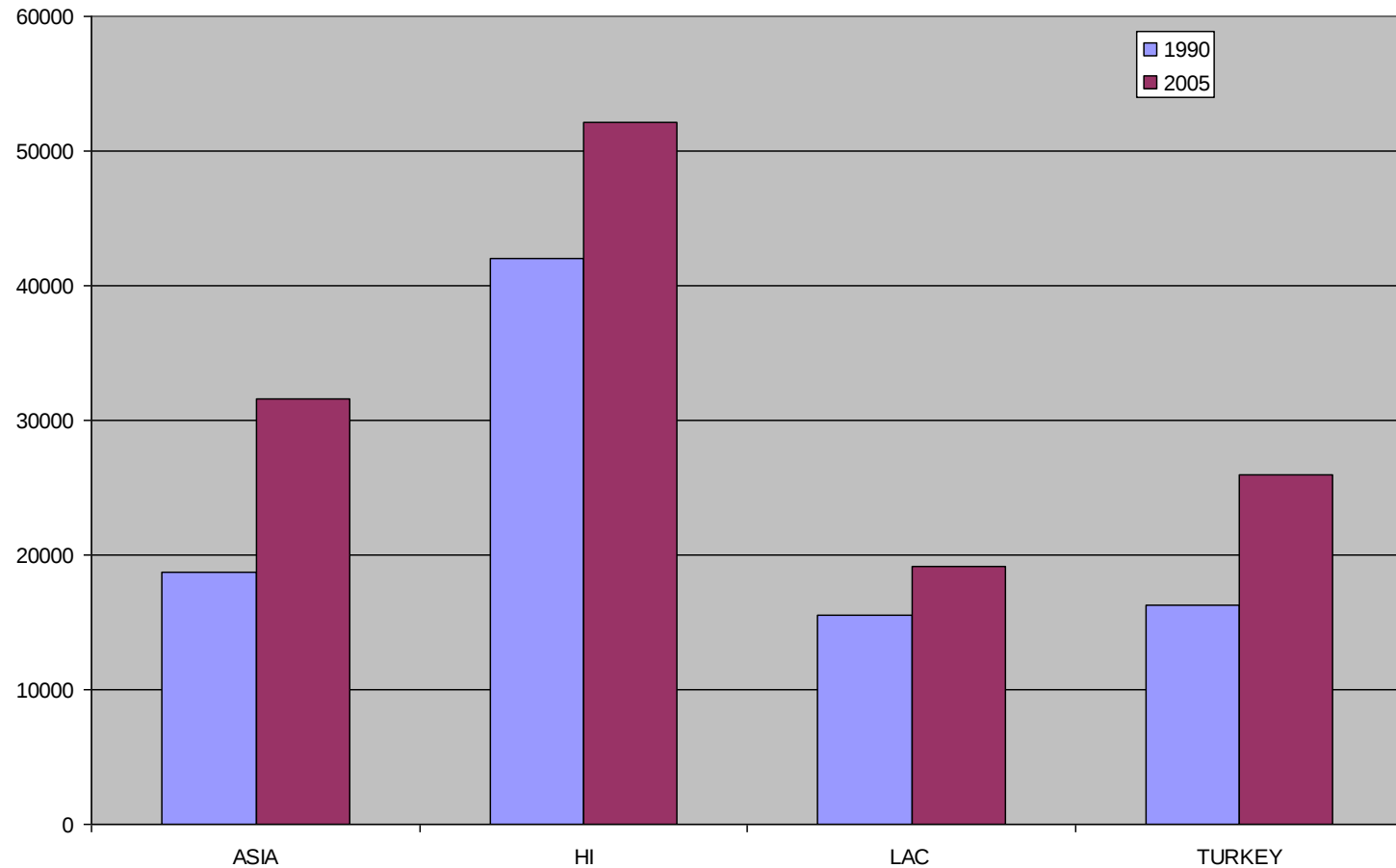
- Structural change in LAC contributed negatively (unweighted) or very little (weighted) to labor productivity growth compared to what happened in ASIA
- These economies are supposed to have become more “open”: yet in all cases the employment share of tradables (the sectors experiencing the most rapid productivity growth) has been shrinking.
 - Some of this is normal, and associated with increase in incomes
 - But also signs that some of it is pre-mature
- Turkey looks decidedly more “Asian” in terms of the contribution of structural change to overall productivity growth

