HAS THE LABOUR SHARE DECLINED? IT DEPENDS.

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Background

Inequality on the rise

- Much debate about rising ***inter-household inequality*** of (disposable) income in many OECD countries
- In parallel, attention on functional distribution, i.e., ***labour and capital shares in income***
  - Karabarbounis and Neiman (2014)
  - Elsby, Hobijn and Sahin (2013)
  - Stiglitz (2015)
  - Atkinson (2015)

Interest in functional income distribution

- 'Upstream' to inter-houshold distribution
- General political-economical interest:

  '*the empirical determination of factor shares was the proximate cause for the founding of the National Bureau of Economic Research*' (Krueger 1999 p. 1)

- Income shares as a way to observe production elasticities

This paper

- Revisits some of the *measurement issues*
- Distinguishes between *production-based* and *income-based* labour/capital shares
- Finds *declining* labour shares *only with production-based measures*
- *Dissects the capital share*
  - real rates of return vs. capital-income ratio
  - role of land (and non-produced assets)

Production and Income-based shares

Production perspective

- Use of labour share in production analysis
- Cost-minimising producers – LS=production elasticity of labour
- Appropriate weight for MFP measurement
- Production theory provides link between change in LS and elasticity of substitution
- Measurement: choose activities, valuations etc that entail *producer perspective*

Income perspective

- Labour share as a predictor for inter-HH income distribution

- « To address concerns of social justice with the fairnesss of different sources of income » (Atkinson 2009)

- Measurement: choose activities, valuations etc that entail *household perspective* (as close as possible to income that is actually distributed)

Production perspective	Income perspective
Valuation at basic prices	Valuation at market prices
Exclusion of OOH	Inclusion of OOH
Gross of depreciation	Net of depreciation
Proportionate allocation of net taxes on production	Net taxes allocated to capital

5 ways of allocating mixed income

| Variant	α_j	Comment
j=1	0	Unadjusted labour share
j=2	2/3	Johnson's (1954) version with 2/3rds of mixed income allocated to labour
j=3	1	Gollin's (2002) 1st adjustment with all mixed income allocated to labour
j=4	$(CE/L_w)(L_{NW}/V_{MIX})$	Average compensation of non-salaried workers equals the average compensation of salaried workers (CE/L_w).
j=5	$0.5(CE/L_w)(L_{NW}/V_{MIX})$	The average compensation of non-salaried workers is set to equal half the average compensation of salaried workers. α_5 is also a simple average of α_1 and α_4

Data

- OECD Annual national accounts
- 22 OECD countries
- 1995-2014 (all countries)
- 1970-2014 (Korea)

