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Contaduría y Administración

Accounting & Management

Contaduría y Administración 65(5), Especial COVID-19, 2020, 1-30

Tax reform: A necessary discussion in the new normal

La reforma tributaria: una discusión necesaria en la nueva normalidad

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Received August 19, 2020; accepted September 11, 2020
Available online September 1, 2022

Abstract

The pandemic in Latin America has revealed the weakness of its public finances to face the situation, even though several of the countries in the region have made significant progress in terms of collection. Mexico is no exception and, on the contrary, in terms of tax revenues it has shown little progress despite the various reforms that have been implemented in the recent past. The health crisis makes a tax reform necessary in the country, not immediately, but if it is necessary and should emphasize the construction of one, with a medium and long term view to cover the demand for public spending and reversing the history of low revenue the country has faced for at least the last 50 years. This document explores basic theoretical aspects and experiences of Latin America aimed at vitalizing the discussions in the construction of said reform. Additionally, the relationship between tax revenues and GDP is estimated with a structural rupture model to get an idea of what the fall in public revenues may be in the coming months.

JEL Code: E64, H20, H26, H61, O23, O54
Keywords: tax reform; tax revenue; Mexico; Latin America

Resumen

La pandemia en América Latina ha dejado ver la debilidad de sus finanzas públicas para afrontar la situación, esto aun cuando en varios de los países de la región se han tenido avances importantes en materia de recaudación. México es una de las excepciones y por el contrario en materia de ingresos tributarios ha denotado pocos avances a pesar de las distintas reformas que se han instrumentado en el pasado reciente.

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Peer Review under the responsibility of Universidad Nacional Autónoma de México.

http://dx.doi.org/10.22201/fca.24488410e.2020.3019

http://dx.doi.org/10.22201/fca.24488410e.2020.3019

La crisis de salud hace necesaria una reforma tributaria en el país, no de forma inmediata, pero sí se precisa y se debe poner el acento en la construcción de una, con miras de mediano y largo plazo para darle cobertura a la demanda de gasto público y revertir la historia de baja recaudación a la que se ha enfrentado el país por lo menos en los últimos 50 años. En el presente documento se exploran aspectos teóricos básicos y experiencias de América Latina encaminadas a vitalizar las discusiones en la construcción de dicha reforma. De forma adicional se estima la relación de los ingresos tributarios y del PIB con un modelo de rupturas estructurales para tener una idea de cuál puede ser la caída de los ingresos públicos en los próximos meses.

Código JEL: E64, H20, H26, H61, O23, O54
Palabras clave: reforma tributaria; ingresos tributarios; México; Latinoamérica

Introduction

Talking about tax reforms could sooner or later lead to the dilemma between efficiency and equity, i.e., where the emphasis should be placed: on increasing tax collection or improving income and wealth distribution; on avoiding generating distortions in the economy by favoring efficiency and the use of flat rates or establishing more progressive tax structures; on increasing tax rates and tariffs to improve tax collection or lowering them for the same purpose.

The questions raised around tax reform are multiple. Some examples are: How can tax collection be increased in a developing country? What are the factors that explain tax collection? In order for a country to spend more, must it collect more? What strategies can be established in terms of taxes to face a situation such as the current pandemic? How related are taxes to economic growth? More specifically, what is needed for successful tax reform? Can tax reform increase the tax base? Can tax reform change the state-society relationship? (Fjelsdtad et al., 2020).

In Mexico, tax collection has been historically low, and the issue of how to reverse this situation and generate a wider fiscal space for the government to have margins of action in critical moments such as those currently being experienced has been constantly discussed. Moreover, for many scholars of the subject, the low tax collection in the country makes impossible or limits a greater distribution of income. In terms of tax reform in Mexico, it is possible to think of two moments. The first is related to the reform proposal developed by Nicolas Kaldor (Bancomex, 1964), which remained just that[1], and the second is the reform in which Fiscal Federalism was fully established and value-added tax was introduced in 1980. After that, there have been different changes in rates, the introduction of some new taxes and repeal of

[1]For more information, see Urquidi et al.(2011). Ortiz Mena argued that the decision not to adopt Kaldor's proposal was because it was too radical. In favor of the alternative reform he indicated that it had great value since it had opened the way to progressivity (Turrent, 2004).

http://dx.doi.org/10.22201/fca.24488410e.2020.3019

others, but until a few years ago, there was no change in the collection or the distribution of income, as will be seen in section IV, corresponding to tax reform in Mexico.

The pandemic is the ideal context to resume discussions on the direction that tax reform should take in the country, in the medium and long terms, in addition to the measures that should be taken at present since, as in the past, in times of economic crisis lower tax revenues may be expected. Accordingly, the objective of this work is to differentiate between the measures to be taken in tax matters, where the reform is not designed to solve the pandemic problem but to establish the basis of a tax structure that contributes to the country's development.

Following the above, the remainder of this document will (II) review the theoretical considerations that have been formulated in the light of tax reforms that have been implemented or theoretical proposals that have been put forward to give an idea of the reforms that should be established. (III) Subsequently, this work analyzes the tax revenues of 18 Latin American (LA) countries relative to their GDP to highlight which ones made progress in increasing their tax collection and understand what they did to achieve it. (IV) Subsequently, the reforms that have been carried out in Mexico and the little effect they have had are reviewed succinctly, in addition to estimating an econometric model in which structural breaks are taken into account, which will serve to establish an estimate of what can be expected in revenue collection for the remainder of the year and what can be expected for next year. (V) Finally, a conclusion is presented.

Theoretical considerations behind a tax reform

Many of the studies conducted on taxes and their functions focus on their relationship with economic growth (Arnold, 2018, Chiappelo & Svetliza, 2018, Delgado & Salinas, 2008) or the relationship they have with public spending (Wagner, 1883, Musgrave, 1966, Friedman 1978, Edwin & Payne, 1998, Edwin et al., 2006, Ramírez & López-Herrera, 2016, 2018). A significant number of studies have also been established regarding the composition of the tax structure (Atkinson & Stiglitz, 1976, Martínez-Vázquez et al., 2011) and the characteristics and effects of tax reforms that may be tangentially related to the three aspects mentioned.

The relationship is established by the objectives pursued by tax reform that, although they can be many, end up focusing on efficiency and economic equity (Gentry & Landd, 1994, Liu et al., 2015). The first case could be assessed in two aspects. On the one hand, the tax structure's negative effect on economic growth can generate distortions that break with the accumulation of capital, inhibiting investment, job creation, innovation, and accumulation of human capital. On the other hand, there is a possible positive effect by giving the State the necessary means to provide society with public goods, physical infrastructure and medical services, health, social security, and others. The above favor investment in physical and human capital (Carnahan, 2015). The dilemma between positive and negative effects has to do with how the State achieves its tax revenue. Accordingly, the greatest efficiency in revenue collection is required, for which it is necessary to generate the least possible distortion. However, this may limit the income distribution that can be achieved through taxes. On the side of economic equity, having a tax structure that makes possible and maintains a fair income distribution may restrict the revenues that the State requires to carry out its activities.

