Mexico: Building back better

Financing urban "hubs" for sustainable employment generation

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Introduction and Summary

Sustainable urban transitions to address both the pandemic and climate change agenda cannot be assured by looking at the needs of specific cities or metropolitan areas in isolation. The spatial dimensions of urban reform depend on the incentives facing firms to locate in congested metropolitan areas, and for workers to move in search of higher incomes, often to sprawling slums in and around the metro areas. We address the role of policy measures, particularly relating to trade and investment, with a focus on the financing mechanisms—taxes, and transfers and access to private finance, including municipal bonds and PPPs.

Sustainable urban transitions, in Mexico as in China, are required to address both the recovery from the epidemic, as well as meeting the challenges of achieving the net zero targets under the Paris Climate Change agreement. Indeed, the climate change is akin to the pandemic in slow motion, yet more deadly in many respects. Coordinated measures are needed to ensure the creation of compact, connected and clean cities (CCCs), especially in the lagging regions of Mexico, or to achieve sustainable "rebalancing" goals in China.

The recovery from the COVID-19 Pandemic **must ensure sustainable employment opportunities for "leveling up" of activities across regions** to ensure narrowing of income and public service differentials, including access to health care and education. **The recovery should also be designed to achieve climate change objectives, including Mexico's commitments under the Paris Agreement.**

Very often well-meaning and needed policy measures in isolation could be counterproductive. Thus, isolated transformations in metropolitan areas (such as Guangzhou, Mexico City, or London and Milan), without taking into account the spatial aspects of migration and urban sprawl, might increase congestion and pollution, and also informality that afflicts many metropolitan areas in emerging market economies. **Similarly, policies that focus solely on environmentally attractive connectivity measures, such as high-speed train links, could make matters worse if they fail to incorporate incentive effects** on firms, workers and inducements to migrate, as well as the financing constraints in cities and lower level of government more generally. In many cases, the ease of traveling to metropolitan areas, where most of the jobs are to be found, enhances incentives to migrate and often result in urban sprawl, informal settlements, congestion and pollution. And, during economic crises, affected informal sector workers might return to the extended family support networks in depressed regions, increasing spatial inequalities, and in extremis, spreading disease in areas that are much less able to cope with the impacts, and which might be undetected for very much longer. Yet, this remains a breeding ground for new variants of the virus, as well as increased discontent with miserable or absent public services in the depressed regions.

As argued in the Chinese case (see e.g., Ahmad and van Rijn, 2020), a transformation of metropolitan areas to reduce emissions also entails shifting activities to compact, clean and connected cities (CCCs). This **desirable overall impact on the environment is also likely to be**

accompanied by reductions in spatial inequalities and, if properly designed and financed, actually increase employment opportunities in a just transition.

This paper focuses **on measures needed at the national, state and local policies for employment creation in compact, clean and connected cities (CCCs), to generate sustained and balanced growth to offset the health and economic shocks.** It is also important to address the sharp **inequalities in Mexico, improve the environment** and reduce fiscal and financial risks given the limited "fiscal space", or financing room, for additional measures especially at the sub-national and city levels.

Section 2 makes the case for **Sustainable Urban Transitions and CCCs in the "building back better agenda".** The Mexico provides a laboratory for the key elements involved—with the major shift in production patterns following the 1994 NAFTA agreement, and public policies relying mainly on market responses including the private sector led road-building program that led to a sub-national debt crisis. It also created highly divergent patterns of growth and service delivery in the country, and preferential taxation and exemptions aimed at generating activities in the Northern part of the country exacerbated Mexico's difficult domestic resource mobilization capabilities, as tax/GDP ratios stagnated around 10% of GDP. It also led to sharply rising informality as workers especially from the poorer Southern states crowded into the northern *maquiladora* (free trade) zone adjacent to the US, and in the environs of CDMX.

Santiago Levy (2008) pointed to informality arising from formal social security financing through the national payroll taxes (additional state-level payroll taxes financed their general expenditures). He argued for replacing these by general revenues and the VAT. However, the national tax system had been distorted by preferences and exemptions aimed at bolstering production and employment in the northern regions. And as Finance Minister Herrera (2019) pointed out, the increasing inequality with the negative growth rates of Southern States is a major source of concern. This is likely to increase with the pandemic, even though the worst hit areas are the major metropolitan areas (CDMX and Northern States) as the economic shock will reverberate with the informal sector increasing the tendency of workers to return to their states of origin—a pattern that is already apparent in the case of Chiapas and is examined below.

The transformation of Mexico City provides some useful lessons regarding the need to examine the general economic framework, including trade and employment trends, together with within-metropolitan area measures that are the typical focus of the urbanization debate. We examine the **issue of spatial dynamics of urban reforms by examining trends in production and employment in different parts of the country, using estimates of "club convergence".** This provides a more nuanced perspective on how firms and workers reacted to structural changes. Given the incidence of COVID-19, it is imperative to focus on the preconditions for reforming metropolitan areas and creating new sustainable employment hubs in CCCs for "building back better," especially in the poorer Southern regions.

Neither a focus on **city transformations or on connectivity infrastructure in isolation is likely to be sufficient, and a coordinated approach is necessary**. We suggest a reorientation of the Tren

Maya infrastructure investment to focus more on employment generation rather than tourism—this may permit strengthening alternative employment in Tabasco and Quintana Roo that have been hard hit by COVID. Consideration should also be given to an East-West link that better serves Chiapas and Oaxaca, and also opens up new markets in the Asia-Pacific region as well as in Latin America, Africa and Europe. This will also entail strengthening or creation of CCCs in both Chiapas and Oaxaca, and we address local financing measures below.

Section 3 focuses on **national measures needed to integrate environmental and distributional considerations so that sustainable investment decisions and urban transformations can be coordinated with tax and financing measures**. These together determine incentives facing firms and workers, as well as states and cities, and form the drivers of structural change. The pathbreaking 2013 fiscal reforms in Mexico took the tax/GDP from 10% in 2013 to almost 15% by 2016, illustrating for a range of emerging market countries the political economy importance of offsetting gainers and losers in major fiscal reforms. In this case, a "package" of taxes was enacted, with the focus on integrating the small taxpayers' regime (REPECOS) administered by the States, with the national VAT generating information on wages and profits at each stage of the value chain, excises on "bads" and a national carbon tax. The VAT reform helped to block cheating in other taxes, ranging from excises to payroll and income taxes, and limit informality (largely defined as evading taxes) and increase efficiency and potential growth. Also, by reducing leakages in the income taxes, the reform enhanced overall equity.

In Section 3, we also present **estimates based on more recent and disaggregated information on directions of tax and investment reform** than was available in 2013. A national investment agenda could better utilize Mexico's comparative advantages, and create employment, especially in the lagging regions of the South. Given the pandemic, a broader perspective than just a focus on tourism is likely to be needed, and the financing arrangements for local services and infrastructure would require a stronger focus on the sub-national tax and financing agenda than in the 2013 reform. The new findings strengthen the case for broad-based taxation, especially with respect to the VAT, and also suggest that the fears about the adverse distributional impact of a carbon tax are exaggerated, and this remains a powerful tool for both environmental and revenue purposes. A state-level piggy back on the carbon tax introduced in the 2013 reforms, could also provide signals that would lead to a restructuring of the crowded and polluted metropolitan areas and an incentive for the growth of the CCCs.

A state level piggy-back on the income tax could provide an alternative to the distorting payroll tax (*nomína*) that finances state spending. This would help to reduce the incentives to engage in informal behaviour, without requiring subnational administration, and very much in line with the Levy proposals to reduce taxes that add to the cost of labour and doing business. This would also enhance the overall equity of the tax system, by shifting the burden to higher income taxpayers. And the same rate of the piggy back as for the *nomína*, would raise significantly more revenues than the *nomína.* Also, this measure would be an "own-source" revenue that facilitates access to capital markets, including bond markets and PPPs.

Section 4 addresses **critical issues of local financing of the CCC and the SDG agendas**. As city level information was not available, we focus on the state level simulations that provide an indication of the revenues and financing that can be generated relatively quickly, and this is also distributionally attractive. The analysis can be supplemented, in further work, by pilots at the city level. We illustrate the relevance of a beneficial property tax on size of properties and location to anchor a more robust ability for cities to finance needed infrastructure and provide basic services, including preventive health care. This has been calibrated to increase the revenue from the property tax from around 0.25 of GDP to 1.5% of GDP in a relatively short period. Given the dispersion in tax bases in Mexico, such a tax would require and also facilitate the introduction of a non-distortive fiscal equalization mechanism that would be an integral part of ensuring that the dynamics of urban change does not enhance imbalances in the spatial distribution of income.

Section 5 concludes by **laying out an agenda for a policy-oriented work program for Mexico**. This is of general policy relevance for a range of emerging market countries in their search for "building back better" from the pandemic.

1 Using insights from linked models to achieve an evidence-based policy diagnosis for building back better

This paper **provides an evidence-based road map for building back better from the pandemic and in meeting climate change goals in Mexico**. It breaks new grounds in bringing together **insights from a number of different policy areas, using models and empirical assessments.** As is the increasing practice in the social sciences, including with big data, different models and data sets are used to shed light on major policy issues from different perspectives.

We begin with a **historical description of the urban development** phenomenon in Mexico. The **diverging patterns of development are addressed using estimates of "club convergence",** that identify key issues in different regions that govern the nature of income and employment growth. Together with **estimates of migration over time**, groupings of cities and states help to identify why people move to different locations and the implications for sustainable urban transition. These factors represent key elements in the **relatively new discipline of "geografiscal federalism"** (see Revelli, 2015 and Ahmad and Brosio, 2015), and set the stage for an assessment of the **policy agenda for sustainable growth.**

The **policy agenda utilizes the Theory of Reform** based on integrating a concern for the environment, employment, and natural capital, together with fiscal and financial returns, in determining both investment and tax design priorities at the national level, together with the appropriate choice of discount rate to reflect the long-term nature of the problem (Ahmad and Stern, 1991, and Stern and Stiglitz 2021).

A focus on efficient and transparent investment, while necessary, is not sufficient to determine socially desirable outcomes. However, since much of the action happens where people live and work, the financing mechanisms at the state/local level are critical in determining whether

national infrastructure investments, such as high-speed trains, result in improvements in living standards in cities in lagging regions.

Insights from the **political economy of multilevel finance** are used to design state/local own-source revenues that reduce incentives to pollute, and also provide financing anchors to directly improve local services and infrastructure and also access private finance. As argued in the paper, **systems of equalization transfers are also needed to create a level playing field for investors and workers**.

These seemingly **disparate components provide the building blocks of "leveling up," or creating sustainable employment hubs especially in the lagging regions**.

1.1 Mexican antecedents and evolution of the investment financing policy framework

In the 1970s and 80s, **Mexico City (CDMX) grew to become one of the largest metropolitan areas in the world, with migrants crowding into a fragile ecological area** on a dried lakebed, in between two volcanoes. This pattern largely followed the standard dual economy models, where people migrate in order to maximise expected income opportunities (Harris and Todaro, 1970). More than **half of Mexico's manufacturing was located in the CDMX** metropolitan area until the 1980s. It also became one of the most congested and polluted cities in the world. Manufacturing began to shift out of CDMX following the NAFTA agreement, and pollution levels were reduced. While the population of the metro area has stabilized, it remains at a high level (over 22 million people, but more than half of this population is outside CDMX in the sprawl that is in the State of Mexico (Edomex), with a continuation of the fragile ecological status.

The urban environment has been shaped significantly by trade and investment policy choices, including (i) the NAFTA agreement that created manufacturing and employment opportunities in the *maquiladora* (special economic zones, SEZ) in the Northern states; (ii) the global economic crisis of 2008-10, with longer lagged effects in Mexico; (iii) the 2013/14 fiscal reforms; and (iv) the Covid-19 pandemic, the full effects of which on city design and activities is not yet known. The shifts **in activity from the maquiladora SEZs to central states was driven by private investments , including FDI, facilitated by the 2013 VAT reforms** that made it possible to locate anywhere in the country and obtain full refunds of input taxes on export. However**, the downside has been a further erosion of sub-national tax bases**. States now rely on distorting payroll taxes and federal transfers to fund spending. This curtails State and city level access to private financing, including the development of sub-national bond markets, and access to other sources of private financing of public infrastructure, including PPPs.

Another problem has been progressive **exacerbation of significant disparities across states** in income levels and basic services, with negative growth in Chiapas and other Southern states falling behind those in the North and Center, and especially CDMX. Also, within State disparities are significant, including in Edomex that both benefits from the proximity to CDMX but also suffers from negative externalities. Also, attractive cleaner large cities, like Querétaro, have

attracted the bulk of the new investments, including FDI, and are losing their clean and compact nature, with urban sprawl and increasing pollution.

The **2020 pandemic has disproportionately affected more densely populated areas of CDMX as well as neighboring states, such as Edomex.** The full impact of the pandemic is not yet known, especially on urban design, population density, employment and migration patterns, but the damage to subnational public finances, especially of States like Edomex, has been severe.

1.2 Towards an agenda for building back better

A key element in the building back better agenda is the more effective design and financing of public investments, including at the sub-national level. This needs to be **dovetailed with strengthening national and local tax systems, together with governance, financing and institutional arrangements, to ensure consistency and fiscal sustainability**. The theory of reform (Ahmad and Stern, 1991) illustrates how a concern for employment, the environment and natural capital can be incorporated in both investment decisions, and tax design. More recent work also shows how policies must be dovetailed with a strategy of managing spatial urban transitions. Indeed, the tax design influences incentives facing location decisions by firms and households, and drives structural adjustments. It also provides financing for services and opens the doors to private finance. "Own-source" revenues, over which the sub-national jurisdiction has control at the margin are essential to ensure access to private finance, including local/state bonds and PPPs. The latter also require improvements in information flows, including buildup of liabilities, through internationally comparable balance sheets (incorporating the IMF's GFSM2014 standards).

A focus on connectivity infrastructure on its own, even if well managed, as in Chile (IMF 2020), may not lead to a "leveling up" of activities, and generation of living-wage employment opportunities in lagging regions. Without complementary enhancements of local public services and infrastructure, the connectivity investments might accentuate "dual economy" incentives to migrate to the richer, but more crowded and polluted, metropolitan areas. And with local finance based on "land value capture", the incentives are to continue to extend the boundaries of the metropolitan areas—increasing urban sprawl and within city transportation costs, congestion and pollution. This has happened in Mexico City metropolitan area, as well as major Chinese mega cities.

