Multilevel Governance Issues to Address Climate Shocks and Enhanced Resilience

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Issues

- Need **to reconsider both analytical and policy framework to address climate and other shocks** (including breaks in value chains, and monetary tightening in G7 countries)
    - Importance of uncertainty (Tanzi 2022, Knight, 1923)—cannot assume steady state affecting design of fiscal rules, especially at subnational level
- **Inadequacy of "normative" market-based solutions**, and libertarian US-centric policies
    - Europe, Chile, Mexico, and other Latin American—spatial dynamics of structural change; growing importance of geografiscal approaches (Revelli, 2015)
    - Special case of administrative "progression" governance framework: e.g., China and shades in South Asia
    - Global support, lessons from HIPC and HIPC II
- **Less volatile financing of sub-national basic spending and investment and access to private capital**
    - National taxes for efficient revenue generation and reducing costs of doing business in increasingly informal contexts
    - Piggy backs on national bases
    - Beneficial property tax (Marshall, 1890, Ahmad and Brosio, 2022, Ahmad and Viscarra 2020 for Mexico and Ahmad et al, 2021 for China)
- **Governance framework for national and cross-border earmarked transfers to address vulnerability and just transitions**
    - Need for GFSM+ framework (basic education and health care, and also other functions for sustainable outcomes)
    - Accountability mechanisms
- Directions for research and policy making

Perfect storm uncertainty complicating risk management

- **Short term**
  - **Pandemic related health** and economic shocks; compounding **climate related** stress (like the pandemic in slow motion) but equally deadly
  - **Conflict driven spike in food and energy**, despite the opening of sea lanes permitting export of existing stocks, could be prolonged given that conflict is not over
  - **Challenges to global value chains for geopolitical reasons**
  - **Tightening of credit and interest rates in G7 countries** likely knock-on effect on EME debt and access to finance
- **Longer term**
  - **Climate uncertainties increasing**
    - more frequent droughts, fires, floods, and hurricanes making disease more prevalent and widespread
- **Cannot assume that the state of the world will return to the pre-crisis "normal"**
  - Assumption underlying a lot of public policies, including fiscal rules
  - Numerical sub-national fiscal rules particularly problematic, as likely to enhance vulnerability of lagging regions and inequality

Enhanced resilience must address risks as well as uncertainty

- We take a multidimensional approach to managing resilience and sustainability:
    - **Economic shocks**, including food and energy prices and fluctuations in employment
    - **Social**, especially ensuring access to basic services for the most vulnerable--(typically a combination of national and local actions)
    - **Climate, with increasing frequency**—droughts and floods, earthquakes, rising sea levels, hurricanes and tsunamis
- **Fiscal and financial measures** cut across all the above, and must be part of public action at all levels of government for sustainable development
- **Coordinated actions will be needed with better designed and managed support from the international community**, building on the experience with HIPC and HIPC II

Inequality and Informality increase vulnerability

- Informal sector children vulnerable , but also the fixed income urban middle classes
- the rich tend to be well hedged, but are not completely immune to the health shocks
- Migrations make metropolitan areas especially vulnerable
    - *Urban sprawl* in Mumbai, Guangzhou, Lagos, Jakarta, and Mexico City (CDMX)
        - Karachi— bad urban design and drowned in floods
        - Mexico City and Jakarta sinking
    - *Piecemeal efforts in major metropolitan areas* make matters worse by encouraging migrations (e.g., Karachi, Jakarta and Mexico City)
- *Political sustainability* requires
    - modicum of public services, access to education and health care for the poor and vulnerable, and minimum nutrition and income generating capabilities
- Basic ***preconditions for just transitions linked to longer-term economic and political sustainability, and to ensure financing for adaptation for climate change***

Towards a coordinated approach to addressing climate change and just transitions

A multilevel public investment and financing agenda for sustainable reforms

Public investment needed for adaptation to sustainable growth

- **Public investment decisions**
  - **Impact firms and households** in different circumstances (backward regions, women, migration and informal settlements)
  - **Appropriate weights** on
    - Skills and labour supply, and on environment, carbon use and emissions
  - **Appropriate discount rate** (Stern and Stiglitz, 2018, 2021)
  - **Minimization of fiscal risks**, especially at the sub-national level, given political economy considerations and incentives to shift liabilities to higher levels, or future generations
- Important to integrate **investment and tax design** (basis for say national carbon tax and subnational piggy backs) in order to drive the structural change and adaptation
- But Investment has to be linked to **a long-term growth strategy,** and a focus on **risk management**, including the **provision of key services and infrastructure at different levels of government**
  - Sustainable compact cities must have **basic health care, education and human capital, and typical local functions** such as clean water and sanitation; tracking tracing and support
  - To supporting **private investment and sustainable employment** in lagging regions

Multilevel finance preconditions to address climate change risks

- **Addressing climate change and ensuring a just transition**
    - **National coordination, management and additional financing** needed, e.g., earmarked transfers
    - **But in all cases** increasing importance of local preventive actions, community/local-based support mechanisms, and
    - **Governance and information generation** and incentives facing officials at all levels
    - **Fiscal rules straight-jacket at sub-national level is problematic**, **especially with economic shocks**,
        - Can prevent desired structural change (clean cities) and addressing spatial imbalances
    - **Importance of aligning both finance and incentives** facing sub-national entities to prevent debt spirals and poor investment choices
- **Spatial mechanisms of urban transition come into play (examples of geografiscal federalism (Revelli, 2015),**
    - Generating clean employment "hubs"—
    - Link reforming metro areas, with new compact and connected cities in lagging regions
    - to address congestion and urban sprawl in metropolitan areas, with distributional and employment concerns in lagging regions
- **Local/subnational own-source revenues** to ensure local accountability and access to private finance (Ambriosanio and Bordignon, 2015)
- **Full information on transactions and buildup of liabilities;** GFSM2014-compatible balance sheets to prevent "game play" (Ahmad, Bordignon and Brosio, 2018 for the EU), especially at subnational levels

How to restructure cities for sustainable growth?

- **Reforming cities in light of the pandemic involves reversing migrant flows to major metropolitan areas, and building sustainable "employment hubs"**
- **Mitigation in large metropolitan areas**—
    - innovative work patterns, within city transport, restructuring buildings and communal spaces,
    - Innovation zones linked to high-tech research labs and research centers, financing, support for startups and new value chains
    - preventive health clusters within metropolitan areas
    - **But sole focus on Mexico City or Jakarta is self defeating—cannot absorb more migrants**
- **Regional/state and cross-border connectivity** necessary to reorient domestic and external value chains, but not sufficient for "leveling up"
- **Compact, clean and connected (CCC) cities** as "sustainable employment hubs", to
    - absorb workers from restructuring metropolitan areas, and
    - Generating more labour-intensive activities

Integration of investment strategy with sustainable growth

Coordinated Investment strategy:

- Appropriate weights for different capital and labour
- Income distribution and employment focus
- Environmental and pollution impact
- Appropriate cost of public funds choice of discount rate

Source: Ahmad, E. 2021, “Multilevel financing of sustainable infrastructure in China—Policy options for inclusive, resilient and green growth”. ***Journal of Infrastructure, Policy and Development.***

- Tax and spending assignments
- Public investment for sustainable employment
- Transparency and governance requirements
- Financial sustainability in medium-term

Improvement of local public service delivery and infrastructure

- Accountability through local own-source revenues and equalization transfers
- Full information/balance sheets to access private capital/ municipal bond systems

