Electricity Policy Research Group

UNIVERSITY OF CAMBRIDGE

Wettbewerbseffekte des EU-ETS

Berliner Energietage

Mai 2008

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Climate Strategies

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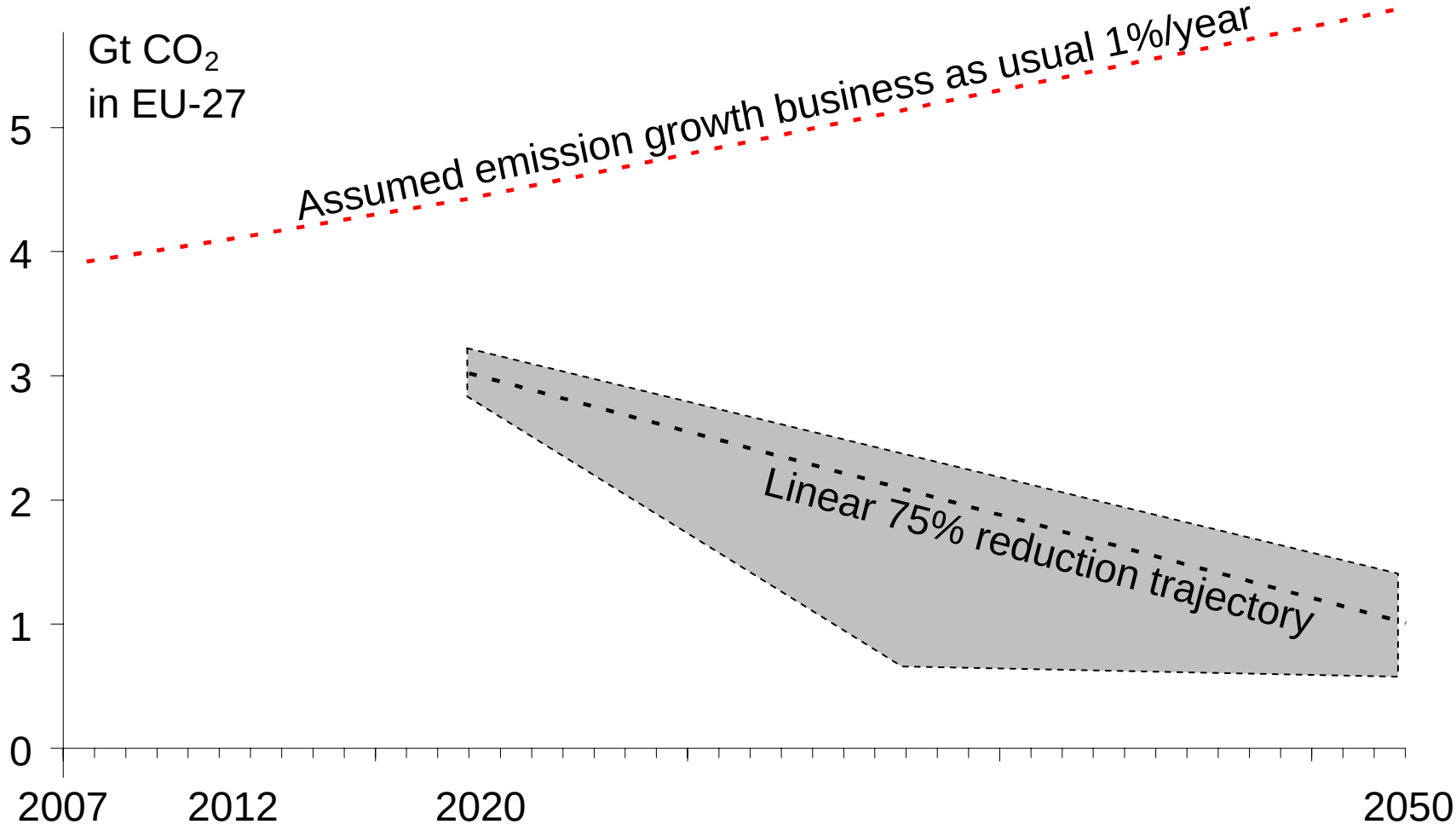
Institute for Applied Ecology

www.electricitypolicy.org.uk/tsec/2

Outline

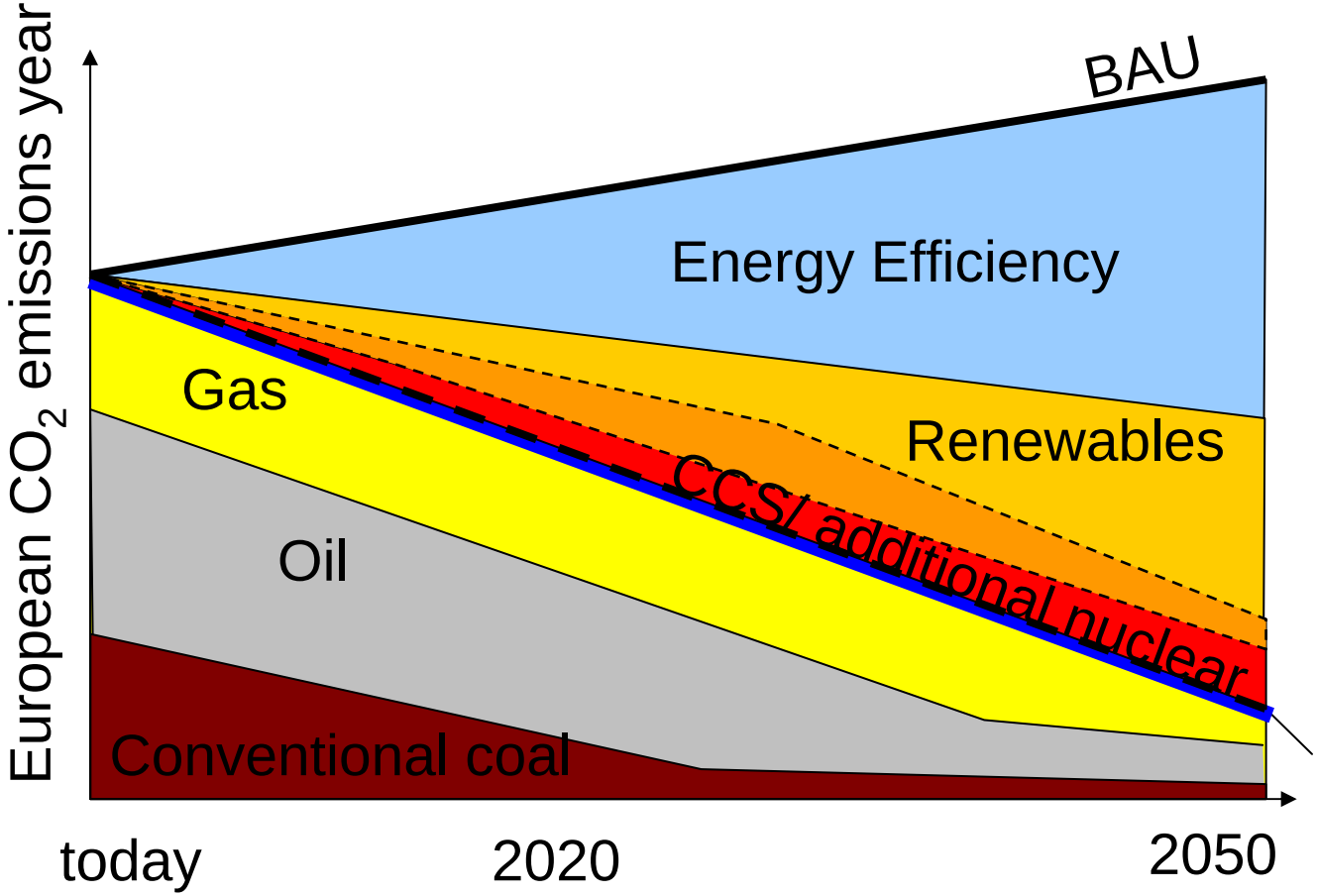
- Introduction
- Quantitative assessment
- Cross-country comparison
- Deep dive: cement, steel, refining
- Policy options for addressing leakage impacts

The challenge for emission reductions

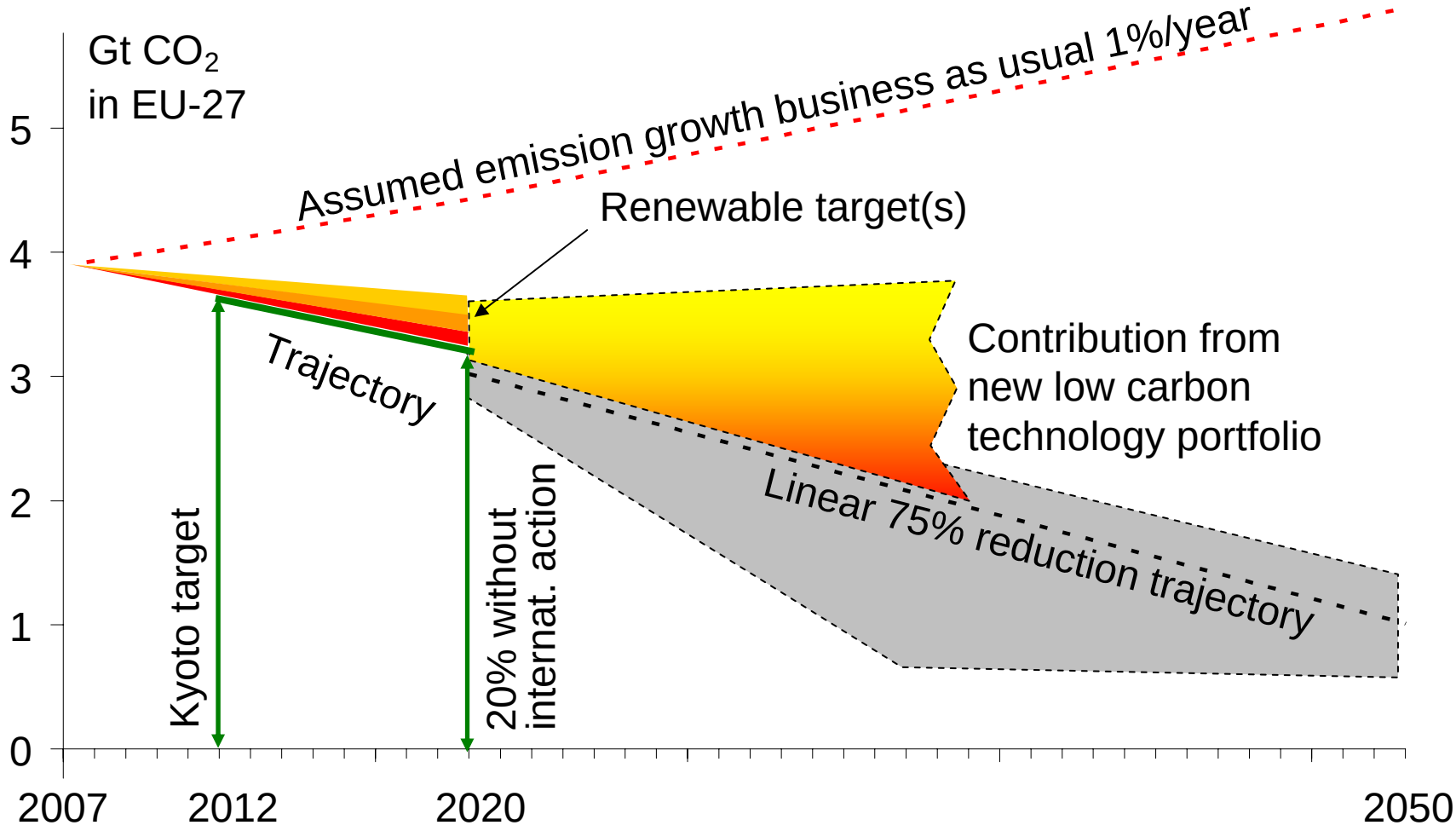


Future carbon targets – determine strategic choices

Illustrative



How does it all fit together?



