Trade and CO_2 emissions

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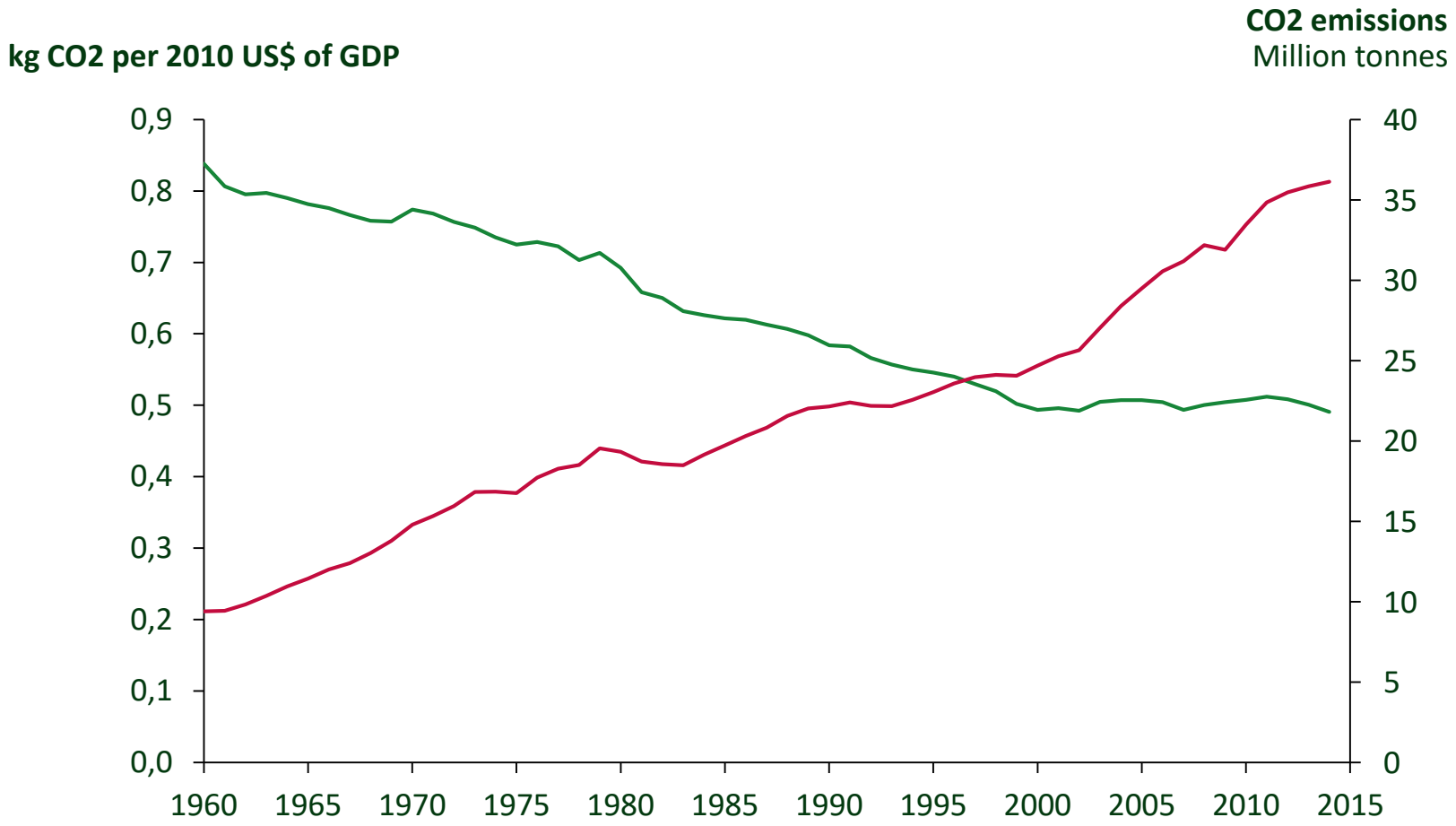
Zero emission conference

