

**CE**

Oplossingen voor  
milieu, economie  
en technologie



# Allocation, competitiveness and economic welfare

An analysis of the Dutch situation for post-2012 EU  
ETS

September 2008,  
Sander de Bruyn



# Problem for post 2012 EU ETS

- Should allocation for industry be free or auctioned?
- Primarily distributional question
- However fierce debate on environmental and economic effects
- Distributional transfer: in the Netherlands about €0,7-1,9 billion (€20-€50/ton CO<sub>2</sub>)
- 1,9 billion = 0,8% of ind. costs = 2,5% of ind. GVA = 6% of ind. operating profits



# Content of presentation

Main topic: should allocation for industrial installations be free or auctioned?

## *Contents*

- Theoretical background
- Empirical results from our study
- Interpretation of results





# Auctioning....

- Is economic efficient and
- reduces windfall profits.
- However, results in more impacts on competitiveness
- which results in carbon leakage
- Although effects on the economy and environment can be mitigated by recycling revenues
- But runs the risk of government failure (unsound spending).



## Free allocation.....

- Needs additional rules for entry/exit conditions
- which give implicit subsidy to production
- that results in higher prices for CO<sub>2</sub>;
- Result in potential windfall profits
- but reduces risk of carbon leakage



# Explanation: Carbon leakage

- Type I: Relocation/import substitution (no matter which technology is being used)
- Type II: Indirect effects through lower fossil fuel prices increasing demand worldwide

Leakage rates in literature include mostly both Type I and Type II.

For discussion on allocation only Type I matters

Type I typically  $1/4^{\text{th}}$ - $1/10^{\text{th}}$  of total leakage



# Explanation: windfall profits

- Are income transfers from citizens to energy intensive companies
- Employees may demand wage increases that cannot be suppressed through recycling revenues
- For countries with tight labour markets: WP imply income transfer from labour intensive production to energy intensive production



# Study methods

- Partial analysis

Plus: high level of detail, statistical sources

Min: no quantification of indirect effects

- General equilibrium

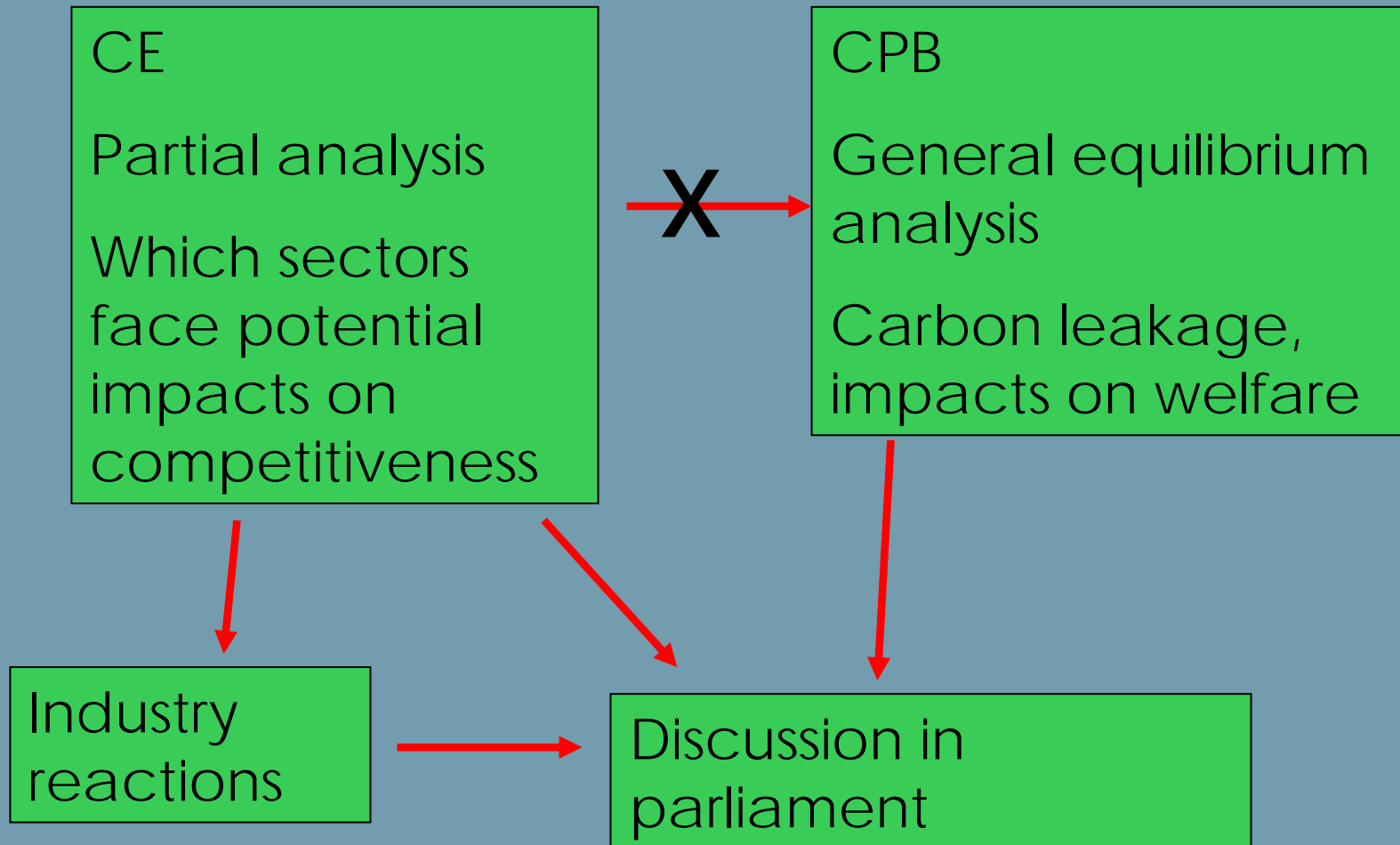
Plus: full estimation of indirect effects

