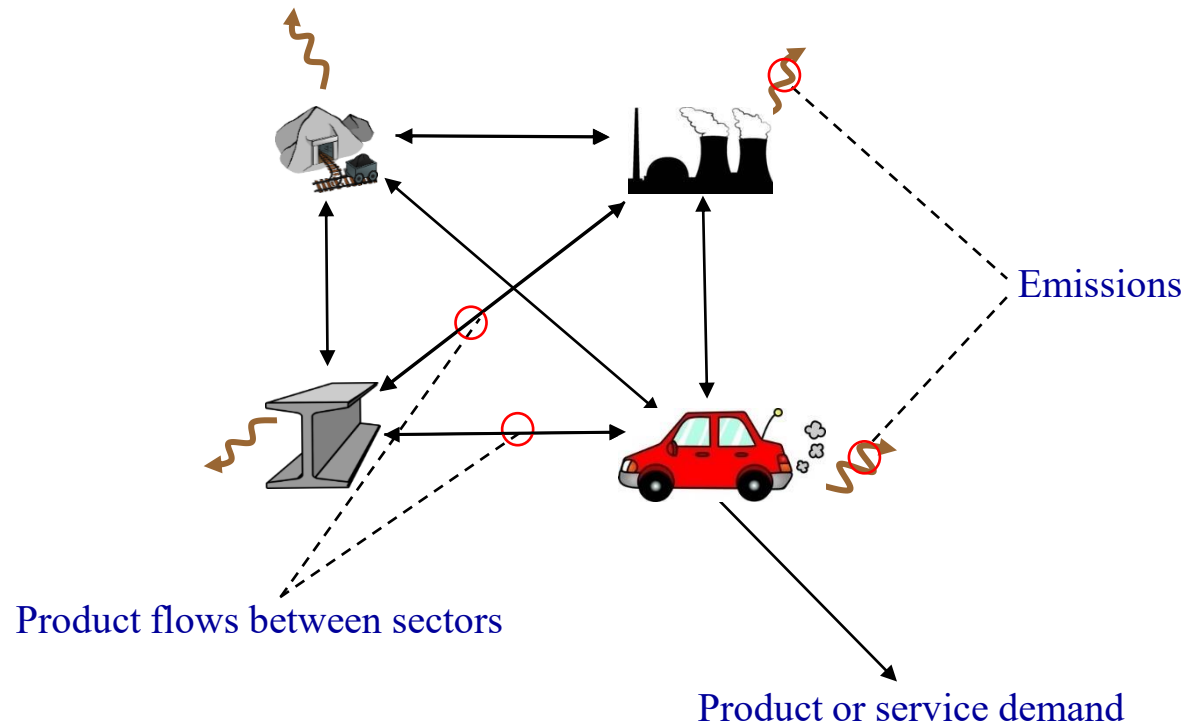


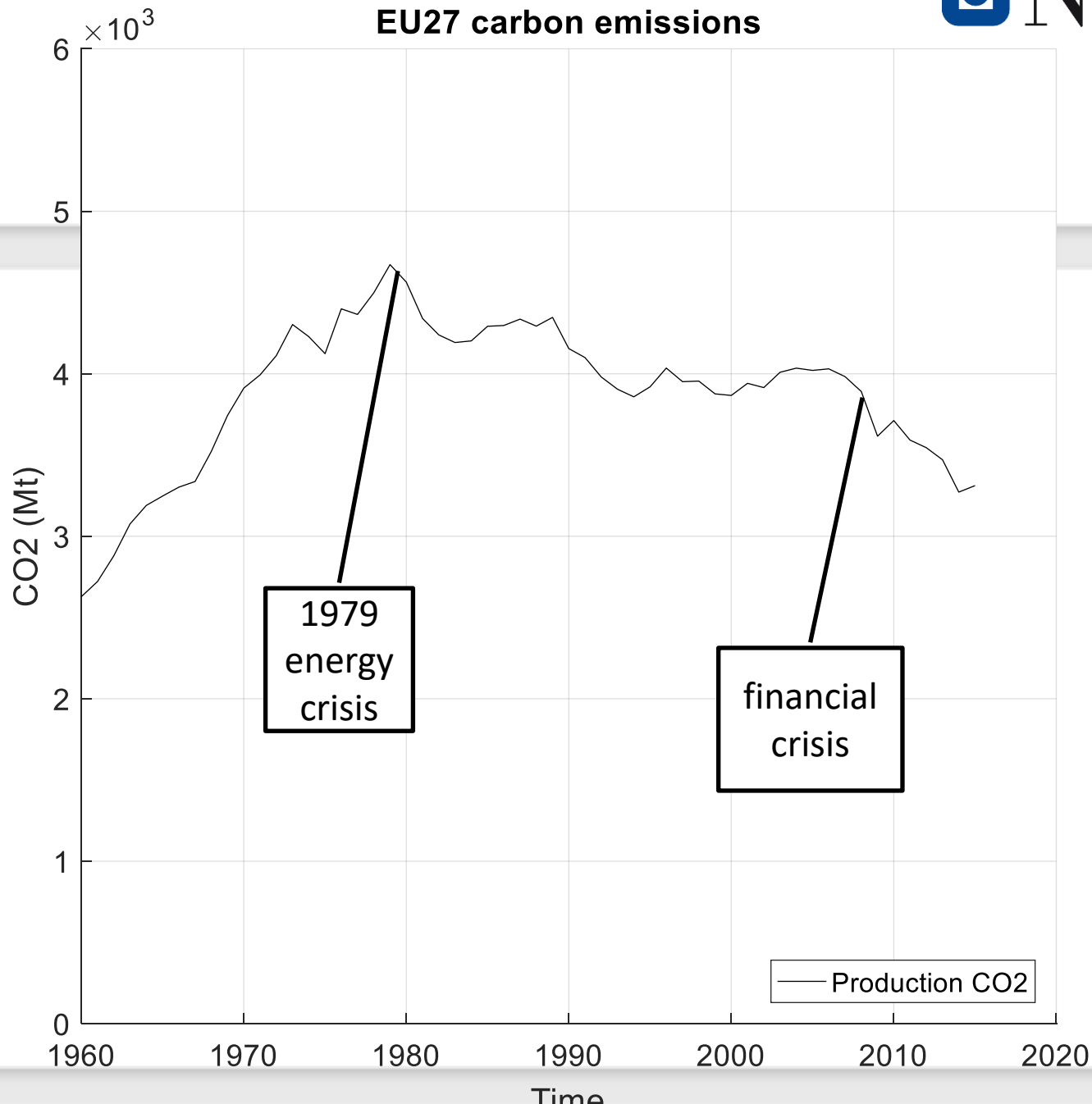
# Consumption based carbon accounting

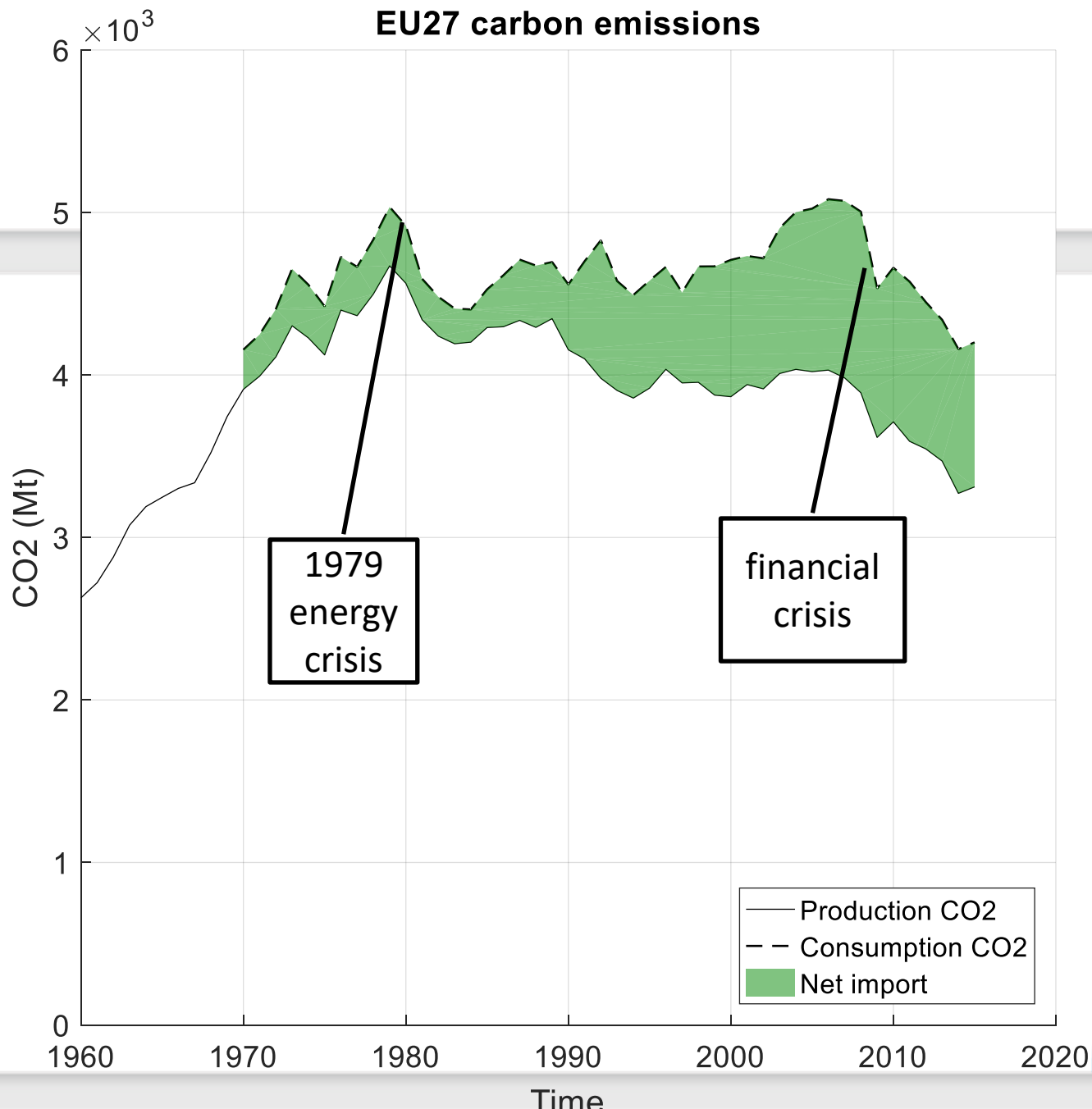
Richard Wood  
richard.wood@ntnu.no  
