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HR Ratings comments on the performance of Payroll Tax and its use as a source of State financing

Payroll Tax (ISN, acronym in Spanish)¹ is an important tax for Mexican States since it represents a significant portion of Local Revenue and plays an important role in public finances and fiscal federalism. The modern structure of this tax in Mexico dates to the creation of the National System of Fiscal Coordination (SNCF, acronym in Spanish).²

ISN was originally a federal tax created in 1963 to finance public higher education by charging 1.0% on staff payrolls^{3 4}, but was repealed in the early 1980s as part of the new tax regime introduced when the SNCF was created. Its origins can be traced to the 1970s when its main regulatory document, the Fiscal Coordination Act (FCA), was issued in 1978.

During the period, it existed as a federal tax and it was known as the *Tax on Staff Remuneration for Work Rendered under the Direction and Dependence of the Employer*. At that time, definition of the ISN tax base underwent multiple changes as did the list of those to be charged and even its relationship with Income Tax (ISR, acronym in Spanish); a relationship that was finally clarified with the legal separation of these taxes.

As a result of these transformations, the federal tax was repealed on December 30, 1980, ceasing to represent an income for the Federal Government. This opened the door for States to incorporate the tax into local tax collection. By 1984 the States of

¹ The origins of Payroll Tax date back to the 19th century when the Prussian government of Otto von Bismark introduced a tax on the contributions made by employers to their employees. This tax became popular throughout Western Europe and its use spread after World War II. For further information see Ritter, G. A. (1983). *Social Welfare in Germany and Britain: Origins and Development*, trans. *Kim Traynor, New York: Berg*.

² Payroll tax (ISN) is levied in several countries of the Organization for Economic Cooperation and Development (OECD). In countries such as Australia, the United States and Portugal, it is collected by subnational governments. In countries such as Germany, Spain, France and Italy, it is a national tax.

³ ISN was created by federal decree whereby payment corresponded to those remunerating staff or people who earned income from the activities and services set forth in Article 112 of the Income Tax Act. The original document can be accessed at: https://www.dof.gob.mx/nota_to_imagen_fs.php?codnota=4706804&fecha=01/02/1963&cod_diario=202838

⁴ Mexico's Supreme Court (2012), *El impuesto Sobre Nóminas a través del acervo documental de la SCJN* (Payroll tax in the documentary archive of the Supreme Court). Available at: https://sistemabibliotecario.scjn.gob.mx/sisbib/inv_juridico_doc/255193.pdf



Baja California (HR BBB), Chihuahua (HR A-), Hidalgo (HR AA), Estado de México (HR AA+), Nuevo León (HR A+), Sonora (HR A-), Tabasco (HR A) and Tamaulipas (HR A) had already introduced their own legislation to collect this tax.

In the different state legislations, ISN can currently be found under different names such as: 1) payroll tax; 2) tax on remuneration for staff work; 3) tax on payments for remuneration of staff work; and 4) tax on payments for remuneration of staff work rendered under the direction and dependence of an employer. Although the variety of these names can complicate the tracking of what ISN is and what it is not, what makes it easier to identify is the object of taxation and the taxpayer.

Since ISN is constituted as a state tax and forms part of the Unrestricted Revenue (UR) of each state, state governments may use it as a source of payment and guarantee for structured financing (banking or stock market). In Mexico's recent history, HR Ratings has noted how some states have promoted this financial strategy as a mechanism to obtain long-term financing.

The purpose of this sectorial report is to present the importance of this tax as part of State public finances, how it is calculated, the collections made by each local government, as well as an account of the financial institutions that have used and continue to use ISN as a source of payment. Among the determinants of tax collection, a brief analysis of the informal sector and wage dynamics in each State is provided.

Payroll Tax in State Public Finances

As part of subnational public finances in Mexico, i.e., in States and Municipalities, UR is regularly used by fiscal and tax authorities. In this sense, this type of inflow refers to all resources of local and federal origin forming part of the subnational public budget and which are not considered expenses for a specific purpose. In the case of ISN, this is constituted as Local "Unlabeled" Revenue.⁵

The Financial Discipline of States and Municipalities Act (LDF, acronym in Spanish), issued in 2016, sets forth in article 2 section XIX that the UR will be composed of Local Revenue⁶ and Federal Revenue Sharing⁷ as well as resources received, if applicable, from the Federal States' Revenue Stabilization Fund (FEIEF, acronym in Spanish) under the terms of Article 19 of the Federal Budget and Fiscal Responsibility Act (2006) and any other resources not earmarked for a specific purpose.

To highlight the importance of ISN as part of state finances, Figure 1 shows the composition of Total Revenue (TR) received and/or collected by all state treasuries during 2023. This is based on the Survey of State and Municipal Public Finances (EFIPEM, acronym in Spanish). We can see that UR represented 53.8% of TR for all States versus 46.2% of Labeled Revenue (LR).

⁵ A typical example of budgeted resources is Federal Transfers from Branch 33 of the Federal Expenditure Budget (Federal Contributions). These resources have a specific purpose based on the FCA and are not considered UR.

