Financing Sustainable Recovery from the Pandemic—lessons from China and Mexico

A synthesis of a research program on sustainable transitions and development in China and Mexico

About this report

Financing Sustainable Recovery from the Pandemic—lessons from China and Mexico is part of a report series from the Coalition for Urban Transitions. This report is a synthesis of Seizing China's Urban Opportunity: Cities at the heart of the 14th Five-Year Plan and Mexico: Building Back Better which include original climate and economic analysis and modelling.

Acknowledgements

The research program was co-ordinated by Ehtisham Ahmad at the LSE in collaboration with the Coalition for Urban Transitions. The work on China built on ongoing collaboration of Ahmad, who was also Pao Yu-Kong Professor at Zhejiang University and Senior Fellow of the Chinese Academy of Fiscal Science/Ministry of Finance Research Institute, with a network of colleagues at Chinese Universities (Zhejiang, Fudan, Sun Yat-Sen and Capital University of Economics and Business) and Research Centers (Chinese Academy of Social Science; and Chinese Academy of Fiscal Science). It also benefitted from a project with the ADB to provide inputs for the 14th Five Year Plan on Financing Options for High Quality Growth, and with the World Bank on Decentralization and Governance. The Mexico program also benefitted from collaboration with the ILO on Sustainable Employment Hubs in Mexico and colleagues at ITAM. The views in this paper do not necessarily reflect those of any of the agencies or institutions mentioned.

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Abbreviations

CCCs – clean, connected and compact cities

CCT - conditional cash transfers

CDMX – Mexico City

EC – European Community

Edomex- State of Mexico

FDI – foreign direct investment

FYP – Five Year Plan

GFSM – IMF government statistical manual

IFI – International financial institutions

IMF – International Monetary Fund

INEGI – Instituto Nacional de Estadistica y Geografia

LIBOR- London Interbank Overnight Rate

LGFV – local government financial vehicles

NAFTA – North American Free Trade Agreement

NDRC – National Development and Reform Commission

PIMA - Public Investment Management Assessment

PPP – public-private partnership

REPECOS – Local and Municipal Tax Legislation and Drafting of Agreements

SEZs – Special Economic Zones

UDIC – Urban Development and Investment Corporation

VAT- Value Added Tax

Executive summary

CHINA AND MEXICO: BUILDING BACK BETTER

China and Mexico are at crucial "turning points" and their experiences, both positive and negative, could significantly influence the policy choices in emerging market countries.

China is a unitary state, with appointed officials, whereas Mexico is a federation with a multi-party system, and electoral checks and balances. Yet, despite differences in political and governance structures**, there are important similarities** in the issues faced and structural reforms chosen over more than 30 years.

- **Both countries have attempted to develop world class policy instruments and institutions, applying international best practices and in some cases, improving on standard advice.**
- **Both countries face fissures emerging during the pandemic that compound climate change and employment challenges for a sustainable and inclusive recovery.**

URBAN DYNAMICS

Major shifts in population and employment and patterns of economic activity are due to location decisions by firms and workers, and are driven by public investments and trade policies, public sector pricing and tax design, as well as the effective provision of public services. The resulting urban structures are thus the result of the cumulative effect of public policies as well as locational decisions by firms and workers.

With investment to improve the environment and living conditions in Mexico City, Shenzhen or Wuhan (or cities in other emerging market countries), there is a consequent effect on city finances, including provision of basic preventive care. These issues affect incentives for migrants often entering informal settlements outside the formal city jurisdiction, generating urban sprawl.

MIGRATION EFFECTS

The assessments in both China and Mexico have focused on **population migrations over time especially to high income metropolitan areas** (Mexico City, Beijing and the coastal metropolises—Shanghai, Guangzhou and the new city of Shenzhen), from low productivity activities, including in the better off provinces/states, as well as from lagging regions.

This has led to growing urban sprawl, congestion, and pollution in the major metropolitan areas, as well as increasing spatial inequalities within[1] and across provinces/states.

COMMON PROBLEMS, COMMON LESSONS

While it is important to avoid using "rules of thumb" indiscriminately, the lessons from China and Mexico address common problems and similar policy instruments across political systems, are relevant for a range of emerging market countries.

These suggest the importance of **national coordination and financing** during the pandemic rescue together with **local actions** to implement tracking and tracing as well as support for affected populations.

Similarly, during the recovery, there is a need for **national investments for clean and inclusive activities**. These will require the strengthening **subnational own-source revenues and enhanced governance**, to better utilize private financing to facilitate the

[1] For instance, the inequality within Guangdong province, China's richest, is higher than for China overall , Ahmad, Niu and Xiao, 2018

structural transformation towards sustainable employment hubs, including in lagging regions.

GOOD INTENTIONS, BAD OUTCOMES

Transplanting well-meaning policies from advanced countries to emerging market countries often result in "good intentions (but) bad outcomes."[2] This principle can be applied widely in China and Mexico, for example:

- Tax breaks (especially for VAT) designed to create investment and employment achieve neither and add to the cost of doing business, and create rent-seeking opportunities.
- Urban infrastructure/development using Land Value Capture (LVC)/ off budget PPPs, such as in Shenzhen and Mexico City (CDMX), generates urban sprawl, marginalizes informal workers and settlements, and creates rent seeking opportunities.
- A policy focus on metro areas and conditional cash transfers in the poorest regions does not create adequate jobs in the latter, thus reinforcing the incentives to migrate to the metro areas.
- Municipal bond systems to finance local infrastructure without effective local own-source tax bases
- Provision of connectivity investments to lagging regions while necessary, is far from sufficient to create the connected, compact and clean cities (CCCs) that generate sustainable growth and meet climate change objectives.

COORDINATION OF NATIONAL PUBLIC INVESTMENT AND TAX/FINANCE OPTIONS

A "whole of government" approach is necessary to design sustainable public investment for the recovery from the pandemic to ensure growth and job creation, especially in lagging regions. Public investment decisions for the recovery should consider effects on natural, human, and social capital, in addition to financial returns, and tax reform directions should also incorporate the same criteria at the national and subnational levels.

The sub-national tax options will greatly influence the level and quality of public services and infrastructure, but also access to credit, and location decisions by firms and workers. Structural reforms, including restructuring cities for a post-pandemic era must take these considerations into account.

MULTI-LEVEL TAX REFORMS AND SUSTAINABLE TRANSTIONS

Modern tax instruments are needed to fund basic government functions, create a level playing field, provide adequate incentives to firms, households, and workers, redistribute income, and ensure sustainable access to private finance over the medium term.

In both Mexico and ten years later in 1993/4 China, **a shift to a modern tax system involved the introduction of a VAT at the national level, suppressing a multitude of sub-national taxes**. This was designed not just to raise revenues, but also to reduce the costs of doing business, and provide prompt export refunds essential in a trade-related development strategy that also had **implications for the expansion of coastal "hubs" in China, and the Northern States in Mexico** following the NAFTA agreement.

The Mexican 2013/14 tax reforms focused **on closing the exemptions and loopholes, especially in the VAT, and integrating the small taxpayers' regime** into the regular tax system. This had the impact of increasing the tax/GDP ratio by 50% in three years, and effectively turning the entire country in an attractive zone for FDI.

[2] Levy 2008, See also Antón, Arturo, F. Hernández and Santiago Levy, 2013.

Perhaps the most interesting element of the Mexican 2013 reform was the introduction of a small **carbon tax, above a petroleum excise set at world prices that eliminated the implicit subsidy. A state level piggy-back on the carbon tax** would be in line with theory and best practice[3]. This prevents a race to the bottom and state/local governments have an incentive to levy a surcharge or piggyback at the margin to also address congestion with a higher rate in some cities.

In 2015, China followed the Mexican reforms and integrated the local business tax, which was largely on services, with the nationally administered VAT. This facilitated the removal of borders around the Shenzhen SEZ, as exports from outside the zone were not disadvantaged. It also **became easier to expand linkages with other neighboring cities, laying the foundation for the unique Greater Bay Area Innovation Zone**.

PERSONAL INCOME TAX AND ITS REFORM

The personal income tax in both China and Mexico does not play much of a redistributive role, unlike in many OECD countries. This is because it largely misses out non-wage incomes. Allowing a state/provincial piggy-back would:

- **Provide incentives for local governments to provide information using big-data that would facilitate the enhanced coverage of non-wage incomes;**
- **Be better than a revenue share, as it would not fluctuate with changes in the federal/central rate;**
- **Form the basis for a state/local government bond system, as in most advanced countries. And in Mexico, the piggy-back on the personal income tax would permit the removal of the state level payroll tax used to finance administrative and general spending, thus reducing the additional incentives for informality.**

PROPERTY TAXES AND THEIR REFORM

The long-standing ownership-valuation model of property tax in Mexico only generates 0.25% of GDP, and much of that is in Mexico City. Experiments with similar taxes in Shanghai and Chongqing failed to raise significant revenues. Also, without a properly functioning property tax it becomes difficult to operate betterment levies—a major component of LVC. The problems with land sales have been highlighted above, and the focus of policy making in China is to prevent further loss of prime agricultural land to growing sprawl.

An alternative is to base the recurrent property tax to occupancy (rather than ownership) and size and location linked to the cost of delivery of public services. Simulations of the effects of a **"beneficial property tax"** have been developed for both China and Mexico[4], using data on housing patterns from city-level surveys in China, and at the state level in Mexico. In both cases, raising 2% of city GDP in six Chinese metropolitan areas and 1.5% of State GDP in Mexico can be implemented quickly.

ADDITONAL FINANCING MECHANISMS

The prudential regulations in Mexico for the issue local bond issues and access to bank credit are largely appropriate, given the experience of the 1990s. The main lacunae relate to (1) effective "own-source" revenues, and (2) poor recording of liabilities.

The limited take-up of PPPs in Mexico is also understandable given the need for liabilities to be linked to the standardized recording of

[3] see Ahmad and Stern, 2011

[4] See Ahmad, Niu, Wang and Wang, 2020, for China; and Ahmad and Viscarra, 2020c for Mexico.

information in state/city level balance sheets. In addition, the contracting arrangements are complex, and the standard approach of placing a Tax Administration office in the Federal Government might run the risk that the advice is linked to the liabilities being transferred to the Federation, as happened in the 1990s with the road building program.