Sustainable urban employment hubs

- National investment requires local infrastructure and public services
- Urban design and regulations matter
- Attracting private investment to ensure employment generation

Coordination of policies across levels of governments and economic sectors

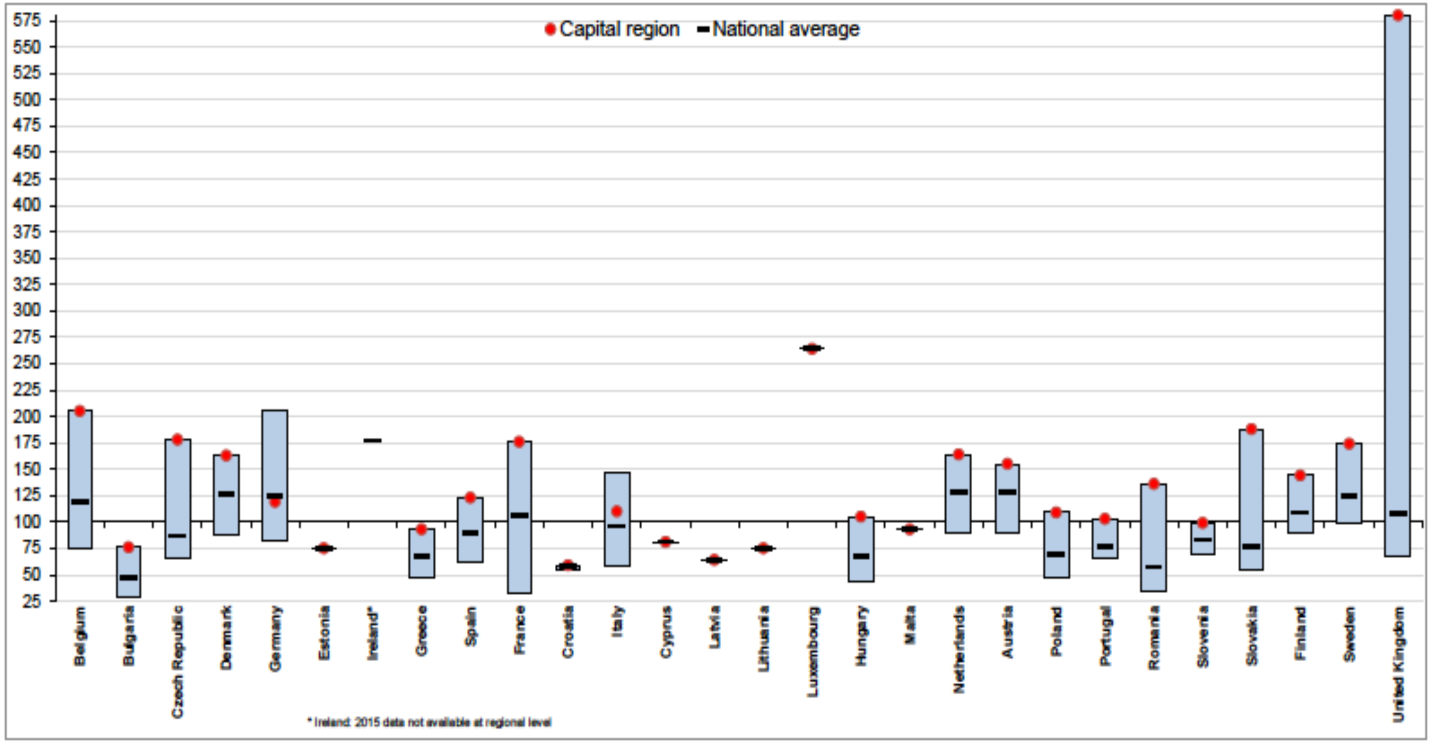
While private sector involvement is essential, total reliance can be counter-productive

- **Post-2008 crisis also focused on counter-cyclical investments, but largely <u>replicated existing structure of activities and production</u>**
  - *Increased inequalities* and disparities between larger metropolitan areas and others,
  - *Increased pollution and congestion* especially in large metro areas
  - *Fiscal stress at subnational levels*, with stringent fiscal rules, and greater buildup of risks with weaker public service delivery in most cases, including for preventive health care
- **EC 2020:** Cohesion policy including investment in "Less Developed Regions" to "Next Generation EU" (2021-27) **more focused on high tech and employment linkages**
- **UK "leveling up" mired in confusion,** after market-based focus on London in preceding decades led to huge spatial imbalances (Crossrail, UK's largest infrastructure program, partially finance by land value capture; vs HS2 and cancellation of Crossrail2 under "leveling up
- **China (14 FYP):** from early 2000s Western Development Strategy to post 2010 "rebalancing" and "Go-West" post-Covid 19; and "dual circulation" and high-tech zones (14th Five Year Plan)
  - **Huge domestic infrastructure investments, but coastal migrations continued**,
  - **14th Five Year Plan—dual circulation and focus on High Tech Zones** (Greater Bay Area (9-cities), Yangtze River Delta (cities in four provinces) **will require new local financing mechanisms to replace land sales and "derisk" local finances**

Largely market-based investment programs in many EU countries

- Exacerbated spatial inequalities—continuing investment in London with Crossrail (UK's most expensive project, delayed and over budget; Crossrail II cancelled)
- London one of the star exhibits, with inequalities contributing to Brexit, enhanced since pandemic

Regional GDP per capita by EU Member State in 2015
in PPS, EU28 = 100



The bar shows for each Member State the range from the region with the lowest value to that with the highest value.

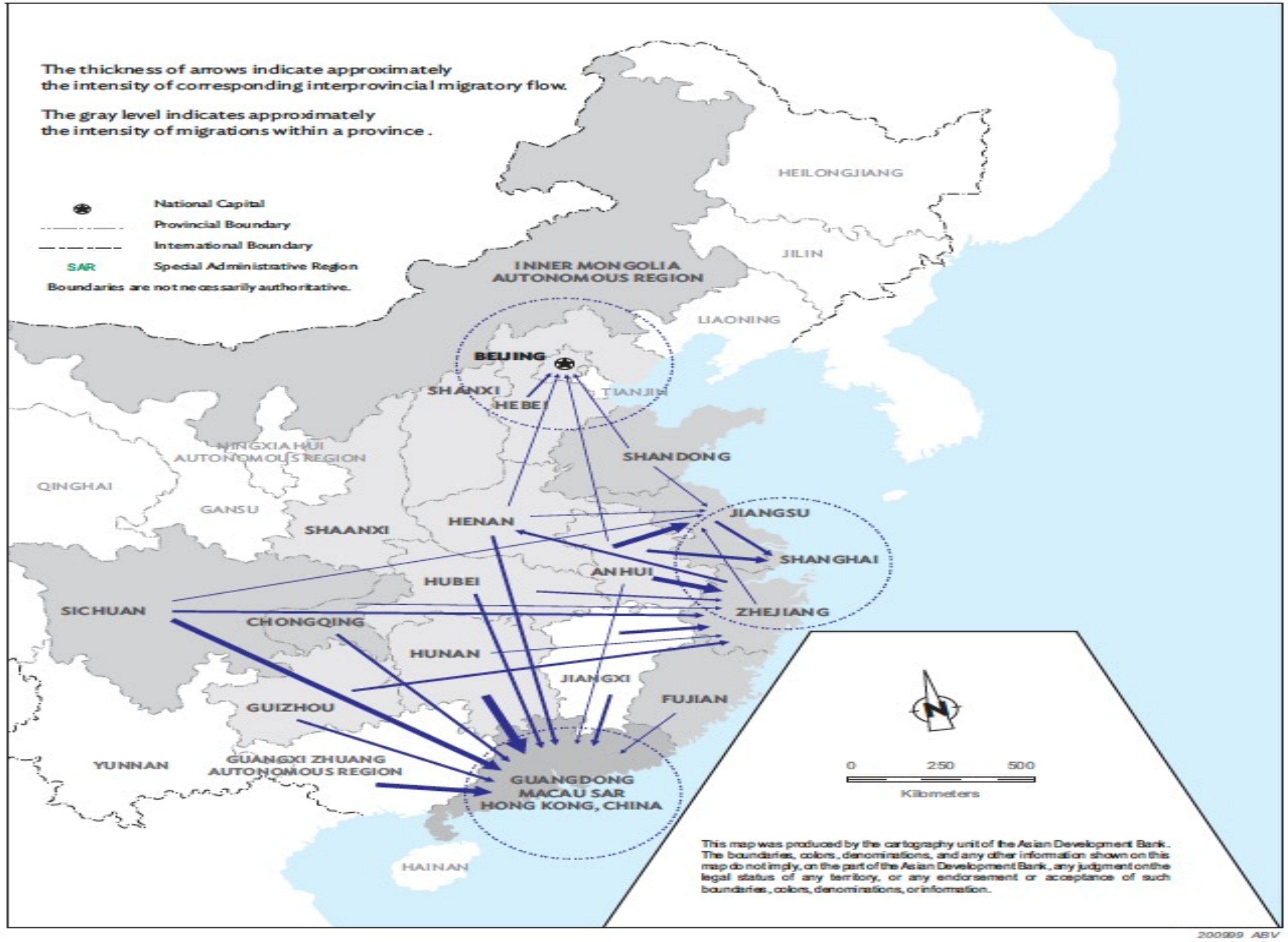
China: Revenue centralization created problems for financing local infrastructure

