# *Construction, Real Estate and Climate Change: the Need for Holistic Policies*

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**JVI webinar**

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- Climate scientists fear catastrophic *tipping points* in the global climate:
  - Climate tipping points — too risky to bet against (*Lenton et al., 2019, Nature*)
  - Crushing climate impacts to hit sooner than feared: IPCC report (*6th Assessment Report, IPCC, 2021*)
  - Climate change: a threat to human wellbeing and health of the planet (*Intergovernmental Panel on Climate Change (IPCC), latest report released 28 Feb. 2022)*
  - 2019 UN Emissions Gap Report (*UN Environmental Programme, 2019*)

- Probability of mass species extinction, major sea-level rises and other disasters are increased by *amplifying feedback loops* :
  - *Melting polar ice caps, Himalayan glaciers*: reduce reflection of sun's rays, increasing global warming.
  - *Melting permafrost in the Arctic tundra*: releases trapped methane, about 80 times more potent a greenhouse gas than $CO_2$ (over 20 years, IPCC(2013)).
  - *Tundra soil*: warming will release large amounts of buried carbon over a longer time scale.
  - *Rain forests and Northern boreal forests*: when stressed by drought, they reverse the carbon cycle (incl. by wildfires) and release $CO_2$ instead of absorbing it.
  - *Oceans*: major absorbers of $CO_2$, but their warming reduces this stabilising capacity. Warming increases water vapour, a green house gas, and release of methane from methane hydrates on ocean floors.

- *OECD's Brick-by-Brick: Building Better Housing Policies (2021):*

| **The residential sector (buildings and construction) accounts for:** | | |
|---|---|---|
| Total global $CO_2$ emissions | Global final energy consumption | Emissions of health-damaging fine particulates |
| **17%** | **28%** | **37%** |

- The report shows that *complex links* tie housing and environmental quality:
  - Land-use policies.
  - Regulation, subsidies and taxes: to reduce the carbon footprint of construction and improve the energy efficiency of the existing building stock.
  - Environmentally-related transport policies affecting housing.
  - Lack of mandatory building energy codes: "… in 2018, 2/3 of countries still lacked mandatory building energy codes. High-performance buildings, such as near-zero energy buildings, still make up less than 5% of new construction".

- The report recommends new regulation, taxes and subsidies
  - to speed adoption of new technologies, bringing down costs in medium term.
  - Carbon capture/storage is likely to be critical. Report fails to mention the use of wood as a superb carbon store: 2019 UN Emissions Gap Report, UK Housing: Fit for the Future

# *Retrofit and Re-use* should have high priority vs. *Demolish and Reconstruct*

- There are powerful carbon-saving arguments against demolishing buildings and reconstructing them
  - e.g. by Arup, Reducing-carbon-emissions-every-working-day
  - For a new building, embodied carbon will contribute somewhere between 30% and 50% of the estimated whole-life emissions. But it is embodied carbon that is being emitted today – and time is running out.
- *Three steps to take now*:
  - e.g. Arup, Net Zero Carbon Buildings Three Steps to Take Now
- A clear definition of 'net zero'.
- Reduce the demand for energy and materials to a level that can be met solely by sources that do not emit greenhouse gases. Net zero in operational use is easier to achieve than in construction.
- Incentives for owners and developers: taxes, subsidies and insurance premia.

- Considering the full life-cycle of buildings is crucial.
  - Good initial design, re-use materials, retrofit rather than build.
- The destruction of Ukrainian cities –Putin's brutal demolition project.
- The climate impact makes the human catastrophe that has overtaken Ukraine even more heart-rending. The dash for energy security will cause jump in $CO_2$ emissions.

- 'Green' policies could weigh most heavily on the poor, worsening housing affordability and fuel poverty.
- Public acceptance of 'green' policies requires that the distributional issues are front and centre of policy design.
- Higher short-run costs due to 'green' taxes and tougher building regulations:
  - need to be compensated by targeted subsidies and progressive 'green' taxes and finance.
- OECD report under-emphasises the potential for 'green' property taxation.
- I argue that: a 'Green' split-rate property tax potentially could resolve the conflict between affordability/equity and meeting climate goals.

| **'Green' land value tax has great potential:** measured as a standard per square metre charge on the market prices of land | | | |
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| minus a discount on buildings depending on its energy usage. | with maximum discount for an energy-neutral building and gardens. | Every household would have the right to defer the tax. | A small discount for cash payers (if no deferral) |

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- To protect *cash-poor but land-rich households*, every household would have *the right to defer the tax*.
  - *Tax authority* register a proportionate interest at *Land Registry* equal to the unpaid tax for each year deferred, to be settled when the property was sold or transferred - avoids complex interest charges.
- A small discount for *cash-payments*.
- No discounts for *single persons or second homes*.
- 25% surcharge on owners who are not domestic tax payers or pensioners to discourage *foreign speculation*.
- *Regular revaluations* to discourage land and housing speculation and to avoid cliff-edge changes.

- *Even a proportional tax* would be progressive as land ownership in most countries is far more unequally-distributed than income.

- *Central bank policies and the pandemic* have driven land and house prices to high levels, *increasing* the inequality between (i) owners (often older) and non-owners (often younger), and (ii) between desirable locations and left-behind places.

