Integration of China's National ETS with Provincial/Municipal Pilots

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MIT MANAGEMENT SLOAN SCHOOL

Why not just stick with provincial systems?

- Our first study suggested that…
  - National CO_2 market has 20% lower welfare loss, compared to individual provincial markets (static CGE model).
  - This comparison was not strongly affected by assumptions on electricity price pass through, capital vintaging, or natural gas supply.
- This study ignored many details that could affect in both directions.
- Build national ETS on top of pilots?

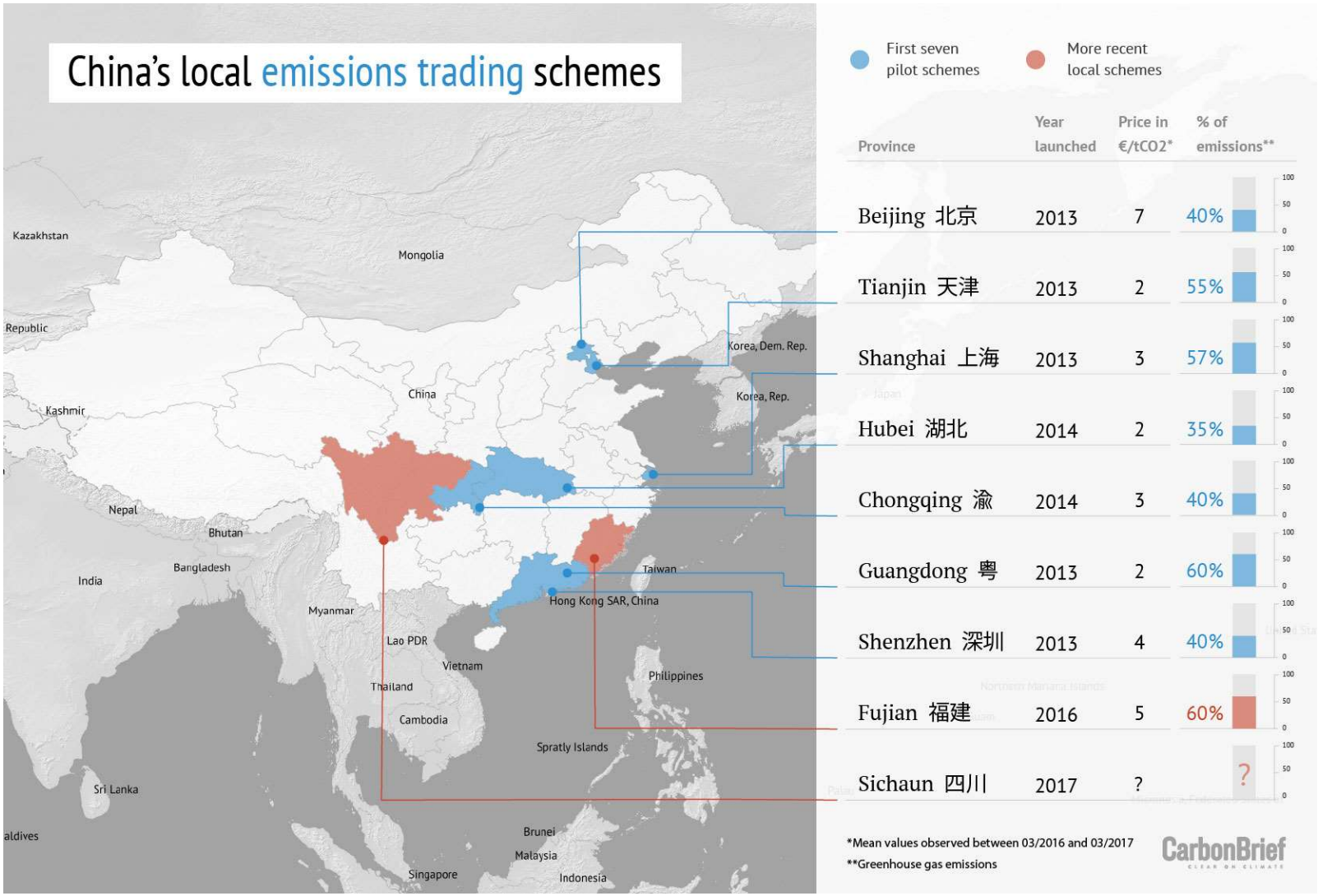
	Base case
Scenario PT:	
CO_2 intensity	−17.4
CO_2 emission	−18.8
Welfare change	−1.5
Scenario NT	
CO_2 intensity	−17.4
CO_2 emission	−18.6
Welfare change	−1.2

Source: Zhang et al., *Energy Economics*, 2013.