Min: calibration, mathematical functions instead of data.





# Set up in the Netherlands





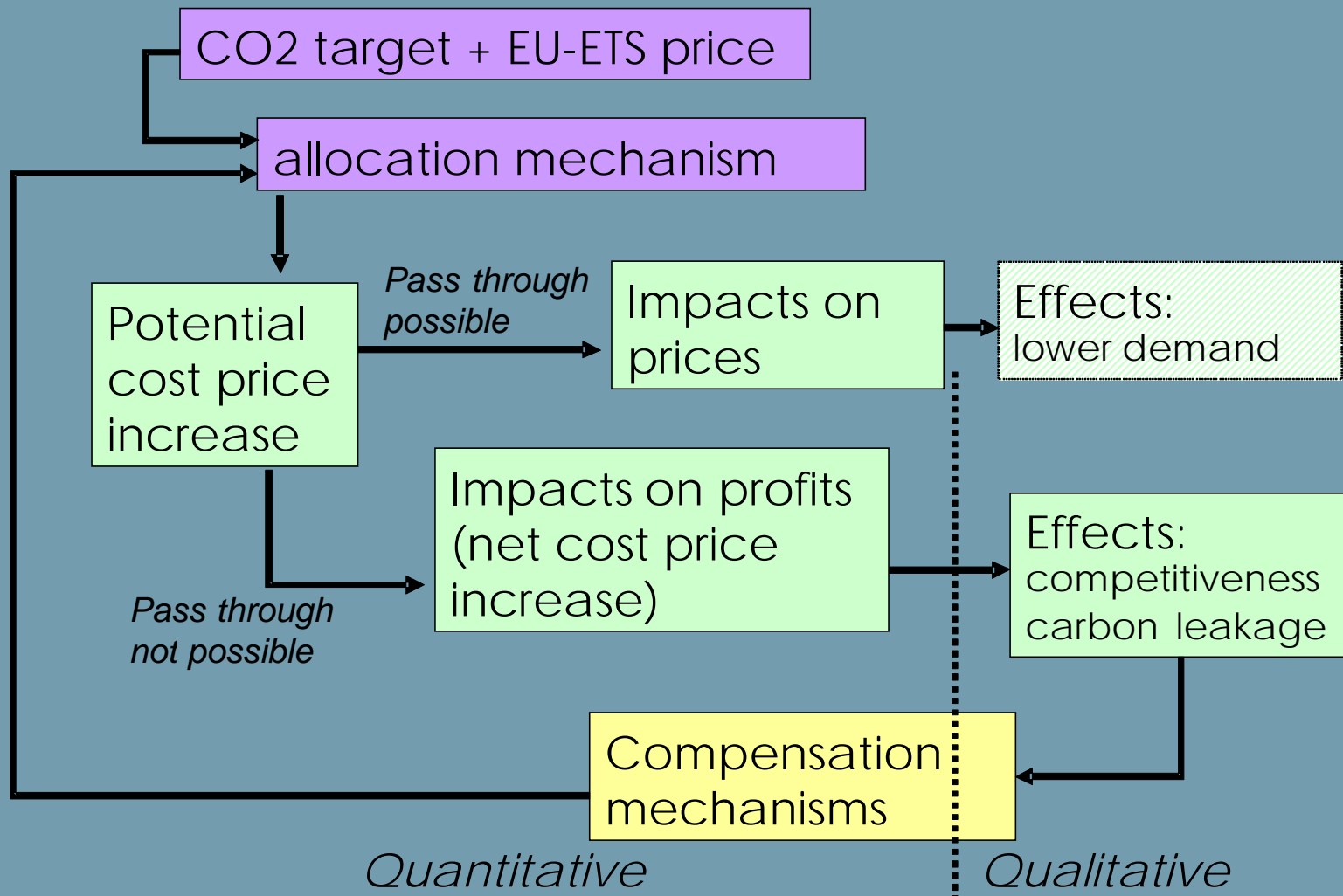
# Delination partial analysis

- Unit: Cost price, GVA, product prices
- System boundaries: Sectors/subsectors/products/installations/plants
- Ideally: Products/ product price increases give impact on competitiveness: For some sectors (chemical/iron and steel) >100 prices of niche products >> better sectors.
- Practical decision: only (sub)sectors
- Practical consequence: cost price increase.