Production-based LS

Average from 1995
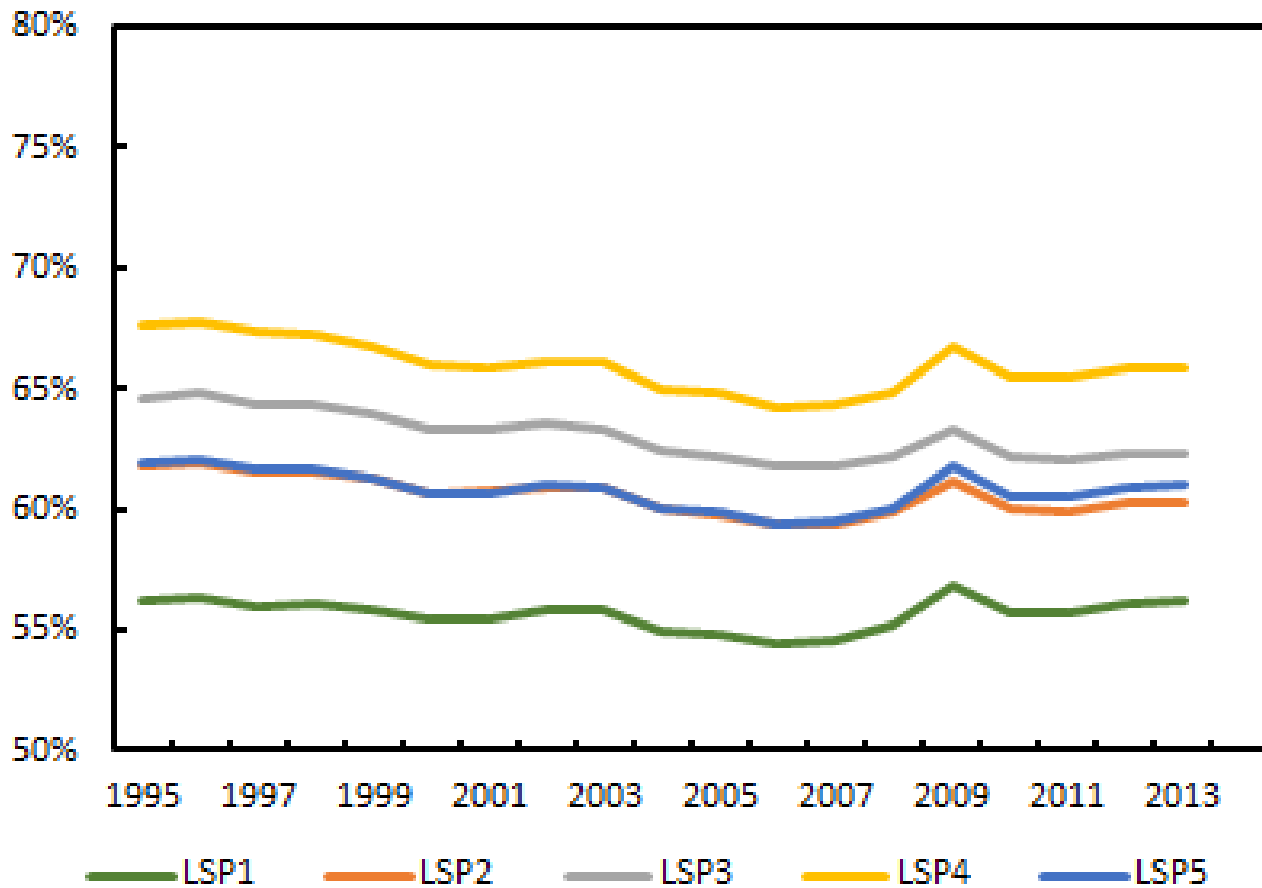