Chinese local governments were not permitted to borrow before a change in the budget law coming into effect in 2015. Yet, local government financial vehicles (LGFVs) could borrow. This was intended to provide financing for investment, but the liabilities of the LGFVs could not be accurately determined or effectively managed. A highly desirable **local government bond system was introduced in 2015 but suffers from the constraints seen in Mexico** - an absence of own-source revenues and incomplete information on the liabilities.

- **Steps need to be taken to strengthen local governments' capacity to manage debt, both by increasing their own-source revenues through specific taxes as outlined above, and by generating full balance sheet information.**

Introduction

The assessment of sustainable transitions in China and Mexico provides important lessons for the "building back better" agenda in each, as well as for many multi-level emerging market economies.

The Covid-19 Pandemic has exacerbated existing imbalances in urban design, public investment, and financing multilevel infrastructure and services, which had become apparent over the past couple of decades and have become central in the global sustainable development and Climate Change agendas.

PRINCIPLES FOR REFORM DESIGN

Transplanting well-meaning policies from advanced countries to emerging market countries often result in "good intentions (but) bad outcomes". Public investment decisions, at national, state/provincial, and local levels, as well as tax and finance decisions should be synchronized. Many of the instruments and institutions involved are common across countries, and both Mexico and China have tried to adopt global best practices.

TAXATION FOR A SUSTAINABLE FUTURE

The current local taxation systems are in need of updating and reform in order to provide sustainable resourcing for the development of CCCs, counteract urban sprawl, reduce inequalities and help achieve climate change goals. Reforms to taxation should include a local level piggy-back Carbon Tax, a local piggy back on personal income tax, and a recurrent alternative to current property taxes based on the occupancy (rather than ownership), size and location and linked to the cost of delivery of public services. These together could generate significant revenues, and form part of an own-tax component to facilitate access to bond markets and private financing of public infrastructure in a sustainable manner.

OUTLINE OF THIS REPORT

This report brings together work on China and Mexico involving colleagues in institutions in the UK and China. The report is divided into three chapters:

Chapter 1 examines strategies for sustainable development for CCCs. Since the 1990s, China and Mexico have focused on adopting international best practice for economic development and taxation systems. Market-based solutions developed in the West can have adverse unintended consequences and be inappropriate for developing countries.

Public action is needed to address infrastructure gaps, create sustainable employment, address the requirements of a cleaner environment. Improving connectivity is a necessary but not sufficient condition for growing CCCs and creating sustainable employment hubs.

Chapter 2 examines the Mexican case. Mexican data sources for the spatial analysis of patterns of economic activity, inequality and migration show a varied national and local picture.

The 2013 package of tax reforms used a combination of interlinked taxes to offset gainers and losers. The reform of VAT made the whole of Mexico an effective free trade zone. It led to a 4-percentage point increase in the tax/GDP ratio within three years. Inequality remains an economic and political issue that is closely linked to the recovery from the pandemic.

It makes the case for a state-level piggy-back on the federal income tax, administered by SAT, a sub-national piggy-back on the carbon tax and a beneficial property tax based on occupancy and size/location of should replace the annual valuation/ownership tax and betterment levies on residential properties, coupled with targeted social benefits and ensuring consistent access to private finance by sub-national authorities

requires governance reform initiated from the Federal level.

Chapter 3 examines the Chinese case. A sustainable economic development strategy in China depends on tackling urban sprawl, congestion and pollution associated with some the country's coastal megacities. China's opening to market forces and increasing reliance on external trade, led to the need to adopt best-practice fiscal instruments. The migrations to the metropolitan areas put stress on the public finances, as infrastructure expenses skyrocket. The systemic tax reforms have led to an increasing centralization of the revenue structure and administration.

The 14th Five Year Plan clearly recognizes the importance of local own-source revenues, reducing risk, and ensuring sustainable financing for high quality growth.

For both cases, this report recommends a piggy-back on the personal income tax, a carbon tax to permit either a local surcharge or "piggyback" to tackle severe pollution and congestion in the metropolitan areas, a beneficial property tax accompanied by an equalization transfer system within provinces/cities, and measures to strengthen local governments' capacity to manage debt, both by increasing their own-source revenues through specific taxes as outlined, and by generating full balance sheet information.

Sustainable Development Strategies: Do rules of thumb work?

Summary

- Since the 1990s, China and Mexico have focused on adopting international best practice for economic development and taxation systems
- Market-based solutions developed in the West can have adverse unintended consequences and be inappropriate for developing countries
- Public action is needed to address infrastructure gaps, create sustainable employment, address the requirements of a cleaner environment
- Improving connectivity is a necessary but not sufficient condition for growing CCCs and creating sustainable employment hubs
- Gentrification in CDMX centre has shifted congestion, inequality, and climate risk elsewhere in the greater metro area
- In China, the 5th Plenum directives for 14th Five Year and Perspective Plan incorporates an understanding of the close spatial linkages of urban reforms in different parts of the country

Recommendations

- A build back better agenda must include public investment that incorporates a focus on natural, human, and social capital
- The creation of "sustainable hubs for employment" requires complementary local infrastructure, and provision of basic public services
- The same factors are relevant in the choice of tax and financing policies in raising revenues and ensuring that firms and workers face the right incentives for sustainable growth and employment generation

RECOVERING FROM THE PANDEMIC IN MULTILEVEL COUNTRIES

It is increasingly recognized that the recovery from the Pandemic must jointly address the **structural investment agenda for sustainable employment generation and meeting climate change goals**[5]. This is especially important in countries like China, India, Indonesia, and Mexico. Although there are differences in political and constitutional systems across these countries, **similar issues require very similar policy measures and institutional arrangements**. China and Mexico represent different political systems but are both emerging market countries and illustrate how modern fiscal institutions and policies can be used to address common issues in countries that differ significantly in governance structures from the US or Western Europe.

ECONOMIC CONTEXT

Both China and Mexico had restrictive trade and investment regimes before major structural transformations since the 1980s. The removal of taxes that penalized investment and added to the cost of doing business was a critical impetus for the reforms in both countries. In Mexico, the adoption of VAT in the late 1970s[6] was part of the investment-oriented transformation. The pernicious turnover tax was replaced along with myriad state level taxes to improve the business climate.

In China, Deng Xiao Ping's liberalization of the early 1980s and the introduction of the "responsibility system" replaced 100% profits taxation with al tax structure leaving resources in the hands of firms and local governments, and was designed to create higher incomes and employment opportunities through a greater reliance on firm and local initiatives in agriculture and industries[7].

Both Mexico and China, over a decade later, focused on adopting international best practice to bolster federal/central revenues to better finance public spending while reducing the cost of doing business. The adoption of the IMF's Government Statistics Manual (GFSM) 2001/14 and shift to a system of Treasury Single Accounts has been completed at the central level in China, but work remains at the sub-national level that constrains financing options.

Mexico lags China in this respect, and the absence of GFSM balance sheets at all levels of government, and effective own-source revenues at the city/local level also limits the use of modern financing instruments, such as local government general purpose or project-linked bonds (including the green variety) and PPPs for local public infrastructure in both countries.

Major structural reforms in Mexico in the 1990s involved a rationalization of the trade regime, with the NAFTA agreement in 1994. However, to encourage firms and workers to locate to the northern *maquiladora* SEZ, tax exemptions and preferences were introduced, including to VAT, that reduced its ability to create a level playing field as well as generate revenues. The trade related structural changes were designed to attract (largely US) investment in the *maquiladora* zone to take advantage of cheaper labour in Mexico and reduce migration of Mexican workers to the US.

Although manufacturing industry relocated out of Mexico City (CDMX) mostly to the *maquiladora* zone and neighboring states, like State of Mexico and Querétaro, the greater Mexico City metro area (outside the formal jurisdiction of CDMX) remains a magnet for workers, and urban sprawl continues to expand.

[5] See N. Stern et al., 2021

[6] This replaced the cascading turnover tax, that discriminated against exports and investments. The reform replaced 30 Federal excises and 300 state taxes , F. Gil Diaz, 1987.

[7] See Ahmad, Rydge and Stern, 201).

RAPID DEVELOPMENT

It is worth keeping in mind that in 1990, the World Bank[8] classified China as a low-income country, with per capita GDP of $330, or lower then than Pakistan ($350). It did not have a central tax administration, relying on upward revenue-sharing. The shift to the responsibility system in the early 1980s to unleash private incentives and growth, caused the general government tax/GDP ratio to drop to 10% by the early 1990s, or lower than that of Pakistan at the time. **Mexico, on the other hand, was classified then as a middle-income country with a per capita GDP of $1760.**

In 1993 China rejected advice based on "normative" federalism theory, influenced by the US-centric models and adopted in the former Soviet Republics, that "finance should follow function". China's 1993/4 focus was on strengthening domestic resource mobilization to increase resilience and lay the basis for financing sustained growth[9].

M**odernization of the fiscal system was initiated by a tax/transfer reform based on adoption of international best practices. This involved the introduction of a VAT in 1993/4 by a newly established national tax administration,** to bolster and accelerate the structural reforms to generate revenues for public investments, including in education, while not adding to the cost of doing business[10]

Although SEZs were created in China to facilitate agglomeration economies (e.g., Shenzhen and Pudong, paralleling the export-led strategy that Mexico adopted with the maquiladoras adjacent to the US) this also offset the still less than complete restructuring of the investment and tax regimes. However, the removal of restrictions on labour movement led to more than 500m people migrating to largely coastal employment hubs, with more than 750m taken out of poverty in one of the most significant economic transformations in modern history.

MARKET-BASED POLICY TRANSPLANTS

Transplanting advanced country policies (often from the US) into emerging market countries without regard to the context, institutions, and incentive structures, was tantamount to "good intentions, bad outcomes."[11] The case of social security benefits financed by payroll taxes on the formal sector, generated incentives to use workers on informal contracts, hence avoiding the payment of taxes. This led to "inefficiency and informality" and reduced the potential growth rate.

The China-Mexico project shows that this insight has much wider relevance, especially in terms of multilevel finance, urban transitions and sustainable growth in emerging market countries.

The **predominant model underlying public policy advice to emerging market and transition economies, following the collapse of the USSR, was to rely on market prices** to send appropriate signals to firms and workers. Given that infrastructure is lumpy and provides benefits beyond the term of a given government or generation, it is justified to borrow, and the market would equilibrate appropriately designed projects leasing to the convergence of incomes and opportunities across regions.

Thus, market-based pricing for connectivity infrastructure, for example, would send appropriate signals to firms to relocate to remote locations taking advantage of the lower

[8] World Bank, *World Development Report 1990: Poverty*, Washington DC, p. 178.