- Overall **tax/GDP ratio increased from 10% to almost 20%** in five years allowing the central government more room for investment and redistribution, but
- **Local governments lost "own-source" revenues over which they had control**, although compensated by revenue sharing and transfer mechanisms and there were no "own-source" revenues, **local governments not allowed to borrow directly** (until 2015 budget system reforms)
- Urban Development Investment Corporations and Local Government Financing Vehicles (LGFVs) **leveraged land sales** on behalf of the local governments (component of Land Value Capture), and could borrow
    - Private firms then built much of the infrastructure needed in the SEZs (and local governments more generally)
    - Form of "implicit golden rule", although it was difficult to ring-fence off-budget funds, or track implicit liabilities
    - 2015 formal introduction of local government bond system, but lack of own-source revenues creates sustainability problems
- **Consequences: good infrastructure in coastal metropolises**, including Guangzhou and Shenzhen
- **But**
    - growing **urban sprawl, congestion and pollution**, increasing costs of connectivity infrastructure (e.g., Guangzhou); **rent-seeking opportunities** (Wang, Wu and Ye, 2018)
    - **Buildup of implicit liabilities in LGFVs not easy to identify** (work by Ahmad and Xiaorong Zhang on local government balance sheets)
    - **Local government bond system**, step in the right direction but not anchored in own-source revenues—land sales and shared revenues restrict its usefulness
    - **Leverage by private firms** (Evergrande, and others), created problems for banks and bond-holders; increasing inequality—further away from the goals of 14FYP (common prosperity)

China: Migratory flows across provinces 2014; congestion along the coast

See Ahmad , *Journal of Infrastructure, Policy and Development* 2021

- Despite the connectivity investments in the interior and the Western Development Strategy,
- people continued to migrate to where the jobs are and where expected incomes are higher--Harris-Todaro still applies



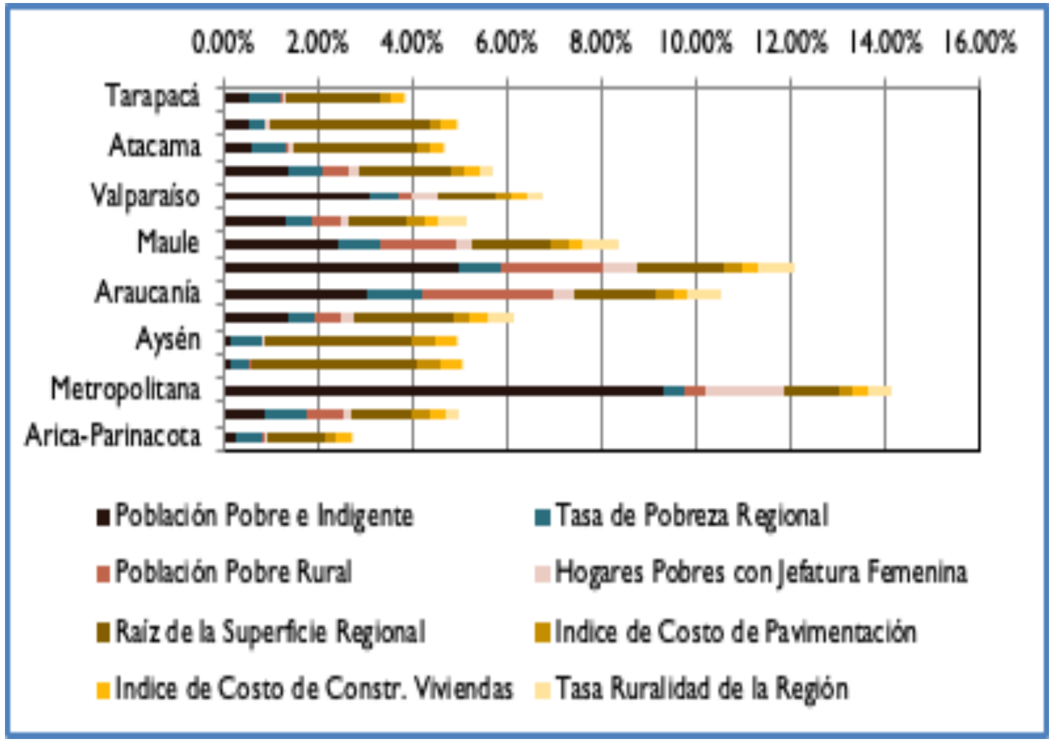
Source: Luo, X. and N. Zhu. Forthcoming. Spatial Mobility and Regional Structural Transformation in China. *LSE/CUT/WRI Program on Financing Sustainable Urban Transitions in China and Mexico.*