- Downward trend
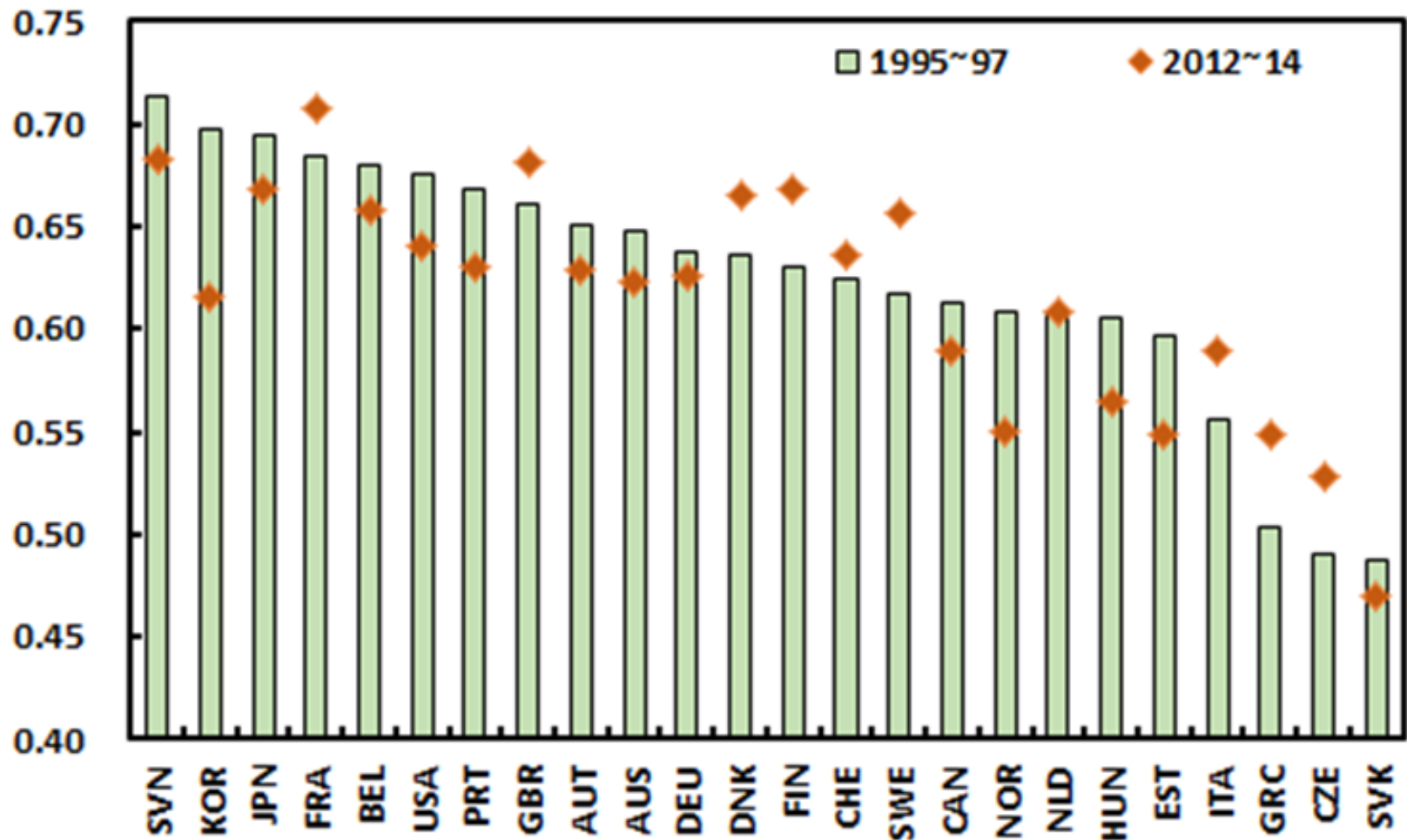
- Mixed income matters for levels

