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Mexico needs a fiscal twist: Response to Covid-19 and beyond  

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ABSTRACT

Mexico’s fiscal response to the pandemic has been modest compared to its peers, reflecting the authorities’ desire to not issue new debt for spending. This approach, however, resulted in a more severe recession in 2020 and a weaker economic recovery, notwithstanding spillovers from the United States. Balancing the need for stronger near-term fiscal support for the people and the recovery against medium-term discipline, this paper lays out an alternative strategy. We show that credibly announcing a pro-growth and inclusive medium-term fiscal reform upfront—including increased tax capacity, higher public investment and strengthened social safety nets—would open space for larger short-term support and close medium-term fiscal gaps. Model simulations suggest that this package would boost output, limit lasting economic damage from the pandemic, and put debt trajectory on a declining path in the medium term as tax reforms pay off and risk premia decline.

1. Introduction

Mexico’s fiscal response to the Covid-19 shock has been modest. Additional expenditures in 2020 amounted to 0.4 percent of GDP to support health care and 0.2 percent of GDP to protect households and firms. Loans to formal workers and laid-off employees as well as contingent liabilities added up to 1.2 percent of GDP. As illustrated in Fig. 1, the level of support is significantly lower than the peers in Latin America and EMMIEs (emerging market and middle-income economies). The size of spending and revenue measures in 2020 was also smaller than the announced discretionary fiscal stimulus in 2009 (Fig. 2), which included public investment and targeted transfers. Partly reflecting this muted fiscal response, the severity of Mexico’s economic contraction in 2020—where output growth was around –8½ percent—is notable. What if the authorities provided greater short-term support while committing to medium-term fiscal discipline? This paper tries to answer this question by: (1) quantifying short-term fiscal needs amid the pandemic; (2) highlighting medium-term tax reform options to pay for greater short-term support, close fiscal gaps, and improve the quality of fiscal policy mix; and (3) modelling the macroeconomic effects of this multi-year spending and revenue package.

Unlike a typical macroeconomic disturbance, the Covid-19 pandemic has brought about simultaneous disruptions to demand and supply in a totally new economic environment. Chudik et al. (2021a) quantify the economic impact of the pandemic on various
countries/regions and show that these effects could be long lasting without decisive policy actions. They highlight the importance of policy interventions that can restore the normal functioning of financial markets, as well as adopting fiscal measures that can limit bankruptcies of viable firms and support income of households. Chudik et al. (2021b) show that government spending and revenue actions have prevented a more severe global economic contraction, including through spillovers. They estimate that, at the global level, such actions have mitigated the fall in global growth in 2020 by more than 2 percentage points. Similarly, IMF (2020a) shows that the announced fiscal policy measures in Latin America and the Caribbean have played an important role in mitigating the effects of the pandemic. Moreover, Deb et al. (2020) find that while containment measures have led to a large impact on economic activity, fiscal and monetary policy measures used in response to the crisis were effective in mitigating some of these economic costs. Looking at past five pandemics, Cuesta Aguirre and Hannan (2021) find that the adverse output effects of pandemics are limited for countries that had provided relatively greater fiscal support. The increases in unemployment, poverty, and inequality are likewise lower for countries with relatively greater fiscal support and stronger initial conditions (as defined by higher formality, family benefits, and health spending per capita).

To evaluate the case for fiscal action, it is helpful to consider three phases of the Covid-19 pandemic (Fig. 3). The first is the acute phase in which lockdowns are fully in place. The role of fiscal policy in this stage is to save lives and livelihoods by relying on three levers (see IMF 2020b for details): (1) fully accommodating spending on health care; (2) providing emergency lifelines¹ to households and firms to cushion the adverse impact of lockdowns, including in hard-to-reach informal sectors; and (3) letting automatic stabilizers operate, especially unemployment benefits and social safety nets. The second phase is when lockdowns are gradually lifted under uncertainty about the course of the Covid-19 pandemic and the economy. In this phase, the role of fiscal policy is to strike a balance between supporting people and viable firms (in a more targeted way) and facilitating an economic transformation toward the post-pandemic world. The final phase is when vaccinations are well advanced, medical treatments are widely available, and the

¹ The difference between lifelines and fiscal stimulus is that lifelines are aimed at sustaining basic consumption levels by supporting households and helping viable firms temporarily (e.g., through expanded unemployment insurance, enhanced social safety nets, and liquidity support). Fiscal stimulus aims at boosting aggregate demand through broad-based measures (e.g., public consumption and investment, tax cuts).
pandemic is under control. In this period, fiscal space should be re-built through growth-friendly and inclusive adjustments. Countries can move between various phases. Thus, policies should remain agile and flexible.