[9] See Ahmad, Qiang and Tanzi, 1995, Ahmad and Brosio, 2015

[10] Ahmad, Rydge and Stern, 2013.

[11] Levy, S, 2008, see also Antón, Hernández and Levy, 2013, Ahmad and Brosio, 2015

costs, including wages. Consequences of the model are that:

- People who fall through the cracks can be provided means-tested transfers (as in the case of the celebrated Chilean case—North-South Motorway).
- **Urban structural reforms can then be designed for individual cities or metropolitan areas without consideration of what is done elsewhere**, as the market will equilibrate, and incomes will converge.

Even the Biden America Jobs Plan[12] recognizes that **reliance on the market has not taken care of the public investment needs in the US. Public action is needed to address infrastructure gaps**, **create sustainable employment, address the requirements of a cleaner environment**.

THE CHILEAN CASE

The Chilean case recommended by the IMF and World Bank[13] confirms patterns seen in China and Mexico (also in other OECD countries such as Italy):

- **Market prices and LIBOR+ discount rate leads to a private cost-benefit** assessment and pricing regime, **precluding a focus on employment, human and social capital or natural capital and emissions**. Thus, although the Chilean North-South Highway was well built and managed, it was chosen without consideration of renovating a Spanish rail line from the 1800s.
- Without a focus on complementary local infrastructure and provision of public services, **firms did not move to the periphery and lagging regions**.
- On the other hand, the easier transport facilitated the **movement of workers to the high-income metropolitan zone, where the jobs were located.** But the migrations led to informal settlements in an increasingly sprawling, congested and polluted metro area.
- **Conditional cash transfers and public investments in low-cost housing in the metropolitan area also attracted many workers** who were unable to find employment elsewhere, including female headed households.
- Although the metropolitan area had the highest per capita incomes in the country, the growing informal sector meant that it **also had an increasing number of poor people, and consequently had higher public transfers than other regions, ensuring a continuation of the vicious cycle of migration and poverty, as well as congestion and pollution in** Santiago de Chile and surrounding metropolitan zone.
- **Affordable housing in the richest part of the country, while well intentioned, effectively contributed to the inequity in intergovernmental transfer design and resource allocations; and made matters worse.** This is a potential problem in both Mexico and China.
- The informal sector in the metropolitan area also made **it very hard to control the pandemic**.

CONNECTIVITY: NECESSARY AND SUFFICIENT?
CHINA

The **Western Development Strategy in China around 2000** focused on infrastructure gaps between the coastal and interior provinces, particularly in the lagging western provinces. But this did not reverse growing inequalities across provinces, or stop the flow to the coastal mega-cities, like Guangzhou (Chart 1, below).

[12] US, America Jobs Plan,

[13] See Ahmad and Viscarra (2016), based on technical work with the *Sistema Nacional de Inversiones* (Public Investment System).

The development of clean, compact, and connected cities (CCCs) away from the larger metropolitan areas is a key element of sustainable growth. But achieving such cities requires more than just connectivity and SEZs.

Jieshou in central China, is well connected to major centers by rail and road. It also had considerable investment in industrial parks for and a focus of the "rebalancing efforts". However, increasing direct and indirect debt together with the absence of own-source revenues, exerts significant budgetary pressures, affecting the provision of public services.

This contributes to the continuing outflow of workers, and in turn affects the ability of the city to become a sustainable employment hub.[14]

Connectivity infrastructure, particularly "clean" rail, is critical in opening up employment opportunities in the interior and lagging regions. An example is **Wuhan**, at the center of China's vast high speed rail network, that also benefitted from river-based connectivity, like Chicago.

Over the last decade, Wuhan has experienced a significantly higher inflow of migrants than the typical coastal destinations—Guangzhou and Shanghai (see Appendix 1). Many of these migrants were lower income or so-called "floating" workers, leaving the overall working population with a relatively low coverage for unemployment insurance (18% versus 67% in Shanghai or 55% in Guangzhou); and only 30% eligible for medical coverage (versus 70% in Shanghai or 45% in Guangzhou).

Given its expansion, Wuhan has needed huge infrastructure investments—with a "clean" metro network of 9 lines over 300 km (each line costs around $20bn), carrying 1.22 bn passengers annually (2019), with a few additional lines under construction (but frozen since January 2020). Many of the modern buildings, including some of the tallest skyscrapers in China, are constructed taking ecological considerations into consideration (e.g., in the Wuhan Greenland Center). Traditional flooding in Wuhan has been largely controlled.

Wuhan also has the benefit of the (CNY 20.7 bn/$3 bn) Sponge City Program. A CUT study "has shown that green and blue infrastructure can be employed both quickly and cost-effectively to increase the resilience of urban areas to climate change….with reduced carbon emissions, improved public health, enhanced natural cooling and improved biodiversity" [15].

Combined with green spaces, and huge expenses on hospitals (with more beds per capita than Shanghai or Guangzhou) **Wuhan meets all the desired characteristics of a model clean, connected, but not particularly compact city**.

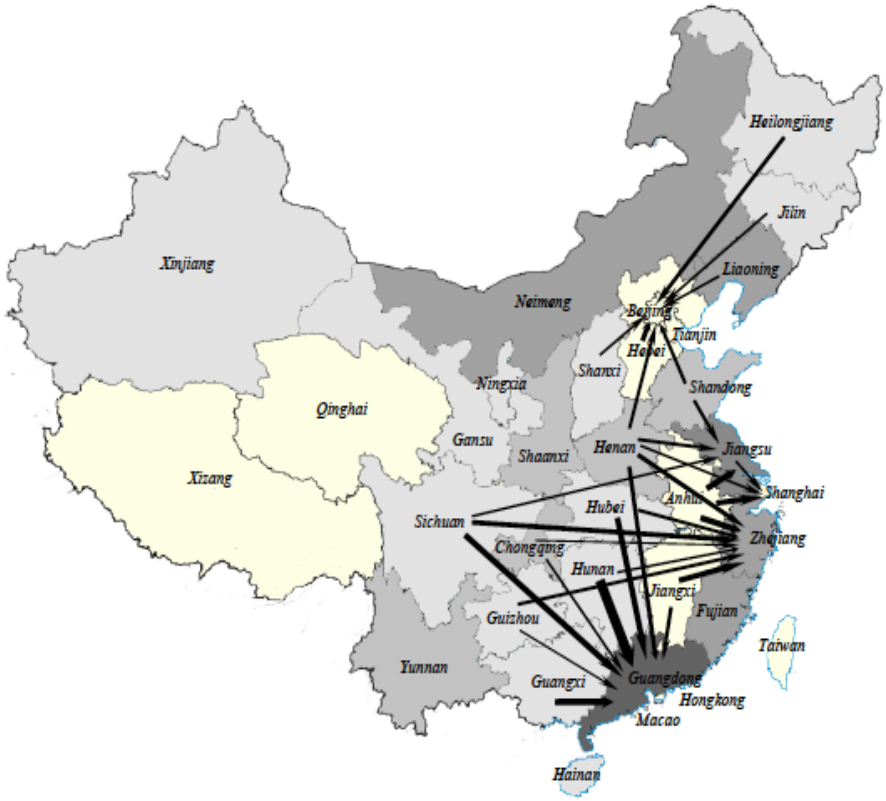
Although we do not have a full balance sheet for Wuhan[16], the process was not fiscally sustainable and buckled with the onset of Covid-19.

[14] Jieshou is engaging in a flurry of off-budget contracts, accumulating liabilities that the local government is not likely to be able to cover in the future. Jieshou's stock of official debts approached 1000% of government revenues (or the third highest in Anhui province (Industrial Securities, 2018). This limits the city's ability to provide adequate services and infrastructure as an alternate employment hub as well as a CCC as activities are moved out of the larger metropolitan areas.

[15] Oates et al, 2020.

[16] Constructing a full GFSM-compatible balance sheet is a hugely complicated exercise—and we were only able to do this for two comparatively small cities in Central China—see Ahmad and Zhang, 2020, and the discussion below.

Chart 1. Inter and Intra-Provincial Migratory flows, 2014.



Note: The thickness of arrows indicates approximately the intensity of corresponding interprovincial migratory flow, and the gray level indicates approximately the intensity of migrations within a province.
Source: China Floating Population Survey (2010), China Family Planning Commission, calculations and presentation by authors.

Source: Luo and Zhu (2020).

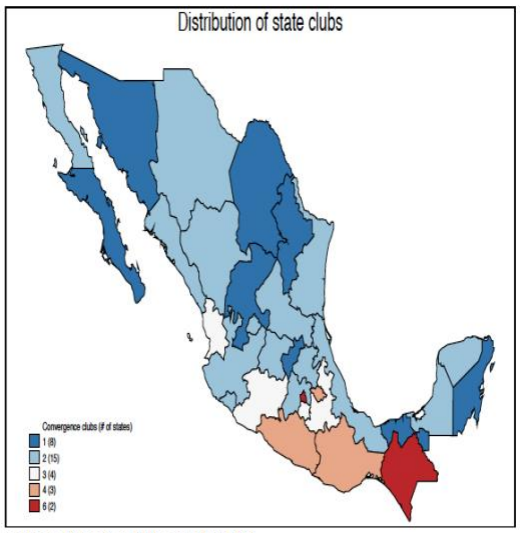
CONNECTIVITY: NECESSARY AND SUFFICIENT? MEXICO

In Mexico, **privately financed connectivity in the road building program (borrowing backed by tolls) between Mexico City and the Northern States/US linked to NAFTA, did not carry State or Federal Guarantees.** The program opened capital cities like Querétaro or Toluca, but not the lagging regions within the better-off states. It also did not extend to the lagging states like Chiapas. However, with the Tequila crisis, contractors were unable to finance debt obligations mainly to State-level banks, **leading to a sub-national debt crisis requiring a federal government bailout**.[17]

The patterns of **trade and connectivity have led to a complex system of divergent groups of states in Mexico**. Northern and Central States that benefit from manufacturing activities are in Groups 1 and 2, as is the tourist destination state of Quintana Roo (see Chart 2a). With the completion of a national fiscal reform leading to a full coverage of the VAT in 2013/14, a lot of FDI (including the hugely important automobile industry) located in the central states along the connectivity routes, as it was possible to export from outside the maquiladora zone and still obtain prompt VAT refunds.