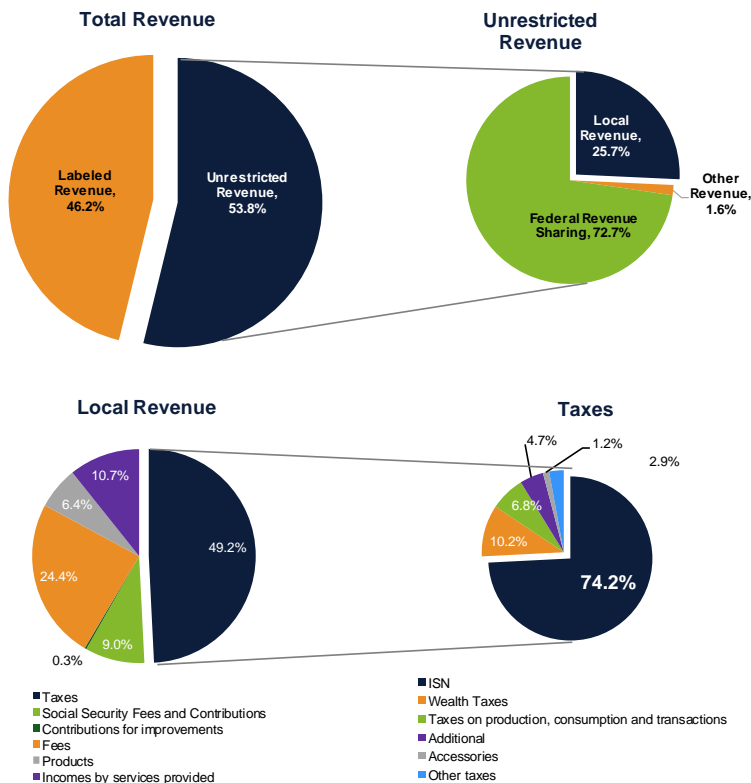
⁶ Those received by States and Municipalities from taxes, improvement contributions, fees, products and benefits, including those received from the sale of goods and the provision of services and others provided for in terms of the applicable provisions (LDF, art. 2 sec. XXI).

⁷ Resources from Branch 28 of the Federal Expenditure Budget (FEB).



However, Federal Revenue sharing was 72.7% of UR (equivalent to 39.1% of TR).⁸ The remaining UR corresponded to Local Revenue (25.7%) and other income (1.6%). Finally, regarding the Local Revenue of State treasuries, the most important contribution is from Taxes (49.2%) with ISN representing 74.2% of this figure.

Figure 1. Total State Revenue Composition for 2023



Source: Prepared by HR Ratings with information from EFIPEM 2023.

Figure 1 highlights the importance of ISN in state public finances, representing: a) 74.2% of tax collection; b) 36.5% of Local Revenue; c) 9.4% of UR; and d) 5.1% of the Total Revenue of States. Based on this information, we can say that ISN has become the main source of UR for States in recent years, after Federal Revenue sharing.⁹ This makes it a possible source of inflows for productive Public Investment projects, or the refinancing of Public Debt supported by Bank Debt or stock market financing.

Furthermore, Figure 2 offers a map of Mexico showing the States that, by the year 2000, already considered ISN as a source of local tax collection. Although this figure shows that in 2000 only 23 states collected this tax, references to the collection of ISN dating back to 1974 can be found in the state finance laws of Baja California and Nuevo León. Currently, all 32 states levy this tax and define its characteristics in state laws.

⁸ Following this logic, total Federal Transfers accounted for 85.3% of all revenue for all states.

⁹ The average ISN share of state Total Revenue from 2013 to 2023 was 4.1%, while the ISN share of UR was 8.5%. Nevertheless, the importance of ISN with respect to the two aforementioned items has maintained sustained growth.



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Figure 2. Year when ISN collection by State commenced as from 2000



Source: Prepared by HR Ratings with information from EFIPEM 2023.

Another prominent aspect of ISN collection is its evolution over time when compared to other Revenue and to the nominal national Gross Domestic Product by State (GDPS).¹⁰ In order to show this, Figure 3 demonstrates the evolution (aggregating all states) of the TR, UR, ISN and nominal national GDPS (all normalized to base 100 in 2008). This figure indicates how ISN has grown almost twice as fast as nominal national GDPS. Quantitatively, this growth is corroborated by the Compound Annual Growth Rate (CAGR) for the aggregate ISN from 2008 to 2022 of 11.28% versus the CAGR₀₈₋₂₂ of 6.07% for nominal national GDPS.

Based on Figure 3, the TR and nominal national GDPS share similar trends (their CAGR₀₈₋₂₂ is very close to 6.07%). From a theoretical perspective, this situation may be a result of tax revenue growth being supported by long-term economic activity. However, UR and ISN do not seem to follow this logic. The reason why UR Revenue grows slightly above economic activity can be explained by ISN representing between 8.0% and 9.0% of these revenues (during the period analyzed), so if UR is growing at a faster rate than economic activity, it is possible that this is due to the behavior of ISN and its calculation base.

As will be shown later, the main basis for calculating ISN considers formal employment and wage dynamics in each State. Wage dynamics may help explain to a large extent why tax collection has grown at a faster rate than economic activity. Despite this, wage dynamics depend in turn on labor productivity, wage negotiations between workers and employers, and minimum wage increases, among other factors.¹¹ Furthermore, the creation of formal jobs is subject to the emergence of new companies, the expansion of the productive capacities of existing companies, and formalization of the informal sector, among other factors.

Consequently, the large number of relevant variables used to explain both wages and employment makes it difficult to establish a clear empirical relationship between the evolution of ISN and the growth of nominal national GDPS. Furthermore, another

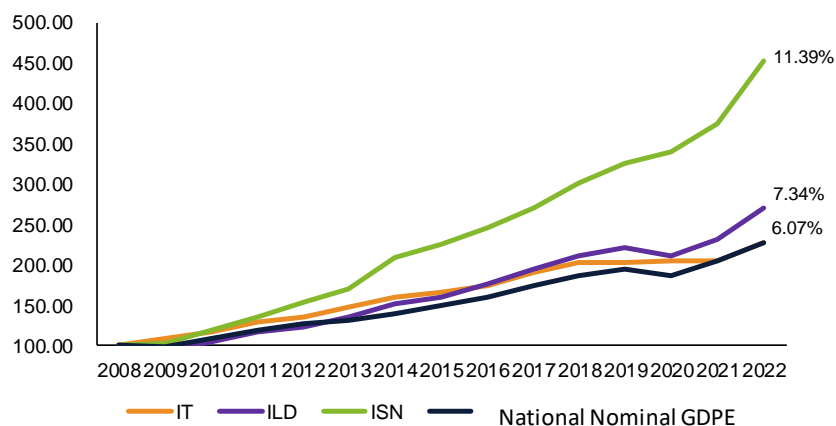
¹⁰ This representation is considered since nominal GDP and nominal national GDPS behave similarly but have methodological differences in their calculation. National nominal GDPS is the sum of the nominal GDPS of each State, which considers a different deflator for each state and therefore is not necessarily equal to nominal GDP. In addition, there may be other types of statistical differences associated with the location of certain economic activities.

