INDUSTRY COMPENSATION UNDER RELOCATION RISK:

A FIRM-LEVEL ANALYSIS OF THE EU EMISSIONS TRADING SCHEME

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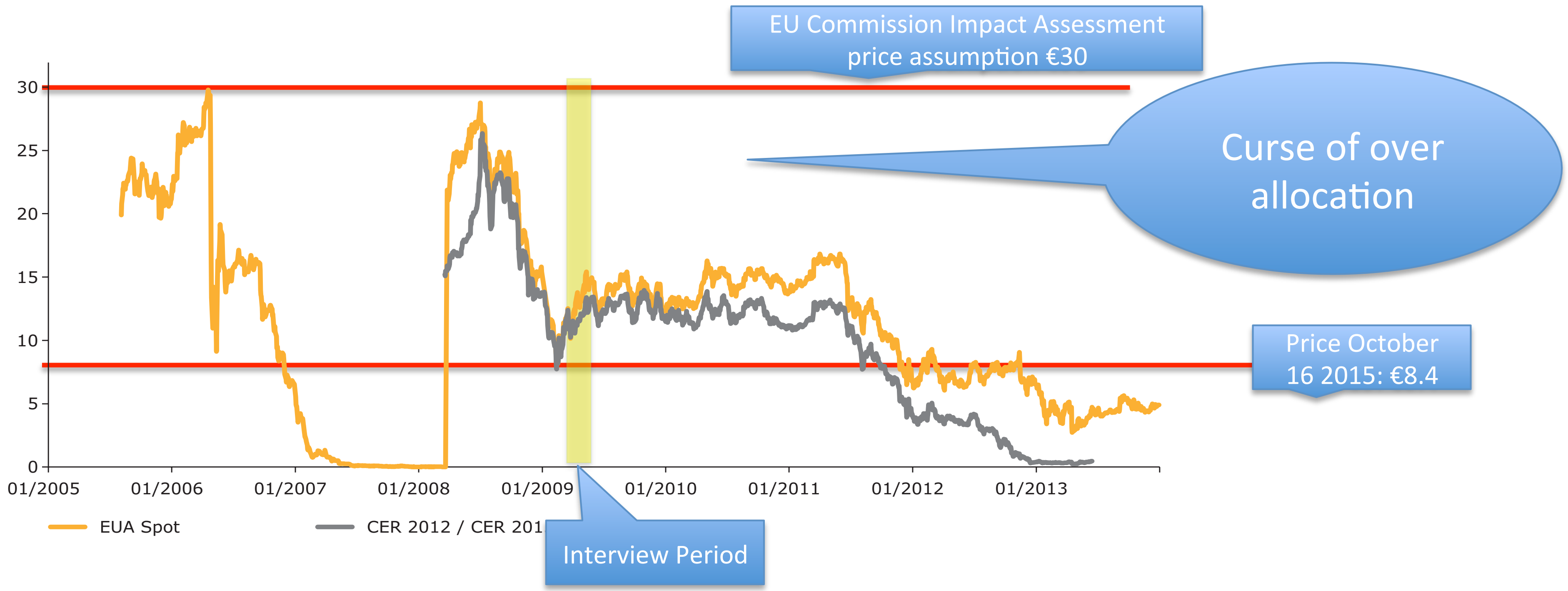
Regulation and Leakage

Do firms want to relocate because of regulation and how to prevent this?

The EUETS

- First implemented in 2005
- Trading Phases

Phase I	Phase II	Phase III
2005-2007	2008-2012	2012-2020



Leakage Concerns in the EU ETS

- Which firms want to relocate because of carbon pricing and how to prevent this?

EU: give permits to firms whose competitiveness is at risk or who might downsize otherwise

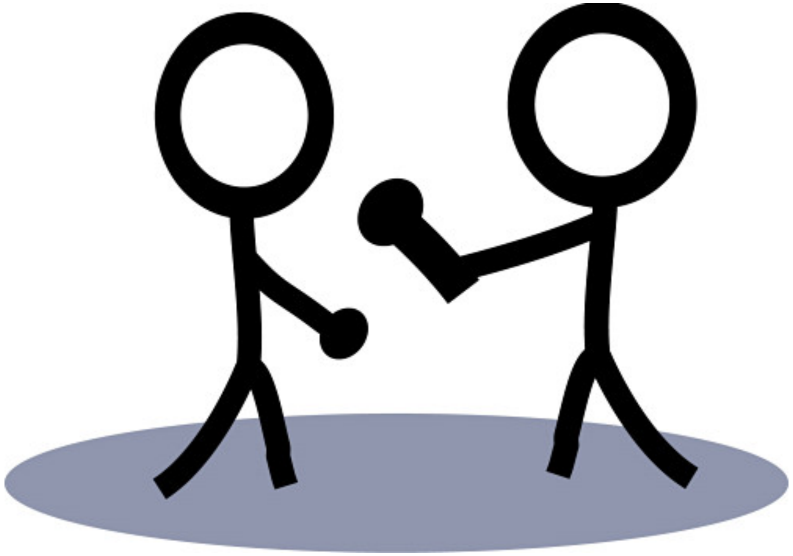
- **If the sole objective of compensation is to prevent relocation or downsizing, how much should be offered, and to whom?**

