

Fiscal Instruments and Water Scarcity

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Water-based impediments to Green Growth

1. Inadequate investment in storage
2. Inadequate household access to water and sanitation services costs
3. Inadequate management of competition for water within and among sectors
4. Perverse impacts of subsidies on demand for water and water use
5. Clear signals about value

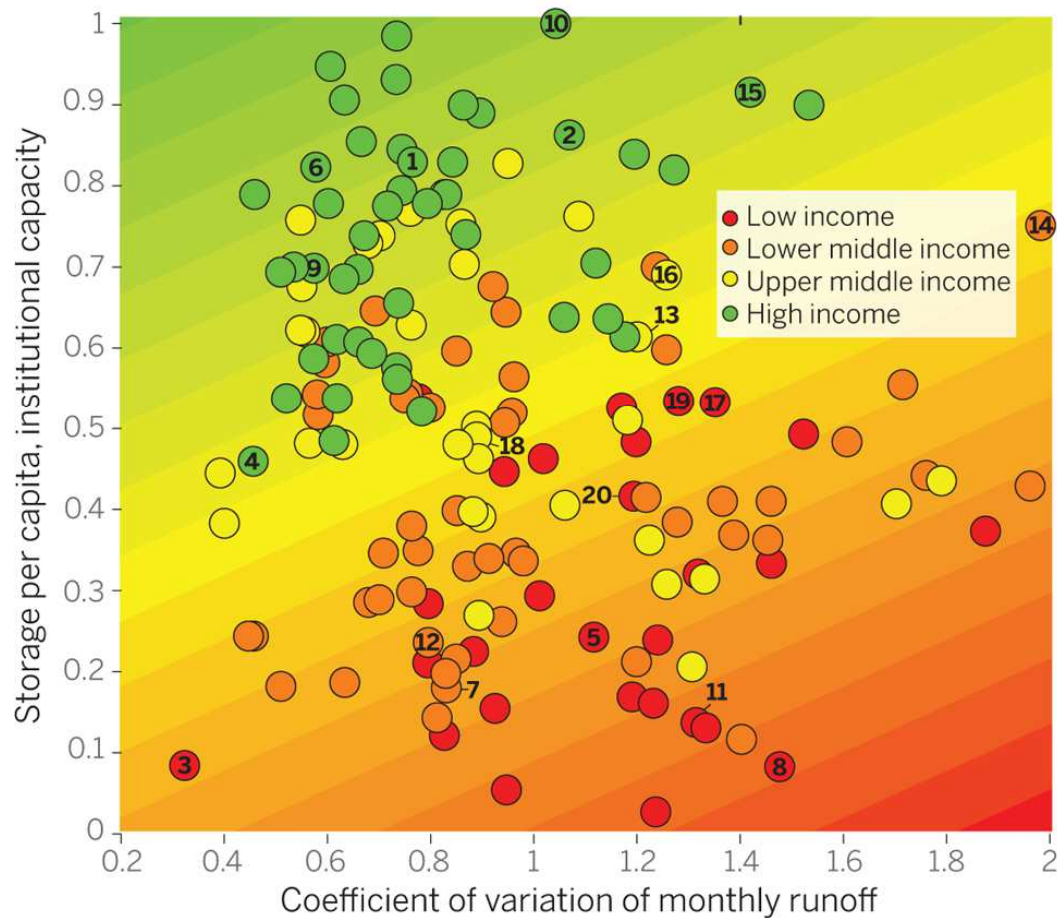
Unbundling => an undeveloped policy opportunity

- In water, many competing policy objectives
- Tinbergen Principle
 - As many instruments as policy objectives
- Involvement of fiscal policy managers in the pursuit of water objectives is worthy of consideration

UNEP & Millennium Institute Model

- MI compared investing an additional 2% of Global GDP
 1. Spread pro-rata across all sectors – Business as usual
 2. Allocated only to green sectors – Green economy
- Under BAU water use remains unsustainable and global stocks water continue to decline
- Under Green Sector scenario
 - Water use is more efficient
 - Agricultural, biofuel and industrial production is greater
 - 4% less people live in a water-stressed region by 2030 and 7% less by 2050.
 - Number of people working in the water sector is lower

Linking economic growth, hydrologic variability, and investment in risk mitigation