¹¹ As can be seen in Figure 3, there appears to be an acceleration of ISN growth post-2020 which coincides with the greatest increases in the minimum wage during the Federal Administration of 2018 to 2022.



variable which can be considered a determining factor in the performance of ISN can be traced to annual changes in the tax rate applied in each State.

Figure 3. Evolution of ISN, Total Revenue, UR, and nominal national GDPS



Source: Prepared by HR Ratings with data from INEGI.
 Note: The variables are normalized to base 100 in 2008 for presentation purposes.

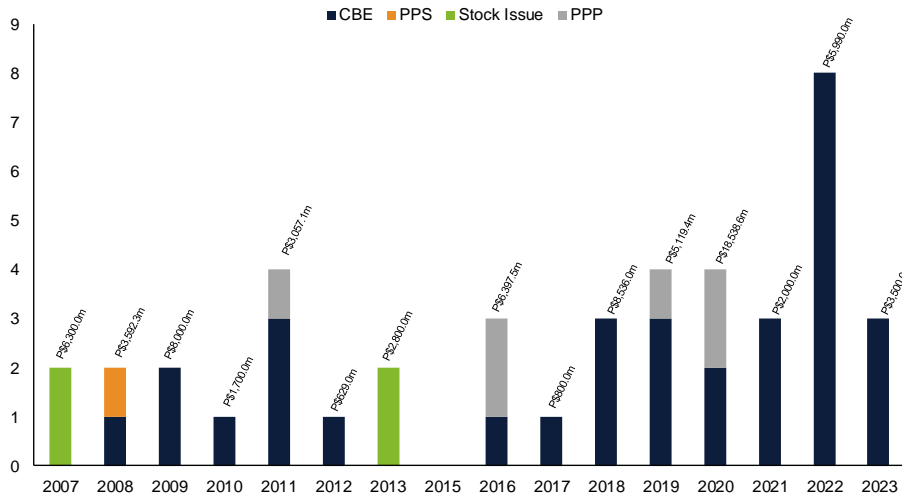
The importance of ISN as part of UR makes it an important source of income for fiscal budgeting and spending as well as a financial alternative for contracting public debt. With respect to the last point, according to the LDF, the use of ISN as a source of payment and guarantee is possible. The process for contracting financing using this tax is the same as when the source of payment is Federal Revenue Sharing. In this regard, the process includes fiscal sustainability analysis, approval by the legislature and contracting based on the best market conditions by means of a public bidding process.

According to updated balances of the Unique Public Registry (RPU, acronym in Spanish), until June 30, 2024, ISN continued to be used as a source of payment for structured bank loans and obligations related to Public-Private Partnerships in the states of Baja California, Nuevo León and Estado de México. Regarding the type of obligation that uses ISN as a source of payment: Baja California has contracted a structured bank loan where ISN is the only source of payment; Nuevo León has contracted a structured bank loan for which ISN is the primary source of payment and a percentage of its Federal Fund of Participations (FFP) is the secondary source; while in Estado de México, ISN is used as a source of payment by a Decentralized Public Body¹² for a Public-Private Partnership (PPP) project.

Figure 4 shows the operations historically contracted by States where ISN was used as a source of payment in accordance with the RPU, which has existed since 2016 but for which operations are registered prior to its implementation. As of June 30, 2024, there were 43 obligations related to financing, bond issues and Public-Private Partnerships since 2007. Of these, 19 have been performed by the state of Nuevo León.

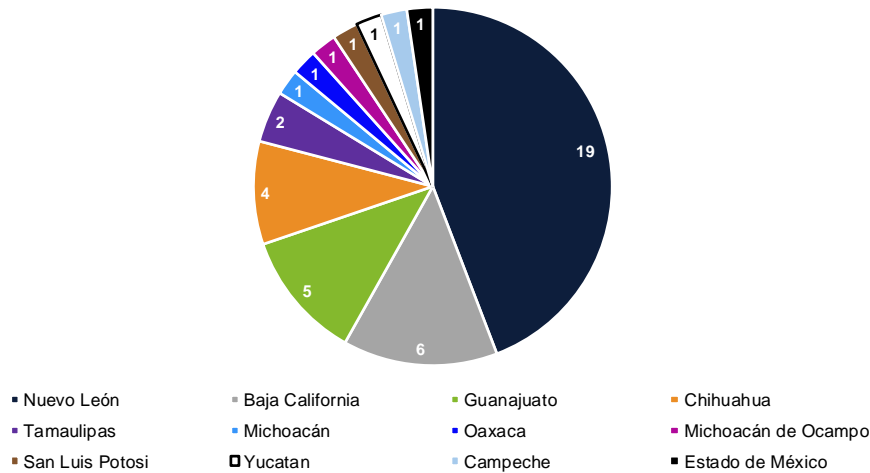
¹² Roads Board of Estado de México.

Figure 4. Financial institutions contracted and total annual amount with ISN as payment source



Source. Prepared by HR Ratings with historical RPU from 2016 to date.

Figure 5. Financial institutions contracted by each state and with ISN as payment source (cumulative 2007-2023)



Source. Prepared by HR Ratings with historical RPU from 2016 to date.

The above figures show that ISN has been used as a financing practice by States for almost two decades. It should also be noted that, based on the RPU, the first obligation where ISN is specified as at least one of the payment sources dates back to 2018. Prior to this, the RPU does not permit accurate identification of all cases where this tax was used as a source of payment since in some cases, such as the Stock Market Certificate of the state of Michoacán, the source of payment was recorded as Local Revenue.