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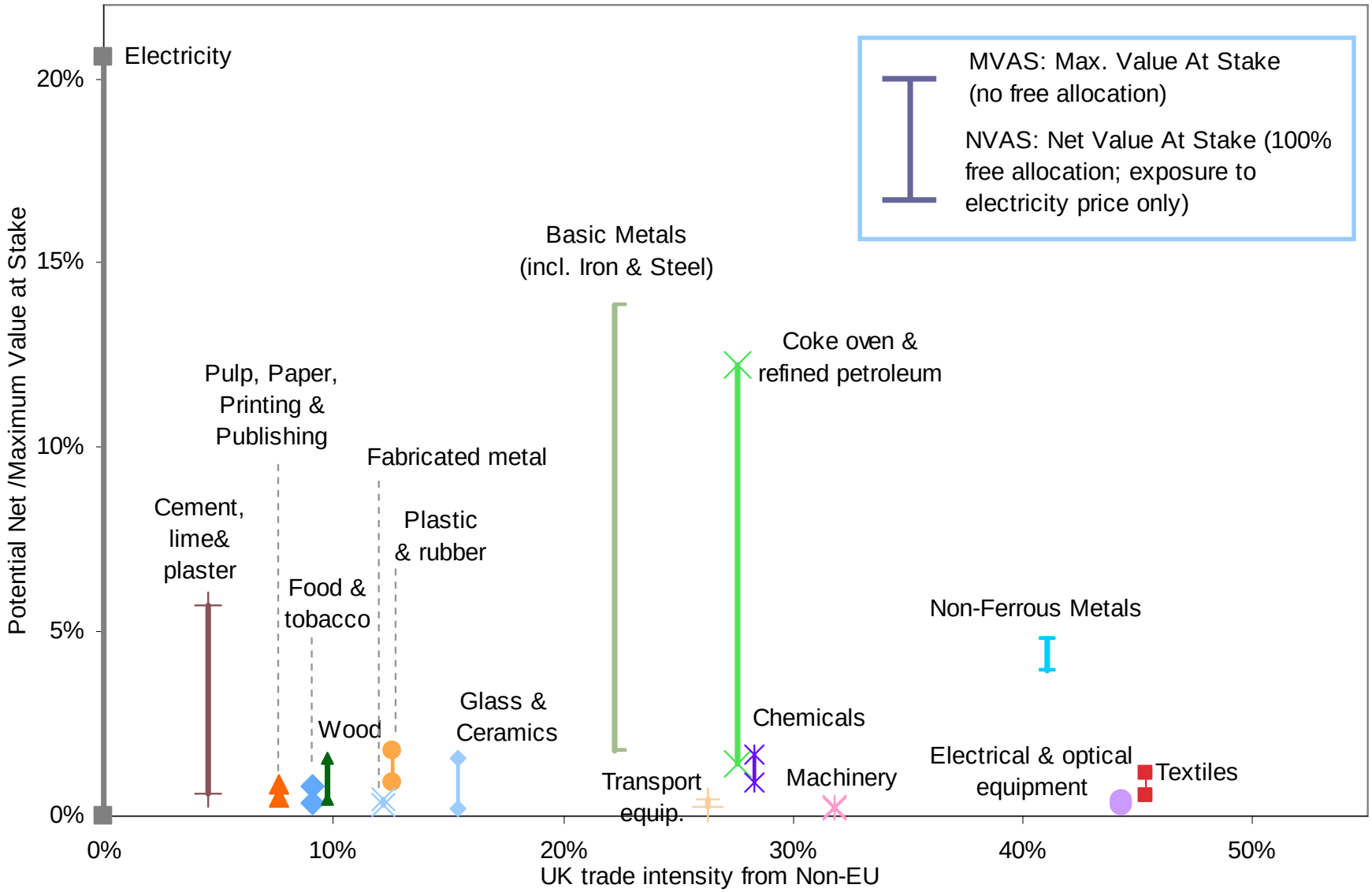
Competitiveness is a sector/product issue



Assumptions: CO2 price=€20/tCO2; Pass through in electricity = €10/mwh

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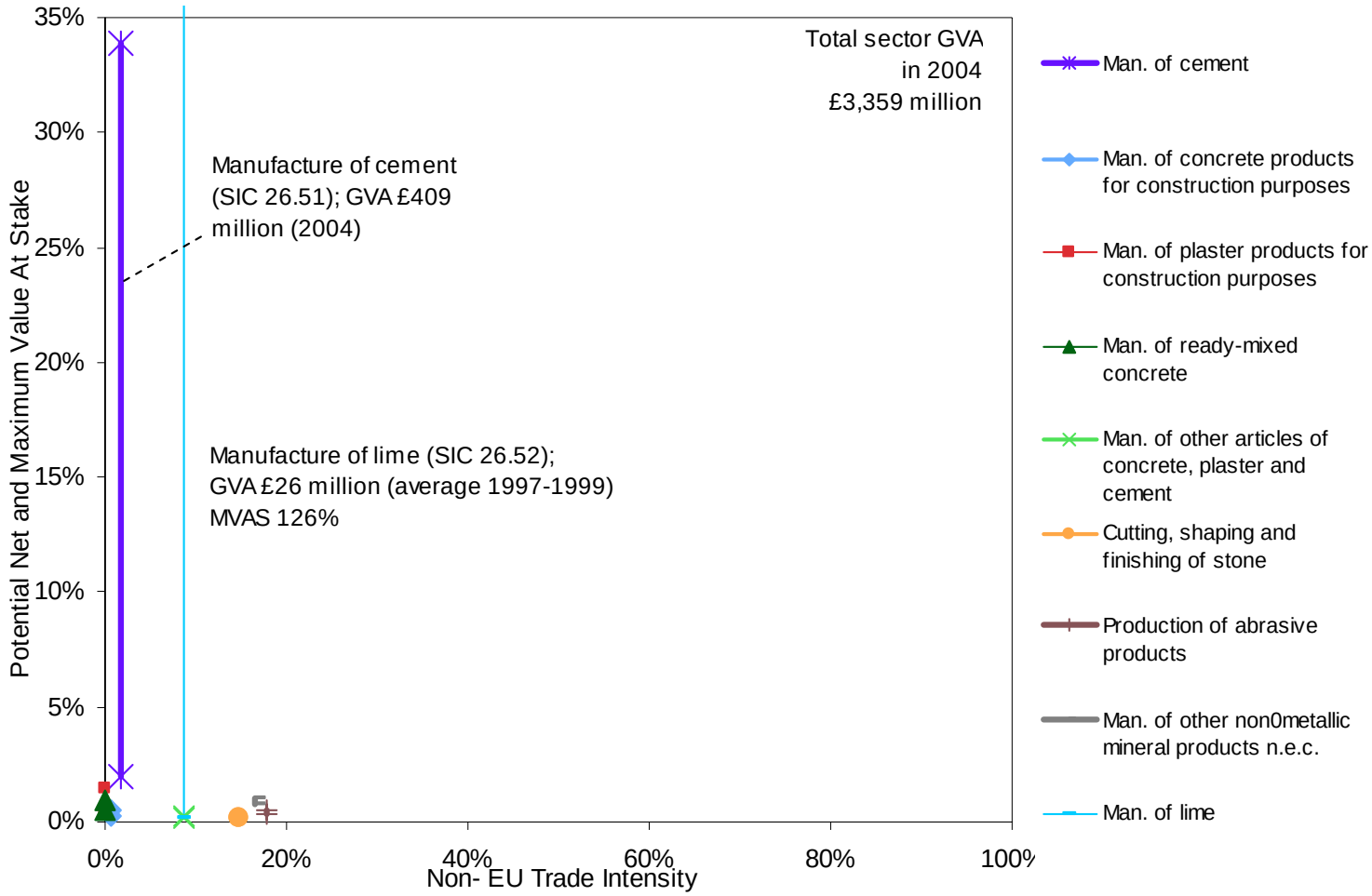
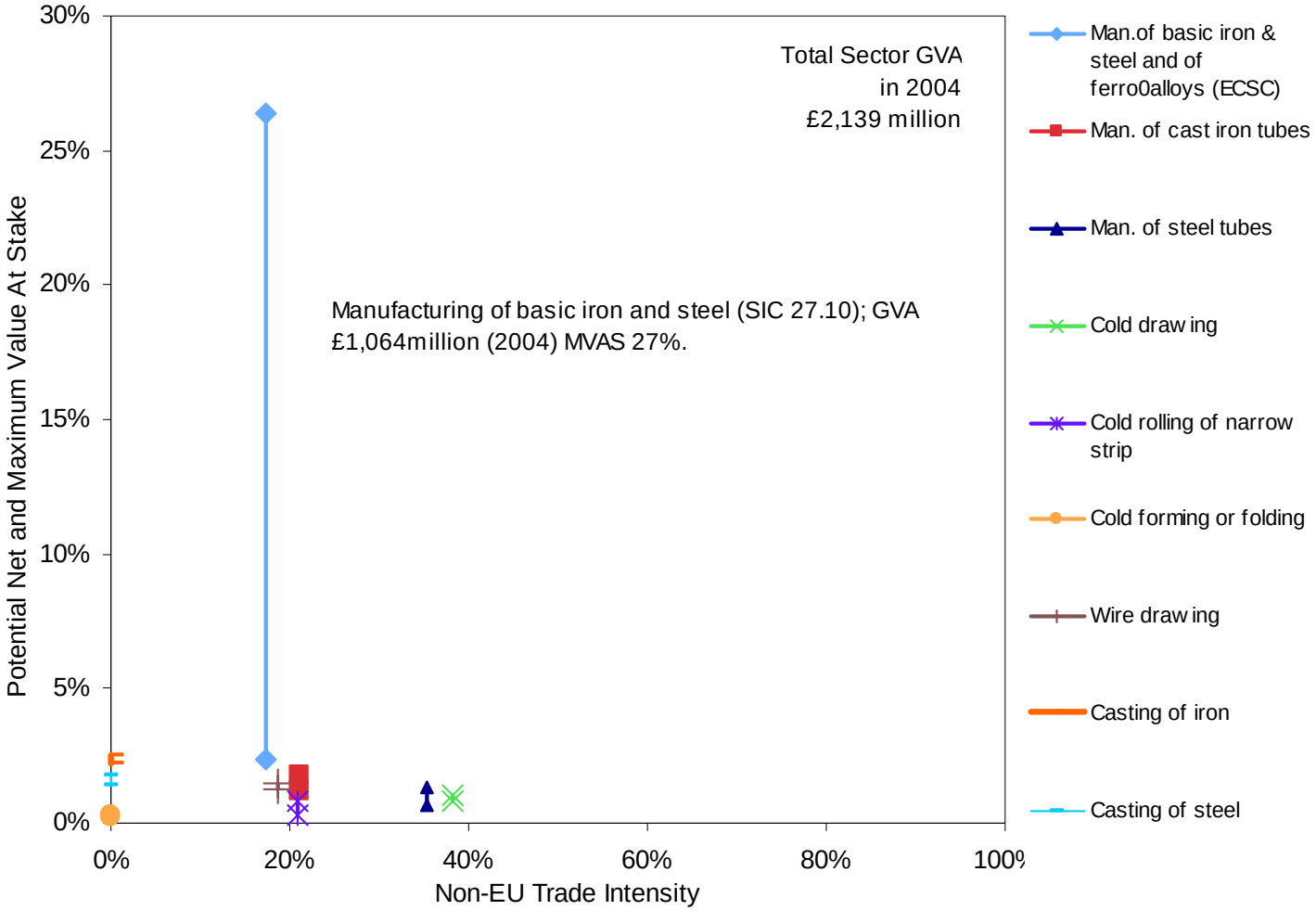
‘Construction’ sector: cement production dominates emissions, highest MVAS, relatively low NVAS accounts for c.10% of aggregate sector value-added