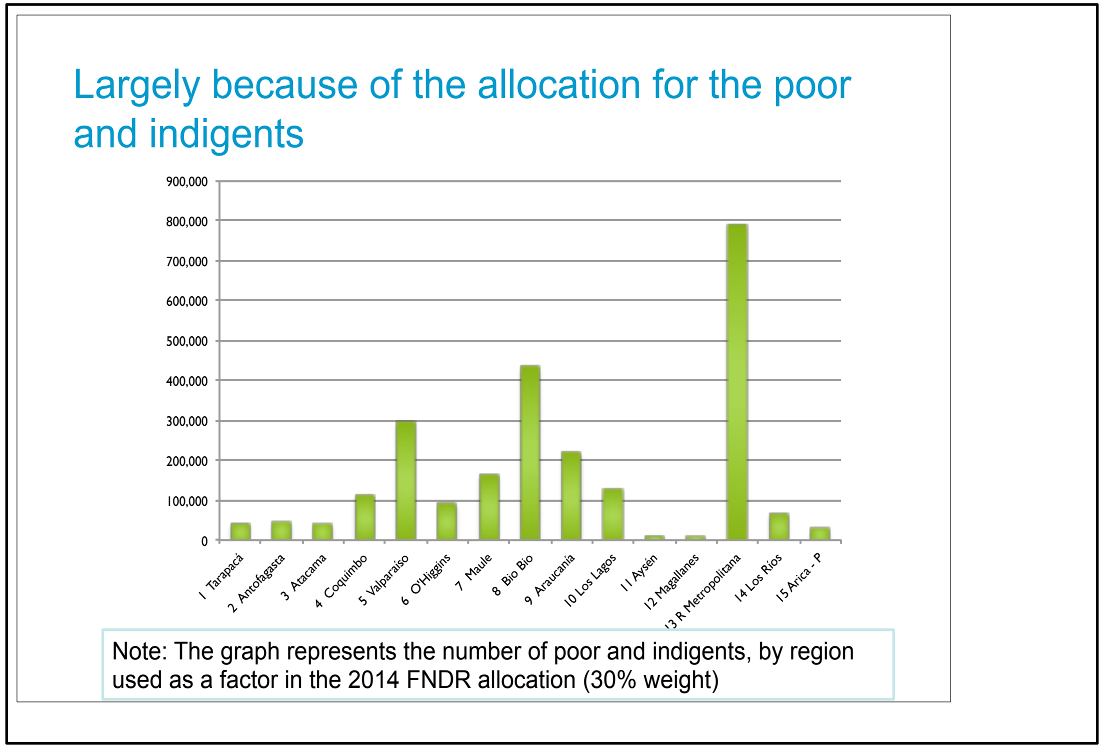
So where should the investment go?

- **IMF/WB (see Schwartz et al., 2020) reiterate emphasis on investment, correctly pointing to the need for a coordinated approach**
  - **Transparency and efficiency of investment choices**, as well as consistency, reiterating PIMA (2015), that built on WB (PIM), ratings-type assessments of process
  - Poster girl is the Chilean **SNI (National Investment System)**,
  - Yet, IMF 2022 Public Investment Handbook, reiterates market-based efficiency, with numerical subnational fiscal rules
- **Chile SNI good example of transparency and coordinated management *but,*** as pointed out in Ahmad and Viscarra (2017, Inter-American Development Bank):
  - SNI approach **largely market related**, e.g., use of LIBOR+ discount rates, market-based accounting ratios—largely private cost-benefit
  - Example: N-S Highway—did **nothing for the poorer regions** while connected:
    - only made it easier for workers to move to *Zona Metropolitana* (ZM) in and around Santiago-Valparaiso;
    - accentuated by sectoral allocation of investment funds linked e.g., to poor and female headed households (attracting these, in informal settlements)
    - Migrations exacerbating congestion and pollution in ZM,
  - ***Decline in the Economic Complexity of production*** (Harvard-MIT indices), meaning **fewer domestic linkages and jobs for the new entrants to workforce**

Chile: Ex-post cash transfers made matters worse: spatial migrations exacerbated regional disparities

- Allocations from Chilean FNDR (Allocations from National Development Funds)





Source: Piñeda, E. et al 2018, *Estrategia integral para una descentralización efectiva y fiscalmente responsible: evidencia de Chile*, B.I.D.

Mexican 2013 Reforms to the VAT created a level playing field, subject to connectivity investments

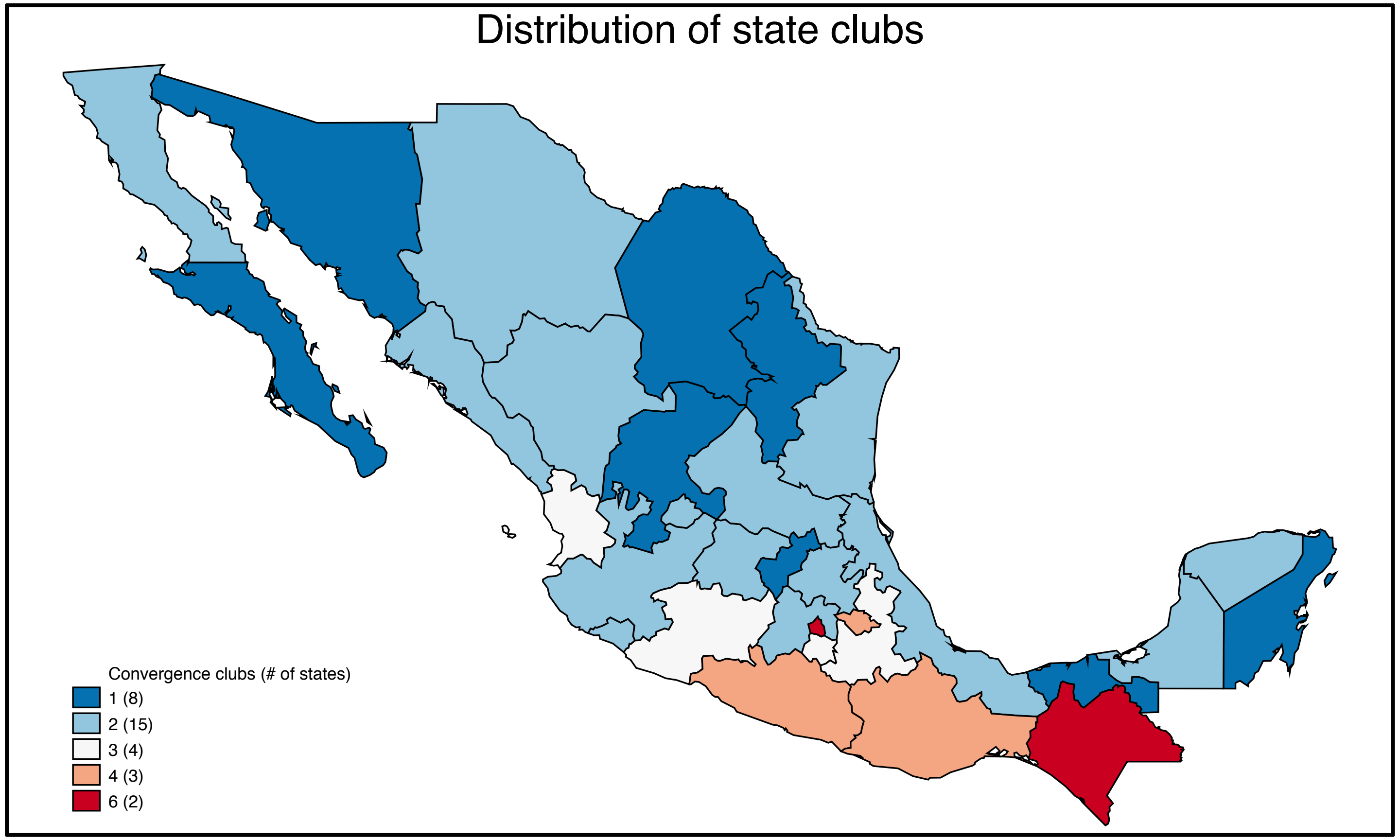
- **Post-NAFTA creation of maquiladoras** (SEZs) had attracted investment, but resulted in low tax/GDP ratio (around 10%) with considerable rent-seeking
- **Focus on the full VAT base in 2013 to generate information on the value chain and reduce possibilities of rent-seeking**,
  - including better information for excises, payroll and the income taxes
  - **Exemptions maintained for non-processed foods and medicines** for distributional purposes, building on Seade, Coady et al 1998 (SHCP and World Bank), and Urzúa 2005, "Ahmad-Stern model revisited."
- Reforms **raised the tax/GDP ratio by 4 percentage points** to 14.5% within three years
  - By blocking the ability to hide transactions with the SMEs, much of the improved revenue performance was due to the better coverage of large taxpayers
- **Created a level-playing field, with huge influx of FDI outside the formal SEZ (*maquiladora zone)***
  - Does not **matter whether the investment is outside the SEZ maquiladora zone, as long as immediate VAT refunds are provided on export**
  - Encouraged the development of **domestic linkages in central states** with major employment implications
  - Facilitated the **restructuring of over-extended metro areas,** such as Mexico City to a more service orientation with **manufacturing and employment moving to State of Mexico, Queretaro and other Central States**
- **2013 reforms also introduced a carbon tax with a margin above world prices** (although without recommended sub-national piggy-back)
- **VAT reform hugely important in protecting Mexican economy during the pandemic and current turbulence**
  - **While "tagged" carbon tax is important, tax-on-tax interactions show that non-tagged taxes such as the VAT might be equally or more important in ensuring resilience**