Important Factors when Calculating Payroll Tax

After demonstrating the importance of ISN to state public finances, we need to understand how it is calculated and in what circumstances it is used. Although all states in Mexico levy the tax, we could mistakenly assume that it generates taxation at the same rate on the same object. We therefore need to understand what the object is (the activity), the subject (who pays),



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the base (what is taxed) and the applicable ISN rate. Although in legal terms there may be technical differences concerning the concepts applied for ISN, the literature¹³ defines the Object, the Subject and the Base as follows:

- **Object:** The action of making payments for the remuneration of subordinate staff. That is, the salary paid to workers on the payroll.
- **Subject:** individuals and legal entities, public or private, that make payments for the remuneration of subordinate staff or for remuneration assimilated to this, i.e., the employer.
- **Base:** amount of payments made to subordinate staff, which may vary in each State depending on the items considered part of said payments.

Concerning the rate, Figure 6 shows the rates in effect during 2018 and 2023 for each State. It should be noted that Jalisco and Sinaloa do not have fixed rates applicable to the base. In the case of Sinaloa, a scheme similar to federal Income Tax collection is used where the applicable rate depends on the annual value of the payroll, while in Jalisco a different rate was applied depending on the semester in 2023.

We can therefore conclude there is no consensus on a reference value for the ISN rate. However, most states (in 2023) used a rate of approximately 3.0%, ranging from a minimum value of 2.0% to a maximum value of 4.3% (Baja California).

Figure 6. ISN rates applicable in 2018 and 2023 by State

<i>(Percentages)</i>					
	2018	2023		2018	2023
Aguascalientes	2.0%	2.5%	Morelos	2.0%	2.0%
Baja California	2.4%	4.3%	Nayarit	2.0%	3.0%
Baja California Sur	2.5%	2.5%	Nuevo León	3.0%	3.0%
Campeche	2.5%	3.0%	Oaxaca	3.0%	3.0%
Chiapas	2.0%	2.0%	Puebla	3.0%	3.0%
Chihuahua	2.0%	3.5%	Querétaro	2.0%	3.0%
Mexico City	3.0%	3.0%	Quintana Roo	2.0%	4.0%
Coahuila	2.0%	2.0%	San Luis Potosi	2.5%	3.0%
Colima	2.0%	2.0%	Sinaloa	2.4% to 3.0%	2.4% to 3.0%
Durango	2.0%	3.0%	Sonora	2.0%	3.0%
Guanajuato	2.0%	3.0%	Tabasco	2.5%	2.5%
Guerrero	2.0%	2.0%	Tamaulipas	3.0%	3.0%
Hidalgo	3.0%	3.0%	Tlaxcala	3.0%	3.0%
Jalisco	2.0%	2.5% y 2.75%	Veracruz	3.0%	3.0%
México	3.0%	3.0%	Yucatán	2.5%	3.0%
Michoacán	2.0%	3.0%	Zacatecas	2.5%	3.0%
			National Average	2.4%	2.9%

Source: Prepared by HR Ratings based on state legislation including accessories to the rate.
 Note: In the case of the state of Jalisco, during the first half of the year a rate of 2.5% will be applied and during the second half of the year a rate of 2.75%

By identifying the tax object, subject, base and rate, it is possible to establish a mathematical relationship for most States in order to determine (in general) the potential value of the annual collection of ISN¹⁴; however, certain specific elements of each local legislation may be excluded in the process. It should be noted that each state has different collection mechanisms, incentives for payment, collection capacity and efficiency, economic conditions, wage payment, variability in the number of salaried workers (seasonal), an informal sector, etc. All of these could be incorporated into a collection strategy for each state to implement annually.

¹³ Payroll Tax in Mexico 2022 by INDETEC (2023). Available at <https://www.indetec.gob.mx/delivery?srv=0&sl=3&path=/biblioteca/Especiales/impuestos-sobre-nominas-2022.pdf>

¹⁴ It should be made clear that the relationship established is not intended to be conclusive or definitive. In this sense, its validation and mathematical consistency should be formally demonstrated using statistical techniques and robust databases.

This relationship could also help to identify, in certain cases, the benefit or cost of changes in wages paid in each state, the increase in formally salaried workers or changes in the rate applicable to ISN (elasticity). Considering these factors, States could calculate year by year the amount they would collect and, consequently, determine the availability of resources for financing. With this information the proposed Revenue Law would then be submitted to their local congress.

$$ISN_{Annual\ by\ State} = \sum_{i=1}^{12} Strategy_i * Salary_i * Employees_i * Rate_i$$

Wages and Employment by State

After explaining the elements used to calculate ISN it is necessary to delve deeper into its values. The employment rate and value of wages for the year must be known and for these variables there are two main sources of information: the National Survey of Occupation and Employment (ENOE, acronym in Spanish) and the time series for workers affiliated with the Mexican Social Security Institute (IMSS, acronym in Spanish). Although both can be considered reliable databases, there are important methodological differences. These differences must be identified and worked on to prevent any bias in our sample.

In the case of the ENOE, this database permits monitoring of demographic and labor market phenomena since it provides information on Population, the Economically Active Population (EAP), the Employed Population (EP), the informality rate, and Quarterly Income, among others, by State. This information is compiled by the National Institute of Statistics and Geography (INEGI, acronym in Spanish) by conducting surveys, polls and statistical adjustments, but includes four main general considerations.

The first consideration is the EP, which includes both formal and informal workers. For this reason, it would not be so easy to identify the population that will receive their regular income by means of a payroll and then perform a count. Secondly, the Quarterly Revenue reported does not permit simple disaggregation of the income that the EP in the formal sector receives via payroll, as opposed to formal workers who may receive other types of income or informal workers. Thirdly, the ENOE, being a survey, and despite being subject to statistical adjustments, produces estimates that could overestimate or underestimate employment figures and does not provide timely follow-up on the number of workers in the year who received payments via a payroll. Finally, as in the case of Quarterly Revenue, since it is a survey, the values reported may display discrepancies as to whether the salary is reported before or after taxes and even if the reported figure is underestimated.