EU ETS: Compensation given in the form of free permits

- Cake allocation problem
- €15b to €60b per year cake

Who gets what slice ?

Our Contribution

1.  

2. Develop a rationale for permit allocation: equalize marginal relocation damage
3. Calibrate optimal permit allocation under scarcity and feasibility constraints

Our Interview Approach

- Adapt new approach from the management literature (Bloom/van Reenen)
- Team of trained analysts
- Open questions/narrative scored by interviewer based on benchmark
- Interviewee does not know about scoring ("double blind")
- Independent double scoring
- Noise controls for biases arising from both interviewer and interviewee
- Internal consistency cross check from related scores
- Matching with external data for cross checks

The downsizing risk score

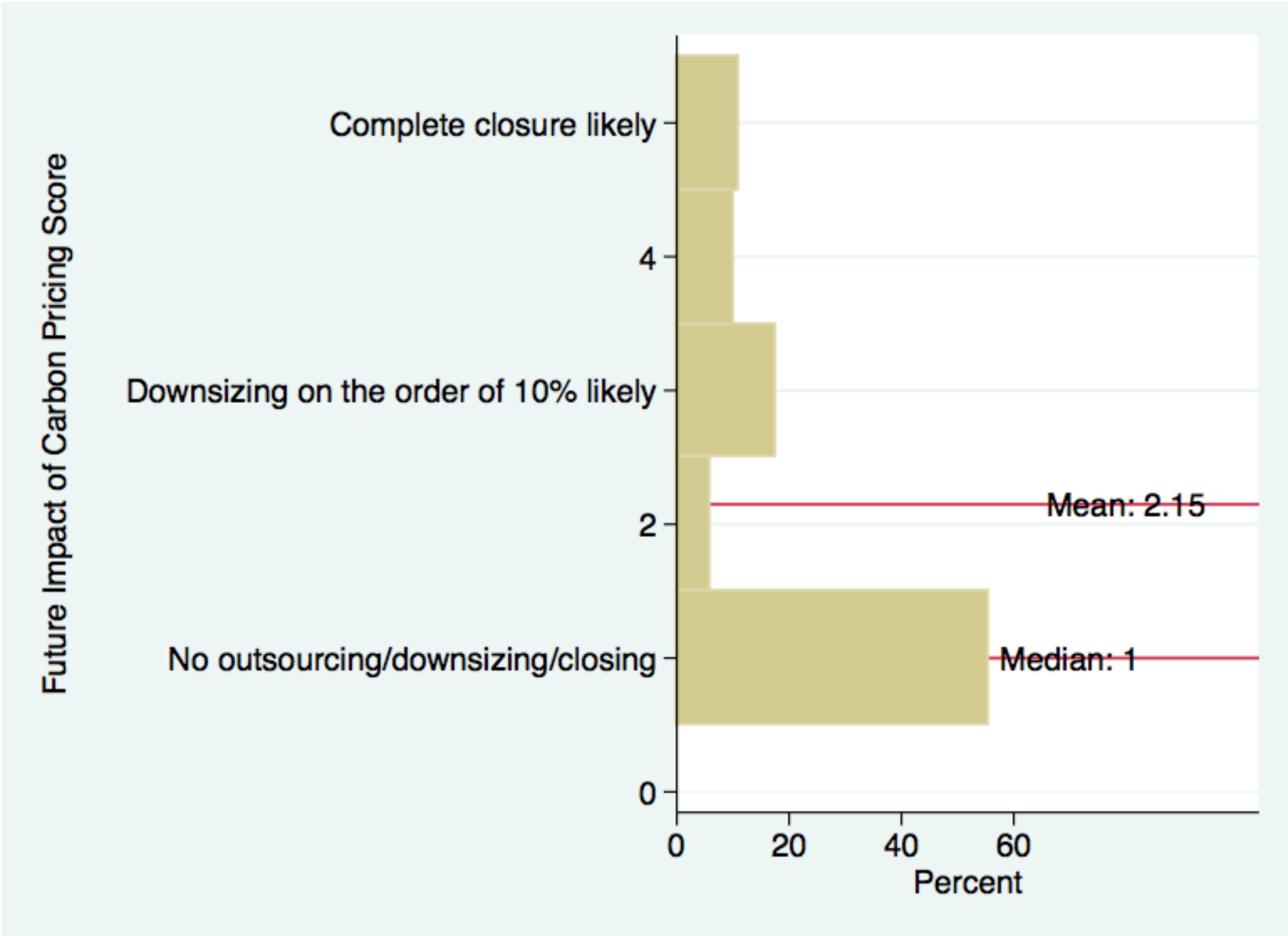
Questions suggested to interviewers

- "Do you expect that government efforts to put a price on carbon emissions will force you to outsource parts of the production on this business site in the foreseeable future, or to close down completely [over a horizon until 2020]?"
- If there are plans to downsize: "How concrete are those plans?"

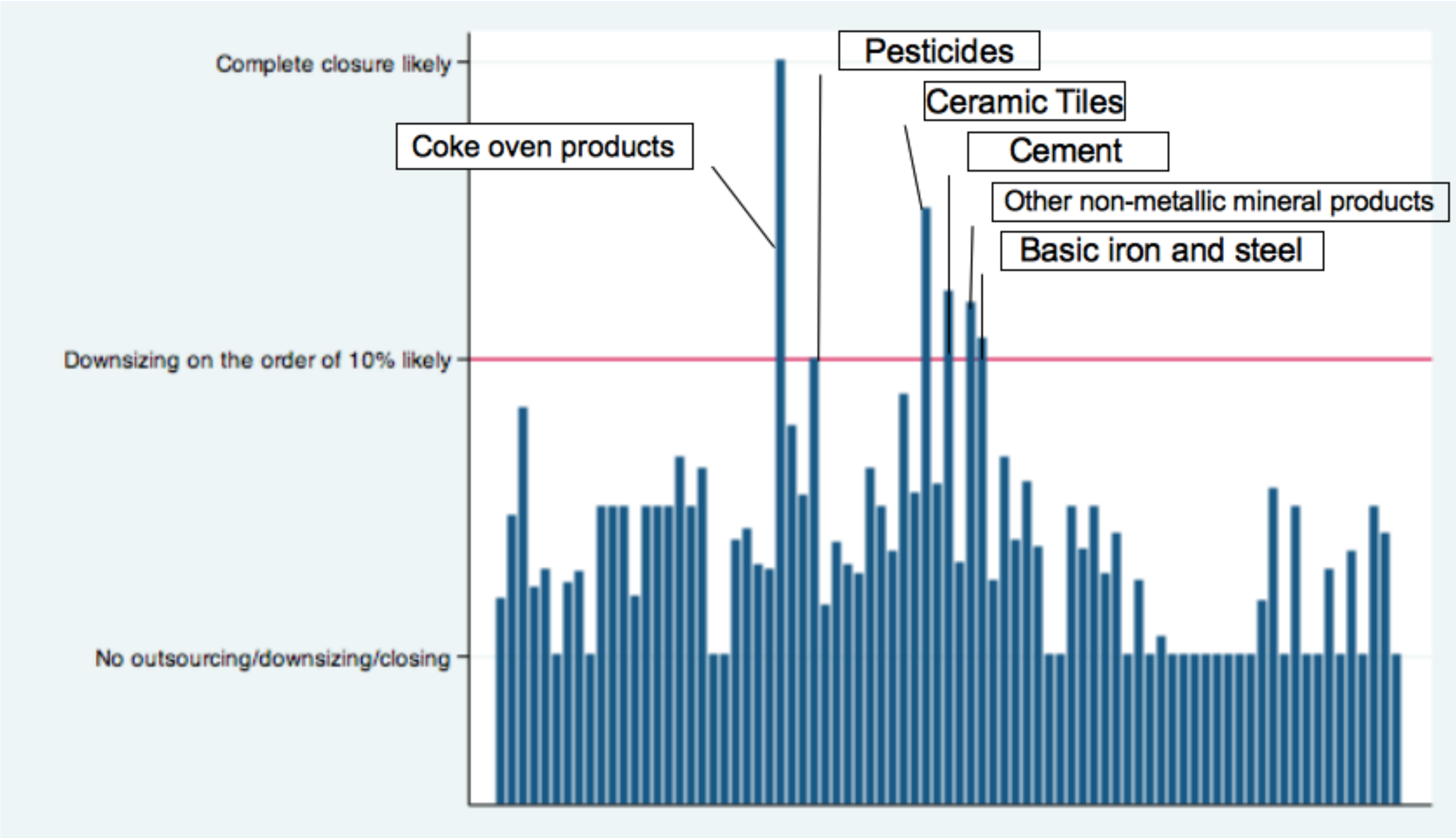
Score scale (unknown to interviewees)