CarbonCAP side event, COP, Marrakech .  
07.11.2016



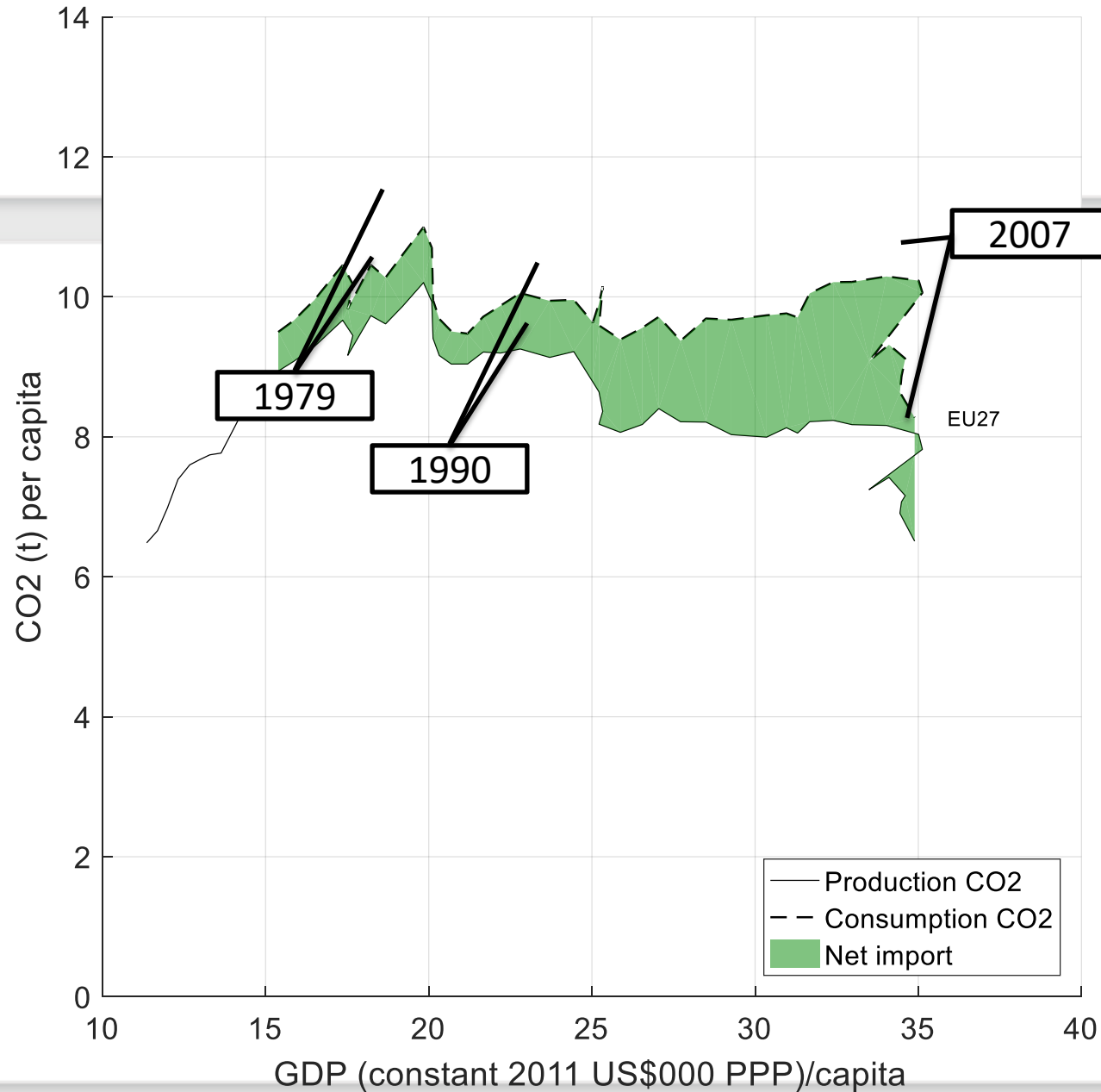
Consumption based carbon accounting (CBCA)  
-assigns the emission associated with production to the final demand for goods & services