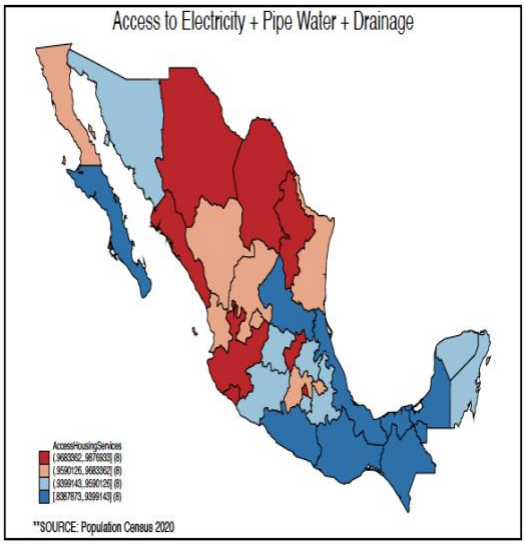
Most of the poorer Southern States, relying on agricultural activities, fall in Groups 3 and 4. In Mexico City (CDMX), which increasingly specializes in services, and with the informal sector workers pushed into the neighboring jurisdictions, per capita incomes rose above those of Group 1. And with negative growth, the per capital incomes of Chiapas fell below Group 4—completing **a more complex picture of inequality than just the typical North-South distinction**.

Chart 2a Do States converge to a common growth path?



Source: Ahmad and Viscarra (2020a).

Chart 2b Disparities in Service Delivery



CONNECTIVITY: GENERAL LESSONS

[17] A similar problem arose in Spain with off-budget liabilities financed by regional *Cajas* became a full-fledged banking crisis, requiring a Central Government bailout (see Ahmad, Bordignon and Brosio, 2018).

- **Connectivity infrastructure is necessary but not sufficient to generate convergence of opportunities and incomes or ensure that firms move to lagging regions**. The failure of the Western Development Strategy in China and increasing disparities with respect to Southern States of Mexico testify to the need for more proactive measures. In both China and Mexico, connectivity infrastructure also generated within state/province inequalities.
- **Restructuring metropolitan areas** like the gentrification of *Centro Historico* in CDMX, or reductions in speed in the metro areas to create a 15-minute city (CUT 2021) **while important, may continue to push out the informal settlements into a peripheral sprawl outside city jurisdiction.**
- **The major risk is that effective metropolitan areas** (outside formal jurisdictions) **will continue to attract migrants and expand exponentially**.
- **Yet, the importance of clean (rail) connectivity to poorer areas like Tabasco and Chiapas cannot be underestimated, both to create sustainable employment in the poorer southern States in Mexico, but also provide potential employment generating linkages with the Northern Triangle initiative involving the Central American States.**

METROPOLITAN AREAS: NEED FOR A WIDER FOCUS

Focusing on individual cities and metropolitan areas, such as Mexico City or Wuhan, without consideration to the overall objectives of high-quality growth and employment generation, can be self-defeating. This is because workers seeking higher incomes and a better quality of life might prefer to migrate to the metropolitan areas and may already have local support networks.

The decade-long gentrification of Mexico City Historic Center has been impressive but has forced informal sector workers to further move into the sprawling suburbs outside CDMX jurisdiction. The additional 15-minute city focus, with low-cost housing does not help much, if the jobs are still in the CDMX center:

- **Poorer people still have to commute long distances on crowded buses and the metro.**
- **As the collapse of Metro Line 12 in a poorer southern municipality illustrates, a hastily designed and financed system is to blame, along with poor operations and maintenance.**
- **Allocating scarce federal resources to low-cost housing in the richest jurisdiction in the country, rather than in Chiapas, would raise questions about the fairness of earmarked transfers and federal spending.**

Setting up a US-style metropolitan authority is, unfortunately, not a solution.[18] CDMX is by far the richest jurisdiction in Mexico (outstripping the Tier-1 States), and it is unrealistic to expect that poorer municipalities would be willing to contribute significantly to such an authority.

[18] Regional Metropolitan Transport Authorities in the US have had difficulty in generating sufficient funds from fares and the participating regions (e.g., in the Washington DC or New York metro areas) to cover operating spending during normal times and have had to be bailed out as ridership tanked during the Pandemic.

Moreover, CDMX may not have an incentive to do so either.

In China, the 14th FYP announced **linking a few major metropolitan areas as innovation "hubs"** leading to the development of an entire zone. This involves high quality research and development in universities and research centers, product development and financing for IPOs, and supply chains, supported by an integrated network of activities. T**he 5th Plenum directives for 14th Five Year and Perspective Plan (**PR China, 5th Plenary 2020—(PRC 2020)) **incorporates a clear understanding of the close spatial linkages of urban reforms in different parts of the country,** to meet goals of:

- **reducing inequalities** (#30, PRC 2020),
- **peaking net emissions** by 2030 (#35, PRC 2020) to achieve China's commitment of net-zero carbon emissions by 2060,
- **while maintaining full employment in smaller inland cities** geared to domestic consumption, and
- converting some major metropolitan areas into **unique innovation zones, for high tech transformation of metro areas,** as well as sources of resilient exports. This is a **central part of the "dual circulation" proposal** in the 14th Five Year Plan and Perspective Plan (#17, PRC 2020)[19].

This interesting policy experiment is being undertaken in both the **Greater Bay Area (GBA),** with nine coastal cities in Guangdong, Hong Kong and Macau that are linked by world class high-speed rail, internet and energy infrastructure, together with the development of electric vehicles; and also, in the **Yangtze River Delta that spans four provinces**: Shanghai, Jiangsu, Anhui and parts of Zhejiang (#7, PRC 2020). This reform is facilitated by shifting labour-intensive activities to the inner cities and lagging regions in Western China, or to neighboring countries, like Viet Nam, Indonesia or the Philippines. The fiscal and institutional arrangements are to be worked out during the 14th Five Year Plan.

A similar transformation is possible in Mexico, linking the research and development capabilities in CDMX, State of Mexico and Querétaro. As in the Chinese case, environmental and distributional objectives would be met through a relocation of labour-intensive activities to Southern States, including Tabasco and Chiapas, with **employment linkages with the "Northern Triangle" of Central American states**.

TOWARDS AN INTEGRATED SUSTAINABLE DEVELOPMENT POLICY FRAMEWORK

A build back better agenda must include public investment that incorporates a focus on natural, human, and social capital, in addition to financial returns and risks[20] The choice of discount rate should reflect uncertainty associated with long gestation investments[21].

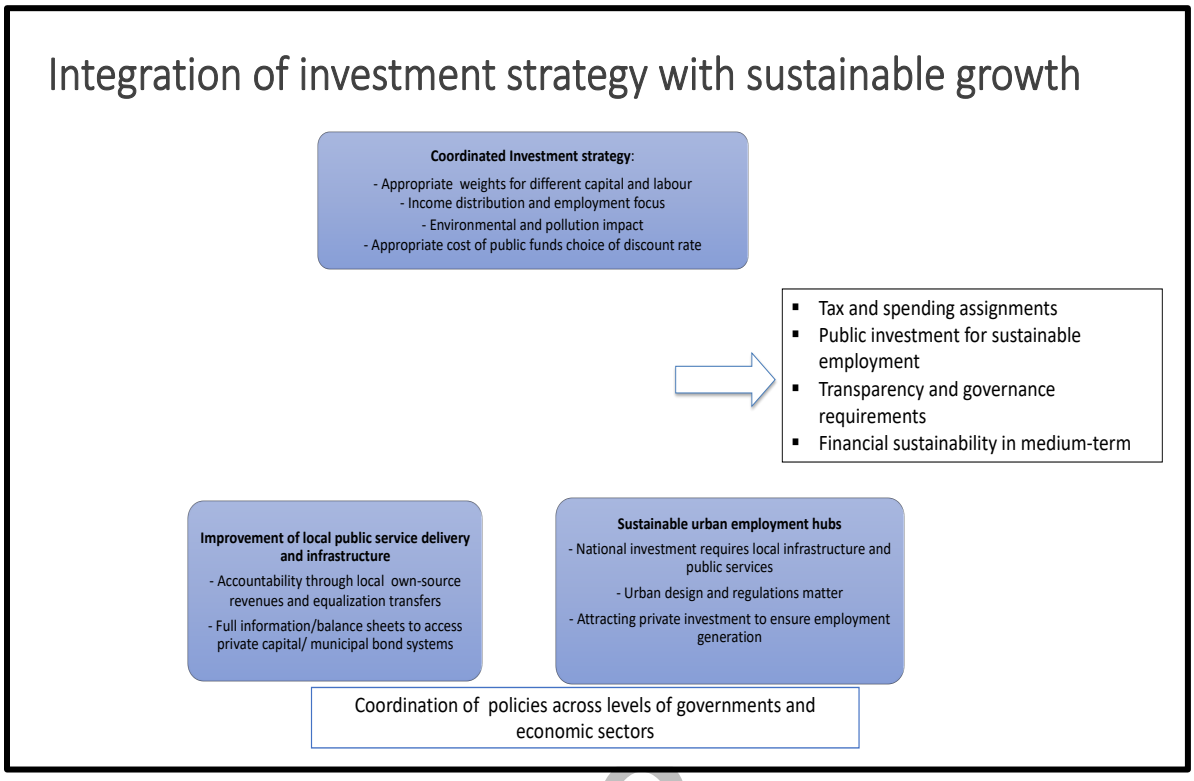
The same factors are relevant in the choice of tax and financing policies—not just in raising revenues but also to ensure that firms and workers face the right incentives for sustainable growth and employment generation, including in lagging regions. As many actions are either coordinated or financed by national governments, but implemented at the local level, including in cities and metropolitan areas, a multi-level finance agenda is needed to ensure consistency of decision making as described in Chart 3.

[19] As explained in Ahmad (2021a),

[20] As emphasized by Stern et al., 2021

[21] Stern and Stiglitz, 2021

Chart 3 Multilevel infrastructure design, taxation, and financing for building back better



Source: Ahmad, E., 2021a.

The creation of "sustainable hubs" requires complementary local infrastructure, and provision of basic public services, including preventive health care, clean water, and sanitation and (in some countries) basic education. This requires local investments to accompany a national tax/transfer system and a development of a significant sub-national tax agenda to anchor access to private finance. It is essential to align incentives facing firms, households, and workers, as well as to finance the needed spending, as illustrated in Chart 3.