Assumptions: CO2 price=€20/tCO2; Pass through in electricity = €10/MWh

Iron and Steel: Basic Iron & Steel production dominates emissions, MVAS c.25%, c.10xNVAS, accounts for half sector value-added



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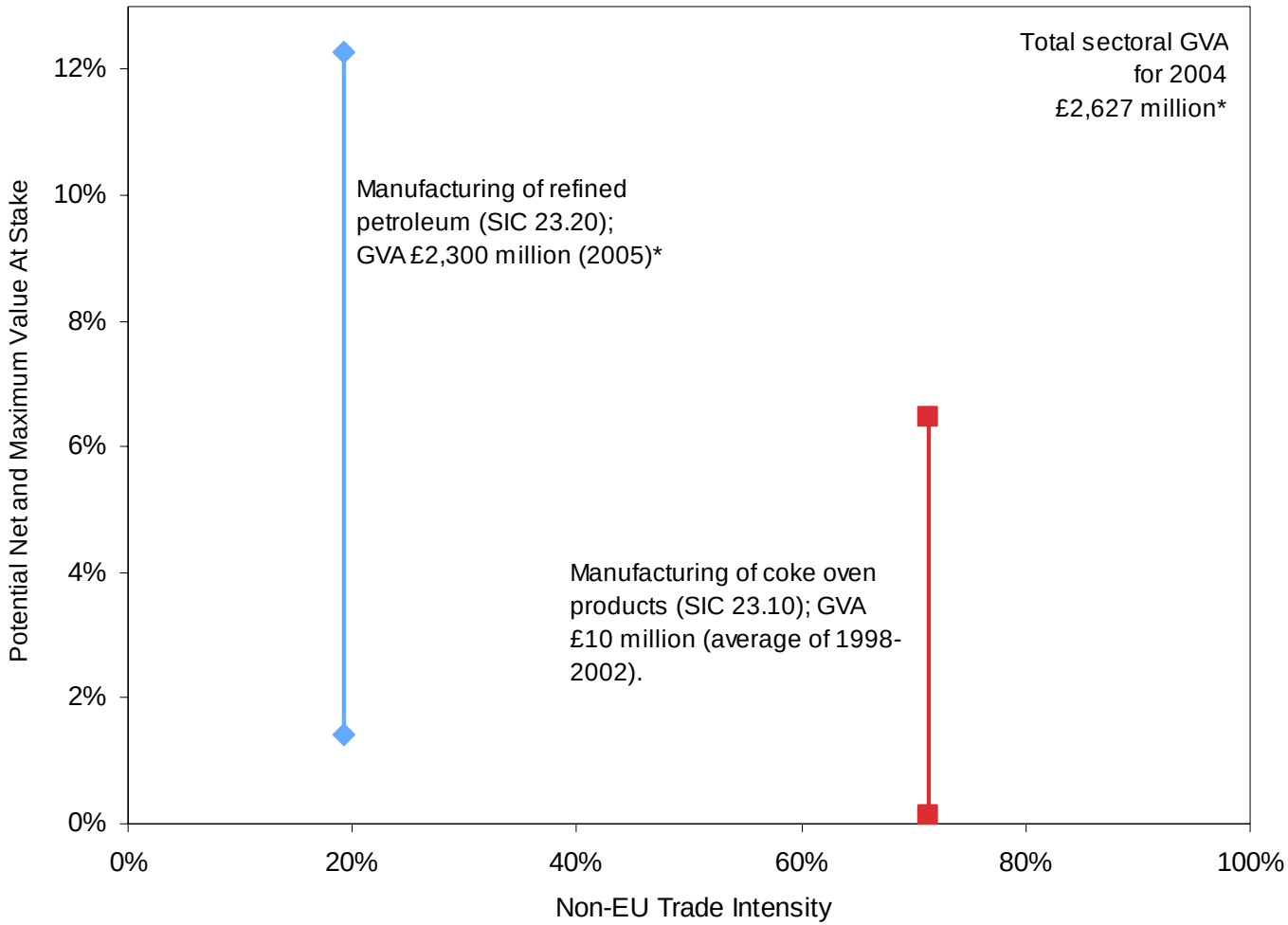
Energy production (non-electric) dominated by refineries; coke linked to steel



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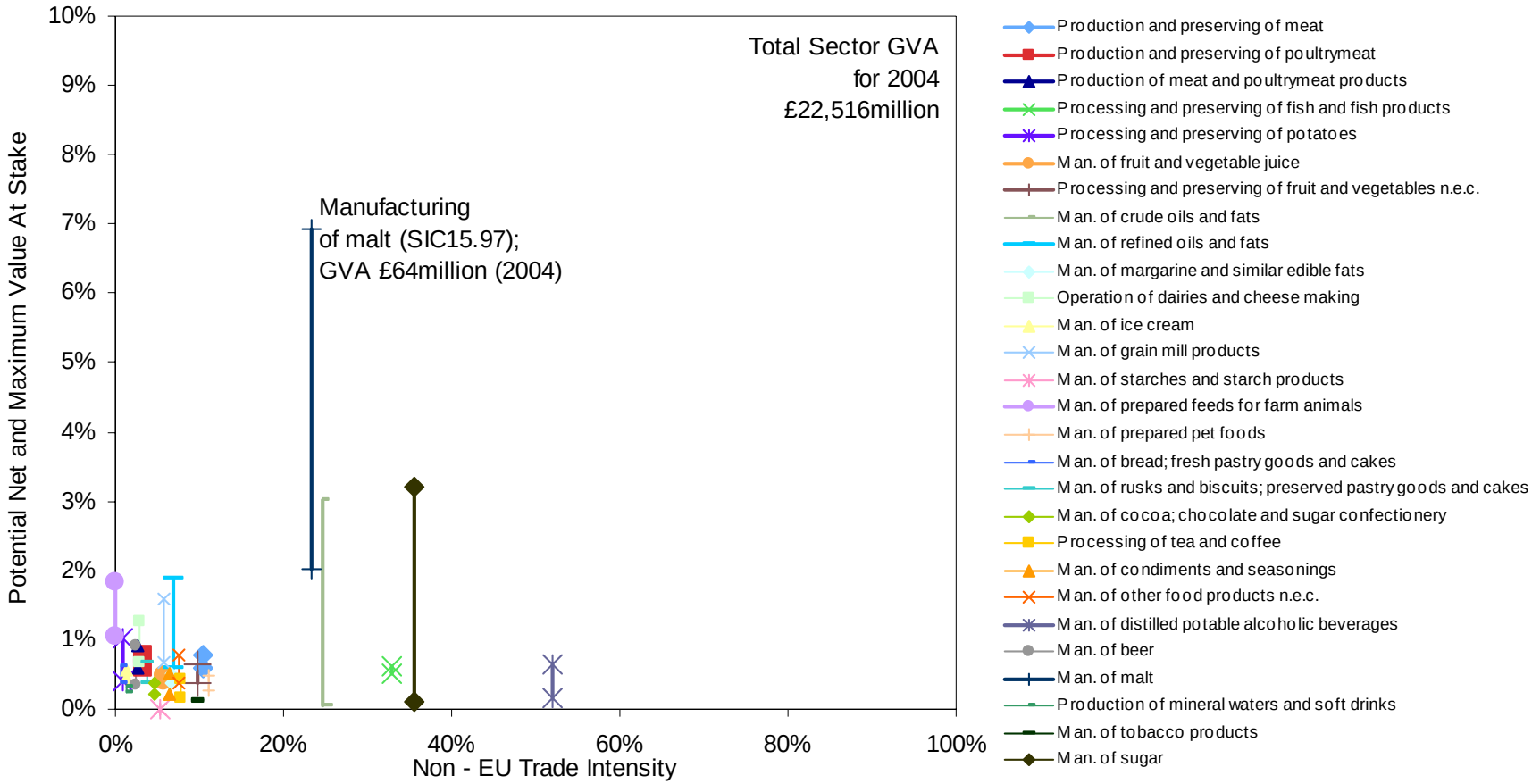
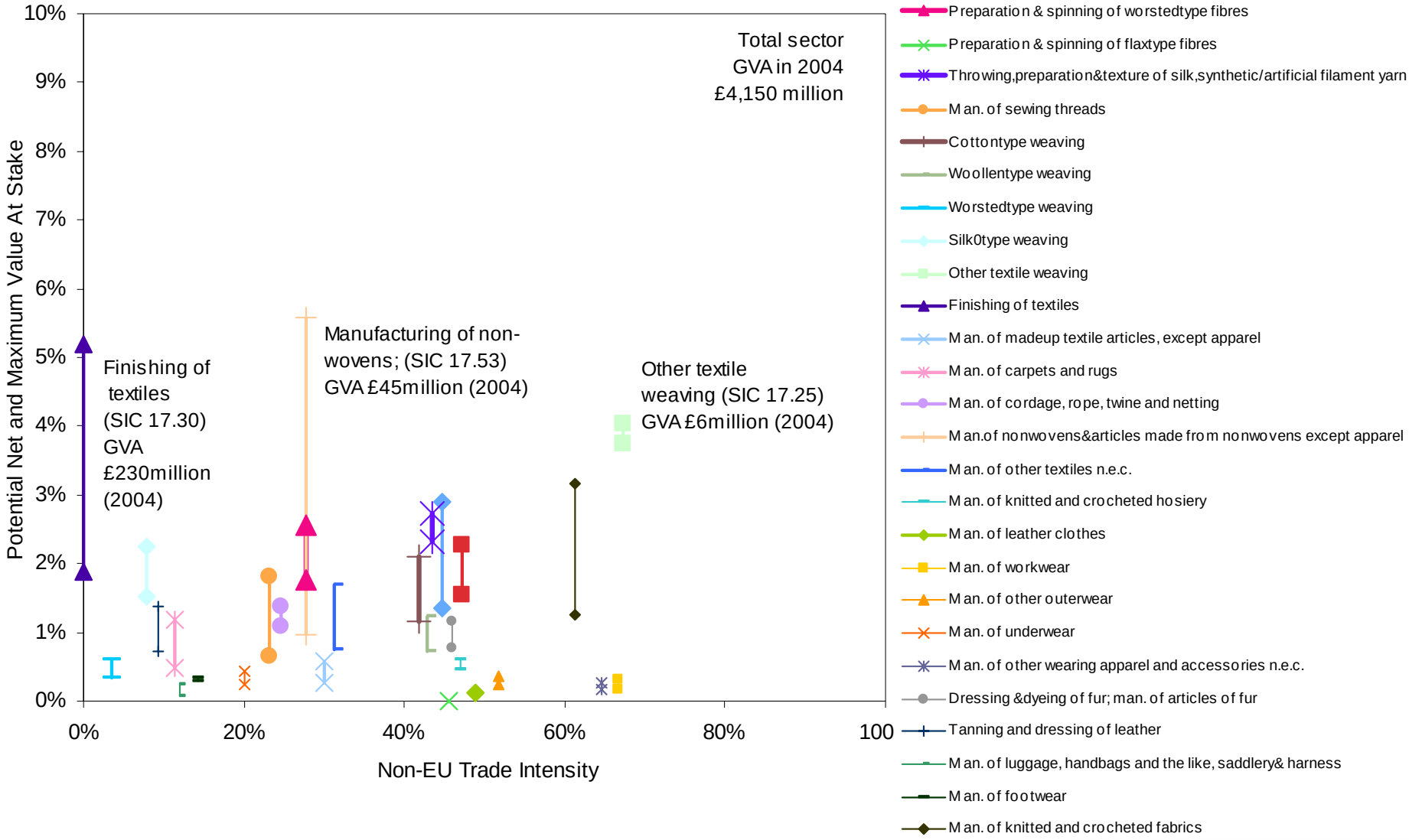
4 digit: Food, Beverage and Tobacco