Production-based LS: panel regression

Time variable(β_t)	LS$_{P1}$	LS$_{P2}$	LS$_{P3}$	LS$_{P4}$	LS$_{P5}$
Fixed effects model (9a)	-0.004	-0.094***	-0.139***	-0.107***	-0.055***
	(0.015)	(0.013)	(0.013)	(0.019)	(0.016)
Random effects model	0.005	-0.075**	-0.113***	-0.100*	-0.049
with AR1 error term (9b)	(0.054)	(0.034)	(0.037)	(0.056)	(0.042)

- statistically significant *downward trend* in most cases
- average decline between -0.005*(2014-1995)=-0.07 percentage points for LS$_{P1}$ to -0.139*(2014-1995)=-2.64 percentage points for LS$_{P3}$
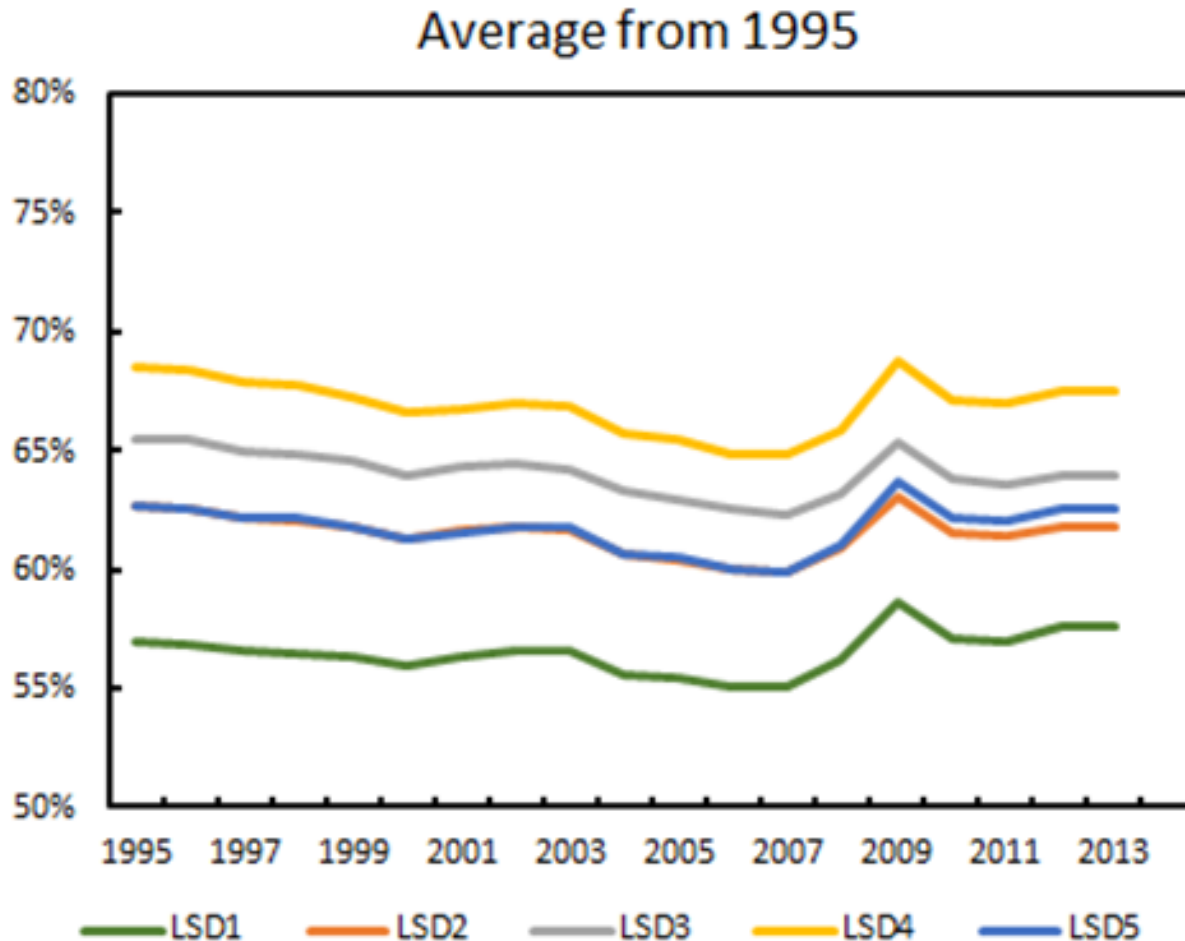
Averages hide country heterogeneity

Income-based LS

Average from 1995

- Downward trend hard to detect

- Mixed income matters for levels

Income-based LS: panel regression

| Time variable(β_t)	LS$_{D1}$	LS$_{D2}$	LS$_{D3}$	LS$_{D4}$	LS$_{D5}$
Fixed effects model	0.048***	-0.038***	-0.081***	-0.043**	0.002
	(0.016)	(0.014)	(0.014)	(0.020)	(0.017)
Random effects model	0.036	-0.041	-0.080**	-0.061	-0.011
with AR1 error term	(0.040)	(0.035)	(0.036)	(0.053)	(0.042)

- Hardly statistical significant
- Where present even smaller in size than production-based measure

What makes the difference?

