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Oplossingen voor
milieu, economie
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Impacts on competitiveness of EU ETS

**An analysis of the Dutch industry for post-2012 EU
ETS**

**September 2008,
Sander de Bruyn**

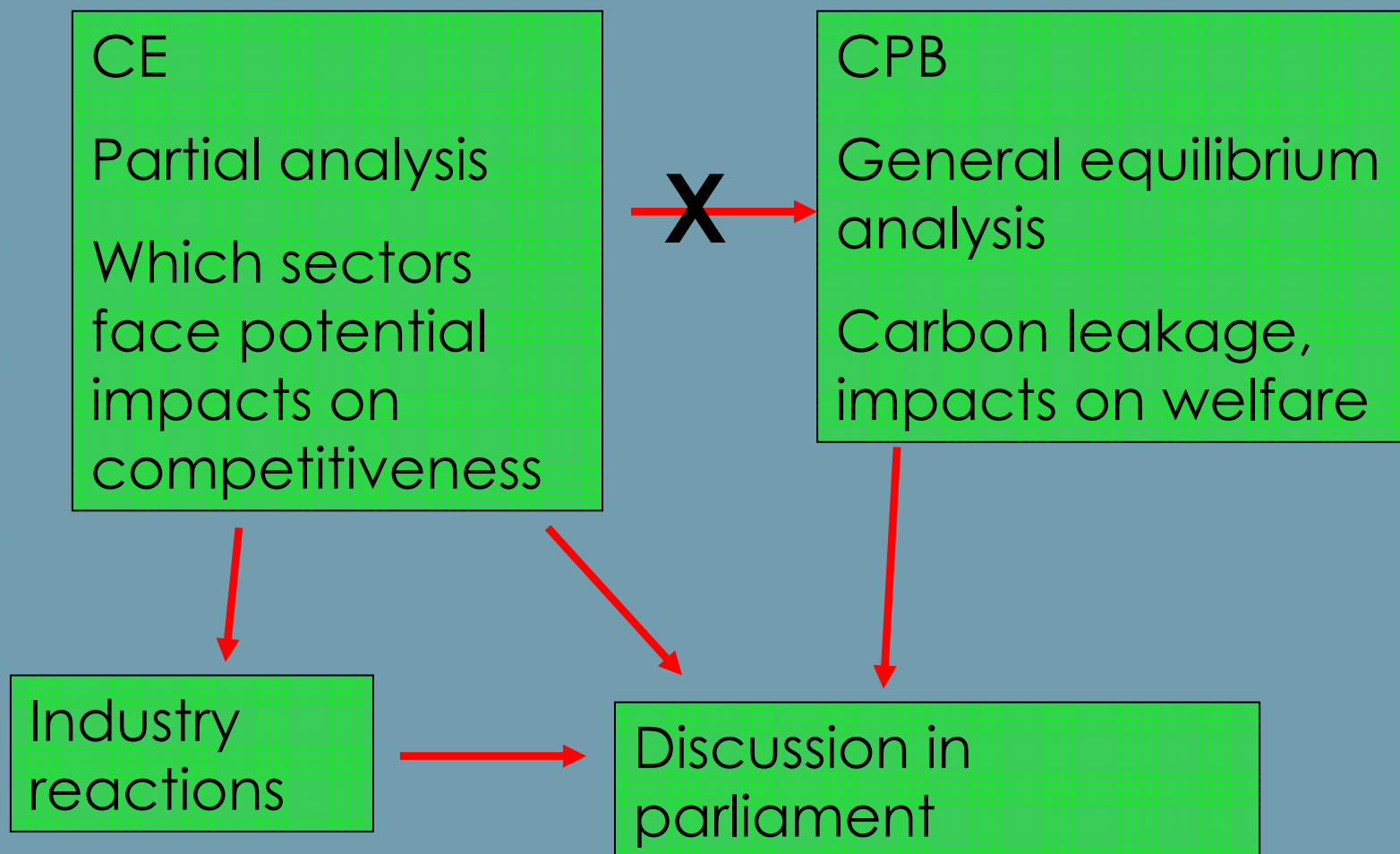


Study design

- Question: which sectors of industry face serious impacts on competitiveness in NL?
- Partial analysis (no direct estimation of CL!)
- Study I: industry
- Study II: aviation
- Industry finished Jul 2008, aviation Oct 2008.

