Declining Labor Shares and the Global Rise of Corporate Savings

by Loukas Karabarbounis and Brent Neiman

NBER 23nd East Asian Seminar on Economics

discussion by Martin Berka
Victoria University and CAMA

Chung-Hua Institution for Economic Research, Academia Sinica and
National Taiwan University
Taipei, Taiwan, Republic of China

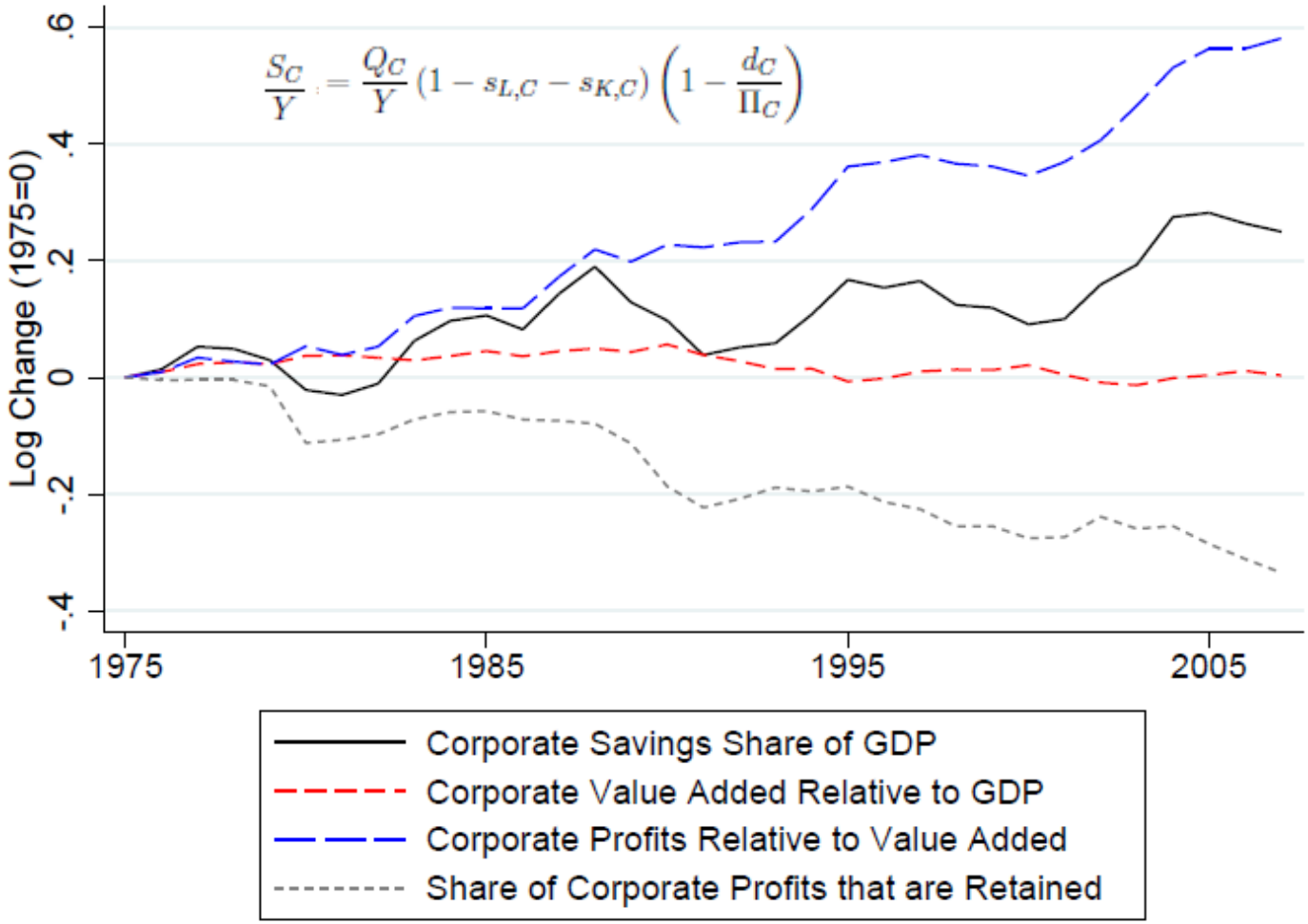
June 16, 2012

Contribution

- Magnum opus offers description and then a unifying theory of global decline in labour income share (1975-2007) and rise in corporate savings, all due to a single shock: decline in investment prices
- Data:
  - Pool together sectoral datasets for 59 countries: national statistical agencies, UN, OECD, WB, OECD books, UN books, EIU
  - Carefully construct measures of economic activity and savings for 3 sectors: corporate, household and government
  - Focus on corporate: parse out the contributions of labour share, profits, and other payments to capital
  - Numerous robustness checks on data sources (10 pages)
  - Findings:
    - ★ Global corporate labour income shares (in USD) declined by about 5 pp
    - ★ Declining shares correlate with declining P_I/P_C
    - ★ $\Uparrow s_c/s$ by around 20pp
  - Goal: match decomposition $\frac{S_C}{Y} = \frac{Q_C}{Y}(1 - s_{L,C} - s_{K,C})(1 - \frac{d_C}{\Pi_C})$

Decomposition

- No change in the size of corporate sector
- Large increase in profit shares, but not dividends
- Thus, global corporate savings share grows