Integration of ETS pilots: A few considerations

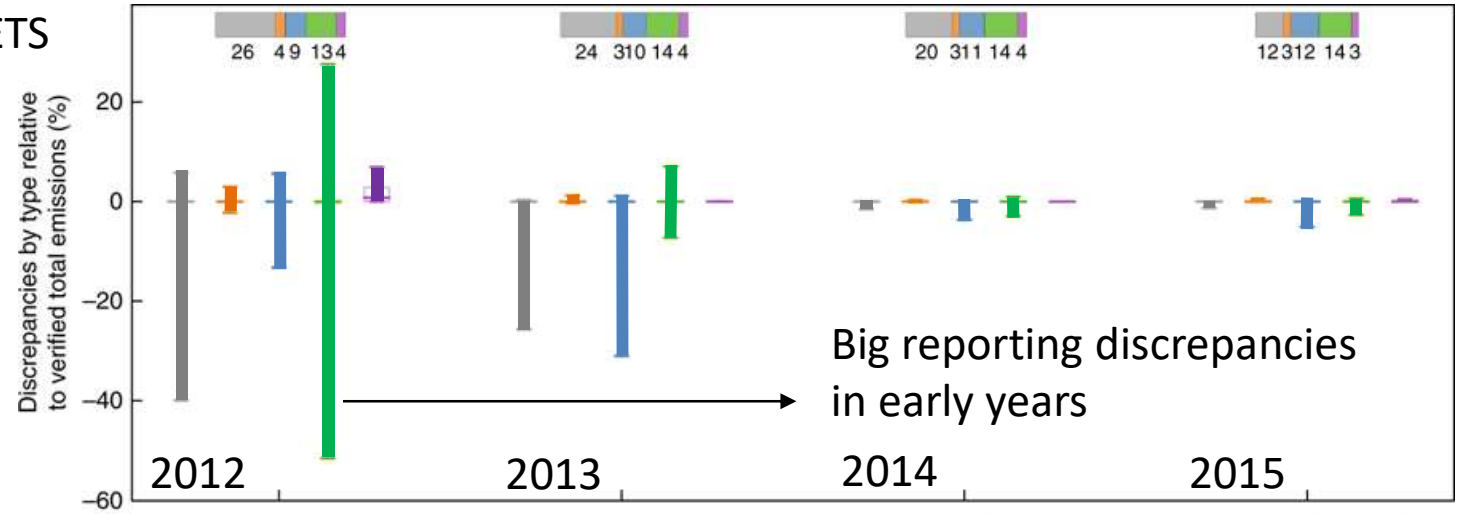
1. How to resolve differences in firm coverage/stringency under national and provincial systems to avoid leakage.
2. How to coordinate monitoring, reporting, and verification to ensure data quality.
3. How to establish official responsibility for meeting both national and provincial ETS requirements in performance evaluations.
4. How to resolve conflicts with provincial-level policies (e.g. renewable energy, air pollution).

How to govern emergence of new provincial systems?

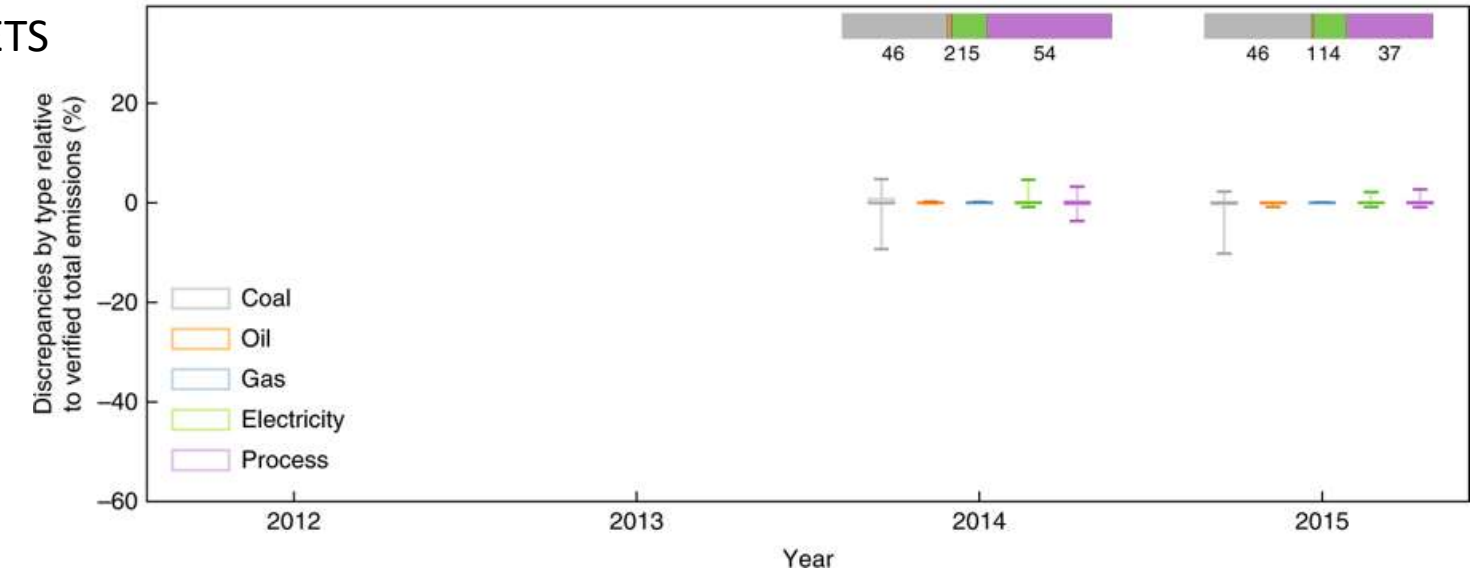


Evidence from China's CO_2 emissions trading pilots: Firms need time to build emissions reporting capabilities

Beijing ETS



Hubei ETS



Source: Karplus & Zhang Groups Collaborative Research; Zhang et al., 2019, *Nature Climate Change*.

Thank you!

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