One way of making efficiency and equity compatible is by selecting taxes and rates that should make up the tax structure, and the way to do this is called tax reform. Three types of taxes are prominent in discussions of reform because of the amount of revenue they contribute.

Of all the consumption taxes, VAT (Value Added Tax) has the highest collection efficiency, but according to Carnahan (2015), it also has the highest administrative costs since the base is very broad. However, its revenue capacity compensates for its cost in a solvent way, but efficiency is lost when reductions in its rates or exempted products are established. Income taxes are mainly composed of two categories, personal and corporate taxes. In developing countries, the collection of personal income tax is relatively low compared to OECD countries, and the collection of this tax corresponds to a greater extent to salary withholding. On the other hand, corporate income tax is complex to administer and usually presents problems with interpreting and applying judgments when determining expenses and depreciation of assets.

In the orthodox perspective, the idea of a tax reform should be aimed at seeking neutrality in the tax structure. According to neoclassical growth models, the above implies a combination of movements in tax rates to maintain revenues and to work with sound public finances. Working with the conception that direct and indirect taxes differ in terms of their distortionary economic power, neutral tax reform would consist of lowering direct tax rates and offsetting the effect by increasing consumption taxes or resorting to property taxes.

Technically, neutrality implies not undermining economic efficiency and is achieved by integrating a tax structure that favors general consumption and property taxes over taxes on corporations and individuals (OECD, 2009). However, in terms of distributive impact, according to Gómez et al. (2010), direct taxes have the greatest impact, with personal taxes having the greatest capacity, followed to a lesser extent by corporate taxes, and then by taxes on personal property and wealth. Taxes such as VAT, given their regressive nature, are considered to impact distribution negatively.

In orthodox views, among the proposals to improve economic efficiency, that of shifting the burden from personal taxes to property taxes stands out. The reason is that the former are high and break incentives to participate in the labor market. One of the reasons why personal taxes are presented as necessary is their capacity to redistribute income. However, according to Coda et al. (2020), this objective is not achieved in some European countries due to their design. Property taxes have been considered as an alternative because they generate fewer distortions. According to the authors above, the measure can improve efficiency and equity since it improves the labor system and enables greater inclusion of women in productive activities and greater labor mobility.

In the same vein, the Tax Cut and Jobs Act was presented in 2017 in the United States, a provision at the federal level whose objective was to stimulate economic growth by reducing tax rates on corporate and personal income. Intending to compensate for the possible fall in tax collection, the Act establishes a reduction of deductions on state and local taxes. According to Coen-Pirani and Sieg (2019), this reduction will have special effects on productive activities, displacing them to places where local and state taxes are lower. For Howell (2016), tax reforms that reduce corporate income taxes and are offset by increases in VAT can reduce the financial constraints of firms by improving their innovation decisions.

Objections to VAT as an option to compensate for adjustments in direct taxes may be permeated by ideology, perception, and a realistic assessment of the pernicious effects that these taxes generate in lower-income societies due to their regressive nature. Ideology takes the implementation and design of VAT from a technical discussion to a political one, making it more complicated. Perception leads to the assumption that upward changes in VAT will affect the increase in market prices. However, Chistandl et al. (2011) note that price changes given the increase are often based on general beliefs rather than on concrete facts.

It is possible to question the neutrality postulated by orthodoxy with facts and estimates. In some cases, it may depend on the assumptions (Choi et al., 2017), on the omission of relevant variables (Chang et al., 2011), or else on the preconditions of the economy (Blažić et al., 2017). On the other hand, it is important to consider that developing countries may have specific conditions that need to be considered.

For the case of Japan, Choi et al. (2017) studied the possible results of a tax reform that is intended to reduce the effective corporate income tax rate from 34.5% to 30%, in addition to increasing the consumption tax rate from 5% to 10%. The above is done using a two-sector dynamic general equilibrium model and establishing a couple of assumptions that correspond to the country's situation, such as unrestricted international indebtedness and no formation of consumption habits. These rate movements generate an increase in welfare of 0.53%. However, as the assumptions are relaxed, and going to the extreme opposite scenario, the reform could result in a loss of welfare equivalent to the previous one.

By incorporating the fertility variable (as suggested by Sleebos 2003 & Grant et al., 2004;41) endogenously in the modeling, Chang et al. (2011) assume that a reduction in the direct tax increases the after-tax marginal productivity of labor, thus improving wages and generating a higher opportunity cost of child-rearing and lowering the fertility rate. Conversely, an increase in the indirect consumption tax reduces the opportunity cost of fertility, given the decrease in after-tax wealth. Therefore, the results could be adverse for growth and social welfare given the ambiguity of the effect of the tax change on equilibrium fertility rates.

In a study conducted by Blažić et al. (2017), which consisted of consulting different tax experts in four countries of the former socialist bloc, certain coincidences were noted that are interesting and contrast with the orthodox tax school of thought. The broadening of the base and reducing rates do not seem substantial to them. Flat reforms, flat taxes, the universal application of VAT in a single rate, and the reduction of corporate and personal income tax rates do not have the support of the specialists, with progressivity being one of the important elements to be considered. Flat tax reforms are likely to positively affect production and improve incentives for high-income workers. However, in return, they may generate disincentives for low-income workers and increase inequality in society, as documented by Benczúr et al. (2018) in the case of Hungary with the reforms established between 2008 and 2013. Besides introducing a flat tax on personal income, they also decreased unemployment benefits from 12 to 3 months.

Developing countries, in general, have encountered serious complications in improving their tax structure. The sources of additional income, the high levels of informality they suffer from, the fledgling technical and administrative development of the tax-collecting system, in addition to the lack of a tax culture that favors voluntary taxation, among others, serve as restrictions on increasing tax collection and generating positive effects on distribution.

To a greater or lesser extent, countries blessed with natural wealth have enjoyed abundant sources of additional revenues over the years, so they have made minimal efforts to have a broad-based tax structure. However, the volatility of these revenues generates difficulties in the management of public finances, making it necessary at some point to consider the implementation of a tax reform capable of eliminating dependence on additional revenues. This was the case of Angola in 2011, where oil revenues represented 80% of the government's revenues. Nevertheless, according to Fjeldstad et al. (2020), there is no evidence that the reform has reduced dependence. Even when the registration of taxpayers—individuals and corporations—was expanded, the number of unregistered individuals was still significant. Although tax revenues increased in relation to oil revenues, this was due to the decline in oil prices rather than the reform's success. The reform could not renew the relationship between state and society, as evidenced by the fact that companies and wealthy individuals continue to contribute less in tax revenues.