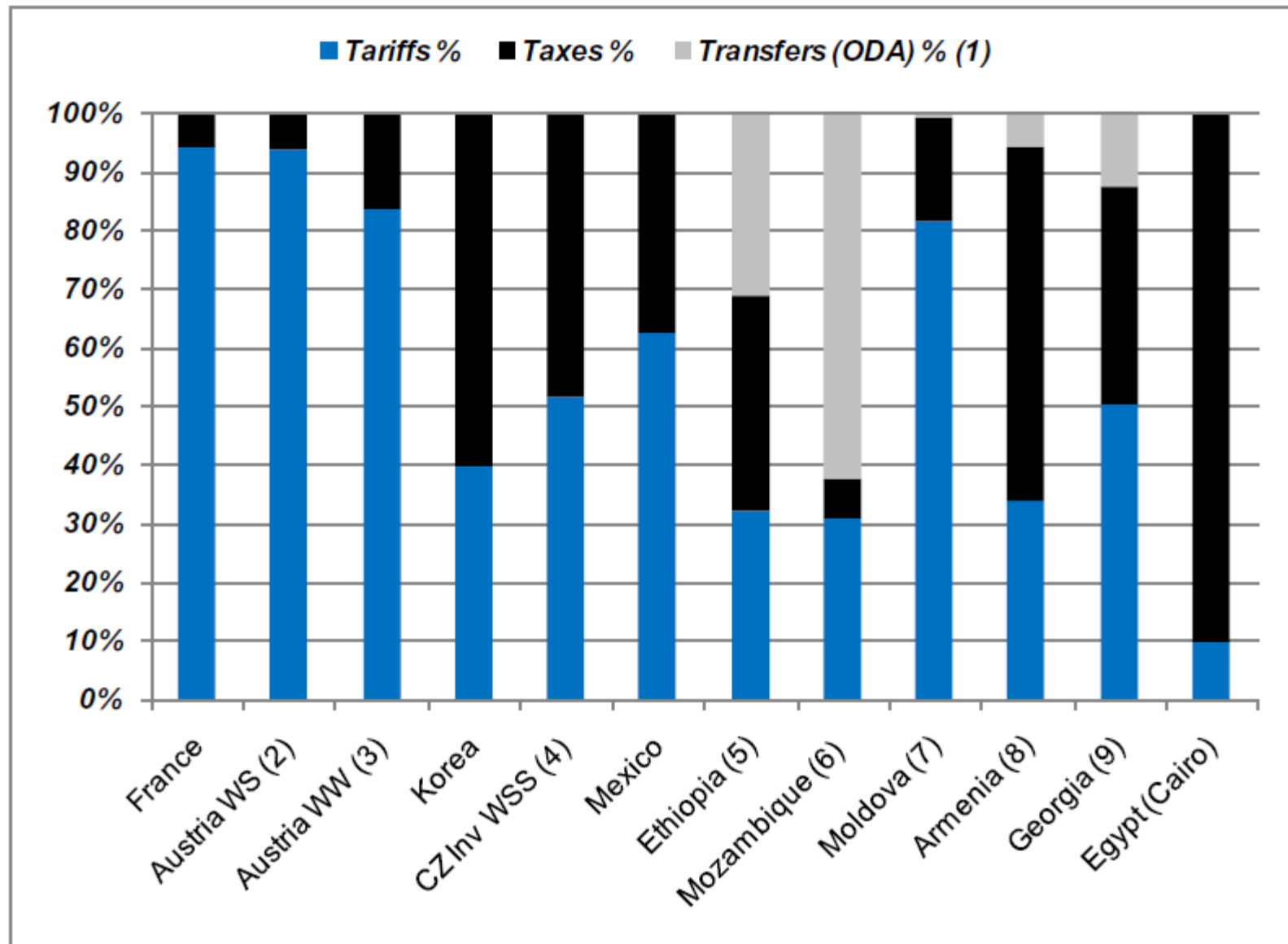
- ① Apalachicola
- ② Colorado
- ③ Congo
- ④ Danube
- ⑤ Ganges
- ⑥ Hudson
- ⑦ Indus
- ⑧ Lake Chad
- ⑨ Mississippi
- ⑩ Murray-Darling
- ⑪ Niger
- ⑫ Nile
- ⑬ Orange
- ⑭ Jaguaribe
- ⑮ Sacramento
- ⑯ São Francisco
- ⑰ Senegal
- ⑱ Volta
- ⑳ Zambezi