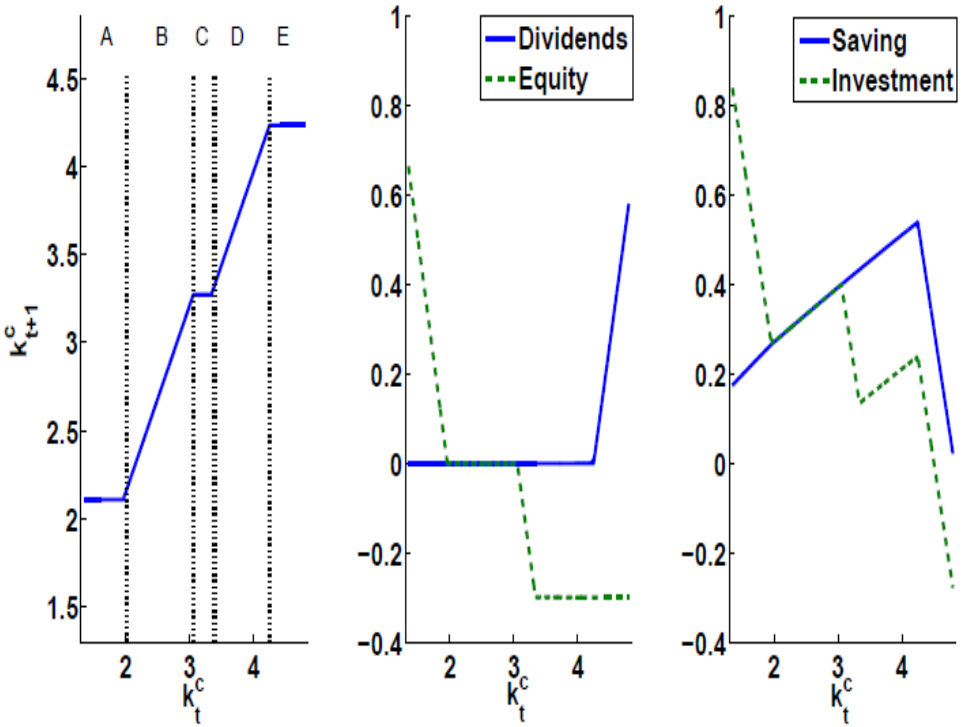


Contribution: Model

- GE model with neoclassical growth, closed economy, two sectors (H,C), and no uncertainty
- Household's utility depends on k (think housing)
- H/H taxes: $\tau^n, \tau^d > \tau^g \Rightarrow$ prefer equity buy-backs
- Corporations: single final good $Q = zA(\alpha_k^{\frac{\sigma-1}{\kappa\sigma}} (k^c)^{\frac{\sigma-1}{\sigma}} + \alpha_n^{\frac{\sigma-1}{\kappa\sigma}} n^{\frac{\sigma-1}{\sigma}})^{\frac{\kappa\sigma}{\sigma-1}}$
- $k' = (1-\delta)k + x/\xi - \Psi(k, k')$. $\xi \sim$ exogenous relative P_I/P_C
- Frictions:
  - costly equity issuance (iceberg), high τ^d
  - collateral constraint limits debt issuance $(1+r)b \leq \eta k$
  - Firm prefers pre-dividend redistribution because of relatively high τ^d.
  - But regulatory constraint on pre-dividend redistributions: $e_t \geq -(e^0 + e^1 k)$: $\Uparrow e^0 \Rightarrow \Uparrow s^c$.

Policy function: highly non-linear

- Desired level of capital but costly accumulation
- A: issuance costs, B,D: self-finance, C: buy-back (till binds), E: dividends



Modeling results

- Calib: $\{\alpha_k, \sigma, e^0, e^1\}$ to $d/\Pi = 0.28$, $d(S^C/S)/d(log(\xi)) = -0.46$
- Steady state matches data averages nicely
- Scenario: negative price shock ($\downarrow P_I/P_C$ by 21%)
- Look at SS change in 4 static models (CD, CES, with/out imperfections)
- Baseline (CES, with imperfections)
  - firm wants more capital as user cost $\downarrow$
  - $w/r \Uparrow$ as $k/n \Uparrow$
  - $\Uparrow y$ and $\Uparrow \Pi$
  - Output and wages rise, while $\downarrow n$, $wn/Y \Downarrow$
  - In the background, corporate savings rise
- Drop in P_I/P_C causes rise in savings due to desire to accumulate more capital while facing imperfections
- CES magnifies this mechanism, and allows realistic $s_{L,C}$ movement
- Adding shocks to β, τ^c, τ^k sees SS replicate data averages nicely

Comments

- Wow!
- Very thorough work on establishing the time-series stylized facts at global level
- Heavy artillery modeling
  - rich but realistic micro-foundations
  - highlights the role of non-unitary EOS
  - interaction of shape of production function and imperfections

Comments

- Long-run model, with quantities adjusting freely, while "price" is fixed and exogenous
- Clarifying intuition in modeling section.
  - Basic intuition is simple; what is the value added of complexity? Matching moments quantitatively.
- Also look at corporate investment to provide a clearer picture of the last 35 years
  - Figure 12 shows a highly non-linear (I, K) relationship
- Time-series and cross-sections equivalent in the static model: data?

