The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the left and right sides of the slide, framing the central text. The overall aesthetic is clean and modern.

Inequality, Climate Change & Carbon Taxation

Erin Hayde, February 7, 2019

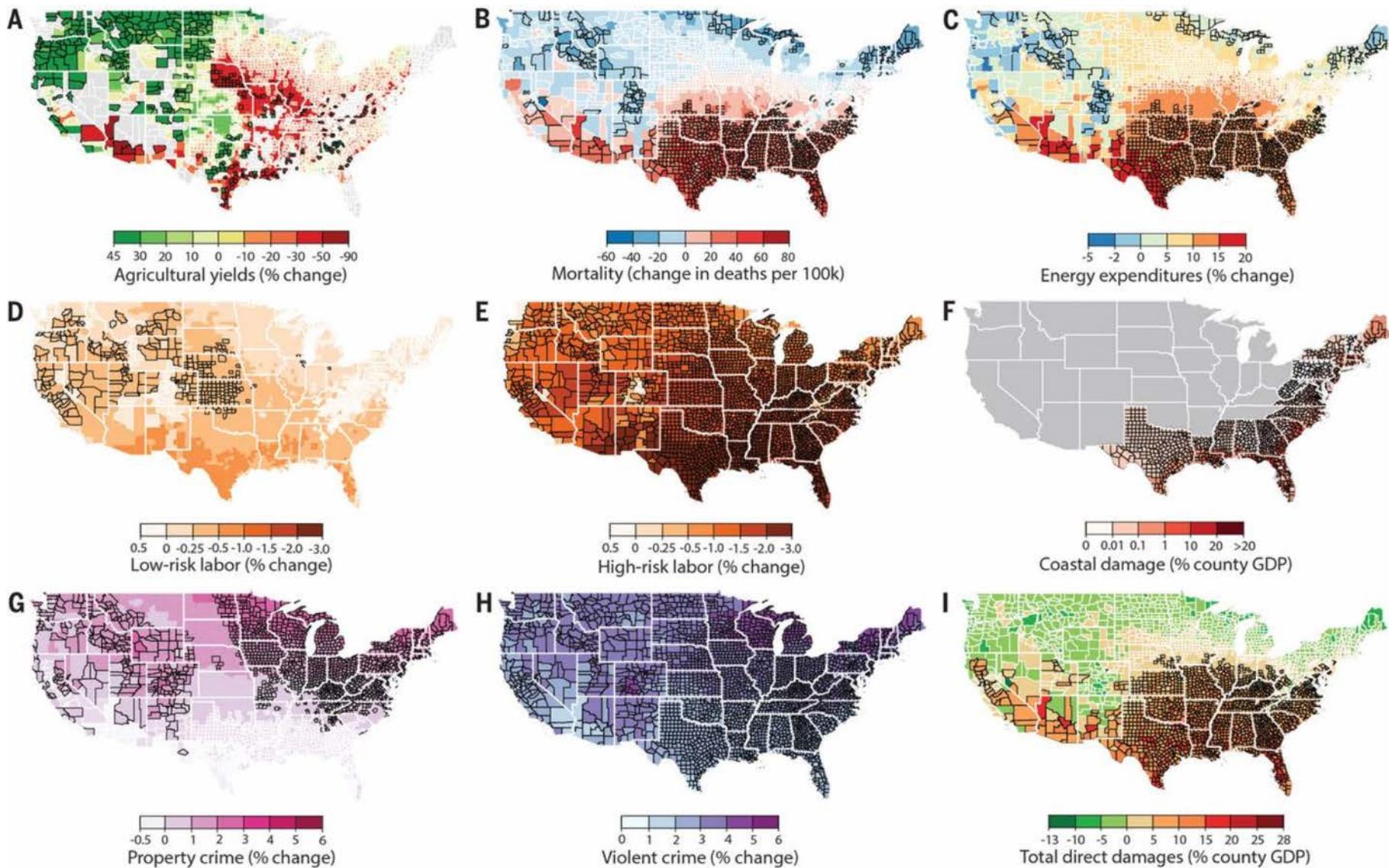


Fig. 2 Spatial distributions of projected damages. County-level median values for average 2080 to 2099 RCP8.5 impacts. Impacts are changes relative to counterfactual “no additional climate change” trajectories. Color indicates magnitude of impact in median projection. Negative damages indicate economic gains. **(A)** Percent change in yields, area-weighted average for maize, wheat, soybeans, and cotton. **(B)** Change in all-cause mortality rates, across all age groups. **(C)** Change in electricity demand. **(D)** Change in labor supply of full-time-equivalent workers for low-risk jobs where workers are minimally exposed to outdoor temperature. **(E)** Same as (D), except for high-risk jobs where workers are heavily exposed to outdoor temperatures. **(F)** Change in damages from coastal storms. **(G)** Change in property-crime rates. **(H)** Change in violent-crime rates. **(I)** Median total direct economic damage across all sectors [(A) to (H)].