Furthermore, figures provided by the IMSS, being a direct count of the number of people affiliated to the institution each month, have a lower count bias, although it should be noted that this database excludes public sector workers.¹⁵ In addition, base salary figures may have a downward bias since they are provided by employers and are subject to the veracity of the information provided. That said, this paper will use the employment and wage information provided by the IMSS (Figure 7).¹⁶

¹⁵ The count should not be confused or compared with the total population since the annual count considers the sum of the affiliated population each month. If it is to be compared with the total population, it should therefore be divided by 12.

¹⁶ A clear case of the income bias of the ENOE versus the IMSS can be seen in the Average Monthly Revenue of Mexico City (HR AAA) with the ENOE as of the fourth Quarter of 2023. According to the ENOE, the average monthly income in Mexico City for the formal sector was P\$5,980.00, while IMSS figures indicate it was approximately P\$13,513.21. Data available at: <https://www.economia.gob.mx/datamexico/es/profile/geo/ciudad-de-mexico-cx?redirect=true&totalAndInformalJob=byFormalityOption>



Figure 7. Annual ISN collection, average wages and cumulative formal employment by State (2018 and 2023).

(Pesos and persons)

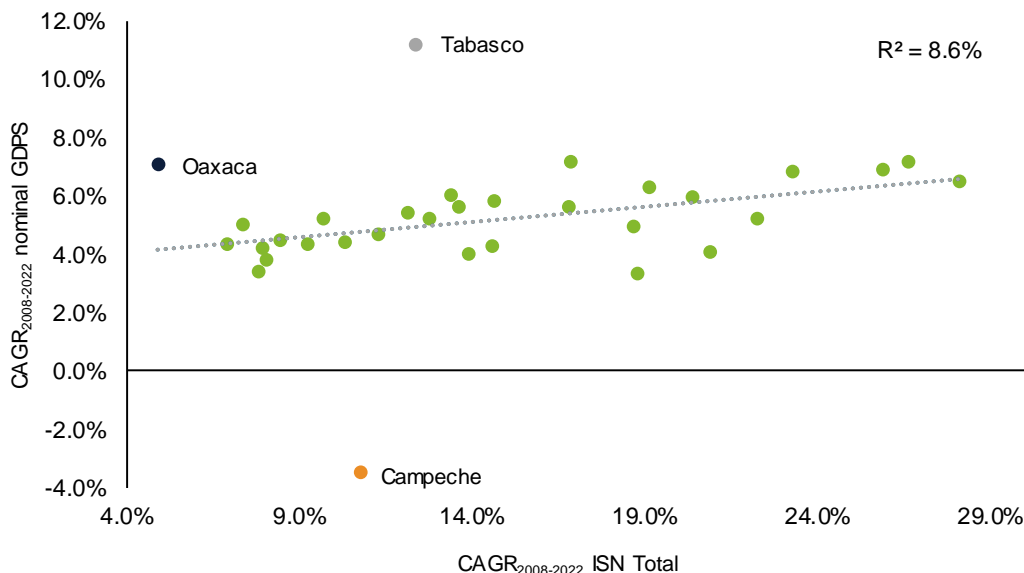
State	2018			2023			State	2018			2023		
	Payroll Tax	Monthly inflows registered by the IMSS	Workers affiliated to the IMSS (annual)	Payroll Tax	Monthly inflows registered by the IMSS	Workers affiliated to the IMSS (annual)		Payroll Tax	Monthly inflows registered by the IMSS	Workers affiliated to the IMSS (annual)	Payroll Tax	Monthly inflows registered by the IMSS	Workers affiliated to the IMSS (annual)
Mexico City	\$ 24,859.48	\$ 13,513.21	41,001,411	\$ 36,559.22	\$ 20,511.18	41,364,612	Baja California Sur	\$ 590.44	\$ 9,703.53	2,156,075	\$ 1,164.96	\$ 15,514.33	2,646,422
Queretaro	\$ 2,068.17	\$ 12,257.61	6,882,215	\$ 5,340.73	\$ 17,844.55	8,285,853	Sonora	\$ 1,516.56	\$ 9,419.43	7,350,410	\$ 4,313.95	\$ 14,974.43	7,950,900
Campeche	\$ 1,017.53	\$ 12,237.84	1,478,447	\$ 1,696.57	\$ 18,357.37	1,697,921	Hidalgo	\$ 1,229.54	\$ 9,307.20	2,752,668	\$ 2,241.20	\$ 13,655.26	3,194,965
Nuevo Leon	\$ 8,304.42	\$ 12,079.07	19,275,942	\$ 14,707.48	\$ 18,032.52	22,087,596	Guanajuato	\$ 3,165.29	\$ 9,256.70	11,805,209	\$ 8,642.20	\$ 13,979.20	13,029,085
San Luis Potosi	\$ 1,617.89	\$ 10,928.71	5,257,929	\$ 3,061.16	\$ 16,666.51	5,696,657	Yucatan	\$ 1,342.30	\$ 9,248.19	4,402,840	\$ 2,515.90	\$ 13,663.47	5,119,398
Coahuila	\$ 2,192.77	\$ 10,897.38	9,350,487	\$ 3,580.98	\$ 16,113.23	10,272,416	Chiapas	\$ 1,417.04	\$ 9,215.64	2,684,726	\$ 4,886.10	\$ 13,859.05	2,968,431
Baja California	\$ 2,964.90	\$ 10,811.30	10,461,916	\$ 9,367.56	\$ 18,301.71	12,508,936	Tabasco	\$ 1,535.74	\$ 9,172.45	2,004,064	\$ 2,754.12	\$ 15,728.46	2,912,994
Veracruz	\$ 3,519.40	\$ 10,653.44	8,886,504	\$ 5,019.43	\$ 15,225.98	9,167,173	Tlaxcala	\$ 512.20	\$ 9,042.27	1,193,393	\$ 795.89	\$ 13,003.13	1,368,664
Jalisco	\$ 4,002.72	\$ 10,565.53	21,090,849	\$ 10,103.18	\$ 16,093.76	23,822,022	Colima	\$ 343.89	\$ 9,020.06	1,597,396	\$ 515.13	\$ 14,293.70	1,788,510
Chihuahua	\$ 3,601.47	\$ 10,450.86	10,578,174	\$ 7,838.47	\$ 16,699.36	11,826,869	Michoacán	\$ 1,136.77	\$ 9,014.59	5,300,837	\$ 2,725.09	\$ 13,279.00	5,739,167
México	\$ 11,983.10	\$ 10,391.55	19,315,610	\$ 17,520.94	\$ 14,920.59	21,310,444	Guerrero	\$ 444.91	\$ 8,696.43	1,928,101	\$ 758.19	\$ 13,185.63	1,908,742
Morelos	\$ 551.60	\$ 10,293.91	2,514,030	\$ 803.55	\$ 14,283.67	2,621,502	Oaxaca	\$ 1,040.63	\$ 8,576.28	2,571,656	\$ 1,322.74	\$ 12,861.69	2,728,254
Tamaulipas	\$ 3,691.22	\$ 10,266.23	8,041,062	\$ 5,856.37	\$ 16,436.86	8,382,452	Durango	\$ 394.81	\$ 8,461.61	2,946,195	\$ 928.45	\$ 12,945.94	3,123,980
Agascalientes	\$ 916.55	\$ 10,160.99	3,813,849	\$ 1,757.50	\$ 15,690.06	4,242,787	Nayarit	\$ 323.01	\$ 8,069.24	1,676,171	\$ 1,052.50	\$ 12,812.72	2,173,349
Zacatecas	\$ 591.38	\$ 9,943.51	2,205,555	\$ 1,283.65	\$ 15,163.32	2,372,078	Quintana Roo	\$ 1,801.03	\$ 8,002.93	5,379,313	\$ 4,258.55	\$ 14,147.70	6,010,912
Puebla	\$ 3,254.67	\$ 9,716.91	7,389,397	\$ 4,544.45	\$ 14,325.03	7,720,244	Sinaloa	\$ 1,375.60	\$ 7,820.43	6,499,090	\$ 2,722.75	\$ 12,343.69	7,216,307