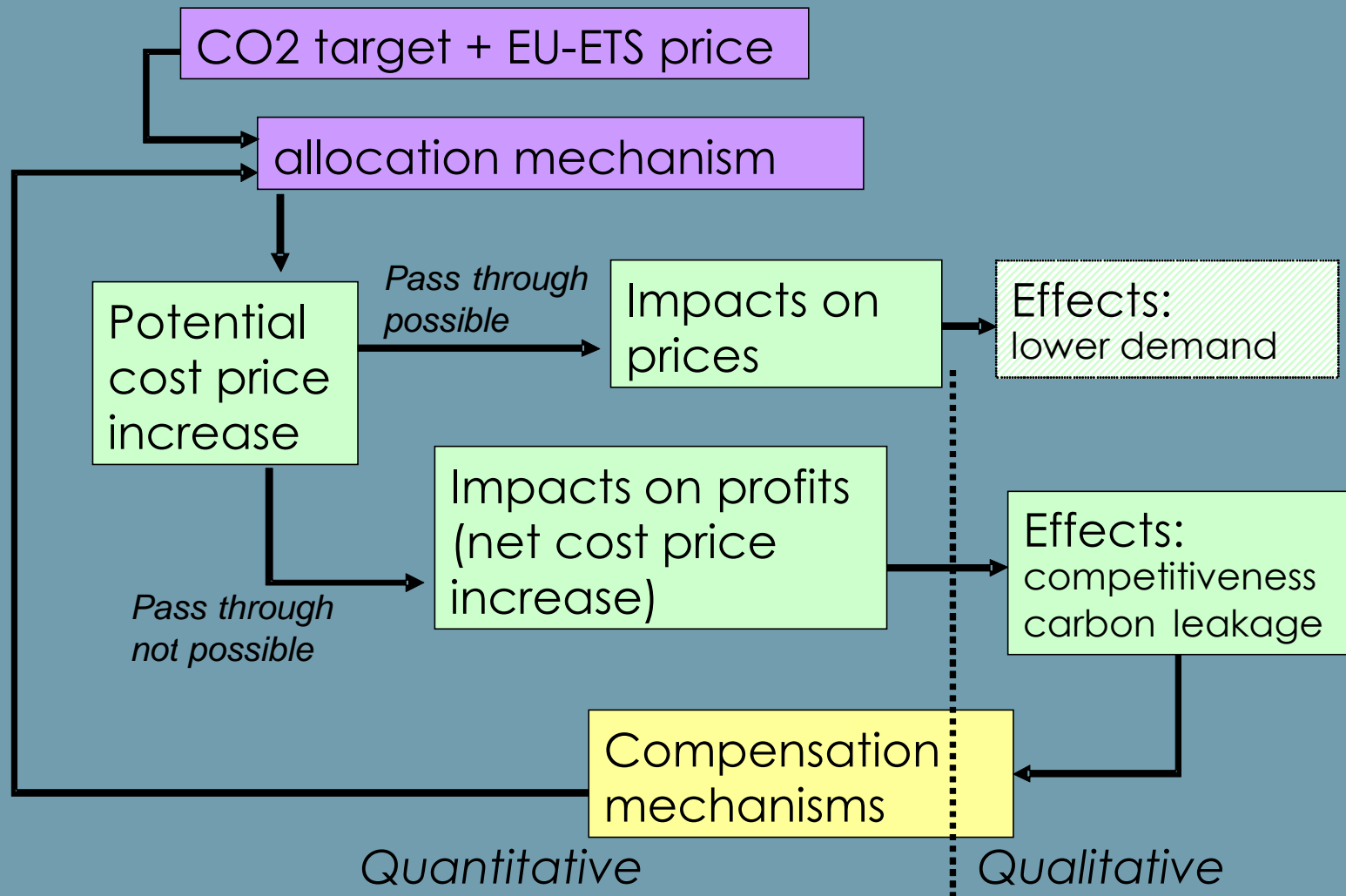


Set up in the Netherlands





Analytical framework





Scenarios

Exogenous price of CO₂

- €20 (sensitivity of €50/ ton CO₂)

Two allocation scenarios:

- (a) full auctioning;
- (b) partial grandfathering (only non-electricity part industry)

Time dimension:

2005 with targets 2020

Sectors:

19 sectors and subsectors (2,3,4 digit)

Unit of analysis:

Cost price increase instead of GVA (links closer to product prices)