Panel data in Europe: 16 years, 31 countries

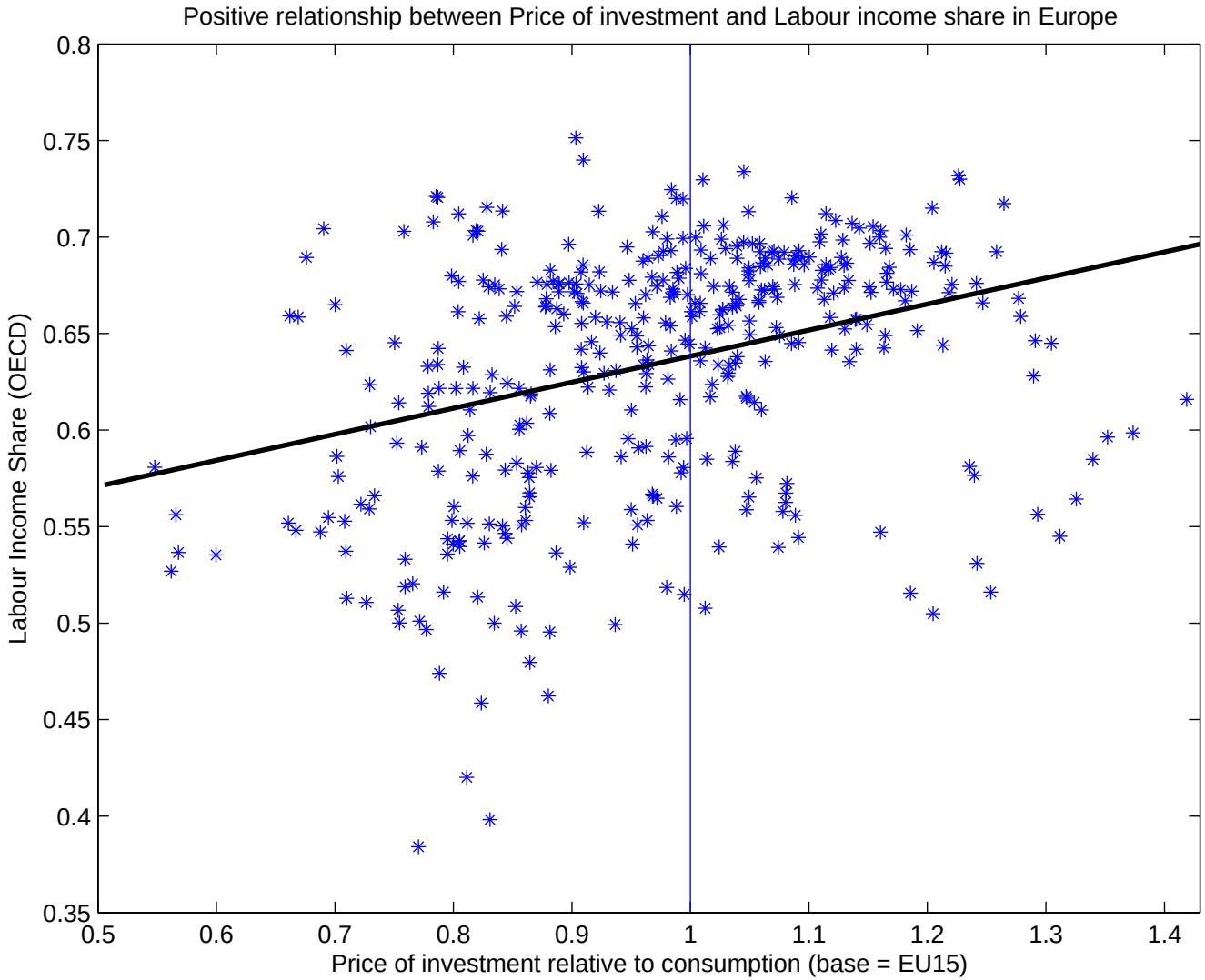
- Unique Eurostat dataset: Prices of investment goods in levels, 1995-2010
  - All of Europe: Belgium, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, UK, Iceland, Norway, Switzerland, Cyprus, Czech Republic, Estonia, Hungary, Slovenia, Bulgaria, Romania, Turkey
- Information on expenditures in every country, year and category
- Also contains 146 Consumer good categories allowing to construct consumption price levels (details in Berka and Devereux (2011))

Fabricated metal products, except machinery and equipment (IG)
Engines and turbines, pumps and compressors (IG)
Other general purpose machinery (IG)
Agricultural and forestry machinery (IG)
Machine tools (IG)
Machinery for metallurgy, mining, quarrying and construction (IG)
Machinery for food, beverages and tobacco processing (IG)
Machinery for textile, apparel and leather production (IG)
Other special purpose machinery (IG)
Office machinery (IG)
Computers and other information processing equipment (IG)
Electrical machinery and apparatus (IG)
Radio, television and communications equipment and apparatus (IG)
Medical, precision and optical instruments, watches and clocks (IG)
Other manufactured goods n.e.c. (IG)
Motor vehicles, trailers and semi-trailers (IG)

Other road transport (IG)
Ships, boats, steamers, tugs, floating platforms, rigs (IG) – reference ppp
Locomotives and rolling stock (IG) – reference ppp
Aircraft, helicopters and other aeronautical equipment (IG) – reference ppp
One or two dwelling buildings (IG)
Multi-dwelling buildings (IG)
Agricultural buildings (IG)
Industrial buildings and warehouses (IG)
Commercial buildings (IG)
Other non-residential buildings (IG)
Transport infrastructures (IG)
Pipelines, communication and power lines (IG)
Other civil engineering works (IG)
Products of agriculture, forestry, fisheries and aquaculture (IG)
Software (IG)
Other products n.e.c. (IG)