- Depreciation rises, CS_P rises (LS_P drops)
  - Obsolescence
  - Wear and tear
  - Crisis
- Net rate of return on capital *not* source of rising CS_P
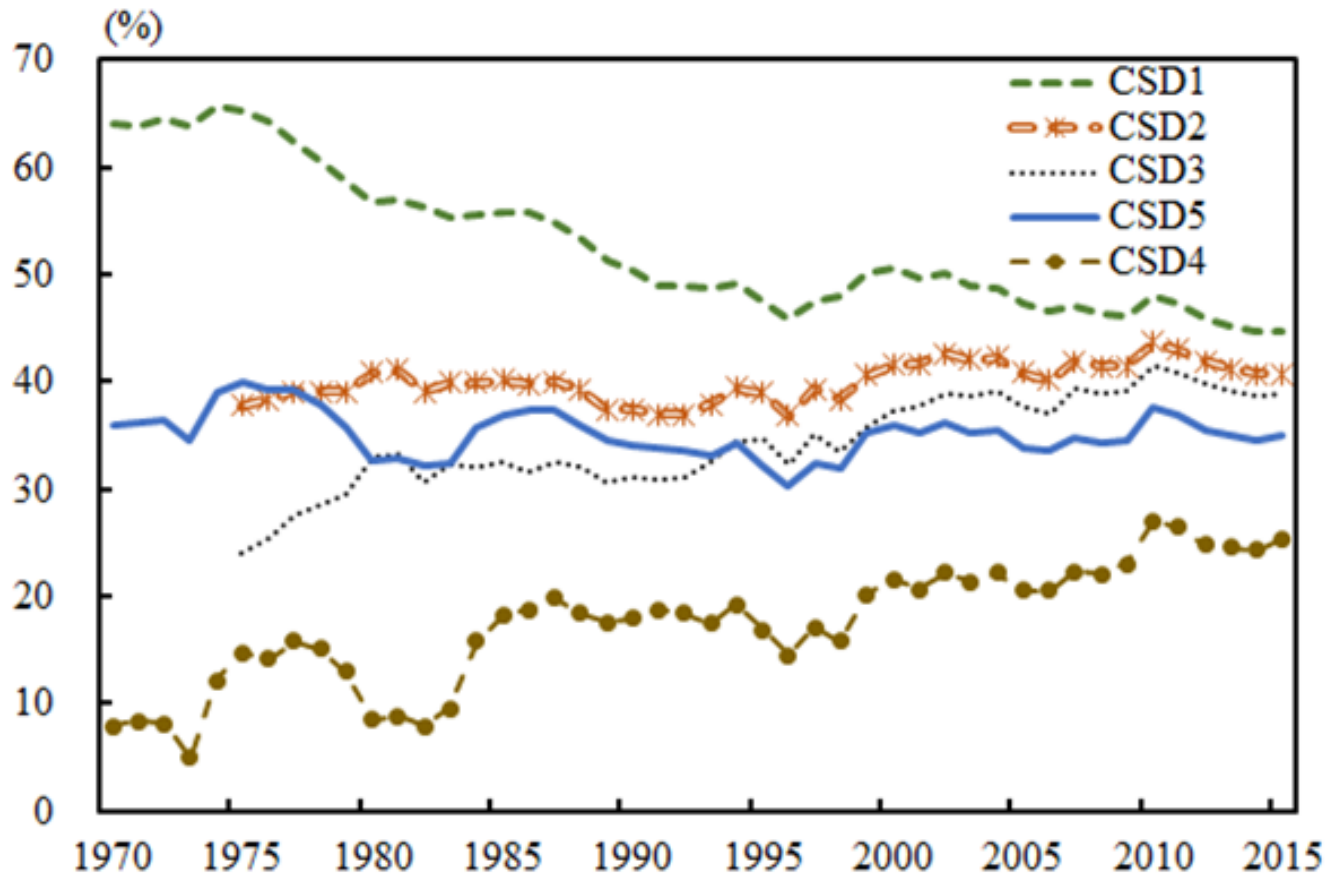- OOH
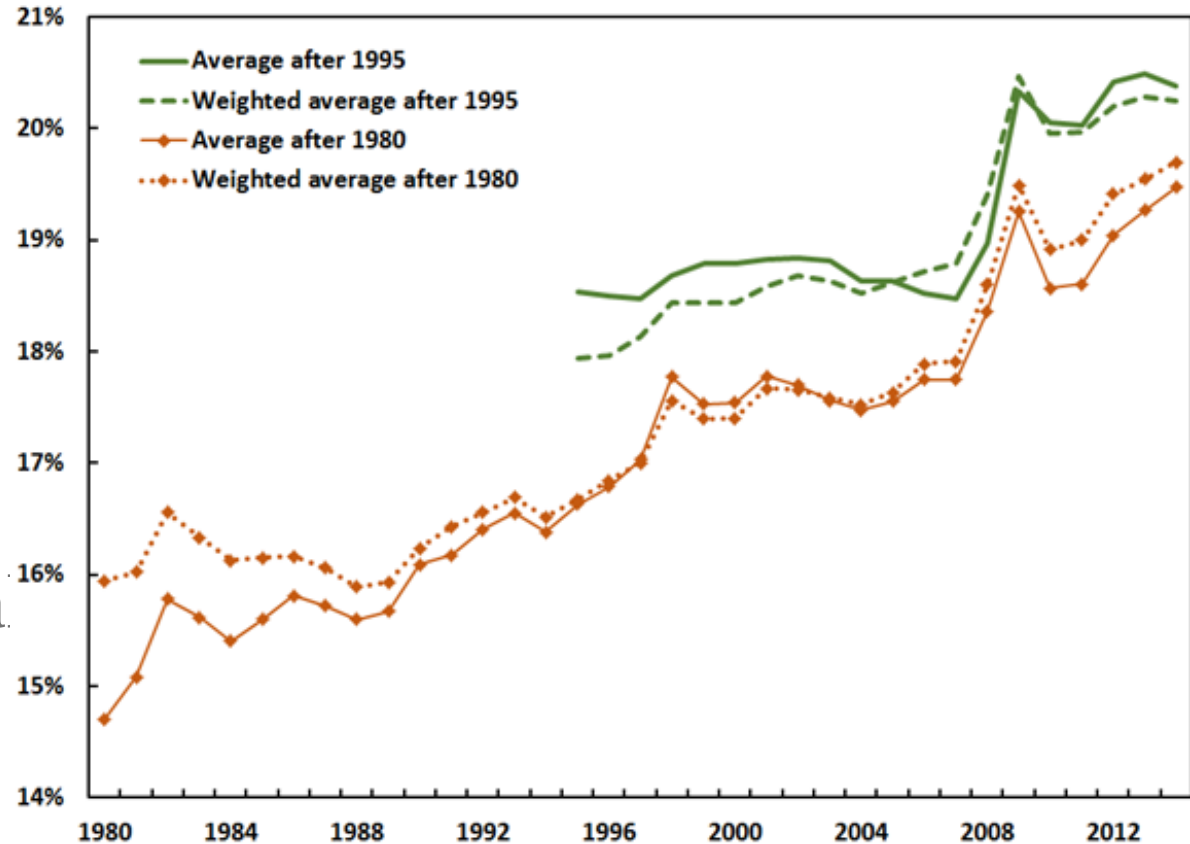
A biopsie of the Korean capital share

