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Modeling the economic policy of Mexico's fourth transformation: A populist agenda or a precautionary stance?

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Abstract

This paper analyzes the economic policy of the Mexican government during the "Fourth Transformation" (4 T) to assess its alignment with the characteristics of economic populism. First, we establish a well-defined framework for economic populism, focusing on policies that prioritize short-term growth and redistribution to the detriment of macroeconomic stability. Subsequently, we construct a quantitative Populism Index (PIo) for the period 2006–2025Q2 using key variables associated with populist economics: wages, social transfers, unemployment, public debt, inflation, and public spending. We then employ a Random Forest (RF) machine learning model to assess the relative importance of these variables within the index. A comparative analysis of recent presidential terms is performed to contextualize the economic policy of the 4 T. We conclude that, while the 4 T government pursued important redistributive objectives, its macroeconomic management during most of its term was largely precautionary, displaying significant deviations from the patterns of historical economic populism. That is, the 4T's economic policy is not at all populist, but rather a precautionary economic policy with wealth redistribution.

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1. Introduction

Populism often emerges in response to periods of economic instability, social deterioration, and widespread corruption.[1] Populist leaders typically position themselves as protectors of "ordinary citizens" against a corrupt "elite," often promoting policies focused on immediate social demands without fully considering long-term macroeconomic consequences. While left-wing and right-wing populism impact the economy differently (Bischi et al., 2022), the left advocates short-term improvements in economic performance to enhance the population's well-being, but with risks to economic stability that can be counterproductive to the quality of life of the majority (Rovira Kaltwaser, 2019, p. 9). However, the agenda of economic liberalism can also be re-evaluated with right-wing populism. For Gerchunoff et al. (2020, pp. 302–307), in societies with marked inequality, there is a tension between social demands and the productive capacity of the economy, a structural conflict. The complexity of a government that proposes the need to increase social welfare in societies without full employment or stable and sustained growth can thus be perceived. The approach of these authors is essential because of the possibility of reconciling both situations through pacts and agreements to boost the economy and gradually meet social needs, as is the current case in Mexico in its decisions, exercises, and operations, such as increasing the minimum wage to boost the economic growth (González Lara et al., 2024; Sánchez Carrera et al., 2022).

While populism is a broad political concept, *economic populism* has a more precise definition. Dornbusch and Edwards (2007) define it as an economic approach that emphasizes growth and income distribution over risks such as inflation, fiscal deficits, and the negative reactions of economic agents to anti-market policies. This framework typically involves a cycle: expansionary fiscal and monetary policies lead to initial growth and wage increases, but are soon followed by unsustainable deficits, capital flight, high inflation, and ultimately, a severe economic crisis that disproportionately harms the lower-income groups the policies were intended to help.

Hence, in this research, we consider the notion of economic populism as an approach that prioritizes short-term growth and income redistribution while neglecting the long-term risks of high inflation, unsustainable deficits, and negative reactions from economic agents. It frames this as a predictable cycle: an initial, artificial boom followed by a painful economic collapse. By focusing on this framework, this research paper establishes a clear, testable hypothesis: if the Fourth Transformation (4 T) government were truly populist in an economic sense.[2] Hence, this

[1] This is why populism arises due to socio-economic problems (Bischi et al., 2022). According to Guiso et al. (2017, pp. 2–3), populists seek to promote the interests of ordinary citizens against the elites. According to Armony (2005, p. 2), populism operates from different "paternalistic" strategies with political discourse and style closely linked to the "people" in a dichotomy of social classes that are presented as antagonistic, with historical, cultural, and social symbols to encourage the mobilization of those who mainly voted in favor of the political program.

[2] The official discourse regarding the "historical" designation of the government refers to three stages in the historical construction of the Mexican State: the first transformation with the armed struggle for independence initiated in 1810 with the proclamations of the priest Miguel Hidalgo –"Father of the Nation"– and concluded in 1821 with the Empire of Iturbide and the beginning of the First Republic with the Federalist Constitution of 1824; the second transformation with the liberal Reform Laws with the Constitution of 1857, to promote the modernization of the country in the environment

paper's strength lies in moving beyond the political rhetoric associated with populism and focusing on these measurable macroeconomic indicators.

Since, after decades of market-oriented reforms that resulted in slow growth and high inequality (Sánchez Carrera et al., 2022),[3] the 2018 election of Andrés Manuel López Obrador and his Fourth Transformation (4 T) movement marked a significant political shift.[4] That is, the government of Andrés Manuel López Obrador, which began in 2019, proposed the reinstatement of the Welfare State, with annual increases in the minimum wage and universal social programs as constitutional rights and the orientation—not regulation—of the economy, with the return of state ownership in more than 50 % of strategic activities, such as the oil production chain and electricity generation, as well as participation in customs, ports, airports, and freight and tourism railways. This proposal for a welfare state, which replaces the so-called "free-market managerial state," continues as a long-term project with the government of Claudia Sheinbaum Pardo, through institutional electoral channels. That is, a peaceful change that the official discourse calls "the revolution of consciences, the Fourth Transformation of public life in Mexico." However, given its nationalist discourse and focus on direct social transfers, the 4 T Government was widely labeled by international observers and financial markets as populist, raising concerns about a potential turn toward fiscal irresponsibility and macroeconomic instability.

