

# Why Uncertainty Should be at the Core of Policy Design

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# Overview

- Why risk management is important
- Robust versus optimal Policy Design
- Examples
  - Climate change policy
  - Fiscal Policy
- Conclusion

# Why Risk Management?

- Uncertainty is large
  - Some things we know
  - Some things we think we know
  - Some things will surprise
- Policies should be robust to different futures and should not be based on the assumption that forecasts are accurate

# What is Robust policy design?

- Optimal policy is policy that maximizes some objective given you know the true model
- Robust policy is a policy that causes least damage when the world turns out differently to what you expected

# Examples of Expensive Mistakes

- Commodity boom would be permanent
- Carbon agreement would occur in 2010 and a global carbon price would be between \$29 and \$61 per ton by 2015-16.

# Climate Policy Design

# Based on:

- McKibbin W.J and P.J. Wilcoxon (2002) *Climate Change Policy after Kyoto: A Blueprint for a Realistic Approach*, Brookings Institution
- McKibbin W. and P. Wilcoxon (2007) “A Credible Foundation for Long Term International Cooperation on Climate Change” in Joseph Aldy and Robert Stavins (eds), *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*, Cambridge University Press, pp185-208.
- McKibbin W. and P. Wilcoxon (2002) ‘The Role of Economics in Climate Change Policy’, *Journal of Economic Perspectives*, vol 16, no 2, pp107-129

# What is the climate policy issue?

- Manage the risk of climate change given the cascading uncertainties about
  - The future path of emissions
  - The impact of emissions on the climate
  - The impact of the climate on people, ecosystems and the economy
  - The impact of the methods of reducing emissions
  - Which countries will take action and what actions will they implement

# Important Considerations

- Hallmark of national climate policies: longevity
  - Must remain in effect for many decades
- Some predictable changes will occur
  - Example: demographic trends
  - Can anticipate when designing and analyzing policies
- Many unpredictable shocks will eventually occur
  - Booms, recessions, energy price shocks
  - Changes in political commitment
  - Can't know timing or severity in advance

# The Foundations of a National Approach

- A clear long term carbon price
  - To drive investment and innovation and adoption of new technologies
- Low and stable short term carbon prices to minimize cost
- A market to manage climate risk
  - To enable corporation and households to make long term decisions on carbon abatement and adaptation

# The Foundations of a National Approach

- Policy should be robust to different futures and not dependent on forecast accuracy.
- A policy that has a strong constituency to support the policy under a variety of different circumstances
- The policy should be transparently flexible depending on the global negotiations and the actual economic costs over time.

# McKibbin Wilcoxon Hybrid

- Announce a cumulative national emissions target
- Implement it as an intended annual emissions target but one that is only achieved depending on realised costs over time
- Create long term assets that equal the target
  - These are a bundle of diminishing annual permits for each year out to 2050 that can only be used in the year indicated

# McKibbin Wilcoxon Hybrid

- Allocate the long term assets to households and companies for compensation and to preserve balance sheets so as to finance change
- Create a market to trade these long term assets

# McKibbin Wilcoxon Hybrid

- Announce a credible price collar ( a cap and floor price) for carbon in the next 3 years.
- Create a central bank of carbon (CBC) that sells short term permits into the market this year to stop the carbon price rising above the cap but can also buy permits off the floor (less likely)

# McKibbin Wilcoxon Hybrid

- The long term market gives an incentive to reduce emissions while the short term costs are fixed by the CBC
- The actual (pre announced) short term carbon price depends on a national calculation of costs versus benefits conditional on global action
- The price curve (yield curve) in the long term market incorporates evolving information from science and expected global policy actions.

# An Analogy

- Long term permits are like government bonds that pay a diminishing annual coupon of emission rights
- Short term permits are adjusted like monetary policy adjusts market liquidity to maintain a pre-announced short term interest rate.

# Key point

- The market is designed to have a long term concentration target combined with a short term fixed price to limit costs and price volatility

# Other advantages

- Compensation for higher energy costs is usually done through the fiscal deficit (eg the Rudd/Gillard system) which creates enormous fiscal risk under different scenarios
- Under the Hybrid the fiscal position is unaffected by changes in circumstances because all compensation is built into the allocation of long term permits.

# Some Key Concerns

- Credible future price of carbon
  - MWH creates a pre committed target driving a long term carbon yield curve
- Short term price volatility (spikes)
  - MWH has complete control for up to a 3 year period
- Balancing short term costs and expected benefits
  - MWH has transparent balancing

# Key Issues Nationally

- Financing change
  - MWH puts revenue in the hands of innovators in industry and households with any annual permit sale revenue to finance R&D
  - Conventional approaches pass large parts of revenue to government who then reallocates to industry and households or for another agenda
- Balance Sheets
  - MWH preserves corporate and household balance sheets but changes the structure
  - Conventional approaches contract balance sheets especially of highly impacted sectors

# Fiscal Policy

# Fiscal Policy

- Uncertainty is magnified when major spending programs are not funded with a clear revenue stream
- Need to smooth out the volatility in spending and revenue flows through re design of the fiscal system

# Fiscal Policy

- Managing Uncertainty on spending
  - Government should minimize uncertain fiscal consequences of policies
  - Use Income contingent loans (Chapman and Higgins) which only expose the fiscal accounts to the costs of smoothing individual expenditures
    - HECS scheme for higher education
    - ICPPL scheme for paid parental leave
    - ICL for drought assistance

# Fiscal Policy

- Managing Uncertainty on revenue
  - Core current outlays should be funded through more stable revenue streams (e.g. GST)
  - Volatile revenue should go into a Sovereign Wealth Fund with an independent Board and used to smooth revenues over time
  - Infrastructure and other capital expenditure should be funded by a combination of debt and sustained surpluses from the Sovereign Wealth fund.

# Conclusion

- Policies designed within a risk management framework are likely to be far better than many of the current policies that are based on forecasts that prove to be wrong

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