Korean data

- ***Complete*** balance sheets released recently by Bank of Korea

- 1970 – 2014

- An ***interesting showcase*** for a fast-growing, high-investment country
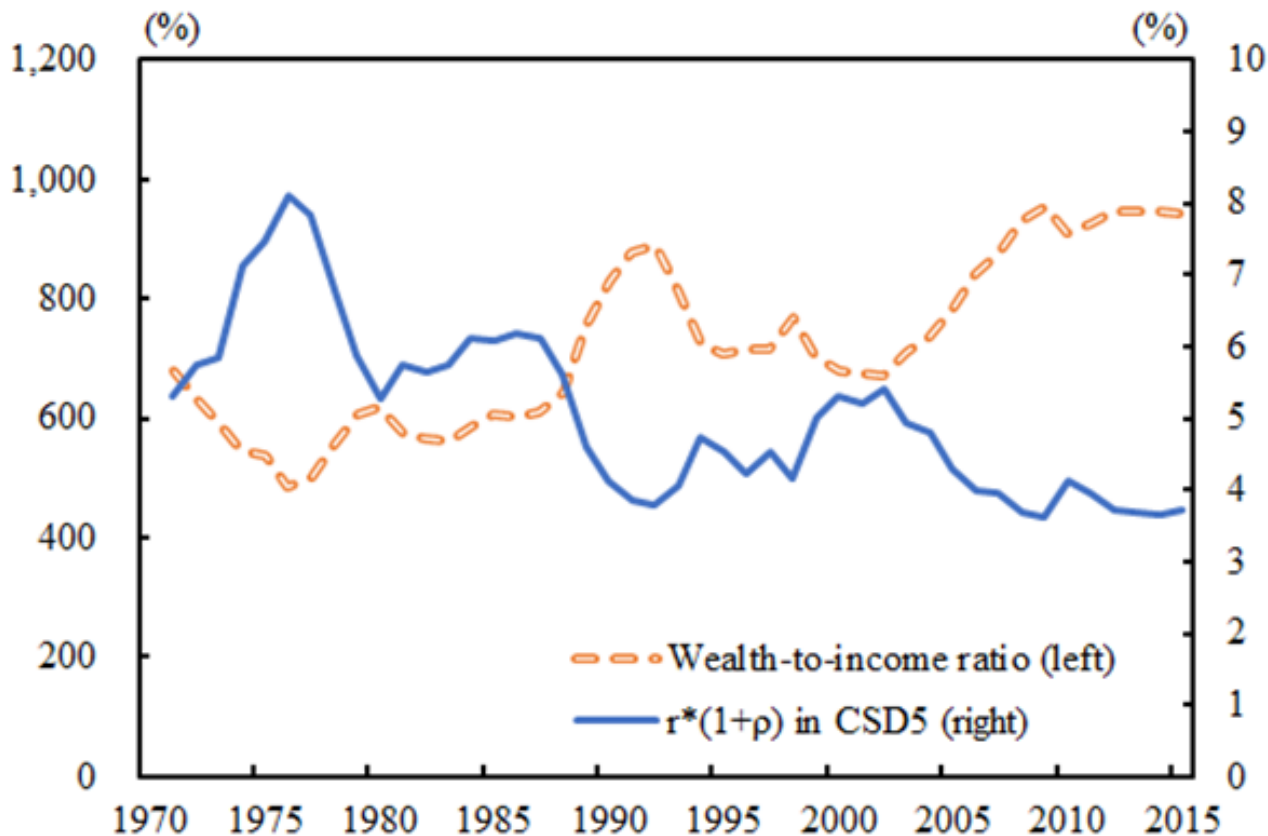
Income-based capital shares in Korea