Explaining differences across countries

- Richer countries may have less room for productivity-enhancing structural change
- Labor market rigidities may prevent expansion of more productive sectors
- Trade/industrial/currency policies may:
 - play a role in encouraging/discouraging new tradable activities
 - expose tradables to import competition too early and excessively
- Comparative advantage may
 - encourage specialization in primary products instead of manufacturing
 - with limited potential to absorb labor

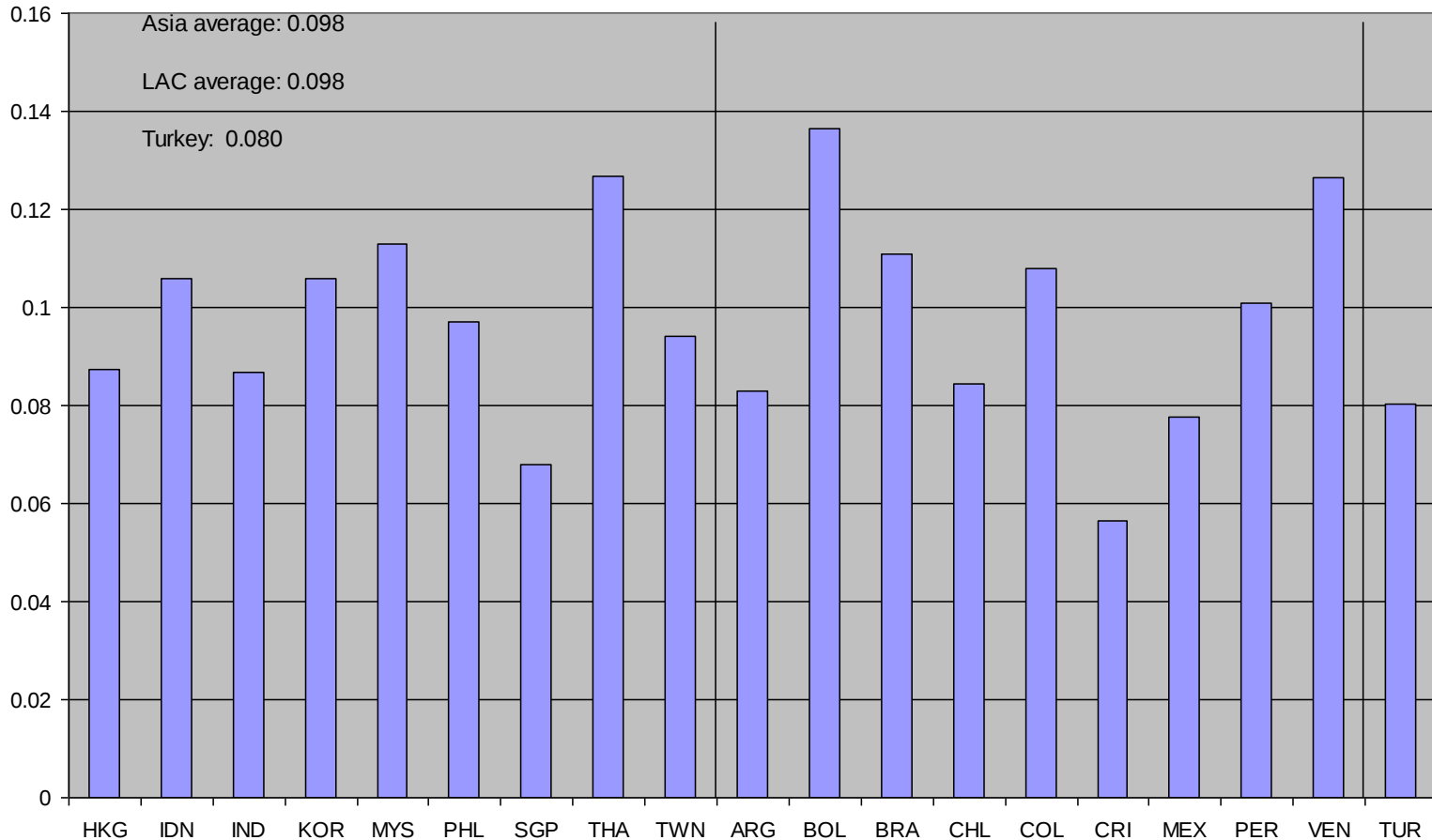
Income differences

