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Was there fiscal space to address the pandemic in Mexico? A revisit of fiscal sustainability

¿Había espacio fiscal para enfrentar la pandemia en México? Una revisita a la sostenibilidad fiscal

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Abstract

This article evaluates the Mexican fiscal space to implement a Fiscal Plan to avert part of the economic consequences of the COVID-19 pandemic. Based on Talvi and Vegh (2000) this work calculates the fiscal sustainability in Mexico. Results suggest that this nation is not fiscally sustainable. However, should an economic plan worth 3% of GDP to prevent part of the economic crisis coming from the COVID event, the primary balance had to only increase 0.03% of GDP. This is a reasonable amount for averting an abrupt drop in economic activity. It is important to point out that Mexico needs, regardless of the fiscal plan, to increase the primary balance by 0.71% of GDP.

JEL Code: H20, H50, H60
Keywords: COVID, fiscal sustainability; Mexico; primary balance; debt

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Resumen

En este artículo se evalúa el espacio fiscal para enfrentar los efectos económicos adversos que provocaría la pandemia en México utilizando un ejercicio de sostenibilidad fiscal desarrollado por Talvi y Vegh (2000). Los resultados arrojan que en la actualidad no hay sostenibilidad fiscal, y que para obtenerla es necesario duplicar el superávit primario promedio de 0.71% del PIB que México ha tenido desde 2001. Sin embargo, en caso de haber introducido el plan económico propuesto por distintos organismos y analistas que ascendía a un nuevo endeudamiento de 3% del PIB, se hubiera tenido, a partir del 2021, que haber incrementado el superávit promedio en 0.74%, es decir, un monto de superávit primario de 0.03% anual adicional al faltante actualmente, cantidad asequible sobre todo para paliar los efectos de la crisis del COVID sobre la actividad económica.

Código JEL: H20, H50, H60
Palabras clave: COVID; sostenibilidad fiscal; méxico, balance primario; deuda

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Introduction

At the beginning of 2020, the world was surprised by the emergence of a lethal virus, COVID-19, which forced most of the world's countries to reduce economic activity. The response of virtually all countries to try to alleviate the consequences included both an aggressive fiscal injection of resources and unprecedented monetary policy actions to face the foreseeable liquidity problems of the economy.

This reaction will have favorable effects but will foreseeably cause some undesired consequences. It is difficult to visualize them now, but it is possible to anticipate viability and fiscal sustainability problems.

The concept of fiscal sustainability refers to a country's ability over time to meet its credit obligations subject to public spending and revenue constraints. This makes it possible to determine whether there is fiscal space to face (or to have faced) the COVID-19 pandemic. This article aims to review, based on fiscal sustainability, whether there was fiscal space to boost the economy to a greater extent during the episode mentioned above.

The results suggest that, although Mexico's public finances are not sustainable over time, having introduced the economic reactivation plan (described below) suggested by several Mexican organizations and analysts with an additional debt of 3% of GDP (February 2020 levels) would have meant having to increase the primary surplus by only 0.03% relative to what would make fiscal policy sustainable today. To achieve such a surplus, it would be necessary in the future, when the economy returns to a positive path, to increase budget revenues or reduce public spending by a low amount, equivalent to between 0.38% and 0.45% of GDP. Specifically, it is preferable to increase the debt today and repay it with tax revenues tomorrow—in the Ricardian spirit—than to deepen the crisis.

It should be emphasized that even without the plan mentioned above, it is still necessary to increase the primary surplus by 0.71% and thus reach the figure of 1.41% of GDP necessary to achieve fiscal sustainability (today, the average of the last ten years of this surplus amounts to 0.7%). In other words, with the plan, the surplus would have had to be raised by 0.74% of GDP, meaning there was a reasonable fiscal space to mitigate the effects of the worst economic crisis since the crash of 1929.

The paper is structured as follows: Section 2 briefly reviews the literature, while section 3 examines the evolution of Mexican public finance indicators. Section 4 performs the simulation exercise. Finally, Section 5 presents the conclusions.

Brief literature review

The sustainability of public finances is a problem that has been extensively addressed in many countries, including Mexico. There is a range of methodologies to determine whether a nation's public finances are sustainable.

The seminal work was by Hamilton and Flavin (1986), but it was refined shortly after that by Wilcox (1989), Buiter (1990), Ahmed and Rogers (1995), Uctum and Wickens (1996), Bohn (1995 and 1998), and Talvi and Végh (2000). These authors propose different methodologies to determine whether or not such sustainability exists.

More recently, due to the growth of debt in some European countries as a result of the international financial crisis that in Europe lasted until 2010, the issue gained ground again. These countries include Greece, Portugal, Ireland, Spain, and Cyprus. Notable in this second block of literature is the work of Fincke and Greiner (2012), Greiner et al. (2007), and Beqiraj et al. (2018).

Some of these countries were unable to meet their debt obligations, which forced some European banks to receive implicit and explicit financial bailouts, according to Beqiraj, Fedeli, and Forte (2018).

For this reason, today the financial markets, and in particular the credit rating agencies, use, among other factors, the concept of fiscal sustainability to assess the possibility of a country being able to meet its credit obligations. Therefore, this factor can be used to establish a country's fiscal space to face the pandemic.

Santaella (2000) and Arellano and Hernández (2006) used the methodology of Talvi and Vegh to evaluate the case of Mexico. Solís and Villagómez (1999) used the methodology of Uctum and Wickens (1996) and concluded that fiscal policy was sustainable from 1980 through 1997. In contrast, Arellano and Hernández (2006) obtained the same result, but when contingent liabilities—mainly pensions—were included, fiscal policy became unsustainable from 1980 through 2003.

