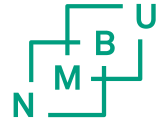


# Second-best climate policies in Europe

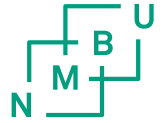
- Current situation in Europe:
  - Combination of EU-wide climate policies (EU ETS), and national climate policies (non-ETS)
  - EU ETS: Cap on total emissions in regulated sectors, incl. electricity sector
  - Different views across EU member states about climate targets
    - Low ETS-price many years
    - Last 1-2 years: Increased from 5 to 25 Euro per ton CO<sub>2</sub>
    - Main reason: Market Stability Reserve (MSR) & Cancellation of allowances
  - Domestic climate-related policies also in ETS sectors such as electricity sector
    - Renewable support policies
    - UK: Price floor for CO<sub>2</sub> in electricity sector
    - Germany: Phase-out of coal?



# Second-best climate policies in Europe

- What are the effects of phasing out coal in Germany and possibly other countries?
  - Combined with cancellation of allowances, or not?
- Effects on:
  - Emissions – depends on cancellation or stricter cap
    - What about the MSR..?
  - Economic welfare/costs
    - Differ across countries and sectors
    - Expensive way to reduce CO<sub>2</sub>-emissions, or not?
    - Depends on how many countries go together?
  - Prices of electricity and allowances
  - Electricity consumption, production (generation mix), trade

# Second-best climate policies in Europe

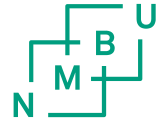


- Method

- Multi-region and multi-sector model for Europe
- Quite detailed modeling of electricity sector
  - But less detailed than Balmorel
- Incorporate all EU ETS sectors and countries
- Long-run equilibrium model for one specific year (2030?)

# EU ETS and the MSR

- New working paper:
  - Rosendahl, K.E. (2019): EU ETS and the new green paradox, NMBU School of Economics and Business Working Paper No. 2/2019
- Background:
  - Huge amount of banking of allowances (EUAs) → Low ETS price
  - 2015: Market stability reserve (MSR) established
    - As long as total banking of EUAs exceeds a given threshold, some EUAs are put into MSR instead of being auctioned
    - When total banking falls below another (smaller) threshold, some EUAs return from the MSR back to the market
  - 2018: New important MSR rule
    - When MSR exceeds a given threshold, all EUAs above the threshold are canceled
    - Implication: Long-term cap on emissions is reduced

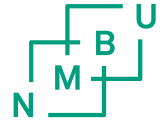


# EU ETS and the MSR

- Perino (NCC, 2018):
    - Additional abatement efforts today will lead to net emission reductions, also in the long run (cumulative emissions over time)
      - Because of the cancellation of EUAs
    - Mechanism:
      - Abatement efforts today reduce emissions, which increase banking of EUAs
      - More banking leads to more EUAs enter the MSR
      - More EUAs in the MSR implies more cancellation of EUAs
- Cumulative emissions are reduced