NB: Cost price increase closer connected to product prices than GVA



# Analytical framework





# Practical set up

- 19 sectors (2,3,4 digit)
- -20% reduction;
- 2 Scenarios: (a) full acutioning; (b) partial grandfathering (only non-electricity part industry, output and benchmark based, no updated outputs and hence no opportunity benefits of production).
- Exogenous price EUA: €20 (sensitivity analysis with €50/ton);
- Indirect cost price increase: CE electricity investment model. LT: marginal unit is new coal fired power plant: €14/MWh at €20/ton



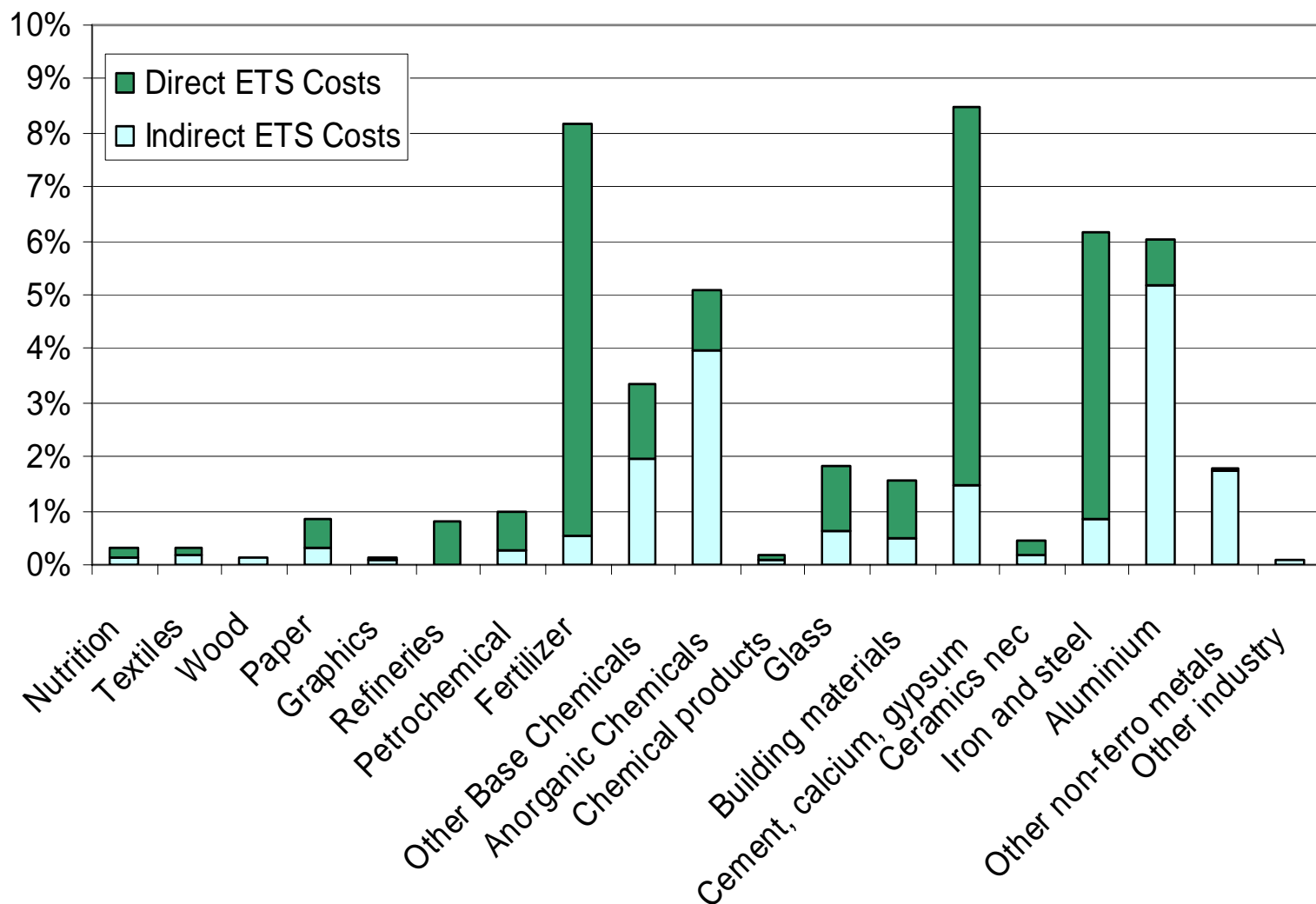


# Cost concepts

<b>Cost concepts</b> <b>Categories</b>	Potential cost price increase (maximum)	Potential cost price increase (actual)	Net cost price increase
Direct costs of buying EU allowances			
Indirect costs of electricity inputs			
Correction for costs of measures to abate CO <sub>2</sub>			
Correction for amount of costs that can be passed through			