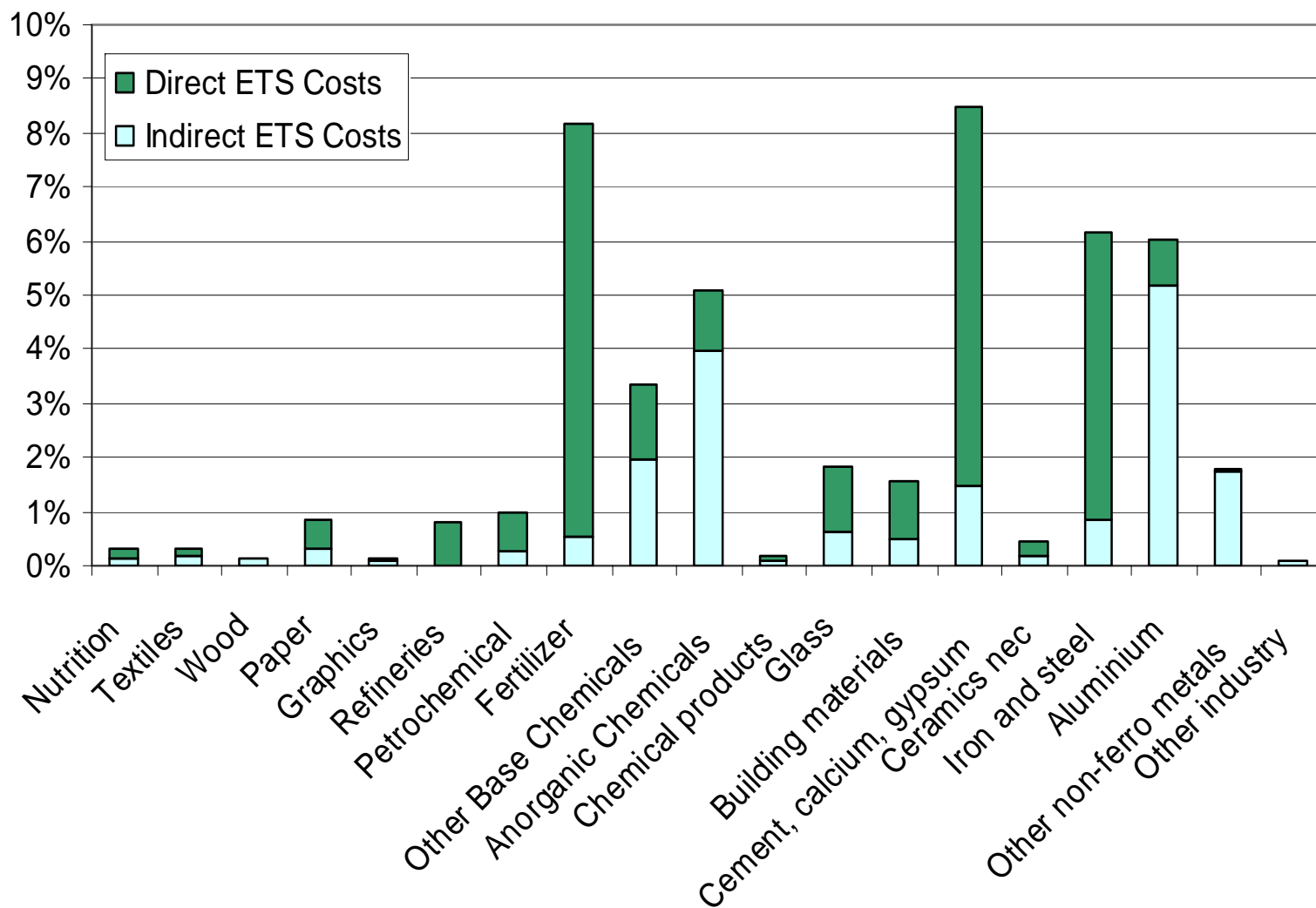
Potential cost price increase

Two cost components

1. Direct costs: costs of buying CO₂ emission rights
2. Indirect costs: higher electricity price
 - Electricity model: at €20/tCO₂, electricity prices increase at €14/MWh for industry (LT contracts)
 - CHP crucial and data difficult to get

