Macroeconomic Consequences of Climate Change Policies

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Overview

- The macroeconomic impacts depend on the approach to carbon pricing
- 3 main approaches to pricing carbon
- General Issues
- Issues specific to the pricing approach adopted
  - National Framework
    - Volatility of prices
  - Global Framework
    - Dutch Disease
    - Transfer payments (transfer problem)
    - Transmission of shocks

- Conclusion

Approaches to Pricing Carbon

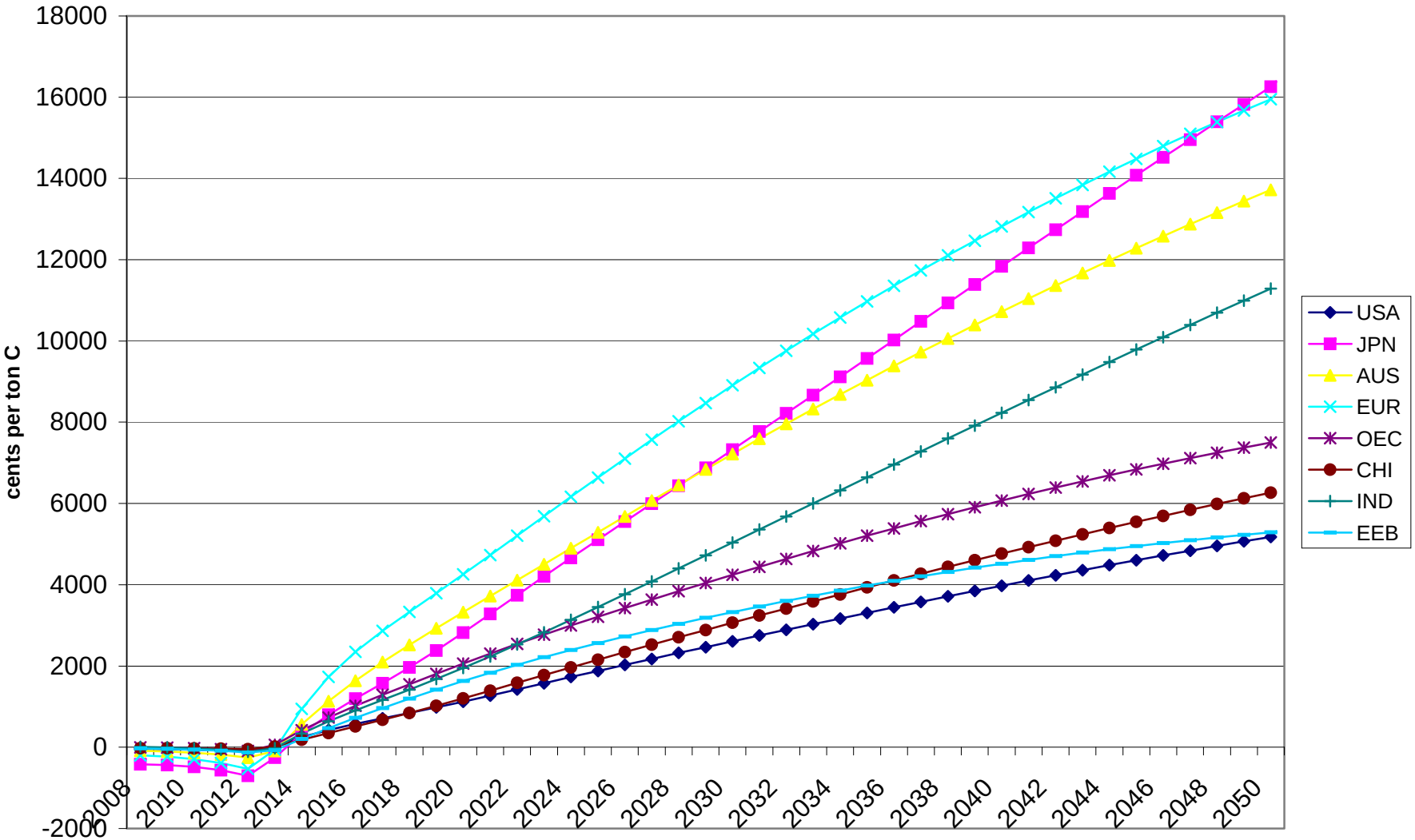
- Cap and trade
  - uncertainty in the price
- Carbon Tax
  - Uncertainty in the annual emissions outcome
- Hybrids
  - Certainty in the short term price
    - Uncertainty in the annual emissions
  - Certainty in the long term concentrations
    - Uncertainty in the long term price
  - Can design the Hybrid to work like monetary policy

General Points on carbon Prices

- Prices will tend to be rising over time due to a declining carbon target which means that a carbon constraint affects inflation rather than just the price level (unlike a GST or VAT)

Example from the 2008 April WEO

Figure 2: Carbon Prices by Country



Source: G-Cubed model for 2008 IMF WEO

National Issues

- Under a national cap and trade system, the carbon price will be more volatile than under a tax or a hybrid system (by design) which will reduce investment and make inflation targeting more difficult
- A tax or hybrid eliminate this volatility which makes improves inflation predictability for central banks
- Most actual cap and trade systems have highly uncertain long term carbon prices because of lack of commitment and unclear targets

Global Issues

- Domestic prices likely to be less volatile but depend on the volatility of the world price relative to the domestic price

- Under a global cap and trade system large price differentials will likely lead to significant transfers of permits across national borders

- Countries with low abatement costs will tend to sell permits to countries with high marginal abatement costs

Global Issues

- Resources need to be transferred to pay for this so importing countries need to run a present value of trade balance surpluses (depreciation of exchange rate)
  - Might be big , might be small
  - It is possible that a significant chance of Dutch disease problems for countries given large allocations relative to need.