… it's the malt



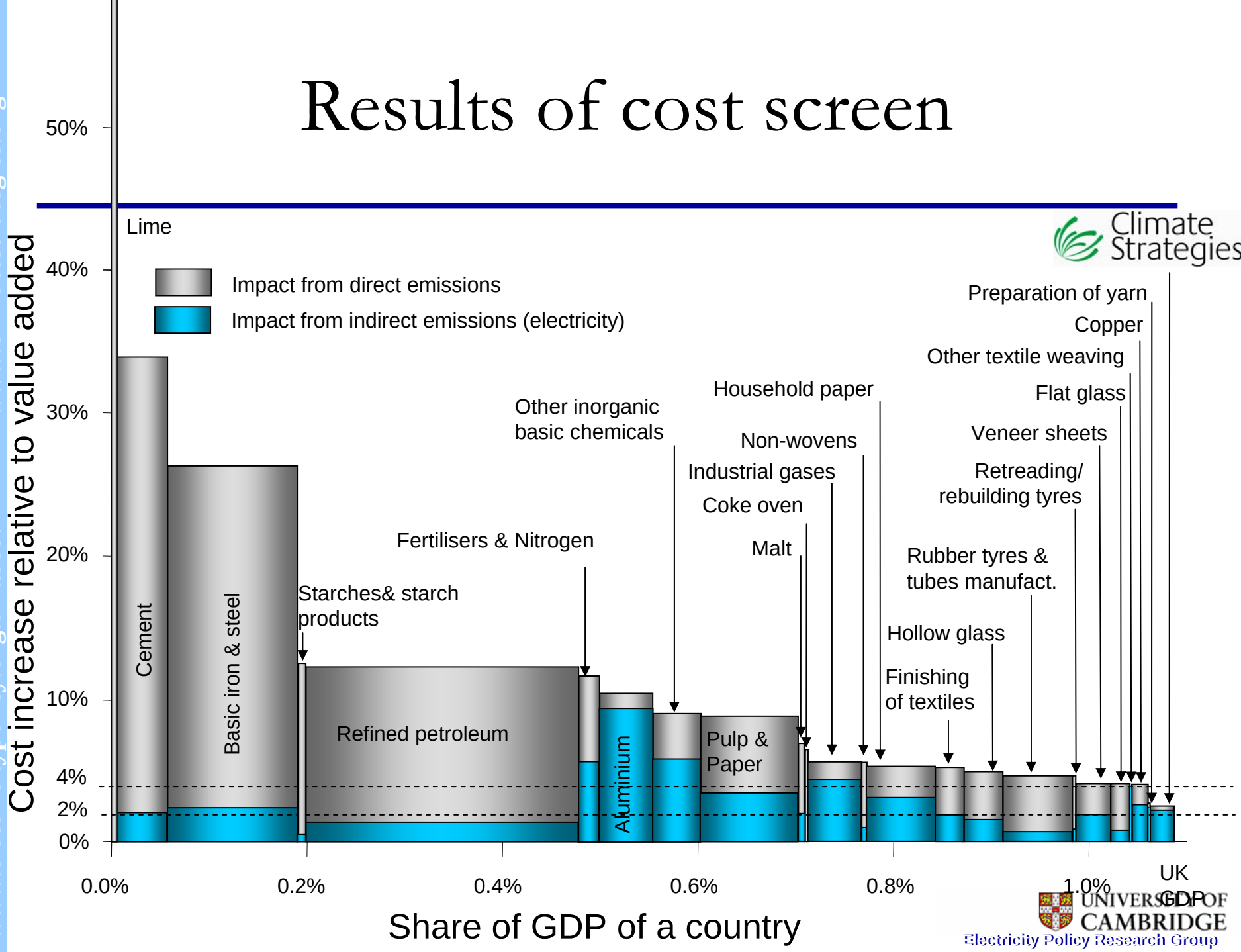
Assumptions: CO2 price=€20/tCO2; Pass through in electricity = €10/MWh

4 digit: Textiles and Leather



Assumptions: CO2 price=€20/tCO2; Pass through in electricity = €10/MWh

Results of cost screen



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The German data

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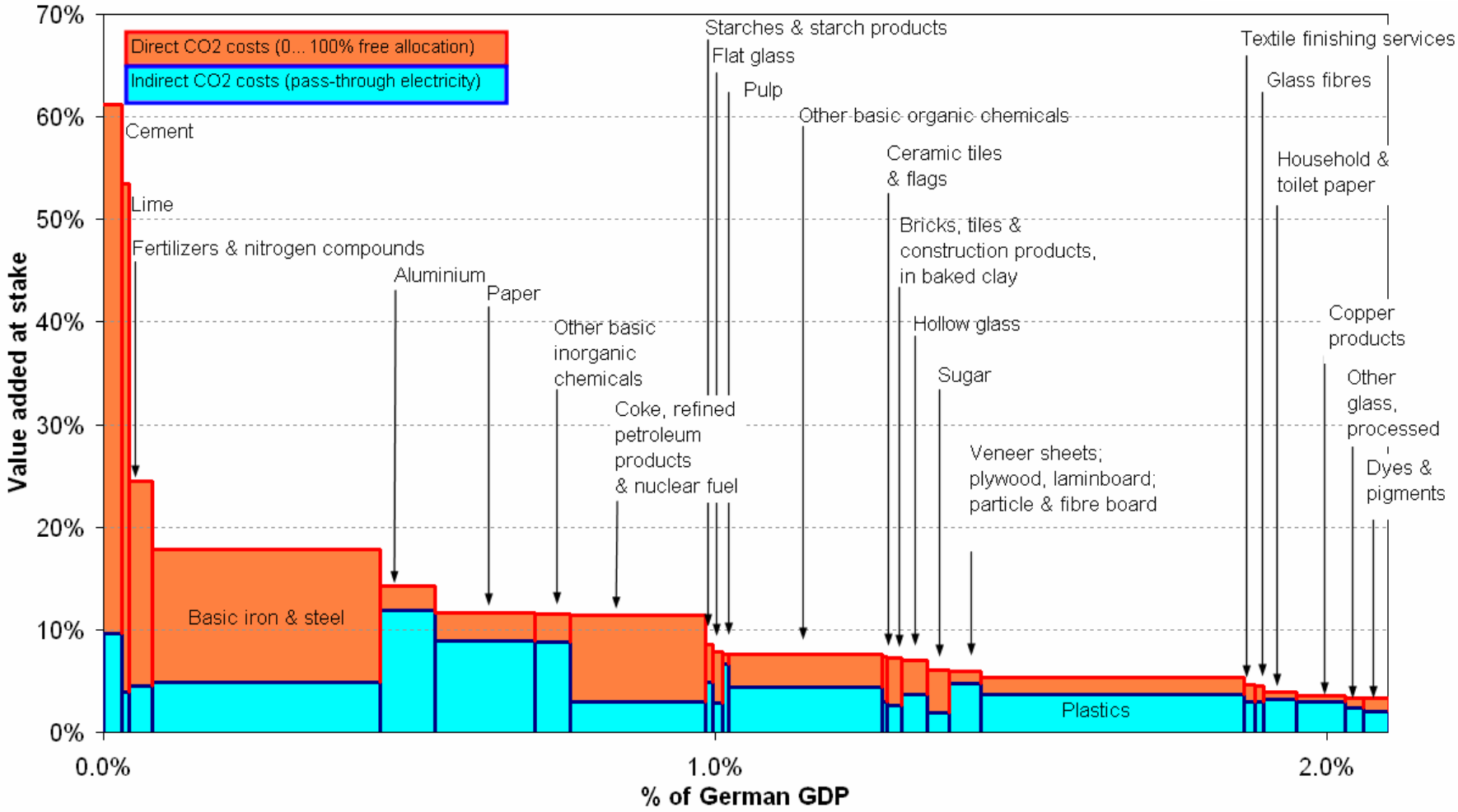

Price increase assumption= € 20/tCO2, electricity cost pass-through =19.34 €/MW

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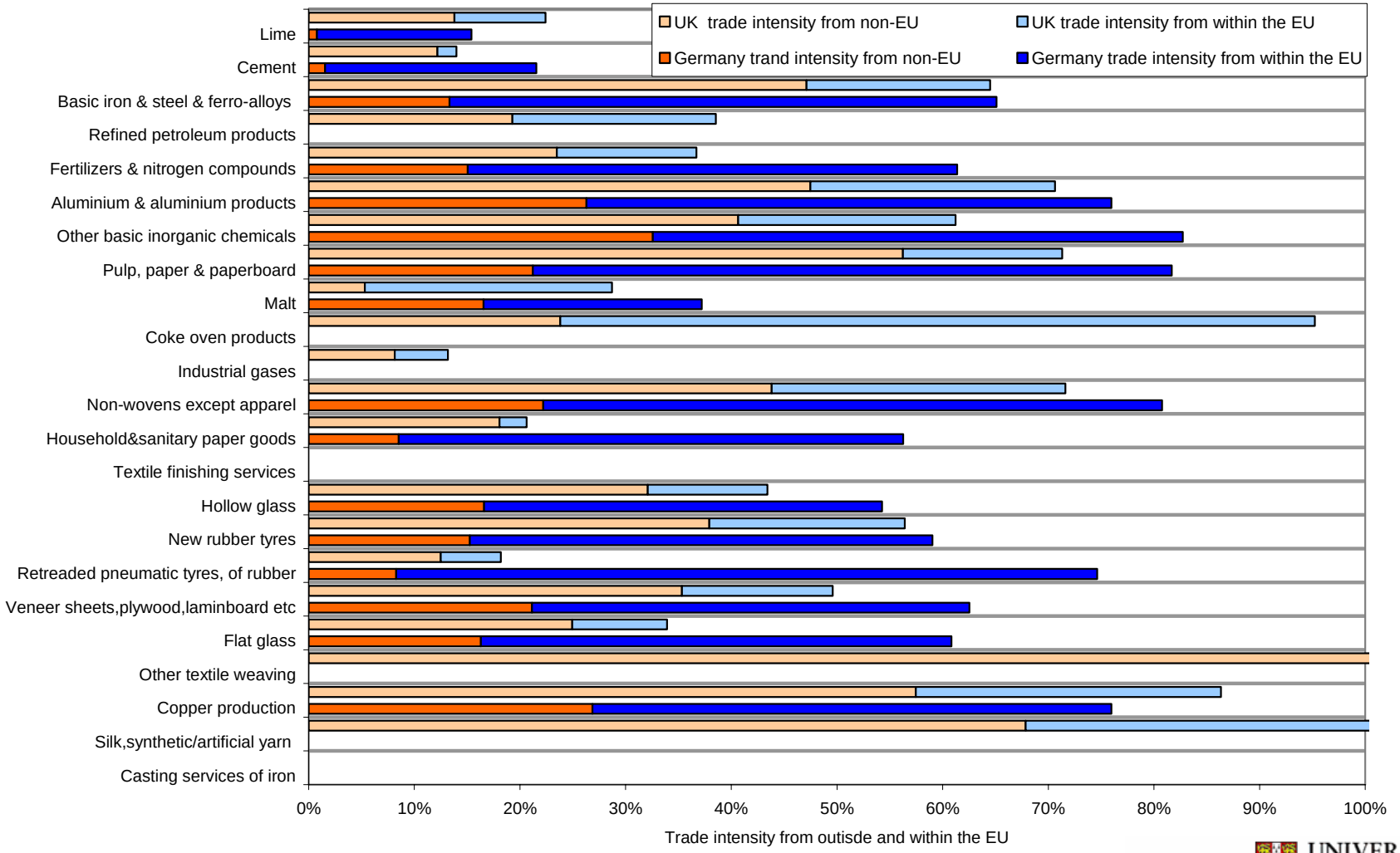
Trade intensity of top 23 sectors with Non-EU and EU countries in UK and Germany