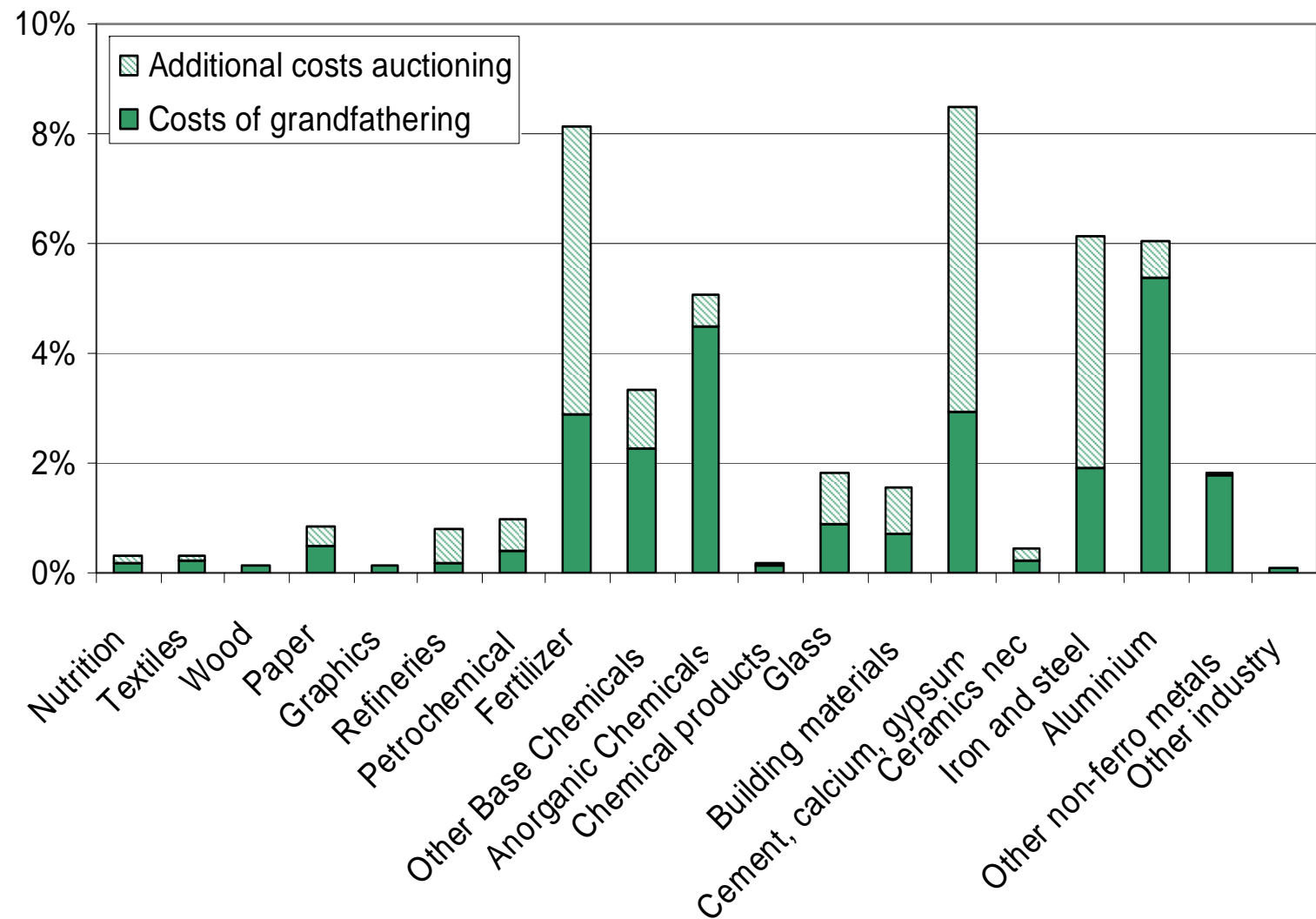


Results: potential cost price increase, auctioning



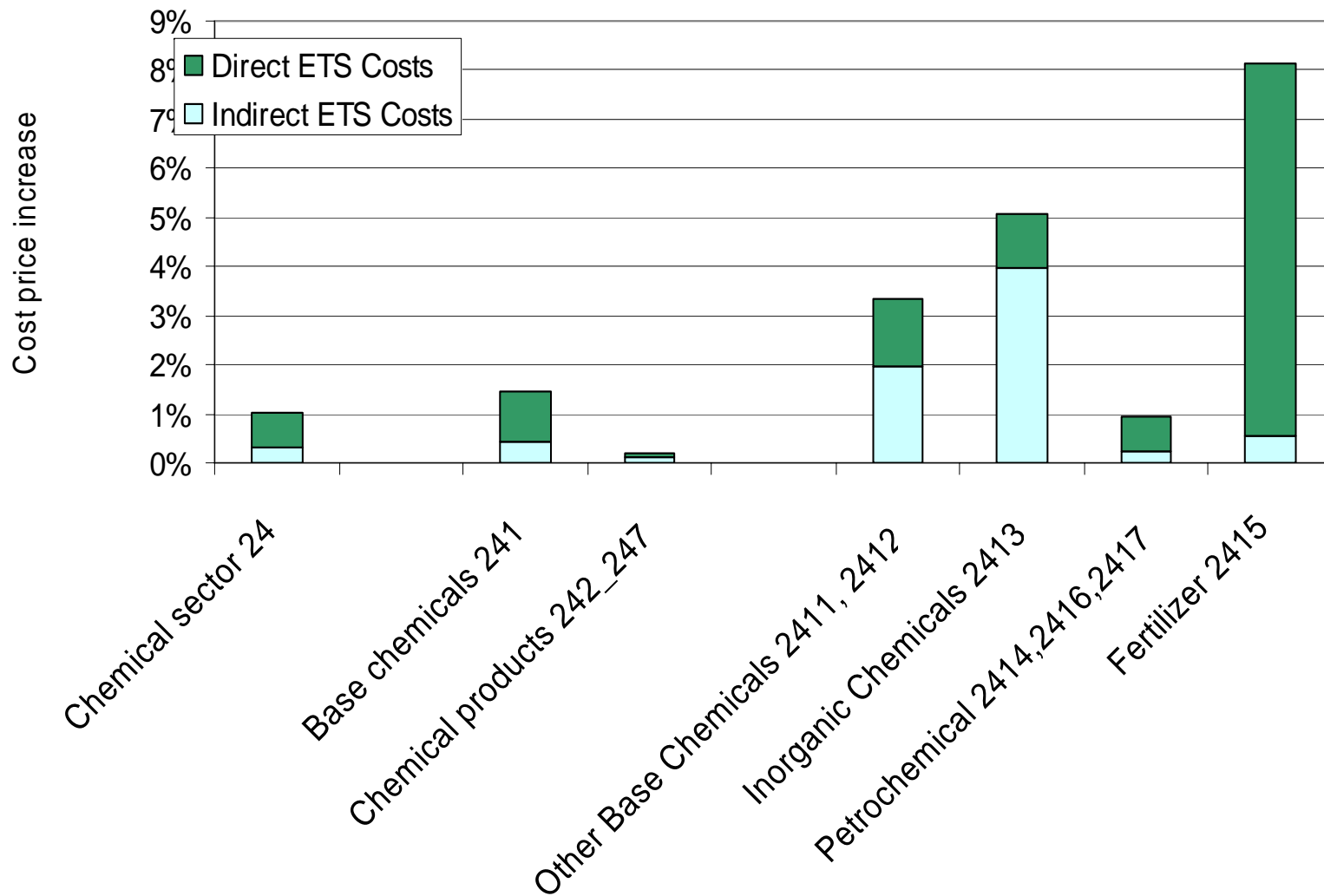


Potential cost price increase auctioning versus part.grandf.