A project financed infrastructure program can also lead to a subnational debt crisis, even if there are no public guarantees involved. The post-NAFTA road building program in Mexico was effectively based on project related borrowing, linked to tolls financing, with no Federal or State guarantees. With the economic shock of the tequila crisis, the liabilities could not be financed, exacerbating an incipient banking crisis. The Federal bank bailout turned into a full-fledged subnational debt crisis. This is similar to the sub-national debt crisis first appearing as non-performing loans in the banking system for local infrastructure in Spain in 2008, following the global economic crisis.

1.2.1 Structural change and the role of Investments

The predominant approach to structural change is to **focus on efficiency and transparency of public investments** (see IMF, 2020). 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. It is important to **include a concern for human and natural capital, the environment, and distribution of income in both the investment decisions as well as tax design.**

The investment model recommended by many IFIs, including the IMF and the World Bank is that of the **Chilean National Investment System (SNI). This indeed provides a coordinated framework for investment decisions, but is based on market pricing, including the choice of discount rate (LIBOR+)**. The underlying assumptions are that better connectivity will induce firms to locater to cheaper sources of supply and markets and take advantage of cheaper labour. Under this model, firms are driven by profit expectations, and public projects, including in cities, can be ring fenced, and financed by project bonds or PPPs. Thus, cities can be treated separably. Poor households living in informal settlements can be supported ex post through cash transfers and investments in low-cost housing. And as cities grow, clean transport can be provided, such as metro lines, financed by PPPs and green bonds. Spatial interactions do not feature in this model, institutions and public finances are irrelevant, and local infrastructure can be financed through land value capture together with PPPs. This was the logic underlying public investments to finance the North-South rail and road links in Italy (through the EC Structural Funds), and the North-South Highway in Chile. In neither case was there any significant impact on attracting private investments to the lagging regions, it just made it easier for workers to migrate to where the jobs are located—*Zona Metropolitana* in Chile, Northern Italy, or the mega cities mainly in Coastal China.

Ex post measures to address distributional issues through cash transfers and low-cost housing, can make matters worse, as these increase the incentives for workers to migrate to the mega metropolitan areas. Urban sprawl, typically in informal settlements around the metro area, lead to congestion and pollution and need for more expensive metro systems. In ecologically challenged Mexico City (CDMX), the urban sprawl spills over to the neighboring municipalities of Edomex.

Financing mechanisms for infrastructure are crucial. Attempts to replicate US-style property taxes have not had much success in Mexico, or China. The alternative recommended by some IFIs is value capture. This works best in the more expensive metropolitan areas where land prices are high and expected to appreciate. This typically results in urban sprawl, with the poorer informal sector workers increasingly pushed to shanty towns in the periphery. It can also result in speculative land grab. Moreover, it is easy to hide liabilities in off-budget PPPs, and potentially exacerbate hidden sub-national debt spirals.

1.2.2 Theory of reform—addressing human, natural and physical capital in investments and tax design

Key issues in the **"build back better" agenda relate to integrating both the investment and tax decisions with appropriate weights on carbon emissions, and the impact on human and natural capital.** The resulting social profitability will be a guide as to the investments most productive in the short-to-medium term. Further, **public sector pricing regimes impact national and local budgets**.

Very simply, the method involves estimating the **effects of raising a peso of revenue from different groups of goods on households in different circumstances**. The revenue impact is driven by changes in consumption that arise from the price change, whereas the impact on households is given by their adjusted consumptions, and the new set of taxes. If the peso loss/impact on the poor is treated the same as that of a peso for the rich there is zero "inequality aversion"(ϵ) as all individuals are treated equally. But as greater weight is put on welfare losses of the poor, the inequality aversion increases. In the simulations below we aggregate the welfare losses across household groups using different values for the inequality aversion parameter ϵ (ranging from zero to 5—the latter is tantamount to Rawlsian maxi-min, or just focusing on the poorest group). **The change in inequality aversion directly affects the welfare-enhancing directions of reform** (as shown in Ahmad and Stern 1991).

Mexican policy makers have typically been concerned about **the effects of policy choices on the poor**. Urzúa (2005) used inequality aversion paramenters ϵ ranging from 0 to 3, for five-sectors, of which unprocessed food was identified as of particular importance from a distributional perspective. This sector entailed the highest social cost for $\epsilon > 1$. This insight was the basis for exempting non-processed food as part of the 2013 reforms, to minimize the impact of the tax/price changes on the poorest groups (Ahmad, 2015). **This proviso ensured broad support across the political spectrum and was critical to the successful passage of the reform package.**

The use of shadow prices makes a difference to the choice of projects but also to the desirable directions of tax reform. We illustrate this below, with particular reference to the taxation of energy products, and also food items. Both are less damaging to tax vis a vis the traditional view regarding distributional considerations, especially with respect to energy products.

Taxes, and public supplies (investments) and public sector prices, affect revenues and the overall fiscal space, but also production and migration decisions with differential impacts on households in different circumstances. A carbon tax would potentially affect different sectors and firms and this can be encapsulated through an economy-wide system of shadow prices. The impact on households can be evaluated using welfare-improving directions of tax/public sector pricing reforms.

The standard recommendation to apply a single rate VAT across all commodity groups reflects zero inequality aversion. Successive governments (in Mexico and elsewhere) have sought to

"protect the poor" and encourage investments by granting exemptions and multiple rates in the VAT, especially for food items. It is not well understood that exemptions lead to breaks in the value and information chain and that these add to the cost of doing business by removing the offset of cumulative taxation of inputs against the taxation of outputs. This also makes it impossible to obtain prompt refunds of input taxes at the time of export—one of the main reasons for the creation of Special Economic Zones, other than the agglomeration economies associated with local infrastructure.

1.2.3 Spatial interactions of multilevel fiscal reforms

While national taxes and financing arrangements are clearly important in providing an adequate level of financing, and access to capital markets, people increasingly live in cities (over 80% in Mexico) **so how cities are regulated, and local services and infrastructure financed matters greatly**. If reforming metropolitan areas leads to even greater migration from rural areas and lagging regions, with additional urban sprawl as in Mexico City, Guangzhou, Wuhan or Jakarta, the costs of providing clean metro lines, sponge cities and the like, continue to mount. The net result may well be increasing congestion, pollution and also spatial and interpersonal inequalities, as the gaps with lagging regions increases.

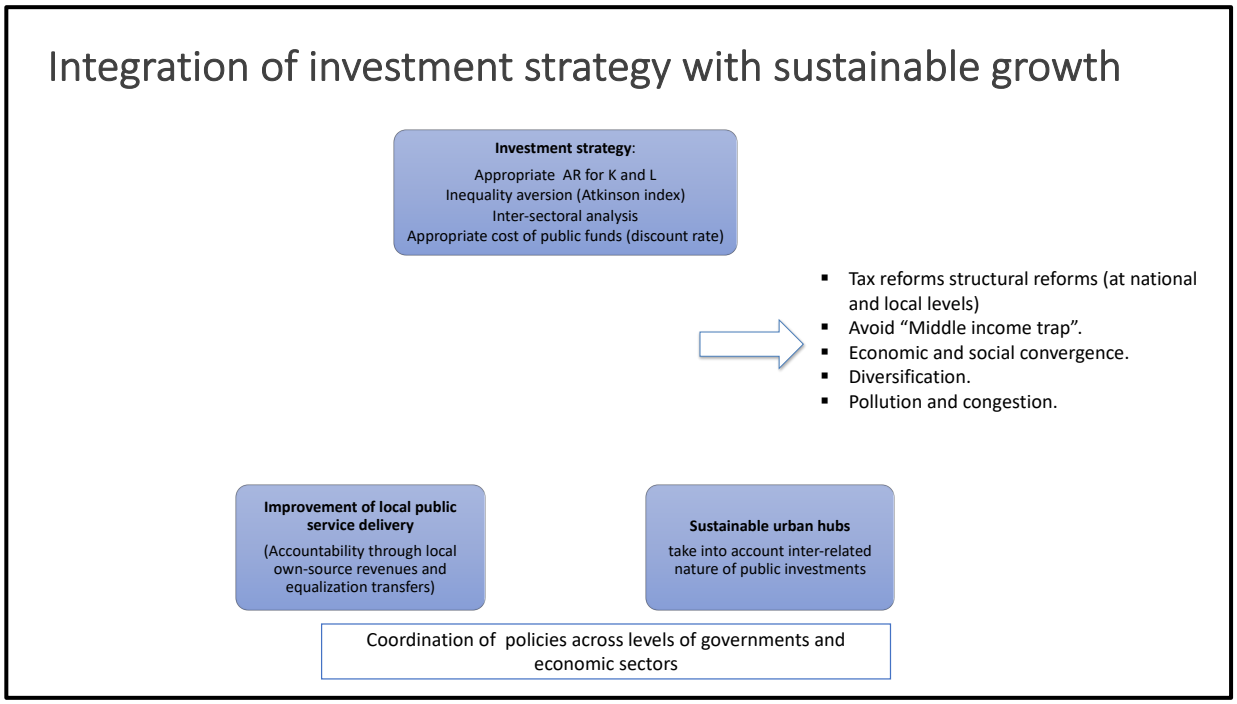
The **existing patterns of production, employment and migration reflect institutions and incentives facing firms and workers**. We describe the patterns of urban stress and inequalities using the theory of club convergence, together with migratory patterns from migration and labour force surveys. Although it is too soon to determine the impact of the pandemic on city structures and migration patterns, creating resilient, compact, connected and clean cities as sustainable "employment hubs", especially in lagging regions, must be of high priority in Mexico, as it is in China and other emerging market countries, like Indonesia. Agglomeration effects, taxation and incentives are some of the key elements in the new discipline of geografiscal federalism (Revelli, 2015) that provides useful guidance on the combinations of measures that are needed to achieve sustainable employment hubs. This is relevant also for "leveling up" in the UK or the application of EC Structural funds to achieve greater cohesion across the continent.

Insights from the **political economy of multilevel finance are relevant for institutions and incentives facing local and state/provincial governments** that are often dependent heavily on central transfers. In many cases, there are incentives to incur obscure or hidden debt that would typically fall to future administrations or the central government.

1.3 Towards an integrated policy framework

Chart 1 describes **the integrated policy framework that is needed for more productive investment, with an emphasis on sustainable employment "hubs"** for the building back better agenda. Economy-wide shadow prices are needed to incorporate an emphasis on risk and the environment, employment of different skills (human capital), land (natural capital), and distributional weights to determine social viability of projects.

Chart 1 Multilevel infrastructure design, taxation and financing for building back better



Source: Based on an adaptation from Ahmad, E., 2017.

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 1.

We quantify the approach for Mexico, incorporating weights on the environment, income distribution, different types of labour (human capital) and natural capital. We focus in particular the issue of **incorporating carbon use and emissions on both the investment and production choices** across industries and sectors, as well as a focus on different types of labour (human capital), and land (natural capital). Of course, the taxation of carbon also has an impact **on household demand responses and influences the overall choice of consumption basket.**

2 The Mexican context

Mexico is an excellent laboratory in illustrating the importance of changing value chains and trading patterns, on investments and labour movements, and transformation of cities as well a fragile environment. Very much in keeping with dual economy models, workers migrate to where jobs are on offer, in the expectation of higher income levels. Until the 1980s, half of Mexico's manufacturing was in Mexico City, attracting migrants from all over the country and had become of the most congested and polluted cities in the world. Situated between two

volcanoes on a dried lakebed, which magnified seismic activity, the city is also one of the most ecologically fragile in the world and is sinking significantly in places as ground water is depleted. Structural changes in the patterns of production and employment, as well as patterns of emissions and pollution and distribution of income have occurred as a result of trade, investments and fiscal policy changes.

Mexico faces significant challenges not just in handling the COVID-19 pandemic, and limiting infections and mortality, but **also addressing the economic fallout of the ensuing economic crisis**. The Mexican experiences with structural transformation and urban dynamics since the early 1990s, both positive and negative aspects, are also of relevance to a broad range of emerging market countries.

2.1 Public Investment in Post-Pandemic Building Back Better

While Mexico has not been as badly affected by COVID-19 as the US or Brazil, at least as far as official data illustrates,[2] **the economic impact of the pandemic has been severe**. The revised projected decline in GDP of -10.5% for 2020[3] was greater than that of US or Brazil (which have a higher rate of reported infection), and that for emerging market economies. Despite the success of the 2013 fiscal reforms in shoring up public finances, as discussed below, **the fiscal space for the building back better agenda is decidedly limited.** The response to the 1990s post-tequila crisis involved measures largely directed at supporting private sector banks (*inter alia* for the major state-level road building programs with private sector financing, without state guarantees) and nonetheless resulted in a sub-national debt crisis as banks needed to be recapitalized. In other words, the rich were bailed out, while the poor took the brunt of the adjustment.

In contrast, the **current COVID-19 related measures are directly linked to supporting households and workers in both formal and informal sectors** (0.5% of GDP), loans to workers (0.5% of GDP) and additional health spending (0.2% of GDP). Among major G20 countries, this is the smallest amount available for direct support and linked to the available fiscal space, and perceived importance of avoiding mistakes from the earlier counter-cyclical stabilization measures. It is interesting that capital flight from Mexico's local government bond market since the beginning of the Pandemic to early September amounted to $16bn or 1.5% of 2020 GDP. Consequently, the **build back better agenda in Mexico must involve a recalibration of existing policy measures to reorient public investment in connectivity (e.g., Tren Maya) as well as a strengthening of state and city finances, especially clean, compact and connected cities (CCCs) in lagging regions.** This requires coordinated national, state and local investments.

[2] Given the low level of testing, the official numbers are believed to be an underestimate of both levels of infection and mortality in Mexico, and anecdotal evidence on mortality in CDMX suggest numbers of excess deaths over normal levels as being almost twice as high as the official number.

[3] IMF, *World Economic Outlook Update,* June 2020*,* Washington DC.

2.2 Drivers of Urban Change

While both enhanced connectivity and measures to restructure cities are needed for sustainable growth, neither is sufficient on its own—particularly trying to reform a single metropolitan area without regard to the effects on incentives to migrate that could offset the measures by increasing urban sprawl, growth of informal activities, congestion and pollution. This is seen in China (Ahmad and van Rijn, 2020) and is also replicated in Mexico.

The first phase from **1994 to the global economic crisis in 2008 was largely an attempt to rely on market forces generate growth**. Repeated attempts to consolidate public finances and enhance fiscal space, culminating in the reforms in 2013. **The 2013 reform provides important lessons on tax design and public policy to address rent-seeking** in a range of countries. A **new phase begins with the Pandemic in 2020,** and the foundation of the strengthening of the public finances over the past decade must be further developed to meet the new challenges.