Effect of mixed income allocation

Preference for CSD5

A first break-down of CSD5

$$CS_{Dj}=r_j*(1+\rho)\ [\textstyle\sum_{i=1}^{N}P_{Ki}K_i+\sum_{i=1}^{M}P_{Zi}Z_i]/NDI_M$$

- Korea's strong investment history

- Land as part of wealth

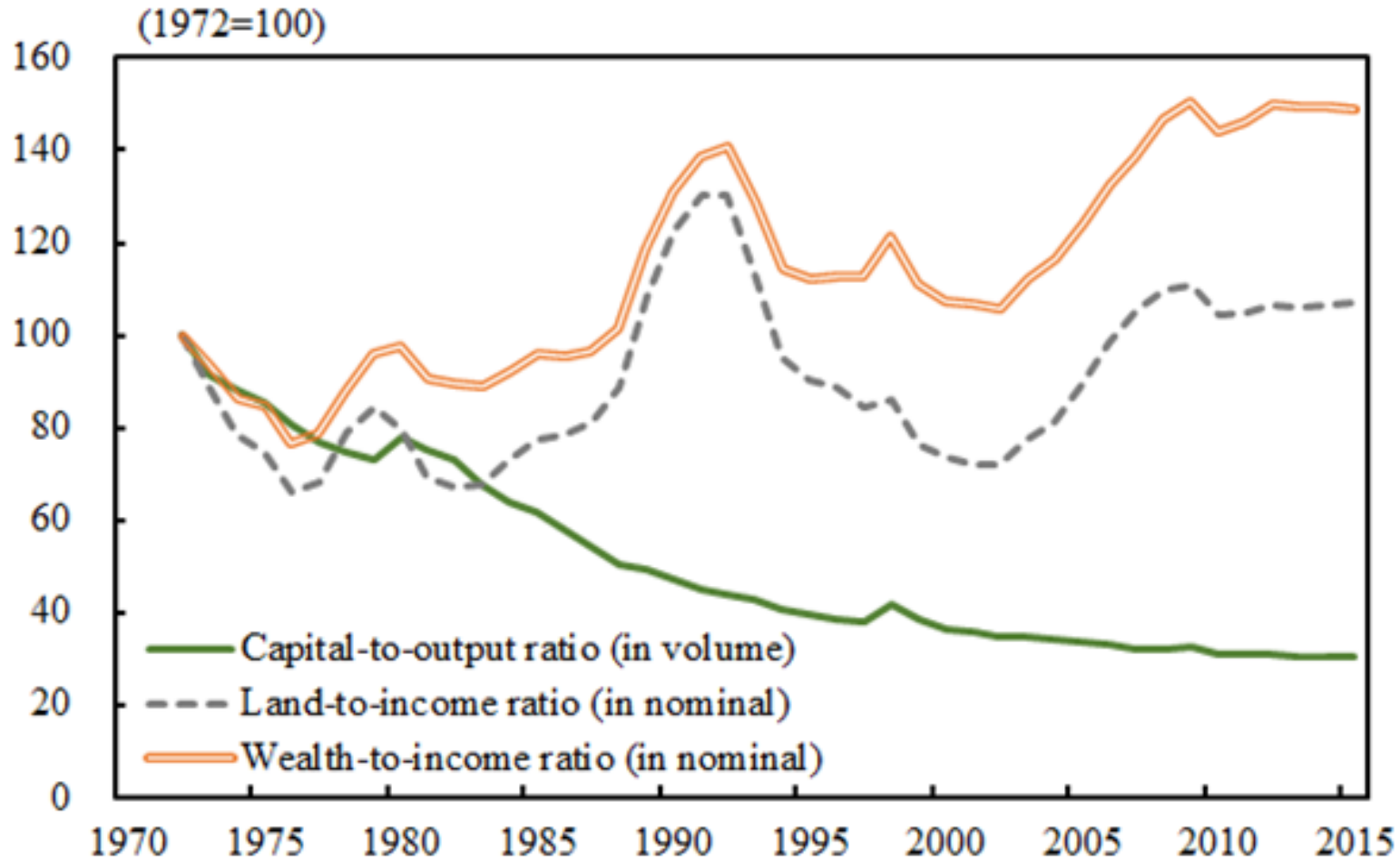# A second break-down with more granularity