# EU ETS and the MSR

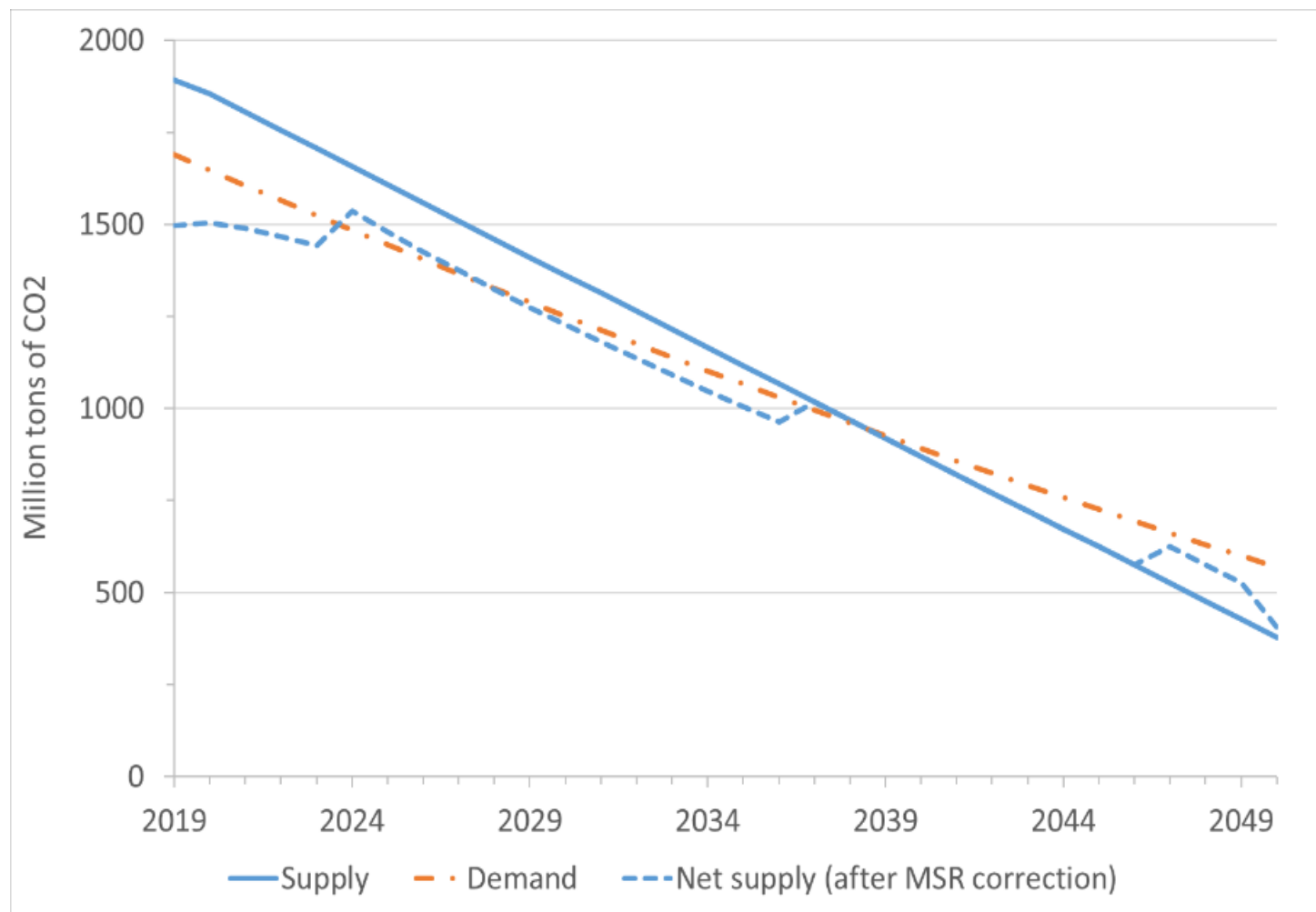
- What if the additional abatement effort takes place in the future?
  - For instance 2030 or 2035
- And what if this abatement effort is announced/expected today?
- We might get an adverse effect... «green paradox»
- Why?
  - Additional abatement effort in the future will result in lower future ETS price
  - Lower future ETS price makes it less profitable to save EUAs
    - Lower ETS price and higher emissions today
  - Less banking means fewer EUAs enter the MSR
    - Less cancellation of EUAs...?
- So what is the net effect?



