



Discussion of

Accounting for Growth in Global Agriculture

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Main question of the paper

How much has total factor productivity (TFP) grown in world agriculture over the 1961-2012 period?

A relevant question:

Expo 2015 – Feeding the planet, Energy for Life

G7: world temperature reduction

Empirical procedure

Growth Accounting: a deterministic non-frontier methodology applied to macro units to obtain a primal measure

Assumptions:

- constant returns to scale technology
- perfect competition
- absence of factor hoarding
- absence of inefficiency

Data

FAO data 1961-2012 years

country coverage: 99.9% of world agricultural output
plus

data sourced from

- International Fertilizer Association
- International Labor Organization
- National Bureaus of Statistics or other national

in case of need

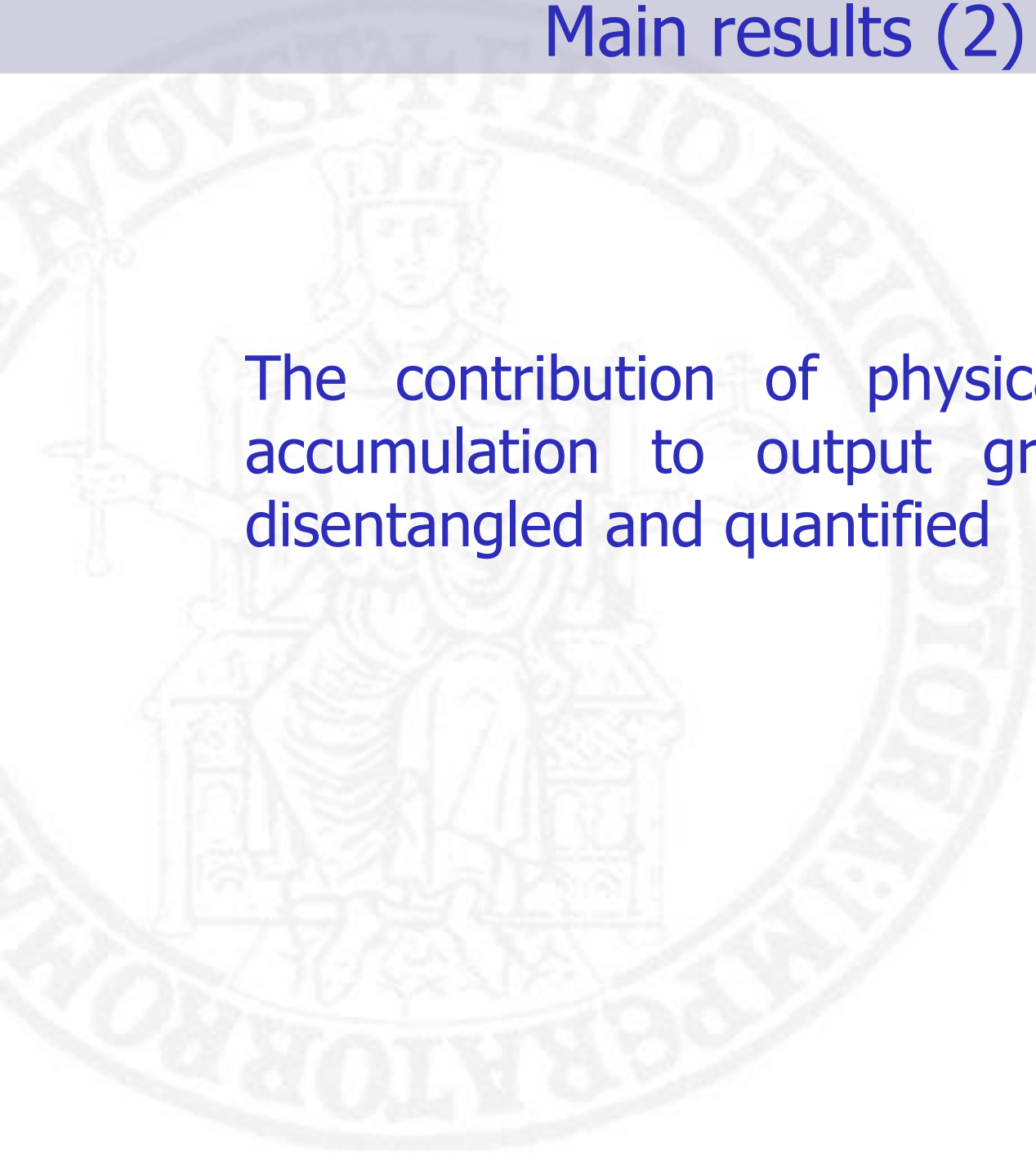
agricultural input cost shares borrowed from similar countries reported in other papers/sources

Main results (1)

- Physical input accumulation is no longer a driver of output growth
- Immaterial inputs (public and private R&D and human capital investment) are the drivers

Main results (2)

The contribution of physical input accumulation to output growth is disentangled and quantified



Observations about the procedure

TFP growth measures crucially depend upon the cost shares that are used: the assumption is of a common technology of the alike country (not the same state of technology)

Some robustness checks?

- labour share underestimated in presence of self-employment (Gollin, 2002)
- use of shadow prices

Suggestions about input

agricultural labour:

- female work is equal to male work (some handbooks suggest a coefficient conversion equal to 0.6: **0.8?**)
- could the % of pedestrian tractors on total tractors be a good proxy of small farms and of part-time employed agricultural labour (Schmitt, 1988)?

land quality:

- the region definition is based on geographical proximity but some climatic proximity (temperate zone, etc.) could be also taken into account
- some information about specialization *vs* diversification could be obtained from the crops that are cultivated