In this paper, we use the above three-phase schematic to elaborate the elements of a comprehensive fiscal policy response to Covid-19 for Mexico. We then simulate, using the IMF’s Global Integrated Monetary and Fiscal (GIMF) model—see Kumhof et al. (2010) and Anderson et al. (2013) for modeling details—the macroeconomic effects of a proposed package that comprises larger fiscal support in the short-term and a growth-friendly and inclusive adjustment over the medium term. This is akin to a “fiscal twist”.$^2$ The model simulations suggest that a medium-term tax reform, alongside permanently higher capital spending and enhanced social safety nets, can generate sizable output gains, more redistribution, and a sustainably lower public debt ratio over the long term. Short-term output costs of the tax reform, if implemented credibly, are expected to be limited.

The rest of the paper is organized as follows. Section 2 discusses the desired near-term policy response to Covid-19 (for phases 1 and 2) and their cost estimates. Section 3 presents options for phase 3, including a medium-term tax reform. To enhance the political and public acceptability of the reform package, it also explores ways to enhance social safety nets. Section 4 quantitatively simulates the macroeconomic effects of a growth-friendly mix of spending and revenue measures. Section 5 concludes.

2. Desired (near-term) policy response to Covid-19

Whereas in normal economic downturns a key goal of fiscal policy is to stimulate demand, the Covid-19 pandemic is like no other. In its early stages (phases 1 and 2), the primary policy objectives are to: (1) save lives by containing the spread of the disease and treating those who are infected; (2) protect livelihoods from the economic fallout of Covid-19; and (3) facilitate a sustainable, inclusive, and transformative recovery. Correspondingly, the first policy priority is to fully accommodate spending on health care (including for vaccines procurement and widespread vaccinations). The second priority is to adopt timely, temporary, and targeted fiscal actions to protect people and viable firms, including in hard-to-reach informal sectors. Such support would provide the most effective cushion to output and essential consumption because it alleviates the drop in incomes for people with limited savings and reduces the likelihood of bankruptcies. The third priority is to strengthen social safety nets and improve the quality of the policy mix. Guided by these considerations, it is advisable that Mexico’s near-term fiscal support to combat the Covid-19 include:

**Healthcare.**

- Universal free coverage for Covid-19 vaccination and treatment (0.6 percent of GDP).

**Support to households.**

- **Assistance to households** could be provided by drawing on a recent social census covering about 20 million households (out of a total of 36 million) and Sistema de Información Social Integral (SISI), which collects data from social programs at all levels of government.

Given the size and duration of the shock, the generosity of existing programs and their coverage could be increased by including

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$^2$ Note that the global nature of the Covid-19 pandemic and the synchronicity of its macroeconomic effects might justify tolerance for higher debt levels temporarily. Chudik et al. (2017) argue that there is no compelling evidence for a universally applicable threshold effect in the relationship between public debt and growth if one accounts for global interdependencies and common factors/shocks. However, they argue that a persistent accumulation of government debt is associated with lower growth in the long term. This suggests the need for medium-term fiscal adjustments once the pandemic is under control and the recovery is firmly in train.
informal workers or those at risk of poverty, and temporarily easing eligibility requirements. The national voter ID database could be used to identify informal workers who do not have access to existing social safety net programs—i.e., adults not in the social census nor in SISI nor in the social security system nor in the tax administration records. An alternative but administratively more challenging approach is to create a single registry of beneficiaries by merging SISI with the social census. This would enable the government to better identify those in need, increase cost efficiency, and reduce errors of inclusion and exclusion, beneficiary overlaps, and program duplications (IMF 2019a).

- **Other income support measures for formal workers** include (i) providing government-funded sick and family leave; (ii) offering emergency unemployment benefits; and (iii) relaxing requirements for accessing social security savings—allowing them to draw a fraction of their future savings from their pension fund accounts on evidence of current hardship. Careful calibration is essential to ensure any future costs are minimized, including to safeguard the intertemporal sustainability of funds.

Informed by IMF estimates and those of Mexico’s agency for measuring poverty and evaluating social development policies (CONEVAL), the cost of households’ support is estimated at 1.2 percent of GDP.

**Support to firms**

Supporting viable firms, particularly small- and medium-sized enterprises (SMEs), could take two general forms: (i) liquidity support; and (ii) cost-reduction assistance.

- **Options for liquidity support** include accelerated payments—expedited processing of VAT refunds; and clearing public sector arrears to all suppliers (if needed, prioritize those that use relatively low-skilled workers)—and loans and/or credit guarantees.

- **Options for cost reduction** include (i) forgivable loans; and (ii) wage subsidies (0.4 percent of GDP). A possibility is to provide forgivable loans and wage subsidies on conditions of retaining employees on the payroll while allowing for lower compensation, and of not using the subsidies for dividends, stock or debt buybacks, or CEO bonuses. Another option to support firms is to extend the provision of wage subsidies to informal workers (if any) as well, should they be converted to formal workers.