Score	Description
1	Climate policy has no impact
2	
3	Significant reduction (e.g. more than 10% of production activities will be re-located)
4	
5	Complete shut down likely

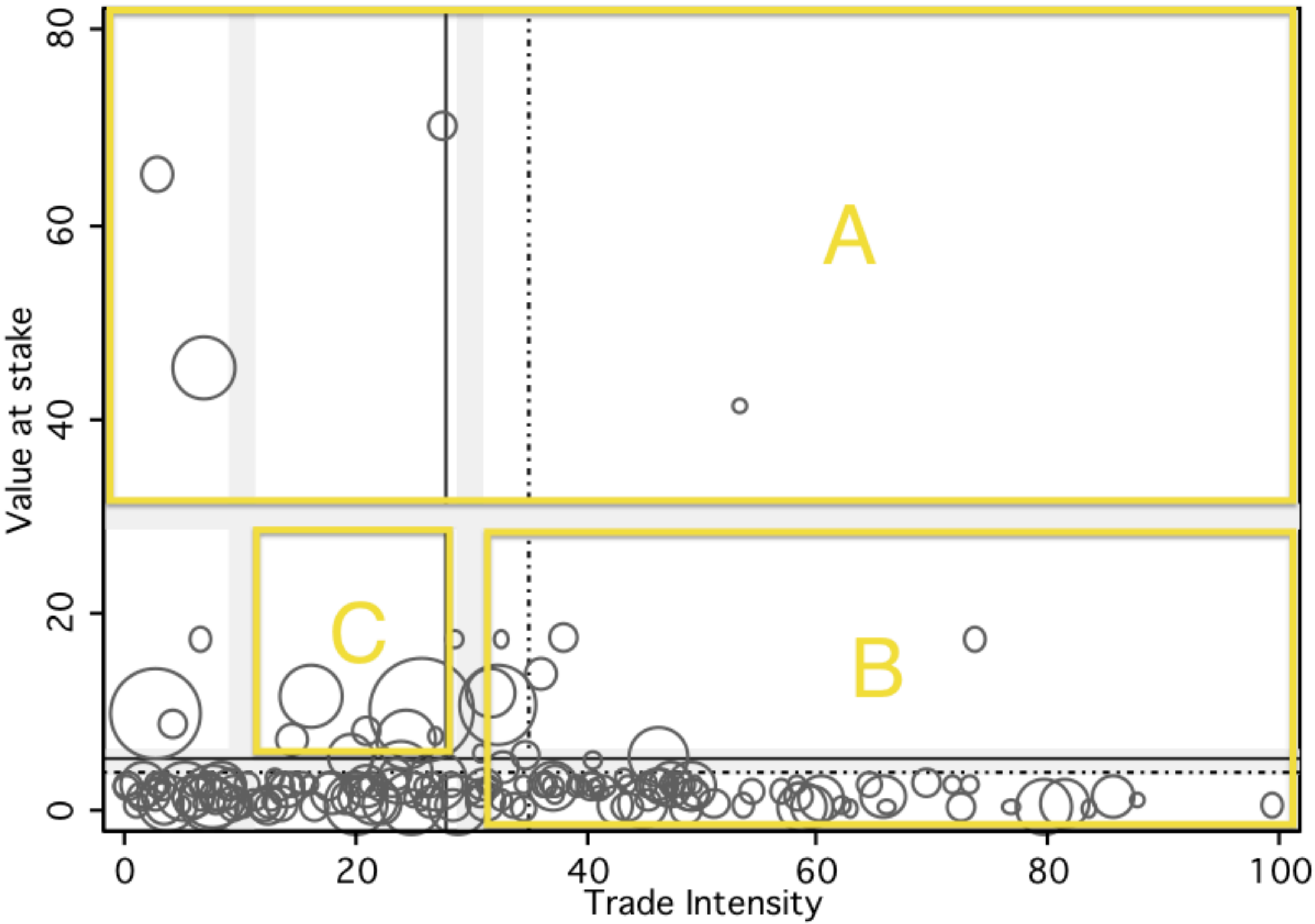
The downsizing risk score



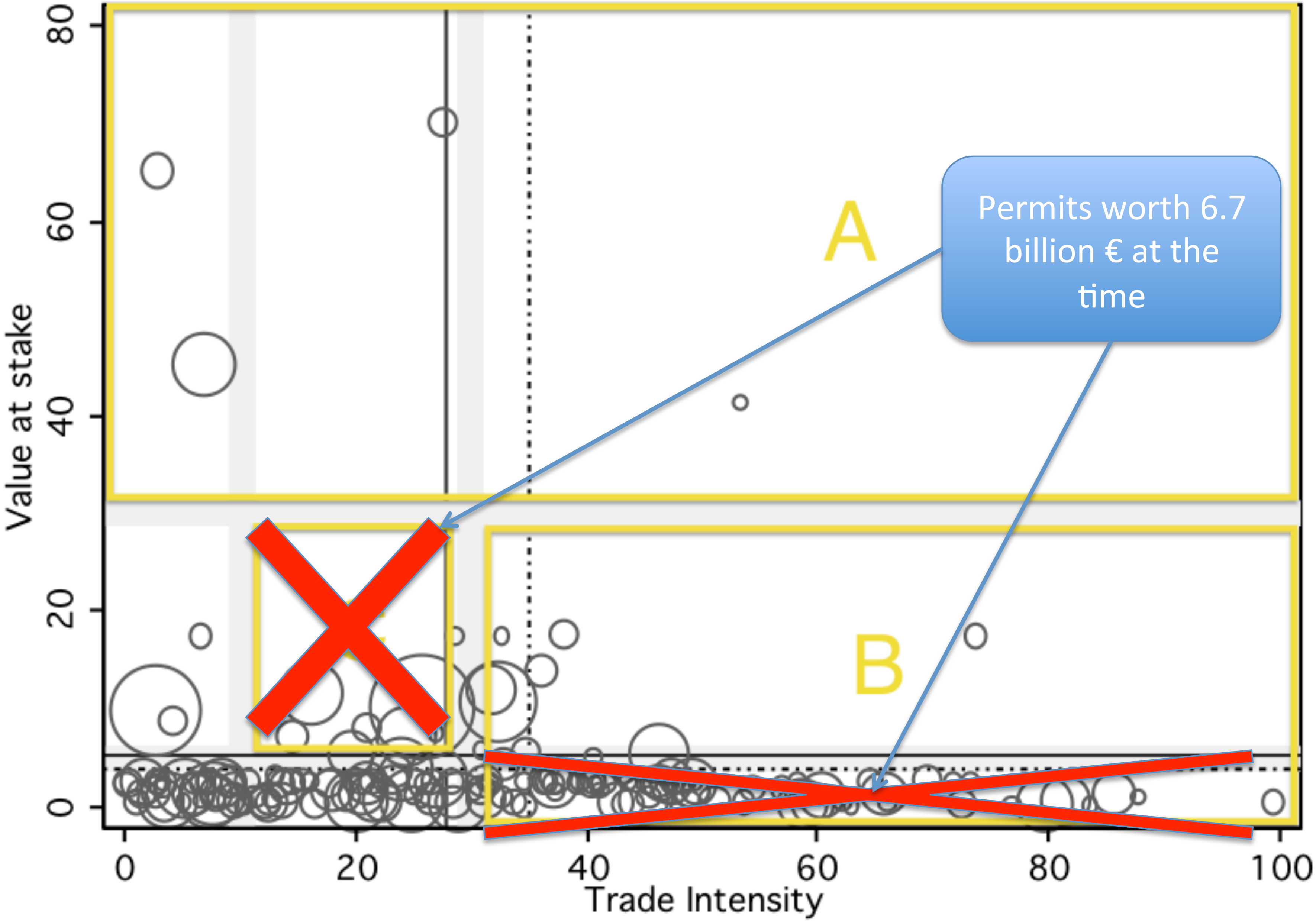
The downsizing risk across sectors



Who is exempt and why?



Who should not be exempt?



Feasible Allocation

Risk of job leakage under "EUbenchmarking"

Actual: 6.9%

Optimal: 2.9%

Feasible: 4.6%

Summary of results

- No evidence that permit auctions will lead to exodus of firms
- EU compensation criteria give rise to
  - Overly generous compensation
  - Inefficient allocation
  - Highly unequal distribution of free permits per job
- What to do with this money?