This paper does not aim to examine the advantages and limitations of each methodology[1]. It will use the methodology of Talvi and Vegh (2000) because it is flexible enough to perform sensitivity and scenario analyses, unlike the other methodologies. This will be described in detail in section 4.

Recent developments in public finances in Mexico

Mexico has historically been a low tax collector. In the western hemisphere, only Haiti and Guatemala collect less than Mexico as a proportion of GDP. At the same time, the spending needs according to the obligations assigned to the State by the Constitution are numerous, and the resources to satisfy them are insufficient.

Non-oil tax collection remained around 10% of GDP for many years, but after the tax reform implemented in 2014, it increased to 13% (see Figure 1). This reform yielded an additional 1.5% of GDP, while the removal of the gasoline subsidy as a result of the energy reform of the same year yielded the rest.

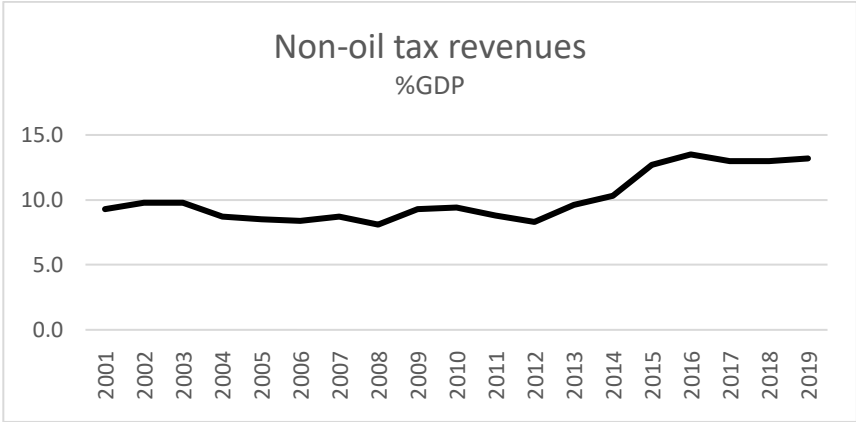

Figure 1
Source: SHCP

It should be noted that fiscal reform has historically been postponed (since 1954, according to Elizondo, 1994). However, in 2013, since it was evident that oil revenues were falling rapidly and since additional spending obligations had been introduced since 2003 (health insurance, the daycare program, and mandatory pre-school and secondary education, among others), there was no choice. Either a reform

[1]For a comparison between methodologies, see Beqiraj et al. (2018).

to increase tax revenues was necessary, or the country would have had to take on more debt than it already did (see Figure 2).

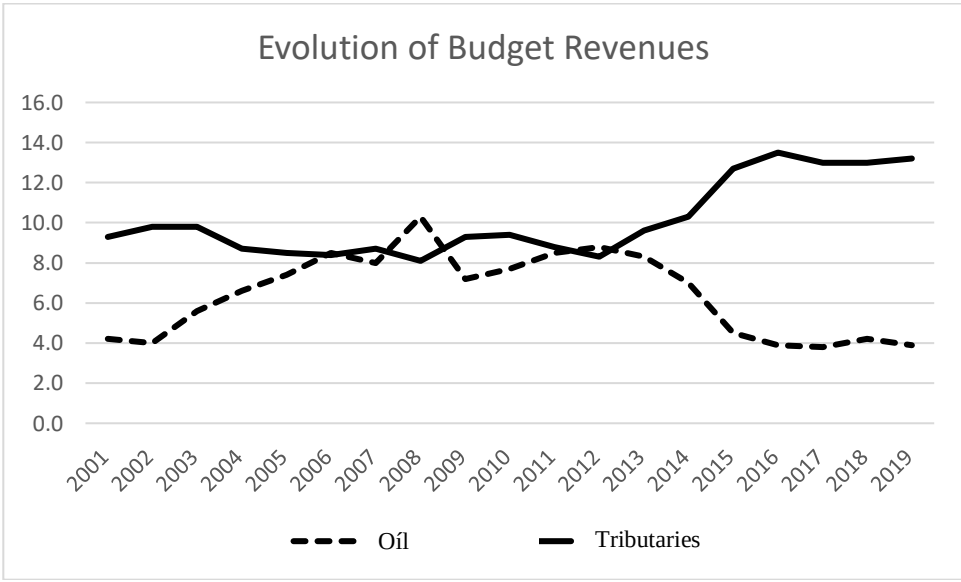

Figure 2
Source: SHCP

This reform had a strong basis in increases in income tax (ISR) (Antón & Hernández 2018), which caused this tax to gain significant ground in its share of the total tax collected (Figure 3)[2].

[2]Whether this reform was the appropriate one at the time is a matter of debate, but that is beyond the scope of this paper.