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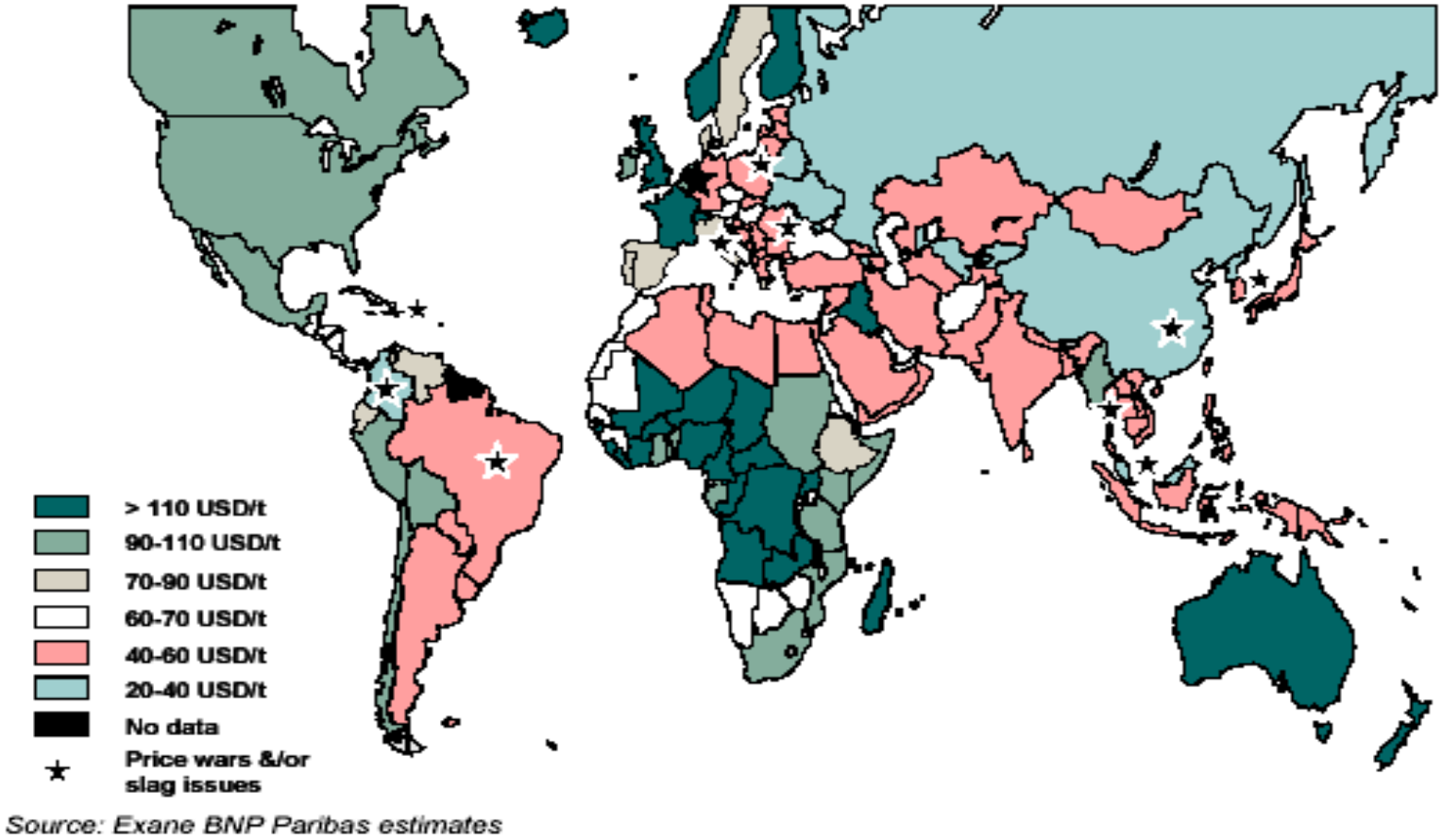
Cement already faces widely divergent domestic prices



Source: Exane BNP Paribas estimates

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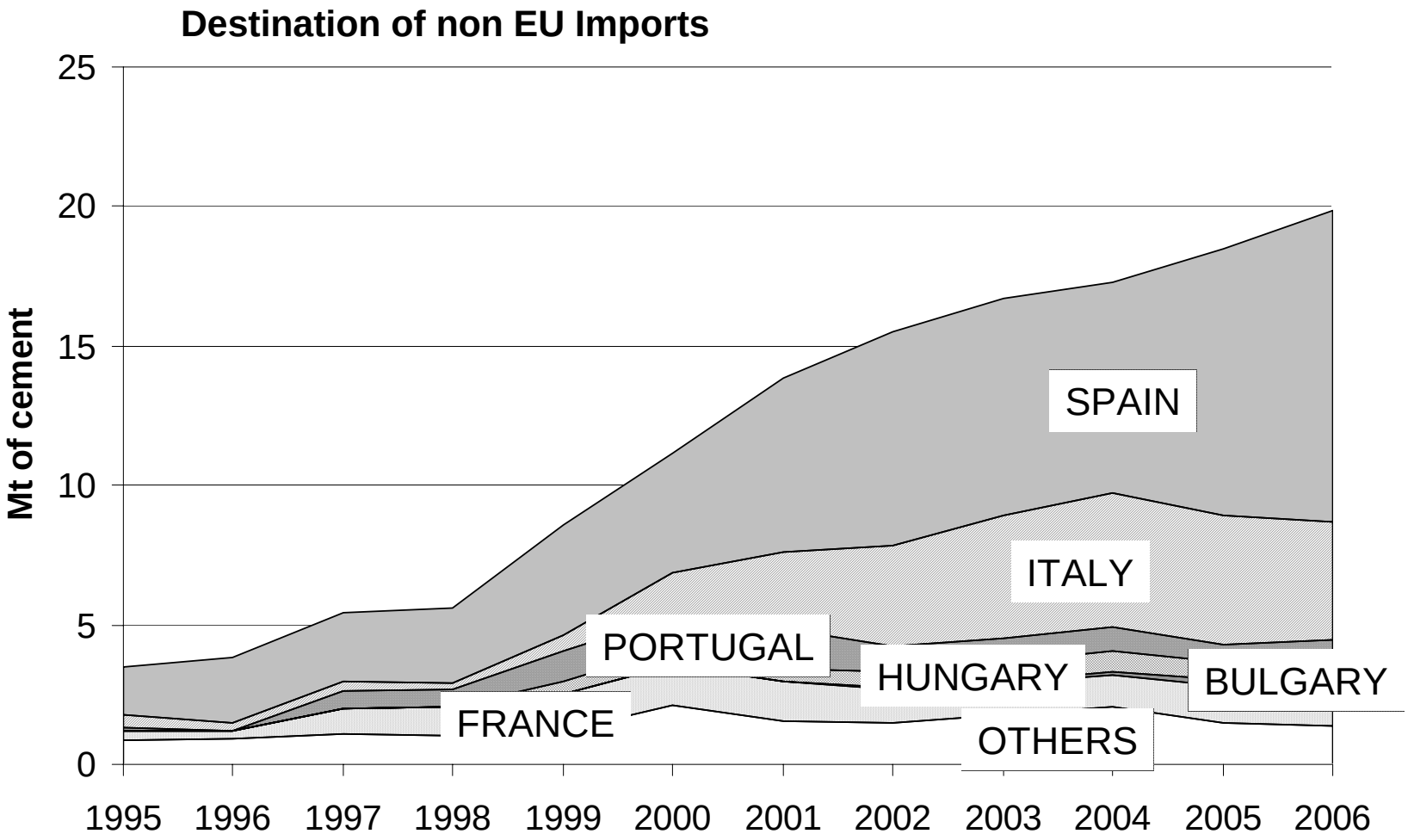
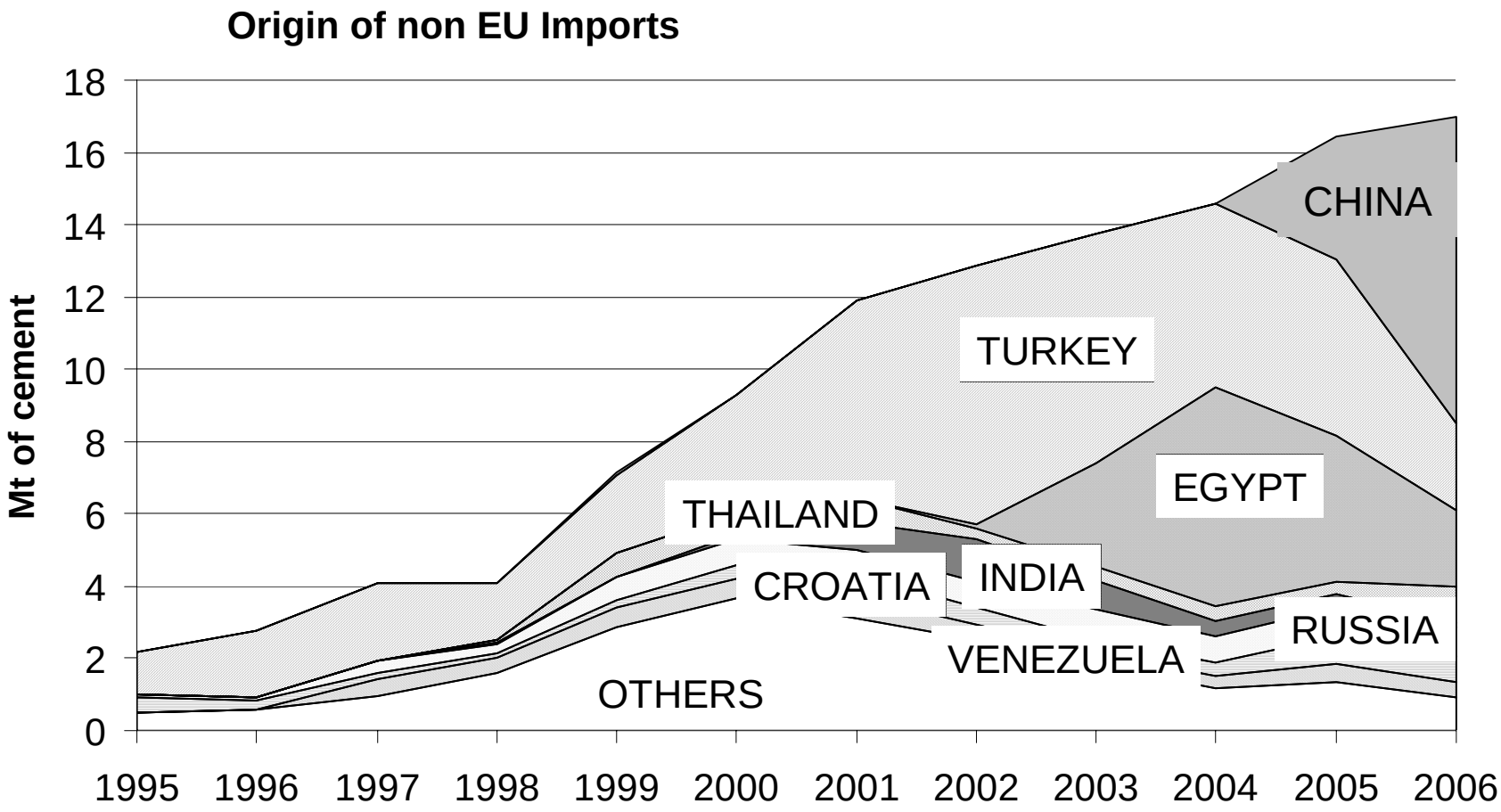
Is the picture changing?
« *The rise in non EU imports* »



Is the picture changing?
« *The recent surge in Chinese imports* »