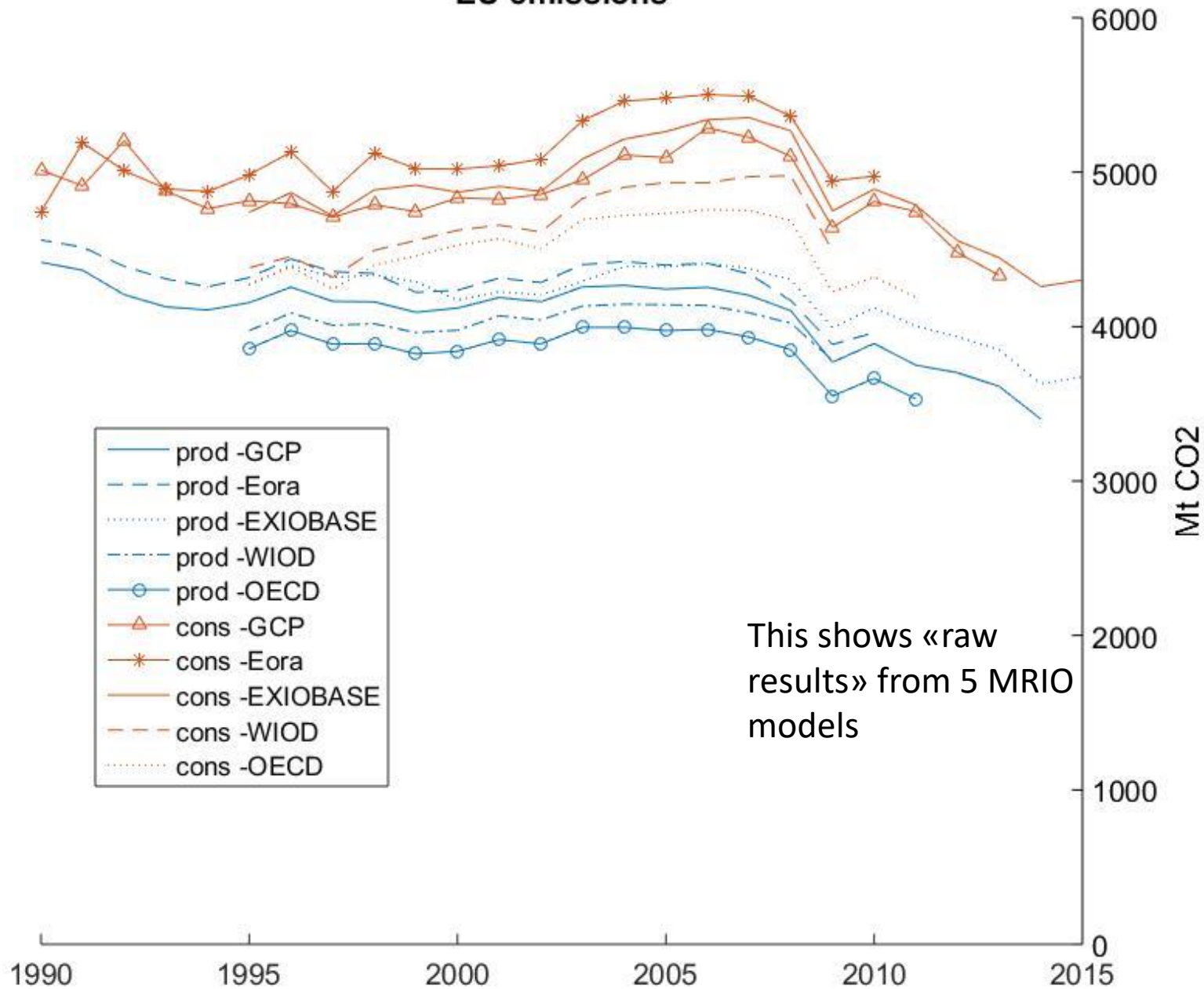


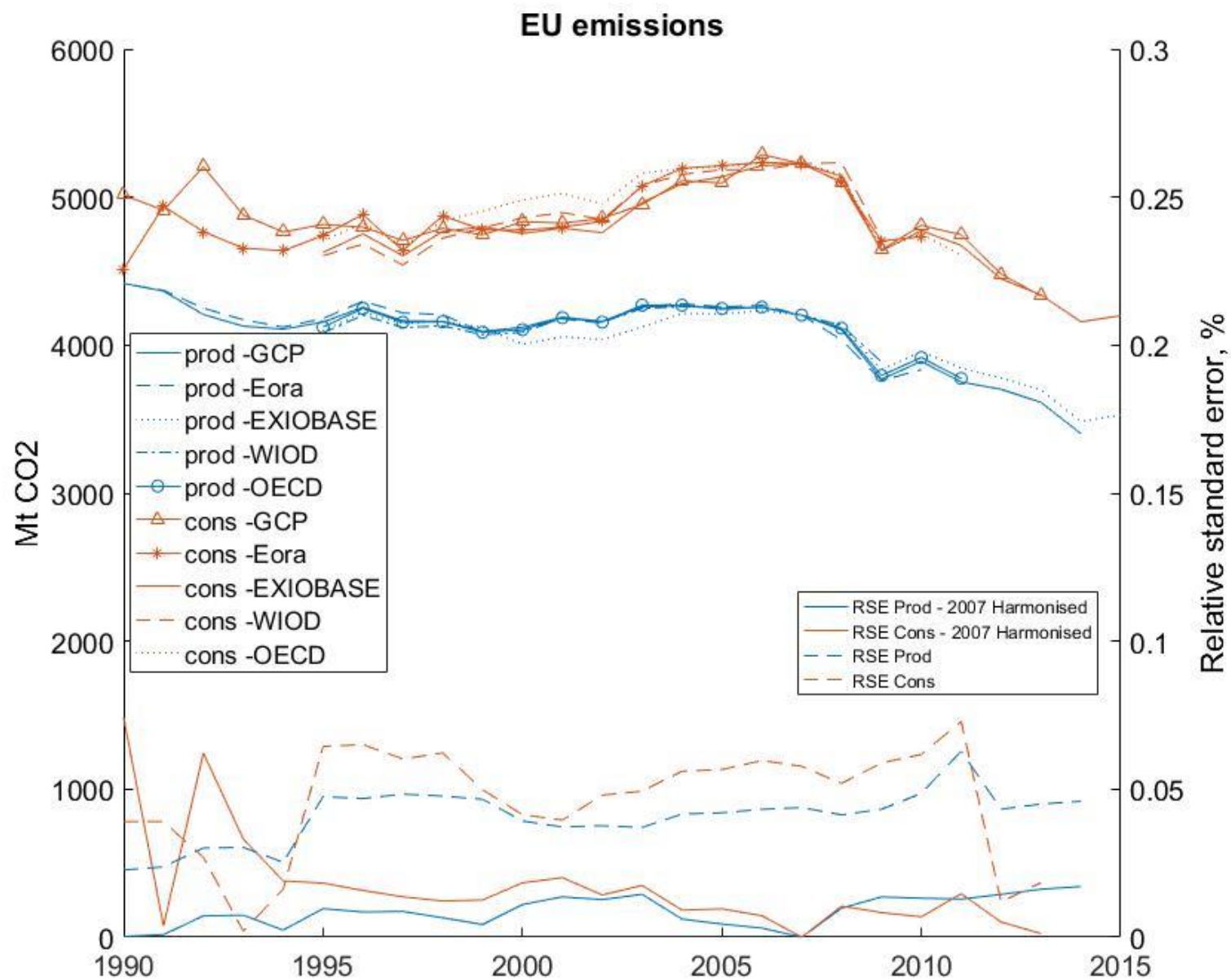
# EU Carbon footprint per-capita vs GDP





## EU emissions





# What are the focus points in EU CBCA

## Perspectives

- source - which industry - produces emissions embodied in consumption
- destination - which consumption category bears high embodied emissions







## EU footprint by source

Total EU GHG Footprint by Industry (kg CO<sub>2</sub>-eq)

7E+12

6E+12

5E+12

4E+12

3E+12

2E+12

1E+12

0

EU Production

EU Prod to NonEU Cons

NonEU Prod to EU Cons

EU Consumption

Manufacturing

Transport

Agric

Electricity and utilities

Services

Mining

Construction

Household





## EU footprint by final good

Total EU GHG Footprint by Consumption category (kg CO<sub>2</sub>-eq)