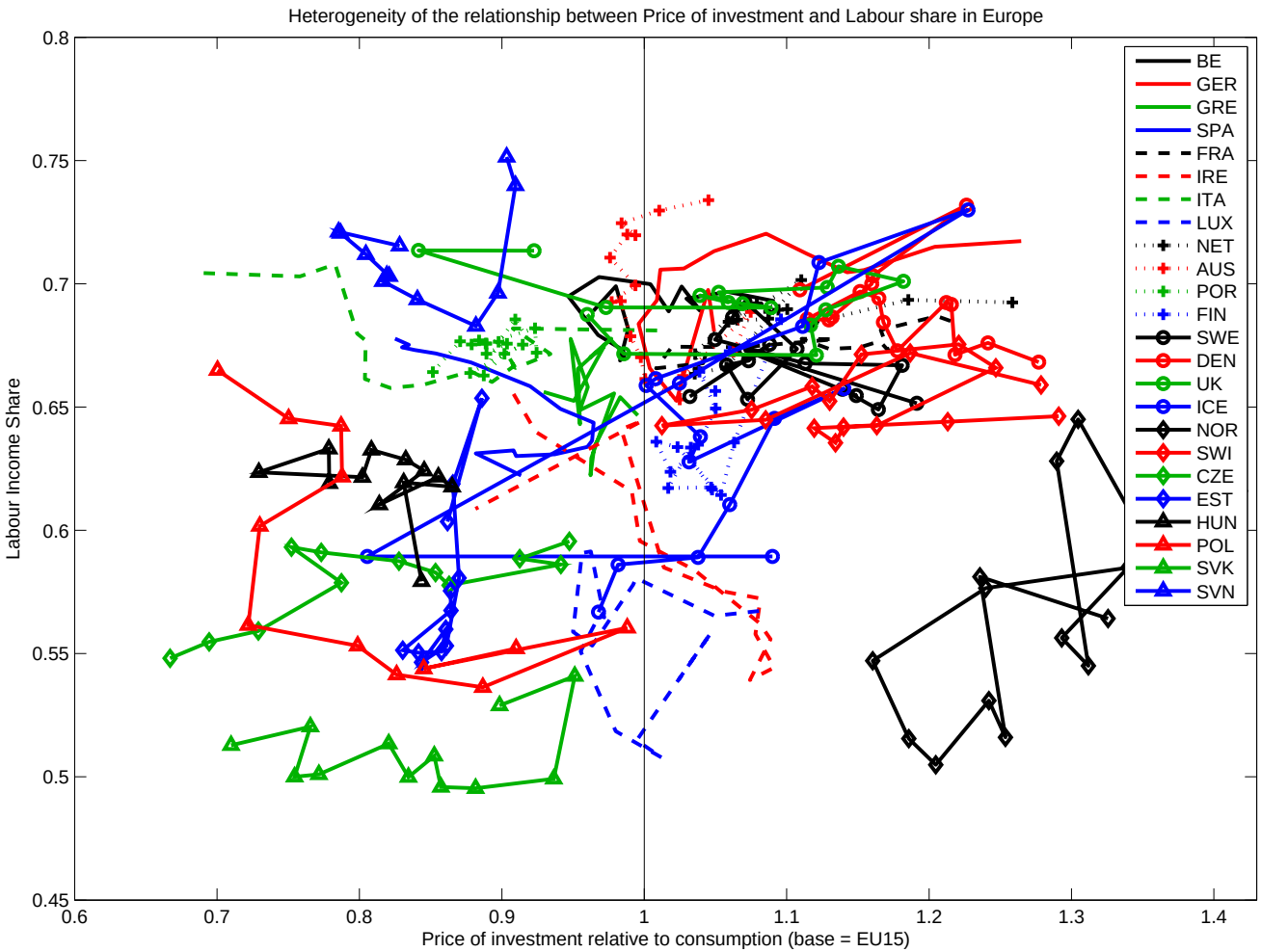
Panel data in Europe: 16 years, 31 countries

- Clear positive relationship on average – as in K & N



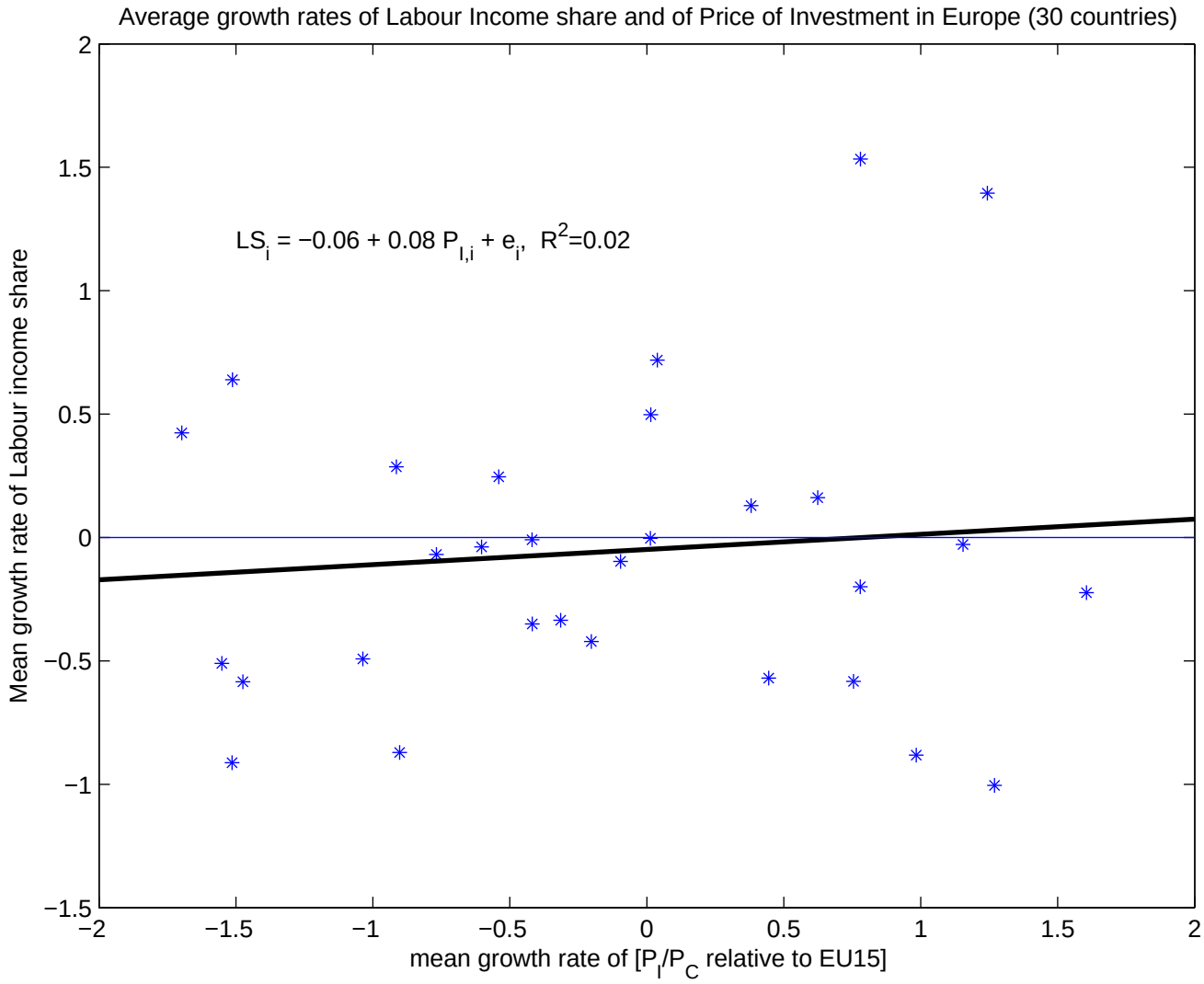
Panel data in Europe: 16 years, 30 countries