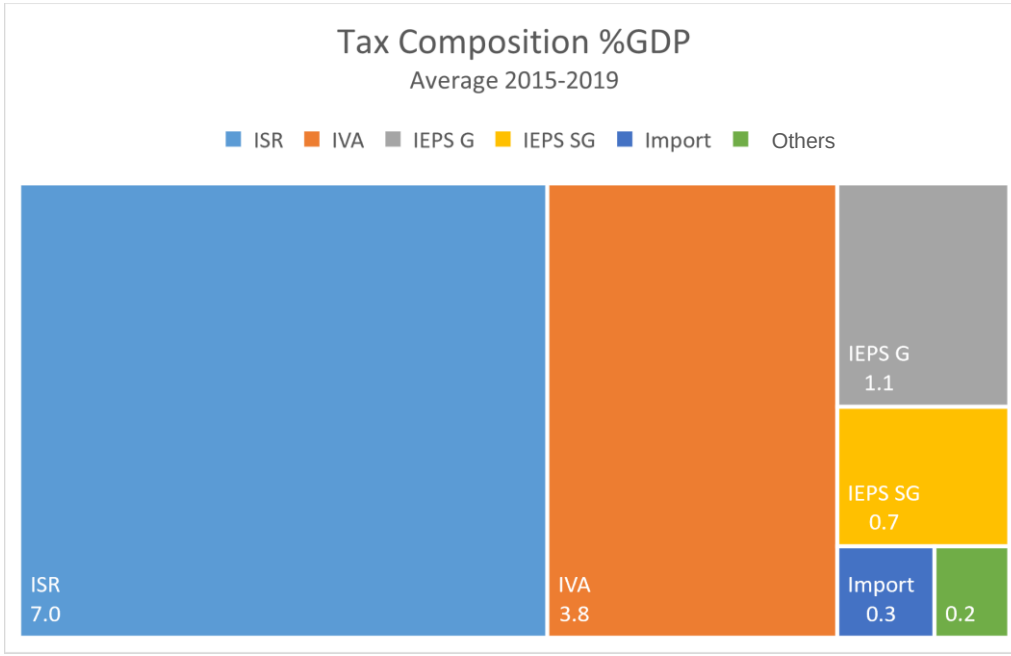

Figure 3
Source: SHCP

Even so, including the reform, tax collection as a proportion of GDP did not increase enough to meet spending obligations. The country continued to rank last in tax collection among OECD countries (see Figure 4), reaching 16.3% of GDP, including social security contributions (CSS).

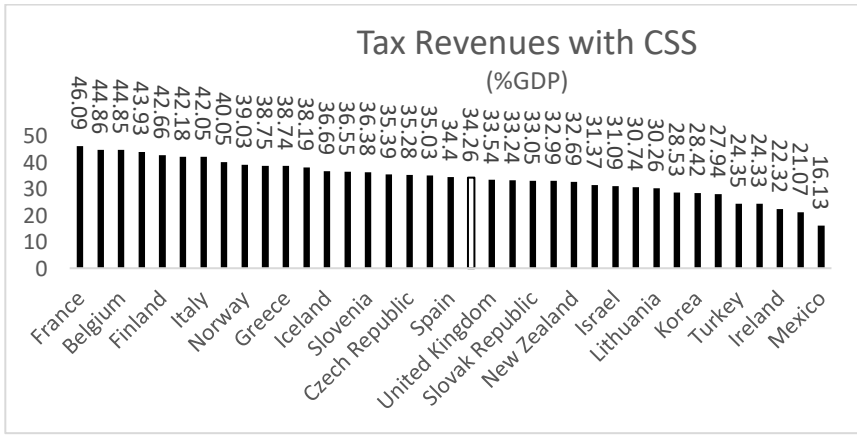

Figure 4
Source: OECD

Spending has grown significantly, from 18.5% of GDP in 2001 to 24% by 2019, an increase of 5.5 percentage points, equivalent to 40% of tax revenues (Figure 5). This increase was due to the oil boom between 2003 and 2013. Contrary to the principles of public finances, these oil revenues were used to finance programs (as mentioned above: health insurance, compulsory pre-school and secondary education, among others), all of them very laudable, but without having obtained the long-term financing that would make them viable.

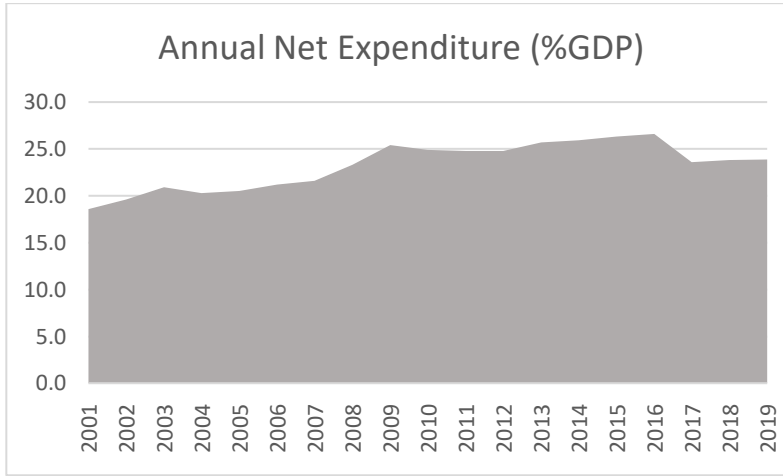

Figure 5
Source: SHCP

Figure 6 presents the federal government's tax revenues and operating expenditures. As can be seen there, for a good part of the period of 2001-2019, tax revenues were not enough to cover these expenditures. Note that it was not until 2015 and then more clearly in 2016 that tax revenues were sufficient to cover the government's operating expenses alone. First, this was due to additional revenue from the tax reform, but to a greater extent from the elimination of the 2016 gasoline subsidy resulting from the energy reform, and second, to a reduction in operating expenses.