2013 fiscal reforms turned the whole of Mexico into a Free Trade Zone….
But huge spatial inequalities with South falling behind

- The heavy reliance on internal combustion auto investments is at risk with the shift to EVs in the US,
- Possibility of stranded assets affecting the well-to-do states in Mexico.

Mexican growth created inequalities, with South falling behind

- Robust growth in the North and around Mexico City, with negative growth in the poorest southern states
- Mexican states do not converge in the long run:
  - 4 clubs, roughly following the Northern, Central and Southern states (Ahmad and Viscarra, 2022.
- But Chiapas and Mexico City (CDMX) represent extreme inequality:
  - CDMX remains the richest part of the country by far
  - And Chiapas is the poorest, with an increasing share of the poor, and the worst public services.

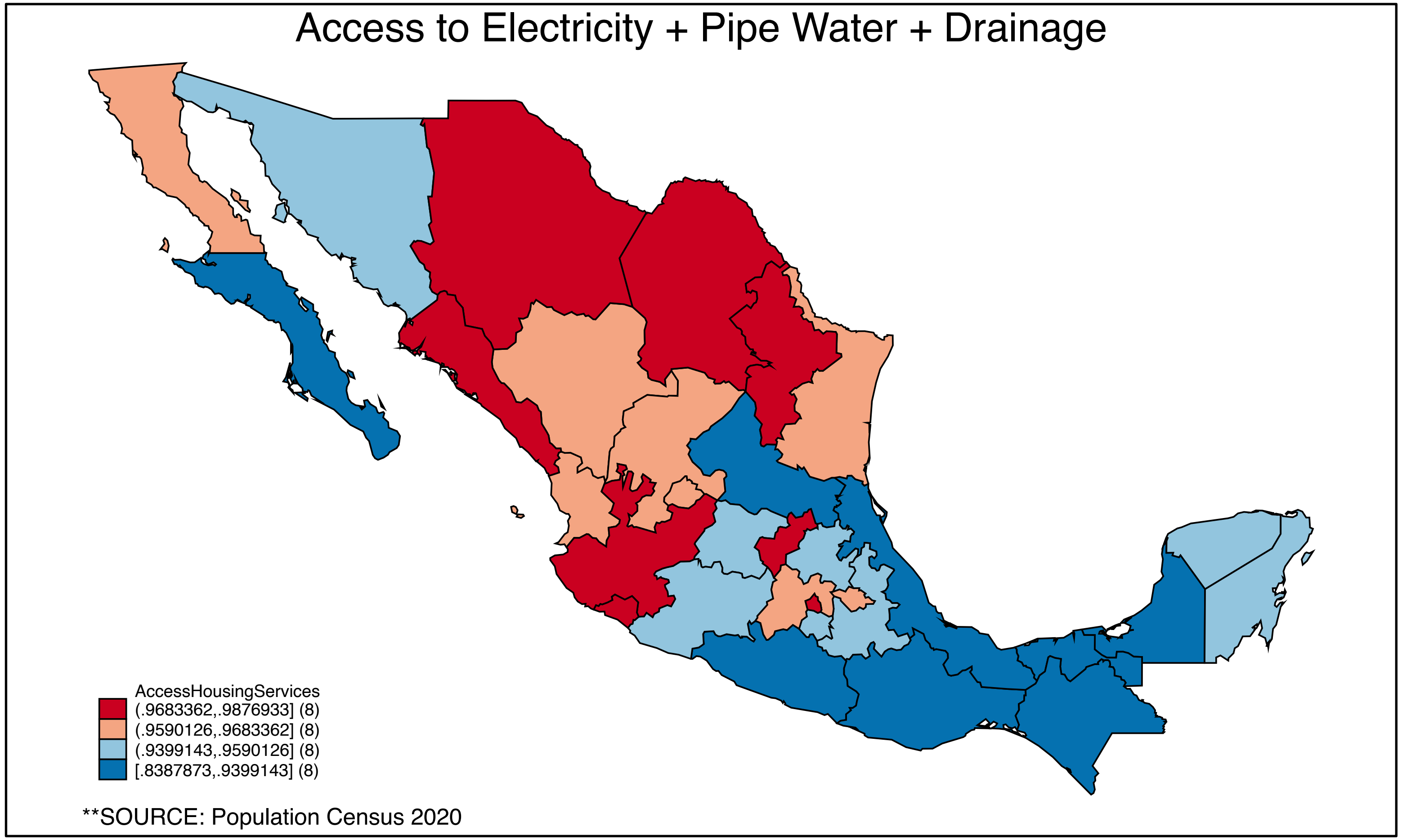


Source Ahmad and Viscarra, LSE Program on Financing Sustainable Transition in Mexico, (2020)

Mexico: Disparities in basic services, 2020

Disparities in public services influence disparities in growth and adequate employment

Also generate disparities in basic health and education outcomes



Urban transformations: Mexico City and Chiapas

- Despite its ecological fragility, Mexico City (CDMX) **has been a magnet for migrants and was the center for manufacturing** (almost half of the total in Mexico in 1980)
    - Huge expansion of the metropolitan area, with major environmental impact—pollution and congestion
    - Major impact of the pandemic on the informal sector in the slums (now spread into the State of Mexico) on health and education outcomes
- **Chiapas remains the poorest state** with the worst service delivery, despite the heavy use of CCTs (*Progresa/Oportunidades*
- ***Inequality can only be addressed by the creation of sustainable employment opportunities, <u>and basic services</u>, in lagging states and also focusing on slums in metro areas (that might the the "richest")***

Managing risks and shocks

Inadequacy of existing policy framework

- ***Standard policies and fiscal institutions*** typically based on the assumption that the **state of the world and economy returns to “steady-state normal” after a shock or crisis**, but that is unlikely, especially in the case of uncertain climate shocks.
  - ***Numerical fiscal rules increasingly irrelevant*** in crisis situations (driven by the EC “fads”) that had become the IFI norm (reconsideration in the EU underway);
  - Medium-term sustainability important but to quote Vito Tanzi —”rules not needed for responsible countries, and do not work in irresponsible ones”
  - Huge and ***increasing subnational constraints***
    - Preconditions for s/n rules (Ter-Minassian 2016)—requirements of own-source revenues and full information requirements (including PPPs) or GFSM2014+
    - Numerical subnational fiscal rules can reinforce existing inequalities
- **Multilateral assistance often poorly designed**—
  - HIPC debt relief criticized by Sachs for not providing for the poor;
  - HIPCII provision of relief to municipalities for education and health
    - did not adequately address assignments and local incentives and incomplete information flows (absence of GFSM2014-compatible information on subnational operations, e.g., Bolivia)