- But the relationship is heterogeneous
  - Some countries have a positive comovement over time
  - Other countries have a negative comovement over time



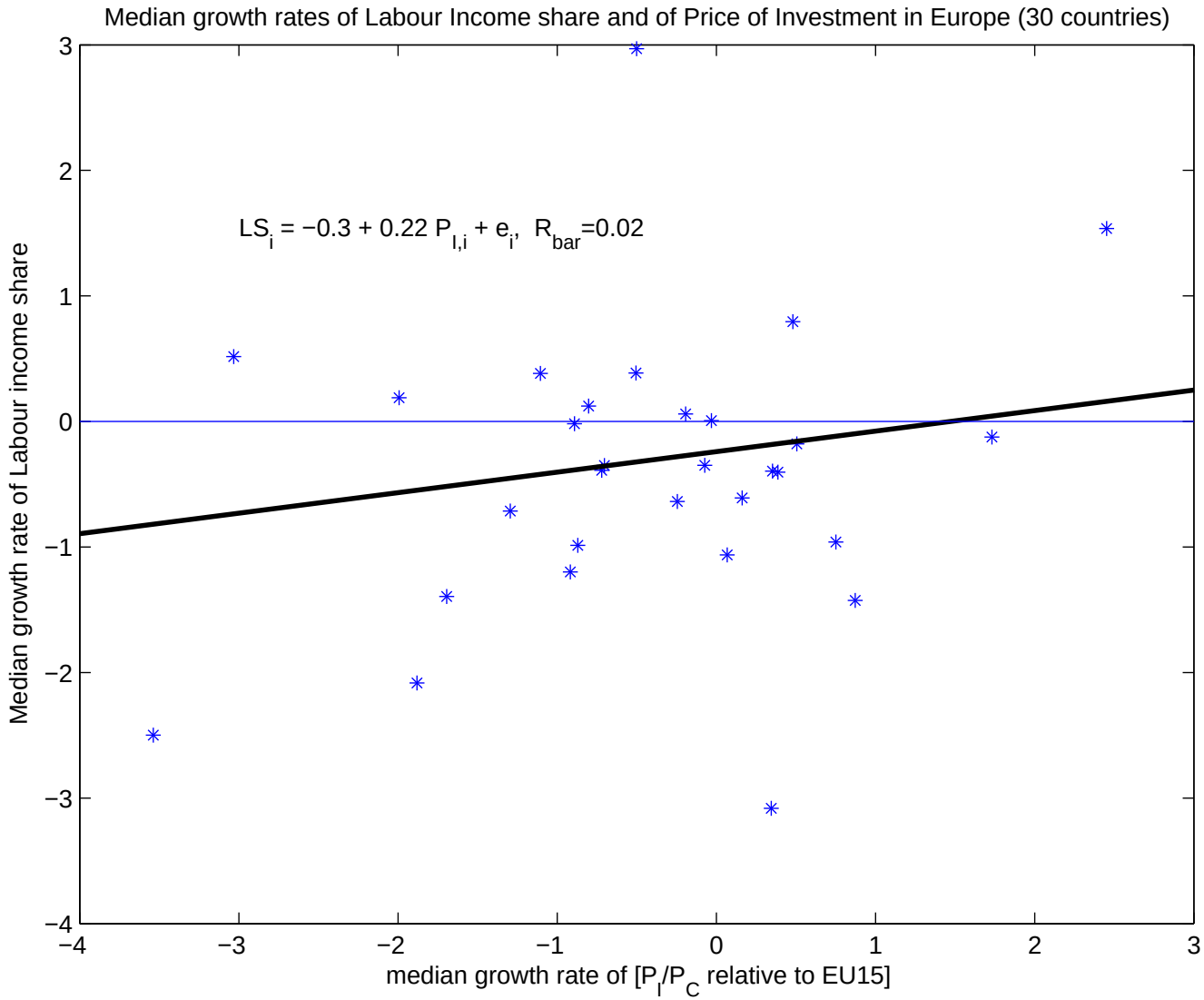
Time series: positive in average annual growth rates