7E+12

6E+12

5E+12

4E+12

3E+12

2E+12

1E+12

0

EU Production

EU Prod to NonEU Cons

NonEU Prod to EU Cons

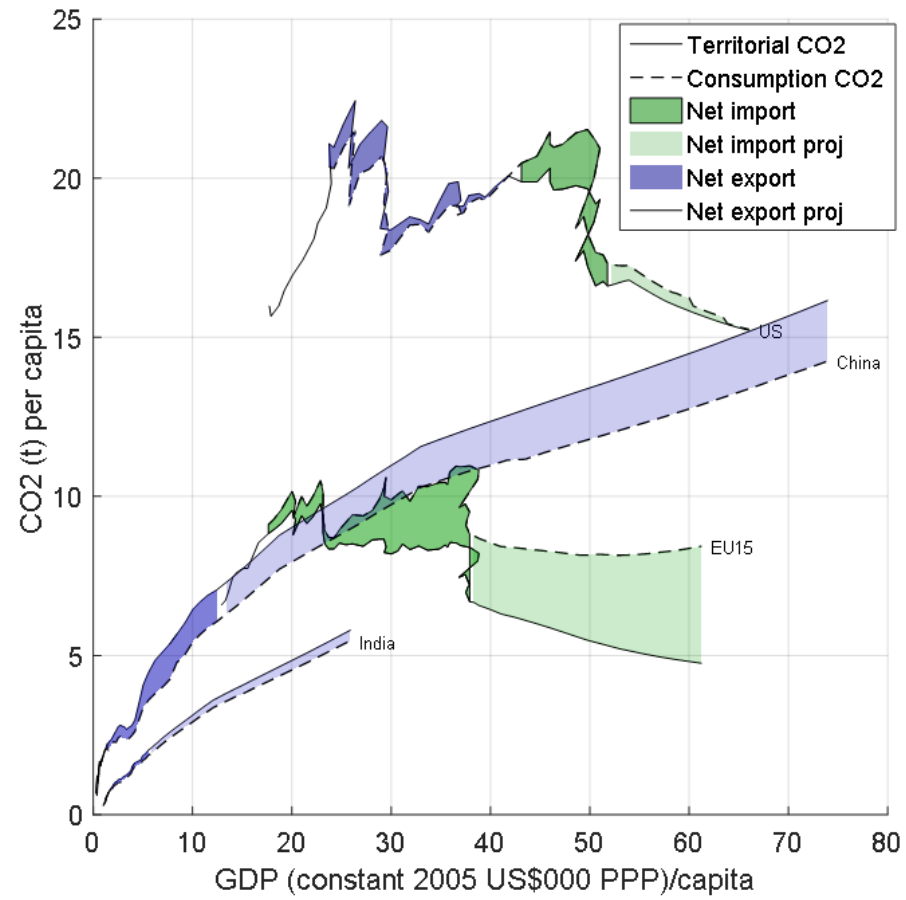
EU Consumption

Shelter Food Clothing and Footware Mobility Manufactured products Services Household





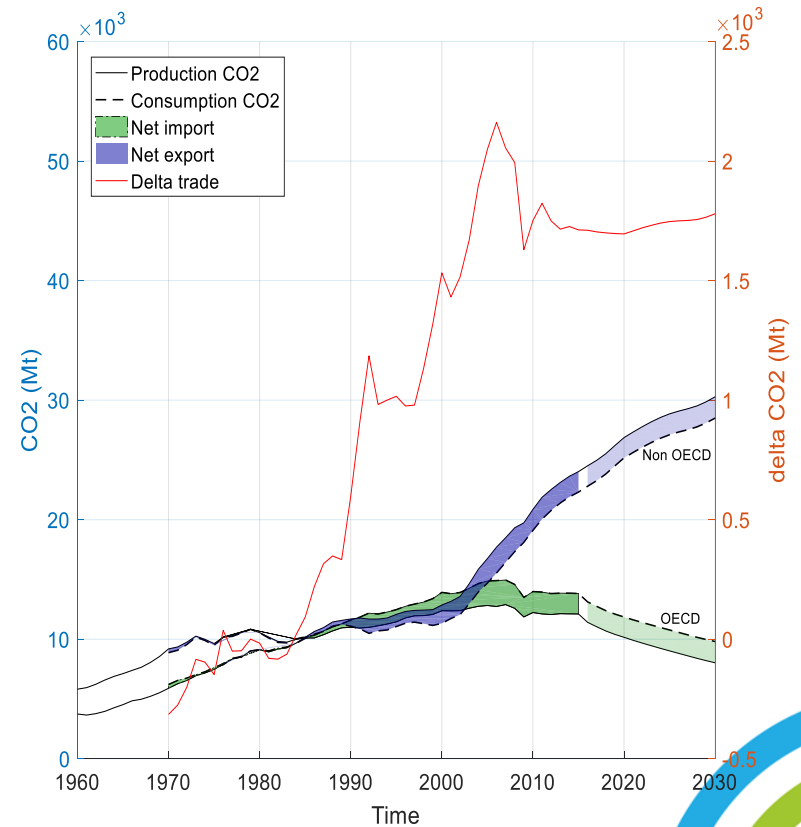
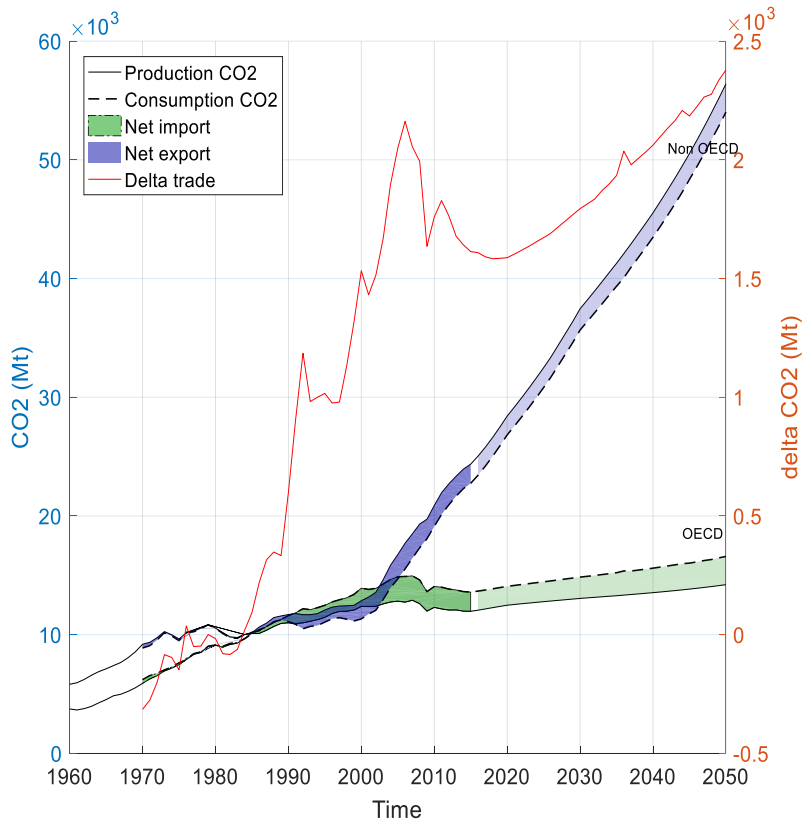
# The future





# Embodied emission projections: OECD vs Non-OECD

Projections of production based and consumption based emissions, Left – baseline scenario to 2050; Right- NDC scenario to 2030.