Need for coordinated multilateral and domestic policy actions for enhanced resilience

- Lessons from Pandemic also relevant for addressing climate change
  - Coordination and financing need to be national, or supra-national;
  - Implementation must be at the regional/state/provincial and local levels, so a properly designed multi-level fiscal strategy essential
- Lessons from HIPC I and II
  - Need to ensure that debt relief actually reaches the poor, and that both the national and local levels are effectively engaged
  - Incentives at each level of government are important and depend on the design of own-source revenues, responsibilities, and accurate and timely information on operations
  - Earmarked or special purpose transfers are needed, including from the international community, but design and monitoring are critical
  - Case of health and education in Bolivia

Spending for Sustainable Transformation requires recourse to Special Purpose Transfers (SPPs)

- Just transitions will require considerable spending on investments, public services and social spending at sub-national levels
- Major tax bases are typically national—VAT, income taxes, customs, and many excises (including carbon tax)
  - Some sub-national piggy backs are desirable (e.g., on vehicles and carbon taxes)
  - Most Emerging Market Economies have underperforming property taxes (more on this below)
- Imbalance between spending needs and own-source revenues will require SPPs to address critical infrastructure and public service gaps for sustainable transitions

Major difficulties with SPPs

- Targeting by functions or administrative units:
  - Misses key components that might not be under the control of the unit or level of administration
  - HIPC II debt relief provided for basic education and health care to Bolivian municipalities circa 2004,
    - but wages paid by central government, hiring decisions and investments by higher levels, so no effective accountability possible
  - Onerous reporting conditions prevented misuse, but resulted in accumulation of unspent funds in local government bank accounts in Bolivia (2004)
- Devolution of functional responsibilities in health and education without adequate coordination and financing
- Outcomes, even for well defined functions such as basic health care or primary education,
  - typically depend on other functions such as nutrition, clean water and sanitation
  - Climate change much more complex set of issues
- Poor information on sub-national spending
  - Mexican central government provides financing for teachers hired by local governments—but in 2014 did not have information on who the teachers were or whether they could teach

Functional and departmental spending focus

- **Estimates of functions by departmental spending—useful typical starting point**
  - Needed spending envelopes based on current and projected cohorts (e.g., education based on numbers of children, or basic health care on nursing mothers and infant children, or the disabled and aged)
  - IMF projections to 2030 for all SDGs need an additional 5.6 % of GDP for emerging market countries (Gaspar et al, 2019) with variance across countries
    - Additional resources needed to 2030: 6.5% of GDP for India (Garcia-Escribano et al., 2021 and 16.5% of GDP for Pakistan (Brollo et al., 2021); similar magnitudes estimated by JICA/LPEM India and Indonesia (Hirota and Teguh, 2021)
- **Economic components often handled by different levels of government—**
  - e.g., teachers and doctors, plus limiting contagion from the pandemic and economic shocks,
  - Outcomes in health and education dependent on nutrition, basic services including water, sanitation and connectivity (UN DESA 2022)
  - A "package" of measures needed, depending on assignments
  - Implications for the redesign of spending assignments to account for shocks and climate externalities
- **Tagging green functions not even wrong**, but can be misleading, especially without full integration of economic and spatial dimensions in Charts of Account
  - Important to avoid complexity in governance, if possible, to reduce prospects for rent-seeking (Tanzi, 2018, *Termites of the State*)

Full information on economic components of basic functions and outcomes is needed……

Economic classification/ GFSM Functions/COFOG	Compensation	Use of goods and services	Fixed capital	… ….	Acquisition of non-financial assets	Admin/ Units Codes	Projects Codes	Programs/ Sub-programs Codes	Output	Outcomes
Education										
a. Primary and secondary	M	M	C/R	C	M/C/R	X	X	X	A	A
b. Tertiary	R/C	R/C	C/R	R/C	R/C	X	X	X	A	A
Health care										
a. Basic preventive	M	C	C/R	M	M/R/C	X	X	X	A	A
b. Hospital	R	R	C/R	R	R/C	X	X	X	A	A
Water	M	M	R/M	M	R/C/M	X	X	X	A	A
Sanitation	M	M	R/M	M	R/C/M	X	X	X	A	A

Notes:
'C' represents a central assignment, 'R' is regional and 'M' is municipal.
X would be relevant codes reflecting the institutional arrangements and A are actuals for outputs and outcomes respectively, that depend on sectoral analyses.

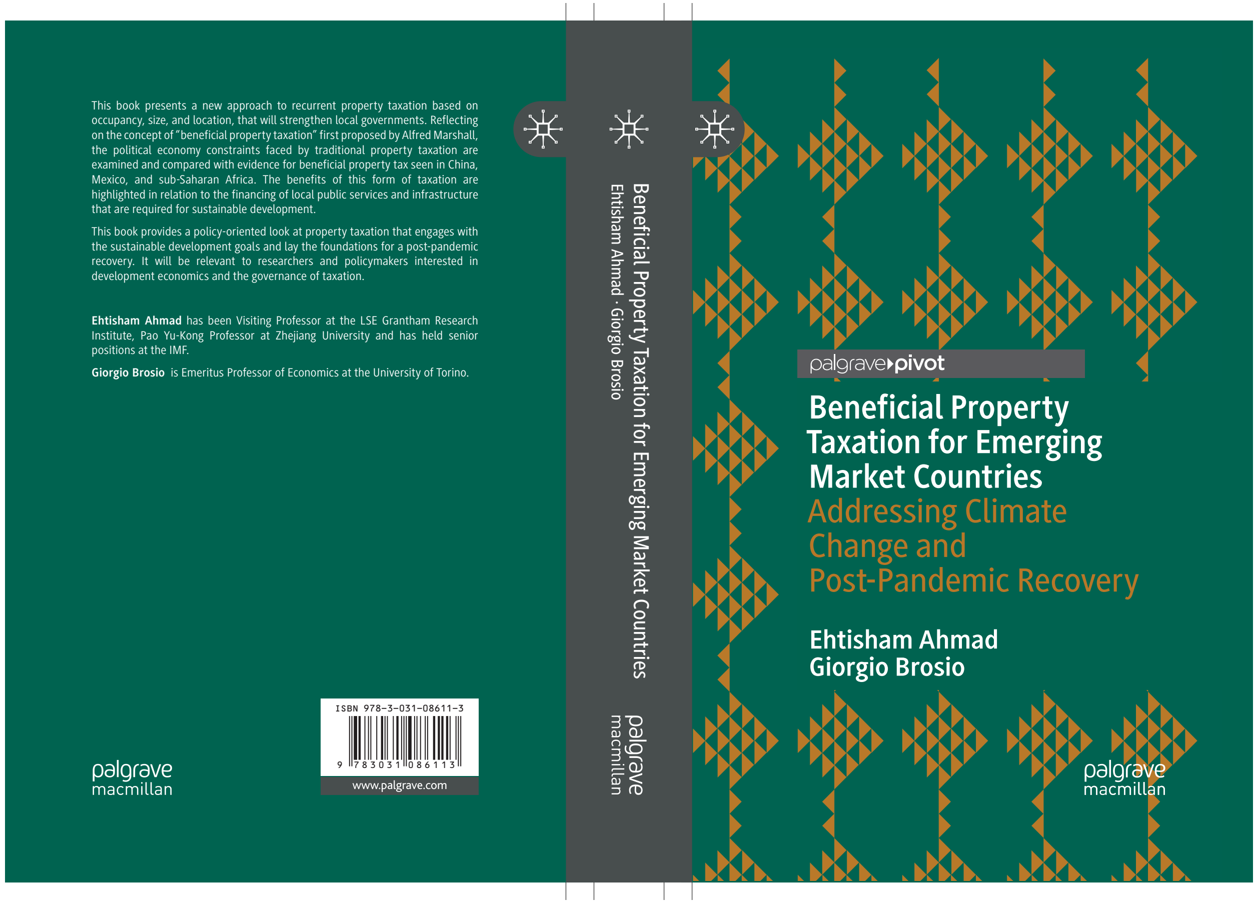
Source: E. Ahmad " Governance and Institutions", in E. Ahmad and G. Brosio (2015), *Handbook of Multilevel Finance,* Edward Elgar.