- The tax can easily be made *more progressive*
  - e.g. imposing a surcharge on the most expensive properties and giving a tax allowance on the first *x euros* of each property's value.
- To make the tax a little *less onerous* in high priced regions
  - the tax allowance could be linked to regional land prices.
- Such a radical tax reform would need to be *phased in over several years*.
- *Cut transactions taxes* given higher revenue from the 'Green' land value tax
  - Lower transactions taxes increase flexibility of labour and housing markets and adaption to shifts in the economic environment
    - e.g. The Planner: 20 minute neighbourhoods: re-location to reduce commuting times, increase localism
  - good for the environment and for helping adaptation to climate change, e.g. relocate because of increased flood risk.
- Proposals are tuned (deferral, regional tax allowance, phasing in) to anticipate push-back from the "haves" and special interests.

- *Enhance incentives* to use EPCs (Energy Performance Certificates) and for lenders to price green mortgages more favourably.
  - Why? Two risks worrying lenders are *cash-flow problems of households with mortgages* and *collateral value falling below* the mortgage value.
  - The lower tax liability of a green property reduces running costs of a building over the life-time, supporting household cash-flows.
  - A green property, with lower tax obligations, has a lower risk of a future price collapse, so protecting the collateral value.

- There are *financial and regional stability benefits* too:
  - Annual property taxes that are linked to recent market values,
  - combined with macro-prudential limits on household leverage,
  - will reduce the incentive for property speculation based on expectations of high rates of return
    - ➢ tend to be based on recent property appreciation, see our 2021 JEL survey paper.

- Benefits to macroeconomic stability
  - Less volatile real estate prices, reduced risk of over-valuations.
  - Lowers risk of price collapses and bad loans undermining bank balance sheets, leading to a credit crunch.

- Benefits for regional stability
  - Market value taxation (*automatically*) dampens down drivers of higher regional inequality.
  - Why? The associated rise in land prices and related tax obligations in growth hotspots should deter migration to hotspots (and further growth)
  - Without market value taxation, potential migrants to hotspots will *keep coming (*anticipating further capital gains); and …
  - Residents sitting on large capital gains will *postpone moving* to cheaper locations (to cash in those gains).
  - Annual property taxes dampen such speculation, which otherwise *prolongs the swings in widening regional inequality*.
  - Result is a carbon-saving benefit: reducing pressure for extra building in the hotspots and improving usage of housing in less prosperous locations.

- The poor record of economists on climate change. Why are economists letting down the world on climate change? (Stern & Oswald, 2019)
- Franta - in Weaponizing Economics (Franta, 2021)
  - Analysed: role of influential group of economic consultants hired by the petroleum industry (1990s-2010s) to estimate costs of various proposed climate policies.
    - in particular, *Charles Rivers Associates*
  - Argues: they ".. played a key role in *undermining numerous major climate policy initiatives* in the US over a span of decades, including carbon pricing and participation in international climate agreements."
- This 'climate of opinion':
  - influenced the *conservative assumptions* used in 'Integrated Assessment Models' (integrating climate and economics) and the *complacent conclusions*.
- Pindyck - in The use and misuse of models for climate policy (Pindyck, 2017)
  - Argues: complacent conclusions of IAMs rest on *2 critical assumptions*:
    1) a high social discount rate (e.g., 3%);
    2) a low climate sensitivity of GDP (i.e., the assumed damage to GDP from rising temperature, ignoring the non-linearities in the global climate accelerator).

- The real estate sector provides an important channel for the transmission of climate change to financial instability.
  - The 2 major types of risks linked with climate change are transition risk and physical risk.
  - Amplification of these risks concerning the real estate sector can occur via the financial accelerator. As such the real estate sector is of key importance to central bank policy.

- *Transition risks: direct effects* on the real estate sector and banks
  - For fossil-fuel exporters, macroeconomic disruption and falling real estate values will result.
  - Carbon taxes and regulation, higher insurance premia affect real estate values
  - Banks lending to the affected real estate sector, made vulnerable.

- *Physical risks: direct effects* on the real estate sector and banks
  - Macroeconomic disruption and falling real estate values from rising sea levels, increased flooding & wildfires, wind & storms, heat extremes or drought, making particular places ultimately even uninhabitable.
  - Insurance companies could be subject to sharply higher insurance claims.

  - *Indirect effects* from these risks on the financial and the real estate sector
  - Banks are lending to or invested in 'stranded assets', can become vulnerable, exacerbated by mounting litigation risks.
  - Falling balance sheets of banks leads to credit contraction and falling real estate values.

- The Network for Greening the Financial System of central banks and financial supervisors was finally born in 2017, now with 108 members.
- Some dissenters question the role of central banks in addressing aspects of climate change, suggesting they should stick to inflation mandates.
- However, central banks and supervisors have a financial stability mandate and climate change poses serious stability risks.
- In response, multiple policy options are being considered in:
  - credit operations (e.g. pricing to reflect counterparty carbon footprint)
  - Collateral policy: tune haircuts, use positive and negative screening.
  - Quantitative easing: use positive and negative screening.
- *NGFS work* includes modelling global climate risk scenarios; closing data gaps; improving the transparency of disclosure; scaling up green finance, including green mortgages.
- Much has been learned about risks to financial stability since the GFC: e.g. dangers of over-leveraged and inter-connected financial systems.
- Better understandings of the role of real estate in the financial accelerator has informed micro and macro-prudential policy.
- Holistic policy thinking has improved among central banks. Governments lag behind.