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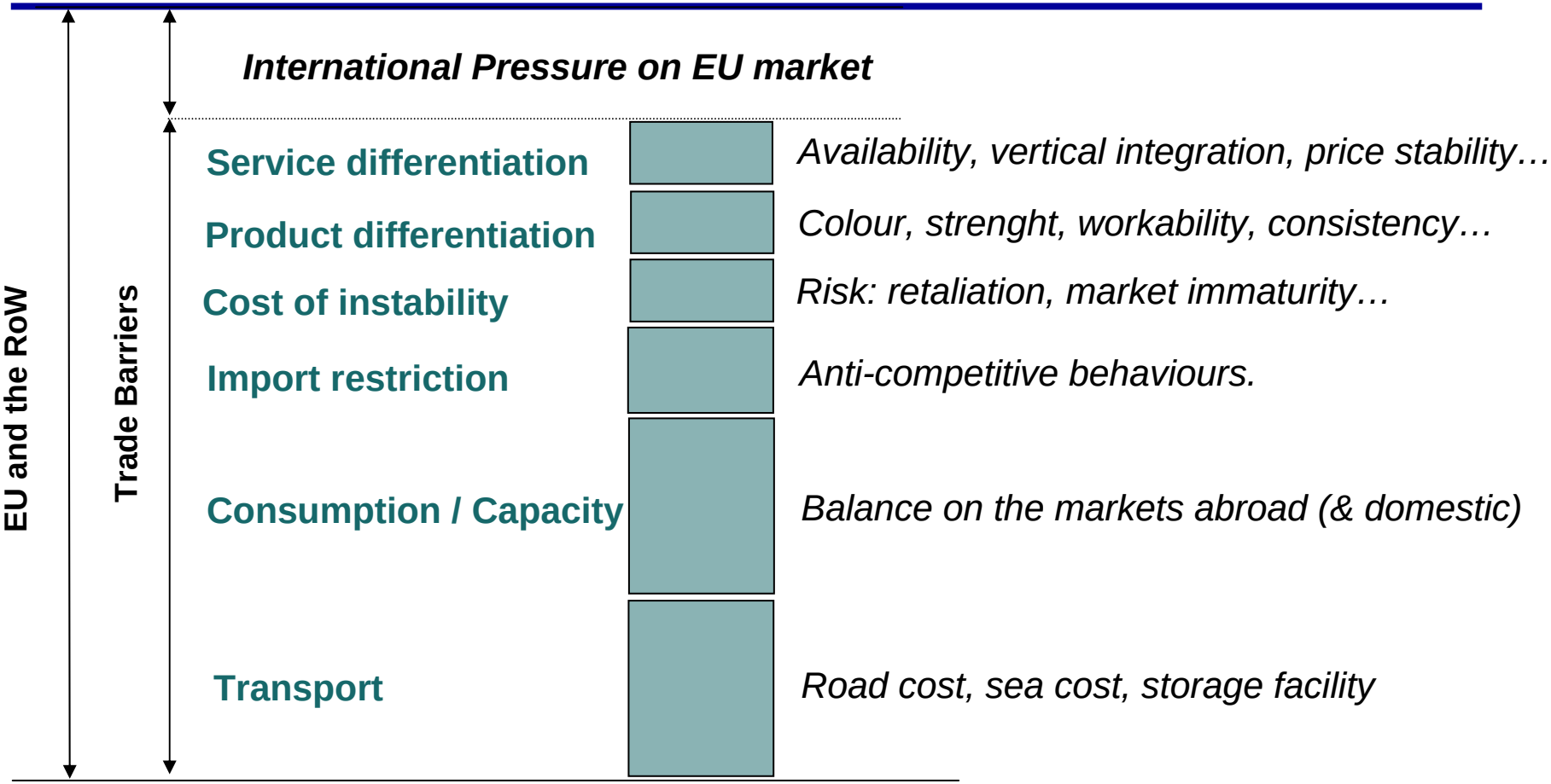
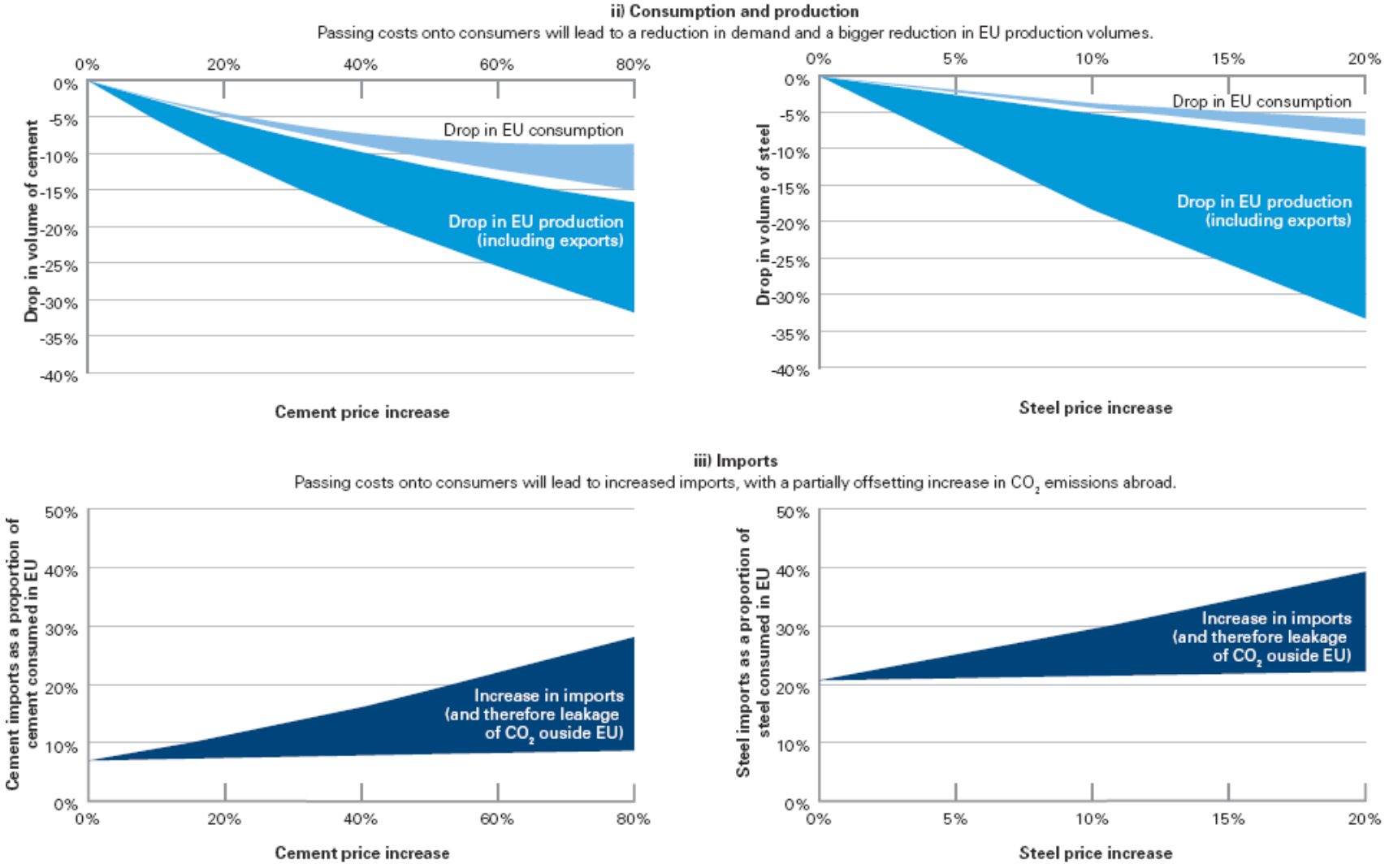
Trade barriers