Source: Prepared by HR Ratings with data from INEGI and IMSS. Notes: 1) Payroll Tax is expressed in millions of pesos, 2) The information for affiliated workers corresponds to the accumulated annual income recorded by the IMSS, and 3) The monthly income recorded by the IMSS corresponds to the average income recorded as of December.

An important aspect when discussing wages and employment is that in 2018 and 2023 there was no significant decrease in either variable except for a marginal drop in workers in Guerrero. In principle, this could be explained by wage increase policies promoted by the federal public administration and the probable incorporation of people into the formal labor market in all States. With respect to ISN collected annually by each state, point-to-point growth can be explained (added to the two factors indicated above) by the increase in tax rates and the possible improvement in tax collection by each state administration. The above, despite the reduction in national economic growth from 2018 to 2020.

When analyzing the behavior of this tax collection for all Mexican states, the lowest CAGR observed for the period 2018 to 2023 was 4.9% in the state of Oaxaca. The state with the highest CAGR₂₀₁₈₋₂₀₂₃ was Chiapas with 28.1%. It should be noted that no state had a negative CAGR₂₀₁₈₋₂₀₂₃. Also, the CAGR₂₀₁₈₋₂₀₂₂ of GDPS for Chiapas and Oaxaca was 6.5% and 7.1%, respectively; therefore, there seems to be no direct correspondence between ISN collected and state economic growth even when all states are considered.

Figure 8. Long Term Debt ratio between ISN and nominal GDPS by State (CAGR₂₀₁₈₋₂₀₂₂)



Source: Prepared by HR Ratings with data from the INEGI and the IMSS.

Notes: 1) Information for affiliated workers and registered monthly income considers the figures as of December of each year, 2) The R^2 is incorporated to show in statistical terms the percentage of ISN variations explained by the growth of nominal State GDP in the long term.



The Effect of the Informal Economy and State Taxation on Payroll Tax Collection

As previously indicated, ISN collected by each state is linked to the local labor market (via wages and formal workers). As shown in Figure 9, the States where the number of formal workers and wages have grown most coincide with those States enjoying the highest growth in ISN collection (measured by their CAGR₂₀₁₈₋₂₀₂₃). For example, States with the highest growth in formal employment and wages include Baja California (11.1%, 3.6%), Baja California Sur (9.8%, 4.2%) and Nayarit (9.7%, 5.3%), with this being reflected in their ISN collection.

There are other cases, including Chiapas, Guanajuato, Michoacán and Zacatecas, which did not record growth above national averages for employment or wages (8.9%, 2.3%), but did register above-average growth for ISN collection. In addition, Oaxaca (8.4%, 1.2%) and Durango (8.9%, 1.2%), despite having similar employment and wage metrics, have a different CAGR₂₀₁₈₋₂₀₂₃ for ISN (Oaxaca with 4.9% and Durango 18.7%).

In the cases of Durango, Guanajuato, Michoacán, Nayarit and Zacatecas this can be explained by changes in their ISN rates over the last 6 years (2.0% to 3.0%, 2.0% to 3.0%, 2.0% to 3.0%, 2.0% to 3.0%, 2.5% to 3.0%, respectively), while in the case of Chiapas the 28.1% growth for ISN collection was the result of regularization practices, specifically in the collection of ISN within the public education sector in 2023. All these circumstances lead us to confirm that, although the collection of ISN could be linked to the performance of the local economy, it also depends on public policy decisions such as collections strategies, improved control or an increase in the tax rate. Consequently, state-level collection policies (strategies) may cause ISN Inflows to grow faster than their economic activity in the short and perhaps long term.