November 7, 2018

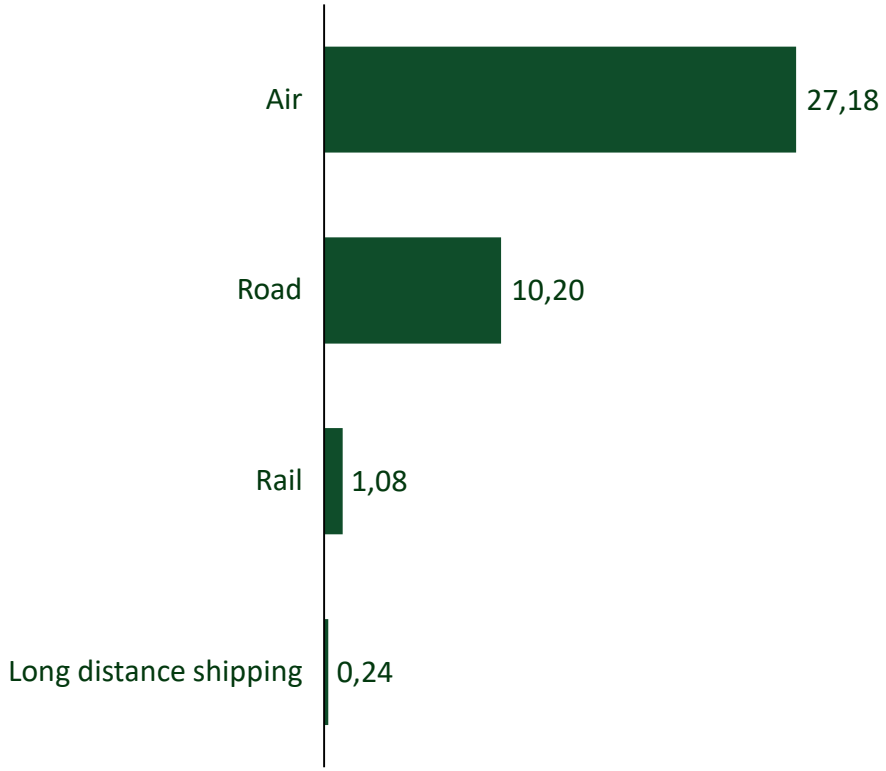
The world is improving. But not fast enough.