In a study on tax reform in Pakistan, Feltenstein et al. (2017), using four simulations, estimate its effects on poverty, prosperity, and inequality. According to the authors, developing countries generally have two issues in common: difficulties in obtaining public revenues necessary to carry out indispensable social and economic projects and a population in conditions of significant poverty. Thus, tax reforms have the challenge of increasing revenue collection with the least impact on the vulnerable population by giving preference to progressive taxes rather than regressive taxes. However, given the conditions of informality in Pakistan, in order to obtain a yield similar to that which would be produced by a 1% increase in the sales tax, the tax on corporate profits would have to be increased by 10%, making the first tax relatively more efficient in tax collection.

The challenge of any tax structure in developing economies is to reduce informality. The informal sector generates discontent in the formal sector of the economy and negatively impacts its growth. The absence of credit and access to larger markets limits the possibility of growth in countries where the informal market is large. According to Carnahan (2015), one of the most convenient ways to change the perspective of being in the informal sector is by modifying the cost equation. It is necessary to make the formal sector more attractive through a regulatory system that creates value and encourages the formality of companies. Additionally, if the objective of a tax reform is to improve the capacity of taxes to expand their collection, it must improve their administrative capacity and promote and improve the culture of paying taxes (Fjeldstad et al., 2020).

What should be done with fiscal policy, particularly with taxes, in times of crisis? History has taught us some lessons. The 1929 crisis was the scenario from which Keynesian thinking emerged, calling into question the capacity of the system to generate full employment and economic reactivation. The alternative to achieve the above, according to Keynes, was state intervention through expansive fiscal policies. In the 2008 financial crisis, Keynesian stimulus programs returned once again, with the particularity of privileging programs on the revenue side rather than on the expenditure side, as pointed out by Mirón (2010), Jha (2009), and Alesina and Ardagna (2010). According to the OECD (2009), the bulk of the tax cuts went to individuals, to a lesser extent to companies, and in some cases to consumption taxes, as the United Kingdom did by temporarily lowering its rate from 17.5% to 15% (Blundell, 2009; Barrel & Weale, 2009; & Crossley, 2009).

In this new eventuality related to the Covid-19 virus, the intervention of expansionary public policy is beginning to be heard, and, of course, Keynes is being recalled. Different international organizations have been keeping an eye on the situation, recommending a fiscal and monetary policy focused on trying to contain the economic impact of putting the economy into a coma induced by the pandemic to avoid a health crisis of major proportions. The vast majority of the tax proposals have consisted, as of July 31, of tax deferrals, generally and conditionally. Import duties have been eliminated to a lesser extent, especially on medical and other pandemic-related products, and some countries have introduced tax exemptions[2].

[2]Of 196 countries that have taken some kind of policy action in the face of Covid-19, only 46 did so in relation to taxes, according to the IMF. Imf.org/en/Topics/imf-and-covid-19/policy-responses-to-covid-19.

Unlike the 2008 crisis, now the balance is tilted toward public spending measures intended to maintain the income of people who have had to stay at home to try to limit contagion. However, it is clear that no measures focused on increasing the tax burden will be taken (Roig et al., 2020) and that in the recovery period taxes will be an indispensable instrument to resume the management of public finances (OECD, 2020).

Some experiences in the región

What has happened with tax revenues in Latin America in the last 30 years? On average, revenue collection improved over the 1990 to 2018 period (Figure 1); the average collection increased by more than seven percentage points relative to GDP[3]. The countries with the best results are Bolivia, Argentina, Ecuador, Nicaragua, Colombia, Honduras, El Salvador, and Uruguay, while other countries, such as Costa Rica, Guatemala, Mexico, and Chile, improved to a lesser extent.

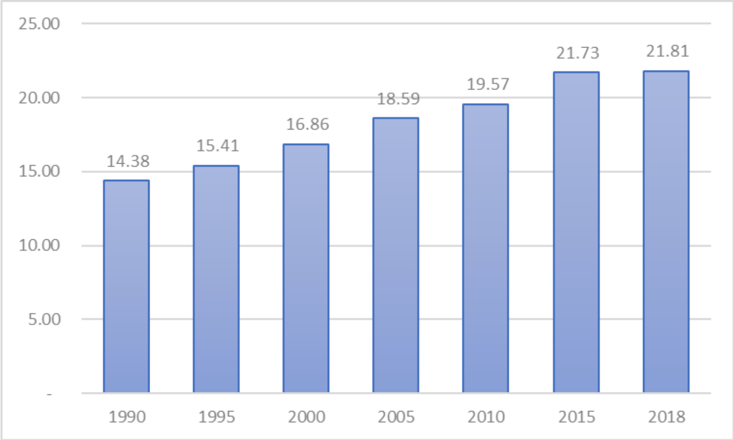

Figure 1. Average taxation in 18 LA countries.
Source: created by the author with OECD data.

Figure 2 illustrates three additional aspects: a) in 1990, only Brazil had a tax revenue greater than 25% of GDP, and in 2018 it was one of the LA countries with the highest tax collection, b) by 2018, Argentina, Belize, and Uruguay had tax revenues close to 30% of GDP, and were, together with Brazil, 4 of the economies with the highest tax revenues in the region, and c) some countries that in 1990 had low

[3]According to Bergman (2004), after the fiscal crises experienced in the region, different reforms were implemented with two main objectives: to increase collection in an easy and timely manner, and to increase horizontal equity, for which tax systems cease to be instruments of distribution.

tax revenues continued without significant changes in the following 30 years. Guatemala, Paraguay, and Mexico are good examples of this.

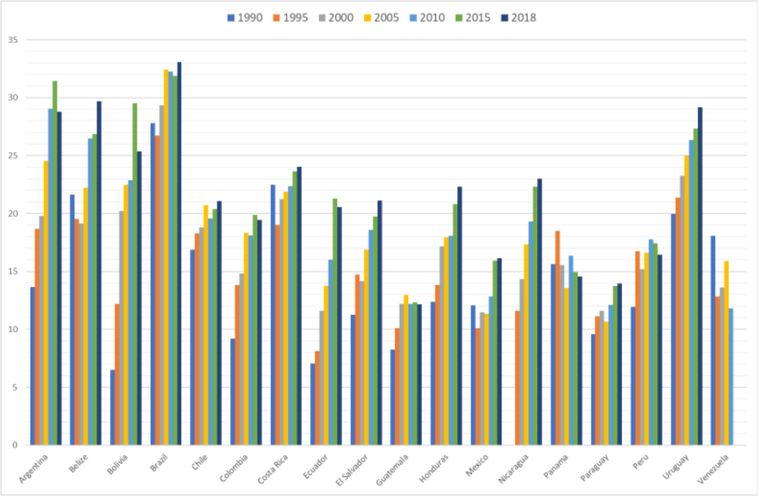

Figure 2. Taxation in 18 LA countries.
Source: created by the author with OECD data.