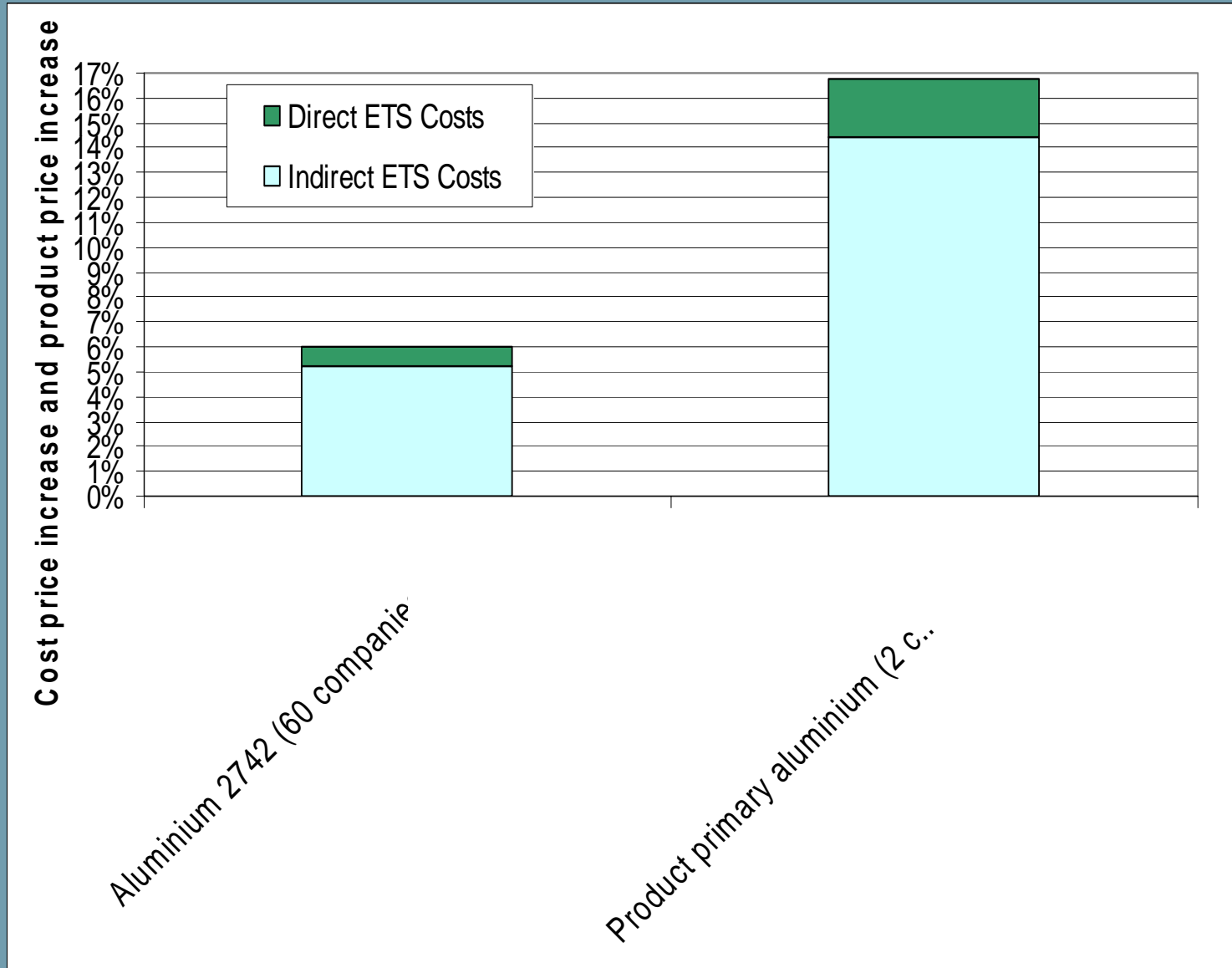


Sectors or subsectors





Subsectors or products?