Source: Hall et al. 2014

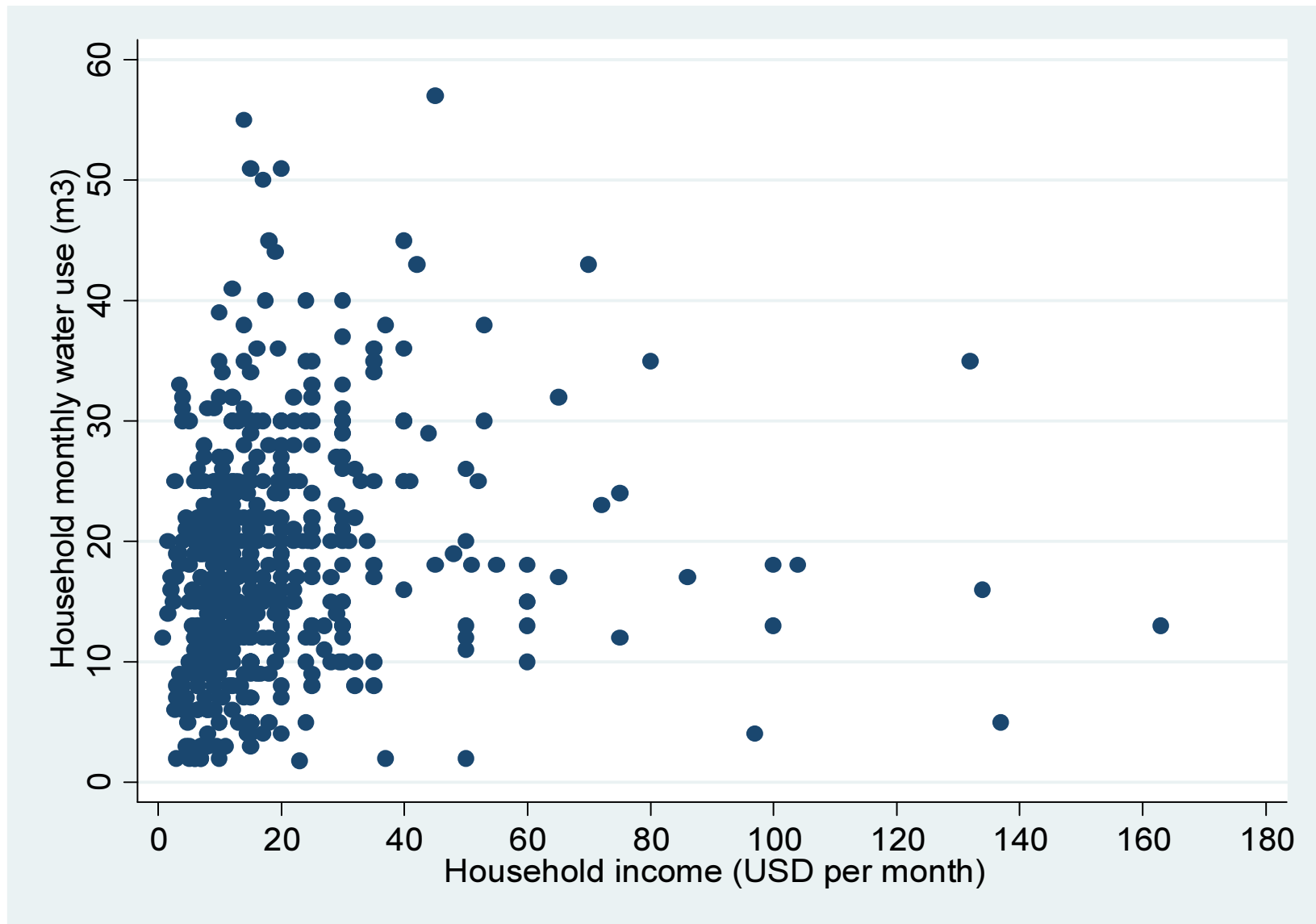
Water pricing and charging

- The many households pay more than 30 times the full cost of providing them with a reliable, clean mains water supply!
- Many governments subsidize the cost of mains water supply and sanitation to households
- Most governments use combination of inclining block tariff and fixed connection charges
- There is strong international pressure for the provision of affordable access to the poor households
- The correlation of household income and water use is woeful!