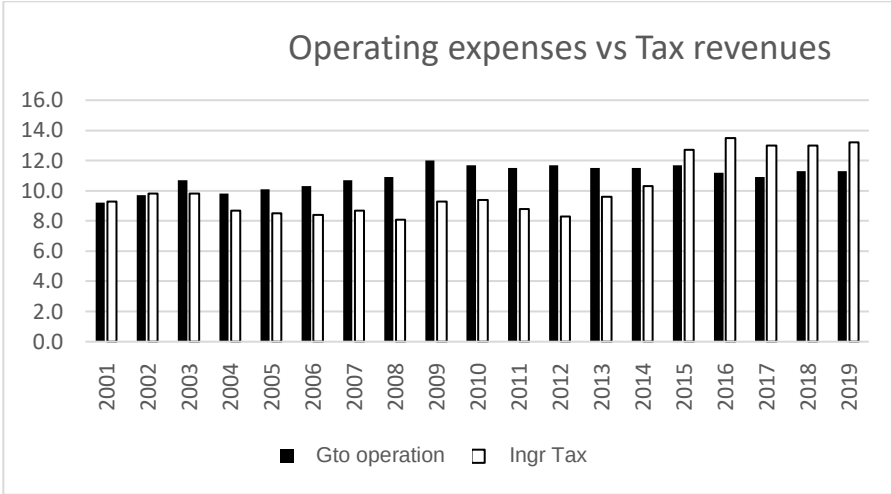

Figure 6
Source: SHCP

In order to realize the importance of the above, it is necessary to realize that the expenditure shown does not include subsidies and transfers made by the state, nor does it include capital spending. Worse yet, it does not include debt service or contributions to states and municipalities. This expenditure, therefore, has had to be covered with oil revenues and indebtedness. Of all these items, the only one that public finance principles would suggest covering with oil revenues is capital spending (see Figure 7 for composition).

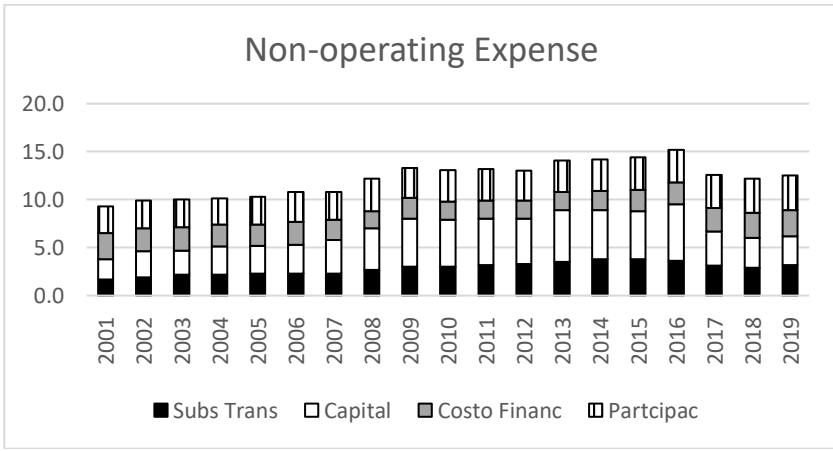

Figure 7
Source: SHCP

In addition, pension deficit spending, which includes the commitments of Law 73 of the IMSS, RJP pensions, employer pension costs, ISSSTE pensions, the States, and Universities, present an alarming upward pressure (see Figure 8). By 2019, pension spending represented 3.6% of GDP. According to Aguirre (2014)[3], this trend will reach its peak around 2030, when this annual expenditure reaches 4.3% of GDP, from which point it will begin a slow decline until 2045. Nevertheless, there is still an upward trend.

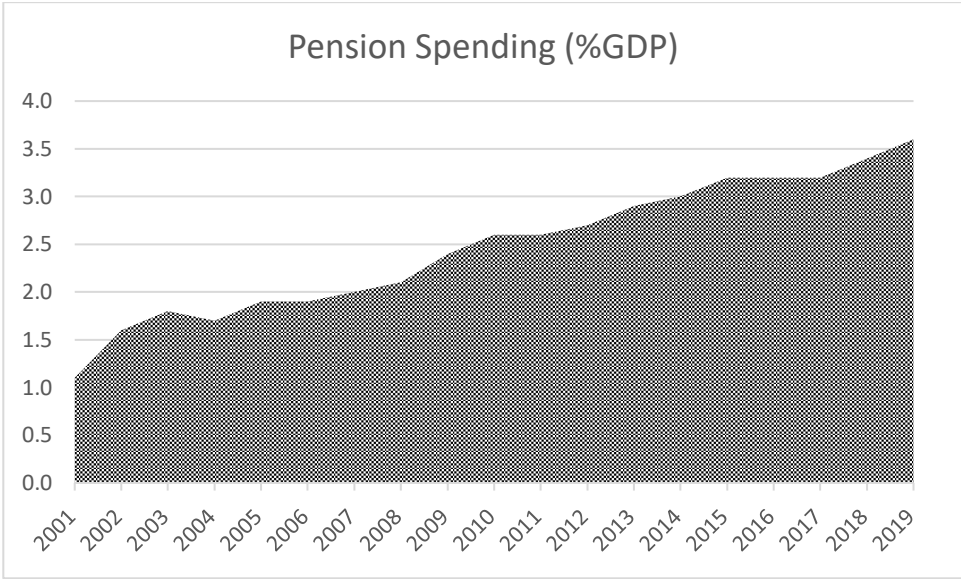

Figure 8
Source: SHCP

In short, the country has a serious public finance problem since tax revenues are barely enough to cover the state's operating expenses. It is necessary to find a formula so that the Mexican State's spending obligations, beyond operations, are financed as indicated in Article 31, Section IV of the Mexican Constitution. So far, they have been financed with oil revenues and indebtedness.