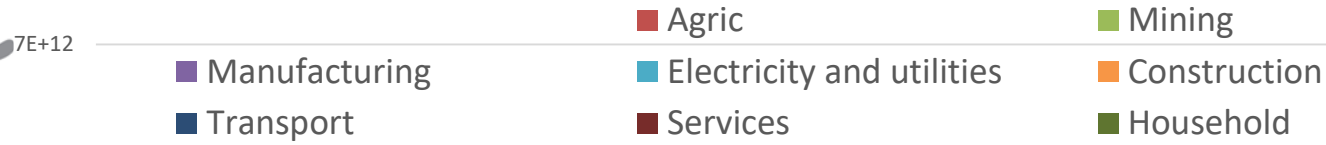
# Conclusions

- Last 20 years has seen a large growth in emissions embodied in trade
- Technology change has been a significant enabler, but by and large off-set by affluence increases, and source of production effects.
  - Consumption mix does not point to any historical benefits.
- Whilst electricity and mobile fuel combustion are the largest point sources of emissions, CBCA points to the importance of Agric/Food (globally); Construction and manufacturing for shelter in the EU; Embodied emissions across mining/manufacturing/electricity from non-EU;





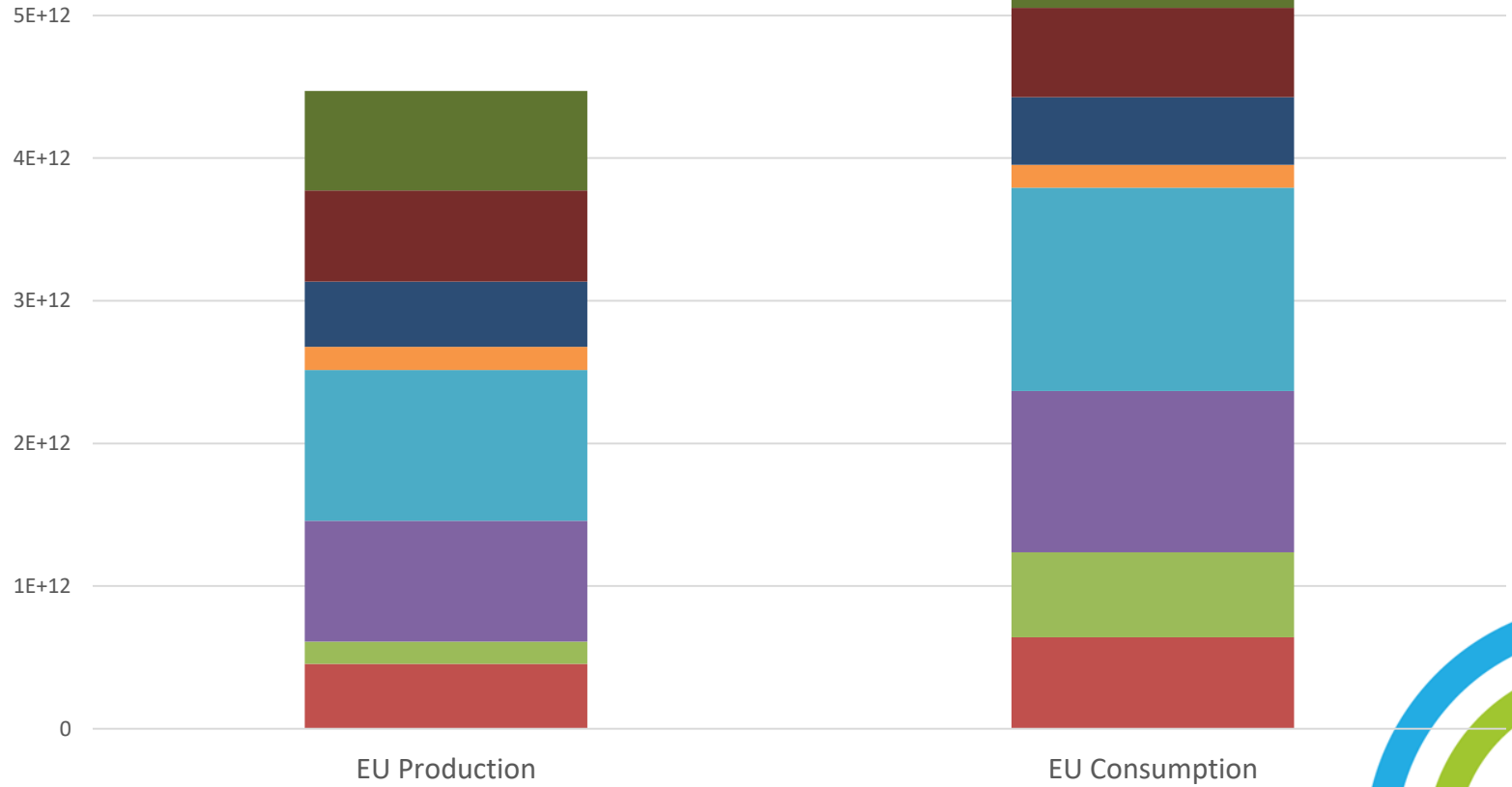
# EU footprint by source



7E+12

6E+12

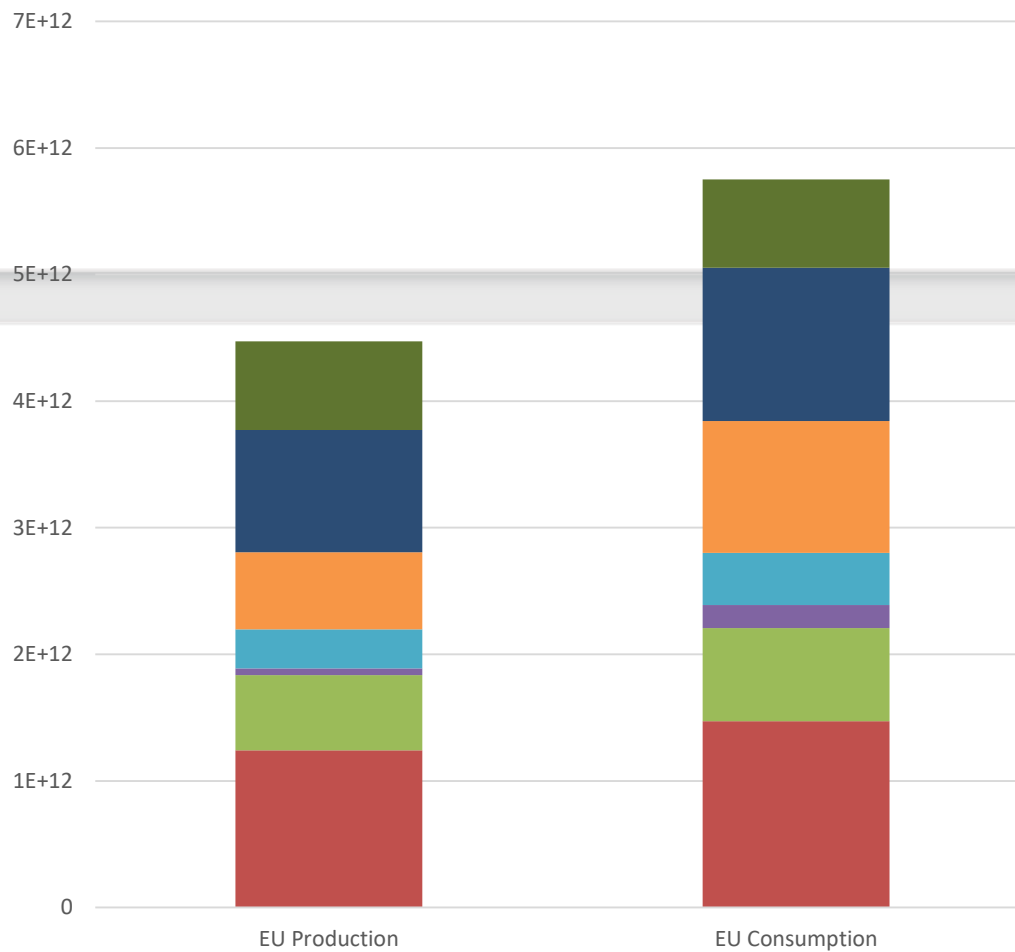
Total EU GHG Footprint by Industry (kg CO<sub>2</sub>-eq)





Total EU GHG Footprint by Consumption category (kg CO<sub>2</sub>-eq)