2.2.1 Uneven development: Private Investment, Tax breaks and Rent-seeking Behaviour

After decades of one-party centralized rule, the Free Trade Agreements of the early 1990s led to the **creation of employment opportunities in the *maquiladora zones*** (Special Economic Zone) adjacent to the US border, leading to migrations to the northern cities (rather than the US). This, however, was **driven by tax exemptions and preferences, as well as special regimes that spiraled over time, and were very hard to remove ,** especially as they were also justified in many cases on social grounds. In reality, these exemptions and preference did little to improve the overall growth of the country but added to **increased incentives for rent-seeking behaviour and resulted in stubbornly low (non-oil) tax/GDP ratio**. The resulting vested interests prevented any meaningful reforms to individual taxes (VAT or the income taxes), despite attempts by successive Finance Ministers for over 15 years.

Moreover, **formal social protection instruments financed by payroll taxes had resulted in growing informality leading to the "good intentions, bad outcomes"** phenomenon (Santiago Levy, 2008). The combination of onerous taxes especially on labour, along with sufficient loopholes especially in the VAT, led to a growth in informal activities and temporary employment, including in the major metropolitan areas. In turn, this led to increasing congestion and pollution, and **continued to attract informal workers living in sub-standard housing and shanty towns**, often outside the legal boundaries of the major metropolitan areas, principally CDMX. More than half the population of the greater Mexico City metropolitan area lies in Edomex, hence outside the political jurisdiction of CDMX. **The more that is done to fix the shanty towns in the larger metropolitan areas, the greater the incentives to attract migrants into expanding informal sector activitie**s. A focus on CDMX alone would miss the urban sprawl and informality that is in Edomex.

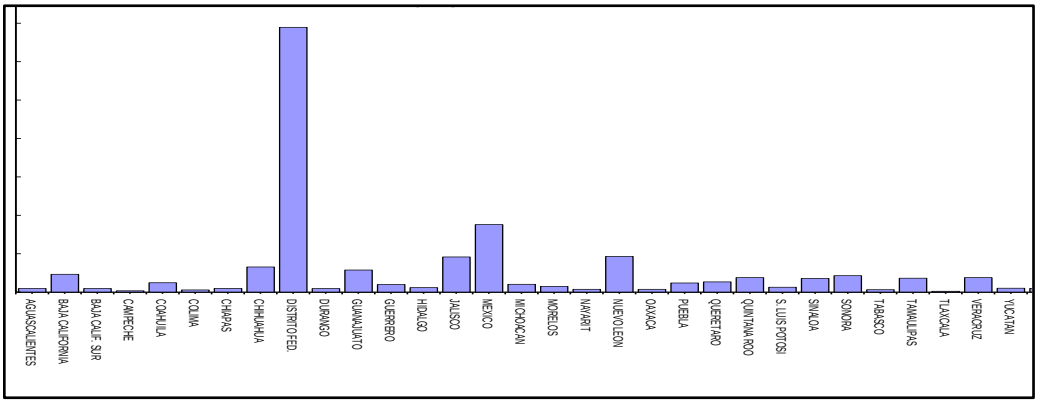
An **ineffective system of the income taxes**, with preferences permeating both the corporate and personal income taxes, and the predominance of the payroll tax, much of the direct taxes was

accounted for by fixed and formal sector wage income, and likely to be inequality-enhancing by most measures. A composite tax on smaller taxpayers and businesses *Régimen de pequeños contrribuyentes* (REPECOS) administered by States. However, these are hard-to-tax groups and the tax was almost entirely (90%) evaded, and are also used by larger taxpayers to hide transactions and evade tax. Consequently, the main tax handle available to States was the *nomína*, or payroll tax, that also increases incentives to evade taxation and engage in informal activities and inefficient temporary contracts that do not attract the *nomína* (Santiago Levy, 2008). This can help disguise activity levels, employment, transactions and profits—avoiding the VAT, excises, payroll and income taxes.

At the local level, applications of the US-style property tax model, based on valuations and ownership, manages to raise only around 0.27% of GDP—mostly paid by businesses in CDMX (see Chart 2). **Land-value capture merely accentuates the importance of the more attractive metropolitan areas, and encourages further urban sprawl**, as in China.

Finance Ministers since the late 1990s had tried to fix the multiple rates and exemptions in the VAT and other major taxes but had not been able to do so given the power of the vested interests involved. Such preferences are easy to bestow to gain short-term political or other favours, but very hard to eliminate, as seen in countries as diverse as Pakistan and Indonesia. **The net consequence of the system was that not only did the tax system increase inter-personal inequalities, spatial inequalities increased as well**.

Chart 2: Mexico: Relative Property Tax Collections (total 0.27% of GDP)



Source: Ahmad, E. 2007.

Further, **Mexico lacked effective own-source tax handles at the sub-national level over which a jurisdiction has sufficient control at the margi**n to be able to effectively leverage private finance to meet infrastructure gaps, including access to borrowing and private finance, such as the liabilities associated with Public Private Partnerships (PPPs). This poses a constraint to the development of clean, compact and connected cities (CCCs) away from the CDMX and existing northern metropolitan "hubs"—further deepening the divide between parts of the country.

A central feature of the 1990s reform was **reliance on market led investment decisions,** although these were driven in large part by the tax exemptions and preferences aimed that northern "maquiladoras" and adjacent border metropolitan areas, that also benefitted from lower rates of tax (including the VAT) than the rest of economy. While **manufacturing moved out of Mexico City, with attendant improvements in many environmental indicators, overall disparities began to increase**.

Ring-fencing private financing of public infrastructure, e.g., through project related bonds, did not prevent a subnational debt crisis requiring a federal bailout. A prime example of the private sector financed infrastructure development was the extensive road building program designed, financed by tolls, to benefit from the maquiladoras and better connectivity with the US, Mexico's main and increasingly important trading partner. There were no Federal guarantees. However, with the tequila crisis, the drop in traffic volumes led to losses in the firms that mounted in the balance sheets of the banks, leading to a full-fledged banking crisis that required a federal bailout.

The low non-oil domestic resource mobilization level, around 10% of GDP for general government (at all levels), reduced resilience, limited the ability to provide adequate levels of public services, especially but not exclusively in lagging regions, and significantly restricted the ability of governments to directly finance infrastructure or to leverage private financing for this purpose.

2.2.2 The 2013 reforms package

The **2013 reforms "package" managed to get through a large number of reforms approved together that individually had failed in the preceding 15 years—this included the VAT, the corporate and personal income taxes, excises and a carbon tax.** The deft political economy of this package reflects the importance of offsetting gainers and losers among states, that can block specific reforms in the Senate. The strategy adopted in Mexico, reflects the insights from the China 1993/4 tax and transfer reform that also overcame similar obstacles.

Non-processed foods were exempt from the VAT for distributional purposes following Seade et al (1988) and Urzúa (2005). **"Protecting" low informal sector households** formed a key part of the political economy of the reforms, to garner broad support across the political spectrum.

Further, the 2013 reforms, **by integrating the VAT base under the SAT (national tax administration), generated timely information on wages and profits (the components of value added) making it harder to cheat on either the payroll or income taxes**. The REPECOS regime was subsumed into a small taxpayer regime (RIF) managed by SAT, facilitating information to be better integrated with the main tax regime. China carried out a similar reform in 2018, with all tax administration functions subsumed under the State Tax Administration, considerably reducing the cost of doing business for taxpayers, but also making it harder to evade taxes and raising revenues.

Implicit fuel subsidies were eliminated by aligning petroleum prices with international prices, and a modest positive carbon tax was imposed. It is noteworthy that the carbon price adjustment was **not accompanied by the standard recourse to conditional cash transfers** (CCTs), even though the prototype recommended by international agencies was developed in Mexico—the *Progresa/Oportunidades* program. The main safety net in the "package" was a minimum pension for the 65+ age group (*65 y mas*), but was not targeted to the carbon price adjustment. There was, however, an emphasis on employment and training, and the *Oportunidades* program was changed in 2014 to provide support for small enterprises and training—the *Prospera* program (discussed below). This was also abolished in 2019.

The expansion of the **VAT base and incorporation of the small taxpayer regime had an impact on the structure of private investment, including FDI**. The better integration of information across taxes that facilitated wider linkages with the domestic and cross-border value chains, and an enhanced ability to provide prompt refunds of VAT on inputs at the time of export. This had a direct impact on location decisions of firms and workers and also on the pressures and transformation of cities.

The 2013 package of reforms also significantly strengthened Mexican public finances, by increasing the tax/GDP ratio from 10.5% to almost 15% in three years. This has greatly enhanced the resilience of public finances, but the level of domestic resource mobilization is still among the lowest among OECD countries, limiting the potential for counter-cyclical fiscal policies.

The 2013 reforms did not, however, address the issue of sub-national own-sources of revenue, even though the sub-national REPECOS, that did not generate much in revenues for States, was replaced by the *Régimen de Incorporación Fiscal* (RIF) administered by SAT. The continuing reliance on a distortive payroll tax at the State level and a dysfunctional property tax at the local/city level **severely restricted the potential subnational access to private finance for public infrastructure.**

The recommended reliance on land value capture generates urban sprawl in the major metropolitan areas and does not work in lagging regions. This limits both the urban transformation potential and growth prospects, especially in lagging regions.

2.3 Structural change: Urban transformations

The 2013 tax reform, by establishing a full-chain for the VAT, **attracted a great deal of FDI in the well-connected central part of the country, including Mexico State**. There was also a resurgence of interest in cleaner, attractive cities not too distant from CDMX, such as Querétaro, relieving the population pressures on CDMX. In effect, the VAT reform turned the whole country into a free trade zone, and FDI in the automobile sector surged throughout the central and northern regions, outside the *maquiladora zone* (see Chart 3).

Chart 3 Fiscal Reforms 2013 turn the whole of Mexico into a SEZ: Automobile FDI

Querétaro, with an attractive, clean environment, good university and skilled workforce, and well connected, attracted significant FDI, including BMW ($1 bn, not shown in Chart 3), and the HQ of Aerospace ($1.5 bn). However, Querétaro is in danger of overexpansion, and it is important to **replace land-value capture by tax measures designed to prevent sprawl,** and to ensure access to sustainable private finance for appropriate infrastructure for building back better. These measures should accompany regulations for appropriate urban design. Furthermore, Querétaro is among the regions worst affected by the Covid-19 pandemic, after Mexico City.

As in all other states and cities, the state reliance on the payroll tax, *nomína*, remains a constraint to future growth. The incentives for informality in the state level tax system, and the absence of an effective property tax system in cities, has deleterious effects on location decisions by firms and migration choices facing workers of different skill sets.

2.3.1 Addressing the North-South divide: Do States Converge?

The North-South divergence in Mexico has been blamed for the weak overall growth performance in recent years.[4] This is further attributed to the lack of clean energy and inadequate connectivity in the lagging Southern states, as well as poor local infrastructure and public services. The situation, however, is more complex, and the broad categorizations mask differences within states, and the influence of major metropolitan areas, such as Mexico City, in attracting firms and workers, but also generating negative externalities on other states—particularly Edomex. But the movement of firms and workers, has been significant following the structural changes in the 1990s, the 2008-10 global economic crisis, and the 2013 reforms. This

[4] Finance Minister Herrera in speech to the 2019 *Cumbre Financiera*, Mexico City.

labour response will feature centrally in the response to the pandemic, as the desirable structure of cities and metropolitan areas changes.

The situation on **growth and employment generation patterns is much more complex across states, but also within states**. This was also a pattern seen in China, where the inequality within rich provinces, e.g., Guangdong, often was greater than the overall inequality across all provinces (Ahmad, Niu and Xiao, 2018).

We apply the Phillips and Sul (2007) methodology to test for **convergence in growth trends across states over the period 2003-15, and then examine the nature of migration** as a result of policy changes. We considered as initial conditions in 2003: average GDP per capita, population, and median income level. Also, we examined structural characteristics using population growth, median income growth, unemployment rate, access to services, agriculture and manufacture proportion ratios, overall satisfaction of public services, and access to internet.

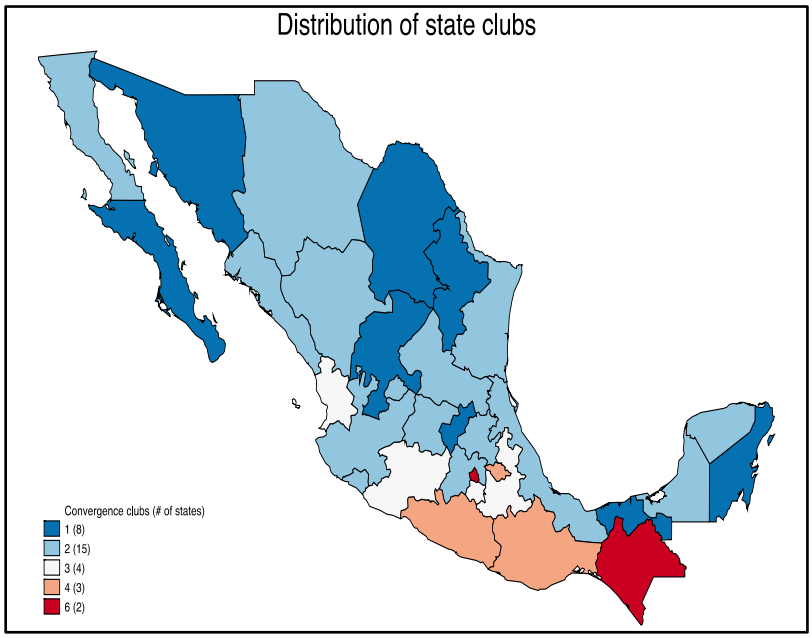
There is a more complex pattern of regional convergence that does not fit the North-South characterization. Chart 4 shows the richest and fastest growing states (dark blue) are in the North, but also in the South. Similarly, middle income states are dispersed across the country. There are 15 states with upper middle incomes (light blue), mainly in the center of the country, but also in the South. Lower middle-income states (in white) are in the center and south of CDMX. Poorer states are in the South, but also west of CDMX. It is interesting that two states do not fall into any club groups: CDMX, the richest state, and Chiapas, the poorest and with an increasing proportion of the poor (mainly informal workers, some migrating back from richer states or CDMX as a result of (pre-pandemic) economic shocks. The clubs and associated growth trends are shown in Table 2.