# EU ETS and the MSR

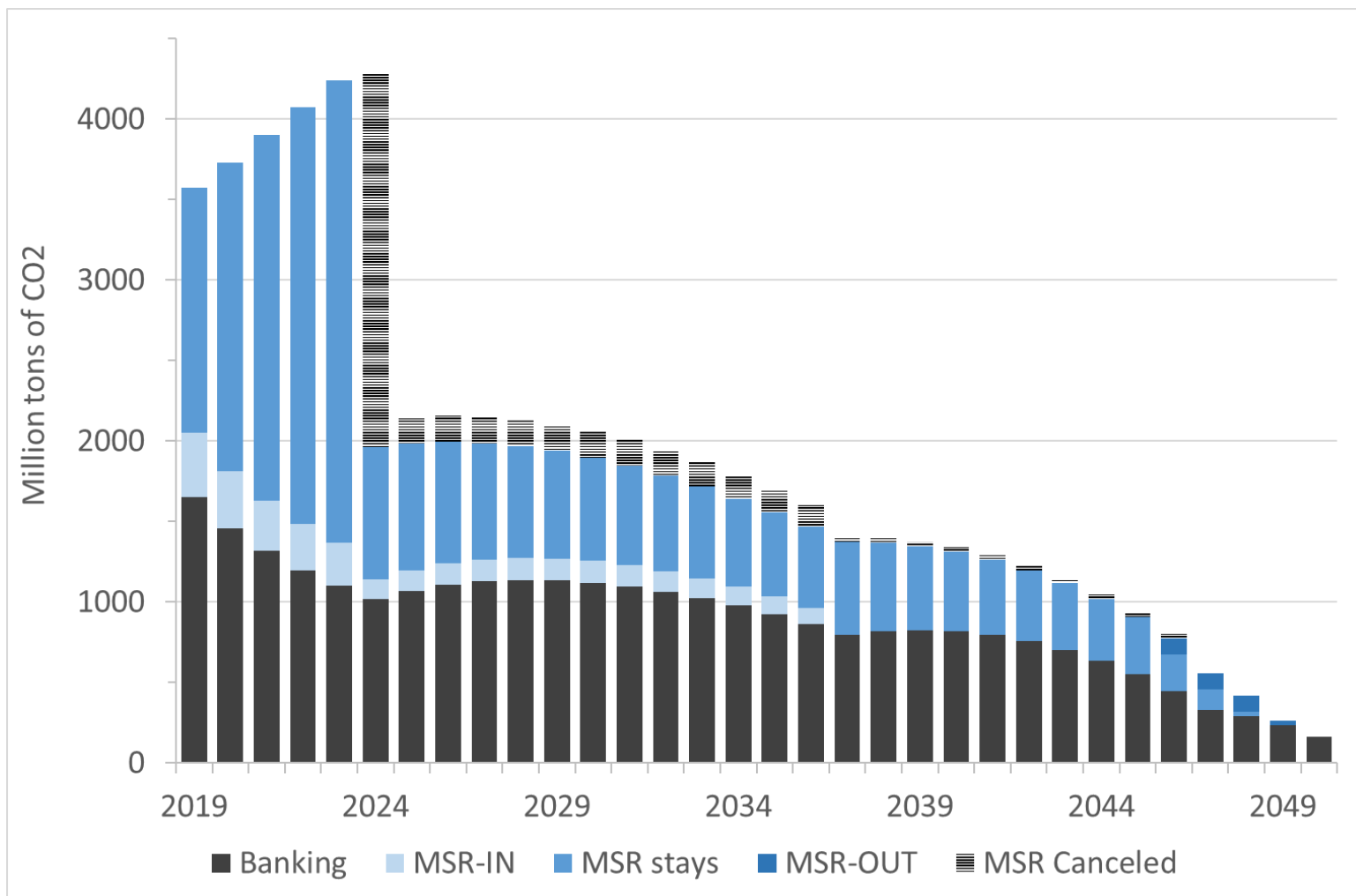
- Calibrated stylized model of the future ETS market
  - How long will it last?? (assume here to 2050)
  - How will demand for EUAs develop over time??
  - How farsighted is the market??