[3]The CIEP (2020) estimate is similar.

Indebtedness

The two pillars of public spending financing in Mexico, particularly since the international financial crisis, have been oil revenues and net indebtedness. Although the latter was justified in 2008 and 2009, it remained in positive territory year after year as part of an anti-cyclical policy. Note in Figure 9 that from 2008 to 2016, there was annual net indebtedness. The proportion of 10% of GDP incurred in 2009 stands out. Equally noteworthy is that between 2013 and 2016, when a total of almost 15 percentage points was added to the public debt balance, an increase not paired with public investment (as stipulated in the Constitution), suggesting that it was incurred to finance the government's operating expenses, contravening the principles of public finances.

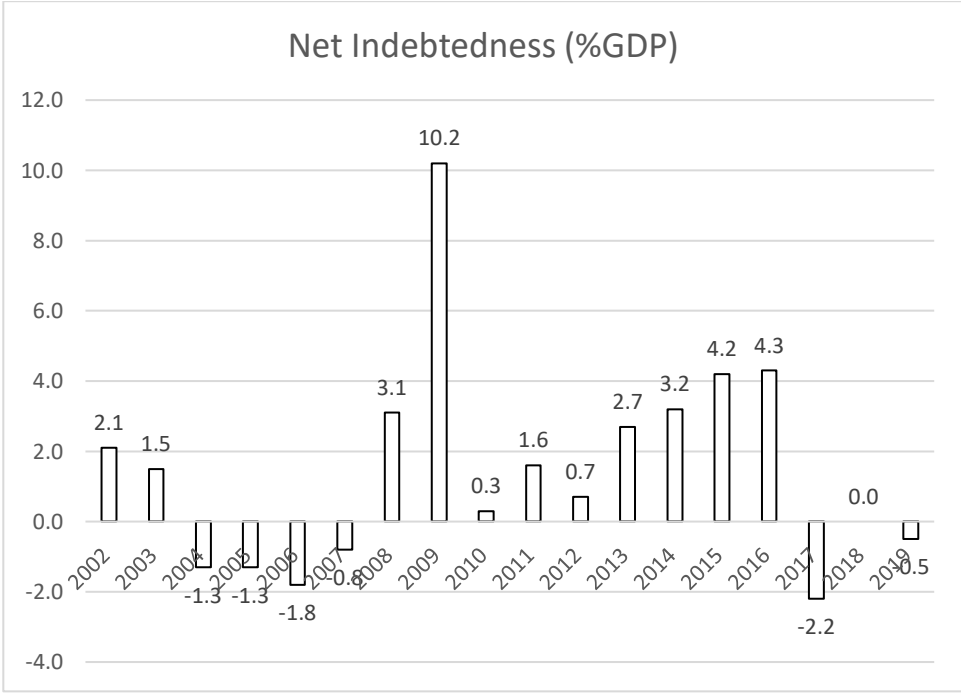

Figure 9
Source: SHCP

Thus, the net public debt balance as a proportion of GDP reached 48.2% in 2016. By 2019 the balance will stand at 45.%. In terms of denomination, domestic debt dominates, as shown in Figure 10.

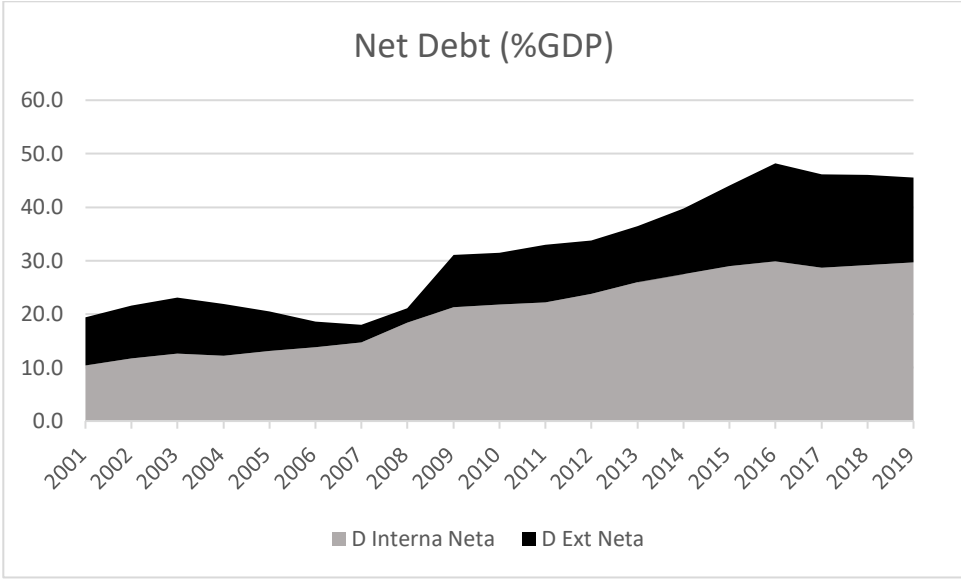

Figure 10

Source: SHCP

In summary, the balance of the public debt together with the contingent liabilities of the Mexican State, manifested in the pressures on public spending from pensions, suggests at first that the fiscal space available to the government to face the pandemic was limited.

However, it is necessary to verify this, which can only be done by reviewing how sustainable the public finances were until 2019. Based on this, the aforementioned fiscal space can be determined.