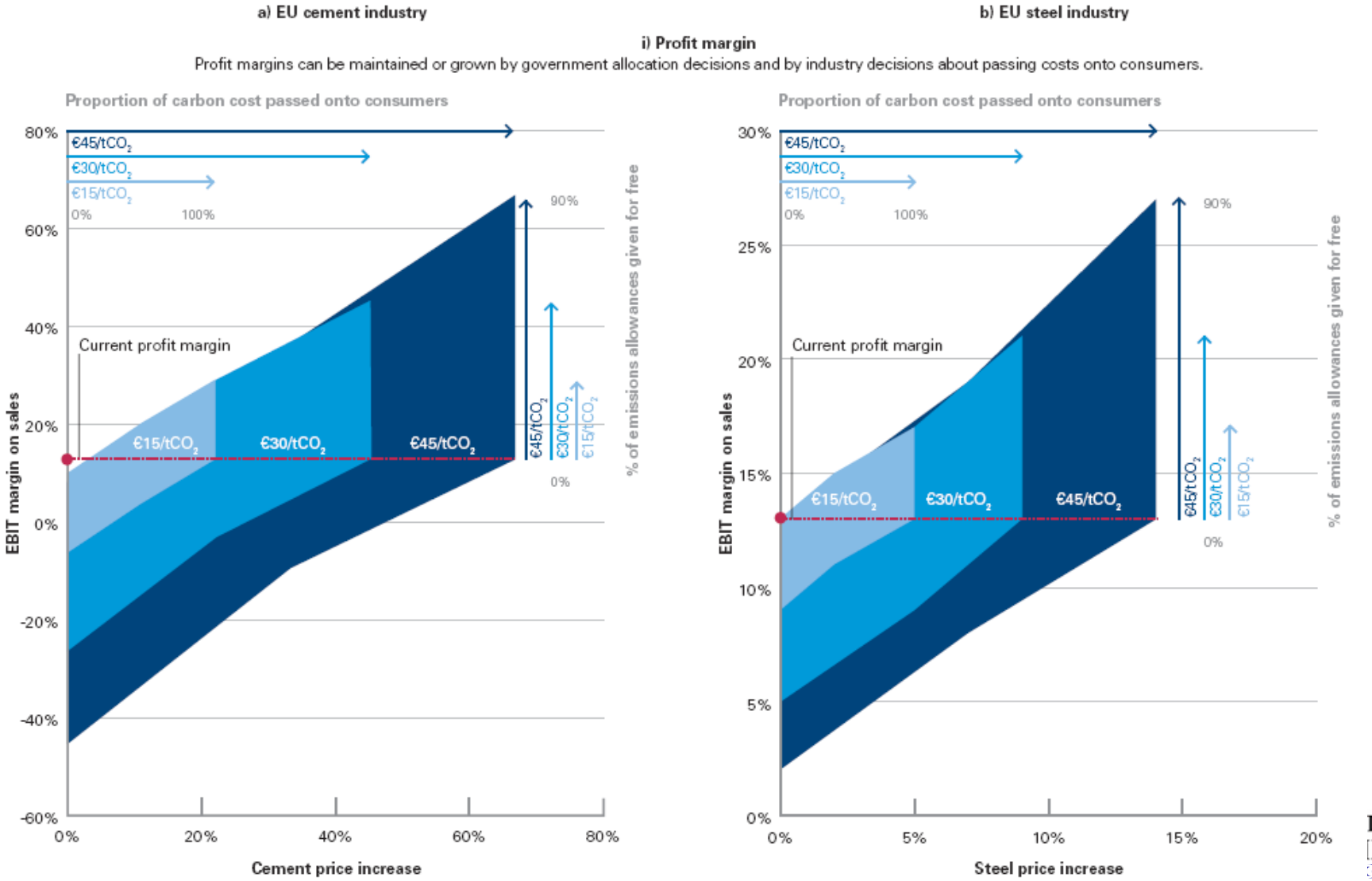


NB: Barriers are lower for EU transnational firms

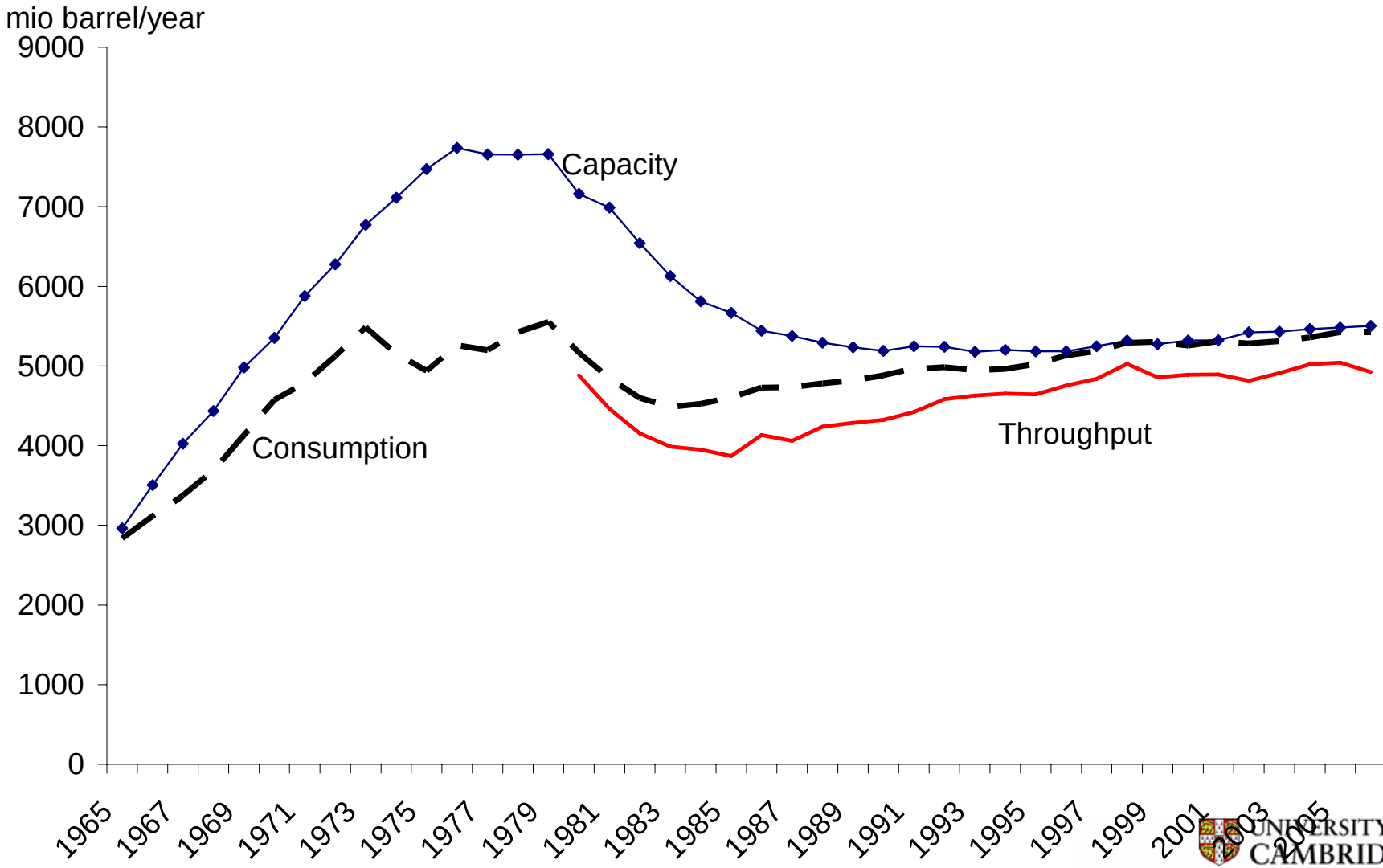
Impact of cost pass-through on imports and overall production



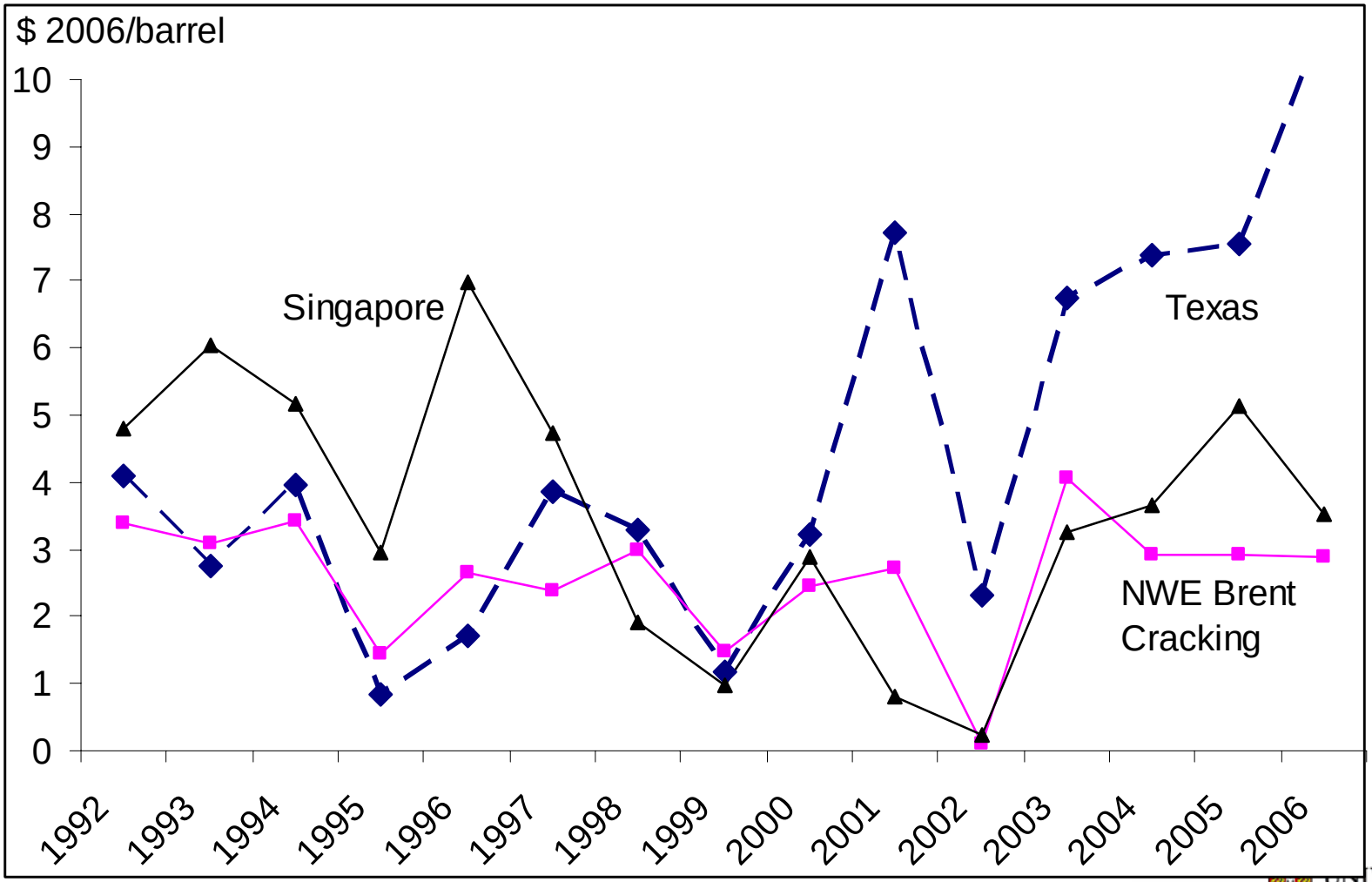
Impact on profits and demand for the EU cement and steel industries of different carbon prices, allocation and cost pass-through decisions



EU 25 refining capacity, throughput and consumption of refined products



Regional refining margins



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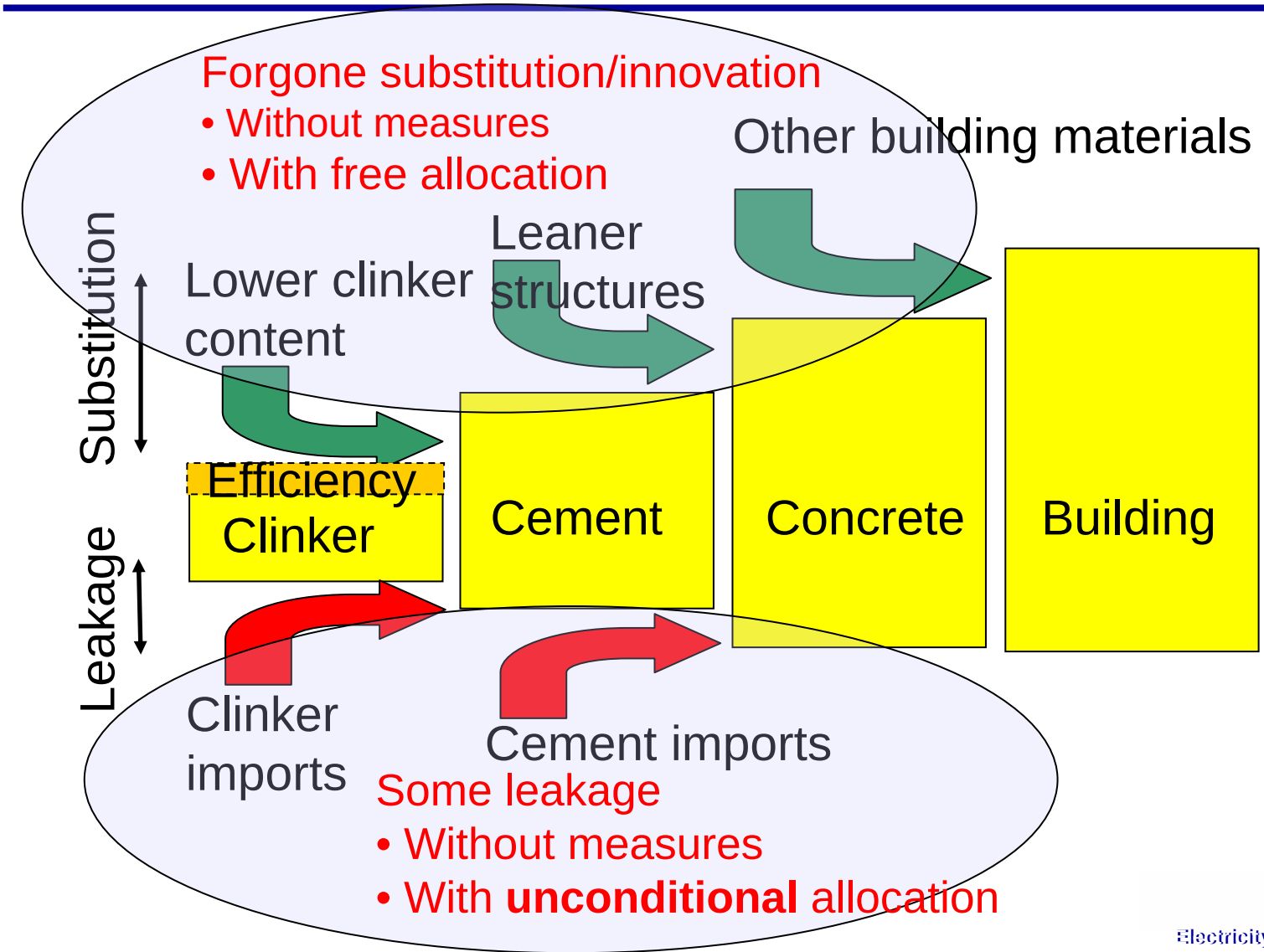
Leakage is a focused way to analyse competitiveness concerns

- Focus on *leakage*, not *competitiveness* per se:
  - Competitiveness concerns
    ~ Production moves, jobs/tax revenue lost
  - Leakage
    ~ Production moves, emissions re-locate
  - > leakage gives an environmental focus and clear criteria