The richest states form a Club, with a number of states adjacent to the US forming a club (dark blue). Club 1 (Chart 4) includes Nuevo León, which is one of the most important destinations for migrants, has maintained the highest per capita income in the group—and is one of Mexico's main manufacturing states, benefitting from NAFTA and the maquiladora regime. But this Club also includes the central state, Querétaro. A southern state is also in this Club, Quintana Roo, that has benefited greatly from tourism, especially prior to the pandemic.

Tabasco, with its petroleum income has a high per capita GDP and is formally a member of this club but suffers from high inequality and a there are a lot of very poor people dependent on agricultural activities. Zacatecas has converged toward the average.

Club 2 includes Colima and Veracruz, which should have been a natural employment hub as the main western port city. However, it's growth performance is below average, and began to diverge (downwards) in the second period. Guanajuato showed a divergent growth path until 2012, but after the 2013 fiscal reforms and the subsequent new investments in manufacturing converged toward the average.

Chart 4a Do States converge to a common growth path?



Source: Ahmad and Viscarra (2020a).

Chart 4b Disparities in Service Delivery

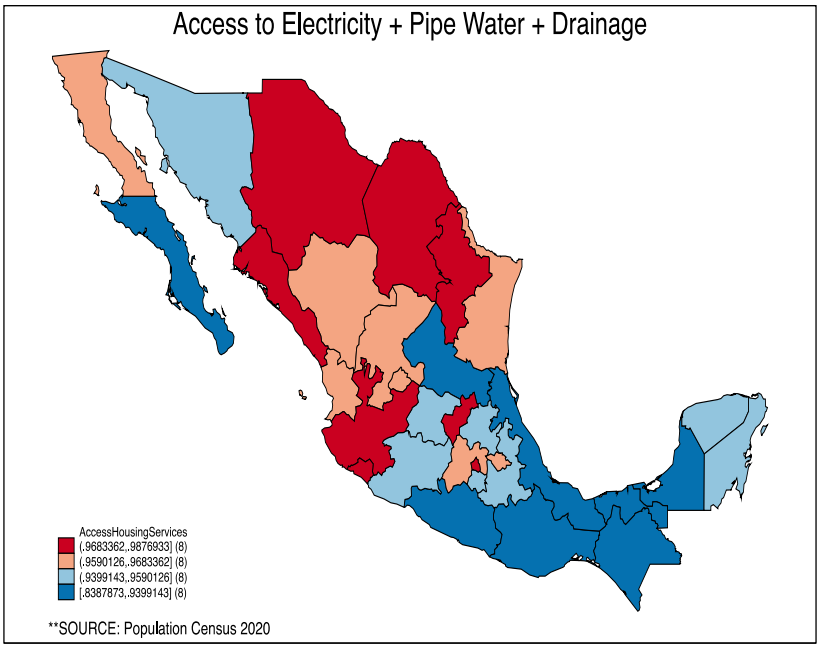
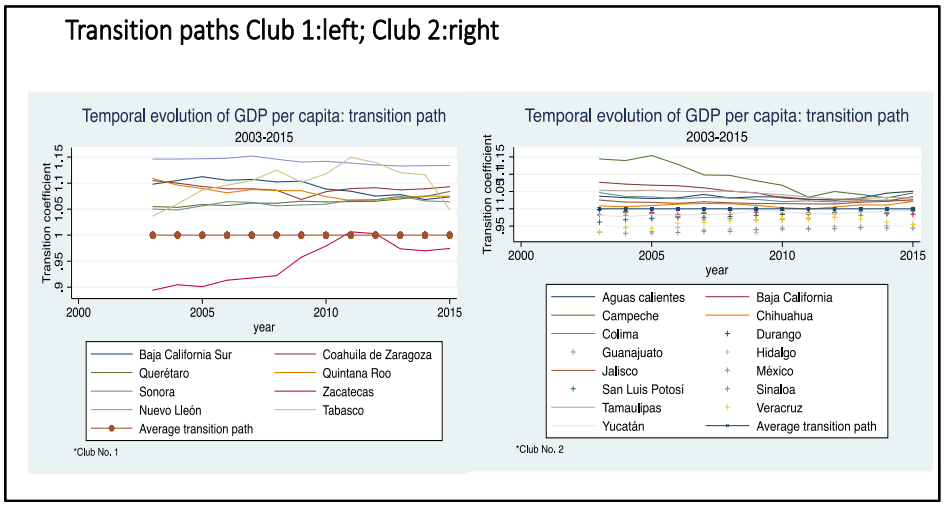


Table 2 Emergence of disparity in Mexico: divergent "Clubs"

Clubs	GDP pc 2015 (nominal $MX '000)	GDP per capita 2003-2015 (nominal $MX '000)	Average growth	States
1	150,1	138,5	1,9%	Baja California Sur, Coahuila, Querétaro, Quintana Roo, Sonora, Zacatecas, Nuev León, Tabasco
2	136,7	148,9	1,0%	Aguas Calientes, Baja California, Campeche, Chihuahua, Colima, Durango, Guanajuato, Hidalgo, Jalisco, Mexico, Potosí, Sinaloa, Tamaulipas, Veracruz, Yucatán
3	74,7	70,9	1,2%	Michoacán, Mrelos, Nayarit y Puebla
4	55,8	53,7	0,7%	Guerrero, Oaxaca y Tlaxcala
Divergent states				
Mexico City	256,3	229,6	2,20%	
Chiapas	42,5	45,4	-1,0%	

Source: Ahmad, E. and H. Viscarra, 2020a,

Chart 5 Transition paths for Clubs 1 and 2



It is surprising to see Edomex in Club 2, with a below average performance. The proximity to CDMX has its advantages, but there are also negative externalities, as Edomex hosts the expanding periphery of the metropolitan area, with a great deal of influx of informal workers (in

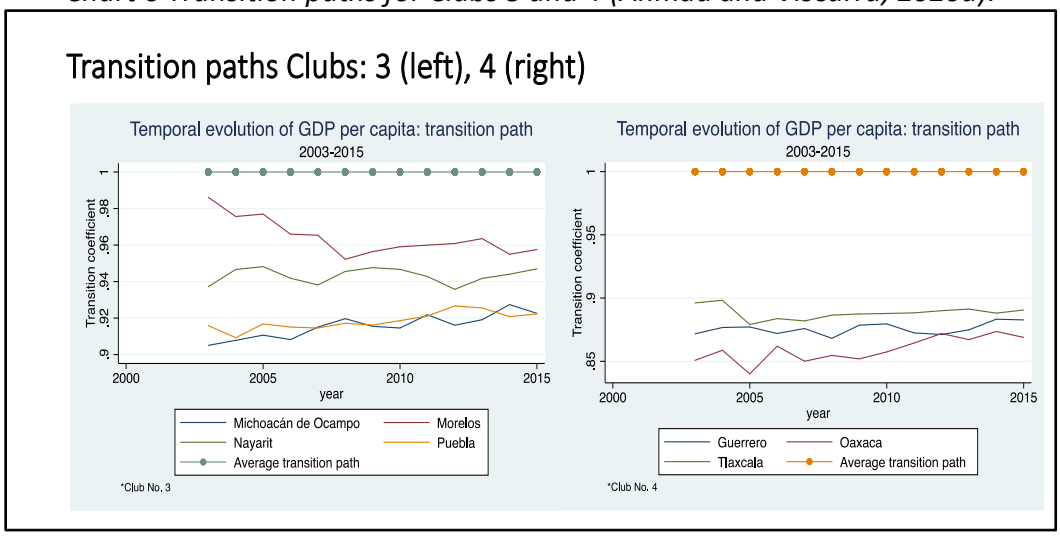
keeping with the dual economy hypothesis). And the within State variance in income and activity levels is significant, as we see below.

Clubs 3 and 4 (Chart 6) are composed by states which are below the average transition path (of all states), and slowly converge to levels well below the national average.

Chiapas is the poorest state, and does not fall into any club, with a negative transition path well below the (average) transition path of the poorest Club 4, despite the heavy and increasing reliance on *Oportunidades* during this period. As we see below, return migration was accompanied by an increase in unemployment, as well as increased micro-enterprises (often family based, low skill and low-income activities. This could have been encouraged by the conversion of *Oportunidades* in 2014 into an employment and training focused program.

CDMX is also not in any club, with a transition path well above the average for Club 1, and continues its steady state with the sharp shift to the services sector. This led to an improvement in living standards and reduction in pollution, as noted above, but like the case of London in the UK, contributes greatly to the overall inequalities and perceived imbalances, especially as it does not raise as much revenues as it could, for instance from a "beneficial property tax" (Ahmad and Viscarra, 2020) and also receives higher transfers than might be justified under standardized cost measures (Ahmad, Brosio, Garcia-Escribano, Gonzalez-Anaya and Revilla 2007).

Chart 6 Transition paths for Clubs 3 and 4 (Ahmad and Viscarra, 2020a).



The standard approach to sustainable urban reforms typically focuses on administrative boundaries. We observe the improvements in CDMX in cleaning up and renovating the historical center, and creation of new suburbs, such as the financial district of Santa Fé. However, the **assessment would be incomplete without examining the trends for the whole metropolitan area**—especially since the urban sprawl is now well into Edomex, with both positive and negative externalities for the latter. The main difficulty for Edomex is to provide and finance infrastructure

and public services for both the well to do suburban enclaves, which pay no taxes to the State, or the informal settlements that are typically outside the tax net. But even more important **are the incentives facing firms and workers to (re)locate** in Mexico City greater metro area, or other states (e.g., Querétaro) given congestion and pollution in CDMX.

Spatial migration decisions across states and municipalities matter in assessing sustainable transitions—which firms and people move and why? This information then guides public investments (e.g., spatial connectivity, or city level infrastructure, education and skills and services) as well as **tax measures that influence the directions of private investment.** We were able to examine migration trends during two sub-periods: 2009-14 and 2013-18, using data from the INEGI National Demographic Dynamics survey, 2014 and 2018. These two periods encapsulate the trends for the shifting of manufacturing and workers from CDMX especially to Edomex and Querétaro during the first period and continuing into the second, particularly the urban sprawl into Edomex. This neatly captures the effects of the 2013 reforms that helped to enhance the "level playing field" for Clubs 1-3, in the North and Central parts of the country, but also in the high-end tourism destination of Quintana Roo, that would attract both less skilled service workers (e.g., from CDMX) as well as high income families seeking excellent health care and a picturesque location with good service delivery. The transformation of CDMX during the second period is reflected in the move of the wealthy, as well as younger, likely informal sector workers in the wake of the economic crisis and the restoration of the Historical Center, to Quintana Roo during the second period.

We examine the effect destination variables have on individual decisions to migrate. While it would have been desirable to use city level data, we only had access to information at the state level—this is less satisfactory but provides substance to the trends observed in the Cluster assessments. **The analysis confirms that a critical driver for migration is the availability of employment opportunities**, especially for skilled workers and this is marked in the Club 1 category states: especially Nueva Leon, Baja California and Querétaro, affected by the *maquiladora factor* in the first period, and the higher skilled investment spreading inland after the 2013 reforms, as indicated above.

Ahmad and Viscarra (2020a) examine individual and household factors that influence the decision to migrate: including age, education levels, sex, housing conditions and access to public services, occupation and informality. During 2009-2014, a large proportion of young people in age group 20-29 migrated to find skilled employment, or the less skilled joining the informal sector. Overall, migrants were mainly men (74% during the second period 2013-18) of which half were in the prime 30-49 age group. Migrants were increasingly concentrated in large size urban areas (60% in 2014, and 85,9% in 2018). Approximately 49% of migrants in 2018 had secondary or technical education. In both periods, the main reasons to migrate were related to family support and availability of employment, or lack thereof resulting in reverse migration (e.g., to Chiapas). It is likely that this trend will continue in the immediate future, given the much higher rates of Covid-19 infections in CDMX and advanced states like Querétaro, and low reported rates in Chiapas. This might, however, change given the poor access to clean water and sanitation and public services in Chiapas.

The migration and investment location patters signal **the need for intensified public investments to attract more productive activities to the lagging southern states for a balanced growth trajectory.** This is similar to the emphasis on rebalancing that has been attempted in China since around 2000, and which has become an issue of high priority in the 14th Five Year Plan (Ahmad and van Rijn, 2020).

2.3.2 Structural change in Mexico City and State of Mexico

Mexico City has undergone important transformations. In the early 1990s, Mexico City (CDMX) was one of the most congested and polluted cities in the world. In 1980, half of all manufacturing jobs were located in Mexico City and after the 1994 reform most of these industries relocated to the maquiladora zones in the north. Mexico City was transformed gradually to providing services. Despite the improvements, CDMX remains the most ozone-polluted part of the country, with ozone levels 2.5 times the WHO safe limits.

It would be a **mistake to assume that the dual economy model does not apply, by focusing on CDMX reforms in isolation,** and also observing net outflows from CDMX during both 2009-14 and 2014-19 (see Table 3). As mentioned above, migration from CDMX to Quintana Roo (the Florida of Mexico) is likely to be both higher income people headed to less congested and healthier surroundings, and less skilled service sector workers who were needed by an expanding tourism industry (see Table 4). But the most significant migration was to Edomex—reflecting the sprawl that pushes out poorer workers into the more distant parts of the metropolitan area.