Fiscal sustainability in Mexico

A brief review of the methodology of Talvi and Vegh (2000) to estimate fiscal sustainability in Mexico is given here. They start from a one-period budget constraint for the public sector that includes the possibility of monetary creation, which is omitted hereafter:

$$B_t - (1+i)\,B_{t-1} = G_t - Z_t \tag{1}$$

Where B_t denotes the stock of public debt at time t; G_t is public expenditure at time t; Z_t is total public revenue at t; i is the nominal interest rate, which is assumed to be constant over time, i.e., between t-1 and t.

Deflating Equation (1) and expressing it in terms of GDP gives:

$$\tilde{b}_t = \left(\frac{1+r}{1+\theta}\right)\tilde{b}_{t-1} + \tilde{g}_t - \tilde{z}_t \tag{2}$$

Where the lower-case letter denotes the real variable, the superimposed tilde expresses that the variable is as a proportion of GDP; the real interest rate is defined as $r = ((1+i)/(1+\pi)) - 1$; and θ is the GDP growth rate, which for algebraic simplicity is assumed to be constant. Also, define $\delta = \tilde{g}_t - \tilde{z}_t$ as the primary balance as a proportion of GDP (where $\delta>0$ is deficit and $\delta<0$ is surplus); thus, Equation (2) can be rewritten as follows:

$$\tilde{b}_t = \left(\frac{1+r}{1+\theta}\right)\tilde{b}_{t-1} + \delta_t \tag{3}$$

From Equation (3), it is possible to define the concept of fiscal sustainability and derive an indicator that expresses this operational definition. The intertemporal constraint for the government can be estimated with forward iterations of Equation (3) up to period n. Thus b_{t+n} can be expressed as follows:

$$\left(\frac{1+\theta}{1+r}\right)^n \tilde{b}_{t+n} = \left(\frac{1+r}{1+\theta}\right)\tilde{b}_{t-1} + \sum_{j=0}^{n}\left(\frac{1+\theta}{1+r}\right)^j \delta_{t+j} \tag{4}$$

For a long period n, and assuming that $r > \theta$, the left-hand side of the equation tends to zero and represents the government budget balance condition in present value. Hence, Equation (4) can be rewritten as:

$$\tilde{b}_{t-1} = -\sum_{j=0}^{\infty}\left(\frac{1+\theta}{1+r}\right)^{j+1} \delta_{t+j} \tag{5}$$

This equation suggests that the discounted present value of net public revenue (right-hand side of the equation) should equal the initial stock of public debt. Talvi and Vegh (2000) argue that δ this is the path that satisfies Equation (5). Hence, they define the permanent primary deficit δ* as the constant level of the primary balance whose present discounted value in period t is equal to the present discounted value of the actual path of the primary balance.

$$\sum_{j=0}^{\infty}\left(\frac{1+\theta}{1+r}\right)^{j}\delta_{t}^{*}=\sum_{j=0}^{\infty}\left(\frac{1+\theta}{1+r}\right)^{j}\delta_{t+j} \tag{6}$$

Solving for δ* and combining with Equation (5) provides:

$$-\delta^{*}=\left[\frac{r-\theta}{1+r}\right]\tilde{b}_{t-1} \tag{7}$$

This is the condition of sustainability and is interpreted as the primary surplus (-δ*) that must equal the real debt service (real interest payments on the initial stock of public debt). Fiscal policy is not sustainable if the equation is greater than zero and is sustainable otherwise.

If fiscal policy is not sustainable ex-ante, something will have to happen ex-post to ensure that the intertemporal budget constraint is satisfied. This may include an increase in tax revenue (through higher taxes or greater collection efficiency), a reduction in public spending, even higher inflation, or in an extreme case, a debt repudiation.

Simulations

As mentioned above, the Mexican case requires adjustments to estimate fiscal sustainability. That is to say, when estimating it, it is necessary to include the government's contingent liabilities, which are the total pension expenditure.

The actuarial calculation of the federal government includes the pension systems of IMSS (employer), ISSSTE, and state companies such as CFE and Pemex, among others. This study omits pensions that are not strictly federal government pensions, such as those of the pension systems of the federated states or state universities. According to the OECD study (2016), this deficit amounts to 80% of

GDP at present value, which means that the contingent liability for this level of government is precisely that. There are other similar estimates, such as Azuara *et al*. (2020[4]).

Therefore, in addition to the 45.5% of GDP represented by the total net debt of the public sector, the inclusion of the actuarial deficit of the federal government's pension systems would bring this number to 125% of GDP.

Next, Equation (7) above will be used to obtain the primary surplus needed to make fiscal sustainability effective[5]. Before doing so, consider the primary balance obtained by the public sector as a proportion of GDP for 2001-2019. Note that the average for this period is 0.7% of GDP (Figure 11). This provides an idea of the fiscal effort that should be made for debt and contingent liabilities to be sustainable over time. From this simulation, it is possible to go on to discuss the fiscal space to face the pandemic.