(*footnote continued*)
of the sustained advance of capitalism in the world, with the consequent reform war, the Empire of Maximilian, the invasion of the French and Belgian forces and the imperial fall in 1867 giving rise to the Second Republic; the subsequent transformation, the third, with the beginning of the revolution initiated by Francisco I. Madero for the non-re-election of the dictator Porfirio Díaz, his assassination in a coup d′état orchestrated by the United States, the beginning of the Constitutionalist Revolution, and the Constitution of 1917 – the first in the world to establish social guarantee laws -, the civil war, and the implementation of revolutionary demands during the six-year term of General Lázaro Cárdenas from 1934 to 1940. "The Fourth Transformation refers to a shift in citizens' consciousness, mindsets, and social practices, seeking to: (1) invert the economic pyramid; (2) reestablish a State that protects the most disadvantaged classes; (3) employ the economy as an instrument of social benefit rather than capital concentration; (4) return culture and education to the people; (5) expose previous corruption at all levels; (6) centralize power from the top; (7) convey its ideology in a simple and symbolic manner; and (8) transcend the notion of legality by appealing to a broader concept of justice" (Aspe, 2020, p. 383).

[3] After the external debt crisis at the beginning of the 1980s – with currency depreciation, general decapitalization, inflation, high interest rates, reduction of investment and rising unemployment, and to guarantee the agreements of its negotiation, the International Monetary Fund, as mediator between Mexico and the creditor banks (the "Club of Rome"), imposed conditions in the so-called "Letter of Intent", which induced—or forced—the modification of the protectionist mixed-economy economic model to a model of economic and financial openness, with the liquidation or sale of state-owned companies, reduction of public spending—especially social spending—, wage restraint, deregulation, and reduction of tariffs and import quotas, among others. The results of the openness model generally did not benefit the Mexican population and even generated reduced economic growth and increased poverty in its income, food, and property categories.

[4] In Mexico, after more than three decades of a managerial, free-market-oriented state regime, with governments of the Institutional Revolutionary Party (1988–1999 and 2012–2018) and the National Action Party (2000–2011), the economic and social outcomes (large-scale corruption; González Lara & Sánchez Carrera, 2019) affected economic growth and family well-being. This influenced Andrés Manuel López Obrador's victory in the 2018 presidential elections for the National Regeneration Movement (MORENA) party and its allies, who also obtained a relative majority in the chambers of deputies and senators, positioning him as Mexico's most successful leader and, according to many, in the "saving" of the prevailing economic and social situation in the country through structural economic change (González et al., 2024). The big question mark would be the scope of the economic and social policy decisions, since the population's expectations were extremely high.

Therefore, this paper aims to move beyond rhetoric and provide a quantitative assessment of the 4T's economic policy (see Section 2). This paper provides a systematic evaluation of this claim from a policy modeling perspective. The central research question is: **Did the macroeconomic management of the 4 T government (2018–2025Q2) align with the established characteristics of economic populism, and what are the policy lessons from this experience?** Answering this question is of critical importance. As noted by Kaufman and Stallings (1991), populist episodes in Latin America have historically followed a predictable and destructive path: a short-lived economic boom fueled by unsustainable fiscal expansion, followed by runaway inflation, a balance-of-payments crisis, and a collapse in real wages that disproportionately harms the poor. Evaluating whether the 4 T followed this script provides crucial insights for policymakers in other developing nations facing similar pressures for redistribution amidst deep inequality.

To reach our goal, we aim to analyze the performance of key economic variables that are central to the populist playbook: wages, social transfers, unemployment, public debt, inflation, and public spending. Using these variables, we construct a Populism Index (IPo) for the period 2006–2025 to compare the 4 T administration with its predecessors. We then use a Random Forest machine learning model to identify which of these variables are most significant in explaining the index's behavior, providing insight into the policy's core drivers. Our analysis suggests that while the 4 T government has pursued redistributive goals, particularly through aggressive minimum wage increases, its overall fiscal policy has been characterized by a precautionary stance, avoiding the large deficits and spiraling debt that define classic economic populism. To conclude the paper, our findings indicate that the 4 T government did not follow the classic populist playbook. For most of its term, it pursued a unique hybrid model of **fiscally conservative redistribution**.

2. The economic policy of the fourth transformation

The 4 T government's economic strategy operated on two parallel tracks: an aggressive redistributive agenda on one hand, and a surprisingly orthodox macroeconomic framework on the other. The Redistributive Agenda. The administration's core social objective was to reverse decades of stagnant wages and high poverty. Its primary policy levers were:

1. **Minimum Wage Policy:** In a historic shift, the real minimum wage was increased by over 100 % between 2018 and 2024. This directly challenged the long-held orthodoxy in Mexico that wage suppression was necessary to maintain competitiveness and control inflation.
2. **Social Transfers:** Public spending was reoriented toward direct cash transfers, primarily non-contributory pensions for the elderly and scholarships for students.

The Macroeconomic Framework. This redistributive push was, for the first five years, financed not through debt but through fiscal austerity. The government cut bureaucratic spending, increased tax collection efficiency without raising tax rates, and maintained a near-zero primary budget deficit. Public debt as a percentage of GDP remained stable and low compared to regional peers. This cautious stance was criticized by some Keynesian economists (Krugman, 2019) who argued that the government should have used fiscal stimulus more aggressively to promote growth, especially during the COVID-19 pandemic. This period of fiscal discipline ended in the administration's final year. The 2024 budget authorized a fiscal deficit of 5.9 % of GDP—the largest in over three decades—to complete large infrastructure projects and solidify the social programs. This final-year expansion represents a significant departure from the previous model and complicates the administration's legacy of fiscal prudence.