- Outliers during GFC: violent price movements fog the view



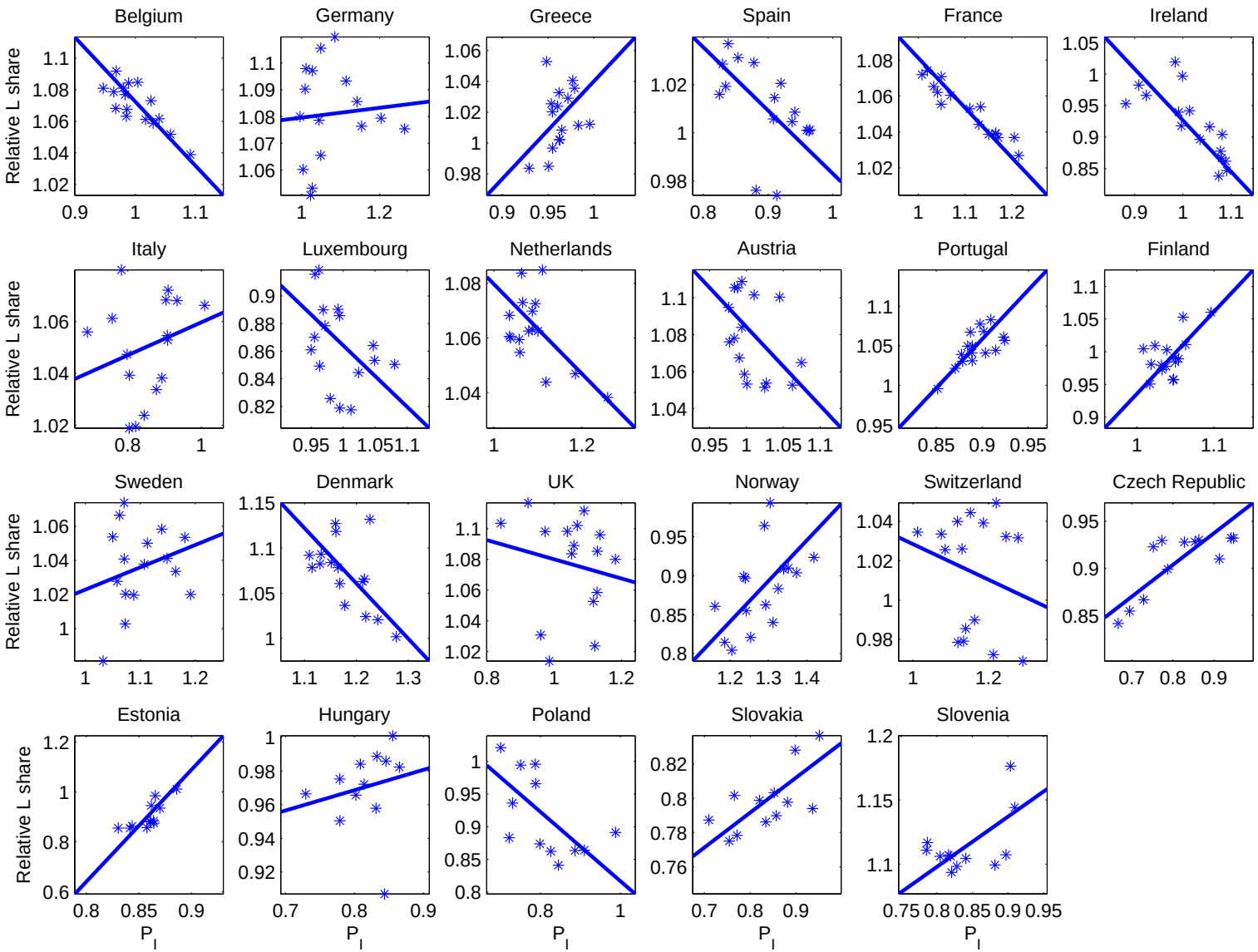
Time series: positive in median annual growth rates

- Clear picture: elasticity 0.22, vs. 0.21 in K & N!



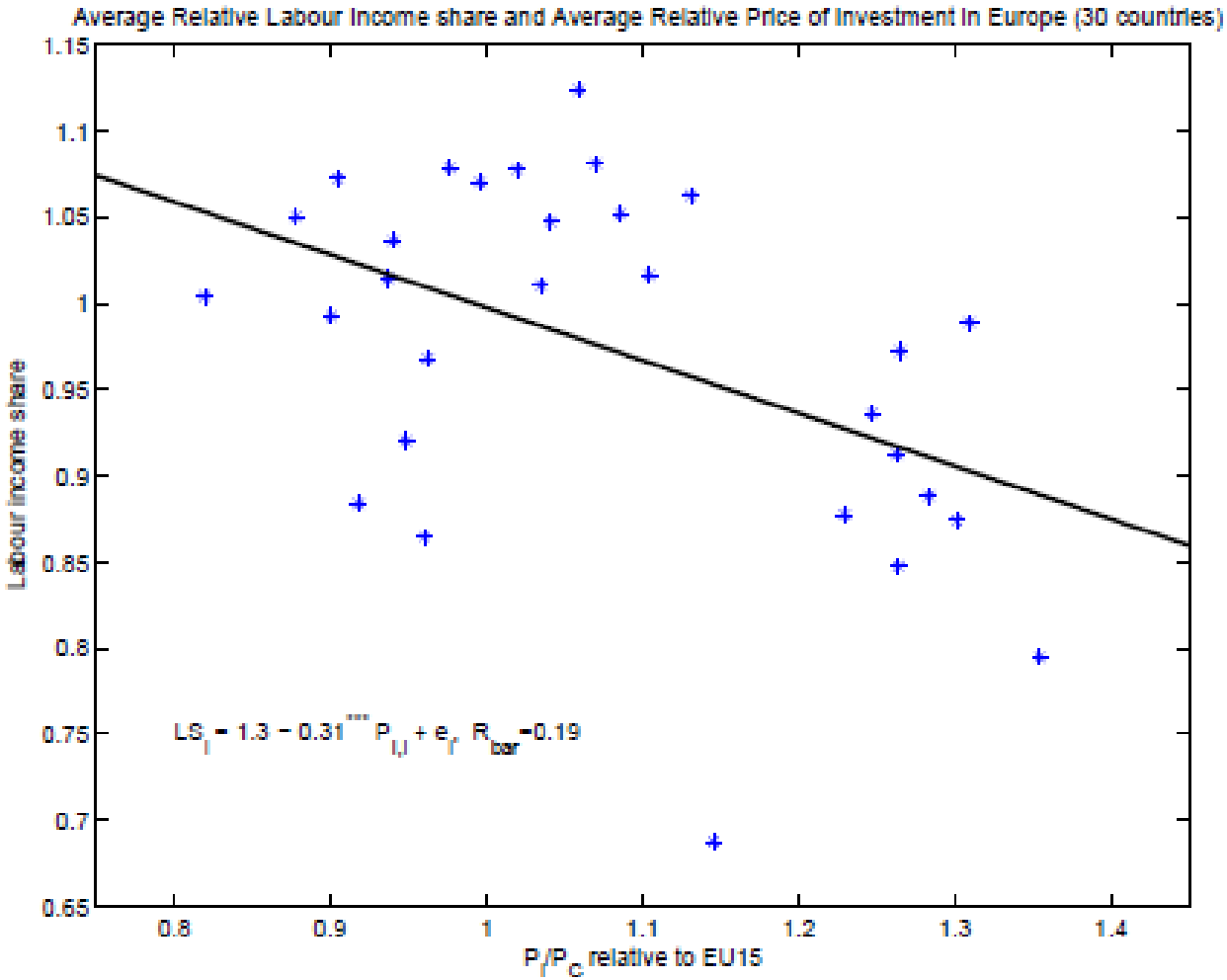
Time series: not unanimously positive within countries