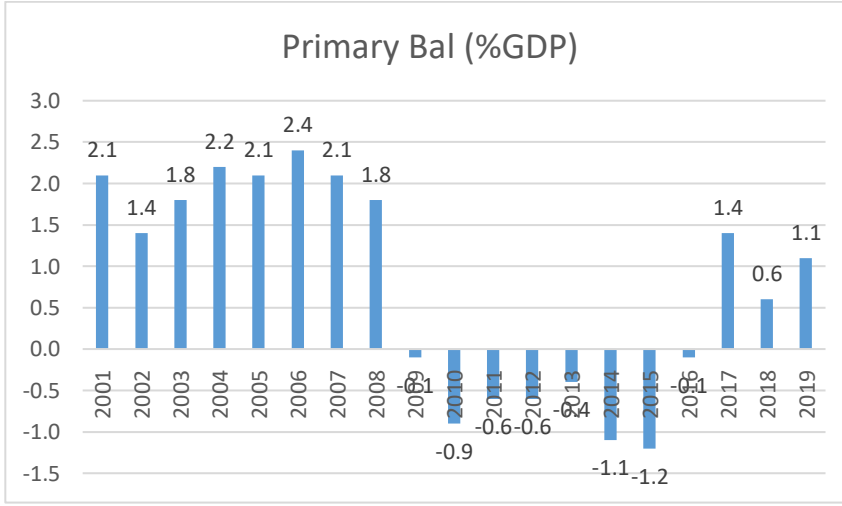

Figure 11
Source: SHCP

The following is a series of simulations. The first one will be a simple exercise, omitting contingent liabilities. The primary surplus necessary to make sustainable public debt is obtained from the public accounts reviewed here. There is an assumption of a GDP growth rate of 2.5%, the average of the last 30 years, and a conventional real interest rate of 5%.

[4]There are more precise estimates that include all public pension systems, including states, municipalities, state universities, and state and municipal parastatal companies, which would amount to just over 150% of GDP.
[5]To achieve such a surplus, it would be necessary in the future, when the economy resumes its positive path, to increase budget revenues or reduce public spending by a relatively low amount, equivalent to between 0.38 and 0.45% of GDP.

The second column adds an economic reactivation plan, as proposed by different organizations and independent analysts (CEEY, 2020; Levy, 2020; CCE, 2020; among others), which would amount to 3 percentage points of GDP (of 2019), thus increasing the debt stock in the same proportion.

As mentioned, these three studies, although differing in some aspects, all agree that employment support should have been granted, especially to small and medium-sized enterprises. These would consist of a kind of emergency unemployment insurance. A second aspect was soft loans to microenterprises. Although the Secretariat of Economy announced a similar program, the amounts and scope are limited due to the lack of resources. Finally, the studies temporarily agree on the need to waive IMSS employer contributions. This would stop the collapse of MSMEs. The three studies agree that additional debt equivalent to 3 percentage points of GDP would be needed by February 2020.

Table 1 presents the results of Equation (7). As can be seen there, it is necessary to increase the average primary surplus by 0.38% of GDP even without a plan. With an economic rescue plan to face the pandemic, the primary surplus would have had to rise to 0.45% of GDP, an increase of 0.07% of GDP.

This sum sounds reasonable compared to the benefits that the introduction of such a plan would have brought. It should be noted that the main advantage lies in cushioning the fall in GDP. According to the Organization for Economic Co-operation and Development, countries that did implement a fiscal plan slowed the decline (OECD, 2020, Table 1, pp. 2). The OECD presents economic growth projections before and during the pandemic, and the economic projections at the beginning and with the pandemic already in course. The results are clear that for countries that implemented fiscal plans, the economic projection and early indicators are lower than those that did not, such as Mexico.

Table 1
Without Contingent Liabilities (%GDP)

	Without Plan	With Plan
r	5.00%	5.00%
g	2.50%	2.50%
b	45.50%	48.50%
Required delta	1.08%	1.15%
Average Delta Observed	0.70%	0.70%
Increased Collection	0.38%	0.45%

Source: created by the author

Public finances in Mexico, once more

Based on the previous review of public finances and the first simulations, Mexico was already facing a major public finance problem. It still had low revenues to meet spending obligations and contingent liabilities (pensions). Oil revenues will not rebound in the short term; therefore, as mentioned above, it is necessary to increase annual tax revenues by at least 0.38% of GDP.

It is worth emphasizing that it is difficult to reduce public spending, which is already far from satisfying the Mexican state's spending obligations, but this does not rule out trying to make it more efficient and effective. However, this is only a necessary but not sufficient condition to solve the problems of public finances.

The rescue plan suggested by the analysts and agencies referred to here required an additional annual increase in tax collection of 0.07%, even without a bailout plan, which is a reasonable amount, given the magnitude of the economic debacle. This did not solve the structural problem of public finances, but it alleviated the effect of the crisis.

It is important to present the financial requirements of the public sector (Figure 12), which for many is a better measure of the fiscal deficit, to get an idea of the magnitude of the surplus needed.

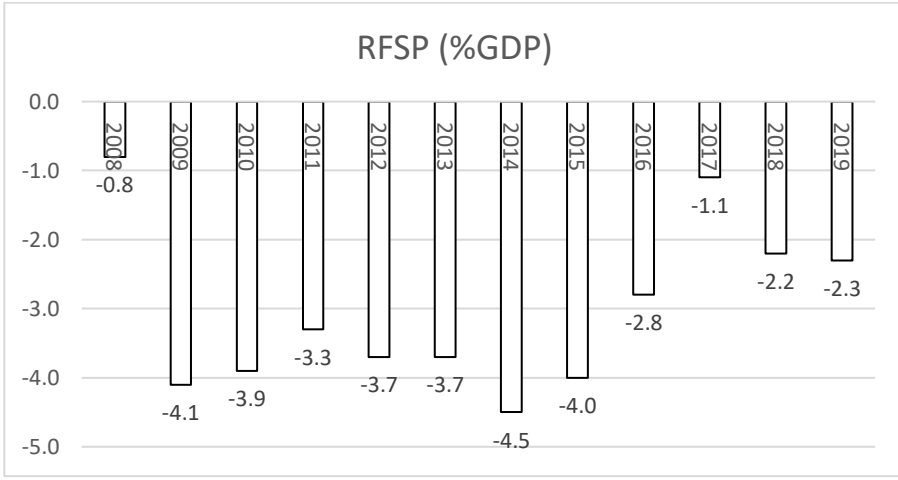

Figure 12
Source: SHCP

The net public debt used in this study includes the historical balance of the RFSP, due to how the SHCP estimates it (SHCP, 2020; Figure 13).