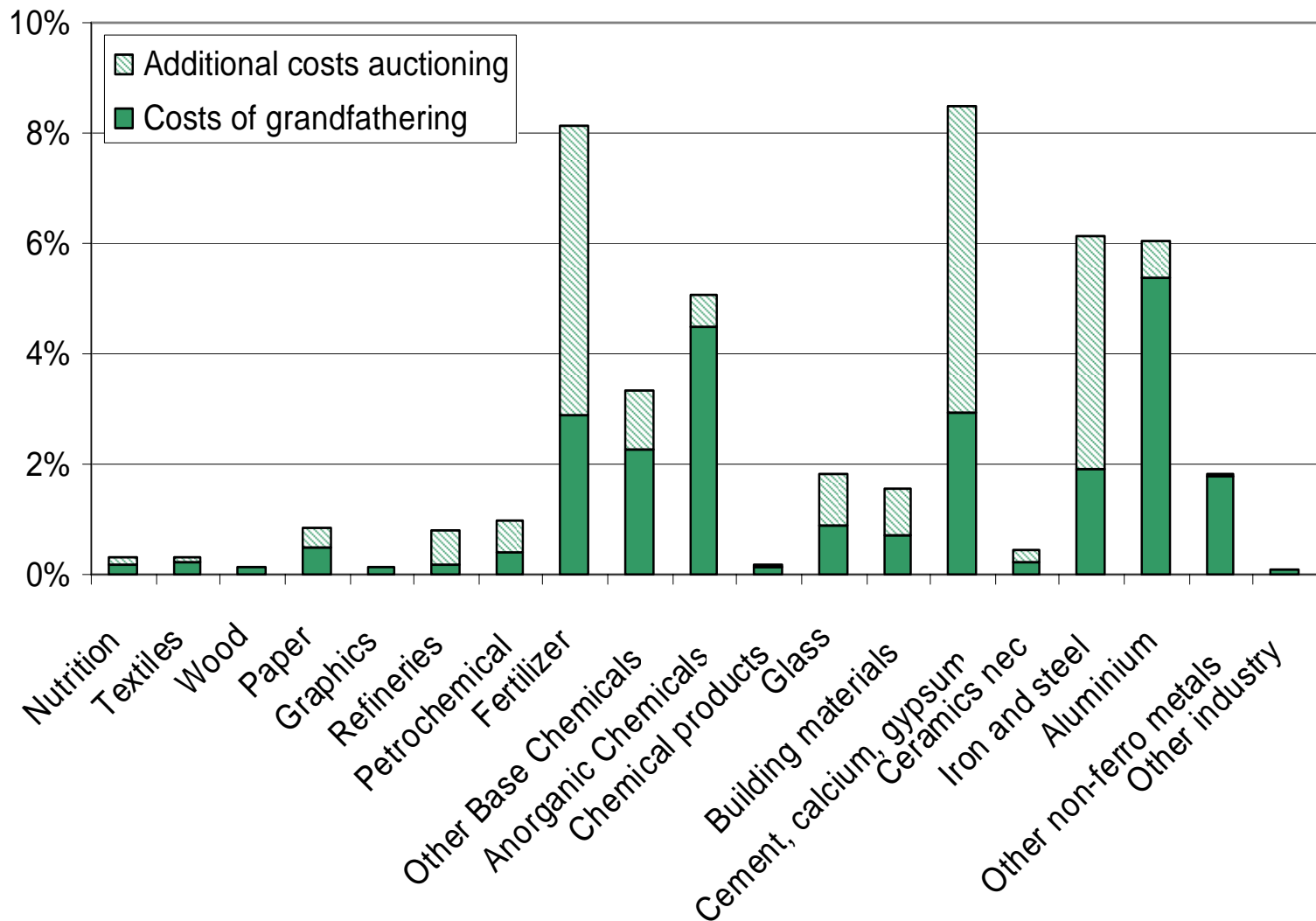


# Results: max. potential cost price increase, auctioning