To facilitate the recovery, the authorities could plan to enact, for example, temporary cost-reduction incentives to encourage private investment, as well as to accelerate high-return public investment projects, repair, and maintenance activities (estimated at 0.4 percent of GDP). As uncertainty about medium-term prospects is resolved, they could also help structural transformation—facilitating the reallocation of resources toward activities that are likely to see growing demand once the pandemic is under control—through hiring subsidies (conditional on formalization) and spending on worker re-training.

### 3. Medium-term fiscal reforms

Considering that social spending is set to increase rapidly over time (as a result of the Covid-19 pandemic and, even before that, as a key priority of the current government) and other expenditure pressures are emerging in Mexico, raising revenues from their current exceptionally low levels will be indispensable to finance social spending sustainably and to create space for a more forceful near-term response to Covid-19 and its economic fallout. There is also a need to increase public investment permanently (to narrow Mexico’s “investment gap” compared with its long-term historical public investment averages as well as relative to its peers—see Section 3.2 for details) and enhance social safety nets to increase the political/public acceptability of the needed tax reforms.

#### 3.1. Increase tax capacity

Mexico’s tax revenues are the lowest in OECD and lag regional peers. In 2014, the government passed a tax reform that increased revenues by almost 3 percentage points of GDP, helping offset a large decline in oil revenues. However, at 13.2 percent of GDP in 2019 (Fig. 4), non-oil tax revenues remain well below the OECD and Latin America averages of 26 and 19 percent of GDP, respectively. This section proposes a reform that would deliver at least 3 percent of GDP in additional tax revenues. It would center on policy and administration actions that could improve VAT performance, rationalize inefficient and regressive income tax expenditures, and widen the top personal income tax bracket.

##### 3.1.1. Significant scope to improve VAT performance

Value-added tax (VAT) collection in Mexico, net of refunds, reached 3.9 percent of GDP in 2019 (compared to 7.0–7.3 percent of GDP in OECD and Latin America). The C-efficiency of VAT at 29 percent—the ratio of actual VAT collections (ABFD area in Fig. 5) to the theoretical revenues under a perfectly enforced tax levied at the standard rate on all final consumption without any exemptions (ACHE area in Fig. 5)—is one of the lowest among OECD countries and Latin America (that has an average C-efficiency of 50 percent).³

³ Viability of a firm compares the present value (PV) of profits to the costs of recreating the firm from scratch. Solvency compares the PV of profits to the value of debt. Debt overhangs from crises can make a firm temporarily insolvent but still viable.

⁴ General tax rate cuts and holidays should be avoided.

⁵ Observed C-efficiency should equal the inverse of the total VAT gap, i.e., (1 - tax gap) or (1 - policy gap) x (1 – compliance gap). The compliance gap is the difference between the potential VAT that could have been collected given the current policy framework and actual accrued VAT collections (BCGF in Fig. 5). The policy gap is the difference between the overall tax gap and the compliance gap.
The low level of VAT C-efficiency in Mexico can be explained by a narrow base (owing to tax expenditures and informality) and by high non-compliance. At 16 percent, the standard VAT rate in Mexico is not low. The base of the VAT is reduced for two reasons: (a) tax expenditures (such as exemptions of education and housing as well as zero ratings of domestic transactions). These amounted to 1.43 percent of GDP in 2019 (0.26 + 1.17 in Table 1); and (b) exclusions from the object of the tax (owing to informality, for example). At the same time, the VAT compliance gap is relatively high: estimated by IMF (2018) at 45.8 percent of potential revenue in 2016 (or 2.41 percent of GDP). Non-compliance and tax expenditures are related: exemptions and zero rating of domestic transactions, in addition to eroding the tax base, make control difficult and thus facilitate evasion.

Reform options:

- **Reduce policy gap.** The “first-best” option to broaden the VAT base in Mexico includes eliminating all domestic zero-rated items, except for a few key foodstuffs, and reducing exemptions. These actions alone could boost revenues by more than 1 percent of GDP. They should be accompanied by spending measures to address distributional concerns (through strengthened social safety nets) as, in general, VAT exemptions and reduced rates are a poor tool for protecting lower-income households or improving income
distribution, given weak targeting. While lower-income households spend a greater share of their income on consumption, higher-income households consume absolutely more. This is shown in tax expense estimates of the Mexican Finance Ministry (SHCP) for the year 2019, where the highest income decile received 13.8 percent of the benefits from zero rate VAT on food, while the lowest income decile received 4.1 percent of the benefits (Fig. 6). Additional spending through social safety net programs is a better way to improve equity. Among OECD countries, Denmark, New Zealand, Chile and Estonia have opted for a broad-based, simpler and more economically efficient VAT and redistribute part of the additional revenue obtained through well-targeted social safety net programs.