The predominant approach to structural change has been to **focus on efficiency and transparency of public investments**. It is always correct that whatever choice of project or program is made, that it should be managed efficiently, and that the bidding process and tracking the build-up of liabilities are transparently managed. While necessary, these conditions are not sufficient to generate sustainable and inclusive growth.

For sufficiency, a concern for human and natural capital, the environment, and distribution of income in both the investment decisions as well as tax design are fundamental.

1. The potential for sustainable growth in Mexico

Summary

- Mexican data sources for the spatial analysis of patterns of economic activity, inequality and migration show a varied national and local picture
- The 2013 package of tax reforms used a combination of interlinked taxes to offset gainers and losers
- The reform of VAT made the whole of Mexico an effective free trade zone
- The package of reforms led to a 4-percentage point increase in the tax/GDP ratio within three years
- Inequality remains an economic and political issue that is closely linked to the recovery from the pandemic.
- The Carbon Tax eliminated the implicit subsidy that had appeared from time to time as domestic prices fell below world prices.
- The revenues from a beneficial property tax potentially are significantly greater than the *nómina* and the current *predial* (property tax)
- The Federal government cannot require states to adopt standards or policies that they might not want to.

Recommendations

- A state-level piggy-back on the federal income tax, administered by SAT, could raise more revenues than the *nomína* at relatively low tax rates, and be more redistributive.
- A sub-national piggy-back on the carbon tax is desirable for both distributional and environmental reasons and a way to access bond markets and private financing for infrastructure.
- A beneficial property tax based on occupancy and size/location of should replace the annual valuation/ownership tax and betterment levies on residential properties
- To reduce inequalities, the tax should be coupled with targeted social benefits
- Ensuring consistent access to private finance by sub-national authorities requires governance reform initiated from the Federal level

TOOLS FOR ANALYSIS

Mexico has excellent data allowing an examination of sustainable growth from a number of interlinked perspectives. These include the **Economic Census** for sectoral and regional production and employment; **inter-industry flows data** for disaggregated input-output information; **household income and expenditure data sets** for the assessment of directions of tax reform, **migration data** for urban transitions and potential problems and opportunities in different part of the country; and **housing location, size and distribution** to estimate potential revenues and distributional implications of local taxation.

The social profitability of different sectors at a reasonably disaggregated level is linked with potential linkages that determine priorities for national and subnational taxation and financing measures.

- **Given the patterns of disparity that have emerged in Mexico over time, the characteristics of different groups of states and changing employment opportunities within states can be used to explain the migrations of skilled and non-skilled workers and the impact on crowded and polluted urban areas**[22].
- **A combination of detailed social profitability, considering weights on human, social and natural capital, together with insights from the Convergence, Complexity, and Labour Mobility assessments, provides a picture for national and sub-national investments needed for sustainable and inclusive growth, as well as the supporting multilevel tax and governance agendas.**

[22] Ahmad and Viscarra, 2020

SPATIAL IMPACTS BY REGION: CDMX

- **Given its ecological vulnerability the current focus on high skilled services,** such as the financial sector, research and innovation in outstanding research centers and universities is appropriate.
- **Rather than well-intentioned provision of low-cost housing in CDMX, including for public employees,** that attract more unskilled migrants, the focus should be on providing better paid jobs for labour-intensive activities in cheaper and less congested areas, especially in the lagging southern states.
- **Public administration that can be easily accessed by electronic linkages (such as social security institutions) can be relocated to less congested cities.** This process is already in motion, e.g., with the Statistics Agency, INEGI, located in Aguascalientes.
- Given high quality universities and research centers, financing and excellent linkages, there could be **a high-tech innovation zone linking CDMX-Toluca-Queretaro** (to parallel the Chinese experimentation in high tech zones).

SPATIAL IMPACTS BY REGION: NORTH AND CENTRAL MEXICO

- **Given the heavy concentration of internal combustion engine-related value chains in these states, linked to the North American markets, diversification would be desirable**,
- **Diversification of activities away from capital cities in the "manufacturing states" to limit sprawl is important.** For example, Guadalajara has the second highest population density in Mexico, and is the third largest metropolitan area.
- **Tax instruments are needed to signal that sprawl can be costly.**
- **Moves to strengthen employment in smaller cities in the more advanced**

states will depend in enhancements in public services and infrastructure. Own-source revenues ensuring greater accountability and facilitating access to private finance are essential.

SPATIAL IMPACTS BY REGION: THE LAGGING STATES, TABASCO AND CHIAPAS

Despite the emphasis on conditional cash transfers over the past couple of decades, poverty in Chiapas has increased. In recent years, the expansion of low-skilled micro-enterprises in Chiapas reflects a new focus on the safety net, often at a fraction of the previous wage income[23] This does not constitute active labour market policy to create sustainable employment "hubs" in the Southern states.

- **Connectivity infrastructure is important.** Electric railways, energy, and IT grids are critical to begin to attract firms, and to establish new value chains in the lagging states.
- **Local public services and** infrastructure require adequately funded local governments via national transfers and revenue shares, own-source revenues, access to local government bond markets and other forms of private financing.
- The complexity, labour market and convergence analyses suggest that, **given skills and endowments, the Southern States would specialize in labour-intensive sectors (e.g., textiles, furniture, agricultural/dairy products).**
- **Linkages with Central American Northern Triangle countries would be important in generating labour-intensive activities in the region that provide more than subsistence living and reduce the incentives to migrate to the Northern metropolises or CDMX.**

AN OUTDATED LOCAL TAXATION SYSTEM

Mexico had a distorting and inefficient system of taxes at the state level (on the payroll, *nomina*), as discussed above. But it also had **a long-standing system of US-style property tax based on ownership, market-based valuation, and with forms of betterment levies**. This included an additional development charge, and in some states a proper betterment levy (*impuesto de plusvalia*) that are key elements of land value capture, other than land acquisition and sales (Smolka, 2013). Sales are subject to both the capital gains tax and the VAT.

The problem is that **the property tax has been an ineffective instrument to raise revenues—accounting for a shade over 0.2% of GDP for almost half a century**—with almost half coming from CDMX, which has managed to update cadaster and valuations regularly. But even CDMX managed to collect only 0.44% of its GDP, largely due to the political economy problem of imposing market-based tax rates on fixed income and liquidity constrained households.

The *plusvalia*, where imposed, raised virtually no revenues at all.[24] Trying to extract even 1.5% of GDP from the ownership-valuation property tax (roughly half of the expected potential) in the immediate future is a non-starter for the pandemic recovery and anchoring significant improvements in local services needed to attract investments, especially in the lagging regions.

[23] Ahmad, Añorve and Viscarra, 2021.

[24] Paulo-Cohen, M., and L. Zamorrano-Ruiz, 1999.

FISCAL REFORMS 2012-13

While post-NAFTA trade policy and investments clearly had an influence on the location of firms and movement of workers especially to the Northern States, **tax breaks and preferences especially for VAT** led to a dangerously low tax/GDP ratio of around 10%, and encouraged rent-seeking behaviour[25]. Once special deals for vested interests are granted, they become very hard to remove—something that successive Mexican Finance Ministers have struggled with in trying to reform the VAT and income taxes since the late 1990s.

A **package of tax reforms was finalized and enacted in 2013, using a combination of interlinked taxes to offset gainers and losers** among states' interests. Two additional features stand out:

1. **Fixing VAT involved not just the elimination of special spatial and sectoral provisions, but also integrating the small taxpayer's regime**. The full integration of the value chain had the following effects:
    - R**educed costs** and making it easier to obtain **immediate cumulative input tax refunds** on exports.
    - Made the whole of Mexico **an effective free trade zone facilitating a great deal of FDI in the Central States in Mexico**, especially where there are good public services and connectivity.
    - The inclusion of the **small taxpayer regime (REPECOS) into the value chain** reduced the ability of large firms to hide transactions with REPECOS firms. A major side benefit was **the improvement in income tax collections, and reduced incentives for informality.**
    - **The package of reforms led to a 4-percentage point increase in the tax/GDP ratio within three years**—the most significant domestic revenue mobilization effort in a major country since the 1993/4 Chinese reforms (also centered around a modern tax system and the VAT).
2. **Establishing a positive "Carbon tax" above international prices. This eliminated the implicit subsidy that had appeared from time to time as domestic prices fell below world prices.**
    - **Although the magnitude of the tax was small in relation to several OECD countries, was nonetheless a very important measure and quite difficult to implement politically** in a petroleum-producing country.
    - The tax also contributed to the revenue performance of the "package" of reforms.

TOWARDS A POST PANDEMIC AGENDA FOR SUSTAINABLE GROWTH

Despite the significant enhancements in the federal tax structure in 2013, **inequality remains an economic and political issue that is closely linked to the recovery from the pandemic.** The indications are that poorer groups have been disproportionately affected but that this is not fully reflected in the official numbers. In this context, an **emphasis on rail and clean energy connectivity with the lagging states, including Tabasco and Chiapas** is appropriate but not sufficient.

The creation of sustainable employment hubs in Chiapas could be enhanced by exploring linkages and new value chains with the Northern Triangle countries in Central America, as well as better trading and investment

[25] Ahmad, 2021b

opportunities with Europe and Asia. But this requires both local infrastructure and public services that must be financed responsibly.

The very successful national fiscal reforms have left subnational governments, especially in lagging regions and outside major metropolitan areas in the more advanced states without effective mechanisms to finance sustainable infrastructure or high-quality public services.

In many respects, the national and subnational financing agendas are closely interlinked.

Two of the main state level options that would both raise additional revenues and also be more attractive distributionally are piggy-backs on the federal income tax base and on the carbon tax. Third, the introduction of a local beneficial property tax to replace existing property taxes would complement and reinforce the effects of the piggy-backs.

REPLACEMENT OF THE STATE-LEVEL PAYROLL TAX BY A PIGGY-BACK ON INCOME TAX

The *nomína* (payroll tax) on the formal sector that finances social benefits is one of the prime causal factors for informality. This tax bears heavily on fixed income wage earners and on formal firms who are unable to avoid paying.

A state-level piggy-back on the federal income tax, administered by SAT, could in principle raise more revenues than the *nomína* at relatively low tax rates, and be more redistributive.

It would also encourage state/local administrations to share more information about non-wage income with the SAT, thereby potentially expanding the coverage of the income tax. A similar arrangement in the US is the mainstay of subnational bond systems**,** and one of the principal criteria used by ratings agencies in looking at sub-national credit worthiness.

