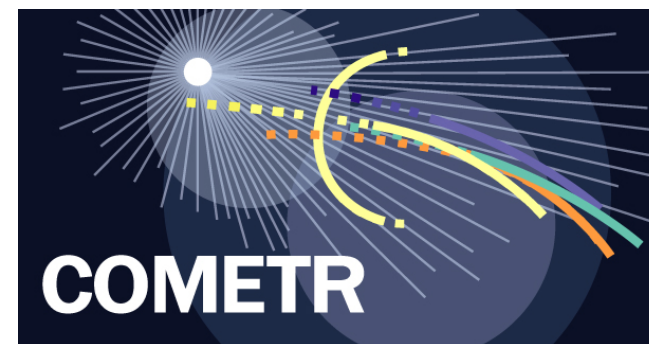




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The European Glass Industry from an Environmental Economic Viewpoint

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Preliminary comments

- Work package 5 of the COMETR project includes a total of eight industry case studies
- Glass is an interesting example given the differences between its sub-industries in most variables that are relevant to our discussion

The glass industry in the EU (25)

- Production, imports and import penetration by type of glass, ths tonnes, EU (25 countries), 2005

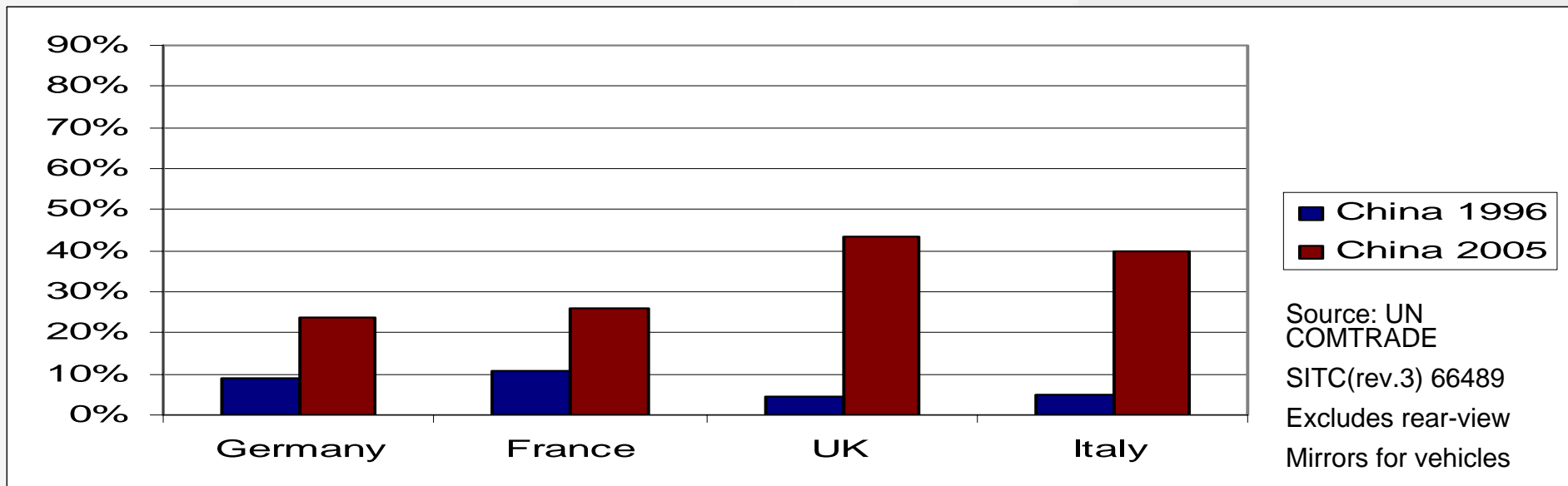
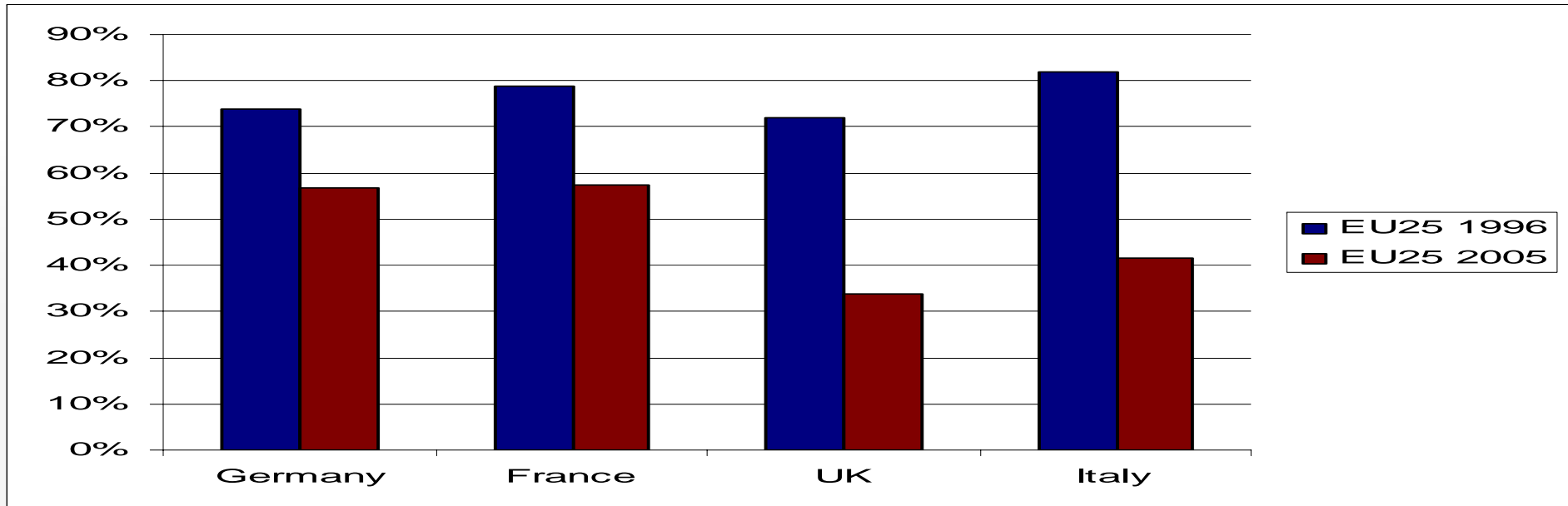
Glass types	Container	Flat	Tableware	Fibre	Other	Total
Production	20,000	9,200	1,450	727	1,230	32,607
Imports	262	546	416	319	436	1,978
Import Penetration	1.3%	5.9%	28.7%	43.8%	35.5%	6.1%