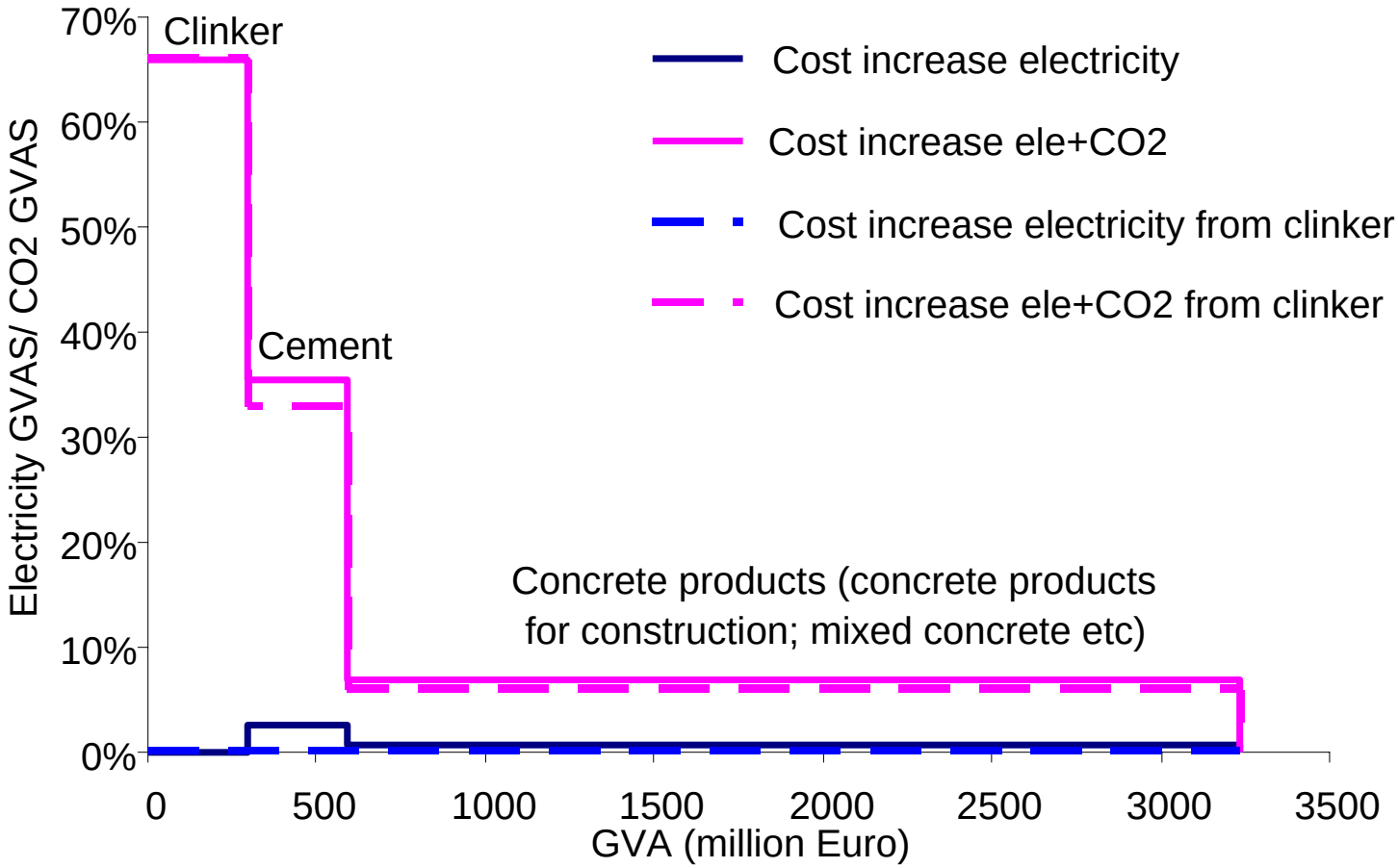
- Profitability of firms is a different issue
  - free allocation can protect profitability
  - might provide one approach to fund innovation
  - but does not ensure competitiveness or prevent leakage

A carbon price works through the value chain. This can be supported by policies that address leakage.



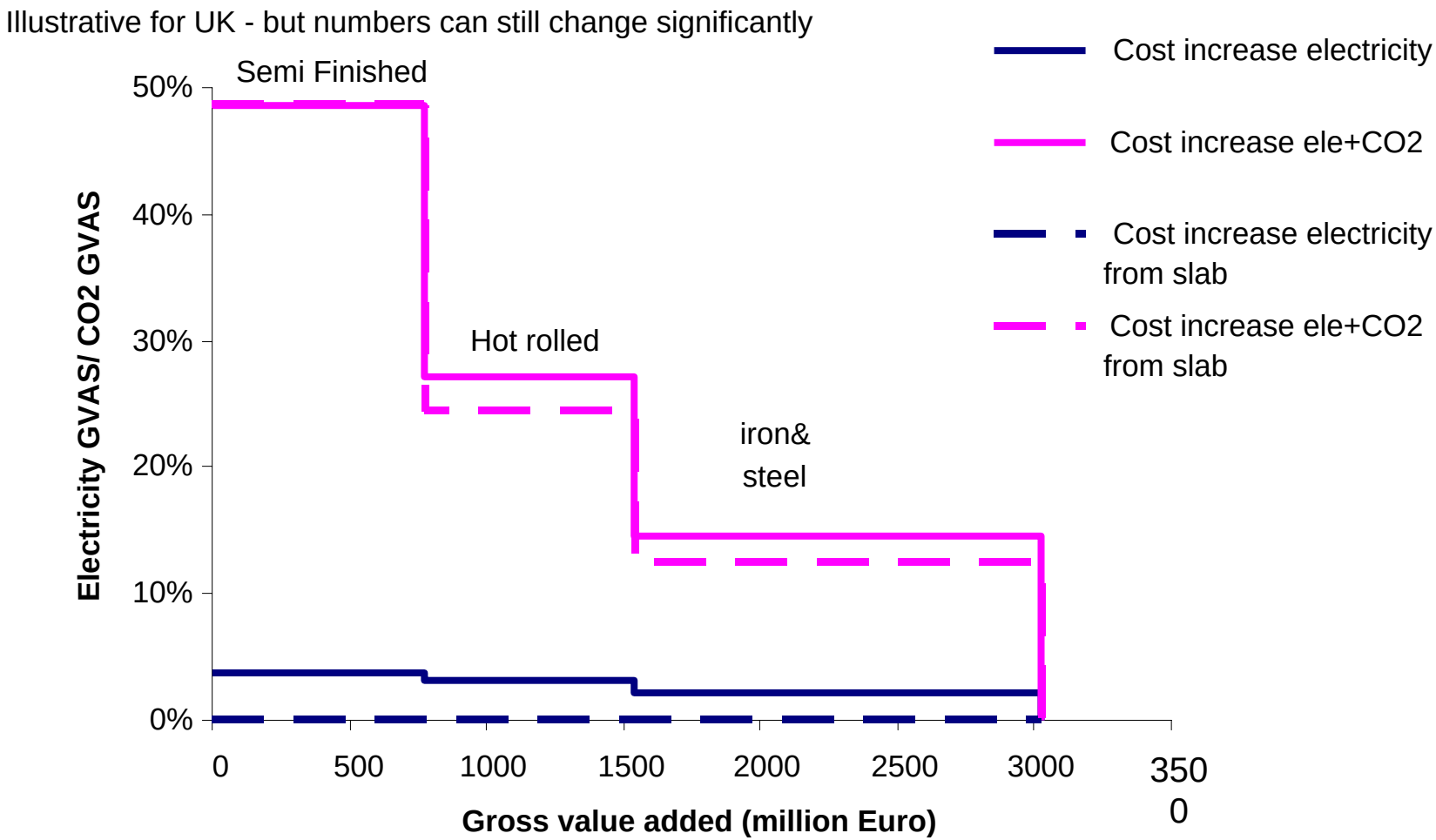
Cement sector

Illustrative for UK - but numbers can still change significantly



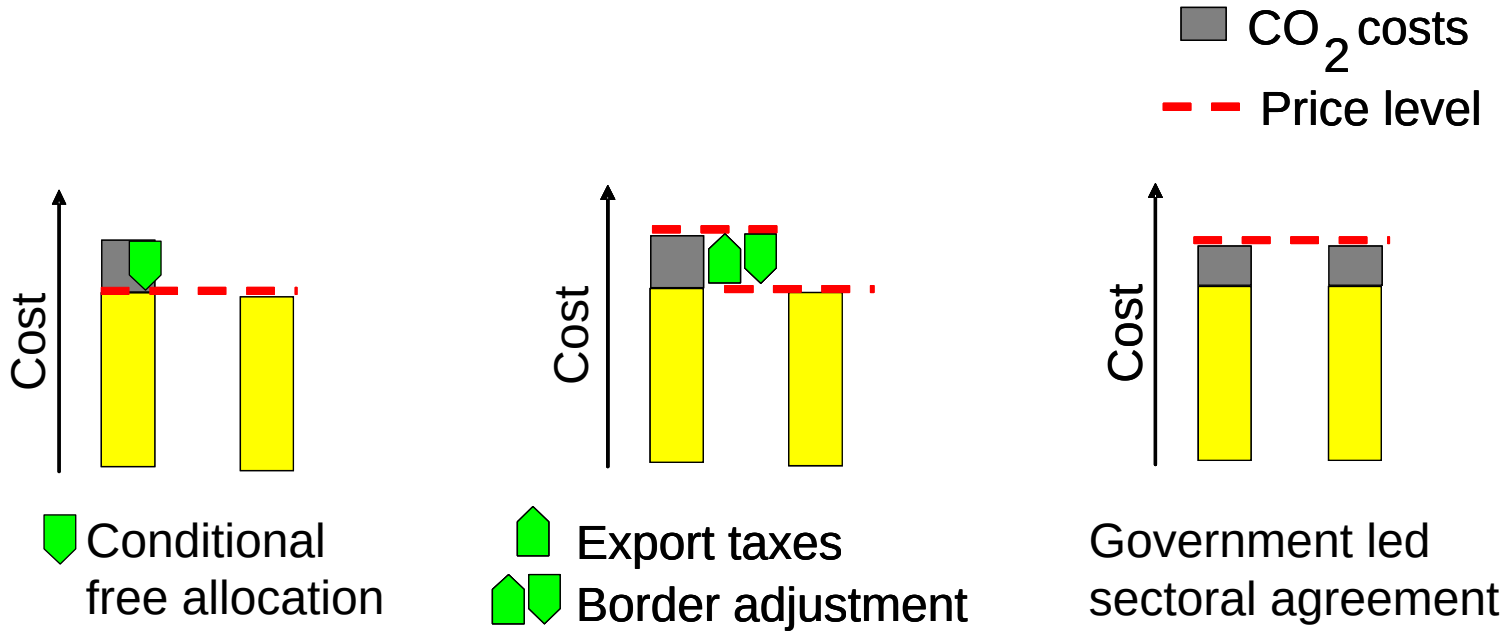
Most leakage concerns from clinker – easily transportable

Steel sector



- Most exposure from BOF (and possible coke oven)
- Steel can be transported at semi-finished stage

Three approaches address leakage for exposed sectors



Initial evaluation

- Little substitution to low carbon products/services
- Distorts investment
- Bureaucratic constraints for innovation
- Risk of lock-in
- Has to be aligned with international climate engagement
- Requires at least informal international cooperation
- Requires strong policies of developing countries
- Risk of low common denominator

Wettbewerbseffekte des EU-ETS

- Leakage is only of potential concern for sub-sectors
- Cost increases need to be analysed in context
- Commitment important that leakage is addressed
  - For credibility of scheme
  - For low carbon investment
- Three options exist to address leakage concerns
  - Have to be sector by sector
  - Choice can wait for international coordination and analysis

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