## EU footprint by final good



Food  
Mobility  
Services  
Household

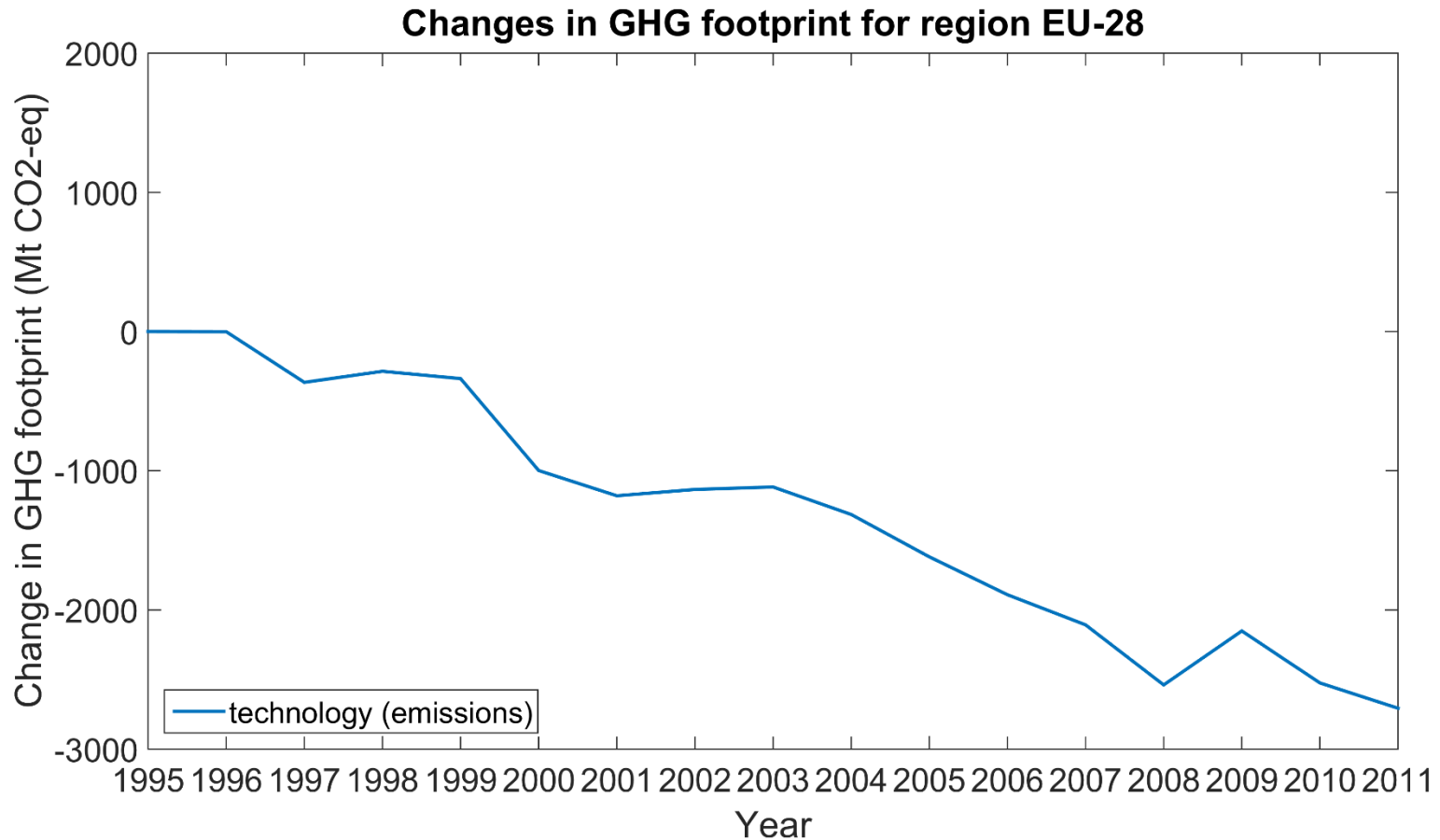
Shelter  
Clothing and Footware  
Manufactured products