Why are Bolivia, Argentina, Ecuador, Nicaragua, Colombia, Colombia, and Uruguay so successful in revenue collection? The first case is perhaps the most notable for three reasons: the low tax collection in 1990, which was only over 6% of GDP, the progress made in the years displayed in Figure 2, and its current collection level. The latter places it among the six economies with the best tax revenues. For some of them, the reforms that simplified their tax structure and broadened their tax base are explanations that go hand in hand with the economic growth that occurred, particularly at the beginning of this century, in addition to the changes and reinforcements that were made at the level of their tax administration.

In 1986 the reforms that would lead Bolivia to a change in terms of revenue began. The core of the strategy consisted of simplifying the tax structure, reducing the more than 400 taxes to 7 (Carciofi et al., 1993). In that year, Law No. 843 came into force. This law sought a broad tax base and easily administered taxes. Later, in December 1994, with Law No. 1606, other changes were made that made further progress in improving collection possible (Cassío, 2001). As of 2004, the modifications made focused on increasing collection through the establishment of new taxes such as the tax on financial transactions and the corresponding income of taxpayers who entered the transitory tax regularization program (Law No. 2492), taxes on hydrocarbons (Hydrocarbons Law No. 3058 of 2005), modifications to the rates of specific consumption taxes (Law No. 3467, in 2006), and modifications to the levies to which mining companies were subject (Law No. 3787, in 2007). In addition to incorporating new taxes and modifications in the rates, an element that played in favor of tax collection in Bolivia was its economic performance, which led to greater collection of taxes such as VAT (Genuzio, 2014).

Argentina is another of the LA countries that achieved significant progress in tax revenue levels with the 1989 reform (Carciofi et al., 1994). The implementation of this reform was planned in two stages. The first one was from 1991 to 2001, which was affected by the "tequila crisis" of 1995 (Cetrángolo & Sabani, 2007). The second was from 2002 to 2016, where the factors that explain the good performance of revenue collection include social security contributions, VAT, income tax, and the reinstatement of the tax on imports, which resumed in 2002 (OECD, 2011). Already with a significant level of collection, a new tax reform was established in 2017 with two goals, reducing the main distortions generated by the tax structure and sustainably reducing tax pressure. The aim was to encourage investment, increase competitiveness, generate skilled jobs, achieve equity in the tax system, reduce evasion, and develop the economy.

Like Bolivia, Ecuador is a country that, in 1990, had a low level of taxation. However, with the proposal to return to a dollarized economy, a tax reform was also developed in the second half of the nineties. This reform consisted of the general application of VAT, except for agriculture, and the reduction of income tax on reinvested profits from 25% to 10% and 20% on profits distributed in cash. In 1998, tax policy management was decentralized by creating the Internal Revenue Service, and two years later, administrative improvements in tax management were implemented. Given the change in the approach of the economic model, in December 2007, the Reform Law for Tax Equity was enacted (Quispe et al., 2019). This law modifies the taxes on inheritances, legacies, and donations, on which the tax rate could be from 5% to 35%, depending on the amount (Castro et al., 2013).

The increase in revenue collection in Nicaragua is also important and according to Acevedo (2011), the process began in the mid-1990s and continued in this century. In 1997 the Tax and Commercial Justice Law was approved to broaden the tax base and adapt the system to the principles of neutrality and equity. In 2002, the Law for the Expansion of the Tax Base was approved to control exemptions and exonerations to increase the taxpayer base. In 2003, the Tax Equity Law was passed to give effect to generality, neutrality, and equity principles, focusing on reducing the biases that discouraged exports, improving and enabling investments, and strengthening tax institutions. In the following years, the Tax Equity Law continued to be improved. Direct taxes were some of the most dynamic taxes in the positive collection results presented by the country (Cabrera, 2015).

According to Sánchez and Espinoza (2005), eight reforms were carried out in Colombia between 1980 and 2003 to increase tax revenues to balance public finances in the short and medium term. One of the key reforms that improved tax collection was Law 75 of 1986. This law mainly impacted income tax

(González & Calderón, 2002). In 1990, Law 49 was particularly intended to stimulate the development of the capital market by improving savings and investment. After a series of reforms, perhaps the one carried out in 2012 was one of the most significant because its objective went beyond increasing tax collection, focusing on tax efficiency and equity (Arenas, 2016).

Uruguay (Figure 2), at the beginning of the 1990s, had an economy with a good level of revenue collection that gradually increased. According to the OECD (2011), in the 2002 to 2010 period, the increase was due to the sustained growth of GDP, administrative improvements in the tax system, and some changes in the tax structure. According to Roman (2008), the tax system in Uruguay was atypical due to the absence of a global personal income tax. The tax reform aimed to reverse this situation without being a purely revenue-raising reform. It focused on broadening tax equity, increasing collection efficiency, and generating incentives for investment so that increases in others offset adjustments in the rates and levies of some taxes without affecting the amount of revenue collected.

Economic growth is one of the important elements to improve tax revenues since keeping the rate constant and increasing the base increases revenues. However, the above is not that simple and depends on the modifications and adjustments made through tax reforms. Figure 2 displays how far tax revenues have advanced in relation to economic activity.

Figure 3 presents the average growth of economic activity and tax revenues, where it can be seen that five of the six countries for which the reforms were described, even though they are not the ones with the highest average economic growth, have the highest average growth in tax revenues for the period (1990-2018). From this graph, it is possible to highlight: (a) unlike in the rest of the countries, the behavior of tax revenues in Panama, Mexico, and Venezuela was less dynamic than the behavior of economic activity, (b) despite being countries with economies that on average performed significantly, Chile, Costa Rica, and Peru did not have significant changes in their tax revenues/GDP ratio compared to the other countries, and c) the cases of Bolivia, El Salvador, Honduras, and Nicaragua are noteworthy. Although they are economies classified by the World Bank as lower-middle-income, the growth dynamics of their average tax revenues have been sufficient to bring about a substantial change in their tax revenue/GDP ratio.

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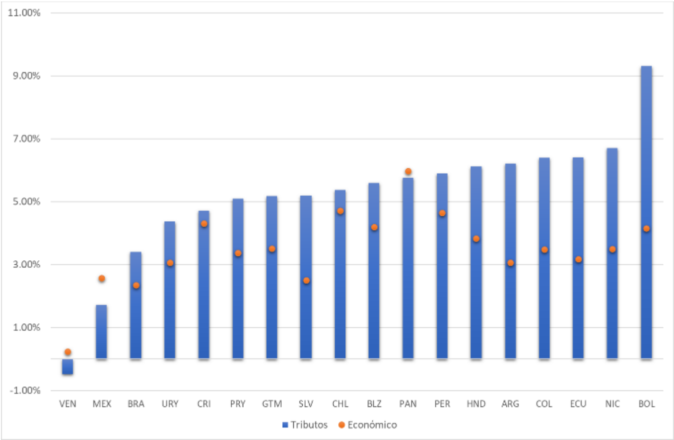

Figure 3. Economic growth rates and tax revenue growth.
Source: created by the author with OECD and IMF data.