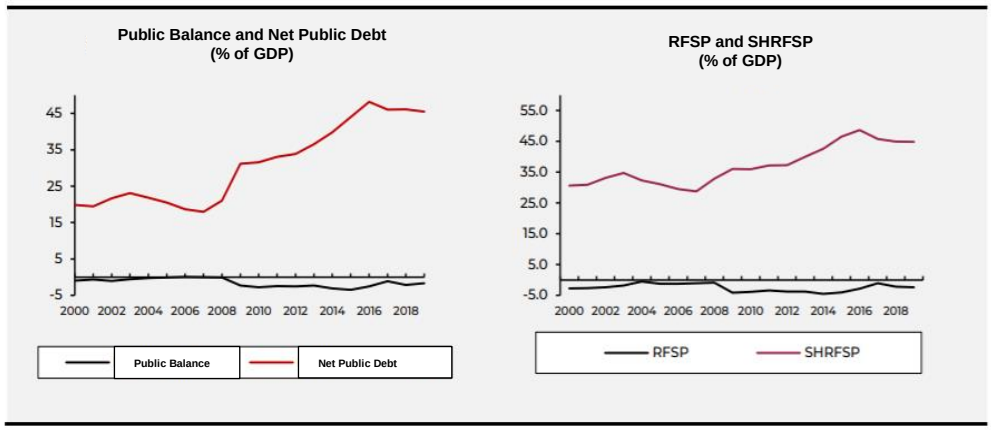

Figure 13
Source: SHCP

Thus, the contingent liability that does not appear in the SHRFSP estimate is that of pensions. This liability has to be considered a financial obligation of the public sector unless there is a reform, as suggested by OECD (2016) and Azuara et al. (2019).

However, the present value of such liabilities amounts to 80% for the federal government[6], its agencies, and its companies in terms of GDP. These liabilities do not generate interest. The calculation is with present value, and their disbursement is given over time, so the effect of risk and inflation is included in their discount rate. In other words, in this specific methodology of Talvi and Vegh (2000), it is not correct to add the 80 percentage points to the 45.5% net debt without recognizing that this last component does not generate interest. Thus, only the increase in liabilities will be included with the annual growth in GDP in the simulation, adjusting for the interest rate. In the weighting, the appropriate interest rate for the year would be reduced to 3.66%.

With this in mind, this situation better reflects the current reality. The exercise is not to estimate the tax collection needed to solve the country's structural problems but to determine the tax increase to face the crisis with an economic plan such as the ones described.

With this exercise presented in Table 2, with and without the plan, it can be observed that it is necessary to increase by 0.71% (i.e., double the current average primary surplus) without a bailout plan or increase it by 0.74%, including the bailout plan. Including the bailout did not affect Mexico's deteriorating public finances and could have altered the economic growth rate upwards, making it easier

[6] It does not include that of subnational bodies.

to deal with the increase in liabilities. However, the latter is beyond the scope of this paper. For this, a more general study simulating the growth (or the arrest of the fall) resulting from the plan would be necessary to consolidate the final result. This is recognized as a limitation here.

Table 2
With contingent liabilities

	Without Plan	With Plan
r	3.66%	3.66%
g	2.50%	2.50%
b	45.50%	48.50%
b prima*	80.10%	80.10%
Delta	1.41%	1.44%
Average Delta Observed	0.70%	0.70%
Increased Collection	0.71%	0.74%

*b premium is the contingent liability
Source: created by the author

Conclusions

This paper evaluated the fiscal space to face the adverse economic effects of the pandemic in Mexico using a fiscal sustainability exercise developed by Talvi and Vegh (2000). In particular, it evaluated the relevance of having introduced a fiscal plan financed with a 3% of GDP debt at February levels, as suggested by different agencies and analysts (CEEY, 2020; CEESP, 2020; Levy, 2020).

It also reviewed the OECD (2020) estimates which presented economic projections before and after the pandemic. These estimates yield strong results. Countries that introduced fiscal plans will achieve a lower rate of decline than projected at the beginning of the pandemic. At the same time, those that did not, such as Mexico, will see their GDP growth rate fall further than the projections at the beginning of the pandemic.

The conclusions indicate that there is currently no fiscal sustainability, and that it is necessary to double the average primary surplus of 0.7% of Mexico's GDP since 2001 to achieve it.

However, had the economic plan proposed by the various agencies and individuals been introduced, the average surplus would have had to be increased by 0.74% as of 2021, i.e., a primary surplus amount of 0.03% per year in addition to the current one, which seems quite reasonable.

After resuming the path of growth, this amount would be easily compensated with a fiscal reform that includes an increase in budgetary revenues or a reduction in public spending. Therefore, it is

an easily absorbed amount compared to the benefit of having cushioned the economic downturn. Moreover, the path of growth would have resumed more quickly.

It is worth noting that these types of measures are accompanied by the design of an intertemporal debt adjustment and amortization plan, normally endorsed by the Mexican Congress. This would have also sent a signal of Mexico's commitment to sound public finances.

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