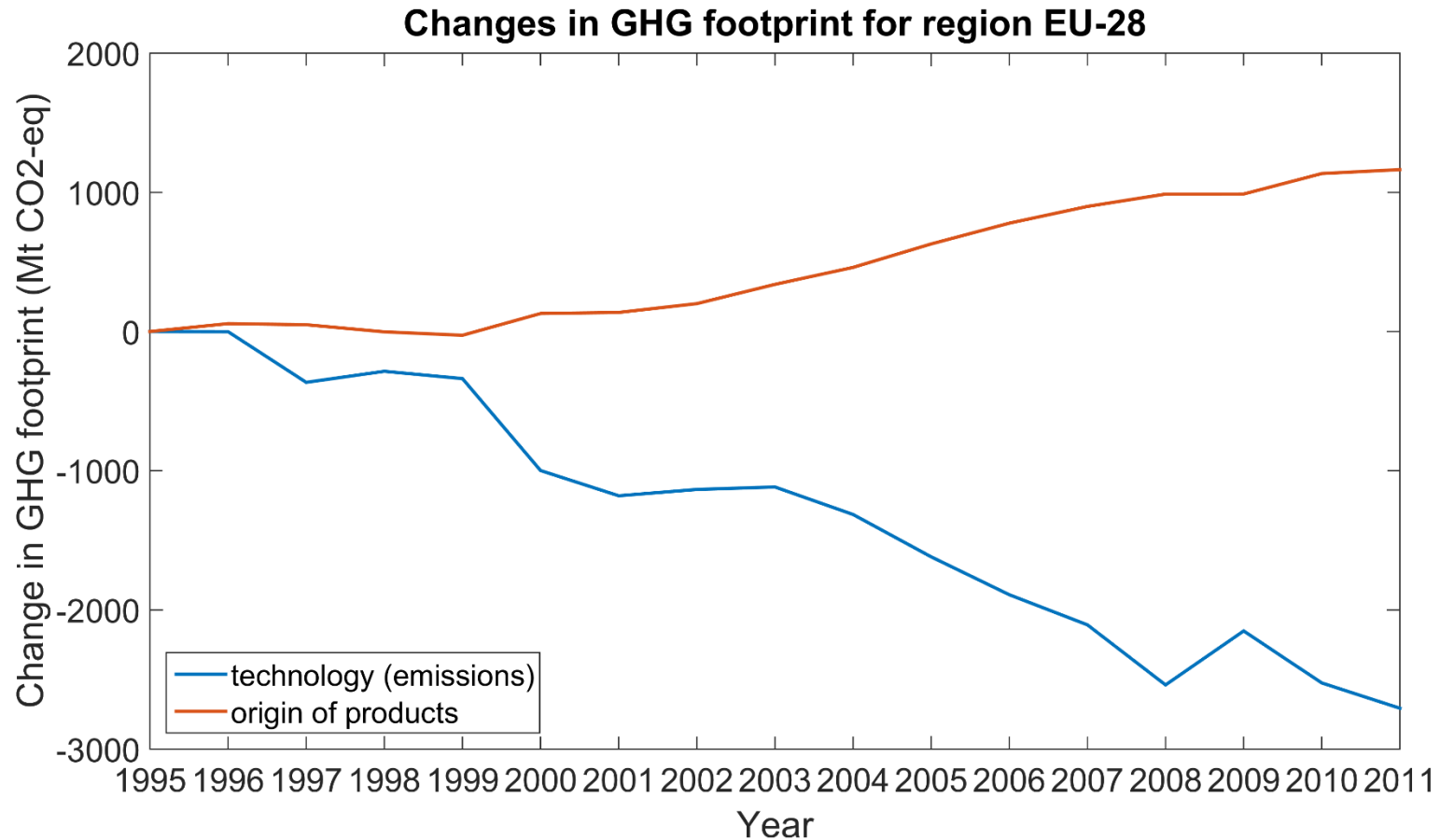


# Structural Drivers of EU GHG footprint



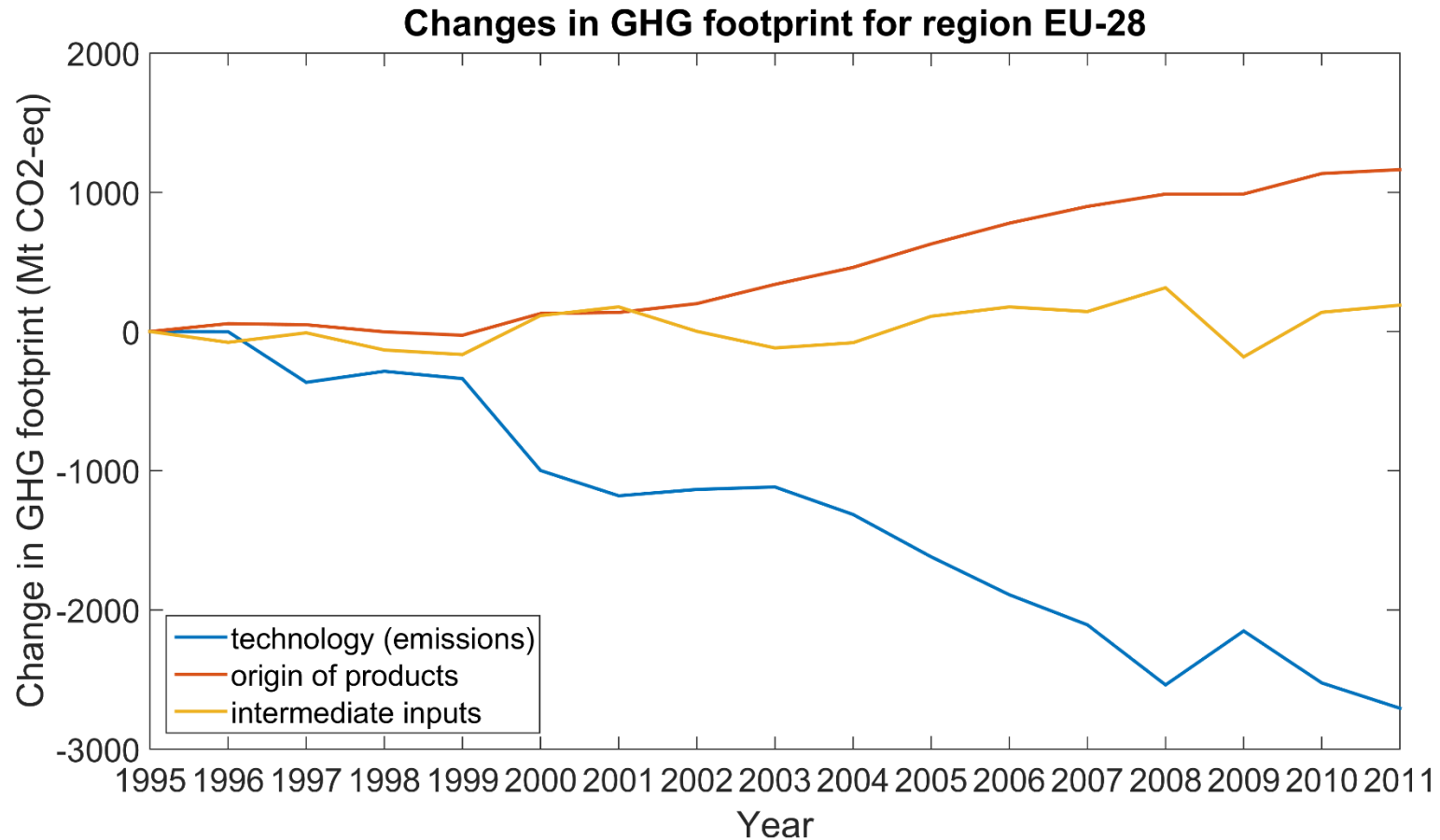


# Structural Drivers of EU GHG footprint



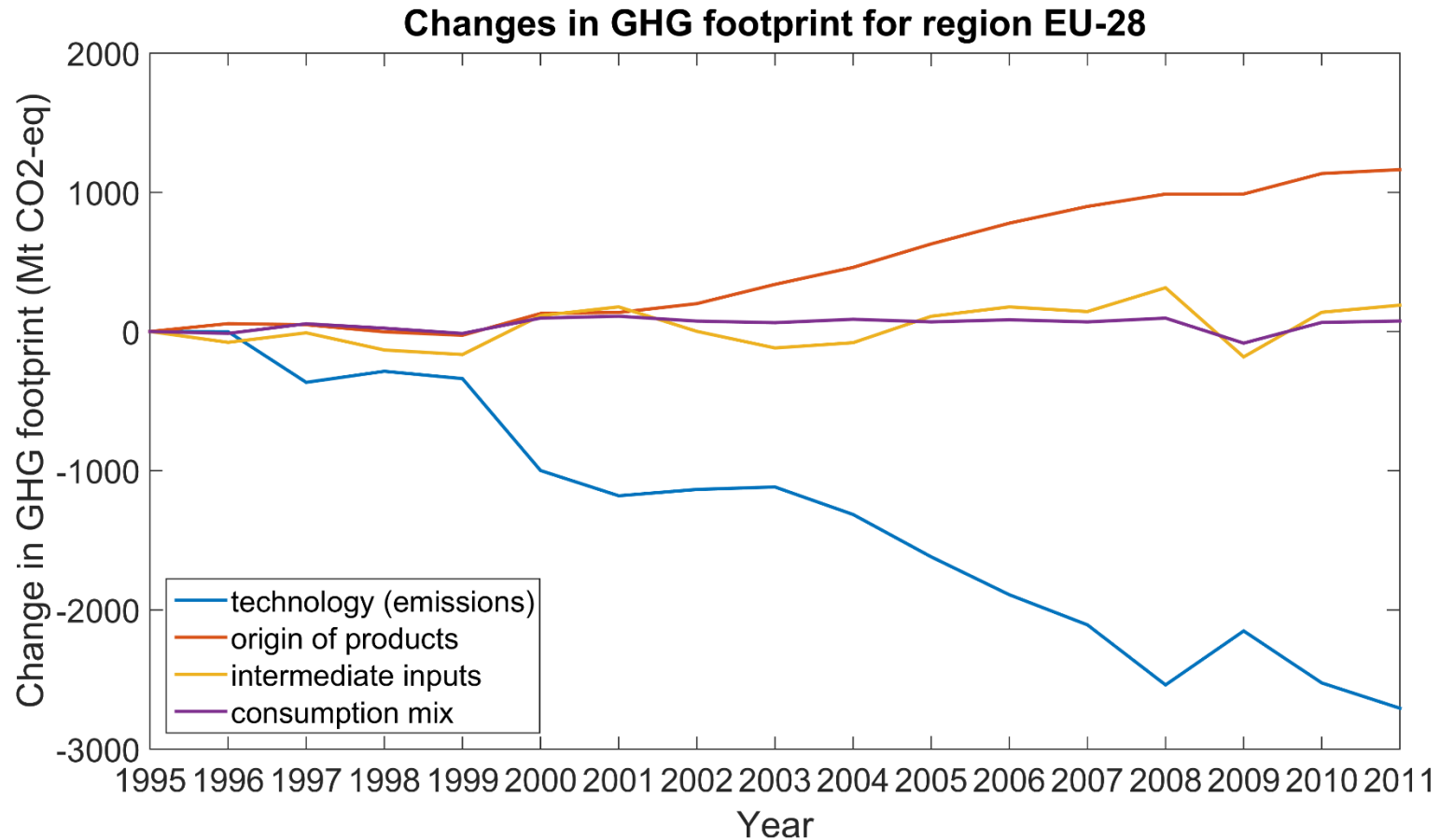


# Structural Drivers of EU GHG footprint