Table 3 Net Inflows across states, 2009-14; 2014-19 (INEGI Migration Survey)

Net inflow (2009-2014)		Net inflow (2013-2018)	
States	Number of people	States	Number of people
EDOMEX	184.354	EDOMEX	120.042
Querétaro	65.922	Nuevo Leon	106.348
Nuevo Leon	53.486	Baja California	95.755
Hidalgo	44.680	Quintana Roo	83.106
Yucatán	38.678	Chiapas	50.411
Quintana Roo	38.612	Guanajuato	49.571
Chihuahua	26.284	Querétaro	47.361
Aguascalientes	23.198	Baja California Sur	45.521
Sonora	23.194	Sonora	33.190
Baja California Sur	21.048	Yucatán	31.230
Veracruz	14.983	Aguascalientes	26.485
Jalisco	13.052	Puebla	25.466
Nayarit	12.677	Coahuila de Zaragoza	22.215
Campeche	12.676	Tlaxcala	19.730
Tlaxcala	11.407	Hidalgo	12.122
Puebla	10.703	Jalisco	12.082
Chiapas	7.639	San Luis Potosi	6.714
San Luis Potosi	5.528	Nayarit	704
Morelos	4.367	Chihuahua	393
Guanajuato	3.098		

Net inflow (2009-2014)		Net inflow (2013-2018)	
States	Number of people	States	Number of people
		Campeche	-2.561
Baja California	-1.314	Zacatecas	-9.933
Durango	-3.094	Morelos	-14.592
Tabasco	-8.104	Tabasco	-18.326
Zacatecas	-15.713	Durango	-23.705
Mexico City	-22.870	Michoacán	-28.402
Oaxaca	-24.841	Tamaulipas	-31.572
Michoacán	-31.987	Sinaloa	-43.045
Coahuila de Zaragoza	-46.314	Oaxaca	-55.545
Sinaloa	-47.585	Guerrero	-93.985
Guerrero	-56.179	Mexico City	-100.200
Tamaulipas	-95.430	Veracruz	-135.822
Colima	-259.852	Colima	-229.810

Largest inflows to Edomex from other states, some likely destined for CDMX informal sector sprawl

Table 4 Out-migration patterns: origin and destination States (INEGI Migration Survey)

	Destination states						
Source states	EDOMEX	Nuevo Leon	Baja California	Quintana Roo	Chiapas	Guanajuato	Querétaro
Aguascalientes	0,3%	0,5%	0,4%	0,0%	1,3%	0,4%	0,3%
Baja California	1,9%	0,9%	0,0%	0,8%	0,4%	2,6%	0,0%
Baja California Sur	0,0%	0,0%	2,8%	0,7%	0,0%	0,4%	0,3%
Campeche	0,0%	0,3%	0,0%	5,8%	0,3%	0,4%	0,3%
Chiapas	0,3%	4,6%	0,0%	0,2%	0,0%	2,7%	1,0%
Chihuahua	0,6%	0,0%	1,5%	0,0%	0,8%	0,4%	0,4%
Ciudad de Mexico	2,0%	5,2%	12,3%	22,2%	7,9%	4,8%	1,5%
Coahuila de Zaragoza	0,0%	2,5%	0,6%	0,5%	5,3%	4,9%	0,6%
Colima	48,8%	2,7%	2,3%	6,1%	1,4%	10,7%	15,7%
Durango	0,2%	2,6%	1,3%	0,1%	18,7%	1,1%	0,0%
Guanajuato	0,0%	2,0%	2,5%	0,8%	3,8%	0,0%	11,4%
Guerrero	6,8%	1,0%	10,2%	3,6%	0,5%	5,1%	3,8%
Hidalgo	5,1%	2,7%	0,4%	0,1%	0,2%	2,8%	4,8%
Jalisco	1,7%	5,3%	5,9%	1,3%	5,2%	10,1%	3,8%
EDOMEX	0,0%	3,8%	2,0%	7,5%	5,0%	16,1%	16,7%
Michoacán	3,4%	0,3%	4,6%	0,9%	0,3%	6,4%	7,6%
Morelos	3,6%	0,7%	1,0%	0,9%	0,5%	0,7%	1,7%
Nayarit	0,0%	0,4%	4,9%	0,5%	0,0%	0,5%	0,2%
Nuevo Leon	0,3%	0,0%	0,3%	1,5%	10,6%	0,8%	1,4%
Oaxaca	6,6%	2,7%	5,4%	1,5%	3,3%	2,9%	2,9%
Puebla	5,2%	2,2%	3,0%	2,2%	0,7%	1,3%	4,0%
Querétaro	2,5%	0,9%	0,4%	0,5%	0,5%	6,5%	0,0%
Quintana Roo	0,4%	0,4%	0,1%	0,0%	0,4%	1,0%	1,2%
San Luis Potosi	0,8%	12,6%	1,2%	0,7%	0,8%	2,2%	5,4%
Sinaloa	0,0%	0,8%	21,0%	0,1%	0,6%	1,6%	1,0%
Sonora	0,8%	0,6%	8,6%	0,1%	1,2%	2,0%	0,3%
Tabasco	0,0%	3,0%	0,7%	14,1%	1,4%	0,5%	0,6%
Tamaulipas	0,4%	18,0%	0,6%	0,2%	8,4%	3,5%	2,8%
Tlaxcala	0,0%	0,0%	0,6%	1,3%	0,4%	1,1%	0,5%
Veracruz	7,4%	21,0%	4,7%	12,5%	16,8%	5,5%	8,1%
Yucatán	0,9%	0,0%	0,0%	13,1%	0,2%	0,4%	0,2%
Zacatecas	0,0%	2,5%	0,8%	0,0%	3,0%	0,4%	1,4%

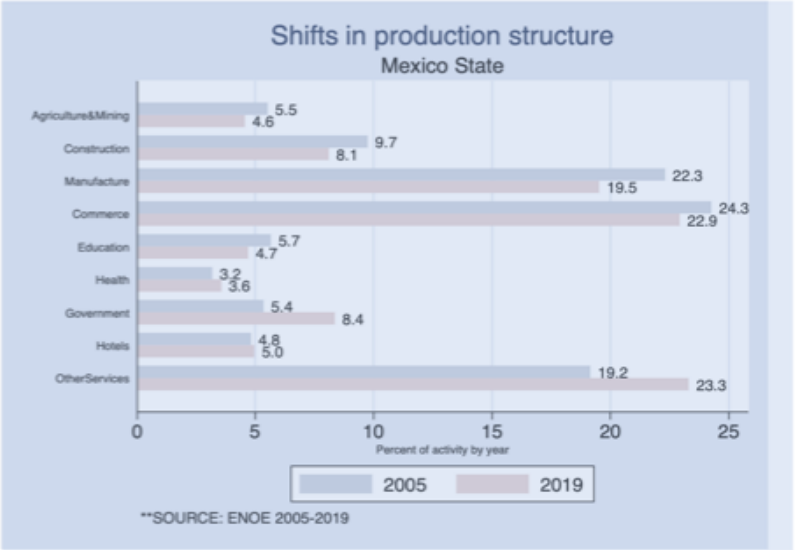
A fuller picture on the CDMX transformation emerges with the assessment of Edomex. The State has a declining manufacturing as well as construction sectors—an indication of the patterns of investment in the State. Yet, it has the highest net migrant inflows of any state. Increasing activities are concentrated in the lower skilled service sectors (Chart 7 a and b). Clearly, the influx of workers is driven by the attraction of the Mexico City Metropolitan area. Migrations have been from the poorer Southern State of Oaxaca, as well as States affected by violence and drug related violence (Colima, Guerrero). But Edomex appears to be losing more skilled workers to the rapidly growing Club 1 states—Querétaro and Guanajuato.

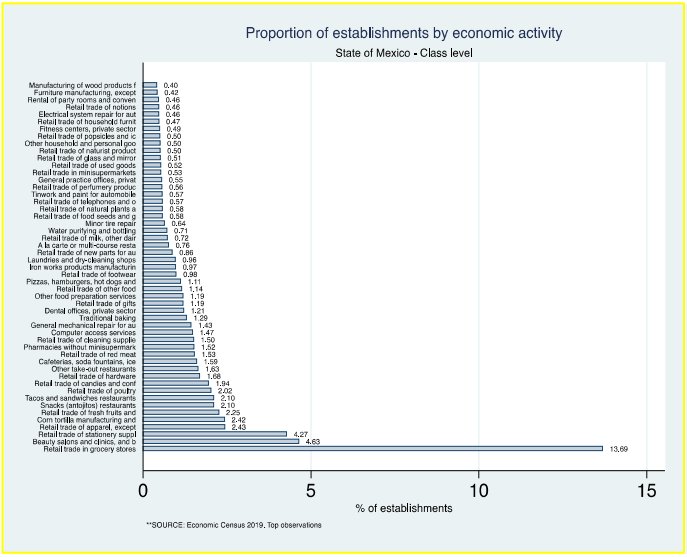
Edomex is affected by the sprawl of the Mexico City metropolitan expansion, with associated environmental damage, rapid spread of Covid-19, and need for greater public spending on poorer households. In addition, the relative decline of the formal manufacturing sector will put pressure on the State's main own-source revenues, the *nomína*, that is a function of formal sector employment. The Covid-crisis has led the state to relax *nomína* payments to protect firms and employment—putting further stress on stretched budgetary resources.

2.3.3 Reverse migration to Chiapas?

The "reverse" migration to Chiapas, is surprising, as there has been no income growth in the State. Very likely the return migrants have been affected by push factors, such as the economic crisis of 2010-12 with lags, and the restoration of the historic city center of CDMX. Also, pull factors such as the strong extended family ties, and the conversion of *Oportunidade*s into the employment linked support program *Prospera* have likely played a role.

Charts 7 (a-c)
What's happening in Mexico State?





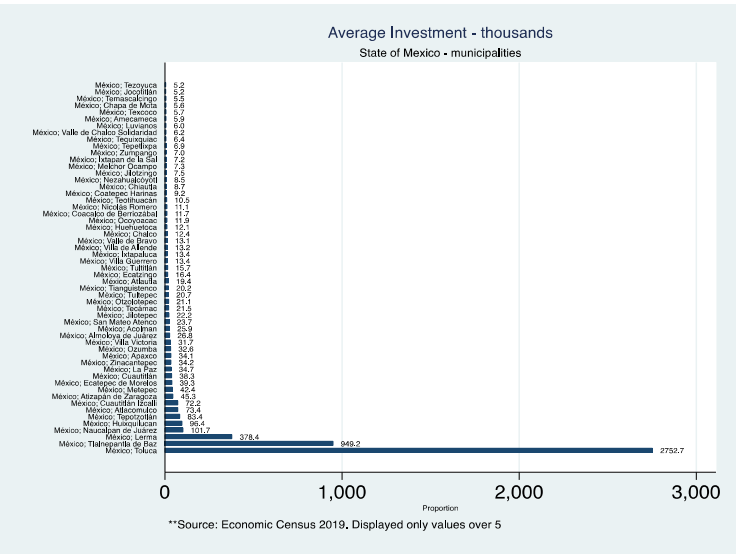
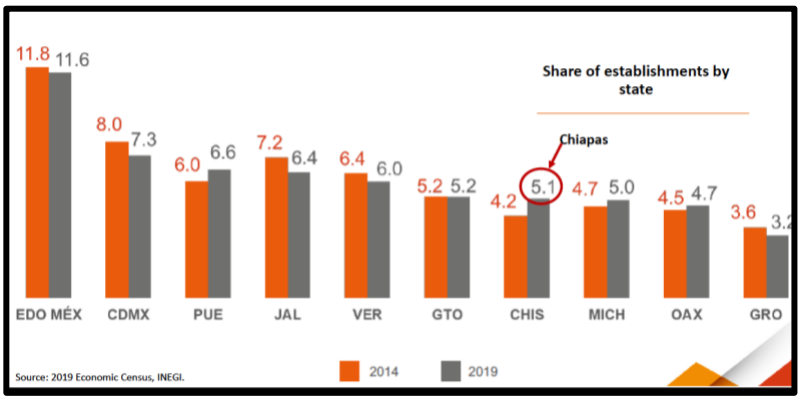


Chart 8 illustrates a rise in the number of establishments in Chiapas indicated over two periods of the Economic Census (2014 and 2019) is accounted for mainly by "microenterprises", often with a handful of related workers in low skill service activities, e.g., selling tacos on street corners.

Creating a **sustainable employment "hub" in the poorest states like Chiapas will require significant national investments in connectivity and State/local investments in supporting infrastructure, and basic services,** including education and health care, as well as sanitation and clean water.

Chart 8 Changes in establishment patterns



3 Coordinated design of national infrastructure investments and taxation: creating basis for sustainable urban transitions

There has been a great appropriate emphasis on public investment to anchor the "build back better" agenda, so that there is sustained employment generation, as well as improvements in the distribution of income. The expectation is that this should result in an improved environment and associated reduction in risks of future pandemics, including in Mexico. The financing for this investment in Mexico is quite modest and is linked to the limited fiscal space (overall tax/GDP ratio for all levels of government of around 15%). Given the experience of the 1990s, there is also reluctance to incur much additional debt, especially at the sub-national level.

Given fiscal constraints, it is imperative that the **public investments be effectively designed with a focus on sustainable employment generation, incorporating aspects of human and natural capital, as well as protecting the environment**. A range of shadow prices can be generated given weights on skills, land, and capital, reflecting different states of the economy (see Chart 1). These should form the basis for consistent decision making in choices of projects and programs. The Chilean National Investment System (SNI), recommended by IFIs (see the IMF publication, Schwartz et al., 2020) uses market prices, and makes *ex post* corrections for distributional and environmental damage (e.g., low cost housing for slum dwellers). But as these benefits are concentrated in the metropolitan area, there is an increased impetus for migration to the congested and polluted metro area, that also leads to increasing spatial inequalities (Piñeda,

2018). As seen above, the spatial linkages are particularly important in Mexico, with increasing pressures on ecologically fragile metro area of greater Mexico City.

As this paper focuses broadly **on financing the investment strategy for growth**, we do not present the shadow pricing exercise in full but summarize in Section 3.1 aspects of social profitability (see also Annex 1) **drawing implications for expanding socially desirable sectors, e.g., from an environmental perspective.** Changes with respect to an earlier exercise (Seade, Coady and Flores, 1986) reflect the changing nature of the Mexican economy and trading patterns.

National and subnational tax reforms to anchor sustainable finance for infrastructure are discussed in Sections 3.2 and 3.3. Changes in relative prices at a relatively aggregated level **were used to inform welfare enhancing directions of tax reforms** as the basis for the 2013 fiscal reform package. Section 3.2 re-estimates **directions of reform using the shadow prices from Section 3.1, and using a much more disaggregated set of demand responses.** Since the shadow prices encapsulate both environmental and employment perspectives, we illustrate that the concern with the distributional consequences of energy price adjustments on the poor might not be as severe as traditionally assumed, e.g., for a renewed emphasis on carbon taxation.

The national tax changes provide the basis for **considering efficient tax handles for the states.** The main state tax handle, *nomína*, or payroll tax is distortive and generates incentives for informality. Also, in states like Edomex, the relative decline in formal activities, such as manufacturing and growth of hard-to-tax services, limits the base of the tax. The response to the Covid-19 crisis leaves it further debilitated. We argue for **replacing the *nomína* entirely by a piggy-back on the income tax**, say around 2% (the overall rate could be maintained in conjunction with the Federal Ministry of Finance). A piggy-back on the carbon tax is another possibility, especially in the more congested and polluted states.