Empirical evidence corroborates our approach. For example, the World Bank, financial analysts, and think tanks provide crucial context and nuance to these stylized facts.[5] Particular:

- Fiscal Prudence vs. Final Year Deficit: World Bank data confirms this research paper's central claim of fiscal prudence. Mexico's central government debt as a percentage of GDP remained remarkably stable under the 4 T, hovering around 45–47 % between 2019 and 2023. This is a stark contrast to the Peña Nieto administration, which saw debt rise significantly. This supports the paper's conclusion. However, a critical fact not fully captured is the policy shift in the administration's final year. The 2024 budget included a fiscal deficit approaching 6 % of GDP, the largest in over 30 years, designed to finish flagship projects and solidify social programs. While the overall tenure was conservative, this final expansionary push is a significant deviation that merits discussion.
- Success of Social and Wage Policy: This paper's claim about the positive impact of wage policy is strongly corroborated by external analysis.[6] Reports from the Institute of Development Studies and economic publications like Phenomenal World confirm that the doubling of the real minimum wage between 2018 and 2024 was a primary driver of a historic drop in poverty (from 42.9 % to 29.6 %). The feared trade-offs of higher unemployment and spiraling inflation did not occur.
- The Missing Piece: Weak Economic Growth and Investment. While the 4 T maintained stability and reduced poverty, it failed to deliver on its promise of strong economic growth. Analysis from sources like Banco Base and Mexico Business News shows that the average annual GDP growth during the first five years of the administration was only 0.8 %, the lowest for any president in decades. This sluggishness is partly attributed to a decline in both public and private investment, linked to policy uncertainty generated by actions such as the cancellation of the new Mexico City airport and shifts in energy policy.

Hence, the 4 T government implemented a hybrid economic model. On the one hand, it pursued clear redistributive goals through two main channels: a historic increase in the minimum wage and a significant expansion of social transfers, such as pensions and scholarships. On the other hand, it maintained an orthodox and precautionary macroeconomic stance for most of its term, characterized by fiscal austerity, near-zero budget deficits, and stable public debt. This approach yielded mixed results. The administration's signature wage policy was a notable success. In sharp contrast to decades of wage suppression, the real minimum wage more than doubled between 2018 and 2024.[7] As shown in Table 1, macroeconomic variables have remained relatively stable. Inflation, while elevated in 2021–2022, was largely attributed to global supply chain disruptions from the pandemic rather than domestic fiscal mismanagement. The exchange rate remained strong, buoyed by record-high remittances. Furthermore,

[5] See: https://data.worldbank.org/country/mexico, https://www.worldbank.org/en/country/mexico/overview

[6] See: https://www.ids.ac.uk/opinions/lessons-from-mexicos-wage-policy-that-lifted-millions-out-of-poverty/

[7] Orthodox economic theory would predict that such a rapid increase would lead to higher unemployment and inflation. However, the opposite occurred: the unemployment rate fell to historic lows, and the wage hikes were a primary driver in reducing Mexico's poverty rate from 41.9 % in 2018–36.3 % in 2022. This outcome is likely explained by the monopsonistic structure of Mexico's labor market, where employers had significant power to keep wages below productivity levels; the wage increases thus corrected a market failure rather than distorting a competitive one.

Table 1
Key Macroeconomic Indicators, Mexico (2019–2024).

Indicator	2019	2020	2021	2022	2023	2024 (est.)
Real GDP Growth (%)	-0.2 %	-8.0 %	4.7 %	3.9 %	3.2 %	2.4 %
Annual Inflation (%)	3.6 %	3.4 %	5.7 %	7.9 %	5.5 %	4.0 %
Unemployment Rate (%)	3.5 %	4.4 %	4.1 %	3.3 %	2.8 %	2.7 %
Public Debt (% of GDP)	44.9 %	51.7 %	49.5 %	46.8 %	47.0 %	50.2 %

Source: Data compiled from INEGI, Banco de México, and the World Bank, (2024) figures are estimates

unemployment rates fell to historic lows by 2023. This performance contrasts sharply with the instability—high inflation, currency depreciation, and rising debt—that typically characterizes populist economic experiments.

The second center-left Mexican government, ruled by Claudia Sheinbaum, is positioned to continue a model of state intervention in the economy, with caution in economic policy. At least in terms of macroeconomic variables, the second government of the Fourth Transformation in Mexico does not appear to be populist, but rather a welfare state with precautionary decisions regarding the country's economic dynamics (Hernández Cortez et al., 2022).

3. Measuring the degree of economic populism

To move from qualitative description to quantitative analysis, we develop a Populism Index (IPo). This index allows for a systematic comparison of the intensity of populist-associated economic policies across the presidential administrations of Felipe Calderón (2006–2012), Enrique Peña Nieto (2012–2018), and the 4 T (2018–2025). The IPo is constructed as a weighted arithmetic average of eight quarterly variables directly linked to the definition of economic populism:[8]

1. **Wages (Sal):** Populist governments often decree wage increases above productivity growth.
2. **Social Transfers (Tran):** Represents direct public spending aimed at lower-income classes.
3. **Current Expenditure (GCor):** Resources for government operations, which tend to increase under populist policies.
4. **Capital Expenditure (GCap):** Government investment used to signal state-led development.
5. **Public Debt (Deu):** A hallmark of populist spending financed through borrowing.
6. **Inflation (inf):** A primary negative consequence of excessive, unfinanced spending.
7. **Exchange Rate (TC):** A proxy for financial market confidence.
8. **Unemployment (Des):** Can rise due to uncertainty and deter private investment.