Average economy-wide labor productivity, 2000 PPP \$

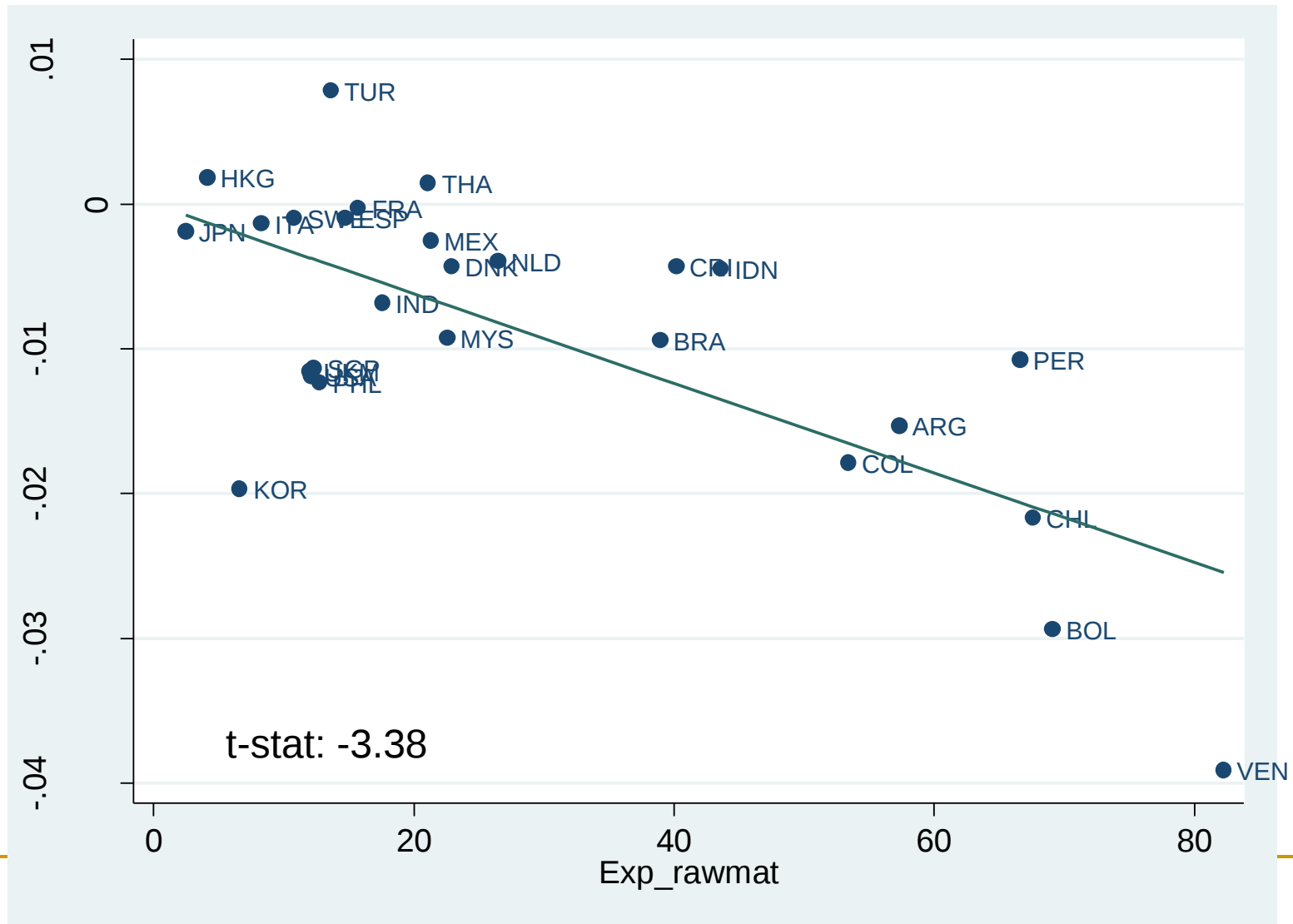


Inter-sectoral productivity gaps

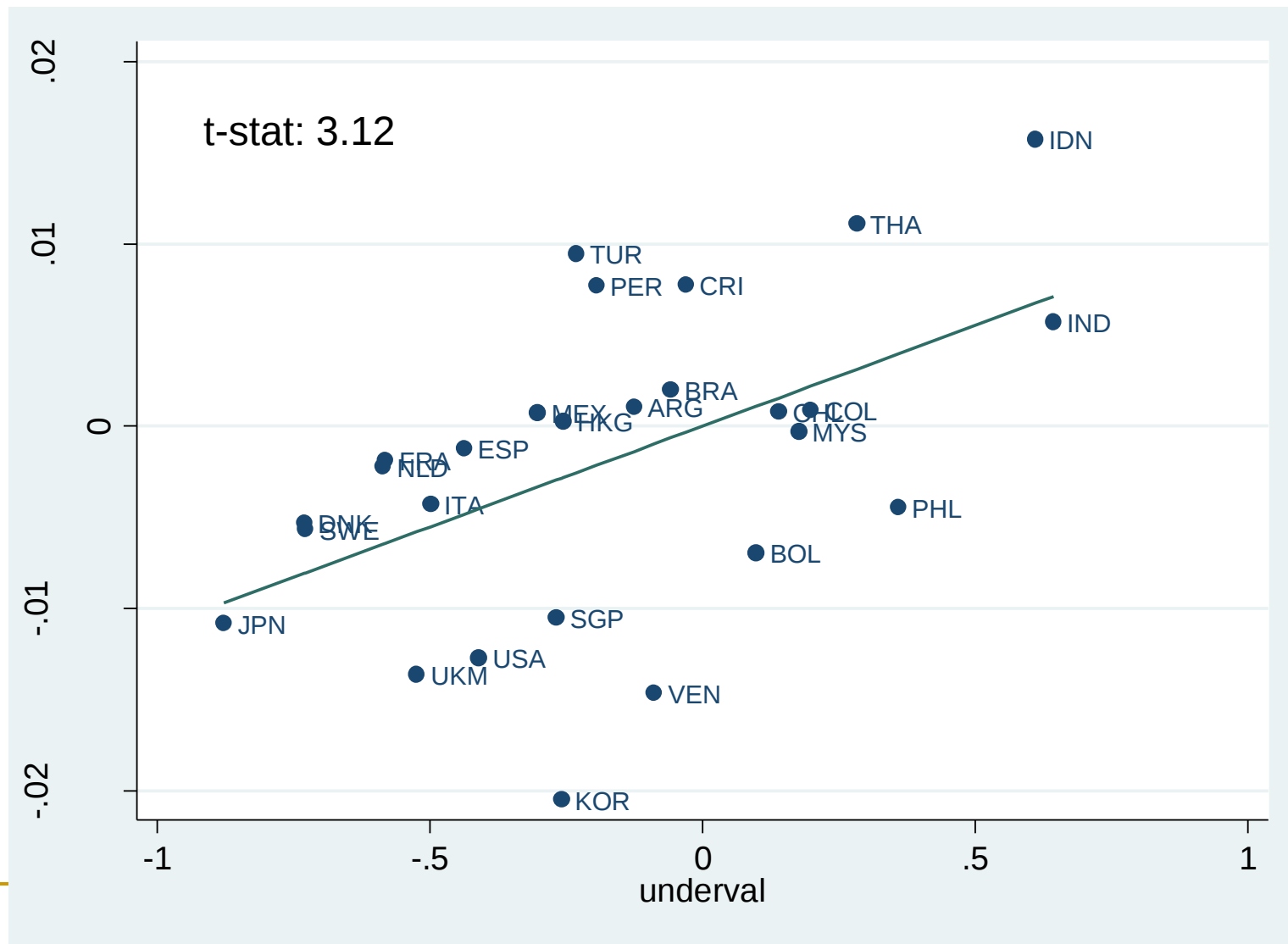
Dispersion of sectoral labor productivity, 2005
(coefficient of variation of log sectoral productivities)