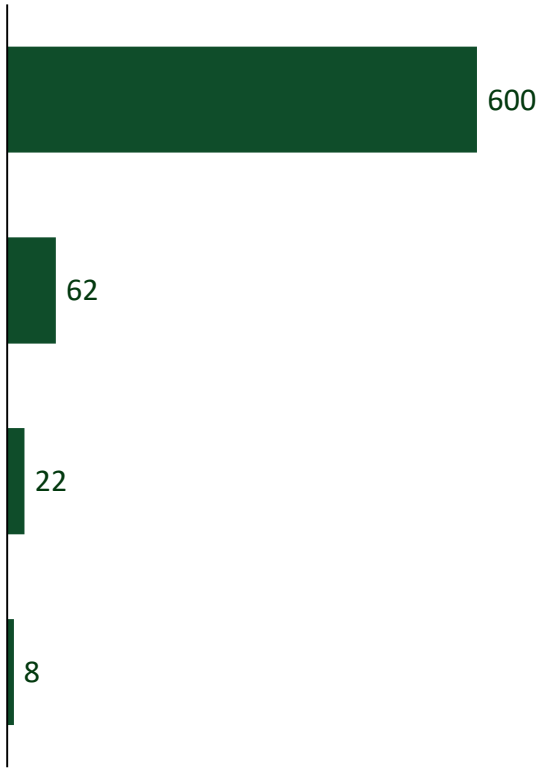
Source: The World Bank

Trade is good

Transport cost per mode
NOK/tonne.km



Emission factors per mode
gCO_2/tonne.km



Ship transport from China to Europe

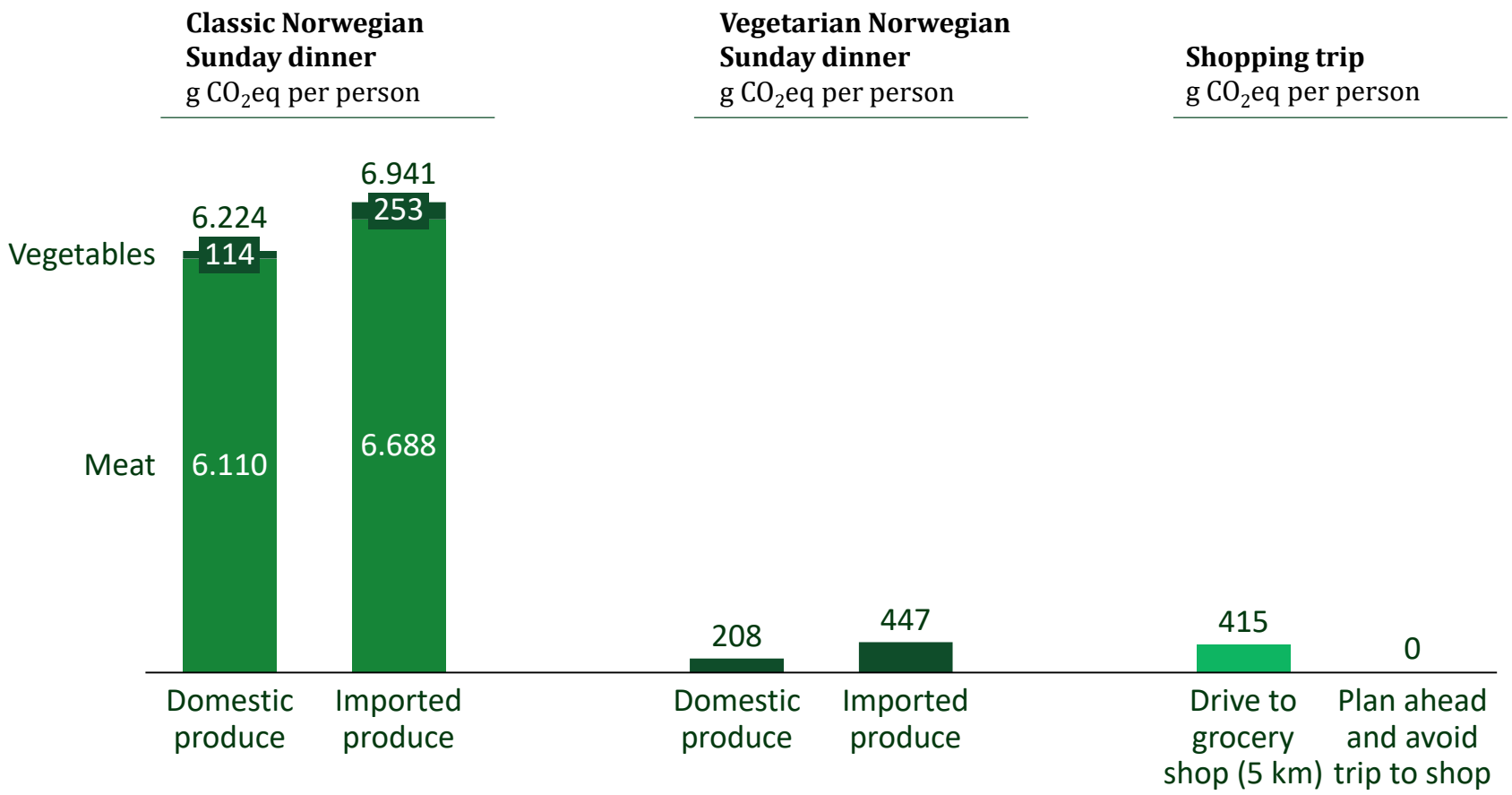
- Costs about 5300 NOK/tonne (= 0,70 NOK for a t-shirt)
- Emits about 178 kg CO_2 per tonne (=23 gram for a t-shirt)
- At €20/tonne CO_2, the cost would increase to 5032 NOK/tonne,

Long distance transport is cheap and efficient

All else equal, trade and open borders allow efficient supply chains and resource allocation

Source: McKinnon

Reducing food trade (kortreist) has no meaningful impact. What matters is what you eat, and how you buy it