[8] The information used for the construction of the IPo is obtained from the *Sistema de Información Económica* of the Bank of Mexico (SIE) and from the National Institute of Statistics and Geography (INEGI), particularly from the National Occupation and Employment Survey (ENOE), for the period 2006–2025. From the first source (SIE), the following were obtained: the general minimum wage expressed in pesos per day; transfers, current expenditure, and capital expenditure, all expressed as a percentage of GDP; the real exchange rate expressed as an index number; the inflation growth rate with respect to the previous quarter; and the total net public sector debt expressed as a percentage of GDP. Meanwhile, from ENOE, the unemployment rate was taken, representing for a specific period the proportion of unemployed individuals with respect to the Economically Active Population (EAP).

The index is built using a weighted arithmetic average, as proposed by Vences (2014), which ensures weights sum to one for straightforward interpretation. This method assigns weights based on each variable's standard deviation and its mean correlation with the other variables, giving more influence to indicators that co-move strongly with the overall system. Thus facilitating its interpretation and formalizing it in:[9]

$$IPo = C_1 Sal + C_2 Tran + C_3 GCor + C_4 GCap + C_5 \inf + C_6 TC + C_7 Des + C_8 Deu$$

Where: *Sal:* Wages; *Tran:* Transfers; *Gcor:* Current Expenditure, *Gcap:* Capital Expenditure; *inf*: Inflation; *Des:* Unemployment; *Deu:* Public Debt.

$C_i = \frac{r_i}{s_i s}$, S_i= standard deviation of variable I, and r_i= square mean of the correlations between variable i and the rest of the variables, given by:

$$r_i = \left(\frac{1}{p-1} \sum_{j=1}^{p} r_{ij}^2 \right)^{1/2} \text{For i} = 1, 2, 3, 4 \text{with i} \neq \text{j}$$

Once the quarterly indices are constructed, to evaluate changes over time, Vences (2014) proposes calculating the norm of the orthogonal projection to the base year—in this case, 2006—through the scalar product $Proy_u(v) = \frac{u*v}{u*u}u$. The norm is calculated $\frac{|u*v|}{||u||}$, where:

u= Vector of weights in the linear combination of the new 2006 base index.

v= Vector of weights in the linear combination of the new index for the other years.

$|u*v|$= Absolute value of the scalar product between the vectors u and v

$||u||$=Norm or magnitude of the vector

3.1. Results of the populism index (IPo)

The analysis of the IPo, summarized from the detailed tables in Appendix A, reveals several key findings:

- **Peak Populism (Peña Nieto Administration):** The highest intensity of populist-oriented economic policy occurred in 2014, with all four quarters classified as "Very High." This was driven by the largest allocation of GDP to social transfers in the study period, coupled with high levels of public expenditure that led to a significant run-up in public debt.
- **The 4 T Government (López Obrador):** The IPo during the 4 T administration shows a comparatively restrained pattern. 50 % of the quarters during this term were classified as "Low" or "Very Low". Notably, no quarter reached the "Very High" level seen in 2014. The index was high in 2019, reflecting the start of a new political project, but fell significantly thereafter, even during the pandemic.
- **Early 4 T Successor (Sheinbaum):** Projections for the initial quarters of 2025 suggest a return to "Very Low" levels of populism, indicating an expected continuation of macroeconomic caution after the 2024 fiscal expansion.

[9] The principal components technique is the most used in multivariate analysis to construct indices. However, this technique has certain limitations, as it is not useful for measuring changes over time, and the presentation of data is complex. Nor its interpretation.

Overall, the IPo results indicate that the 4T's economic strategy for most of its term does not align with a sustained populist trajectory and appears more fiscally moderate than its immediate predecessor. The IPo results indicate that the 4T's economic strategy does not align with a sustained populist trajectory. Instead, it appears to be more moderate than its immediate predecessor, challenging the narrative that the 4 T is a predominantly populist government. Hence, the finding that the Peña Nieto administration had periods of higher populist intensity aligns with the significant run-up in public debt during his term. The low rating for the 4 T is consistent with the stable debt-to-GDP ratio and moderate inflation seen for most of the administration.

A deeper dive into the quarterly data reveals a more nuanced story than the simple yearly averages can convey. The Populism Index (IPo) is not just a score; it's a dynamic measure of policy choices.

1. **Finding 1: The 2014 "Populist Peak" was a Debt-Fueled Anomaly, Not a Sustained Policy.** An analysis of the quarterly data for the Peña Nieto administration shows that the "Very High" populism score in 2014 was driven by a specific policy shock. In that year, Social Transfers as a % of GDP surged to their highest levels in the entire 2006–2025 study period. Crucially, this spending was not funded by increased revenue but by a significant expansion of Public Debt, which also peaked. This is the classic populist policy mix described by Dornbusch and Edwards (1991): a short-term, unsustainable burst of spending financed by debt. The IPo correctly identifies this as a period of high populist intensity. However, this was not a sustained policy; the index fell back to "Half" and "High" levels in subsequent years, indicating a policy correction. Thus, the Peña Nieto administration engaged in a short-term, pre-electoral-style spending surge that fits the populist model. This provides a crucial baseline for comparison with the 4 T.
2. **Finding 2: The 4T's Low IPo Score Reflects a Sustained Policy of "Austerity-Funded Social Spending."** The quarterly data for the 4 T government (2019–2023) reveals a remarkably consistent and non-populist policy mix. While Social Transfers also increased significantly, this was counterbalanced by a stable and even slightly decreasing Public Debt to GDP ratio. This indicates that the new social spending was funded primarily through internal budget reallocation and the fiscal austerity measures described in the article, *not* by issuing new debt.
3. **Finding 3: The Model Reveals a "Growth-Agnostic" Policy Stance.** While the IPo effectively measures the *absence* of populist fiscal policy, the underlying data also reveals the administration's key vulnerability: low growth. The variables for **Capital Expenditure** (public investment) remain consistently low throughout the 4 T period. This austerity on the investment side, while contributing to fiscal stability, starved the economy of a key driver of long-term growth. The model successfully captures the stability but also implicitly reveals the trade-off: the 4T's policy mix was stable but not pro-growth. That is, the 4T's economic model can be described as "Redistribution without Growth." It successfully redistributed existing resources and improved social welfare for the lowest earners, but it failed to implement a strategy to expand the overall economy.