Even though individually differentiated changes can be noted in the relationship between the dynamics of economic growth and tax revenue growth, in the aggregate (Figure 4), a close relationship can be observed between the average rates of economic growth and tax revenue for the 18 countries of the region in the years 1991 to 2018. Rising tax revenue growth rates accompany rising economic growth rates, which is also true in the opposite direction.

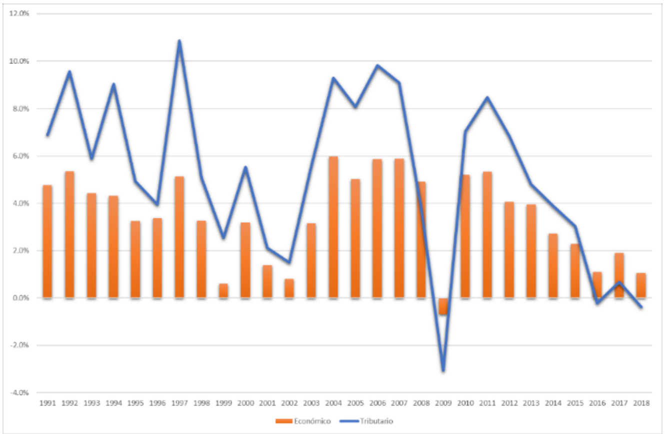

Figure 4. Average economic growth and revenue collection rates for 18 LA countries.
Source: created by the author with OECD and IMF data.

Historically, the low distributive capacity of tax structures in LA has been recognized (Jiménez, 2017), although in the various reforms carried out by some of the countries, in addition to taking into account the increase in tax revenues, equity objectives in income distribution were also considered.

A review of the Gini figures available at the World Bank as of 2018 reveals a downward trend in the indicator, which provides evidence that income concentration has been reduced in the vast majority of the countries selected in Figure 2, except for Costa Rica. Even with the small impact that taxes and transfers have on distribution (Figure 5), the above does not mean that State action does not play a role in income distribution. Rather, it does so in other ways, such as maintaining good economic performance and consolidating democratic governments and social and economic reforms. These reforms stimulate social cohesion and awareness of the problems related to high income concentration (Gómez et al., 2012), which can be parallel to transfers and taxes.

Except in the case of Argentina and, to a lesser extent, Brazil, Chile, and Uruguay, in the other countries no difference can be considered at least sufficient. The increase in tax collection has not coincided with better income distribution, unlike what happens in the OECD countries and particularly in European countries. The difference between market income and disposable income in Latin America is 0.023, going from 0.511 to 0.488 respectively, while for the OECD countries, it is 0.159, going from 0.468 to 0.309. The above is greater when considering the data of 27 European Union economies, where the difference is 0.175, going from 0.474 to 0.299.

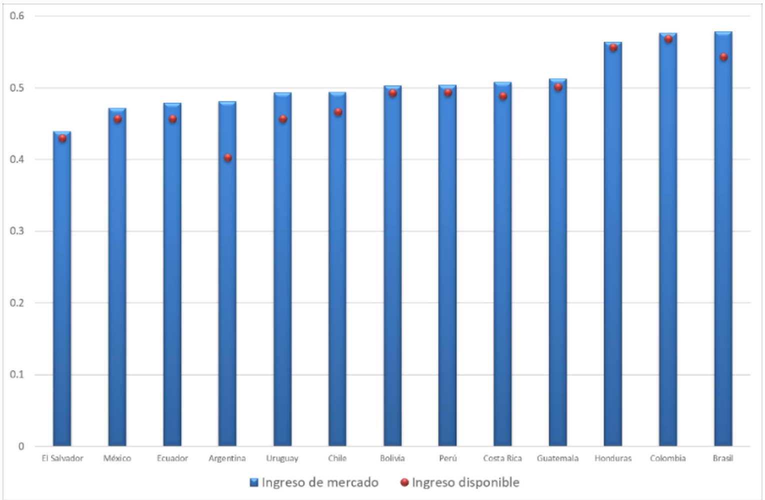

Figure 5. GINI Coefficient before and after taxes and transfers.
Source: created by the author with OECD data.

What is the reason for the low impact on the region's income distribution? According to Lustig (2017), it is due to the low tax collection in the region and the composition of the income structure. According to the author, Argentina, Brazil, and Uruguay are the countries that redistribute the most through taxes and direct transfers. Recalling Figure 2, these countries have the highest collection levels. Figure 5 indicates that several countries have similar levels of inequality, but taxes and transfers are more distributive, such as in the cases of Chile and Uruguay, as opposed to Mexico.

According to the revenue structure presented in Table 1, without considering social security contributions, it is interesting to note the tendency of LA countries to rely more on indirect revenues, as opposed to European countries. European countries, particularly the Nordic ones, favor direct taxes. However, overall, the relationship between direct and indirect taxes is relatively balanced. Concerning VAT and its relation to total revenues on goods and services in Chile, Colombia, Mexico, and Uruguay, the situation is more similar to what occurs in the OECD than in the other countries in Table 1. There is a substantial change in the relationship between personal and corporate income and direct revenue, while OECD countries, on average, obtain close to 70% from personal income. In Latin America, this relationship is inverted.

Table 1
Taxes as a percentage of total tax revenues excluding social security contributions (data in %)

	Direct	Indirect	Total	VAT	Personal	Corporate
Argentina	22.70	64.44	87.14	52.10	39.66	53.77
Bolivia	19.72	65.57	85.29	59.57	497	95.06
Brazil	28.83	59.09	87.91	47.85	39.42	39.77
Chile	38.44	57.23	95.67	75.51	18.74	61.86
Colombia	37.21	47.30	84.51	68.64	19.07	75.78
Mexico	50.82	41.22	92.04	68.03	48.11	48.45
Uruguay	35.58	53.35	88.93	65.21	55.91	40.08

Source: created by the author with OECD data

Direct and indirect taxes are related to total revenues without considering social security contributions, while VAT is related to indirect taxes and personal and corporate taxes in relation to direct taxes.

From Table 1, the conclusion may be drawn that the low impact of taxes in LA, among other things, corresponds to the low level of direct taxation and the emphasis given to it according to the type of taxpayer. However, is the tax structure a cause or an effect? It is the development of economies that has led their tax structure to be composed, in a significant portion, of personal income taxes, while the less developed a country is, the more it will depend on indirect revenue (Lara, 2009) or it is possible to try to modify the structure to push toward development. Those who believe in the power of tax reform will favor the second idea.