Cost pass through

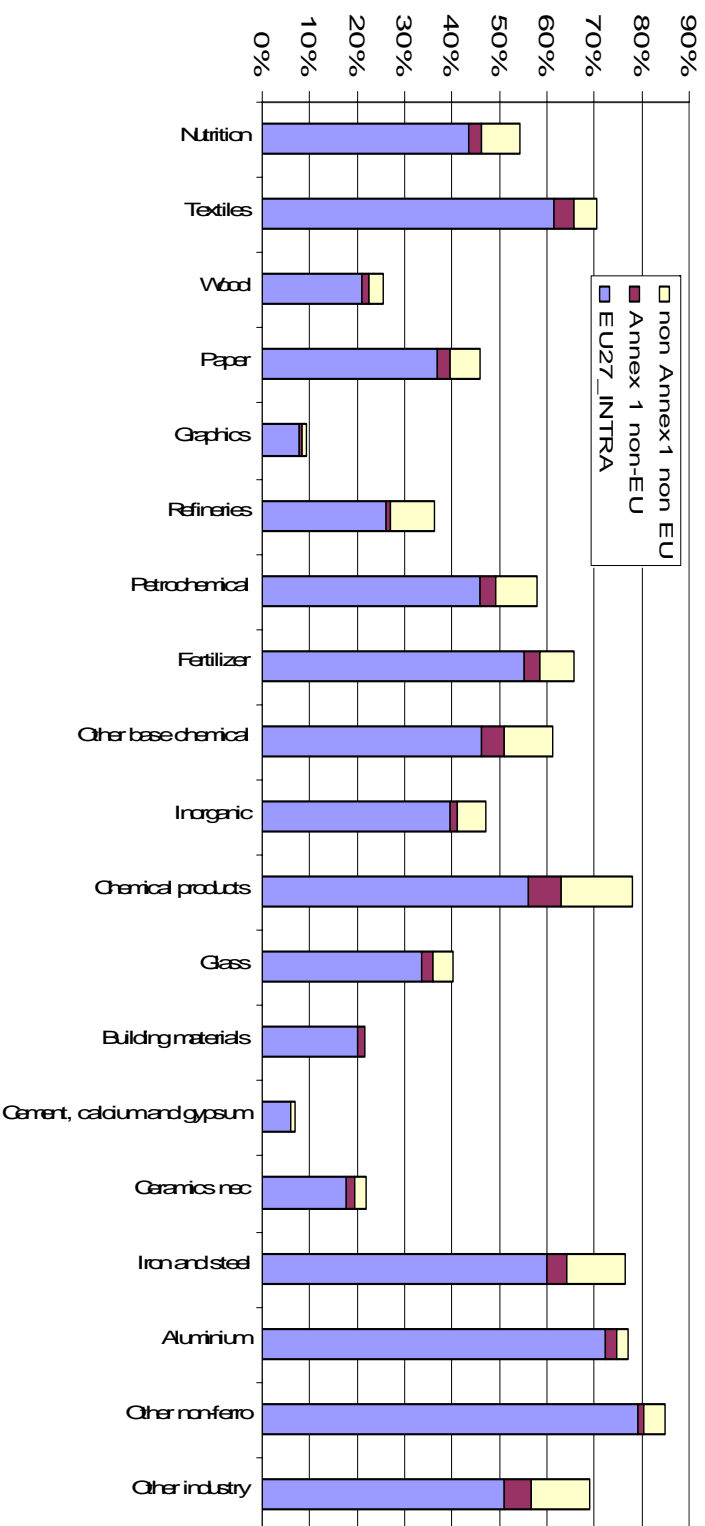
- Trade intensities with Annex-I and non-Annex I;
- Qualitative and semi-quantitative analysis on cost-pass through (literature review)



Trade intensities

- 8 digit level (COMTRADE)
- Export and import markets

Figure: Export





Qualitative analysis

- Cost pass through depend on transport costs, market niches, market structure, etc.
- EU market: rates depend on literature studies and degree of existing imports from non-Annex I countries
- Exports to non-Annex I countries: no pass through possible
- Exports to Annex-I countries: in between EU market results and non-Annex I countries