Perhaps the weakest link in ensuring the success of public investment for sustainable employment "hubs" in lagging areas, and of national investments in connectivity infrastructure are weak own-source revenues at the local/city level. Dysfunctional property tax systems, transplanting the US model of ownership and timely valuations, have not worked in Mexico or China. And as seen above, outside the CDMX metropolitan area yield almost no significant revenues. Reliance on land-value capture, a favourite of international agencies, works in the metropolitan areas, but generates incentives for urban sprawl, and in cases where resources are kept off-budget, as in many Chinese cities, leads to potential rent-seeking and also an unknown build-up of liabilities. We present alternatives in Section 3.3, linking the rates to service delivery costs, and broad categorizations of area and location-based valuations that do not depend on time-consuming cadasters. **Both significant revenues and improvements in equity can be achieved. This also becomes the basis for sustainable access to private financing of public infrastructure**.

3.1 Economy-wide shadow prices to guide sustainable public investments and tax drivers of reform

Economy-wide shadow prices that take into account interactions across sectors are needed for consistent project selection at all levels of government. These should take into account weights on human capital and skill levels, natural and physical capital, using a discount rate that facilitates a long time-horizon. Varying sensitivity to skill mix and capital intensity indicates sectors that might be more appropriate for certain regions than others. Thus, in the automotive and aerospace industries, there is a need for both higher skills and capital intensity, and it would not be appropriate to develop these sectors in areas with lower levels of skills and poor connectivity, e.g., the South of Mexico. These industries did not locate to the South after the 2013 reforms, given the predominance of low skill levels, poor public services and almost no connectivity. However, the agriculture, livestock and forestry sector appears invariant to changes in the labour and capital factor intensities, implying that there is likely to be no regional bias in these sectors.

It is interesting to evaluate the effects **of changing the accounting ratios for carbon use** (fuels) in determining economy-wide shadow prices. As expected, there are significant effects on sectors that heavily rely on hydrocarbons (oil extraction and gas). The social profitability of sectors such as coal mining, iron ore, non-ferrous metals, petrochemicals and fertilizers which are heavily dependent on fuels inputs, are affected by adjusting the accounting ratios for carbon use.

The greater weight on carbon emissions did not show much impact on social profitability in other sectors. This should reassure **the authorities that the impact on Mexico's trading positions will be minimal with environmentally desirable increases in taxes on fuels, or a higher carbon tax, especially in the most congested and polluted metropolitan areas, such as CDMX.**

3.2 Directions of Reform: investments and taxes for clean and sustainable growth

The Theory of Reform **identifies marginal social costs of raising additional revenues from groups of commodities or types of instruments**. The method (see Ahmad and Stern 1991) involves evaluating changes in taxes/prices on households in different circumstances and takes into account changes in consumption as a direct result of the price change (e.g., **increasing the price of petroleum using own-price elasticity estimates**), and also the consumption of other goods that result given budget constraints (cross-price elasticities are needed). The effects on producers, natural capital and environment can be captured if shadow prices are used rather than the typical nominal (or effective) consumer prices.

Different directions of reform are indicated given the preferences of the policy makers, and the weights placed on various groups of the population. If policy makers value a peso to an indigent widow in Chiapas as equivalent to a peso to the richest person in Mexico, e.g., Carlos Slim, this would be described as zero-inequality aversion (inequality aversion parameter, $\epsilon = 0$). If the policy maker is exclusively concerned with the poorest, the inequality aversion ϵ would approach

5 (Rawlsian maxi-min). Typical welfare minded governments could be described as having inequality aversion parameters ϵ of around 2.

Estimates of complete demand systems are needed to estimate directions of reform. For Mexico, Urzúa (2005) used five final goods sectors and changes in consumer prices.[5] However, when the focus of the analysis is on sustainable development and the role, for example, of carbon taxes, it is better to use changes in shadow prices that incorporate the general equilibrium implications in the assessment. Ahmad and Viscarra (2020b) examine directions of reform using a much more disaggregated system of own and cross-price effects using the Extended Linear Expenditure System (ELES) methodology on expenditure data at the household level. The demand system is estimated for 73 sectors, rather than Urzúa's 5 sectors. This permits a policy assessment that is much closer to that typically facing governments.

Table (5) shows a set of **welfare-improving directions of reform corresponding to different combinations of shadow prices for each level of inequality aversion**. As in the Urzúa (2005) analysis, **food products become less** attractive to tax as inequality aversion increases. This was the justification of exempting unprocessed food in the 2013 reforms. Also, since these goods did not enter into the inter-industry flows, this exemption would not break the information chain needed for limiting tax leakages or cheating. It is interesting that **the "flour and tortillas category" of food appears less important in the consumption basket of the poor than in the *past*,** despite the political connotations. Interestingly, we observe that the consumption of "sugary drinks and sweets" especially by the poor, would entail a higher social cost than "flour and tortillas", but the health implications suggest the need to "override" the suggested direction of reform. Indeed, given the negative externalities of sugary drinks and sweets on health, **the 2013/14 reforms correctly imposed steep excises on such "bads" to change behavior.** The same pattern applies for tobacco products, although the trends are not as sharply defined as for sugary drinks and sweets.

Telecommunication services are hugely important for sustainable transformation and building back better from the pandemic, including for the poorer groups of society. This is seen clearly in the exercise, as this sector becomes less attractive to tax when the inequality aversion parameter increases. **The "entertainment and recreation" sector** becomes more attractive to tax when the inequality aversion parameter increases, considering that rich people tend to consume those services more than the poor.

It is interesting that energy products also become more desirable to tax when the inequality aversion parameter is increased. This is a break from popular perception and reflects the differences in consumption patterns of rich and poor households. The 2013/14 reforms introduced a national carbon tax (eliminating implicit subsidies, plus small positive tax), with desirable properties and the revenue performance has better than expected.

[5] Estimates for India in the 1980s were for 9-sectors, and 13-sectors for Pakistan. See Ahmad, E. and N. Stern, (1991).

Table 5. Mexico--Directions of reform 2014, welfare losses using shadow prices and ELES demand estimates (Ahmad and Viscarra, 2020c)

	LAND=0.9, K=0.3, LABOR=0.5					LAND=0.9, K=0.3, LABOR=0.9					LAND=0.9, K=0.7, LABOR=0.5				
Food	**e=0**	**e=0,5**	**e=1**	**e=2**	**e=5**	**e=0**	**e=0,5**	**e=1**	**e=2**	**e=5**	**e=0**	**e=0,5**	**e=1**	**e=2**	**e=5**
Cheese, butter and other related products	60	41	37	25	9	60	40	37	25	11	60	41	37	25	10
Cow meat	41	28	32	21	13	42	29	30	21	15	40	29	32	21	15
Corn products	72	35	15	9	16	72	35	17	11	18	72	35	17	10	17
Wheat flour, tortilla and pasta	58	45	46	33	17	58	46	46	33	19	58	46	47	34	19
Chicken	48	34	35	28	18	48	34	35	29	20	47	34	34	28	18
Beverage industry: non-alcoholic	70	53	45	32	22	70	53	45	32	23	70	53	46	32	23
Rice and other related products	53	46	47	34	27	53	47	47	34	29	53	47	48	35	27
Vegetables	73	50	34	26	33	73	50	34	26	33	73	50	35	26	33
Pork and sausages	56	58	54	48	38	57	58	54	51	38	56	58	53	50	38
Eggs	61	63	58	53	40	61	63	56	53	39	61	63	58	54	40
Other processed food	63	33	19	24	30	64	32	20	24	32	63	33	22	24	30
Milk and related products	65	70	62	56	51	66	70	62	56	52	65	70	62	56	52
Fruits	66	48	41	38	42	65	48	42	36	42	66	48	42	39	43
Energy															
Gasoline	3	15	31	35	11	3	17	32	39	16	5	15	31	36	12
Oil and petroleum	18	39	51	52	37	20	42	52	52	37	19	39	51	53	37
Coal and other fuels	37	43	48	45	50	38	43	49	45	50	38	43	49	46	51
Oils and lubricants	27	65	71	69	62	28	65	71	69	62	27	65	71	69	63
Services															
Electricity	10	6	7	4	5	11	8	9	4	6	11	7	7	5	5
Phonecalls, internet and paid TV	29	21	20	14	6	27	20	18	15	5	29	22	23	14	6
Entertainment and recreational services	5	12	14	20	29	5	10	13	18	27	7	11	16	20	29
Negative externalities															
Sweets	50	31	28	15	1	51	30	29	17	1	50	31	28	15	1
Tobacco	68	49	43	47	56	68	49	44	47	56	68	49	45	49	56
Industry															
Pharmaceutical products	38	13	8	6	10	34	12	10	6	10	37	13	8	7	11
Non-electric household equipment	51	54	53	49	41	50	51	53	50	41	51	55	54	51	41
Manufacture of computer equipment	12	44	57	62	55	16	45	58	62	55	14	44	57	62	55

Our finding should assuage fears that taxing energy has an unduly negative impact on the poor, and enhances the case for increasing carbon taxation.

The strengthening of the national tax agenda has, however, left fewer effective or worthwhile tax handles in the hands of the States or metropolitan/city/local governments. This has an impact on accountable governance and incentives to manage sub-national finances efficiently. A strengthening of the sub-national tax agenda must be accompanied by an **overhaul of the intergovernmental transfer system**, as we illustrate in the next section. **This was a strong recommendation of a joint IMF-Ministry of Finance report on Intergovernmental Relations in Mexico in 2007** (Ahmad, Gonzalez-Anaya et al, 2007).

Ahmad and Gonzalez-Anaya et al (2007) **also recommended several governance measures that are important in ensuring a sustainable transition at the sub-national and city level.** These included the following:

- The **establishment and implementation of common budget coverage and reporting practices**, based on international standards at all levels of government, such as the IMF's **GFSM2001/14 balance sheets at state and local/city levels**. These are also essential in tracking the buildup of liabilities at the sub-national level, especially through PPPs (Ahmad, Vinella and Xiao 2018) and in parallel work in China (Ahmad and Zhang 2020).
- The establishment of **Treasury Single Accounts at the federal and state government levels** to be able to track the flow of funds that also helps in ensuring that federal earmarked transfers (*aportaciones*) are not diverted, and also to ensure efficiency in cash management.

The IMF's 2018 Fiscal Transparency Assessment for Mexico recommended, a decade after the 2007 joint IMF-SHCP report, that Mexico should adopt international standards for reporting budget transactions at different levels of government. This is particularly important from the perspective of the efficient management of national and subnational finances. **The establishment of sub-national balance sheets consistent with GFSM2014 standards is a very important element in managing risks, including from borrowing and PPPs**. But as noted above by the IMF's 2019 PIMA, this is not being done.

4 Financing sustainable growth and CCCs—the sub-national perspective

The sub-national own-source tax agenda is particularly important in aligning incentives facing Mexican States and cities, financing basic assigned spending, and opening access to private financing, such as PPPs for the needed infrastructure investments for building back better. States rely mainly on the distorting payroll tax, *nomína*, a myriad of smaller taxes and on Federal transfers. The property tax for cities and municipalities is largely dysfunctional, and there has been no progress with expensive cadasters and valuation mechanisms in attempts to copy the US property tax system. This leaves Mexican subnational jurisdictions in a very weak position to be able to access sources of private finance, including bonds and PPPs.

4.1 State own-source tax options

4.1.1 The status quo

The loss of sub-national own-source revenue bases, which began with the 1980 reforms introducing the VAT, continued with the 2013 elimination of the REPECOS regime. This not only reduces accountability it limits the ability of the states to access private financing in a sustainable manner for the infrastructure needed for the "building back better" agenda.

The **assignment of an environmentally attractive tax on vehicles to the states/metropolitan areas, the *tenencia*, failed** largely because the jurisdictions were able to negotiate "deficit filling" transfers from the Ministry of Finance, and had no incentive to apply the tax. This is because the *tenencia*, like the REPECOS, generated relatively little money and entailed a lot of administrative effort. It was much easier politically to lobby for deficit finance (see Piñeda, Ramirez and Rasblett, 2015). **Thus, badly designed transfers can negate well intentioned tax reforms.**

Continued and perhaps increasing **reliance on the state level payroll tax** to finance state operating expenses, **adds to the cost of doing business and creates incentives for "informality"**. While a case can be made regarding the financing of retirement, disability and unemployment benefits through a payroll tax, perhaps also supplemented through general revenues, especially at times of crisis such as the COVID-pandemic, there is less justification for financing subnational operating expenses through the taxation of labour, further accentuating incentives to "hide transactions, wages and profits" (Antón, Hernández and Levy, 2013).

State legislation and local administration of the property tax diffuses any linkage between the tax and notions of accountability. The States legislate, and local administrators find it easy to do deals with friends and relatives without fear of adverse political consequences (Ahmad, Brosio and Pöschl, 2015). Moreover, the tax is based on the US-style valuation and ownership model, and while this can continue for business properties and sales, where the political economy of valuation is not an issue.

Given that the current property tax system is dysfunctional, and practically useless outside CDMX, **we propose a beneficial property tax alternative that could be implemented quickly, generate significant revenues, and also be distributionally attractive**. To avoid constitutional difficulties, the **legislation could be retained at State level specifying a band** within which the local governments and cities could choose their rates. This follows the model proposed for Chinese cities, as legislation is concentrated in the hands of the National Peoples' Congress, and the delegated band system is already in operation for some property transaction taxes (see Ahmad, Niu, Wang and Wang, 2020). As relevant city level data is not available, we simulate the revenue and distributional options using state level data in Ahmad and Viscarra (2020c). The options are summarized in Section 4.2.

