Discussion of "Irrigation Infrastructure and Satellite-Measured Land Use Impacts" by Cisse, de Janvry, Ferguson, Gonzalez-Navarro, Mbaye, Sadoulet, Syll

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NEUDC 2024

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- **method**: estimate the impact of irrigation projects on satellite-derived cultivation rates in Senegal
- **findings**: impact of irrigation access on cultivation is...
  - high and does not subside for decades
  - heterogeneous geographically
  - much higher after 2000 regardless of implementation year
  - still limited by poor access to canals and financing, according to farmers

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- instead, establish a correlation between NDVI and yields for rice within that region
  - studies linking NDVI to yields, output in Senegal and neighboring countries do exist
  - alternatively, use own NDVI data linked to recent gov't agricultural surveys

What Prevents Irrigation Access from Being Universally Transformative?

why do some locations benefit more than others?

- bring in location characteristics from other sources, explore impact heterogeneity by those characteristics
- farm size, size distribution, land ownership mode
- sources: admin. data, household surveys (a handful exist)

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Why are benefits vastly higher after 2000?

- irrigation access far more impactful after 2000 regardless of cohort, but why?
- try to identify which (if any) of the post-2000 market reforms are responsible
- can exploit geographic variation in exposure to different reforms
- e.g. if a reform is rice-centric, can exploit variation in pre-reform rice cultivation rate or GAEZ rice suitability
- e.g. if a reform is family-farm-centric or agribusiness-centric, can exploit variation in farm size, ownership mode

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- decompose total NDVI effect into extensive vs intensive margin
  - extensive: change in cultivation rate (current variable)
  - intensive: change in raw NDVI, conditional on cultivation