Experimental statistics on the emissions effects of exports: - Preliminary methods - Meeting user needs

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Sveriges officiella statistik

Potentially avoided (PA) GHG emissions from export are hypothetical

Potentially avoided (PA) emissions from a country's export products = Actual emissions embodied in the export products - Emissions embodied in the export products if they had been produced elsewhere

Emissions embodied in the export products if they had been produced elsewhere are **counterfactual (CF) emissions**

The potential avoidance is dependent on the idea of **displaced production**

There is significant policy interest in Sweden in PA emissions

- PA emissions from export arise for Sweden and the European Union as a whole:

  => exports are less GHG intensive than otherwise similar products produced elsewhere

- A recent government enquiry has proposed:

  - Net-zero for consumption-based greenhouse gas emissions
  - PA emissions can be used to bridge the gap between

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Stats Sweden is performing a government project to investigate statistics on PA emissions for Sweden

AIM:

- Feasibility study with the aim of suggesting a method to produce statistics to follow up exported products effect on global emissions

- Evaulate existing measures of the climate impacts of exports
- Develop a measure for the climate impact of exported products *compared to equivalent foreign products*

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Initial measures of PA emissions

AIM:

- to present **relevant methodological considerations and first estimates** of the greenhouse gas emissions embodied in Sweden's export products compared with the emissions arising from otherwise equivalent foreign production

Which counterfactual case can be used to calculate PA emissions?

The **embodied intensity of production** (in GHG/MSEK per product group) in countries and regions are key variables.

1. **Global average** embodied intensity (per product group)

2. Embodied intensity (per product group) for production in **importing countries**

3. Embodied intensity (per product group) for **total use in importing countries**

Compared with actual emissions (per product group) for Sweden’s exports

Real data are used for domestic and foreign production

- For Sweden:
  - Official supply and use tables
  - Official export data
  - Official air emissons accounts

- For foreign countries: EXIOBASE global MRIO dataset

- 91 product groups, 49 countries/regions

- Coupled model for Sweden’s actual embodied emissions in exports

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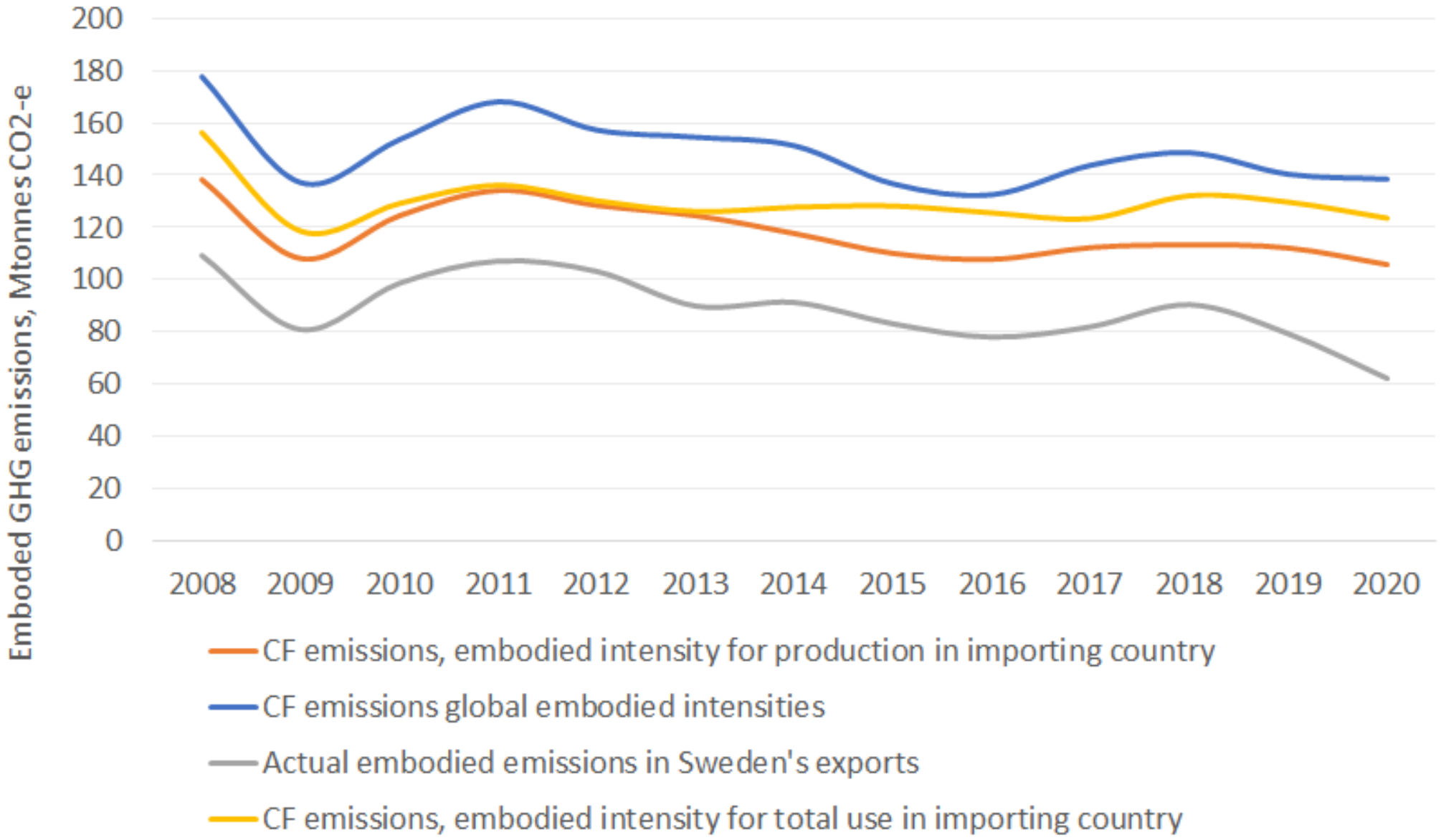
Results