Figure 9. CAGR₂₀₁₈₋₂₀₂₃ for ISN revenue, formal employment and wages by State
(Percentages)

State	ISN	Workers affiliated to the IMSS	Monthly Inflows registered by the IMSS	State	ISN	Workers affiliated to IMSS	Monthly Inflows registered in the IMSS
Chiapas	28.1%	2.0%	8.5%	Yucatán	13.4%	3.1%	8.1%
Nayarit	26.6%	5.3%	9.7%	Hidalgo	12.8%	3.0%	8.0%
Baja California	25.9%	3.6%	11.1%	Tabasco	12.4%	7.8%	11.4%
Sonora	23.3%	1.6%	9.7%	Nuevo León	12.1%	2.8%	8.3%
Guanajuato	22.2%	2.0%	8.6%	Guerrero	11.3%	-0.2%	8.7%
Querétaro	20.9%	3.8%	7.8%	Campeche	10.8%	2.8%	8.4%
Jalisco	20.3%	2.5%	8.8%	Coahuila	10.3%	1.9%	8.1%
Michoacán	19.1%	1.6%	8.1%	Tamaulipas	9.7%	0.8%	9.9%
Quintana Roo	18.8%	2.2%	12.1%	Tlaxcala	9.2%	2.8%	7.5%
Durango	18.7%	1.2%	8.9%	Colima	8.4%	2.3%	9.6%
Chihuahua	16.8%	2.3%	9.8%	Mexico City	8.0%	0.2%	8.7%
Zacatecas	16.8%	1.5%	8.8%	México	7.9%	2.0%	7.5%
Sinaloa	14.6%	2.1%	9.6%	Morelos	7.8%	0.8%	6.8%
Baja California Sur	14.6%	4.2%	9.8%	Veracruz	7.4%	0.6%	7.4%
Aguascalientes	13.9%	2.2%	8.9%	Puebla	6.9%	0.9%	8.1%
San Luis Potosi	13.6%	1.6%	8.8%	Oaxaca	4.9%	1.2%	8.4%
				National average	14.6%	2.3%	8.9%

Source: Prepared by HR Ratings with data from the INEGI and the IMSS.

Note: Information for affiliated workers and registered monthly income considers the figures as of December of each year.

Considering all of the above, it is not easy to calculate the benefits or costs of changes in the variables that determine ISN collection. For example, to calculate the cost of labor informality in terms of ISN collection, a simple idea would be to assume that the entire labor market pays ISN, i.e., that all employees are working in a formal company, and consider the new value of employment to obtain the potential amount of annual ISN to be collected. However, this ignores the specific aspects of each



state (volatility in job creation, wage payments, taxpayers, among others), which could lead to biases in calculation of potential ISN.¹⁷

To partially correct any possible bias generated by specific factors, the potential amount of ISN collection for each State based on its labor market and applicable rate, as well as the average value of the Strategy applied during this period, was calculated for the years 2018 to 2023.¹⁸ It is important to point out that this exercise was performed for all States except Sinaloa since its rate scheme makes ISN more subject to the volatility of salaries.

The expected number of salaried workers was therefore determined as if all informal workers were incorporated into companies where salaries are paid through payrolls and therefore receive the average salary for the sector. Once the possible number of formal workers was obtained, calculation of the expected amount of ISN collection¹⁹ was made and the value of the Strategy was incorporated, which considers the possible observed capacity of each State to collect in direct relation to jobs, salaries and the ISN rate from 2018 to 2023. Although these operations may seem unnecessary, using the strategy applied could reduce the expected cost of informality in terms of ISN for certain states.²⁰

The theoretical results of this exercise are presented in Figure 10. The expected cost of informality is observed with respect to the amount of ISN collected in 2023. According to our calculations, the States where informality could have the lowest expected cost as a percentage of observed ISN in 2023 are Baja California, Nuevo Leon and Baja California Sur. The opposite is true for Hidalgo, Guerrero and Oaxaca, which can largely be explained by the levels of informality in each of these states in 2023.

One prominent result is that Chiapas and Nayarit would demonstrate a healthy relationship in statistical terms between the expected cost of informality and the informality rate of the States analyzed. In the case of Chiapas, this would probably be due to regularization of the local public education sector in 2023, while in the case of Nayarit this could be explained by the fact that the increase in the applicable rate from 2021 to 2022 implied growth above that observed in previous years. The opposite occurs with the states of Chihuahua and Quintana Roo, where the cost of informality and informality rate ratio is higher than the national median.

The reason why Chihuahua and Quintana Roo face a high cost of informality and informality rate ratio is due to the fact that both states have higher applicable ISN rates (3.5% and 4.0% respectively). This could be explained by the concept of Opportunity Cost, which is the cost faced by any State for a worker in the informal sector since for each person employed in the informal sector the State would lose ISN revenue associated with this individual's salary. Despite this being counter-intuitive, it obeys the following logic: an increase in the applicable ISN rate would lead to an increase in collection of this tax but implies a greater loss of potential resources associated with levels of informality.

¹⁷ Based on the above mathematical relationship for ISN, if we assign an annual value for salaries, the number of employees and the rate, along with the assumption that the collection strategy is determined annually, the relationship changes from a sum of products to a product. With this transformation, the use of a natural logarithm allows us to rewrite the operation so that the value of the strategy is ISN collection not explained by the rate, salaried workers or salary.

¹⁸ As part of the calculation of ISN using logarithmic decomposition, a residual was obtained that theoretically includes a seasonal component and a specific factor defined as "Strategy." Given the assumption that there is a homogeneous seasonal component for all States, the average expected value of the residual for each year is obtained and subtracted. This new expected value is averaged by State and is considered the "State collection strategy" for the period analyzed. Although this procedure would include certain statistical biases, it could be considered to reflect the average expected ability of States to collect more ISN than would correspond to the labor market dynamics for the years 2018 to 2023.

