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Discussion: How Costly is Global Warming?

Implications for Welfare, Business Cycles and Asset Prices

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DISCLAIMER: The views expressed in this presentation are those of the author and not necessarily those of the Bank of England, the MPC, the FPC or the PRA Board.

Goals of the paper

- Contribute to the debate on the long term economic impact of climate change
- Provide a theoretical explanation of negative effect of global warming on productivity found in the data
- Use theoretical model to estimate the impact of climate change on key macroeconomic aggregates and to compute welfare losses

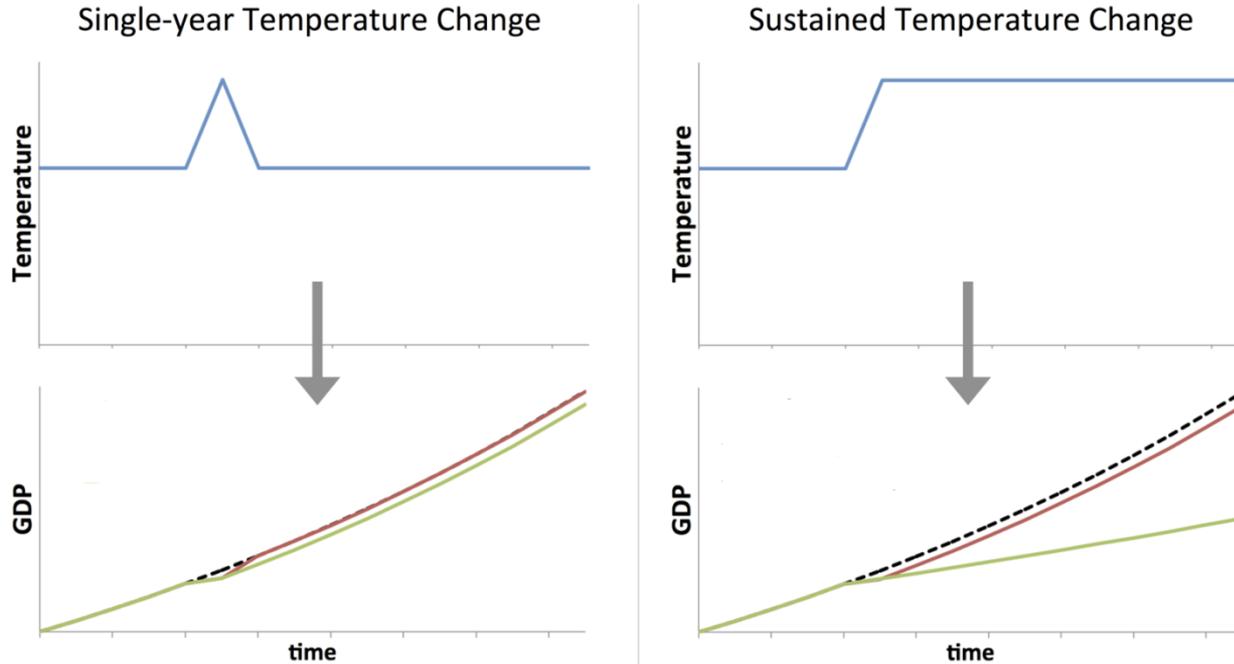


Main results

- Show sizeable impact of global warming labour productivity growth
- Effect leads to increase in equity risk premium
- Overall welfare costs of temperature risk higher than other types of risk



Level vs growth effects of temperature on GDP



Source: Diaz (2015)



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Level vs growth effect

Production function:

$$Y_t = F(K_t, A_t L_t)$$

Level effect:

$$Y_t = D(\Delta T_t) F(K_t, A_t L_t)$$

Growth effect:

$$\Delta \ln A_t = g_0 + \gamma T_t$$



Modelling approach: TFP growth

$$\Delta a_{t+1} = \mu_a + x_t + \sigma_a \epsilon_{a,t+1}$$

$$x_{t+1} = \rho_x x_t + \tau_z \sigma_z \epsilon_{z,t+1} + \sigma_x \epsilon_{x,t+1}.$$

Temperature z :

$$z_{t+1} = \mu_z + \rho_z (z_t - \mu_z) + \sigma_z \epsilon_{z,t+1}.$$



Extension: climate disasters