Source: Hsiang *et al.*, 2017 (*Science*, vol. 356 issue 6345).

Designing climate policy: Inequality across...

Environmental taxation (i.e., carbon taxation)

- **Minimizes tradeoffs** – countries do not need to choose between funding development policies and environmental policies
- **At lower cost** – marginal costs are equalized, existing structures are re-used, policy can actually raise revenues
- **With the potential for macroeconomic co-benefits** – tax shifting from labor/employment taxes to environmentally destructive activities improves overall welfare (“double dividend”)

...and within nations

- **And can minimize regressive impacts** – environmental taxation of normal goods reduces the indirect subsidy which accrues to high-income populations, can change production factor incomes, and revenues can be used to compensate vulnerable segments of the population

Protesters block the main route to Zimbabwe's capital, Harare, from Epworth township on January 14, 2019, after a fuel price increase was announced



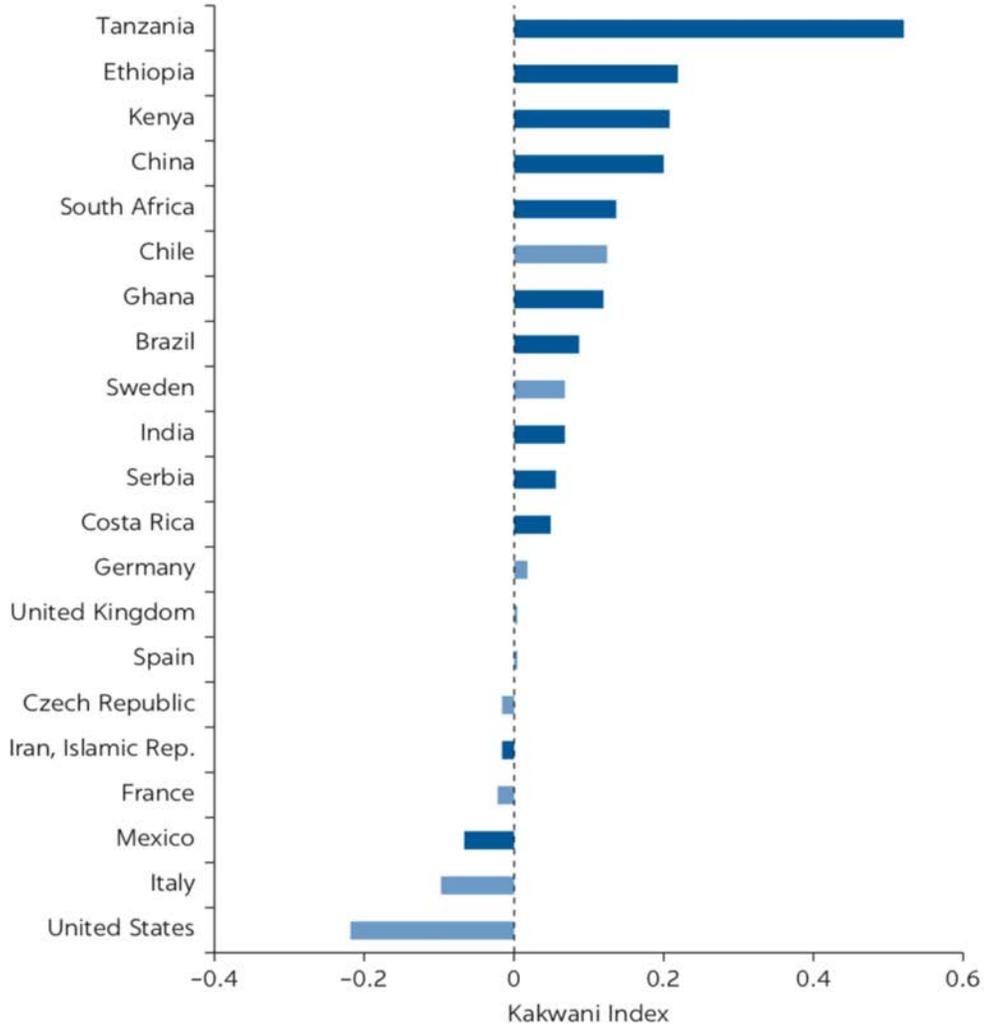
Source: Human Rights Watch © 2019 JEKESAI NJIKIZANA/AFP/Getty Images