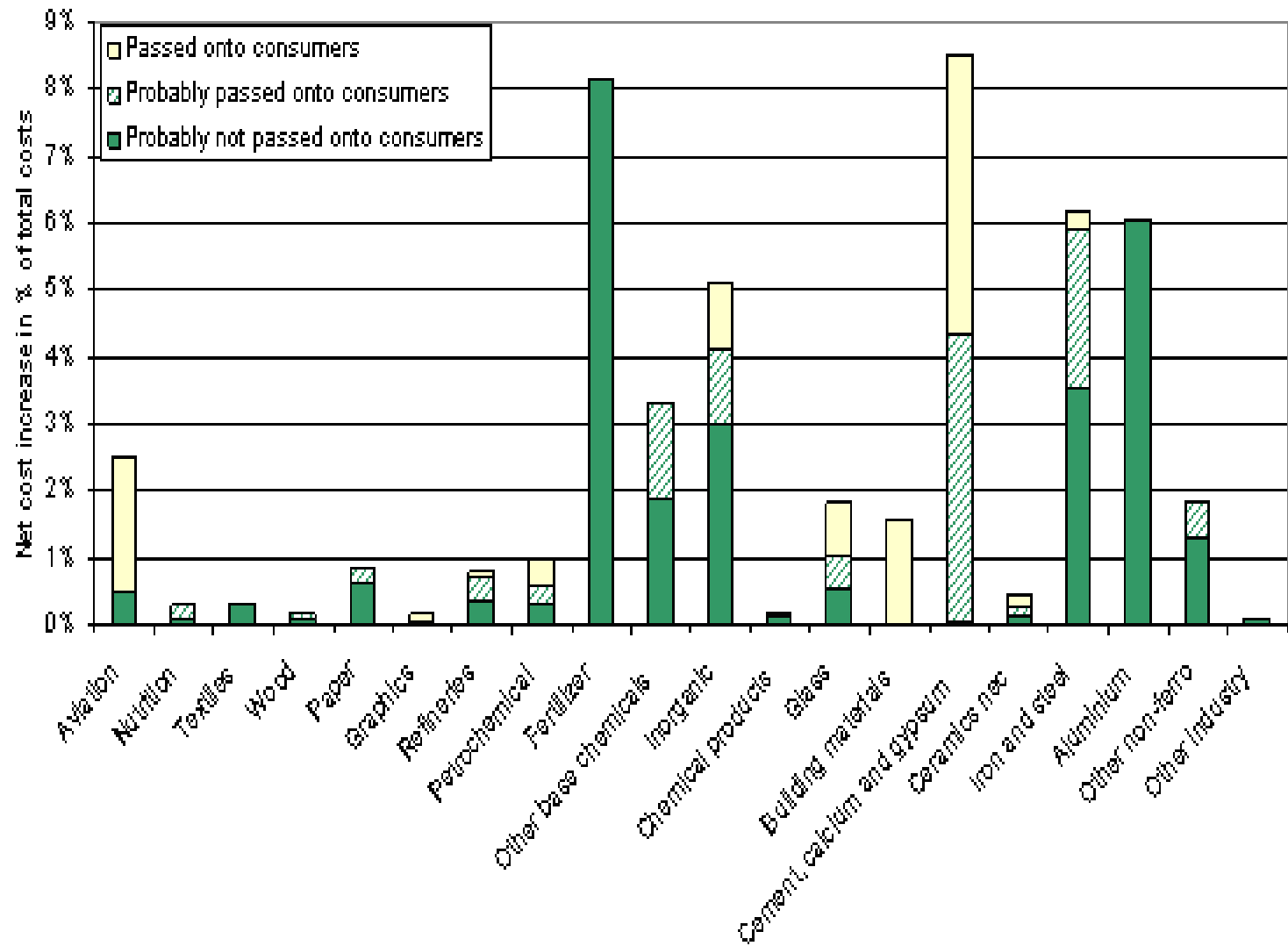


Cost pass through (lit.review)

Sector	Net cost price increase (%)
<i>Fertilizer</i>	
Most likely scenario: 0% cost pass through	8,1
<i>Iron and steel</i>	
Most likely scenario: 50% cost pass through	3,1
Worst case: 6% cost pass through	5,8
<i>Other inorganic chemicals</i>	
Most likely scenario: 50% cost pass through	2,5
Worst case: 25% cost pass through	3,8
<i>Refineries</i>	
Most likely scenario: 75% cost pass through	0,2
Worst case: 25% cost pass through	0,6
<i>Cement</i>	
Most likely scenario: 100% cost pass through	0
Worst case: 50% cost pass through	4,3
<i>Paper</i>	
Most likely scenario: 30% cost pass through	0,6
Worst case: 0% cost pass through	0,8



Net cost price increase



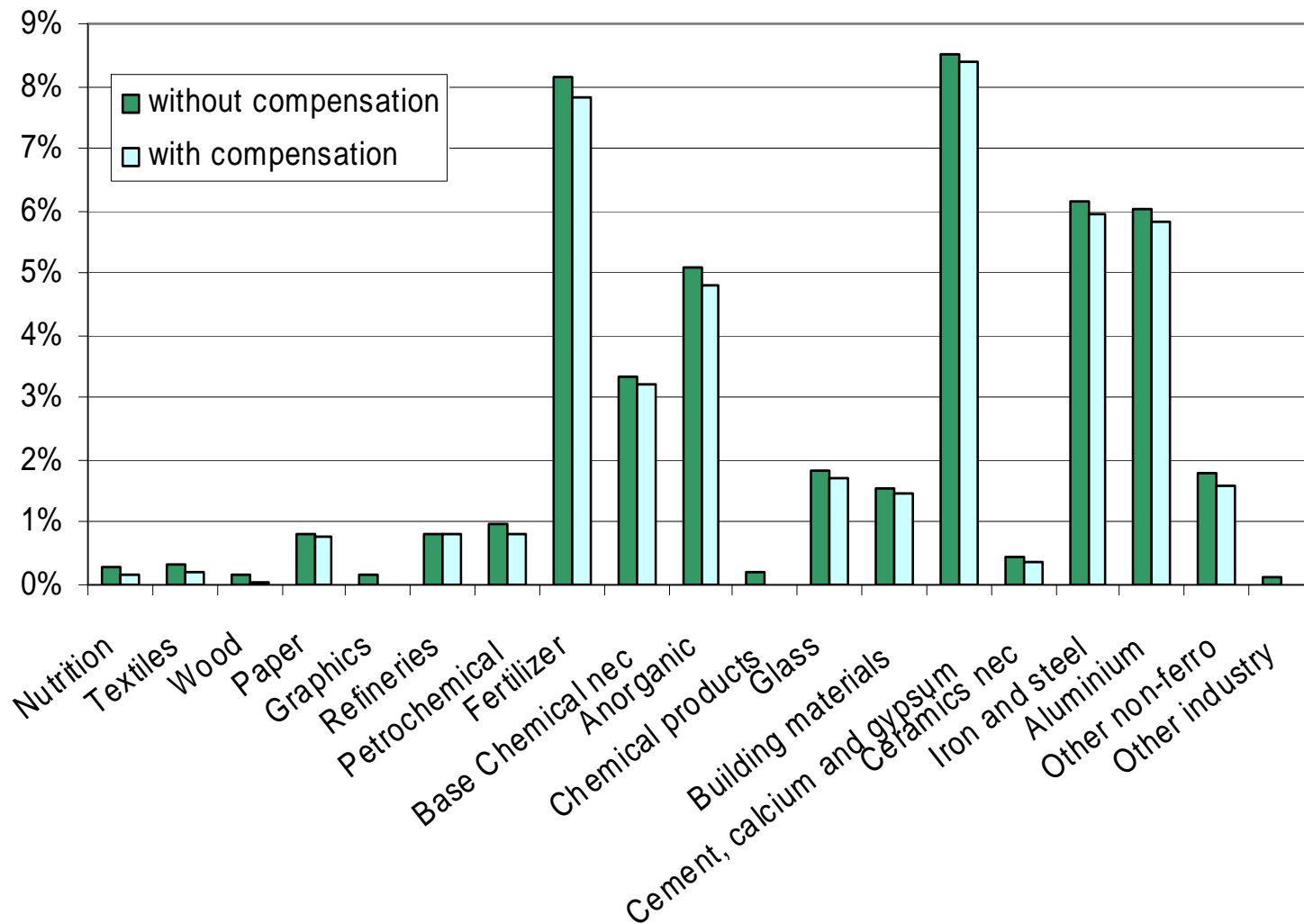


Compensation measures

- Free allocation
- Border tax adjustments
- Recycling of revenues
 - Corporate taxes
 - Labour taxes
 - Energy saving investment subsidies