Better utilization of SPPs for Climate Change and Sustainable Growth

- Better design of SPPs essential, with a greater recognition of links with outcomes related to climate change
- The SPPs need to be aligned with incentives facing local governments,
  - in federal and unitary countries, and
  - In countries with electoral (yardstick) competition, and other with appointed officials (administrative progression models)
- SPPs must be accompanied by a strengthening of information management and institutional arrangements
  - Issues related to blockchain options apply both to the revenue and spending circuits, along with e-payments and digital solutions (a major area for further work)

Local taxation for accountability and sustainable access to private finance

Some lessons from Mexico and China



Local taxation to align incentives for sustainable outcomes

- Clear importance of **incentives, for accountable local governance, to supplement the and information generation agenda**
- **Benefits of local own-source revenues**;
  - Most **stable source of revenues for basic services**, and not affected by national counter-cyclical policies (e.g., during pandemic)
  - But resistance to valuation/ownership property tax model in developing countries
    - Dismal performance in EMEs (0.25% of GDP in Mexico and India, less in Pakistan; almost zero in many parts of the world, including in the MENA region)
    - Experiments in Shanghai and Chongqing failed to raise revenues
    - No incentives to use local tax bases if central transfers are available (gap-filling transfers in South Asia or Mexico)
- **Critical for access to credit** (own-source revenues necessary)
- **Linkage with social spending important for political economy considerations** and for establishing the **appropriate incentives for sustainable adaptation**
  - Ahmad et al., proposals for China and Mexico in Ahmad and Brosio (2022) *Beneficial Property Taxation for Emerging Market Countries,* Palgrave MacMillan.
- Applications of **blockchain pilots for simplification of both the revenue and treasury/spending circuits—**towards a digital governance framework

More equitable and stable local finance for basic services and sustainable employment hubs

- **Just transition involves sustainable employment "hubs", including in lagging regions**
  - Better definition of "package" of interrelated responsibilities, including *inter alia* preventive health care, basic education, nutrition and protection of the poorest, clean water and sanitation
- A **beneficial property tax for Mexico** (see Ahmad-Viscarra, 2020) would link a simple area/location-based tax to the package of services
  - Attractive from a political economy perspective—greater accountability
  - Can be made progressive, and generate 1.5-2% of GDP
  - Becomes the basis to leverage additional private sources of finance (municipal bonds and PPPs)
- But will require more **effective design of federal transfers**:
  - Equalization purposes to facilitate provision of "local public services at the same level of local tax effort", or the "glue that strengthens the Federation"
  - Tighter design and monitoring of special purpose for education and health, as well as capital spending/infrastructure to prevent divergence of the use of funds (including for Seguro popular or basic health care to election purposes, e.g., in 2012)

Mexico: Redressing the resource imbalance: beneficial property tax/m^2 to generate 1.5% of State GDP—positive distributional impact

States	Average property size (m^2)	Expected income 1.5% of GDP (millions of pesos)	Tax MX$/ square meter
AgCal	95,3	2.973	180,73
Baja Calif.	83,5	7.589	201,45
Baja Calif. S	72,8	1.951	245,71
Campeche	75,3	1.904	190,38
Coahuila	98,2	8.608	210,17
Colima	88,6	1.430	186,38
Chiapas	64,5	4.357	87,88
Chihuahua	102,2	7.728	190,04
CDMX	92,2	42.548	437,87
Durango	96,6	2.925	122,18
Guanajuato	96,2	9.918	134,79
Guerrero	61,9	3.480	109,61
Hidalgo	80,3	3.804	108,19
Jalisco	99,6	16.615	178,73
Mexico	77,8	21.578	115,45
Michoacan	77,7	5.875	122,13
Morelos	79,3	2.797	141,74
Nayarit	89,1	1.723	110,34
Nuevo L.	93,1	18.289	264,25
Oaxaca	64,8	3.908	98,60
Puebla	77,9	8.092	123,49
Queretaro	88,8	5.548	211,16
Quintana R	69,6	3.683	255,96
Potosí	94,6	4.952	126,40
Sinaloa	72,0	5.429	161,94
Sonora	85,4	8.062	215,33
Tabasco	76,9	3.935	138,19
Tamaulipas	82,3	7.359	227,69
Tlaxcala	79,3	1.449	97,65
Veracruz	72,4	12.060	139,58
Yucatan	73,5	3.483	152,41
Zacatecas	93,1	2.388	133,93

Source: Ahmad and Viscarra (2020)

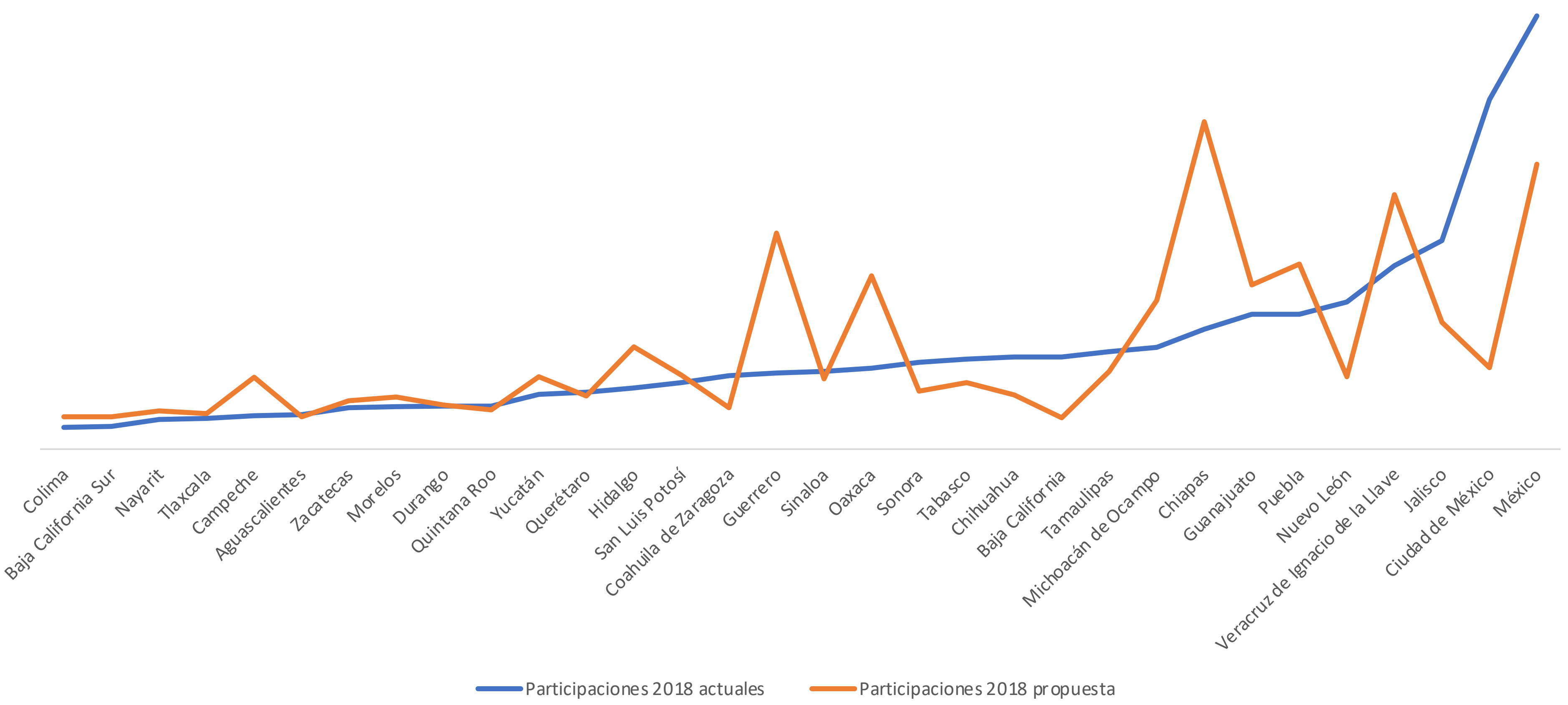
CDMX highest, Chiapas lowest, so strongly redistributive