Reduce compliance gap. Mexico already has an adequate toolkit to combat tax evasion. Adopting a comprehensive strategy to tackle non-compliance in line with the 2018 IMF technical assistance (IMF, 2018) could result in revenue gains of 1 percent of GDP. This includes improving the tax agency’s (SAT) fragmentated organizational structure, simplifying the small taxpayer regime, and moving toward a high-coverage audit process for VAT returns. The recent abolition of the right to offset excess tax credits against other taxes should reduce fraud once the backlog of grandfathered claims clears. Strengthening sanctions against tax fraud would also be welcome.

Overall, fundamental VAT reforms to reduce both policy and compliance gaps over the medium term could increase revenues by at least 2 percent of GDP (IMF 2018). This would in turn raise the C-efficiency of VAT to the average of Latin America (50 percent). Such a revenue gain is much needed, given the expected marked decline in oil revenues over time and the increased desire/need for additional social protection and public investment. However, it has repeatedly proved politically difficult since early 2000s. Accompanying measures to increase acceptability by strengthening social safety nets could cost about 0.5 percent of GDP. It should be noted that if “second-best” alternatives are pursued owing to political economy constraints, it would be advisable to seek not only a partial improvement over the status quo but also a path that ultimately approaches the “first-best.” For example, the authorities could slim down zero-rating, tax zero-rated items at a reduced rate, and remove the preferential VAT rate in border areas, among other measures. However, the trade-off would be limited overall revenue gains, with disproportionate leakage of benefits to the better off and non-use of better means to support the poor.

| Table 1 | Tax expenditures (percent of GDP). |
|---------|-----------------------------------|
|         | 2018   | 2019   | 2020   |
| VAT     | 1.361  | 1.432  | 1.432  |
| Zero ratings | 1.106  | 1.167  | 1.167  |
| Exemptions | 0.255  | 0.265  | 0.265  |
| PIT     | 0.967  | 0.952  | 0.896  |
| Deductions | 0.118  | 0.102  | 0.102  |
| Exemptions | 0.718  | 0.733  | 0.683  |
| Special or sectoral schemes | 0.128  | 0.116  | 0.110  |
| Deferrals | 0.004  | 0.001  | 0.001  |
| GT      | 0.518  | 0.495  | 0.495  |
| Deductions | 0.089  | 0.099  | 0.099  |
| Exemptions | 0.051  | 0.047  | 0.047  |
| Special or sectoral schemes | 0.048  | 0.047  | 0.047  |
| Deferrals | 0.104  | 0.082  | 0.082  |
| Administrative facilities | 0.022  | 0.022  | 0.022  |
| Employment allowances | 0.205  | 0.198  | 0.198  |
| Special Taxes | 0.255  | 0.265  | 0.265  |
| Exemptions | 0.255  | 0.265  | 0.265  |
| Fiscal Incentives | 0.809  | 0.843  | 0.499  |

Source: SHCP.
3.1.2. Some scope to increase PIT revenues

The personal income tax (PIT) system is performing very weakly in international comparison (Fig. 7). PIT revenues in Mexico are some 5 percent of GDP less than the OECD average, reflecting informality and inequality with a large low-wage sector paying very little tax, given the progressivity of PIT. While there is limited scope for increasing PIT revenue through rate increases, the tax base can be expanded (Fig. 8). Exclusions from the PIT base are prevalent such as income on personal business activities and independent services. Apart from withholdings on wages and salaries, personal income tax revenues are negligible. Tax expenditures for PIT are also sizable: close to 1 percent of GDP in 2019. The authorities consider that at least 0.5 percent of GDP of these tax expenditures are inefficient or regressive and could be rationalized (IMF, 2019c). Moreover, the threshold for the top PIT bracket (which has been increased by five percentage points as part of the 2014 tax reform) could be lowered to widen the base, as it is a significant outlier compared to peers (Fig. 9). Overall, the potential revenue gains from PIT reforms are about 0.5–1 percent of GDP.

3.1.3. Limited scope to increase CIT revenue

Mexico’s corporate income tax (CIT) system features a relatively high tax rate and revenue, and a fairly typical base (Fig. 10). The CIT rate is a flat 30 percent, which is above the U.S. federal rate of 21 percent and the average of OECD countries. CIT revenue makes up a quarter of the tax take and, at 3.6 percent of GDP, compares favorably with the OECD average of 2.8 percent. Such a strong reliance on CIT revenue as well as rate differentials expose Mexico to potential revenue losses associated with profit-shifting and, over the medium term, relocation of production if rates were to be increased (which, however, is unlikely). The tax base is also fairly typical and tax expenditures under the CIT are limited (0.5 percent of GDP) and are likely overstated. This is because deferred taxes, a part of deductions and administrative facilities reflecting genuine business costs, and employment subsidies (partly addressing the unusual feature of the PIT system, where income is taxed from the first peso) are included in tax expenditures. Overall, considering that the productivity of CIT is at the average of international peers and above that of several advanced economies, there seems to be little scope to increase CIT revenue through base broadening measures. The revenue agency (SAT) has been diligently pursuing collections against several

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6 An important feature of the Mexican tax system is the treatment of certain export-oriented operations, known as the maquila sector, which are taxed under safe harbor or Advance Pricing Agreement rules, implying that their CIT base is estimated as a percentage of their assets or costs.
corporations recently, including in a number of high-profile settlements. The above-mentioned assessment of CIT taxes, however, notes that significant further scope for revenue collection in this area is not likely to be as much as similar efforts, alongside tax policy reform, in the areas of VAT and PIT.

