The Effect of Climate Policy on Asset Prices

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Climate Policy: intra- versus inter-period conflict

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  - They focus on optimal level of abatement, discount rates, social cost of carbon, risk and uncertainty.
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  - Analogy: relation between agricultural policies and land prices; future ag support policies may benefit current, not future farmers.

Why do previous models ignore changes in asset prices?

- Standard one-commodity models (e.g. DICE) assume that output can be consumed or converted, without "friction", to capital.
- When investment is positive (always) this assumption fixes the price of capital equal to price of consumption good, normalized to 1.
- Asset price is therefore unresponsive to policy, by assumption.
- A common feature of economies: there is an inverse relation between the flexibility of quantity and of prices. If it is easy to change quantity, price does not change much.
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  - Climate policy can alter productivity of capital (due to change in climate-related stock) before current capital stocks are depreciated.

Our model errs in the other direction

- Stock of the asset is fixed – "friction" is extreme – implying:
  - By changing future climate-related environmental stocks, climate policy affects the price of assets.
- A more descriptive and less tractable model (in progress) allows endogenous capital stocks and depreciation of those stocks.
- The simpler "extreme friction" model reveals the previously ignored effect of climate policy on asset prices, the resulting intra-generational conflict, and its possible resolution.

Model features

- Overlapping generations.
  - Agents live two periods.

- Climate policy reduces pressure on environmental stock, changing its future trajectory, increasing future productivity of both capital and labor.
- General equilibrium.
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  - a small exogenous tax on the activity that damages the environment
  - or a political-economy equilibrium (nested in a dynamic game) in which the endogenous tax level changes over time in response to changes in the environmental stock.

Model implications

- For given environmental stock, environmental policy reduces both wage and *rental* rate on capital – as with previous models.
- Environmental policy increases asset *price*, benefiting the asset owners (the old generation in our model) – unlike previous models.
- Absent compensation, policy harms the young generation (who face lower wages and moreover buy the asset).
- The old can compensate the young, making both agents better off.
- Future generations are better off because of the improved environmental stock.
- Climate policy can lead to Pareto improvement, even when those currently alive have no concern for the not-yet born.

The policy message and a qualification

- The old rich should compensate the young poor to persuade the latter to agree to climate policy.
  - This recommendation is based on practical considerations, not moral arguments: it is in the self-interest of the old to "pay for" climate policy.

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  - Depending on the extent of adjustment costs and the rate of capital depreciation relative to changes in environmental stocks, we might obtain policy conclusions like that above, or conclusions similar to those of previous models. The latter emphasize inter-period rather than intra-period conflict.
  - Our "extreme" model (fixed capital, no depreciation) helps to identify a previously neglected aspect of climate policy, and sets the stage for investigation of the more flexible model.