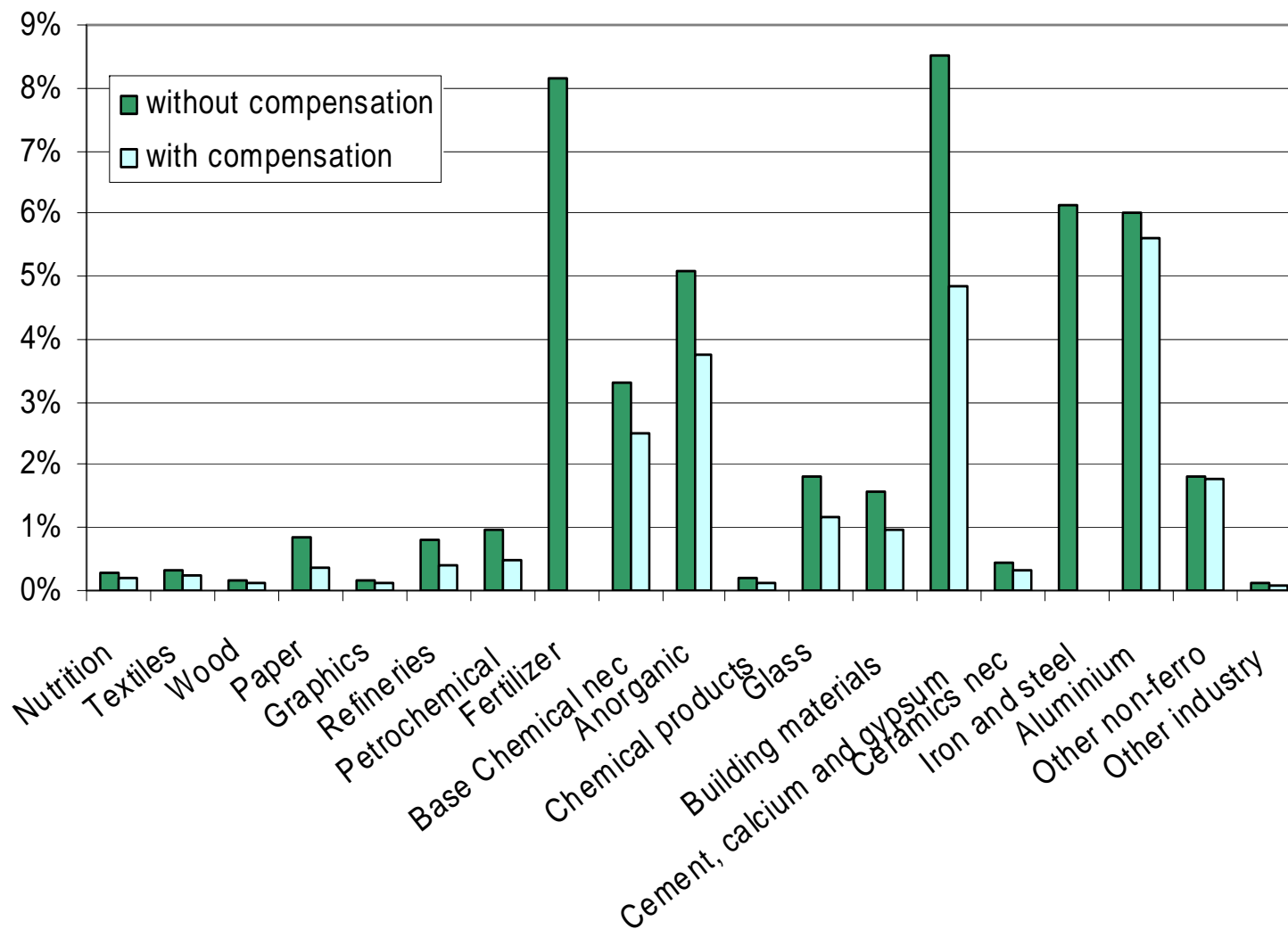


Compensation measures: recycling corporate taxes





Compensation measures: energy saving subsidies





Conclusions: effects on economy and environment

- Total direct economic costs small (0.2% of GDP).
- Indirect economic effects differ between free allocation and auctioning;
- Indirect effects free allocation: higher costs of CO₂ compliance;
- Indirect effects auctioning: impacts on competitiveness and CL.



What should we have done different if we could start it all over again?

- Using products instead of sectors for homogenous subsector outputs
- Using subsectors for non-homogenous sector outputs.
- Try to model economic costs of free allocation in order to suggest break even point for free allocation: e.g. if CL is larger than $x\%$, free allocation does more harm than good.

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Thank you!

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- Independent, non-profit research & consultancy
- Transport, Energy, Economy
- 40 employees.
- Economy: team of 10 environmental economists
- Internationally: transport and inclusion of aviation in EU-ETS
- In the Netherlands: environmental economics