Mexico: **positive redistributive impact increases with links to benefit structure** (Atkinson indices with varying inequality aversion)

	ε=0.5			ε=1			ε=2		
Estados	Y1 (Y0-property tax 1,5% PIB)	Y2 (targeted)	Y2 (equal)	Y1 (Y0-predial 1,5% PIB)	Y2 (targeted)	Y2 (equal)	Y1 (Y0-property tax 1,5% PIB)	Y2 (targeted)	Y2 (equal)
Aguas Calientes	0,160	0,090	0,134	0,308	0,176	0,261	0,550	0,338	0,477
Baja California	0,215	0,154	0,188	0,373	0,255	0,325	0,598	0,375	0,515
Baja California Sur	0,219	0,132	0,208	0,382	0,244	0,367	0,590	0,420	0,576
Campeche	0,219	0,085	0,166	0,379	0,158	0,289	0,585	0,281	0,458
Coahuila	0,135	0,066	0,121	0,264	0,125	0,242	0,484	0,225	0,464
Colima	0,172	0,081	0,148	0,313	0,154	0,269	0,520	0,282	0,448
Chiapas	0,246	0,080	0,140	0,450	0,155	0,261	0,720	0,287	0,456
Chihuahua	0,158	0,078	0,133	0,301	0,142	0,250	0,531	0,241	0,437
CDMX	0,151	0,144	0,151	0,277	0,263	0,275	0,467	0,436	0,461
Durango	0,166	0,063	0,129	0,322	0,125	0,252	0,584	0,244	0,464
Guanajuato	0,154	0,091	0,116	0,289	0,162	0,219	0,517	0,271	0,395
Guerrero	0,177	0,068	0,131	0,354	0,130	0,262	0,634	0,234	0,485
Hidalgo	0,283	0,099	0,203	0,490	0,172	0,346	0,761	0,278	0,528
Jalisco	0,172	0,141	0,144	0,315	0,248	0,265	0,554	0,395	0,469
Mexico	0,182	0,157	0,139	0,344	0,289	0,265	0,604	0,480	0,476
Michoacan	0,226	0,109	0,171	0,404	0,192	0,309	0,635	0,308	0,508
Morelos	0,254	0,132	0,206	0,456	0,234	0,369	0,717	0,379	0,594
Nayarit	0,221	0,113	0,186	0,403	0,215	0,340	0,684	0,417	0,597
Nuevo Leon	0,154	0,126	0,139	0,284	0,226	0,257	0,475	0,362	0,442
Oaxaca	0,221	0,089	0,158	0,421	0,178	0,307	0,723	0,364	0,573
Puebla	0,225	0,121	0,171	0,403	0,211	0,312	0,656	0,336	0,527
Queretaro	0,203	0,104	0,166	0,374	0,193	0,307	0,657	0,350	0,546
Quintana Roo	0,149	0,070	0,132	0,278	0,138	0,250	0,472	0,269	0,441
Potosí	0,247	0,130	0,205	0,449	0,230	0,370	0,720	0,378	0,602
Sinaloa	0,188	0,075	0,155	0,351	0,140	0,292	0,583	0,246	0,494
Sonora	0,188	0,120	0,168	0,327	0,202	0,293	0,536	0,311	0,480
Tabasco	0,206	0,106	0,172	0,391	0,206	0,333	0,677	0,407	0,607
Tamaulipas	0,191	0,122	0,168	0,354	0,222	0,311	0,590	0,363	0,517
Tlaxcala	0,182	0,084	0,134	0,349	0,166	0,256	0,643	0,323	0,466
Veracruz	0,217	0,152	0,174	0,390	0,259	0,315	0,648	0,399	0,528
Yucatan	0,241	0,106	0,191	0,422	0,189	0,338	0,650	0,310	0,531

Source: Ahmad and Viscarra (2020)

Mexico: need to supplement own-source revenues with reworked *participaciones* (fiscal equalization) to prevent further polarization



Ahmad and Viscarra (2020)

Increase in leverage and implosion of LVC model in China requires *urgent attention to local tax revenues* for more sustainable financing

- 14th Five Year Plan **endorses development of local own-source revenues to anchor sustainable growth**, now urgent given the implosion of the land sales/value capture model
- **US-type property tax experiments in Shanghai and Chongqing failed** to raise revenues
- Ahmad,E., M. Niu, L. Wang and M. Wang, (2022) "*Beneficial Property Tax to Finance Sustainable Transitions in Chinese cities,"* and Ahmad and Brosio 2022, Palgrave-Macmillan (similar results to that for Mexico)
  - **develop "Marshallian" beneficial property tax system**, based on location, size, and cost of service delivery
  - Simulations for six cities to **raise 2% of GDP to replace land sales, and anchor basic services** and greater accountability
  - also **reduce inequality**, and
  - provide a **basis for sustainable access to private finance**, including municipal bonds and PPPs

Concluding comments: Managing risks and uncertainty in multilevel countries

An agenda for policy related work

How to get it done? Fiscal and Governance policy agenda for COP27

- **Investment decisions must address natural, human, and social capital**
  - Market based investment and tax decisions, with ex-post adjustments for environment or income distribution make matters worse, Santiago Levy's "good intentions, bad outcomes"
  - e.g., ***market-based connectivity infrastructure***, without concern for emissions, migration and employment, or subnational service delivery generates urban sprawl, inequality and informality (Chile, Mexico, China, Italy)
- **Ensuring workable earmarked transfers**
  - Design and implementation problems in unitary and federal states
  - Important in considering the international Resilience and Sustainability Facilities
- **Ensuring sustainable access to private finance, local government bonds, PPPs requires:**
  - Subnational ***own-source revenues*** for accountability and aligning incentives
  - Importance of ***PFM, full information*** and balance sheets, **GFSM+**
- **Increasing importance of new digital economy** in streamlining multilevel governance, institutional arrangements