3.1.4. Other taxes

Gasoline excise tax. The formula guarantees cumulative retail fuel price growth below CPI inflation since November 30, 2018. This policy disproportionately benefits the rich and its cancelation could provide some ¼ percent of GDP in additional revenues. Moreover, there is scope to increase gasoline excises.

Subnational taxes. Over the medium term, there is much potential to increase revenue from strengthening property taxation—which is around 1.5 percent of GDP less than the average of Latin American countries (Fig. 11). A reform could be facilitated by creating an agency at the federal level to update the cadaster, as well as by policy coordination at the subnational level to avoid fragmentation. Closing the gap in collections vis-à-vis peers could take time but, at a minimum, the aim could be to collect at least ¾ percent of GDP. This could be complemented with a redesigned vehicle registration tax by simplification and stricter enforcement, hence enabling a reduction in transfers to states and municipalities.

3.2. Raise public investment

In the medium term, the proposed package includes an increase in public investment of 1.5 percent of GDP, out of which a third is allocated to healthcare.

Public investment. High-return public investment can act as a bridge to sustainable, resilient, and inclusive economic growth, including by lifting productivity, creating jobs, and spurring private sector investment (IMF 2020b). In the case of Mexico, IMF (2019a) shows that there is a crucial role for basic infrastructure investment (in particular, road infrastructure) in boosting firm productivity, including for the large number of micro firms. In this regard, the trend decline in public investment-to-GDP ratio in Mexico is concerning. Investment spending, as a share of GDP, has declined from 4 percent of GDP over 2008–2018, on average, to 2½ percent in 2019. Capital spending in Mexico is also lower than regional and Emergin Market (EM) peers and OECD countries (Fig. 12).
Consequently, the proposed package includes an increase of public investment of around 1 percent of GDP in the medium term (excluding investing in healthcare; see below) to bring the ratio in line with historical averages and that of peers.

Health spending. As computed in IMF (2019a), an increase in health spending of at least ½ percent of GDP is needed over the medium term to make satisfactory progress towards the Sustainable Development Goals (SDGs) in health care by 2030. The costing exercise follows the input-output methodology of Gaspar et al. (2019) in: (i) identifying key inputs and their corresponding costs in the health sector; (ii) benchmarking input costs in Mexico to that of countries with comparable income per capita but higher current social outcomes; and (iii) estimating the spending levels required to achieve those outcomes, conditional on Mexico’s income per capita and population growth. IMF (2019a) finds that Mexico could increase the share of doctors in the population and their wages but contain the number of other health professionals. It must also be noted that the spending to achieve SDG goals would be considerably larger if efficiency gains are not achieved. This is probably a conservative estimate given the likely long-lasting effects of the Covid-19 shock.

3.3. Strengthen social safety nets and unemployment insurance

In response to the Covid-19 shock, the need for emergency lifelines would be sizable, albeit lower—all else being equal—for countries with stronger unemployment benefits and social safety nets (SSN). Given the lack of a nationwide unemployment benefits system in Mexico and the likely adverse impact of the pandemic on poverty and inequality for years to come, there is a need to strengthen SSNs durably. An enhanced SSN can also protect the most vulnerable from unintended consequences of the proposed VAT reform.

A good social safety net usually has four attributes (Grosh et al. 2008 and IMF 2020b). First, it provides broad coverage and adequate benefits to vulnerable groups in a progressive way within the overall tax-benefit system (IMF 2019b) — that is, more generous benefits accruing to the poorest beneficiaries. Second, it strives to be cost effective by avoiding program fragmentation and beneficiary overlaps. Third, it aims to preserve work incentives and enhance human capital accumulation by linking transfers to required or voluntary programs such as public works, obtaining health care, and attending education and training. Fourth, it is financially sustainable within the overall expenditure envelope and consistent with other social protection programs.