A SUB-NATIONAL PIGGY-BACK ON THE CARBON TAX

A sub-national piggy-back on the carbon tax is desirable for both distributional and environmental reasons and is also a good way to begin to access bond markets and private financing for infrastructure.

Welfare-enhancing directions of tax reform, using different weights on natural, human and social capital, as well as higher weights on the poorer groups of the population, show **that taxing carbon products in Mexico is not as harmful to the poor as is often assumed by policy makers and academics alike[26].**

This research shows that a **government that does not tax carbon products shows relatively little concern for the poor,** for all possible combinations of weights on human, natural or physical capital. Moreover, as concern for poorer income categories increases as (shown by increasing the inequality aversion parameter or Atkinson index), **a government concerned with inequality would increase taxation on these products.**

A state/local piggy-back on the carbon tax is particularly useful in influencing locational decisions by firms and workers. Thus, one way to address congestion and pollution in more densely populated areas, is to impose a higher piggyback in jurisdictions like CDMX, than in sparsely populated areas, such as the Southern States. This would also help to address the imbalances and inequalities across the states and regions.

THE INTRODUCTION OF A BENEFICIAL PROPERTY TAX

A beneficial property tax based on occupancy and size/location of properties to replace the

[26] see Ahmad and Viscarra, 2020b

annual valuation/ownership tax and betterment levies on residential properties.
US-style recurrent property tax on residential properties, based on ownership/valuation, has failed to raise revenues in any part of Mexico commensurate with the stated potential of 2-3% of GDP reached in the US and other OECD countries.

The gross property tax collection of around 0.25% of GDP, much of which is due to CDMX, cannot be the basis for a sustainable development agenda. After a brief experiment with a poll tax in the UK, a much simpler model of recurrent property taxation[27] based on "bands" based on size of property and location and linked to the principal expenditures of the local councils, has been in place since then. This is broadly linked to the insight of **Alfred Marshall over a century ago, who argued that the political resistance to a very visible property tax could be addressed by a close linkage with locally delivered services—turning it into a "beneficial property tax".** The UK collects 3.3% of GDP in property tax revenue—compared to around 2.5% in the US.

We can simulate the effects of introducing a simple "beneficial property tax" with the rate/m² varying by state, given the availability of information on housing characteristics in Mexico to generate 1.5% of the GDP of the relevant jurisdiction[28]. **The simple beneficial property tax is seen to be highly differentiated** and is likely to play a **very strong role in the spatial dynamics of urban transformation** in Mexico. The tax rate/m^2 is set at 1.5% of State GDP and varies from Mx\$437/m^2 in CDMX to Mx\$88/m^2 in Chiapas.

The distributional consequences of the beneficial property tax in Mexico are striking. The inequality effect is calculated for low, medium and higher levels of inequality aversion (e = 0.5, 1 and 2), and compares the origin level of inequality without tax, Y_0, Y_1 the tax on its own, and Y_2 with the tax distributed equally, or to families with children for education/health spending).

The result is that the tax on its own reduces inequality in most states—this is seen most markedly for Chiapas. **The inequality reduction effect is magnified as the benefit linkages are introduced**, and as the weight on the poor in assessing inequality increases (higher inequality-aversion parameter). **Given the importance of the poor in Chiapas, this is a very powerful result.**

In CDMX, the tax increases inequality at low levels of inequality aversion. The situation changes when linked to benefits targeted to children—in this case for education. **If there are moderate or high levels of inequality aversion, the tax on its own reduces inequality in CDMX**. A linkage with equal distribution of benefits, or targeted to education, makes the overall package strongly redistributive.

T**he tax-benefit linkage is a very powerful policy tool for a government that is very concerned with inequality and creating sustainable employment hubs**, especially in the lagging Southern states of the country.

Relative to the current collection of 0.26% of GDP on account of the property tax, **the proposed 1.5% of State revenues on average would give a tremendous revenue boost to the own-source revenue potential in every state.** This would open the doors to a more systematic use of private finance for public infrastructure, including green bonds, without exacerbating risks from sub-national liabilities.

[27] In the UK, business properties and all sales are still subject to the regular tax regime.

[28] City/metropolitan level information would have been desirable (as in the Chinese case, see below), but was not available given the sampling methodology, except for the separate information for CDMX. See Ahmad and Viscarra , 2020c

The most significant increases in revenues would be in CDMX as well as in Chiapas. However, the tax potential in CDMX is almost ten times the revenues that could accrue to Chiapas (Table 4) and twice the revenue potential of the measure in the State of Mexico (the next highest). **To prevent the measure from increasing spatial inequality and reversing the dynamics of urban transformation, it is important to pose the reforms jointly with a modern fiscal equalization** reworking of the *participaciones*.

The revenues from the beneficial property tax potentially are significantly greater than the *nómina* and the current *predial* (property tax) combined. This ranges from around 1.5 times in CDMX and Edomex, to 3 times collections of the two in Chiapas (see Table 4).

Table 4. Comparative Revenues for Selected States (Millions of Pesos)

State	*Nómina*	Actual Property tax revenues	1.5% of GDP Beneficial property tax
State of Mexico	10,163.30	3,990.66	21,577.83
Querétaro	1,409.10	693.85	5,547.54
CDMX	20,281.47	9,067.91	42,548.10
Chiapas	1,162.44	224.20	4,356.95

IMPROVED GOVERNANCE FOR ACCESS TO PRIVATE FINANCE

Efforts have been underway for at least 15 years to require state and local governments to adopt internationally accepted standards for budgets and balance sheets for consistent treatment of liabilities.

However, given the "federal" nature of the Mexican constitution, the Federal government cannot require states to adopt standards or policies that they might not want to. This is a **significant constraint in ensuring consistent access to private finance**, as a simple "reliance on the market" is typically not sufficient (as seen in the 1990s road building crisis).

The **"federal" constraint also applies to requiring states to adopt tax policy reforms**, especially since there are multiple parties in Mexico, with differing priorities. Thus, the benefits of different options must be demonstrated to the subnational jurisdictions to persuade them that the options are beneficial.

Typically, "**federal earmarked transfers**" (or *apartaciones*) have been used to influence sub-national entities. However, as seen in the case of education financing, without full information on a timely and standardized basis, it is hard to ensure that the desired outcomes have been achieved. In the final analysis**, a whole of government approach with costs and benefits clearly delineated, is necessary to achieve a sustainable growth outcome at different levels of administration.**

2. Financing Sustainable Urban Transition in China

Summary

- A sustainable economic development strategy in China depends on tackling urban sprawl, congestion and pollution associated with some the country's coastal megacities
- China's opening to market forces and increasing reliance on external trade, led to the need to adopt best-practice fiscal instruments
- The migrations to the metropolitan areas put stress on the public finances, as infrastructure expenses skyrocket
- The systemic tax reforms have led to an increasing centralization of the revenue structure and administration,
- The 14th Five Year Plan clearly recognizes the importance of local own-source revenues, reducing risk, and ensuring sustainable financing for high quality growth
- Investors are becoming increasingly wary of lending to Chinese local governments

Recommendations

- Both national and sub-national actions will be required to strengthen own-source revenue collection in Chinese provinces and cities.
- A piggy-back on the personal income tax could achieve greater local accountability, more predictable revenues for local budgets, and improved access to private finance with greater incentives for local fiscal responsibility
- A carbon tax would also permit either a local surcharge or "piggyback" to aggressively tackle severe pollution and congestion in the metropolitan areas
- Beneficial property taxes provide an alternative to land sales and provide own-source revenues that lay the basis for access to private finance
- Beneficial property taxes also need to be accompanied by an equalization transfer system within provinces/cities to ensure a decent quality of local services across all districts.
- Steps need to be taken to strengthen local governments' capacity to manage debt, both by increasing their own-source revenues through specific tax handles (as outlined above) and by generating full balance sheet information

BACKGROUND: GROWTH, CLIMATE RISK AND INEQUALITY

The highly successful growth story in China was built on the **strengthening of coastal "hubs" largely geared to export activities.** This process has been facilitated by very large migrations from rural areas and interior cities to the coast (over 150 million people) over the past couple of decades and a phenomenal reduction in poverty (for over 750 million people).

Because of growth and migration patterns, the coastal "hubs" have become **congested and polluted mega-citie**s, generating a **high degree of spatial and interpersonal inequality**. Not only are there significant differentials between the coastal and interior provinces, but as in Mexico, there are major gaps within the richer provinces. Attempts to "rebalance" activities to interior provinces, e.g. the Western development strategy of the early 2000s, despite the enhancements in connectivity, were largely unsuccessful. And workers continued to migrate to where the jobs and higher income were perceived to be—in the coastal metropolitan areas.

A sustainable economic development strategy in China **depends on tackling urban sprawl, congestion and pollution associated with some the country's coastal megacities, as well as concentrations of health challenges associated with the pandemic**. This involves changing the direction of internal migration to compact, connected and clean cities in the interior. The strategy depends on location decisions of firms, creating employment opportunities, without which ghost towns can and do appear.

STRUCTURAL REFORMS AND THEIR CONTEXT

China's opening to market forces and increasing reliance on external trade, led to the need to adopt best-practice fiscal instruments to manage the process. The focus initially was on a new tax administration built around the VAT, and a "best practice" fiscal equalization system (Ahmad, 2017). The adoption of the IMF's GFSM 2001/14 standard for budgeting and reporting at the national level followed, along with the establishment of a Treasury Single Account, as is common in most OECD countries.

The national fiscal institutions have been implemented more effectively than in Mexico, with a tax/GDP ratio that is around 20%, significant reserves and public investment in connectivity and infrastructure that is at a par with developed countries, and double-digit growth performance since the 1993/4 reforms.

The systemic tax reforms have led to an increasing centralization of the revenue structure and administration, with an increasing reliance of sub-national governments on shared revenues and inter-governmental transfers to close vertical gaps.

With one of the highest levels of decentralized/ deconcentrated structures of spending responsibilities in the world, and relative weak monitoring of spending and liabilities at the lower levels of administration, there has been a **spiraling of sub-national borrowing and liabilities**. While the aggregate debt levels for general government are well within prudential limits given the resources of the central government, a **telescoping downwards of deficits poses heightened risks** [29]

The migrations to the metropolitan areas put **stress on the public finances, as infrastructure expenses skyrocket** e.g., on metro-lines in

[29] Ahmad, Niu and Xiao, 2018.