Tariffs, Taxes & Transfers

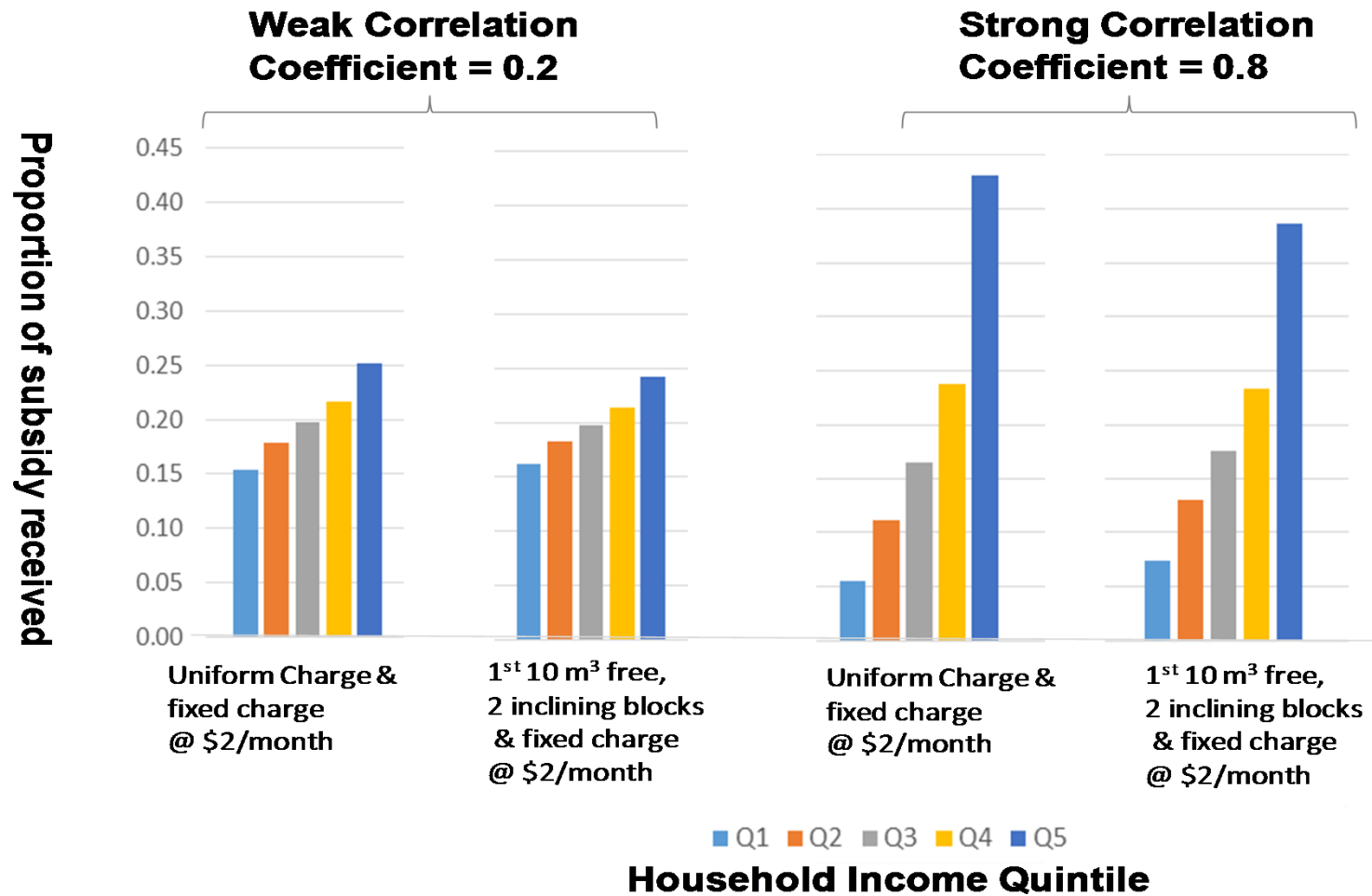


Household Water Use vs. Income (Sri Lanka)



Source: Whittington pers. com

Inclining block tariffs and income correlation with use



Source: Whittington pers com

Water Charging opportunity

- Decouple financial assistance to the poor and water charging arrangements
- Use a separate fiscal instrument to ensure that all have affordable access.
- As Chile is doing
 1. provide targeted financial assistance and
 2. gradually move to full cost pricing

Water scarcity

- By 2050, half the world will be living with permanent water scarcity
 - Increasing Demand
 - Decreasing Supply
 - Nexus water and food
 - Nexus water and electricity
 - Nexus urban and rural water

Water scarcity

- Failure to set limits leads to resource depletion
- Scarcity pricing or market-like processes to reveal scarcity and reward innovation
- Policy opportunity is to transition to arrangements that set binding limits on use and then unbundle into
 - Entitlement shares
 - Tradeable allocations
 - Locally managed restrictions on use
- Sequence reforms so that transition to setting and enforcing limits becomes possible, as Australia has done

Subsidies

- Subsidies can lock in problems (India)
 - Impede transition to more efficient and sustainable water use
 - Facilitate more efficient and sustainable use
 - Expedite adjustment and increase acceptance of reforms that increase prospects for green growth

GGKP Law

1. The **more** financial assistance is targeted towards disadvantaged households,
(decrease the fiscal burden on water policy)
2. the less rigid subsidy arrangements, and
3. the more markets facilitate efficient adjustment within sustainable limits,
=> the faster and more inclusive and greener growth will be.

Fiscal Policy as a Friend not a Foe
in the resolution of
water security problems