Against these yardsticks, SSNs in Mexico have significant gaps in terms of coverage of lower income groups and beneficiary incidence—see Figs. 13 and 14. The cost of SSNs as a share of GDP is relatively high, in part, reflecting social and political choices made to

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7 Further to the discussion in footnote 6, social safety nets are noncontributory transfer programs aimed at low-income households or the vulnerable (World Bank 2018; IMF 2020b). They are financed through government revenues and usually comprise (i) cash transfers, food stamps, child allowances, and social pensions; (ii) in-kind transfers; (iii) conditional transfers; (iv) public works; and (v) fee waivers, including for health care.
reduce poverty gaps (Figs. 15 and 16). Programs are fragmented, involve beneficiary overlaps, and lack appropriate incentive features (IMF 2019a). Moreover, the burden of income support is placed on SSNs, as very few of the poor are covered by unemployment insurance. SSNs in Mexico can be improved by expanding coverage in a cost-effective manner through proxy-means targeted transfers, whereby targeting is improved by giving households a score based on a statistical algorithm that predicts incomes or consumption or poverty (see Coady and Le 2020 for details), and decreasing duplications as the country strengthens its administrative capacity. The relatively large leakage of benefits to higher-income groups in Mexico increases the importance of better targeting as well as strengthening progressive income taxes to claw back these benefits from high-income groups. Mexico can also use instruments that are effective in reaching individuals most in need, including in the informal sector. These instruments include mobile money, in-kind...
transfers such as education and health, matching different databases of beneficiaries to create a single registry, and use of community-based methods to identify those in need. Beyond SSNs, there is scope in designing a nationwide unemployment benefits system.

4. Macroeconomic impact of the proposed package

This section uses the IMF's Global Integrated Monetary and Fiscal (GIMF) model to illustrate the macroeconomic effects of a “fiscal twist” strategy for Mexico. GIMF is a multi-country structural dynamic general equilibrium model featuring Mexico, among others. It links the behavior of households, firms, and government sector within and among countries and is particularly suitable for fiscal policy analysis.

4.1. Description of GIMF model

4.1.1. The GIMF model

GIMF is a multi-country structural dynamic general equilibrium model featuring six regions: Mexico, the US, Japan, emerging Asia, euro area, and the rest of the world. It links the behavior of households, firms, and government sector within and among countries. The model has a consistent system of national accounting and stock-flow budget constraints for all sectors, including the government. The model belongs to exogenous-growth types of models, meaning that the long-term growth of output is exogenous. Hence, all fiscal or structural measures may change only the structure of the economy, possibly increasing permanently the level of real output per capita, and not the long-term growth. Moreover, although GIMF is suitable to simulate the macroeconomic effects of government spending and revenue actions, it does not explicitly model lockdowns, income inequality, pre-existing healthcare conditions, or Covid-19 supply disruptions.

The household sector consists of forward-looking optimizing households, as well as liquidity-constrained households who spend all their available income every period. The forward-looking households are modeled as overlapping generations (OLG) with finite lives, following the Blanchard-Weil-Yaari framework. They hold one-period domestic and foreign currency denominated bonds. The presence of OLG households breaks Ricardian equivalence and is important for realistic results of fiscal policy in the short and long run. Households gain utility from consumption and disutility from labor effort, consume traded and non-traded services and goods, receive labor income, transfers from the government and dividends from corporations, and pay income, consumption and lump-sum taxes.

Firms produce intermediate and final goods using labor and capital inputs. They pay taxes on their corporate income.

The government collects tax revenues (consumption, labor income, capital income, and lump-sum taxes) and spends them on government consumption, investment, and lump-sum transfers to either all or targeted to liquidity-constrained households. It targets a specific debt-to-GDP (and thus deficit-to-GDP) ratio and uses a mix of instruments to achieve it. The government’s commitment to sustainable public finance is credible for firms and households, who hold the stock of government bonds.

Fiscal policy is conducted using a variety of expenditure and tax instruments. Beside the aforementioned instruments, the model also allows for tariffs on imported goods to be a potential source of public revenue. Government investment spending augments public infrastructure, which depreciates at a constant rate over time.

There is a fiscal policy rule that ensures long-run sustainability, while allowing for short-run counter-cyclical policies. Changes in labor and capital income taxes provide the instruments to put the rule into effect, but this can be replaced with other tax, transfer or spending instruments if that is considered more realistic for a specific region. First, the fiscal rule ensures that, in the long run, the ratio of the government debt-to-GDP—and hence the deficit-to-GDP ratio—eventually converges to its target level. This excludes the possibility of sovereign default, as well as the risk that out-of-control financing requirements of the government will override monetary policy. Second, the rule allows for countercyclical fiscal policy as it embodies automatic stabilizers.

Fig. 16. Poverty reduction impact of SSNs (percent of GDP).
Source: IMF’s Social Protection and Labor Toolkit.

8 The use of a standard framework (GIMF) can help unpack the benefits and costs of the proposed package.
When conducting monetary policy, the central bank uses an inflation-forecast-based interest rate rule. The central bank varies the gap between the actual policy rate and the long-run equilibrium rate to achieve a stable target rate of inflation over time.