Table 2
Collection efficiency 2018[4]

	Corporate	Personal	VAT
Argentina	9.17	5.79	36.01
Bolivia	14.46	0.76	57.96
Brazil	8.32	10.78	36.71
Chile	16.96	4.04	44.62
Colombia	15.03	3.57	33.59
Mexico	11.47	9.76	24.48
Uruguay	12.30	11.92	34.11

Efficiency is considered the ratio of tax rate to revenue in terms of GDP.
Source: created by the author with OECD data

Finally, what is the impact of tax rates in terms of tax collection? Table 2 presents the efficiency of tax collection, where a comparison is made between potential and actual collection according to the rate. The table uses the highest marginal rates in the case of corporate and personal taxes and the general VAT rate. The tax that presents the highest efficiency is VAT. With a rate of 22%, Uruguay obtained revenues of 7.5% of its GDP, while Bolivia achieved slightly higher revenues with a rate of 13%. In corporate taxes, with a rate of 27.5%, Chile achieved revenues of 4.66% of its GDP, while Colombia achieved similar revenues, but with a rate of 33%.

Personal income is where the least efficient result is obtained, due in part to its large informal sector, as mentioned in the literature review, as well as low salaries (Elizondo, 2014), in addition to distrust of government institutions and the generalized absence of a tax culture (Ruiz et al. 2016). With a rate of 26%, Brazil obtained revenues of 2.8% of its GDP, while Bolivia, with a rate only one point lower than that of Brazil, only achieved revenues of 0.19%. It is worth noting that Bolivia is one of the countries in the region with the highest rates of informality.

Although the tax base and the rate are important for tax collection, the design of the tax plays a preponderant role and leads to a broadening or narrowing of the tax base, either through the legal option, which is tax avoidance or through the illegal one, which is evasion. Therefore, a tax designed to avoid the lowest tax expenditures will be much more efficient in tax collection, even if the rates are revised downward. For the case of Mexico, Trigueros and Fernandez (2000) believed that lowering the rate does not by itself generate an increase in revenues, but given the rates and in the face of an expectation of broader bases, it would be possible to maintain revenue while simultaneously reducing rates. Bergman (2004) argues that the success of a tax reform is associated with effective tax administration, so it is not only a matter of modifying taxes but also of giving autonomy, certainty, and professionalism to the entity in charge of tax collection.

[4]The exercise is carried out considering the maximum marginal rates in the case of direct taxes and the general VAT rate.

In this section, an inventory of the countries in the region was made, highlighting the cases in which revenue collection increased significantly. In the majority of the countries, however, the increase was accompanied by increased public spending that became more evident after the 2008 financial crisis. In 2008 half of the countries analyzed had fiscal deficits (on average, the region was in surplus), and, except for Guatemala, all countries recorded fiscal deficits averaging 2. 92% of GDP. According to IMF data[5], the increase in the level of indebtedness in the region in that time frame was 15%. The current conditions of LA countries are more complicated than those of 2008, and therefore the fiscal space available to them is relatively narrow. In addition, ECLAC (2020) estimates that there will be lower revenues, greater short-term public spending pressures, and difficulty in obtaining financing.

As in the rest of the world, the strength of the measures to try to alleviate the crisis is concentrated more on the expenditure side, which is understandable since the great challenge is to maintain revenue levels in a situation in which many non-necessary activities have been suspended or partially stopped. The measures taken in the area of taxes are focused on maintaining liquidity through the deferral and easy payment of taxes, accelerated refunds, and preferential treatment (ECLAC, 2020). The important part of the tax structures will arrive in the medium and long term.

Tax reform in Mexico

The previous section gave an account of the countries that could improve their tax revenues/GDP levels. Mexico did not appear in that group (Figure 2). Its collection rate in 2018 is only above Guatemala, Panama, and Paraguay. Regardless of the efforts made in tax reforms, Nicolas Kaldor's diagnosis is still valid: Mexico's tax structure is inefficient and unfair.

One of the first reforms that attempted to change the tax structure in the country substantially was the one that came into effect on January 1, 1980, when VAT was created with a general rate of 10% and a border rate of 6% was considered. The above had the purpose of increasing tax pressure and replacing the Tax on Commercial Income. Given the pressures on public finances caused by debt service, it was necessary to have additional revenues (Tello & Hernández, 2010). Therefore, in 1983 it was decided to modify the VAT rate upwards by five percentage points, adjust the ISR, and establish a 6% tax on patent medicines and processed foods and a 20% tax on luxury goods. These changes positively impacted by maintaining revenue/GDP[6] (Figure 6).

[5] The averages exclude Venezuela, which in 2018 registered a deficit of 30.5% and an increase in its debt/GDP of 167 percentage points. If it was included, the averages would be 4.41% and 23.06% respectively.
[6] At 2013 prices

In 1986 a new reform was made. This reform, given the inflation faced by the economy, tried to counter the devaluation of money through monthly payments of the corporate income tax (ISR for legal entities), in addition being an attempt to help with the fall in revenues observed in 1985 as a result of the economic slowdown caused by the Mexico City earthquake of September 19 of that year. Subsequently, in 1989, the Asset Tax was introduced to the economy with a rate of 2% deductible from ISR (personal income tax). The incorporation of the tax was intended to prevent evasion and to achieve greater control over companies (Carciofi et al., 1994), in addition to a reduction of the marginal rate of personal tax by 15 percentage points, from 50 to 35% in 1990.

In 1991, the VAT rate returned to 10%, and in 1993 the ISR rates for individuals and companies were standardized at 34%. The quick response to the December 1994 peso crisis made it possible to maintain revenues despite the drop in economic activity. The strategy moved the VAT rate upwards again, placing the general rate at 15% and the border rate at 10% (Villareal, 2016). Additionally, in 1995, the Small Taxpayers Regime (Spanish: Régimen de Pequeños Contribuyentes, REPECOS) was established to incorporate individuals who carry out business activities whose work was restricted to the sale of goods and provision of services under an income limit of 2 million pesos, in order to broaden the tax base and increase tax revenues. However, even if the measure was well-meaning, the result was not as expected given the high level of evasion of the regime, close to ninety percent in the 2000 to 2010 period, according to the study by Fuentes et al. (2011).

Given the drop in tax revenues in 1999, according to Tello and Hernández (2010), a series of changes were made to the tax structure with the clear objective of increasing tax collection: some tax privileges were eliminated, and the tax on individuals and corporations was significantly modified. The former reached a marginal rate of 40% and the latter 35%, in addition to a 5% tax on retained earnings.