Wuhan and Guangzhou, the Sponge City in Wuhan, and provision of basic services for a rapidly expanding workforce. Balance sheet information consistent with the GFSM2014 standards, adopted at the Central Government level, are hard to put together even for county level cities[30] and suggests very much higher levels of indebtedness and local government risk than officially reported to higher levels of administration. This restricts the feasibility of interior jurisdictions to take on the desired "recirculation" or play an increasing role in the "dual circulation" to shift to domestic consumption and production in clean, connected, and compact cities.

The 14th Five Year Plan **clearly recognizes the importance of local own-source revenues, reducing risk, and ensuring sustainable financing for high quality growth**. Based on the current research agenda, further work in needed in several areas to ensure adequate local financing for direct provision of infrastructure and basic services, and ensuring access to private finance. This is very similar to the agenda for Mexico described earlier.

A SUSTAINABLE POST-PANDEMIC RECOVERY

Both connectivity investments and local public services are needed to shift some of the lower value-added activities to the western and southern provinces, as well as encouraging less-polluting technologies and more efficient urban design. The rebalancing and new trading patterns and cross-border value chains can help change relative costs and location decisions for firms and workers. But delivering high quality of life and safeguarding local environments around interior cities will depend on firms choosing cleaner technologies and processes.

Rural development is also essential but if successful, it will release surplus labour to urban areas. If all these workers and their families continue to move primarily to the east coast, the pressure on public services and local infrastructure as well as cost of living and local urban environments will continue to mount.

FINANCING THE RECOVERY

Effective service delivery (particularly health care and education) is clearly needed to encourage the private sector to invest in less well-developed cities, like Jieshou, and qualified workers to migrate there. The 14th FYP envisages a reassignment of spending responsibilities across levels of government, and together with strengthening of local own-source revenues**, there can be a reduction of pressure on local budgets and more sustainable access to private finance**, and better accountability for local spending.

Both national and subnational actions will be required to strengthen own-source revenue collection in Chinese provinces and cities. Tax legislation is solely under the National People's Congress (NPC), as China is a unitary state, while all tax administration is currently centralised into the State Tax Administration (STA). **Introducing sub-national tax handles therefore depends on the NPC legislating bands for specific taxes** (as the NPC already does for several taxes on property transactions) and permitting provinces and cities to choose their own rates within this band structure. A local tax administration is not needed.

In China, following the 1993/4 reforms, the main tax handle for local governments in China was the business tax on services. **Attempts to pilot the ownership-valuation property tax in Shanghai and Chongqing failed to raise revenues. Local governments used land sales to generate funds for expansion and infrastructure.** The so-called "Shenzhen model" has become a buzzword for NGOs and IFIs. This rivals the popularity of the Mexican conditional cash transfer, *Progresa/Oportunidades*, which was abolished in 2019.

[30] see e.g., Ahmad and Zhang, 2020,

While the drawbacks to the land sales model have been apparent to the authorities, it has proved hard to eliminate it given the pressures on local government. The land sales **fueled significant urban sprawl.** Much of this urban expansion has been at the expense of productive agricultural land or fragile ecosystems such as deltas, increasing exposure to natural hazards [31]Moreover, the off-budget nature of the revenues generated, with weak monitoring, has fueled rent-seeking behavior at the local levels.

More important is the increase in fiscal risks, given the rise of off-budget borrowing through the UDICs leveraging land sales. Local governments were prohibited from borrowing to meet current spending before 2015. However, their UDICs **could borrow using local government financing vehicles (LGFVs) for capital investments** – the so-called "golden rule". This policy was not always followed in reality, and the UDICs provided convenient off-budget funding for all sorts of spending. In response to the global financial crisis in 2008-10, the central government used the UDICs and LGFVs used to finance the CNY 4 trillion stimulus.

The consequent spiraling of sub-national liabilities has become a matter for urgent concern for the central government **and developing an effective system of local taxation is a priority for the 14th Five Year Plan** (#22, PRC2020)**.**

OPTIONS FOR LOCAL TAXATION REFORM

There are two promising options for China to strengthen sub-national governments' own-source revenue collection:

- **a surcharge or piggy-back on the national personal income tax (to replace the current sharing arrangement) and on a national carbon tax; and**
- **the creation of a "beneficial" property tax on an recurrent basis to replace land sales.**

With a piggy-back model, the National People's Congress typically sets legislation defining the tax base while STA takes responsibility for administration; the local government then sets a rate at the margin within the band prescribed by national legislation. This model is already being used for a variety of taxes on property transactions so there is precedent within China.

A piggyback[32] offers multiple advantages, including greater local accountability and more sustainable access to private finance. This would also protect sub-national budgets from national tax cuts, as the piggy-back, if denominated in a band rather than a surcharge, does not change as the national rate is adjusted.

This is especially important in China today to ensure that the recent tax cuts by the national government successfully stimulate rather than contract demand, which may be the case if they drive local governments to slash spending on infrastructure and services such as health care.

TACKLING INEQALITY: A PIGGY-BACK ON INCOME TAX

The **personal income tax has significant revenue potential given rapidly rising income levels in** China. It is also the main instrument for achieving **more equitable interpersonal distribution of personal income** (although not for redressing spatial imbalances). Currently, revenues from the personal income tax are shared between national and subnational

[31] Wang, Wu and Ye, 2018.

[32] A piggy back, where the local government sets the rate at the margin on a given base, could be distinguished from a surcharge where the local base is set on central collections. The latter varies as the central government reduces taxes, for example, whereas the piggy-back does not. The piggy-back offers greater certainty to local budgets although both qualify as "own-source" revenues.

jurisdictions, with the amount accruing to local governments determined based on amounts collected in each province or city.

A piggy-back on the personal income tax could easily replace this sharing arrangement, generating all the advantages outlined above: greater local accountability, more predictable revenues for local budgets, and improved access to private finance with greater incentives for local fiscal responsibility.

A piggy-back or surcharge on the personal income tax would have two additional advantages.

- **First, it would allow provincial governments to more aggressively to tackle interpersonal inequality by adopting a rate in the upper ranges of the prescribed bracket.**
- **Second, it generates incentives for the local government to share information on the lifestyles of taxpayers with STA that can be used to diversify the tax base and reduce tax avoidance.**

The current personal income tax in China draws **largely on withholdings from formal sector wages, and is regressive**, as in other emerging market countries like Mexico or Pakistan. Since non-wage incomes (such as profits and rent) typically accrue to higher-income households and are hard to tax, the potential progressivity of the personal income tax becomes difficult to achieve. The Chinese Ministry of Finance in 2019 increased the exemption limit for the personal income tax to reduce burdens on poorer, fixed-income families, but this has had the perverse effect of further reducing the narrow personal income tax base.

The improved information can further help to address interpersonal inequality if it provides information on low-income households that can be used for support in times of the pandemic.

- In short, **reforming the current sharing arrangement for the personal income tax could ultimately improve the efficacy of the central tax administration**, improving the fiscal position of provinces, while helping to achieve distributional goals.

TACKLING AIR POLLUTION AND CLIMATE CHANGE: A PIGGY-BACK ON A NATIONAL CARBON TAX

Carbon pricing is widely recognised to be the most efficient way to drive down greenhouse gas emissions, enabling the market to identify the most cost-effective mitigation options. This is an important tool for China to peak emissions by 2030 and to meet net-zero commitment by 2060.

China has been experimenting with pilot emission trading schemes in Beijing, Chongqing, Fujian, Guangdong, Hubei, Shanghai, Shenzhen, and Tianjin. While not particularly successful so far, the Ministry of Ecology and Environment proposes to roll out a nationwide scheme during the 14th Five Year Plan, initially including electricity generation and gradually expanding to other sectors. Once established, this would be the world's largest emission trading scheme.

A carbon tax could be adopted in tandem with this cap-and-trade arrangement[33], sending more powerful signals about the production of greenhouse gas emissions. It could easily be implemented in excise mode. A carbon tax would establish a critical base rate to reduce demand for carbon-intensive activities or consumption, and improving the economics of cleaner technologies, practices, and processes.

Moreover, **a carbon tax would also permit either a local surcharge or "piggyback" to aggressively tackle severe pollution and congestion in the metropolitan areas** that generate most of China's greenhouse gas emissions. A piggy-back would permit **polluted**

[33] Ahmad, Rydge and Stern, 2013

and congested metropolitan areas to impose higher marginal rates, creating a stronger incentive for firms and households to choose cleaner technologies.

This would likely yield quick improvements in air quality and cut the carbon intensity of economic activity. Meanwhile, cleaner cities could impose rates towards the lower end of the band, thereby enjoying a new source of competitive advantage. The national base rate would prevent a "race to the bottom."

MAKING EQUALISATION WORK BETTER

China had introduced a modern fiscal equalization framework in 1994, as part of the revenue-sharing reforms. **This was designed to ensure that all provinces had the ability to provide similar levels of public services at similar levels of tax effort**. However, local own-source revenues are needed for the system to work efficiently and not generate local incentives to exaggerate spending needs.

An equalization system creates the basis, or level playing field, for firms and workers to more to the most advantageous locations. In this regard it offsets the advantage that richer regions would have, say with a piggy-back, given the more advantageous tax bases, and prevents a further imbalance in service delivery that might enhance incentives to move to the richer areas.

A **fiscal equalization system operates on current spending and while it is necessary to close gaps in infrastructure that are at the heart of regional imbalances, it is not sufficient.** A consistent investment strategy is needed to close structural gaps in income generation capabilities.

TACKLING URBAN SPRAWL: A BENEFICIAL PRPERTY TAX

A **recurrent property tax[34] in China should not only provide an alternative to land sales, but also provide own-source revenues that lay the basis for access to private finance on a fiscally sustainable basis**. A survey of 6 megacities with over three million inhabitants each (Guangzhou, Shanghai, Shenyang, Fuzhou, Wuhan, and Xi'an), examines the effects of 'beneficial property tax' on revenues and income distribution. Shanghai, with a population of 27 million, is a metropolitan area with the status of a province. The smallest of the cities is Fuzhou at 3.7 million people. Guangzhou has the highest per capita GDP (Y141,933) in the sample, followed by Shanghai (Y113,500) and Fuzhou (Y102,569) are also the three coastal "hubs". Shenyang and Xi'an have roughly similar per capita GDPs around Y70,000[35].