4.1.2. Calibration
The calibration of the parameters of the household utility function, elasticities and markups are the same across countries (Fig. 17). The shares of liquidity-constrained agents in the population are 50 percent for Mexico, Emerging Asia and the remaining countries and 25 percent for other regions. Country specific data are used for great ratios based on the most recent year or long-term averages (all in percent of GDP). Key variables include private investment share, government consumption, public investment, fiscal variables including tax revenue, government debt, share of different taxes in GDP (consumption tax, labor and corporate income tax), and labor shares. In addition, bilateral trade flows between regions and each region's share of world population are essential in accounting for spillover effects. The monetary policy parameters are calibrated based on estimation results of reaction functions for an annual model.

4.2. The “fiscal twist” package

Informed by the analysis in Sections 2 and 3, a comprehensive fiscal policy response to Covid-19 and beyond is designed along the following dimensions (summarized in Table 2):

- In the first year, stronger emergency lifelines in response to Covid-19 are assumed:
  - **Expenditure.** Increase of 0.5 percent of GDP in government consumption (largely healthcare); 0.5 percent of GDP in government investment (out of which 0.1 percent of GDP is on healthcare); and 1.2 percent of GDP in targeted social transfers.
  - **Revenue.** 0.3 percent of GDP in wage subsidies which is reflected in the model as a decline in labor tax.
- Broad-based fiscal support in the second year to facilitate the recovery followed by growth-friendly and inclusive adjustments thereafter (fully anticipated):
  - **Expenditure.** Maintain higher levels of public investment to support the recovery next year and over the medium-term for healthcare (0.5 percent of GDP; to make progress toward the Sustainable Development Goals in health care). Enhancing social

| Mexico: Key Calibration Parameters (Percent) |
|---------------------------------------------|
| Inflation                                    | 3.0 |
| Share of liquidity constrained households    | 50  |
| Government consumption/GDP                   | 15.7|
| Net acquisition of nonfinancial assets/GDP   | 1.3 |
| Private investment/GDP                       | 18.6|
| Government transfer/GDP                      | 5.4 |
| Tax and SSCs revenue/GDP                     | 15.4|
| Labor tax incl. SSCs/GDP                     | 5.6 |
| Consumption tax (% GDP)                      | 5.8 |
| CIT revenue (% GDP)                          | 3.6 |
| Property and other taxes/GDP                 | 0.5 |
| Other revenue/GDP                            | 8.7 |
| Gross public debt/GDP                        | 53.7|

Fig. 17. Calibration.
Source: Authors calculation.

Table 2
Model Inputs for GIMF Simulation (percent of January 2020 WEO GDP).

|                      | t = 1 | 2   | 3   | 4   | 5   | 6   |
|----------------------|-------|-----|-----|-----|-----|-----|
| **Government deficit (expenditure-revenue)** | 2.5   | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total expenditure** | 2.2   | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Government consumption 1/ | 0.5   |     |     |     |     |     |
| Government investment | 0.5   | 0.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| Targeted transfers  | 1.2   | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| **Total revenue**     | −0.3  | 0.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Labor tax (incl. social security contribution) | −0.3  | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Consumption tax       | 1.0   | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Corporate income tax  | 0.2   | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Property tax (lumpsum tax) | 0.3   | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| Sovereign risk premium (basis point) | −50   | −50 | −50 | −50 | −50 | −50 |

1/Health spending classified as part government consumption, part government investment.
safety nets would cost about 0.5 percent of GDP. They should support the government’s poverty-reduction efforts (0.2 percent of GDP) and alleviate the regressive nature of the proposed VAT reform (0.3 percent of GDP).

**Revenue.** As a result of the proposed tax reform, revenues would structurally increase by 2.0 percent of GDP from the third year, assuming the pandemic is fully under control by then. This includes broadening of the PIT base and increasing social security contributions (0.5 percent of GDP), improving VAT performance (1 percent of GDP), broadening of the CIT base (0.2 percent of GDP), and increasing property/local taxes (0.3 percent of GDP). Revenue gains are assumed to be lower than what we identified in Section 3 in the simulations. The remainder is assumed to close estimated fiscal gaps (in the baseline).

Overall, the above package assumes a 2½ percent of GDP increase in the overall fiscal deficit in the first year to mitigate the economic fallout from Covid-19 through emergency lifelines. This fiscal support is tapered off in the second year to 1 percent of GDP and its focus is changed from lifelines to facilitating the recovery through long-lasting public investment and stronger social safety nets. A 2 percent of GDP permanent increase in taxes (VAT, corporate and personal income taxes, and lumpsum taxes) is assumed in the third year alongside an additional increase in public investment (1 percent of GDP). Overall, this would result in a neutral-budget package from the third year as the increase in revenues offsets the increase in higher-quality expenditure. This neutral package is assumed above and beyond measures to close fiscal gaps that remain in the baseline. Assuming that the medium-term tax reforms are perceived as credible, the package would lower the sovereign risk premium by 50 basis points owing to positive confidence effects from the much-needed reforms. Changes in the sovereign risk premium spill over to the corporate risk premia one to one.