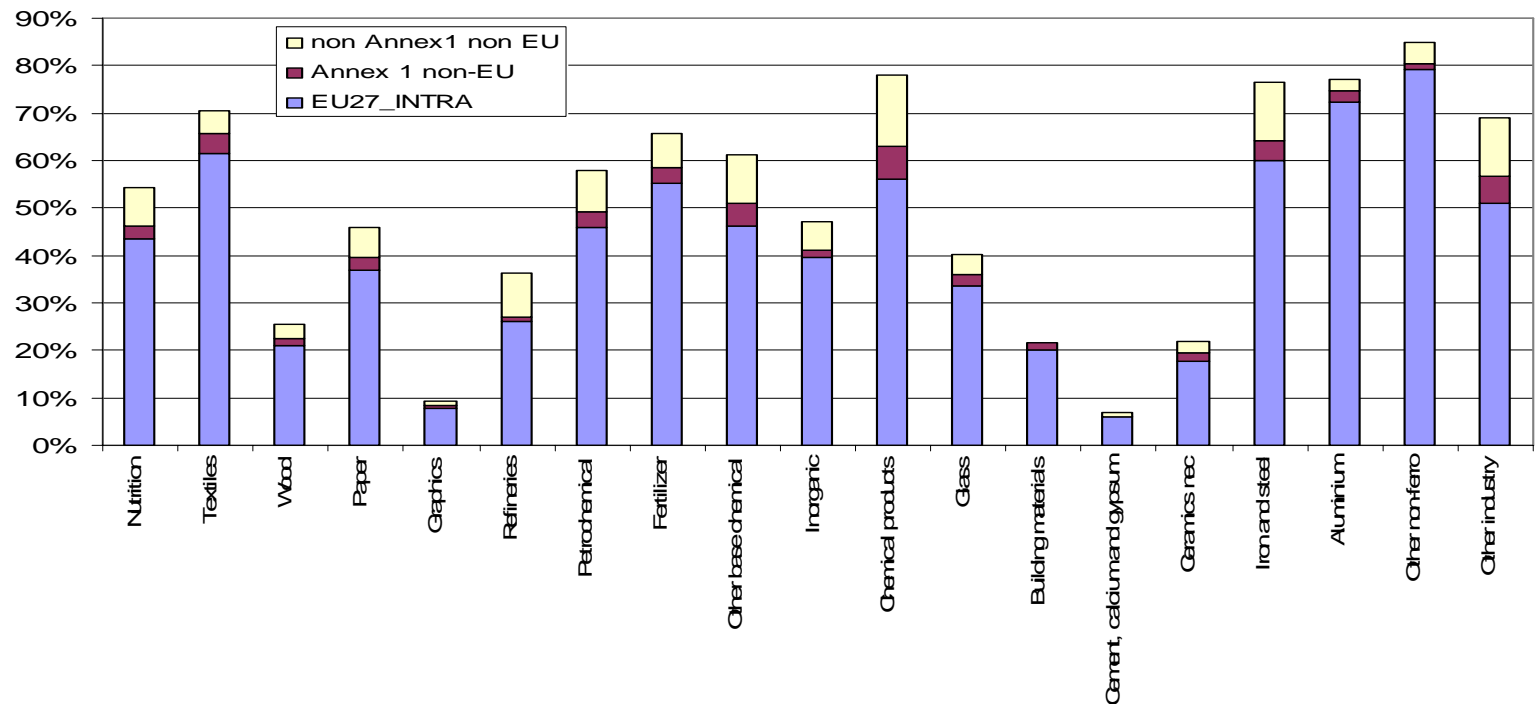
# Results: additional potential cost price increase auctioning