¹⁹ For this, the same logarithmic decomposition procedure was applied under which the "Strategy" value was obtained.

²⁰ If only potential wage earners are calculated and included in the calculation of ISN, the potential cost of informality is identical to the levels of informality. Therefore, the collection efforts implemented by States are not considered.



Figure 10. Expected Cost of Informality in Terms of ISN collected in 2023
(Pesos, persons and percentages)

State	Payroll Tax	Average monthly Inflows registered by the IMSS	Workers affiliated to the IMSS (annual)	Informality rate (ENOE)	Strategy Value	Cost of informality
Baja California	\$ 9,367.56	\$ 18,301.71	12,508,936	38.4%	0.9	34.9%
Nuevo León	\$ 14,707.48	\$ 18,032.52	22,087,596	37.0%	1.2	35.9%
Baja California Sur	\$ 1,164.96	\$ 15,514.33	2,646,422	37.4%	1.1	36.2%
Coahuila	\$ 3,580.98	\$ 16,113.23	10,272,416	35.5%	1.1	37.1%
Sonora	\$ 4,313.95	\$ 14,974.43	7,950,900	41.2%	1.2	41.8%
Aguascalientes	\$ 1,757.50	\$ 15,590.06	4,242,787	38.8%	1.1	42.4%
Tamaulipas	\$ 5,856.37	\$ 16,436.86	8,382,452	42.9%	1.4	43.5%
Jalisco	\$ 10,103.18	\$ 16,093.76	23,822,022	47.0%	0.9	43.5%
Chihuahua	\$ 7,838.47	\$ 16,699.36	11,826,869	34.4%	1.3	44.4%
Chiapas	\$ 4,886.10	\$ 13,859.05	2,968,431	73.2%	2.9	44.7%
Mexico City	\$ 36,559.22	\$ 20,511.18	41,364,612	45.8%	1.4	45.9%
Querétaro	\$ 5,340.73	\$ 17,844.55	8,285,853	46.8%	1.2	45.9%
San Luis Potosí	\$ 3,061.16	\$ 16,666.51	5,696,657	52.6%	1.1	52.5%
Guanajuato	\$ 8,642.20	\$ 13,979.20	13,029,085	53.0%	1.6	52.6%
Colima	\$ 515.13	\$ 14,293.70	1,788,510	49.2%	1.1	53.1%
Nayarit	\$ 1,052.50	\$ 12,812.72	2,173,349	59.6%	1.1	53.3%
Durango	\$ 928.45	\$ 12,945.94	3,123,980	50.8%	0.8	54.9%
Quintana Roo	\$ 4,258.55	\$ 14,147.70	6,010,912	45.4%	1.5	55.6%
México	\$ 17,520.94	\$ 14,920.59	21,310,444	55.1%	1.9	57.4%
Zacatecas	\$ 1,283.65	\$ 15,163.32	2,372,078	60.1%	1.2	62.0%
Yucatán	\$ 2,515.90	\$ 13,663.47	5,119,398	61.0%	1.2	62.2%
Campeche	\$ 1,696.57	\$ 18,357.37	1,697,921	59.3%	2.1	64.4%
Morelos	\$ 803.55	\$ 14,283.67	2,621,502	66.3%	1.1	65.6%
Tabasco	\$ 2,754.12	\$ 15,728.46	2,912,994	62.1%	2.8	67.4%
Michoacán	\$ 2,725.09	\$ 13,279.00	5,739,167	66.8%	1.2	67.7%
Veracruz	\$ 5,019.43	\$ 15,225.98	9,167,173	68.1%	1.2	68.2%
Puebla	\$ 4,544.45	\$ 14,325.03	7,720,244	69.9%	1.4	70.2%
Tlaxcala	\$ 795.89	\$ 13,003.13	1,368,664	71.4%	1.5	71.6%
Hidalgo	\$ 2,241.20	\$ 13,655.26	3,194,965	71.8%	1.7	71.7%
Guerrero	\$ 758.19	\$ 13,185.63	1,908,742	78.2%	1.4	76.5%
Oaxaca	\$ 1,322.74	\$ 12,861.69	2,728,254	81.1%	1.5	83.8%
National Median	na	\$ 14,974.43	5,696,657	53.0%	1.2	53.3%

Source: Prepared by HR Ratings with data from the INEGI and the IMSS.

Notes: 1) Payroll Tax is expressed in millions of pesos, 2) Information for affiliated workers and registered monthly income considers the figures as of December of each year, and 3) The Median is used instead of the average since data dispersion generates a calculation bias in the average. 4) The dotted line divides the groups with respect to the median Cost of Informality.

In addition to this Opportunity Cost associated with the applicable ISN rate, an increase in this rate could generate effects opposite to those sought. If we consider that the taxpayer is the employer, ISN is a cost associated with labor and therefore affects company profits. Faced with higher labor costs, employers may therefore choose to hire workers informally or not regularize their existing workforce and the rate increase could even inhibit the creation of new sources of employment. In conclusion, the public policy of raising the tax rate may not always lead to a similar increase in tax revenues. This phenomenon associated with lower tax revenues when tax rates are raised is often referred to as the Laffer Effect.²¹

Conclusions

As discussed throughout the document, ISN is the most important local tax in state public finances in Mexico. In fact, in terms of UR, it is the main source of resources after Federal Revenue Sharing. Changes in the collection of ISN could improve State spending and financing capacity given that this tax on average represented about 9.0% of the UR of States nationally in 2023.

²¹ This effect was originally associated with the "Laffer Curve." This theoretical approach, developed in 1981, states that there is an inverted U-shaped relationship between the applicable tax collection rate and total tax collection.



Furthermore, the possibility of using this revenue backing to finance Public Works could lead to an improvement in the search and creation of strategies to improve local revenue collection. In this sense, policies focused on strengthening the labor market (increasing formality), fiscalization and regularization policies, or even changes in the ISN tax rate, may form part of these strategies.



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