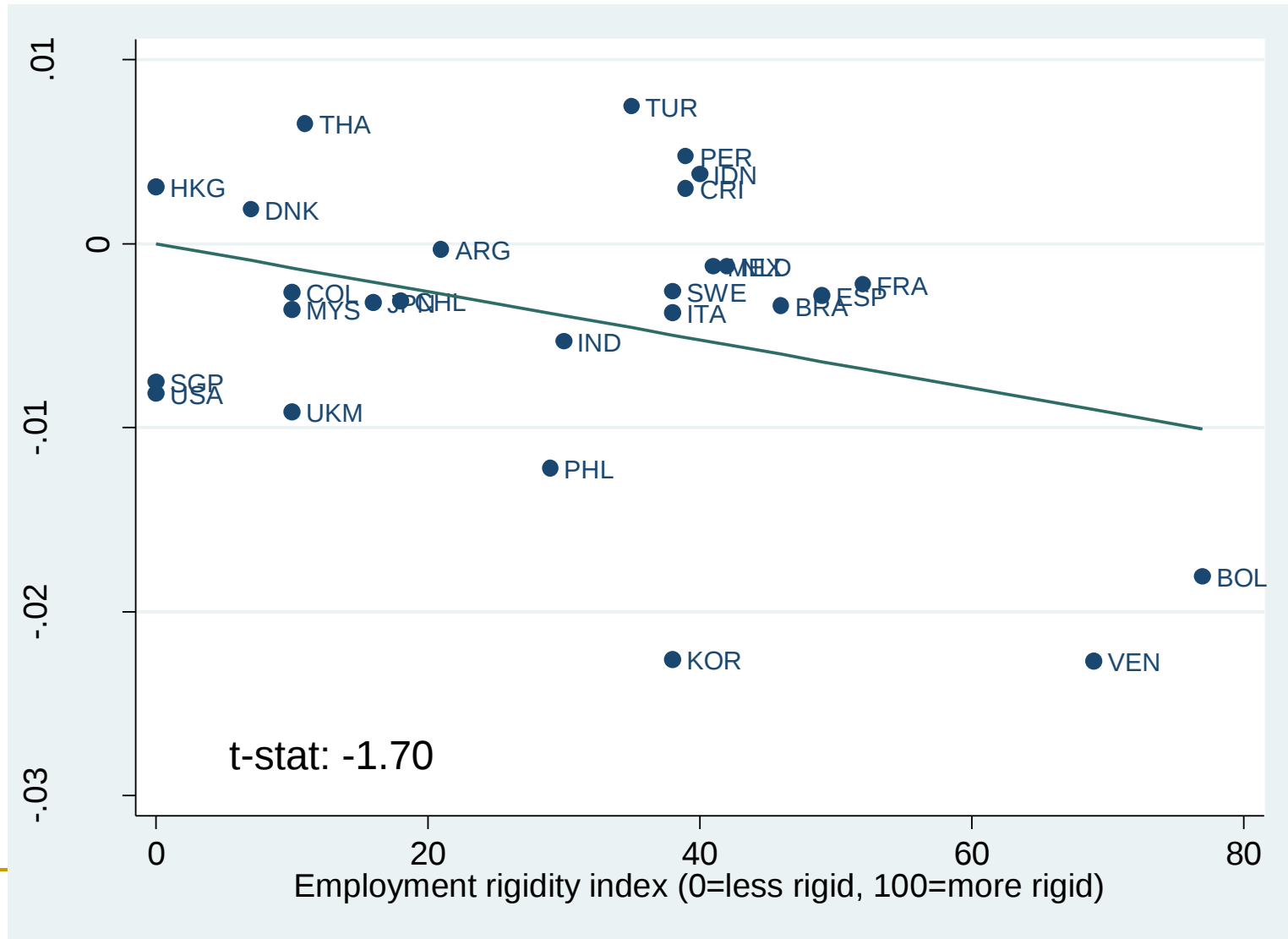
Structure of exports



The real exchange rate



Rigidity of labor laws



Concluding comments

- Structural transformation is the key to economic development
- Structural transformation is not an automatic process
- We need to avoid both the *dirigiste* and the *market fundamentalist* traps
 - pragmatism rather than preconceived ideologies
 - strategic collaboration between government and the private sector
 - Ingredients:
 - Institutionalized dialogues, carrots, and sticks