Emboded GHG emissions, Mtonnes CO2-e
200
180
160
140
120
100
80
60
40
20
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
CF emissions, embodied intensity for production in importing country
CF emissions global embodied intensities
Actual embodied emissions in Sweden's exports
CF emissions, embodied intensity for total use in importing country

Aims of the workshop

Aims:

- to **discuss with relevant stakeholders** and statistics users' potential methods for **producing statistics to measure the effect of Sweden's exports on global greenhouse gas emissions**

- To establish a **forum for stakeholder comment** and suggestions for statistics development in the area

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A range of different stakeholders invited

- Companies in major exporting industries – Steel, transport fuels, road transport vehicles, energy
- Swedish industry and business associations
- Environmental NGOs
- Labour representatives in exporting industries
- Sustainability science researchers and consultants
- Government agencies – Climate policy, Innovation, trade and economic development and analysis

Format

- The Swedish department of climate and enterprise presented the background of the project.

- Statistics Sweden presented:
  - Quality criteria and other standards for official statistics
  - Methods for calculating climate impacts from a country's exports, including preliminary results from our own calculations

- Presentation from the Swedish Environmental Protection Agency on the context for statistics for a country's exports

- Presentations from external participants:

- Free discussion

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Criteria for official statistics

1. Professional independence
1bis. coordination and cooperation
2. Commitment to quality
3. Statistical confidentiality and data protection
4. Mandate for data collection and access to data
5. Adequacy of resources
6. Impartiality and objectivity
7. Sound methodology
8. Appropriate statistical procedures
9. Non-excessive burden on respondents
10. Cost effectiveness
11. Relevance
12. Accuracy and reliability
13. Timeliness and punctuality
14. Coherence and comparability
15. Accessibilty and clarity

European Statistics Code of Practice

Stakeholders with apparently divergent interests express aligned perspectives

- A **life cycle approach**, **input-output analysis** considered relevant methods for producing data to assess climate effects of exports (Industry representatives, researchers, Stats SE and the environmental NGO)
- Displaced production:
  - The Swedish department of climate and enterprise, and an industry representative say it is important
  - the usefulness of **data on PA emissions based on simple assumptions** without the need to verify or otherwise the existence of production displacement (industry rep)
- PA emissions useful as a **complement to other emissions measures** (Swedish EPA, an environmental NGO and business representatives)

Further views

- The suggestion to use PA emissions as a means to meet net-zero consumption-based climate targets was a **political compromise** (government agency).

- Combining **hypothetical assumptions** with emissions measures based on physical data is problematic, and potentially so for Sweden's reputation in international climate policy development. (environmental NGO)

- The transition in Swedish industry is being tracked with **transition indicators** (Swedish EPA)

- **displaced production** is not referred to in **statistical standards**, in contrast to data and methods for IO-analysis (Stats Sweden)

Conclusions

- Preliminary calculations at Stats Sweden demonstrate that Swedish exports do give rise to potentially avoided emissions
- The magnitude of the potentially avoided emissions is dependent on the assumed embodied intensity for the counterfactual emissions
- More research is needed to reveal causes of PA emissions for Sweden’s exports
- Statistical processes, standards and methods are not available to measure **displaced production**
- Measures of potentially avoided emissions are of interest to stakeholders

Questions for the London Group

- In what ways do PA emissions measures meet criteria for official statistics? In what way do they not?
- What policy and other user needs could be met with data om PA emissions and related indicators?
- Are your country/organisation interested in PA emissions measures
- Are there other SEEA-related data and indicators that can be used to assess

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Thanks! Tack!

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