What matters

- Eat vegetarian
- Reduce meat consumption
- Reduce waist
- Shop efficiently

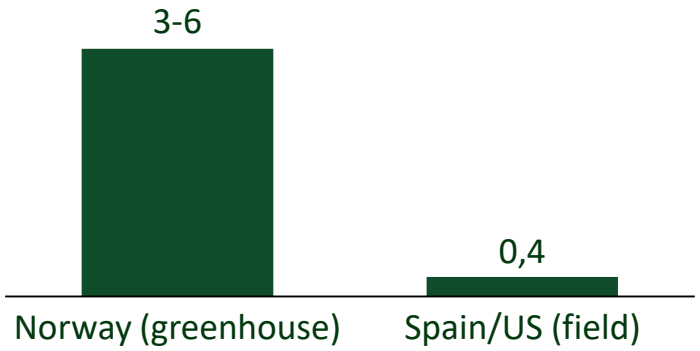
What doesn't matter

- Domestic vs imported produce («kortreist»)

Source: Framtiden i våre hender; McKinnon

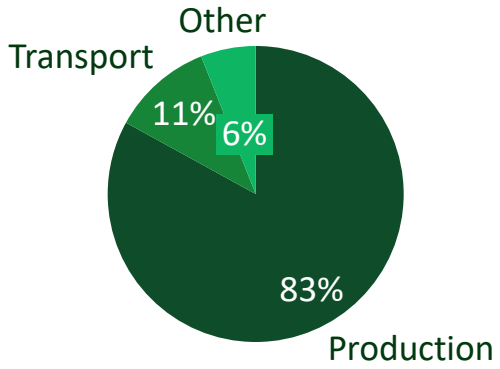
GHG emissions from food production outweighs transport

GHG emissions (in kg CO_2eq) from tomato production



- Transport contributes much less to emissions than energy use in heated greenhouses

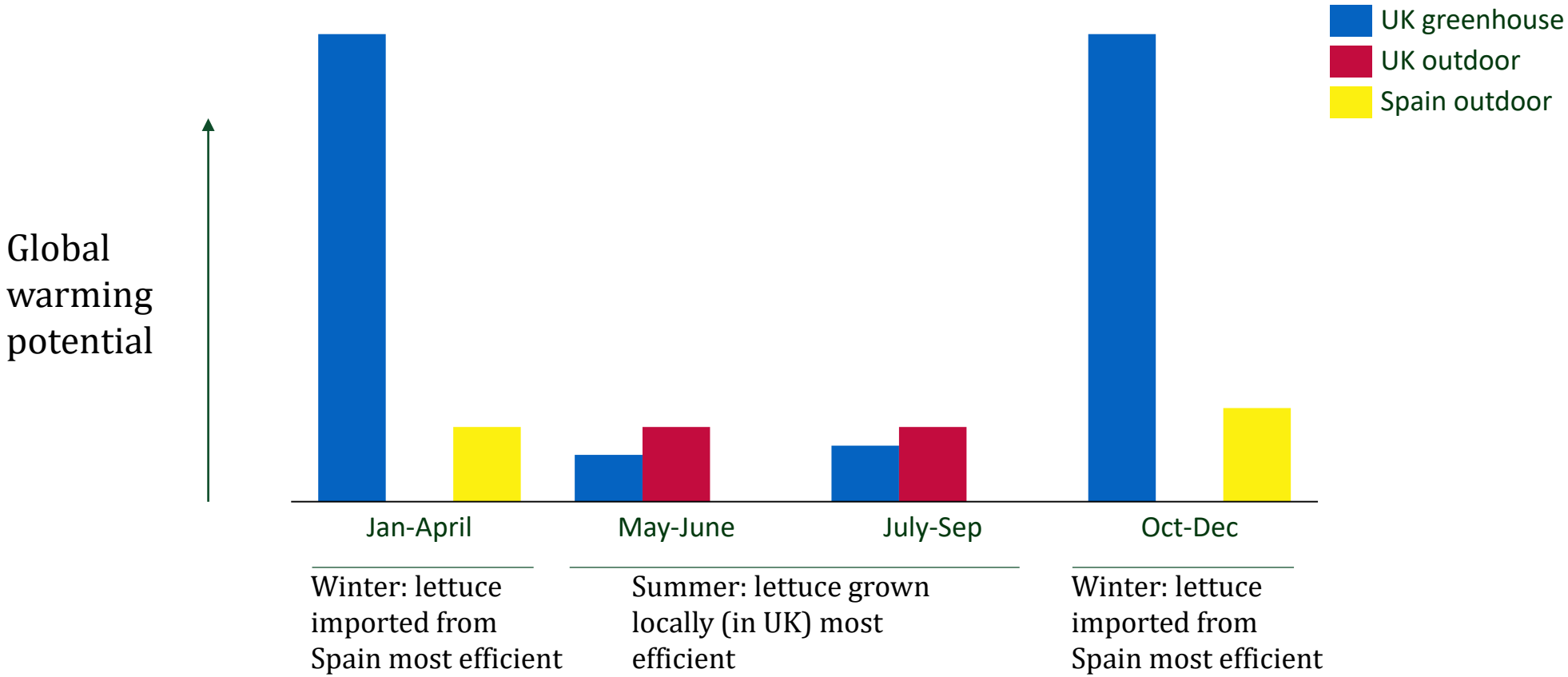
Relative contribution to GHG emissions, US example