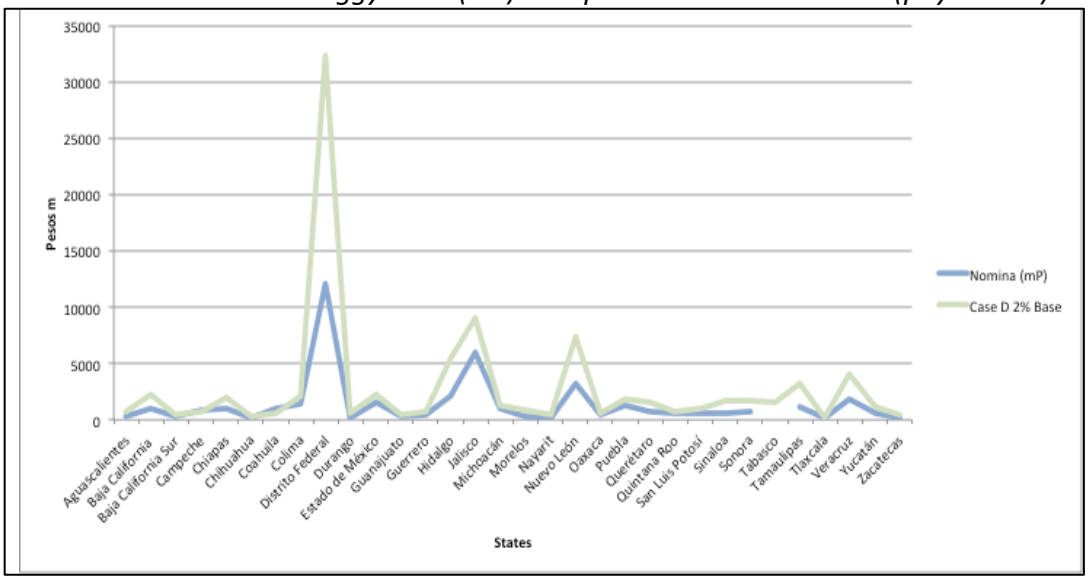
Making a system of own-source revenues function without exacerbating inequalities requires the use of equalization transfers, as described by Ahmad, Brosio, Garcia-Escribano, Gonzalez-Anaya, and Revilla (2007), to replace the current system of untied transfers, *participaciones.*

The required multilevel governance issues and accountability mechanisms for sustainable growth were set out in the joint IMF-SHCP 2007 report. As the IMF's 2018 Fiscal Transparency assessment and 2019 PIMA evaluation show, progress in meeting the 2007 recommendations has been slow at best, and the 2007 recommendations remain valid.

4.1.1.1 Piggy-back on national PIT to replace payroll taxation

A small state-level piggy-back on the income tax would raise significantly more revenues than the state level payroll tax that currently finances much of the administrative overheads at the sub-national level. As seen in Chart 9, a 2% piggy-back or surcharge on the personal income tax would (for 2013) have raised more revenues than the state-level payroll tax (*nomína*), and REPECOS combined in every state—and very much more in CDMX. This reform **would also be strongly efficiency enhancing, by reducing the bias against hiring labour**. And, by reducing the cost of doing business could help to reduce informality.

Chart 9 State-level PIT Piggy Back (2%) to replace the state Nómina (payroll tax)



Source: Ahmad and Brosio (2014) based on background paper for the 2013 Fiscal Reforms.

An important issue to **qualify for own-source revenue for sustainable access to private funding is whether States can vary the rate of the piggy-back at the margin.** In Unitary States like China, this piggy back would be achieved by the Central legislature enacting a "band", and the relevant jurisdiction choses its rate within the band. This would not apply to Mexican States, since they are able to set surcharges on Federal taxes but would be relevant for State legislation of property tax rates (see below). The measure **would not require sub-national administration, as in the US,**

and could be a critical factor that facilitates the operation of a more active sub-national bond market.

4.1.2 State level piggy-back on the carbon tax

A state or metropolitan-level piggy back on the carbon tax is an important option to addresses environmental concerns directly. This would increase in carbon pricing more congested and polluted metropolitan areas, more than in others that tend to be poorer with much less vehicular traffic. This could meet both environmental and distributional objectives.

A piggy-back on the carbon tax in the more congested and polluted metropolitan areas would also contribute to **spatial dynamics of sustainable urban transformation—persuading workers and firms to move to CCCs**, while also ensuring the creation of employment for the rebuilding phase of the pandemic response. However, for these CCCs to be viable, a modicum of local public services and infrastructure will be needed, especially if the imbalance between the Southern States and the rest of the country is to be redressed.

4.2 A beneficial property tax to finance sustainable CCCs

Apart from the poor connectivity, one of the main constraints in getting firms to locate in say Chiapas or Oaxaca in the Southern part of Mexico **is the low levels of local services and amenities**. This also limits the attractiveness of these states for higher qualified workers, often needed for the requisite private investments to be undertaken. Simple metrics of migration can be misleading, as we saw above, there has been reverse migration of workers returning to their extended support networks from the informal sector e.g., in CDMX and Veracruz, given the economic crises during the past decade.

As in the Chinese case[6], Ahmad and Viscarra (2020c) **simulate the effects of a recurrent property tax on non-business properties that is based on simple measures of location and size, and calibrated** to cover basic public services (proxied in this case by spending on education). Given that there is generally an active market for business properties, it is desirable to maintain the valuation-ownership property tax model for such properties (this is also the case in the UK and in China).

A very simple method is used that is a function of the size, location of the property. The rate per square meter is set in relation to the built-up areas, and a broad indicator of level of development, proxied in this example by State level GDP. In practice, an average rate/square meter for a state will probably be too low for some cities (and localities within cities) and too high for others, but is being used for purely illustrative purposes, pending more detailed city level assessments that might follow at a later stage. This method sidesteps problems with complicated

[6] Ahmad, Niu, Wang and Wang (2020).

cadasters (that are still needed for legal purposes and for business properties), ownership and valuation complications, and can be implemented relatively quickly.

Table 6 illustrates the method**. 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). As seen in Table 7, the tax on its own reduces inequality in most states—this is seen most markedly for Chiapas, and the effect is magnified as the benefit linkages are introduced, and inequality aversion increased. Given the importance of the poor in Chiapas, this is a very powerful result.

The CDMX case is of interest. The tax on its own increases inequality at low levels of inequality aversion. However, the situation changes when linked to benefits targeted to children—in this case for education. But if there is moderate or high levels of inequality aversion, the tax on its own reduces inequality in CDMX, and the impact of linkage with either equal distribution of benefits, or targeted to education is even stronger. Clearly, **the 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.

The most significant increases in revenue potential are in CDMX as well as in Chiapas. This makes the reform of interest in both rich and poorer states. However, the tax potential in CDMX is almost ten times the revenues that could accrue to Chiapas (Table 6) and twice the revenue potential of the measure in the State of Mexico (the next highest). **In order 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,* as recommended in Ahmad, Brosio, Gonzalez Anaya, Garcia-Escribano and Revilla (2007).

The revenues from the beneficial property tax potentially are significantly greater than the *nomína* 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 8).

Table 6. Determining the rate of a beneficial property tax in Mexico Mx$/m^2 Source: Ahmad and Viscarra (2020c)

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

Table 7. Mexican States: Initial distribution of income Y_0 and Distributional Impact of Area-based Property tax Y_1, and links to basic services Y_2 for different levels of inequality aversion.

		e=0.5				e=1				e=2			
	Y0	Y1	Y2	Y2	Y0	Y1	Y2	Y2	Y0	Y1	Y2	Y2
Estados		(Y0-property tax 1,5% PIB)	(target)	(equal)		(Y0-property tax 1,5% PIB)	(target)	(equal)		(Y0-property tax 1,5% PIB)	(target)	(equal)
Aguas Calientes	0.152	0.160	0.09	0.134	0.297	0.308	0.176	0.261	0.541	0.55	0.338	0.477
Baja California	0.204	0.215	0.154	0.188	0.353	0.373	0.255	0.325	0.574	0.598	0.375	0.515
Baja California Sur	0.185	0.219	0.132	0.208	0.331	0.382	0.244	0.367	0.539	0.59	0.42	0.576
Campeche	0.271	0.219	0.085	0.166	0.431	0.379	0.158	0.289	0.618	0.585	0.281	0.458
Coahuila	0.186	0.135	0.066	0.121	0.334	0.264	0.125	0.242	0.555	0.484	0.225	0.464
Colima	0.167	0.172	0.081	0.148	0.304	0.313	0.154	0.269	0.519	0.52	0.282	0.448
Chiapas	0.436	0.246	0.08	0.14	0.620	0.450	0.155	0.261	0.807	0.72	0.287	0.456
Chihuahua	0.195	0.158	0.078	0.133	0.351	0.301	0.142	0.250	0.569	0.531	0.241	0.437
CDMX	0.148	0.151	0.144	0.151	0.278	0.277	0.263	0.275	0.496	0.467	0.436	0.461
Durango	0.172	0.166	0.063	0.129	0.316	0.322	0.125	0.252	0.541	0.584	0.244	0.464
Guanajuato	0.168	0.154	0.091	0.116	0.317	0.289	0.162	0.219	0.569	0.517	0.271	0.395
Guerrero	0.206	0.177	0.068	0.131	0.385	0.354	0.130	0.262	0.634	0.634	0.234	0.485
Hidalgo	0.239	0.283	0.099	0.203	0.426	0.490	0.172	0.346	0.683	0.761	0.278	0.528
Jalisco	0.170	0.172	0.141	0.144	0.314	0.315	0.248	0.265	0.553	0.554	0.395	0.469
Mexico	0.191	0.182	0.157	0.139	0.354	0.344	0.289	0.265	0.599	0.604	0.48	0.476
Michoacan	0.228	0.226	0.109	0.171	0.404	0.404	0.192	0.309	0.642	0.635	0.308	0.508
Morelos	0.222	0.254	0.132	0.206	0.387	0.456	0.234	0.369	0.615	0.717	0.379	0.594
Nayarit	0.201	0.221	0.113	0.186	0.366	0.403	0.215	0.340	0.619	0.684	0.417	0.597
Nuevo Leon	0.162	0.154	0.126	0.139	0.295	0.284	0.226	0.257	0.494	0.475	0.362	0.442
Oaxaca	0.230	0.221	0.089	0.158	0.428	0.421	0.178	0.307	0.703	0.723	0.364	0.573
Puebla	0.285	0.225	0.121	0.171	0.461	0.403	0.211	0.312	0.688	0.656	0.336	0.527
Queretaro	0.199	0.203	0.104	0.166	0.363	0.374	0.193	0.307	0.627	0.657	0.35	0.546
Quintana Roo	0.149	0.149	0.07	0.132	0.286	0.278	0.138	0.250	0.525	0.472	0.269	0.441
Potosí	0.274	0.247	0.13	0.205	0.486	0.449	0.230	0.370	0.748	0.72	0.378	0.602
Sinaloa	0.175	0.188	0.075	0.155	0.335	0.351	0.140	0.292	0.585	0.583	0.246	0.494
Sonora	0.190	0.188	0.12	0.168	0.331	0.327	0.202	0.293	0.536	0.536	0.311	0.48
Tabasco	0.213	0.206	0.106	0.172	0.392	0.391	0.206	0.333	0.654	0.677	0.407	0.607
Tamaulipas	0.190	0.191	0.122	0.168	0.346	0.354	0.222	0.311	0.584	0.59	0.363	0.517
Tlaxcala	0.184	0.182	0.084	0.134	0.340	0.349	0.166	0.256	0.597	0.643	0.323	0.466
Veracruz	0.248	0.217	0.152	0.174	0.423	0.390	0.259	0.315	0.659	0.648	0.399	0.528
Yucatan	0.237	0.241	0.106	0.191	0.415	0.422	0.189	0.338	0.658	0.65	0.31	0.531
Zacatecas	0.309	0.212	0.077	0.154	0.470	0.369	0.152	0.276	0.655	0.613	0.309	0.48

Source: Ahmad and Viscarra (2020c)

Table 8 Comparative Revenues for Selected States (Millions of Pesos)

State	Nómina	Total transfers (Aportaciones + Participaciones Federales)	Actual Property tax revenues	1.5% of GDP Beneficial property tax
State of Mexico	10,163.30	177,527.04	3,990.66	21,577.83
Querétaro	1,409.10	26,441.60	693.85	5,547.54
CDMX	20,281.47	101,901.02	9,067.91	42,548.10
Chiapas	1,162.44	81,737.16	224.20	4,356.95

4.3 The role of fiscal equalization in the building back better agenda

The growing spatial imbalances have been a central part of the policy dialogue in Mexico for well over two decades. Addressing such inequalities is sensibly at the heart of the economic program of the current administration. The pandemic adds further urgency to the challenges faced, given that the poor are likely to face a disproportionately high burden of adjustment. This will have implications for metropolitan areas, such as CDMX that have the highest infection and mortality rates, but there could be a lagged effect of reverse migration to the lagging regions such as Chiapas, especially if the coping mechanisms adopted in the past decade come into play. In addition to the tax instruments, discussed above, that directly influence income distribution, it is useful to distinguish between the two other instruments available—current and capital transfers/public investments.

In Latin American countries, equalization in practice is often based on closing actual gaps in poverty levels or public services, and to provide financing accordingly. Although this appears appealing, the analytical framework is similar to that of means tested transfers, that also underpinned the *Oportunidades/Progresa* program. But as the recipients in an equalization program are sub-national governments, **the disincentive effects of current equalization practices are quite pronounced.** If actual gaps, such as in specific services and poverty levels are incorporated into policy design, it is in the interest of the recipient administration to maximize the gaps, and not close them. Similarly, if actual revenues are used (even if a fiscal effort measure is included), the recipient government would not be inclined to increase own-source revenues. This is consistent with the poor state of sub-national revenue performance in Mexico and many other Latin American countries. The incentive structure thus becomes perverse, and likely to result in "good intentions, bad outcomes."

Ahmad and Viscarra (2020d) estimate for Mexico a fiscal equalization model adapted from best practice, in many OECD countries as well as China. This looks at standardized disabilities faced by specific jurisdictions with respect to key spending functions. Thus, high costs of education provision might arise due to population density in metropolitan areas, as well as in dispersed populations requiring special instruction in say Chiapas. The standardized spending differentials are combined with the differentials in relation to revenue generation. The standardized

differentials are linked to independent factors not under the control of the sub-national jurisdiction. The composite disability becomes the basis for an effective "lump sum" transfer that can be juxtaposed against the current system of untied transfers (*participaciones*). The details of models and estimations are provided in Ahmad and Viscarra (2020d).

The basis for **capital transfers or investments should be driven by a proper shadow pricing exercise and assessment of sustainable urban dynamics** for the building better exercise, as discussed in the preceding sections of this paper.

5 Building Back Better in Mexico

The Global COVID-19 Pandemic has focused attention on **the need for coordinated policy actions, involving national, state and city/local governments, with a focus on health and livelihoods—sustainable jobs that can be achieved together with a cleaner environment, and a better distribution of income.** The spatial imbalances that have been endemic in Mexico have been at the center of government policy, with the focus on connectivity to the lagging Southern States. A strengthening of this agenda to create jobs and address inequality is now dictated by the Pandemic and building back better.

Connectivity infrastructure, such as Tren Maya, remains important, but it is hard to see tourism playing an important role in the immediate future. **Extensions of the planned connectivity to Chiapas and Oaxaca could also form a bridge between the Pacific and the Atlantic**, opening up new value chains with East Asia as well as Europe, LAC and Africa, and creating sustainable employment in Mexico's disadvantaged regions. More importantly, it could shift domestic activities to the Southern States, including private investment to take advantage of lower costs (e.g., housing and labour).