R**aising 2% of city-level GDP through a beneficial property tax** could be achieved with a relatively modest size and location-based tax on occupancy (and not ownership) in CNY/m^2 (see Table 5). Although the tax should be varied by locality and cost of services within cities, for simulation purposes the tax can be linked with city-level GDP so that richer metropolitan areas are taxed at higher rates than poorer

[34] A non-recurrent tax may take place when ownership of a property is transferred (e.g., a capital gains tax upon the sale of a property) or sees a significant increase in value because of public investment (e.g., a betterment levy upon local investment in mass transit). China uses a range of instruments to tax commercial and residential properties when they are transferred. However, these do not raise much revenue and the uncertain timing of transactions means they are not suitable revenue streams for raising private capital. By comparison, a recurrent tax generates revenue on a regular basis and therefore is a more reliable revenue source for local budgets. See Ahmad, Niu, Wang and Wang, 2020.

[35] Ibid.. This analysis draws on a survey of households and living conditions conducted in 2016 by the Chinese Academy of Social Sciences (CASS)

jurisdictions, and is also roughly in line with levels and costs of service delivery[36].

For example, Table 5 shows that Guangzhou would generate the highest per square metre tax (CNY121/m^2) of the cities in the sample. This is due to its higher per capita GDP. By comparison, the tax in Xi'an is much lower, at around CNY 49/m^2. This variation in property tax rates across cities would provide an important signal to firms and workers, incentivising efficient use of land in richer cities as well as investment in and migration to lower-income cities.

[36] Ibid.

Table 5. Projected impacts of a property tax to raise 2% of city-level GDP
Distributional impacts Atkinson index A_j, and Gini Coefficient G_j

City	Property tax 2% GDP (Y bn)	Current Education Spending (Y bn)	Property Tax (Y)/m^2	Initial A_1	Tax Only A_2	Tax/Benefit Education A_3	Initial G_1	Tax Only G_2	Tax/Benefit Education G_3
Guangzhou	39.2	32.12	121.4	.60	.76	.75	**.39**	**.40**	**.39**
Shanghai	54.9	84.10	90.81	.71	.51	.50	**.40**	**.41**	**.40**
Shenyang	10.9	11.51	52.68	.63	.49	.47	**.33**	**.34**	**.33**
Wuhan	23.8	23.11	85.11	.52	.47	.46	**.33**	**.35**	**.33**
Xian	12.5	11.96	48.8	.47	.57	.49	**.35**	**.36**	**.34**
Fuzhou	12.4	15.31	54.6	.51	.89	.55	**.36**	**.37**	**.36**

Note: The Gini coefficient (G) and Atkinson index (A) are two different measures of interpersonal inequality. The Atkinson index is more sensitive to lower-income groups.
Source: Ahmad, Niu, Wang and Wang (2020).

On its own, the property tax is progressive using additional weights on the poorest groups (the Atkinson index) in Shanghai, Shenyang, and Wuhan, but not in Fuzhou, Guangzhou, and Xi'an. There is not much variation with the Gini coefficient, which focuses on the middle of the size distribution of income. To redress any regressive impacts, the revenues could be directly linked to local benefits such as education, or social housing, including for migrants.

The benefit linkage makes the tax progressive in all cases. Achieving their education spending mandates is a major challenge for local governments in all the case studied. A property tax raising around 2% of GDP would roughly cover current education spending in each of the cities, except Shanghai.[37] The Gini coefficients (G) reveal that a property tax linked to an education benefit would effectively reduce average inequality within all the cities.

Beneficial property taxes also need to be accompanied by an equalization transfer system within provinces/cities to ensure a decent quality of local services across all districts. Otherwise, for Guangzhou, the poorer districts of Conghua, Liwan and Zengcheng will fall short while the prosperous districts of Huangpu, Tianhe and Yuexiu generate a significant surplus that could reinforce inequalities among neighborhoods.

INFORMATION FLOWS AND MANAGING LOCAL FISCAL RISKS

Determining overall funding for government over the medium-term, **and then apportioning debt limits across lower levels of government,** will be critical for a fiscally sustainable urban transition. A key part of this will be determining the own-source tax handles for those levels of government that will be permitted access to capital markets. The essential complement to this is **ensuring full information on the**

[37] Shanghai has unusually high levels of spending on education, which contributes to its strong performance in international education rankings. This expenditure is partially made possible because of its joint provincial-metropolitan status, so Shanghai benefits from the full provincial-level share of the VAT, unlike the other cities in the sample.

liabilities generated through their borrowing and PPPs.

In 2001, China introduced the IMF's Governance Finance Statistics Manual framework (GFSM2001/14), an integrated system for measuring fiscal stocks and flows, at the central and provincial levels. Treasury systems were modernized at the same time, with the establishment of a nested system of Treasury Single Accounts for the Central and Provincial governments.

The adoption of the **full GFSM2001/14 framework and the nested system of Treasury Single Accounts means that the central government should be able to track cash flows** in the economy, establish more detailed **spending targets for local officials and minimise the diversion of funds**.

However, accrual accounting was only introduced at the provincial level in 2015 and local operations are still mainly managed on a cash basis**. Liabilities are not recorded effectively in the budget and treasury systems, or in local balance sheet**s. There is also significant debt overhang from the countercyclical policies adopted between 2008 and 2010, when China's stimulus package was substantially financed through UDICs and LGFVs.

It seems likely that local governments and their special purpose vehicles will not be able to service this debt but will have to pass it on to the central government. While the central government has the capacity to handle subnational debts easily, it creates moral hazard and weakens overall budget constraints. Yet without full information on levels of indebtedness, the incentives remain for local officials to meet the detailed spending targets through further build-up of liabilities – as we have seen in Jieshou, where the full extent of the liabilities was a multiple of the figure reported seen in local balance sheets.

LENDING TO LOCAL GOVERNMENT: THE RISK FACTOR

On the other hand, **investors are becoming increasingly wary of lending to Chinese local governments.** The central government has permitted the issuance of municipal bonds since 2015, expecting that these debts would be easier to monitor than those concealed off balance sheets in UDICs, LGFVs and PPPs. However, since municipal bonds are not linked to own-source revenues, any **liabilities are not actually borne by the government that issues the bond**.

Similar issues arise with the less well-monitored financing sources such as PPPs. In 2018, the NDRC paused the approval of PPPs to assess the repayment capabilities of local governments. As a result, 2,000 proposed infrastructure projects were suspended or cancelled – including plans for new metro systems in Batou and Hohhot.

A core objective of the 14th Five Year Plan **should be to position local governments to comply with sustainable fiscal targets in their jurisdictions**. **To achieve this, steps need to be taken to strengthen local governments' capacity to manage debt, both by increasing their own-source revenues through specific tax handles (as outlined above) and by generating full balance sheet information**.

Further work is needed to generate full information on arrears and liabilities within local balance sheets as a precondition for future access to credit, whether bank loans, bonds, or PPPs[38]. Pending the development of full balance-sheets, the weekly/monthly monetary survey by the People's Bank of China can, with certain assumptions, be used to monitor trends in credit usage and act as an early-warning mechanism for local problems in meeting spending mandates and financing liabilities.

MITIGATING REFORMS AND INTERVENTIONS

The NDRC and Ministry of Finance are already **introducing more rigorous standards for infrastructure investment,** requiring local governments to have fiscal revenues that are three times higher than under previous criteria

[38] Ahmad and Zhang, 2020

as well as tightening other indicators such as population and GDP. Local governments are also expected to complete more robust feasibility studies, with clearer cost recovery plans and realistic projections of passenger flow. With these new urban rail investment criteria, metro plans in 13 cities are under threat including Guiyang, Kunming, Lanzhou, and Xi'an.

Given the existing sub-national debt overhang, weakly developed subnational tax system, and the risks involved with another 2009-type stimulus, the NDRC **acted in a sensible manner, with a carefully targeted expansion of city-level clean investment**s. In 2019 the NDRC has authorized a bond issuance for CNY78.7 billion to finance a light rail system of 135km in Jilin, a provincial capital in the northeast rust belt. Recognizing that neither the provincial nor city government would be able to handle the financing costs of the bond issuance, these will be met by the central government. The light rail investment will help to create a cleaner and more efficient city in the future, making Jilin more attractive for both workers and private investors.

A financing strategy should be entirely in line with the medium-term objective of minimizing fiscal risks and using capital investments to stimulate regional economic development while advancing distributional and environmental goals. If successful, the medium-term goal would then be to strengthen the provincial and city governments' balance sheets and repay existing debts so that they can undertake responsible borrowing and investment in the future.

Appendix 1

Summary of Key Statistics for Six Cities from the CULS survey and Annual City Profiles

	Guangzhou	Shanghai	Shenyang	Wuhan	Xian	Fuzhou
Key variables from the CULS (Sample size)	3097	3046	2257	2710	2358	2642
Housing Condition						
Living space per capita (sq. meter)	25.71	26.89	29.88	29.07	31.32	33.31
Median self-reported property value (10,000 yuan)	120.00	300.00	42.00	75.00	38.00	150.00
Socio-economic indicators						
Population in 2016 (million)	14.0	24.2	8.3	10.8	8.8	7.6
Share of migrants in 2016 (%)	38.0	40.1	11.4	22.5	6.6	9.2
Migrant growth rate during 2010-2015 (%)	6.7	9.2	8.5	63.2	-15.1	9.2
GDP per capita in 2016	139192	116,562	66,893	111,469	71,647	82,251
Data from Yearbooks Public Finance (2016)						
Revenue (hundred million yuan)	2218	6406	621	1322	641	599
Expenditure (hundred million yuan)	2845	6919	825	1525	943	830
Financing Gap (10, 000 yuan)	-7204	-3537	-2784	-2429	-3654	-3362
Public services						
No of student enrolment (primary) /10,000	1113	326	509	603	641	754
No hospitals /10,000	0.3	0.2	0.4	0.4	0.4	0.2
No of doctors / 10,000	53.8	45.2	26.6	41.6	33.8	15.6
Share of pension covered (%)	55.2	69.3	29.9	25.5	37.4	22.3
Share of medical care (%)	45.3	69.8	40.8	36.4	49.3	20.5
Share of unemployment insurance (%)	35.8	66.7	16.9	17.9	17.3	15.8
Land use						
Ratio of investment in real estate (2016 to 2000)	7.1	6.6	11.1	24.9	37.7	22.1

Source: Ahmad, E., M. Niu, L. Wang and M. Wang, 2020.

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