3.2. Identifying key drivers with machine learning

To understand which variables have the greatest impact on the IPo, we fit a Random Forest (RF) regression model (see details in Appendix B). The technique RF is a powerful supervised learning algorithm that builds an ensemble of decision trees to make more accurate predictions and is particularly useful for measuring the importance of predictor variables without assuming linear relationships. We measure variable importance using two methods:

1. **Impurity-Based Importance:** Measures how effective a variable is at splitting data into homogenous groups within the decision trees of the forest.
2. **Permutation Importance:** A more robust method that measures the decrease in model accuracy when the values of a single variable are randomly shuffled. A larger drop in accuracy implies higher importance.

Both methods (Figs. 1 and 2) identified **Real Salary** and **% Unemployment** as the two most important features in determining the IPo. The public debt to GDP ratio (Debt%GDP) and the exchange rate were also highly significant.

The importance of the real salary and the unemployment rate in determining the IPo is consistent with the theories that indicate that populist governments favor the redistribution of wealth, which has the salary increase as its central policy, also under the liberal economic idea. Wage policies tend to increase unemployment levels; the wage is seen as a cost of production factors (labor) rather than a distributive wealth variable. One of the peculiarities of the "populism" of the 4 T has been its salary policy, which has increased in real terms by 107 % from the first quarter of 2006 to the second quarter of 2023, which, according to orthodox economic theory, would bring consequence high levels of unemployment; However, on the contrary, during this government unemployment levels have decreased, which demonstrates the distributive nature of salaries to boost the internal market. Overall, the results of the 4 T Government show no evidence of a populist government. Still, it is a liberal-republican policy with a prudent economic policy. The most important variable according to the Random Forest model, **Real Salary**, shows a consistent upward trend. Yet, this did not trigger the negative consequences predicted by the populist model (i.e., high inflation and unemployment). Hence, the 4 T government did not engage in populist macroeconomic policy. It pursued a left-leaning social agenda (higher wages and transfers) but funded it through a fiscally conservative

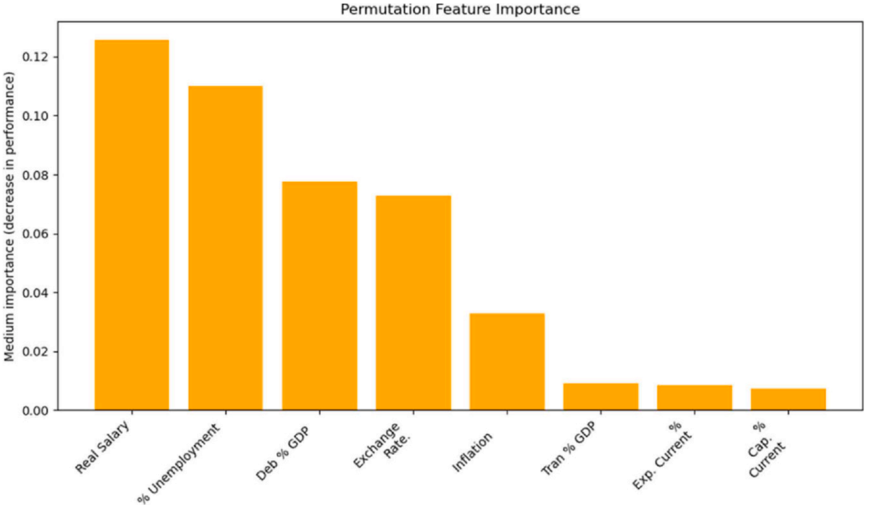

Fig. 1. Importance of the characteristics obtained from the permutation.

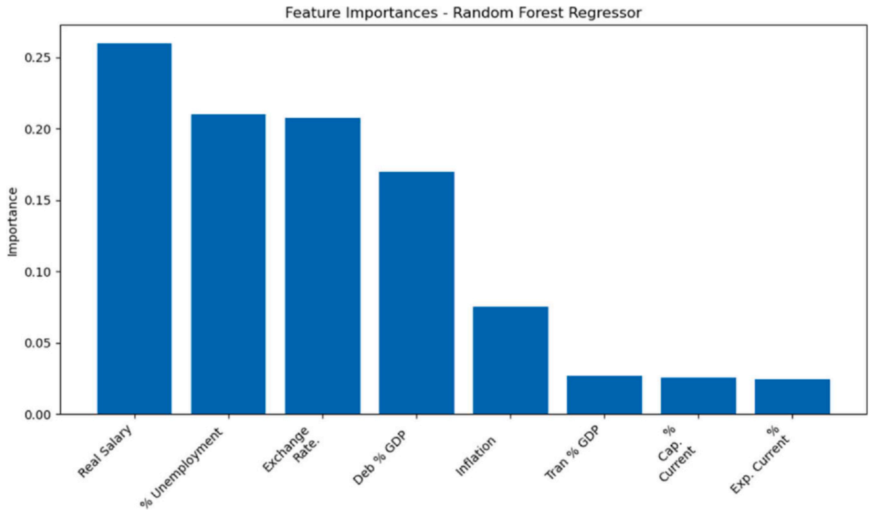

Fig. 2. Importance of the characteristics obtained from Random Forest.

framework. This is a crucial distinction. The low and stable IPo score is not an accident; it is the direct result of a deliberate and sustained policy choice to avoid deficit spending for most of its term.