- Many have time-series $corr(P_{I,t}/P_{C,t}, LS_t) < 0$



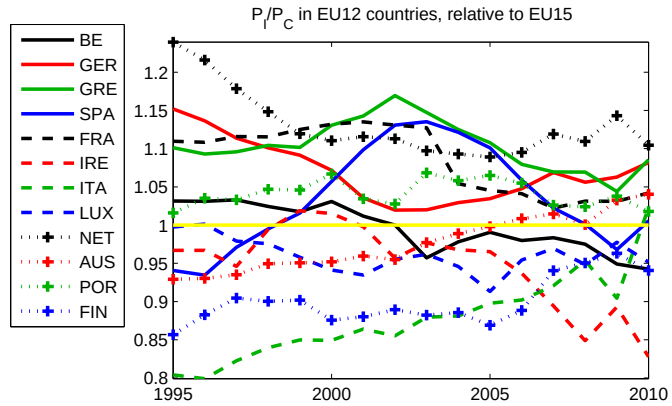
Cross-section: negative relationship of LS and P_I/P_C

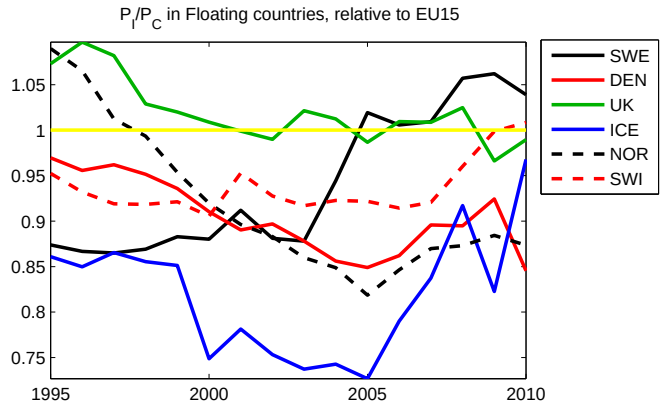
- Average levels (over 16 years): elasticity -0.31^{***}
- Does West (East) Europe have "high" or "low" average P_I/P_C?
- Does West (East) Europe have "high" or "low" labour income shares?

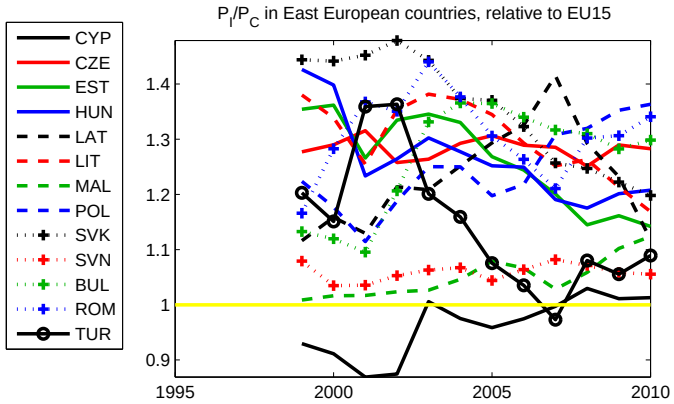


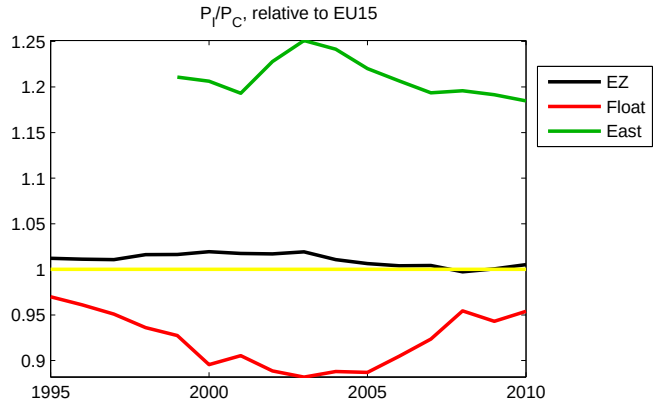
East Europe: expensive capital

- East Europe is cheap $P_I^{east} < P_I^{west}$ but
  $P_C^{east} << P_C^{west} \Rightarrow \left(\frac{P_I}{P_C}\right)^{east} > \left(\frac{P_I}{P_C}\right)^{west}$
- On average 20% higher relative price of investment