	ΔCS_{D5}	γr	Produced assets γ_{Pk}	Land γ_{Pz}	γ_Q
	Changes in capital share	Effect of real rate of return	Effect of real asset price change		Effect of asset quantity
1973~2015	-0.031	-0.360	-0.855	-0.183	1.367
1973~1982	-0.424	-0.048	-1.174	-1.067	1.864
1983~1991	0.205	-1.494	-1.368	1.518	1.550
1992~2002	0.209	1.047	-0.778	-1.370	1.309
2003~2008	-0.333	-2.217	-0.215	1.078	1.022
2009~2015	0.111	0.033	-0.407	-0.326	0.811

- Invest-ment quantity +

- Rate of return and asset prices -

- Note land price bubbles

Wealth-income ratio ≠ capital-output ratio

(1972=100)

Capital-to-output ratio (in volume)

Land-to-income ratio (in nominal)

Wealth-to-income ratio (in nominal)

Land in the production-based labour (capital) shares

Note Diewert (1974)

$$dlnLS_P(u_K, u_Z)$$
$$= [\sigma_{L,K}(u_k, u_z) - 1]KS\,dln\,u_k +$$
$$[\sigma_{L,Z}(u_k, u_z) - 1]ZS\,dln\,u_Z$$

Karabarbounis and Neiman (2014) :

- when $dlnLS_P < 0$ and $dln\,u_k < 0$, $\sigma_{L,K}$ **has to be > 1** (with land is out of scope)

Our interpretation, including land:

- when $dln\,LSp < 0$ and $dln\,u_k < 0$, $\sigma_{L,K}$ may well be < 1, depending on $\sigma_{L,Z}$ and $dln\,u_Z$

- Indeed, a quick estimation shows:
- $\sigma_{LK} = 0.659$
- $\sigma_{LZ} = -0.359$ at the sample mean
- Implication:
  - Labour and produced capital: substitutes
  - Labour and land: complements
- But a series of econometric issues so results are simply by way of indication

Summing up.

- Yes, LS has *declined* but only under production perspective
- Where significant, *small* on average
- Income-based LS has not declined, therefore, unlikely as a source for rising inter-HH income inequality
- Distribution *within* capital components important
- Mis-interpretation possible when *land* is excluded
- *Mixed income* cannot be ignored

Thank you.