The transmission of shocks between countries

- Macro policy has to deal with both domestic shocks and foreign shocks

- The climate policy regime can significantly change the transmission of shocks between countries

Example from

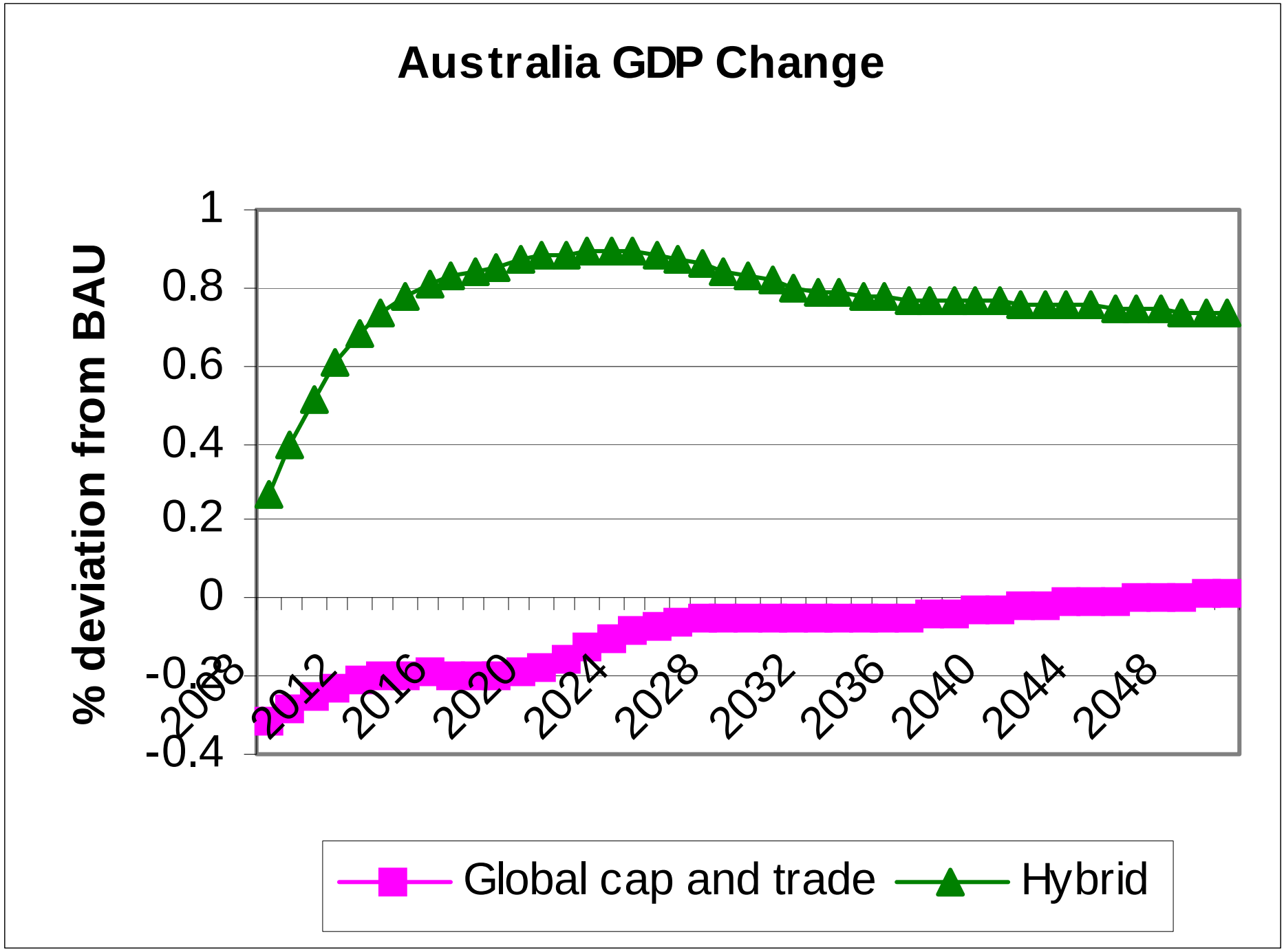
- McKibbin, W., Morris, A. and P. Wilcoxen (2009)

"Expecting the Unexpected:
MacroeconomicVolatility and Climate Policy",

in J Aldy and R. Stavins (eds) *Implementing Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World,* Cambridge University Press

Example

- Suppose developing countries (China, India, LDCs) have 3% per year higher productivity growth from 2003 to 2020


Australia GDP Change
% deviation from BAU
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
2008
2012
2016
2020
2024
2028
2032
2036
2040
2044
2048
Global cap and trade
Hybrid

Conclusion

- Macroeconomic policy may be more difficult under a domestic or global cap and trade style system
  - Greater price volatility
  - Potential problems with international transfers of wealth
  - Potential Dutch Disease problems for some countries

- From a macroeconomic stability viewpoint a Hybrid designed to be implemented nationally similar to the design of monetary policy deal with these issues better than cap and trade systems.

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