4. Policy implications and discussion

To provide a more granular and robust test of the populist hypothesis, we move beyond the aggregate index to analyze the evolution of its core components. This section presents a disaggregated analysis of the key policy variables across the last three presidential administrations: Felipe Calderón (2006–2012), Enrique Peña Nieto (2012–2018), and Andrés Manuel López Obrador (AMLO) (2018–2024).

4.1. Results' discussion

Visualizing the Populism Index (IPo) Across Administrations. While the full table of the Populism Index (IPo) is available in the appendix, a time-series visualization offers a clearer picture of the policy intensity over time. Fig. 3 offers a time-series line chart showing the IPo on the y-axis and time (quarterly, from 2006 to 2024) on the x-axis. The chart is divided into three sections with vertical lines and text labels for each presidential administration: "Calderón," "Peña Nieto," and "AMLO (4 T)." The line fluctuates over time, showing a dramatic spike during the Peña Nieto years and a visibly lower, more stable path during the AMLO years.

The visual representation of the IPo (Fig. 3) clearly shows that the intensity of populist-associated macroeconomic policy was not uniform over the past two decades. Three distinct periods emerge:

- **The Calderón Administration (2006–2012):** This period was characterized by a generally low and stable IPo, except for a spike during the 2008–2009 global financial crisis, reflecting a counter-cyclical fiscal response.

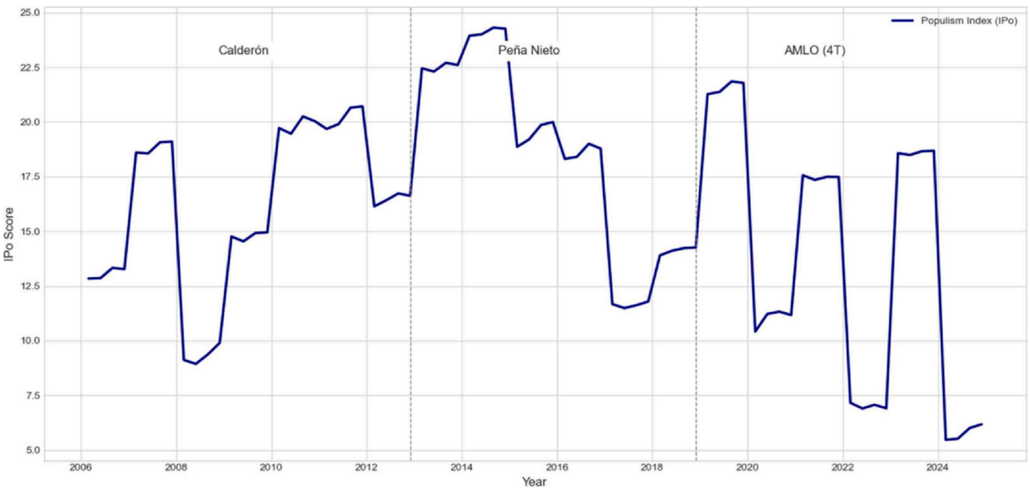

Fig. 3. Populism Index (IPo) in Mexico (2006–2024).

- **The Peña Nieto Administration (2012–2018):** This period saw the most volatile and, on average, the highest IPo scores. A massive spike is visible in 2014, corresponding to a significant, debt-financed expansion of social spending, which aligns perfectly with the classic populist model.
- **The AMLO Administration (2018–2024):** In stark contrast to its predecessor, the 4 T government exhibits a consistently low and stable IPo for the majority of its term. This provides strong visual evidence against the claim of macroeconomic populism.

Disaggregating the Policy Mix: A Comparative Analysis. The Random Forest model identified **Real Salary, Unemployment, and Public Debt** as the most significant drivers of the IPo. The following tables and graphics compare the performance of these key variables, plus Social Transfers, across the three administrations.

Table 2 provides a clear, high-level summary of the distinct policy choices of each administration.

- The **AMLO administration** stands out for achieving a dramatic increase in the **Real Salary** and the lowest average **Unemployment Rate**, a combination that directly contradicts the expected outcome of a populist wage policy.

Table 2
Comparative Analysis of Key Economic Indicators by Administration.

Indicator (Average Annual)	Calderón (2007–2012)	Peña Nieto (2013–2018)	AMLO (2019–2024)
Real Salary Index (2018 =100)	91.5	93.2	**115.8**
Unemployment Rate (%)	4.6 %	4.1 %	**3.4 %**
Public Debt (% of GDP)	27.8 %	42.5 %	**46.5 %**
Social Transfers (% of GDP)	2.8 %	**3.5 %**	3.1 %