# Supply and demand to 2050

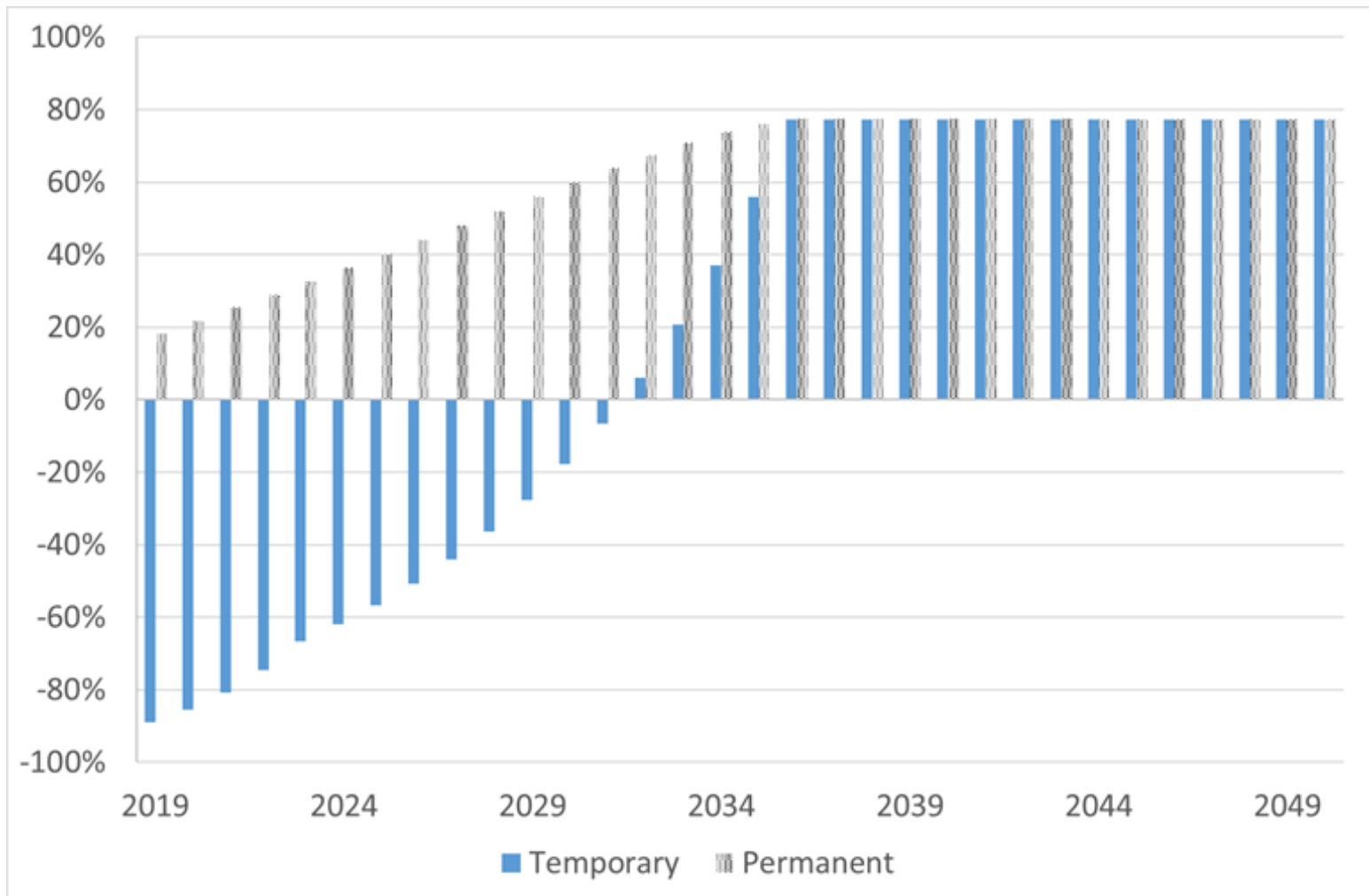
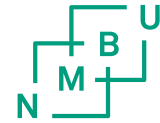




# Banking and MSR



# Effects of additional abatement effort



# Summing up

- New MSR rules reduce cumulative emissions substantially, but its impact on the ETS market is not straightforward
  - Additional abatement efforts can reduce or increase cumulative emissions
- Some relevant questions:
  - How farsighted is the market?
  - Are current abatement efforts temporary or permanent?
  - When is future abatement efforts announced?
  - How long will the MSR continue to take in allowances?
  - Will additional abatement effort make it easier for policy makers to strengthen the ETS?