With the election of Vicente Fox in 2001, a series of reforms were carried out by the executive branch with four basic objectives: competitiveness, simplicity, improvement of revenue capacity, and fiscal federalism (Álvarez, 2007). The proposal consisted of the establishment of two new VAT and ISR laws and the reform of the Fiscal Code, the IEPS, ISAN (Tax on New Automobiles) and SAT (Tax Administration Service), as well as the Constitution, to redefine the budgetary process, all as part of the project entitled "New Distributive Public Finance." Only parts of the reform were approved in subsequent years (Werner & Ursúa, 2005). Concerning income tax, in 2002, an immediate deduction was approved for new fixed assets, as long as they were located outside the metropolitan areas of the then Federal District, Guadalajara, and Monterrey, in addition to the annual reduction of the corporate income tax rate (from 35% to 32% from 2002 to 2005). In 2003, a 0.5% tax rate on interest was approved and a reduction in deductions for restaurant expenses and automobile investments. There were gradual decreases in the marginal rate and a reduction of rate brackets for individuals. In 2002, the maximum rate was 35% with eight brackets, and in 2007 the rate had reached 28% with five brackets. Although there were different proposals regarding the general application of VAT, none were accepted, but the states were given the power to increase the rate by up to 2% (Werner & Ursúa, 2005).

Regarding the 2001 reform proposal, Sobarzo (2004), using a general equilibrium model, concludes that the creation of the rate would not strongly affect income concentration and would not be sufficient to stop depending on oil revenues. Furthermore, he said that increasing the average effective rate would be necessary. Similarly, Flores (2003) states that the proposal could possibly favorably affect efficiency, equity, and revenue collection at the same time.

In September 2007, during the administration of Felipe Calderón, changes to VAT on food and medicine were not approved, but two new taxes were created: IETU (Single Rate Business Tax) and IDE (Tax on Cash Deposits), in addition to expanding the personal income tax to eight rate brackets. The two new taxes would be repealed in the 2013 tax reform. In November 2009, the Executive submitted a new series of tax proposals aimed at increasing rates and approved an increase of two percentage points in the ISR, one percentage point in VAT and the IEPS, a tax on energy drinks, and a 3% tax on telecommunications.

In addition to the structural reforms at the beginning of Enrique Peña's administration, some changes were implemented in tax matters: special VAT regimes were reduced, and the border rate was applied generally, with the general rate at 16%, the immediate deductibility of investment was eliminated from income tax, and the rate on exempt income of workers for companies was limited to 53%, in addition to which tax consolidation was annulled. The tax rates for corporations increased, with the maximum rate raised from 30% to 35% and the rate brackets raised to 11. On the other hand, income from dividends and stock market gains was included, and a 10% rate was established on capital gains, moreover, the tax exemption of deductible income was limited. The Small Taxpayers Regime was replaced by the tax incorporation regime, which aimed to broaden the tax base through the benefits granted by this regime. Alluding to public health and the environment, taxes were established on high-calorie foods and beverages, as well as on carbon consumption in energy and the use of pesticides, herbicides, and fungicides (Cárdenas, 2018). Last but not least, the use of referenced payments was made mandatory, thus taking an important step in the systematization of tax operations in the country.

Notwithstanding the various changes made, the reform approved in 2013 managed to break the invisible barrier of 10% of tax revenue/GDP. In 2013 tax collection was 9.6% of GDP; by 2016, it had increased to 13.5% (Figure 6), a ratio not observed in the whole period. A possible explanation for this change beyond the rate adjustment is the use of referenced payments and their effect on compliance by using third-party information in the payment of taxes, as suggested by Jacobsen (2014).

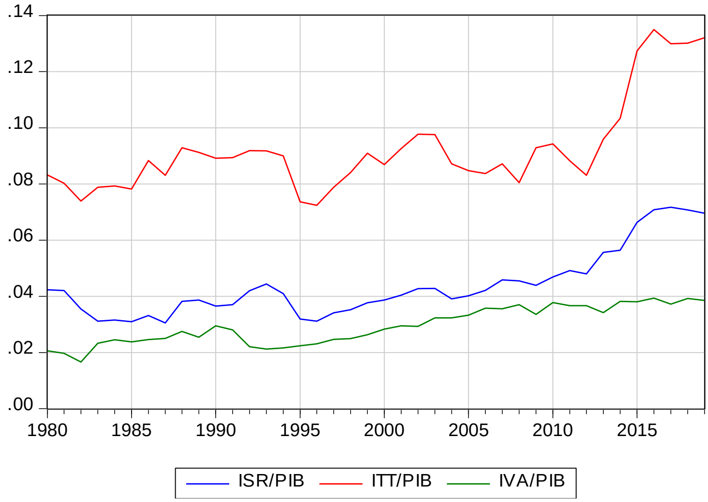

Figure 6. Evolution of tax revenues.
Source: created by the author with data from BANXICO.

Econometric analysis

This section seeks to establish the relationship between gross domestic product and tax revenues. This relationship is important in order to understand what to expect in terms of tax revenues in the face of a drop in economic activity in the coming months. For this purpose, a simple linear regression model is used, considering possible changes or structural breaks in revenues during the January 1993 to May 2020 period. The data are monthly and come from the statistical information of the Bank of Mexico. They have been seasonally adjusted and deflated to 2018 prices.

In the first instance, this work proceeds to determine the degree of integration of the variables (Table 3). According to the unit root test, they are stationary in first differences, so it is possible to establish that their order of integration is I, which suggests a need to verify the existence of a long-term relationship between the variables through the Phillips and Ouliaris (1990) cointegration test. Based on the results (Table 4), there is sufficient evidence to reject the null hypothesis and establish the long-run relationship between the variables.

Table 3
ADF Unit Root Tests

		Levels		First differences	
		t-Stat	P-Val	t-Stat	P-Val
No constant or trend	YM	0.7274	0.8714	-2.7244	0.006432*
	ITT	1.8320	0.9841	-12.5371	3.88E-25*
With constant	YM	-1.6386	0.4616	-5.6377	1.50E-06*
	ITT	-0.0099	0.9561	-12.713	9.68E-24*
With constant and trend	YM	-0.9816	0.9437	-5.7421	8.94E-06*
	ITT	-2.6959	0.2390	-12.738	2.98E-24*

* Significant at 1%

Table 4
Phillips-Ouliaris cointegration test

Dependent variable	Est.-Tau	Prob.*	Est.-z	Prob*
ITT	-4.7110	0.0007	-42.9813	0.0003

*MacKinnon (1996) Valor-p

Given that during the study period, it is possible to identify a series of events, such as crises, economic slowdowns, changes in tax regulations, tax reforms, and others, the existence of various breaks cannot be ruled out, which is why it is important to consider them. One of the first works in which this possibility is established is that by Chow (1960). According to his approach and after having estimated a linear regression, the hypothesis that there is a modification in the relationship between the variables involved in the analysis can be tested at a specific moment in time. Chow assumes that the moments of the breaks are known in advance, which could be complicated, or some moments could be omitted. Accordingly, Ninomiya (1977) proposes an extension to Chow's test in which the number of breaks and the dates they occurred can be detected through the available data. In turn, Bai (1997) and Bai and Perron (1998, 2003a) propose an alternative to knowing the different break points (more details on the test can be found in Ramírez et al., 2014). Table 5 presents the results of the different tests proposed by Bai and Perron (1998, 2003a), where the critical values of Bai and Perron (2003b) are illustrated. It is important to mention that heterogeneity in the distribution of the errors is allowed in the estimation of the breaks.