- Source: Standing Committee of the European Glass Industries (CPIV) (web site)

Flat glass I

- Relatively low value-weight ratio and trade intensity, but higher than with container glass
- Low import penetration, but rising share of non-EU imports as a share of total imports of EU countries, notably from China
- Production for the European market thus remains chiefly a European affair, but some low-value added segments already seeing significant shifts, e.g. mirrors

Imports of mirrors by country of origin



Flat glass II

- Broad technological options clear due to economies of scale: cross-fired regenerative furnaces
- The interesting issues are to do with additional processing and its quality, e.g. coating, tinting, silvering, and with improved process efficiency
- Exciting times ahead for the industry in Europe thanks to EU directive on energy performance of buildings: this European head-start may bring interesting returns if and when similar technology is in demand in the rest of the world

Container glass

- Very low value-weight ratio and trade intensity
- Thus import competition from outside the EU very limited and production likely to continue on a national/sub-national level in most EU countries
- Industry restructured in some northern EU states prior to ETR due to specific regulation/taxation on non-returnable bottles, leading to very high recycling rates, consolidation of production sites and increased use of regenerative furnaces (economies of scale)

Key Issues of Environmental Economics

- ETR offset by tackling X-inefficiency?
- ETR offset by improving technology (improving energy efficiency in the material sense)?
- ETR offset by manipulating the fuel mix?
- ETR offset by revenue recycling?
- ETR offset by relocating production?
 - → **Risk of carbon leakage / non-Annex B pollution haven?**

Key Issues of Environmental Economics

Flat Glass (Interview results)

- X-inefficiency: competition and high energy costs ensured low X-inefficiency already prior to ETR
- Improving efficiency: constant efforts, e.g. computer-based simulations of furnace operation
- Fuel mix: fuel oil / nat gas switching
- Revenue recycling: limited impact
- Relocation: yes, but limited by transport costs

Key Issues of Environmental Economics

Container Glass (Interview results)

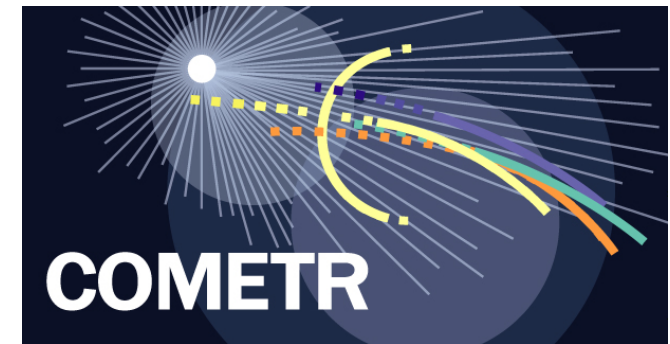
- X-inefficiency: potential import competition and competition from other segments of packaging industry, plus high energy costs, ensured low X-inefficiency already prior to ETR
- Improving en efficiency: pre-ETR legislation forced change of scale, and hence of furnace type, leading to en efficiency gain
- Fuel mix: not possible (no local nat gas terminal)
- Revenue recycling: limited impact
- Relocations: no

Conclusions

- Flat glass: leakage in some segments inevitable (value-weight ratio and labour cost differential), but EU producers well placed to lead in R&D intensive types, thus retaining substantial production in EU (as fragmentation of production chain is inherently limited)
- Container glass: essentially a stationary target for ETR (and in part a success story for environmental policies), but level playing field within the EU would be an improvement



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Thank you for your attention

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