What we've seen from the World Bank

- **Stiglitz, Stern, *et al.* (2017)** – carbon pricing is necessary
- **State and Trends of Carbon Pricing 2018, Partnership for Market Readiness, Carbon Pricing Corridors Initiative, Carbon Pricing Leadership Coalition (CPLC), Climate Action Peer Exchange (CAPE), etc.**
- **IEG Report *Carbon Markets for Greenhouse Gas Emission Reduction in a Warming World*** – problems with generating, tracking local co-benefits
- **Fiscal Policies for Development and Climate Action (2018)** – environmental taxation can be welfare enhancing, produce co-benefits, and can be designed to be progressive especially in ‘developing’ countries, however more ex ante research is needed

FIGURE 1.18

**Fuel taxes tend to be progressive in developing countries
(select countries)**



Source: Sterner et al. 2012.

Note: Figure shows the estimated progressivity of direct and indirect effects of motor fuel taxes in 21 countries: 12 developing (yellow bars) and 9 developed (blue bars). The Kakwani Index equals zero for a tax that does not change the prior income distribution of the country, is positive for progressive changes, and negative for regressive changes. Of the 12 developing countries studied, only 2 showed regressive effects (Mexico and the Islamic Republic of Iran).

TABLE 1.3 Attributes of alternative uses of environmental tax revenues

TYPE OF USE	RECYCLING OR EXPENDITURE METHOD	ECONOMIC EFFICIENCY	POLITICAL SUPPORT: INDUSTRY	POLITICAL SUPPORT: HOUSEHOLDS	EASE OF IMPLEMENTATION
Revenue-neutral recycling	Labor taxes (wage and social security contributions)	High	Low	High	High
	Capital taxes (profits and capital gains)	High	High	Low	High
	Lump sum transfers to households	Low	Low	High	Medium
	Output-based rebates to industry	Low	High	Low	Medium
Revenue-raising expenditures	Public infrastructure investments (energy, transport)	Medium	Medium	Medium	Medium
	Basic services (education, health, sanitation)	Medium	Low	High	Medium
	Social protection programs (social assistance, insurance, labor market programs)	Medium	Low	High	Medium
	National debt reduction (for heavily indebted country)	High	Medium	Low	High

Note: Table shows approximate relative attributes of different revenue-neutral recycling (reducing other taxes) and revenue-raising methods (raising overall tax-to-GDP ratios to spend on specific expenditures). Many complexities are not shown by the table—for example, import-competing firms may have different preferences across revenues than exporting or nontrading firms. As such, this is a rough approximation.

Successful carbon policy designs

Revenue use!

Public Awareness!

Examples:

- ▶ **Iran's *Targeted Subsidies Reform*** → transfers to households and public relations campaign (reducing waste and “switching subsidies from products to households”)
- ▶ **British Columbia's revenue-neutral Carbon Tax** → gradual increase in rates, tax credits for low-income households and broad based tax cuts
- ▶ **Green New Deal?** (...but how would we pay for it?!)

Questions moving forward

1. Does capitalism fundamentally depend on inequality? Can the inequalities created by capitalism be mitigated by choosing better policies?
2. How does the resistance against certain climate policies relate to the growing resistance against other forms of inequality?
3. Do climate policies offer a potential mode of redistribution? In other words, can climate policies be used to address and reduce broader inequality?
4. How do we avoid framing the discussion as 'environment versus economy'?

Thank you!



erinkhayde@gmail.com | ehayde@worldbank.org