Table 5
Bai and Perron test

Ruptures	F	Scaled-F	Critical value**
1*	74.4429	148.8858	11.47
2*	11.7328	23.4657	12.95
3*	12.0674	24.1349	14.03
4	7.1422	14.2845	14.85

* Significance level of 0.05
** Critical values Bai-Perron (2003b)
Breaks: 2001M07, 2009M01, 2015M01

Table 6 presents the regressions with structural breaks for the four periods resulting from the identification of the three breaks. The coefficients corresponding to the relationship between monthly GDP in logarithms (LYM) and total tax revenues in logarithms (LITT) are highly significant, as is the constant, except for the third and fourth periods. The explanation of the model is high since, according to the R^2, the change in economic activity explains just over 95% of the changes in taxation. The above could be somewhat expected, given that tax revenues depend on both the tax base and the tax rate.

Table 6
Regression with structural breaks (dependent variable = logarithm of total tax revenues, LITT)

Period	Variable	Coefficient	P
1993M01-2001M06	LYM	1.4606	0.0096
	C	-8.8733	0.0000
2001M07-2008M12	LYM	0.3386	0.0002
	C	6.9097	0.0000
2009M01-2014M12	LYM	1.0869	0.0000
	C	-3.6210	0.2948
2015M01-2020M05	LYM	0.8398	0.0000
	C	0.2899	0.9168
R^2	0.9516		
Adjusted R^2	0.9506		

Standard errors robust to heteroscedasticity and autocorrelation.
The distribution of errors is heterogeneous among the breaks.

What is interesting in Table 6 is the determination of the breaks and the identification of the four subperiods in which the behavior of taxation illustrates a greater or lesser response to changes in economic activity. In the first period, from January 1993 to June 2001, and in the third period, from January 2009 to December 2014, the response to changes in output is more than 100%. In the second (July 2001 to December 2008) and fourth periods (January 2015 to May 2020), the response is less intense (Figure 7). The break points occur around the discussion or approval of the reforms carried out in 2001 and implemented gradually from 2002 by the government of Vicente Fox, in 2009 and entered into force in 2010 in the administration of Felipe Calderón, or in the reform carried out by Enrique Peña in 2013, which began to operate in 2014.

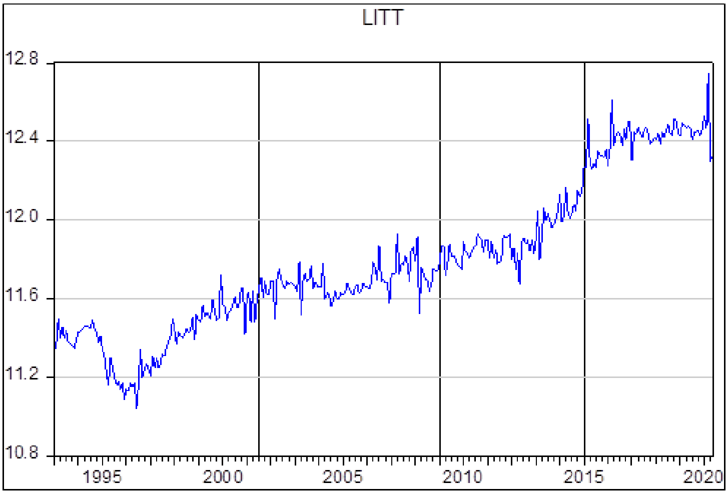

Figure 7. Behavior of seasonally adjusted monthly tax revenues at 2018 prices.
Source: created by the author with data from Banxico.

Table 7 presents the Granger causality test in which it can be seen that past changes in GDP can anticipate changes in revenue at least in the last six months, which is not coincident in the opposite direction.

Table 7
Pairwise Granger causality tests (6 lags)

Ho	Obs	F	Prob.
DITT does not cause Granger DYM	322	1.27232	0.2697
DYM does not cause Granger DITT		2.48510	0.0231

Conclusions

Based on the data obtained from the econometric analysis, it is possible to anticipate a reduction in tax revenues as economic activity decreases. According to the estimators for the last period, for every 1% of negative monthly GDP growth, tax collection will contract by 0.84%. Therefore, one way to maintain public revenues is to take the necessary actions so that the new normal makes it possible to reactivate more sectors, even if only partially or through different business schemes.

People will only start making purchases in non-strategic sectors if they are guaranteed to maintain their income. Otherwise, it seems difficult to think that the staple goods and services sectors will be able to reverse the decline in the other sectors.

Measures to maintain liquidity related to greater tax deferrals may significantly decrease short-term revenues. This drop should not be a cause for concern and the deferrals should even be extended until next year, making monthly decisions based on how progress is made in controlling the pandemic and not on the breakdown of the fiscal balance.

This time is one of public spending with immediate short-term effects aimed at maintaining jobs and companies, which will soon be able to meet their fiscal obligations. The financing scheme of the economy must be thought of in the short term with debt contracting to compensate for the drop in income and spending requirements.

The time for tax reform will begin next year, in 2021, and such a reform must be designed not with an interim character but with a medium and long-term perspective. In this perspective, the basic objectives of any reform are stipulated, such as the broadening of the base, diversification of revenue sources, and efficiency in tax collection and income distribution.

Additionally, issues such as the autonomy of the tax administration, strategies to diminish informality by generating a tax structure that is capable of creating value for formal workers instead of being a burden[7], continuing to advance in the incorporation of third party information to reconcile economic activity, and preventing tax evasion must be addressed (Carnahan, 2015, Jacobsen, 2014).

The desired levels of tax collection must be clearly defined, establishing the goals, objectives, and deadlines to achieve them. It must also be clearly understood what is expected from each tax, simplifying its design and avoiding unnecessary complexities (Sobarzo, 2004) that lend themselves to tax avoidance practices and reduce tax collection.

On the other hand, work must be done to improve the tax culture, the citizen-State relationship, and citizens' perception of taxes (Fjeldstada et al., 2020). For the above, it is necessary for the government to channel resources efficiently and for public policies to emanate from society. According to Cárdenas (2019), public spending must be efficient to function as an instrument of growth.

Like Bergman (2004) and Tello and Hernandez (2010), the present author is fully convinced that it is essential that any tax reform that is considered as such should change to improve the institutional, administrative, and fiscal aspects without forgetting the ethics, service attitude, and inherent professional skills that the Public Administration must display.

[7]According to Martínez et al. (2018) "the population in Mexico lacks incentives to enter the formal economy; therefore, it is essential to have a social security system and public services that function as incentives to decrease informal employment."

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