Physical connectivity (e.g., rail links) **could usefully be complemented by support for e-commerce.** This is already playing a role in adapting to social distancing requirements in large metropolitan areas around the world and could be an important part of restructuring work practices, supply chains and employment patterns in congested cities like CDMX. There could well be **additional employment opportunities in the metropolitan area** for informal sector population, e.g., in delivery and warehousing, as it would be important to prevent the potential reverse migration to Chiapas, at least in the short-to-medium term, given the weaker health care and support mechanisms in the latter. Also, new work practices should help in reducing congestion and pollution. Moreover, **e-commerce has been extremely important in generating activities in remote villages and supporting SMEs in less well-developed regions,** e.g., in China, (World Bank and Alibaba Group, 2019[7]). This could be an important area for further work in Mexico, and critical to the "Building Back Better" agenda.

[7] The World Bank and Alibaba Group, 2019, *E-Commerce Development: Experience from China*, Washington DC.

Connectivity infrastructure is not sufficient on its own as seen in examples from Europe, Chile and China. This needs to be complemented by **connected, compact and clean cities as "hubs" for sustainable employment.** Additional work at the city level is needed to develop the themes raised in this paper.

"Own source" revenues at the state and city level are essential, not just to raise revenues, but to generate accountability for key functions, including health care and local service and infrastructure, but also in opening up **access to private participation in public investments**, including subnational bonds and PPPs without running the risks that emerged during the tequila crisis pf the 1990s. The key measures include the following:

- **A calibrated beneficial property tax, within an equalization framework, could play a part in reducing inequalities across states**, by enhancing the spatial dynamics of connected, compact and clean cities, and the potential differential between CDMX and Chiapas property tax rates would underline this.
- The beneficial property tax would be critical to ensure that there **is better provision of basic services at the city/local level, and this would be critical in the "rebalancing"** of activities to the lagging Southern States.
- The beneficial property tax **could be implemented quickly**, including with legislation at the state level, and in addition to the revenues generated, could become the basis for **increased accountability for local services, including primary health care and providing for workers** and households affected by the pandemic.
- **A piggy-back on the personal income tax**, at the state/metropolitan level, is already permissible by law, and could **quickly replace distorting taxation of employment through the state level nómina/payroll tax.**
- **A "piggy back" on the carbon tax at the state and metropolitan level, could provide important signals in the more congested and polluted parts of the country** to firms and workers, as well as raising significant revenues.

All the measures enumerated above, including the effectiveness of equalization transfer system, **would require a tightening of the practice of "deficit/gap-filling" transfers that destroy incentives for accountable behaviour.**

At all levels of government, comprehensive balance sheet information, consistent with the GFSM 2001/14 standards, together with tracking the sources and uses of funds through national and state level TSAs, are necessary for sustainable growth as emphasized in Ahmad and Gonzalez Anaya et al., 2007. These are also essential for the building back better agenda to have serious traction. The IMF's emphasis on efficiency and transparency in project management are clearly very important. However, **projects should be chosen with consistent weights on specific types of labour, natural capital, income distribution and the environment** (including carbon use and emissions), as emphasized in this paper. Also, an appropriate discount rate is needed, together with coordination between different levels of government.

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Annex: Estimating economy-wide shadow prices for investments and tax design

We use the detailed 2014 household income and expenditure survey *Encuesta Nacional de Ingresos y Gastos de los Hogares* (ENIGH)[8], to estimate the complete demand system[9] to assess effects on different types of households, of marginal changes in effective prices including the direct effects of the price change, plus the indirect effects through the inter-industry flows (e.g., due to energy). This uses a disaggregated complete demand system[10] for Mexico estimated during the research program (described in Viscarra, 2020).

We run a series of sensitivity analyses to assess how the results change under different assumptions (e.g., weights on capital, land and different types of labour, as well as emissions and classification of sectors as tradables and non-tradables. The shadow prices to estimate accounting ratios (ARs) which show the deviation between social and producer prices (a larger deviation from value 1 shows a larger deviation between market and social prices) for tradable and non-tradable sectors. For imports *m*, accounting ratios $AR_i^m = \frac{1}{1+t_i^m}$, lower than 1 show the divergence from border prices due to import duties (t_i^m). The ARs for export sectors that have relatively large trade and transport margins, or larger net taxes, diverge more from their Border Price Ratio (BPR), for example for agriculture, oil gas and extraction, non-ferrous metals and electric machinery and equipment. The $BPR_i = \frac{1}{1-a_{ri}-t_i^x}$ where a_{ri} are trade and transport margins incurred in exporting the commodity and t_i^x are export taxes/subsidies for that sector. BPR values over 1 show that the sector exhibits either large trade and transport margins or export taxes, or both. The ARs for non-tradables are estimated using the shadow prices of the factors of production, and the values of the factors of production at producer prices. ARs values over 1 show that the social value created by that sector is higher than its market value. These economy-wide shadow prices should be used in evaluating projects, rather than market prices.

[8] Instituto Nacional de Estadística y Geografía (INEGI). 2014, 2018. *Encuesta Nacional de la Dinámica Demográfica (ENADID).* Last Access: 2020. https://www.inegi.org.mx/programas/enadid/2018/

[9] The 2014 ENIGH is used to estimate monetary and non-monetary expenditures at purchaser prices.

[10] Using the ELES methodology explained in (C. Lluch 1973) (Lluch, A.A and R.A 1977) and used in (Viscarra 2020), (Jarque 1985) to estimate demand elasticities in Mexico. Previous work on directions of reform was based on much more aggregated systems estimated e.g., using complete demand systems (Ahmad and Stern, The Theory and Practice of Tax Reforms in Developing Countries 1991) or for Mexico: (Urzúa 2005) (five sectors).

Annex Table 1 Social Profitability of tradeable sectors, 2014 (Ahmad and Viscarra, 2020a)

		RESIDUAL =0.5 FOR LAND-INTENSIVE, 0.125 FOR PUBLIC AND 0.25 FOR PRIVATE SECTORS								
		K=0.3			K=0.5			K=0.7		
Sectors	**case2**	**LABOR=0.5**	**LABOR=0.7**	**LABOR=0.9**	**LABOR=0.5**	**LABOR=0.7**	**LABOR=0.9**	**LABOR=0.5**	**LABOR=0.7**	**LABOR=0.9**
Agriculture	X	0,61	0,61	0,62	0,62	0,62	0,62	0,62	0,63	0,63
Livestock	X	0,88	0,86	0,84	0,87	0,85	0,85	0,87	0,85	0,83
Forestry	X	0,87	0,85	0,83	0,87	0,85	0,85	0,87	0,85	0,83
Hunting and Fishing	X	1,05	1,03	1,01	1,04	1,03	1,02	1,04	1,03	1,01
Extracción de petróleo y gas	X	0,50	0,50	0,51	0,50	0,50	0,80	0,50	0,50	0,51
Coal mining	IM	0,56	0,58	0,60	0,57	0,59	0,49	0,58	0,60	0,61
Iron ore	X	1,28	1,23	1,19	1,36	1,32	1,53	1,43	1,38	1,34
Non-ferrous minerals	IM	1,47	1,46	1,44	1,45	1,44	1,58	1,43	1,42	1,41
Electricity	X	1,13	1,01	0,93	1,12	1,01	0,96	1,12	1,01	0,93
Milk and dairy products	IM	1,07	0,96	0,88	1,06	0,96	0,87	1,05	0,95	0,86
Canned fruits and vegetables	X	1,14	1,10	1,07	1,14	1,10	1,18	1,13	1,10	1,07
Milling of grains and seeds, edible oils and f	IM	1,49	1,40	1,32	1,49	1,40	1,45	1,48	1,39	1,31
Production of Sugar, chocolates, coffee, and	X	1,21	1,20	1,18	1,21	1,19	1,31	1,20	1,19	1,18
Animal food	IM	1,37	1,24	1,13	1,36	1,24	1,21	1,36	1,23	1,13
Meat	IM	0,87	0,85	0,83	0,86	0,84	0,83	0,86	0,84	0,82
Fish	X	2,06	1,89	1,75	2,04	1,88	2,10	2,03	1,87	1,74
Miscellanious food	IM	1,28	1,21	1,15	1,28	1,21	1,20	1,27	1,20	1,14
Beverage industry: alcoholic and soft bevera	X	1,26	1,17	1,10	1,26	1,17	1,18	1,25	1,17	1,10
Tobacco	X	2,11	1,99	1,88	2,11	1,98	2,02	2,10	1,97	1,87
Soft textiles	IM	1,48	1,42	1,37	1,48	1,42	1,56	1,48	1,41	1,36
Hard textiles	X	0,57	0,60	0,63	0,57	0,60	0,58	0,57	0,60	0,63
Other textiles	IM	0,62	0,65	0,68	0,62	0,65	0,63	0,63	0,66	0,69
Clothing	X	1,45	1,26	1,12	1,45	1,26	1,20	1,44	1,25	1,12
Leather products	IM	1,29	1,12	1,00	1,29	1,12	1,04	1,28	1,12	1,00
Sawmilling	IM	1,83	1,53	1,32	1,82	1,52	1,38	1,81	1,52	1,31
Other wood products and cork	IM	1,17	1,04	0,94	1,16	1,03	0,97	1,16	1,03	0,93
Paper and products	IM	1,57	1,34	1,17	1,57	1,33	1,24	1,56	1,33	1,17
Printing and publishing	IM	1,41	1,25	1,13	1,40	1,24	1,28	1,39	1,24	1,13
Oil refining and products	IM	0,92	0,93	0,93	0,92	0,93	0,95	0,92	0,93	0,94
Basic petrochemicals	IM	0,73	0,74	0,76	0,73	0,74	0,82	0,73	0,74	0,76
Fertilizers	IM	0,82	1,29	1,19	1,41	1,29	1,33	1,40	1,28	1,19
Synthetic rubber and fib	IM	1,67	0,83	0,84	0,83	0,83	0,78	0,83	0,83	0,84
Pharmaceutical products	IM	1,32	1,56	1,46	1,66	1,55	1,78	1,65	1,54	1,45
Manufacture of paints, coatings and adhesiv	IM	1,21	1,24	1,18	1,31	1,24	1,31	1,31	1,23	1,17
Soaps, cosmetics and sim	X	1,33	1,08	0,98	1,21	1,08	1,01	1,20	1,08	0,98
Other chemical products	IM	0,85	1,24	1,16	1,32	1,23	1,27	1,32	1,23	1,16
Plastics	IM	1,52	0,87	0,90	0,85	0,87	0,85	0,85	0,88	0,90
Rubber products	IM	1,19	1,34	1,21	1,52	1,34	1,28	1,52	1,34	1,20
Manufacture of products based on clay and r	X	1,35	1,04	0,92	1,19	1,03	0,96	1,18	1,03	0,92
Glass products	X	1,22	1,18	1,05	1,35	1,17	1,08	1,34	1,17	1,05
Cement	X	1,23	1,07	0,96	1,21	1,07	1,04	1,20	1,06	0,95
Manufacture of lime, plaster and gypsum pr	X	1,41	1,11	1,02	1,22	1,11	1,09	1,22	1,10	1,01
Nonmetallic minerals	IM	0,71	1,28	1,18	1,40	1,27	1,30	1,39	1,26	1,17
Iron and steel	IM	1,45	0,72	0,73	0,76	0,77	0,79	0,81	0,83	0,84
Non-ferrous metals (eg. aluminium)	X	0,68	1,35	1,26	1,14	1,09	1,10	0,97	0,93	0,90
Metal furniture	IM	0,73	0,71	0,73	0,84	0,87	1,03	1,00	1,02	1,05
Structural metal products	X	0,81	0,69	0,66	0,42	0,41	0,34	0,31	0,31	0,31
Other metal products	IM	0,45	0,83	0,86	0,86	0,89	0,94	0,91	0,94	0,96
Non-electric machinery and equipment for tl	IM	0,92	0,48	0,51	0,84	0,87	1,36	1,24	1,27	1,30
Electric machinery and equipment	X	0,89	0,84	0,77	0,50	0,48	0,42	0,38	0,37	0,37
Manufacture of computer equipment, comm	IM	0,49	0,91	0,93	0,90	0,93	0,96	0,92	0,95	0,97
Electric household goods	X	0,81	0,46	0,43	0,16	0,16	0,12	0,10	0,10	0,10
Electronic equipment	IM	0,54	0,84	0,87	0,87	0,90	0,97	0,93	0,96	0,98
Motor vehicles, aerospecial and railway	X	0,53	0,56	0,57	0,68	0,70	0,84	0,83	0,85	0,87
Motor vehicles engines and parts and aeroes	X	-1,12	0,55	0,57	0,70	0,73	0,93	0,88	0,90	0,93
Other electronic equipment	IM	0,75	- 1,06	- 1,00	0,10	0,11	0,39	0,27	0,27	0,27
Manufacture of furniture, mattresses and bl	X	1,68	0,69	0,65	0,58	0,56	0,56	0,51	0,50	0,48
Manufacture of non-electric equipment, disp	X	1,44	1,39	1,20	1,65	1,37	1,27	1,63	1,36	1,18
Other manufacturing industries	IM	1,20	1,27	1,14	1,41	1,24	1,19	1,38	1,22	1,11
Ground transportation of passengers, except	IM	1,18	1,19	1,13	1,27	1,19	1,15	1,27	1,19	1,13
Postal services	IM	0,94	1,34	1,33	1,34	1,33	1,24	1,34	1,33	1,32
Publishing of newspapers, magazines, books	IM	1,40	0,86	0,76	0,90	0,79	0,71	0,82	0,75	0,69
Telecommunications, radio and television	IM	1,53	1,63	1,49	1,82	1,63	1,47	1,81	1,62	1,48
Financial services	IM	1,90	1,40	1,28	1,56	1,39	1,31	1,55	1,39	1,27
Real Estate Renting	IM	1,51	1,85	1,81	1,89	1,84	1,77	1,87	1,83	1,79
Renting for automobiles, trucks, machinery f	IM	1,46	1,41	1,32	1,37	1,29	1,10	1,27	1,20	1,14
Professional, technical and scientific service	IM	1,27	1,36	1,28	1,44	1,34	1,29	1,42	1,33	1,26
Business support service	IM	1,05	1,16	1,09	1,26	1,16	1,07	1,26	1,16	1,09
Entertainment and recreational services	IM	1,01	0,73	0,69	0,78	0,73	0,66	0,78	0,73	0,69
Repair services: automobiles, trucks, electro	IM	1,48	0,93	0,87	1,01	0,93	0,86	1,00	0,92	0,87