# Cost pass through

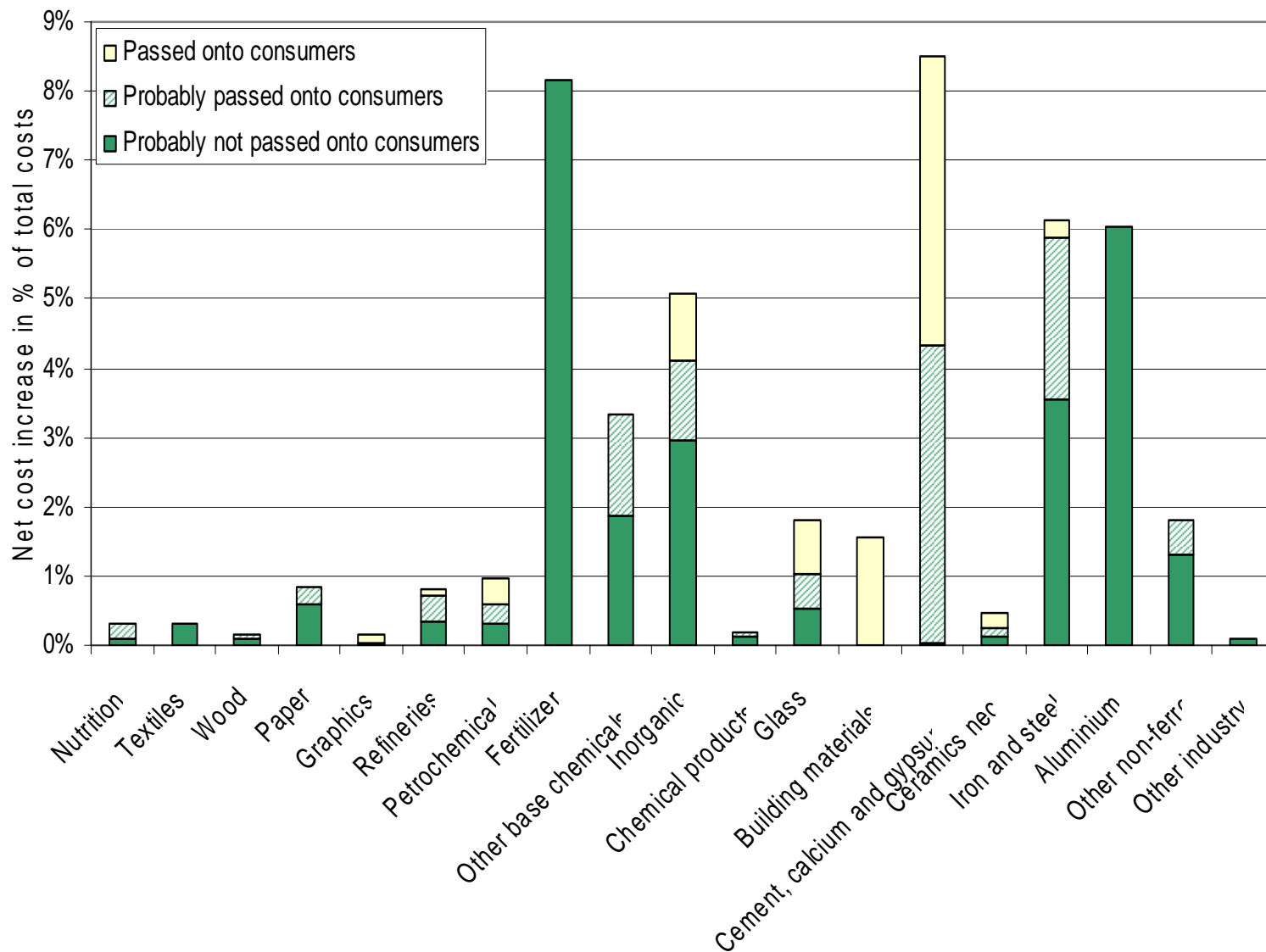
- Rates from literature
- Highly uncertain
- Paid by industry << Consulted with industry << Independent from industry