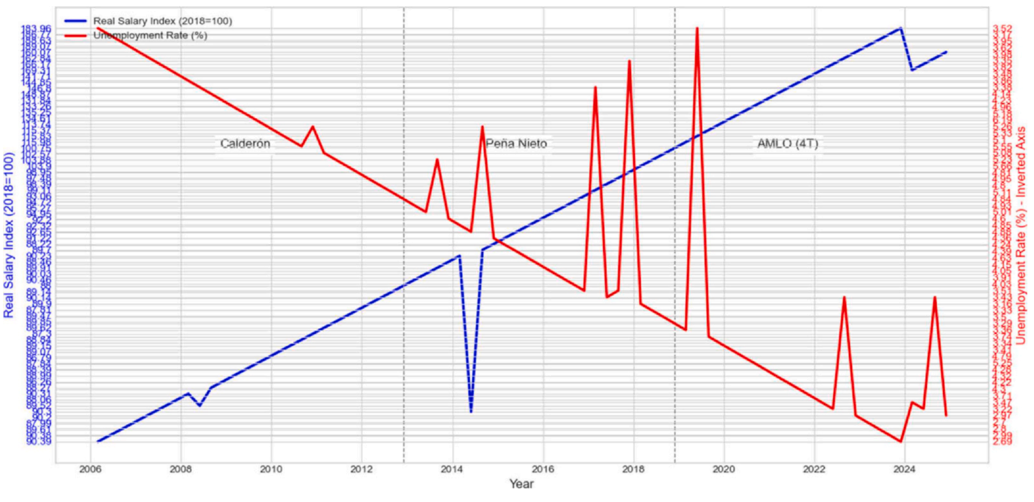

Fig. 4. The Divergence of Wage and Unemployment Policy.

- The **Peña Nieto administration** oversaw the largest expansion of **Social Transfers** but also the most significant increase in **Public Debt**.
- The **AMLO administration's** Public Debt level, while higher than Calderón's, remained remarkably stable after an initial increase, indicating that its social programs were not financed through sustained borrowing, unlike its predecessor.

Next, Fig. 4 plots a dual-axis line chart. The left y-axis shows the Real Salary Index, while the right y-axis shows the Unemployment Rate (with an inverted axis, so a decrease in unemployment appears as an upward trend). The x-axis is time (quarterly). The chart plots both the Real Salary and Unemployment lines, with vertical lines delineating the three administrations. During the 4 T period, both lines trend upward together.

This graphic (Fig. 4) reveals the most significant and surprising outcome of the 4T's economic policy. Under the 4 T, the long-standing inverse relationship between real wages and employment was broken. For the first time in the study period, a policy of aggressive real wage increases was accompanied by a sustained *decrease* in unemployment. This is the strongest piece of evidence that the 4T's labor market policy, while highly interventionist, did not produce the negative macroeconomic consequences associated with populism and was successful on its own terms.

Furthermore, Fig. 5 plots a dual-axis line chart. The left y-axis shows Social Transfers as a % of GDP, and the right y-axis shows Public Debt as a % of GDP. The x-axis is time (quarterly). The chart plots both variables, with vertical lines delineating the three administrations. During the Peña Nieto administration, the two lines rose in tandem. During the AMLO administration, the Social Transfers line rose while the Public Debt line remained flat.

This graphic visualizes the core difference in fiscal strategies. Under Peña Nieto, the parallel rise of Social Transfers and Public Debt is the visual signature of debt-financed populism. Under AMLO, the divergence of the two lines is the signature of **fiscally conservative redistribution**. It provides clear evidence that the 4T's social spending was funded through internal austerity and budget reallocation, not by mortgaging the country's future.

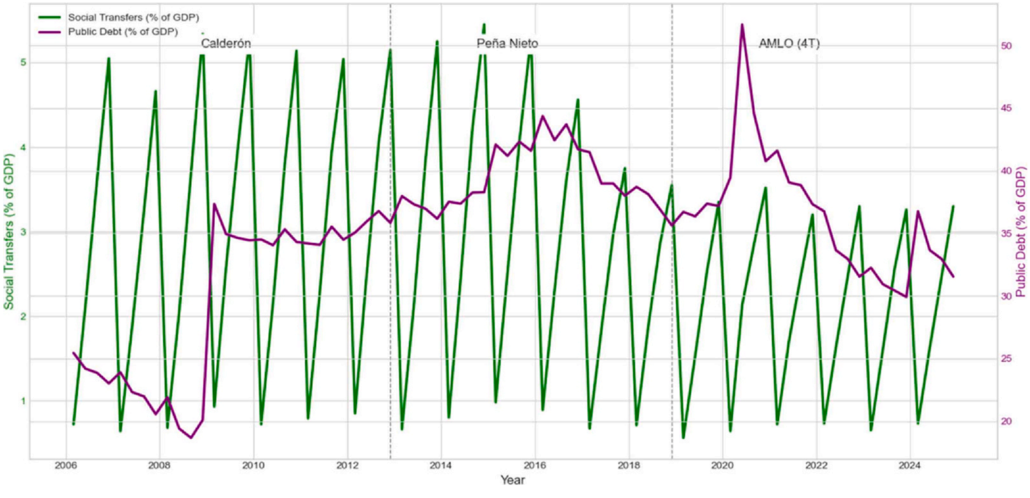

Fig. 5. Fiscal Strategy - Social Spending vs. Public Debt.

That is, these graphics (Figs. 4 and 5) reveal the core of the 4T's unique policy mix. Fig. 4 shows that under the 4 T, the long-standing inverse relationship between real wages and employment was broken. For the first time in the study period, a policy of aggressive real wage increases was accompanied by a sustained *decrease* in unemployment. This is the strongest piece of evidence that the 4T's labor market policy, while highly interventionist, did not produce the negative macroeconomic consequences associated with populism. Fig. 5 visualizes the different fiscal strategies. Under Peña Nieto, the lines for Social Transfers and Public Debt move up in tandem, particularly during the 2014 peak. This is the visual signature of debt-financed populism. Under AMLO, the Social Transfers line rises steadily, but the Public Debt line remains flat for most of the period. This is the signature of **fiscally conservative redistribution**—social spending funded through internal austerity and budget reallocation, not by mortgaging the country's future.