- Norwegian example of fish is similar:
  - GHG emissions from sending cod to China for fileting (by machine) and back to, e.g., Sweden, for sale vs fileting in Norway (by hand) are similar, because of higher level of waste in hand fileting implies more fish required for same output

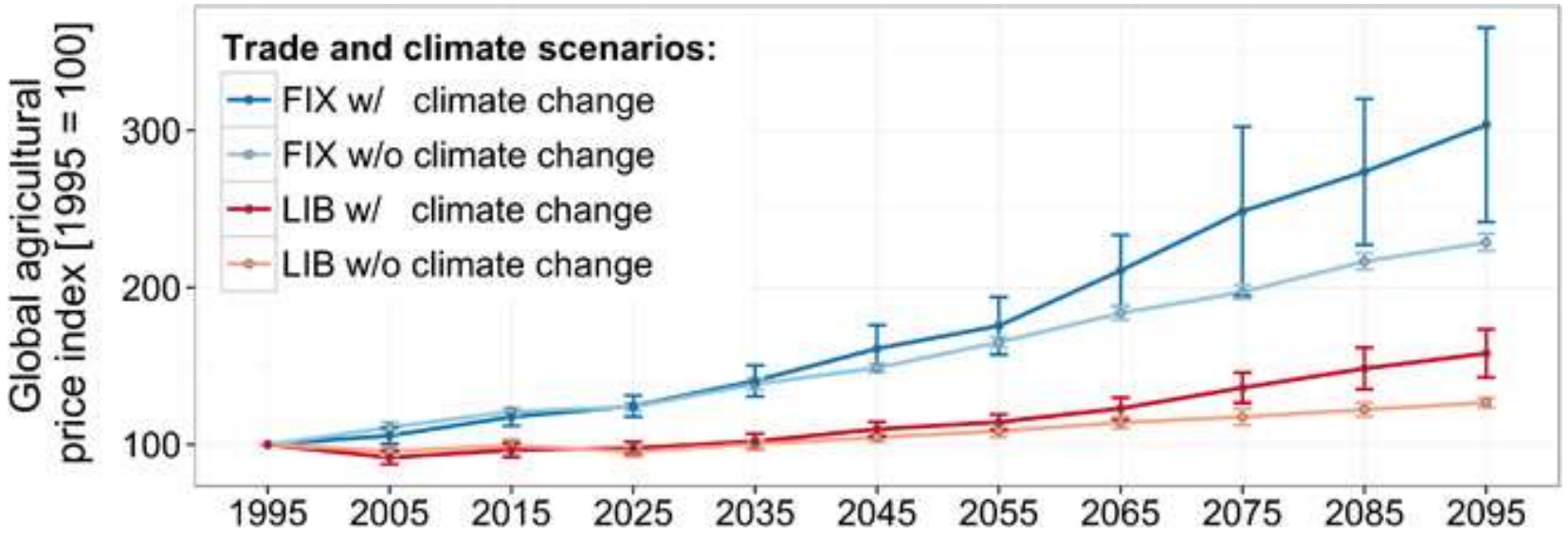
Source: Verheul and Thorsen, Bioforsk (2010); Food Climate Research Network; Teknologirådet

The effect of season and location on GHG emissions from lettuce production



Source: Hospido et al. (2008); Food Climate Research Network

Trade mitigates loss from climate change



Mercantile
Global GDP loss in fixed trade scenario: 0,8%
(= USD 2500 billions)

Free trade
Global GDP loss in free trade scenario: 0,3%
(= USD 1000 billions)

Source: Stevanovic et al. (2016), Potsdam Institute for Climate Impact Research