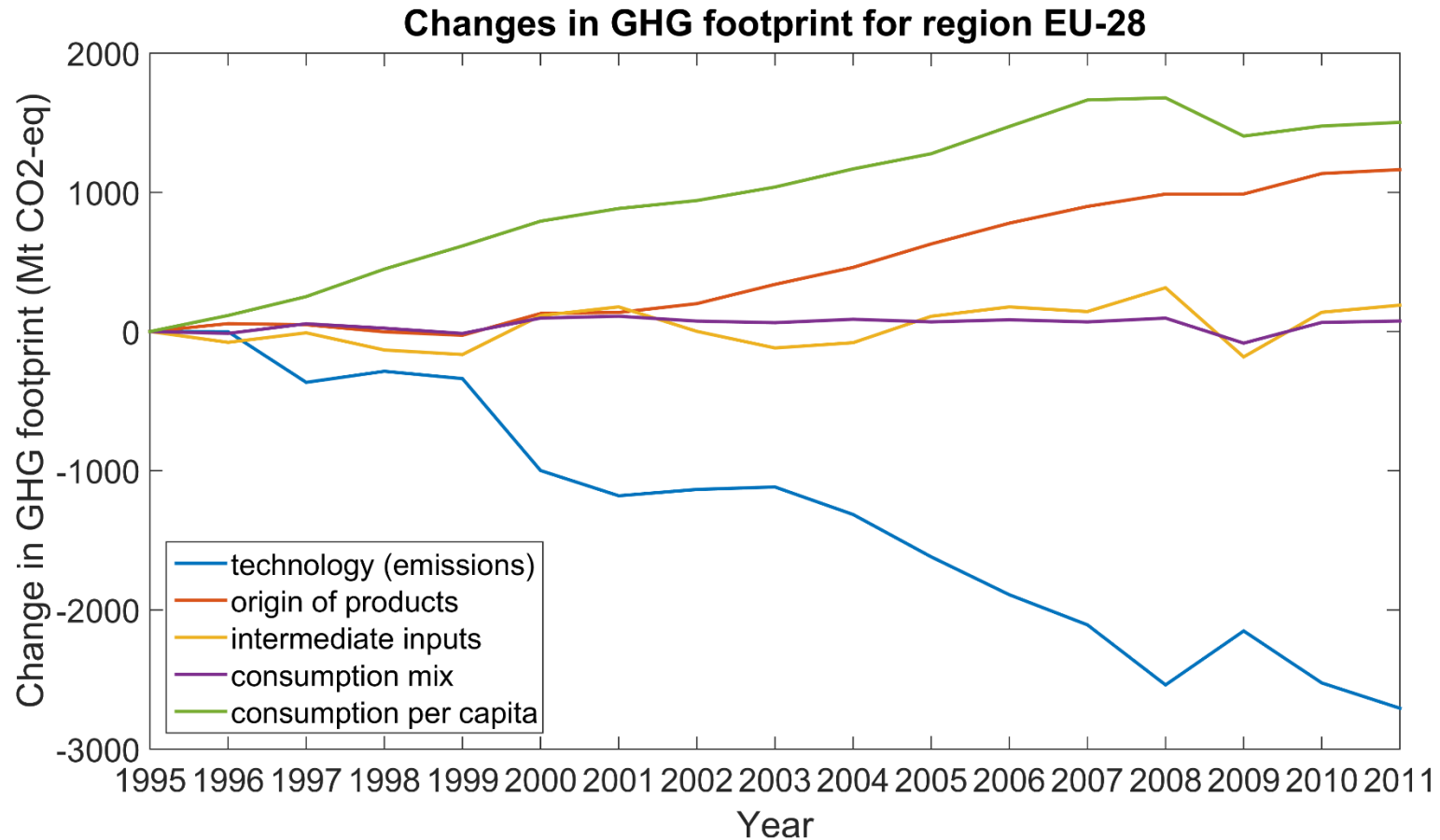


# Structural Drivers of EU GHG footprint



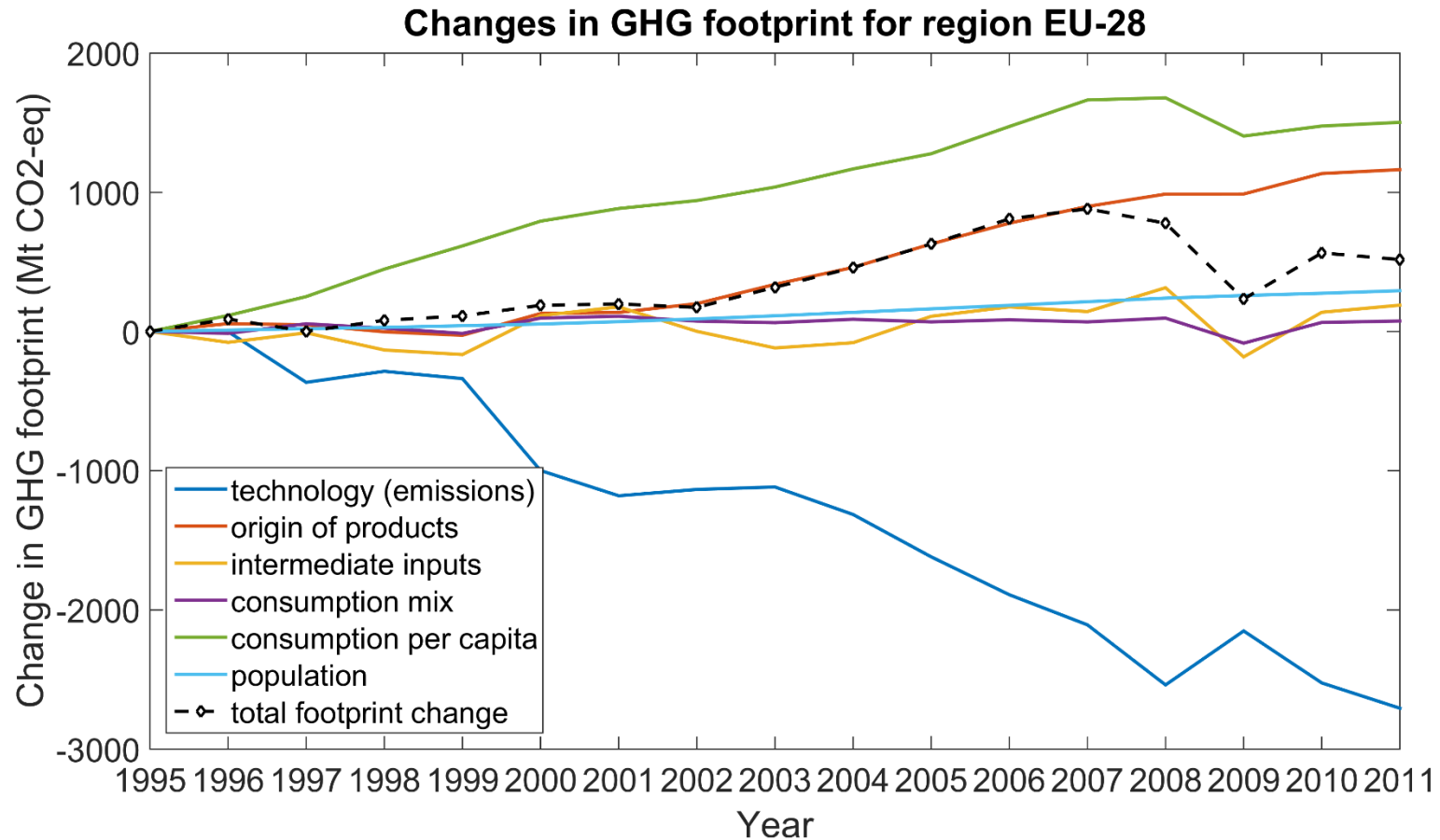


# Structural Drivers of EU GHG footprint





# Structural Drivers of EU GHG footprint





# Structural Drivers of EU GHG footprint