# Net cost price increase



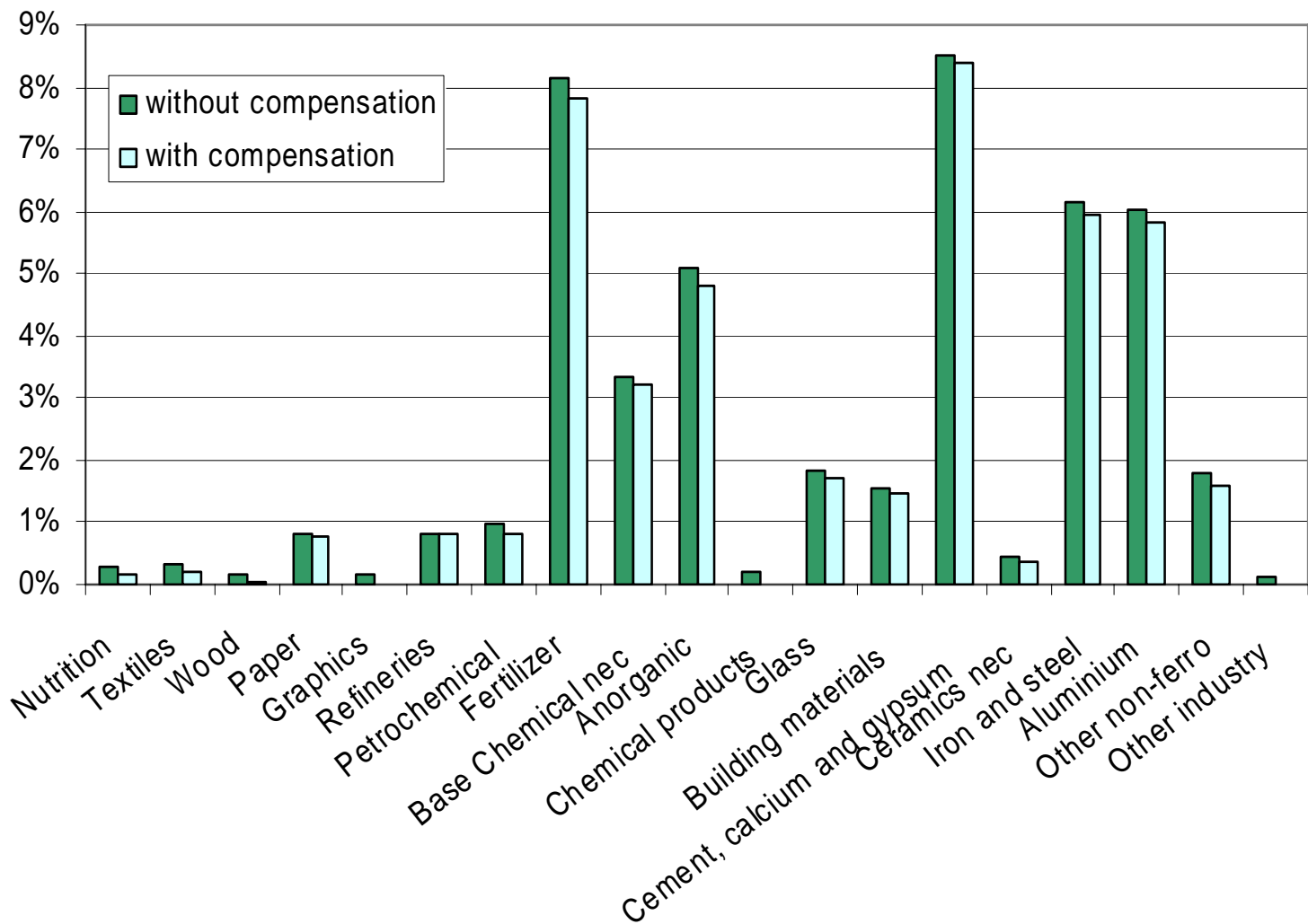


# Compensation measures

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

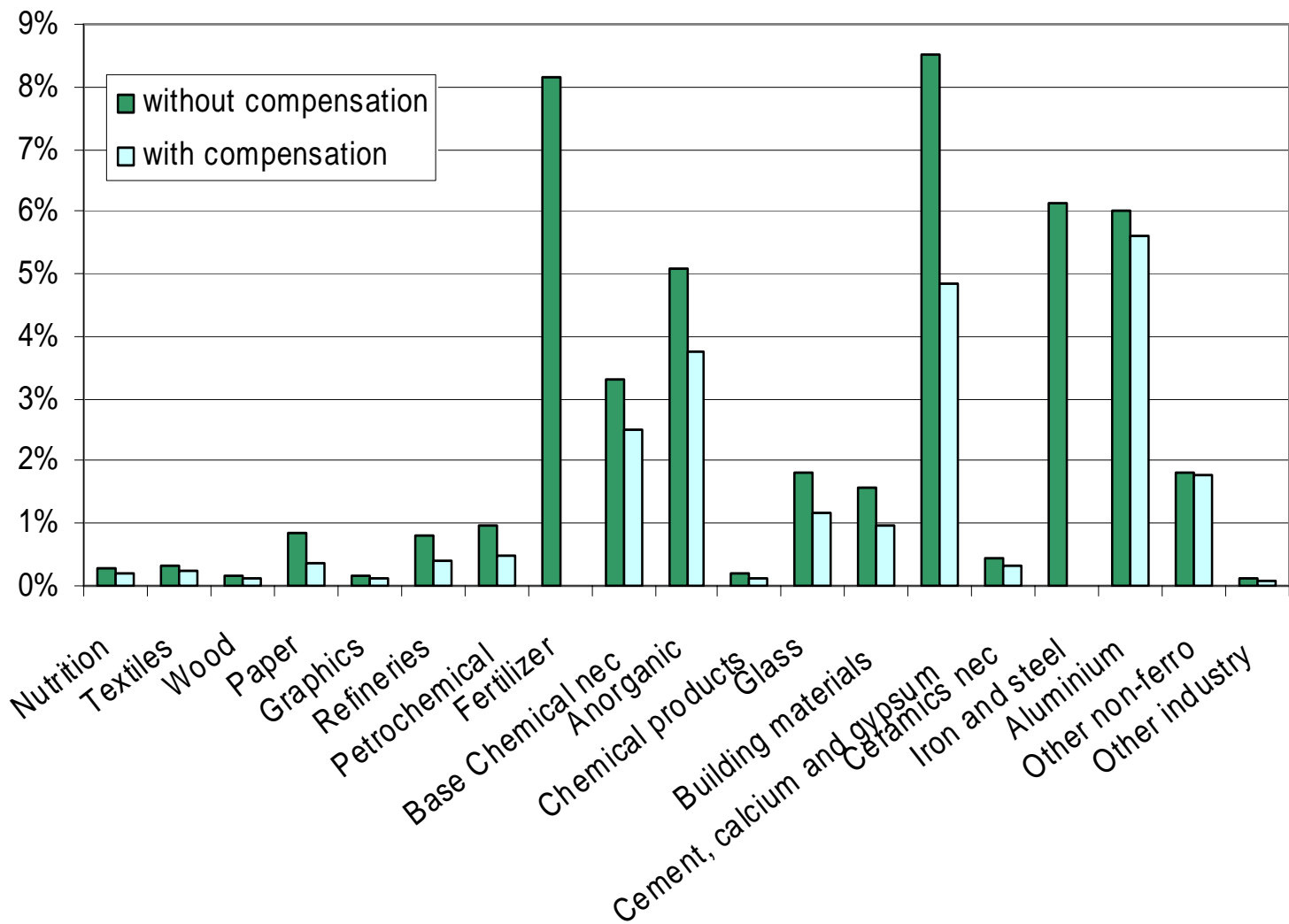


# Compensation measures: recycling corporate taxes





# Compensation measures: energy saving subsidies

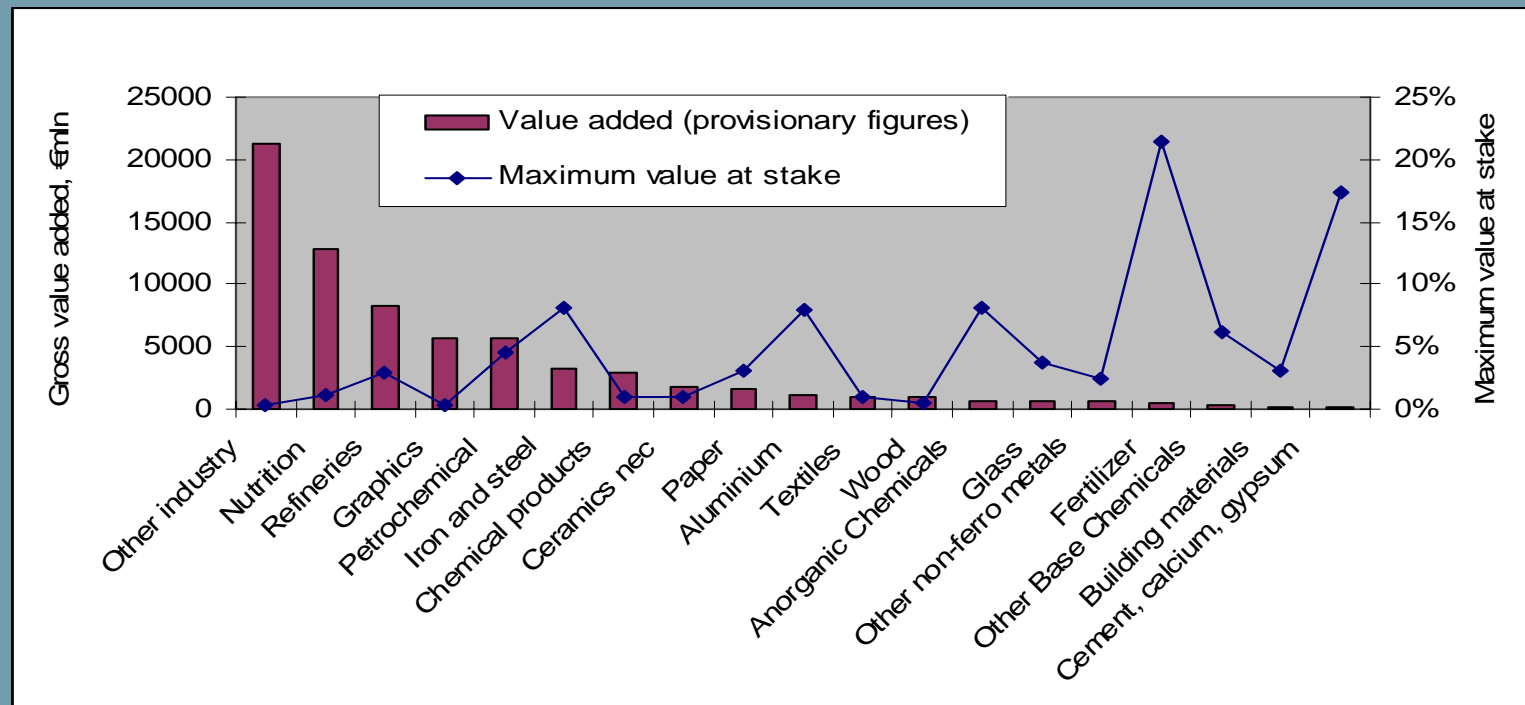






# Conclusions – Effects on economy

- Direct costs: 0,2% of GDP under auctioning
- Indirect effects probably small from auctioning





# Conclusions: effects on environment

- Free allocation is in principle better for the environment (Less CL)
- CGE model results: carbon leakage Type I probably small under auctioning
- Do economic benefits outweigh environmental costs???



# Discussion

- Auctioning is probably better for the economy while having minimal env. impacts. Reducing output is a cost-effective strategy for reaching climate goals which is only realized under auctioning.
- Fierce resistance industry is more than just rent-seeking behaviour and related to high risks of auctioning.
- Question1: Can we link auctioning with agreement on recycling?
- Question2: could we establish for industry ex-post if windfall profits have been made >>> Box 1.



# CE Delft

- 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





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**Thank you!**

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