Finally, a scenario is simulated where public investment efficiency is assumed to be 30 percent higher. On average, more than one-third of funds for public infrastructure are estimated to be lost owing to inefficiencies worldwide (Baum et al. 2020). Mexico is no exception to this problem and to increase the long-term output gains from increased public investment, efficiency needs to be improved.

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**Fig. 18.** Macroeconomic effects of the fiscal twist package.
Sound institutional processes, including careful project selection, management, and evaluation, as well as a clear delineation of responsibilities and mechanisms to ensure coordination between central and subnational governments, should be in place to ensure productive investment (IMF, 2015).

Fig. 19. Impact of proposed fiscal twist package (different blocks).
4.3. Model results

We present the macroeconomic effects of the “fiscal twist” package compared to the January 2020 WEO baseline in three blocks: (i) the expenditure measures; (ii) the total package, including the expenditures measures, tax reforms, and 50 bps decline in risk premia; and (iii) the total impact assuming continued monetary accommodation so long as inflation expectations remain anchored and demand shortages persist. Furthermore, the results with the increase in public investment efficiency are presented (Figs. 18 and 19). Note that the Covid-19 shock has already resulted in a sharp GDP contraction in 2020 with expectation of a gradual economic recovery over the medium term. The payoffs from the “fiscal twist” package (presented below) would, therefore, only be able to restore a part of the GDP fall.

The expenditure measures are expected to increase the level of GDP by 1.2 percent in the first year, and, over the medium-term, by 2 percent. Increased demand within the economy is expected to appreciate the real effective exchange rate initially and deteriorate the current account balance. The overall budget deficit would increase according to the size of spending increases in Table 2. Without any concomitant reforms to boost revenues, public debt would increase by 9 percentage points of GDP in the medium term.

Combining the expenditure measures with a credible tax reform (including risk premia reductions) would lead to output gains as well as a stable public debt path (assuming no additional monetary accommodation). The level of GDP would be higher relative to the January 2020 WEO baseline in the first year as a result of larger emergency lifelines. Following a dip in the second year as fiscal support is partially withdrawn, output is expected to continue to increase by about 3.6 percent in the long run (in eleven years). The real effective exchange rate is expected to appreciate in the first few years owing to the increased domestic demand, but eventually depreciate as the tax reforms are enacted. The effect of domestic demand and the real exchange rate would deteriorate current account initially but then improve it over the medium term. The government deficit will increase in the first year and then gradually decrease.

The overall positive effect on GDP and public debt trajectory is greater when monetary authorities do not react to the higher fiscal deficits by raising interest rates so long as inflation expectations remain well anchored and demand shortages persist (i.e., the Central Bank could remain accommodative within its mandate). In the medium term, the output could increase by 3.2 percent, government deficit could fall 0.4 percentage points, and government debt could fall by 2.2 percentage points. Finally, the increase in investment efficiency would be further beneficial, with output improving by 4.1 percent, government deficit falling by 0.6 percentage points, and government debt declining by 3.5 percentage points over the medium term. The gains from improvements in the composition of the fiscal policy mix and the fiscal twist are sizable. Coupled with structural reforms to improve productivity growth, the overall benefits would be very significant over the medium term.

5. Conclusion

Mexico needs to contain the pandemic, mitigate its economic effects, facilitate a rapid recovery, and rebuild fiscal buffers over the medium term. Fiscal policy is an important lever to meet these goals. Fiscal resources are needed in the near term to accommodate additional spending on healthcare (including for vaccinations), protect people and viable firms through timely, targeted and temporary lifelines, and support the recovery. In the near term, the paper estimates that a fiscal support of around 2.5 percent of GDP would be required in health spending, social safety nets, wage subsidies, and public investment.

Given that social spending is projected to increase over time and other expenditure pressures are emerging in Mexico (including the need for higher public investment), raising revenues from their current exceptionally low levels is indispensable to finance these expenditures sustainably. A higher revenue envelope could also create fiscal space for a more forceful near-term Covid-19 response. The paper proposes a tax reform of at least 3 percent of GDP, centered on policy and administration actions that could improve VAT performance, rationalize inefficient and regressive income tax expenditures, and widen the top personal income tax bracket. This reform should be paired with enhanced social safety nets.

Using IMF’s GIMF model, simulations suggest that the proposed “fiscal twist” package would substantially increase output in the medium term and put public debt on a firm declining path. Higher investment efficiency would further bolster these effects. While the focus of the paper is on fiscal policies, supportive stances in monetary and other policies would be required for a durable economic recovery.

Declaration of competing interest

There is no conflict of interest for this paper.

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9 Estimates from the empirical literature inform the multipliers assumptions in GIMF. See IMF (2020c) for details on multiplier estimates by instrument.