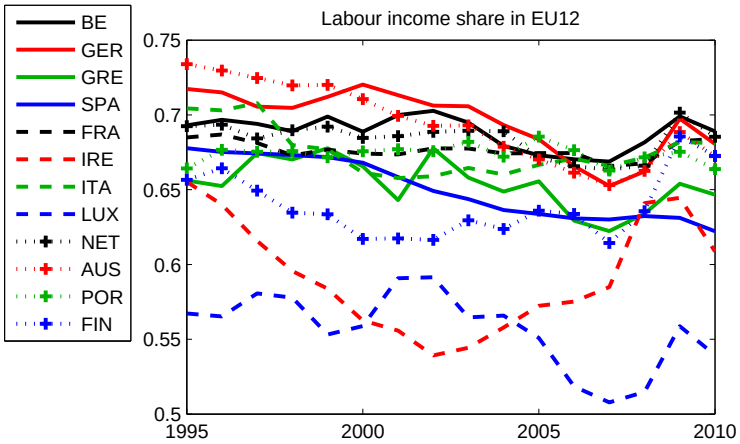


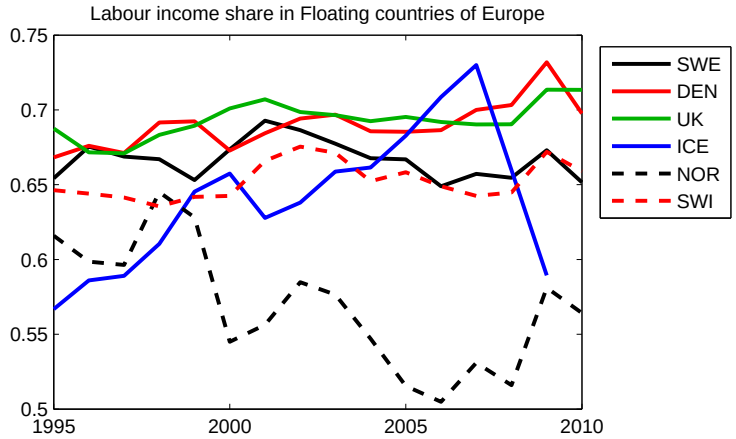


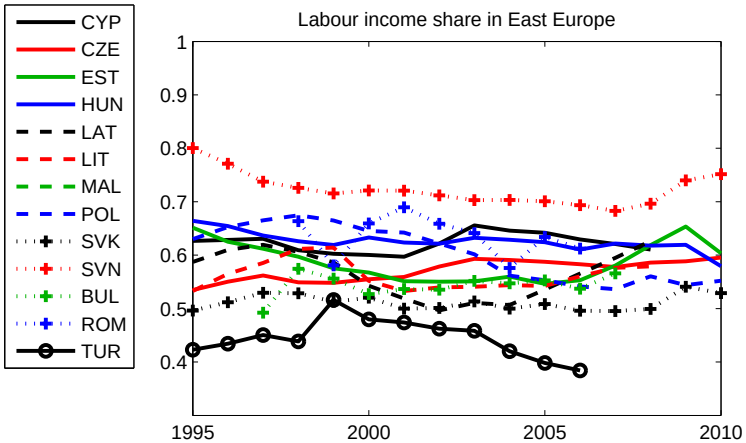


East Europe: cheap labour

- LS^{east} is $8pp$ below LS^{west} (low wages)







Investment price – labour shares in Europe: Summary

- Data: significantly **negative** correlation of P_I / P_C and Labour income shares in cross-section
- Consistent with: cheap labour, *relatively* expensive capital in poorer countries
- Now let's think in terms of the model in K & N
  1. As a country develops (East $\Rightarrow$ West), investment price drops $\zeta^c_{east} > \zeta^c_{west}$
  2. reallocate from $L \Rightarrow K$, $\Uparrow Y$
  3. as user cost of capital drops, $w/r \Uparrow$
  4. $\Downarrow ls \equiv \frac{\uparrow wL \downarrow}{Y \uparrow}$
- **Positive** relationship between labour income share and relative investment price in the model

Corporate saving rates in cross-section

- Model: corporate saving a result of capital market imperfections
- Consider a thought experiment: East Europe has larger capital market imperfections than West.
- Then in the model $\frac{d(S^c/S)}{d\xi}^{east} > \frac{d(S^c/S)}{d\xi}^{west}$

Corporate saving rates in cross-section

- Don't have data on trends, but in Figure 3 of K & N we see:
  - High S^C/Y: DNK, CHE, NLD, NOR, EST, LUX, JPN, AUT, MEX
  - Some low S^C/Y: IND, PRT, ITA, FRA, COL, TWN, UKR, DEU

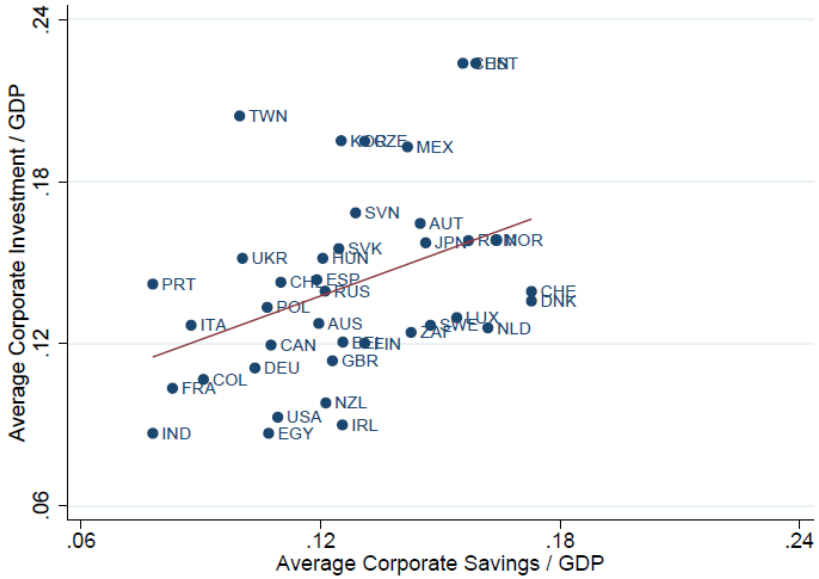


Figure 3: Feldstein-Horioka Puzzle in Global Corporate Sector

- Do Japan, Denmark or the Netherlands really have much higher capital market frictions then India, Columbia or Ukraine?
- Is corporate saving a purely supply-side phenomenon?
- Alternative: drying-out of new I opportunities, liquidity looking for home, some distributed as dividends, some saved.

Is elasticity of substitution > 1 important?

- Hungary and Austria: Both 40% $\Uparrow$ TFP between 1995 and 2007
- RGDP PC in Austria $\Downarrow$ relative to Hungary by almost 30 pp
- Model (Figure 14): Austria should have rising RGDP gap - either permanently, or temporarily, relative to more imperfect country
- Imperfections either unimportant, or working in "wrong" direction
- CES implication of permanent effects not supported by data