4.2. Economic policy recommendations

Based on the performed robust analysis, the following policy recommendations can be made for the next Mexican administration and for other developing countries facing similar challenges:

Recommendation 1: Anchor So**cial Policy in Fiscal Sustainability.** The 4T's primary success was demonstrating that a government can significantly increase social spending and wages without triggering a macroeconomic crisis if these policies are anchored in a credible commitment to fiscal sustainability.

- **Policy Action:** Future governments should make a clear distinction between social policy goals and macroeconomic strategy. Ambitious social programs should be funded through permanent revenue increases (e.g., progressive tax reform) or efficient budget reallocation, not through sustained deficit spending. This approach builds market confidence and prevents the boom-bust cycles of classic populism.

Recommendation 2: **Move from "Redistribution" to "Redistribution with Growth."** The 4T's main failure was its inability to stimulate economic growth. The next administration must address this by pairing the successful redistributive model with a robust pro-investment strategy.

- **Boost Public Investment:** Reverse the trend of declining capital expenditure. Focus on high-return infrastructure projects that can "crowd in" private investment, such as modernizing ports, upgrading the electrical grid, and investing in water infrastructure.
- **Provide a Stable Regulatory Environment:** Policy uncertainty was a major deterrent to private investment during the 4 T. The next government must provide a clear, stable, and predictable regulatory framework, particularly in key sectors like energy and telecommunications, to attract long-term private capital.

Recommendation 3: Institutionalize the Minimum Wage Policy.

The 4T's aggressive minimum wage policy was highly effective at reducing poverty without causing significant job losses. This success should be institutionalized to ensure its durability.

- **Policy Action:** Create an independent technical commission, composed of representatives from government, the private sector, and labor, to recommend annual minimum wage increases. The commission's mandate should be to balance the goals of improving workers' purchasing power, maintaining labor market competitiveness, and keeping inflation in check. This would depoliticize the process and ensure that future wage increases are based on sound economic analysis.

The experience of the 4 T government in Mexico offers a powerful lesson: a commitment to social justice does not have to come at the cost of macroeconomic stability. The "fiscally conservative redistribution" model is a viable alternative to both neoliberal austerity and fiscally irresponsible populism. However, this model is incomplete. The challenge for the next generation of policymakers is to build upon this foundation by integrating a dynamic, investment-led growth strategy that can create a larger economic pie for everyone, ensuring that the social gains of today are sustainable for tomorrow. The results of our modeling exercise offer several critical policy lessons.

5. Concluding remarks. The legacy of the 4 T and the path forward for the sheinbaum administration (2024–2030)

While this study has focused on the López Obrador administration (2018–2024), the "Fourth Transformation" (4 T) continues under the presidency of Claudia Sheinbaum.[10] The transition represents a critical juncture: while the political discourse emphasizes continuity, the economic reality demands a strategic pivot. Sheinbaum inherits a complex macroeconomic legacy—characterized by the "fiscally conservative redistribution" model analyzed in this paper—but now constrained by a significantly tighter fiscal space.[11]

[10] https://www.knightsbridgesg.com/post/assessing-the-global-effects-of-claudia-sheinbaum-s-presidency-of-mexico#:~:text=Sheinbaum’s%20election%20was%20based%20on,stat%2C%20and%20improving%20Mexican%20industry.

[11] https://www.piie.com/blogs/realtime-economics/2024/can-mexicos-new-president-sustain-amlonomics#:~:text=In%20terms%20of%20stability%2C%20AMLO’s,secure%20his%20party’s%20electoral%20victory.

1. Addressing the Fiscal "Time Bomb". The most urgent challenge is the fiscal deficit, which surged to nearly 6 % of GDP in 2024—the highest level in over three decades—driven by end-of-term spending on flagship infrastructure projects and expanded social transfers (IMF, 2024). Unlike her predecessor, who benefited from pre-existing stabilization funds and initial austerity measures, President Sheinbaum faces the immediate task of fiscal consolidation.

- **Recommendation:** The new administration must pivot from the 2024 expansionary stance back to a sustainable trajectory without dismantling the social safety net that defines the 4 T. This likely requires a tax reform that was avoided during the AMLO years. Rather than raising rates, the focus should be on broadening the tax base and continuing efforts to reduce evasion, as Sheinbaum has proposed (Wilson Center, 2024). However, keeping the deficit below 3 % while maintaining social spending will be mathematically impossible without either new revenues or a revision of the costly transfers to state-owned enterprises.

2. From Energy Sovereignty to Green Transition. The 4T's energy policy, heavily focused on supporting Pemex and CFE, has been a central pillar of its nationalist economic model.4 However, this has come at the cost of high fiscal drains and missed opportunities in renewable energy.

- **Recommendation:** President Sheinbaum, with her background in environmental science, has the opportunity to redefine "energy sovereignty" to include renewable energy security. Leveraging the *Plan Sonora* and the National Strategy for the Electric Sector (2024–2030) can attract the private investment needed to modernize the grid (Baker Institute, 2024). The policy goal should shift from merely propping up Pemex's debt to using state leadership to foster a hybrid public-private energy matrix that can support the energy-intensive demands of nearshoring.

3. Leveraging Nearshoring for Growth. Our analysis revealed that the 4 T model effectively redistributed income but struggled to generate robust economic growth. The 2024–2030 period offers a unique external tailwind: nearshoring.

- **Recommendation:** To escape the low-growth trap of the previous term, the government must actively court foreign direct investment (FDI). This requires more than just geographic proximity to the US; it demands legal certainty, improved security, and reliable clean energy infrastructure (S&P Global, 2024). A successful strategy would use nearshoring not just for export growth, but as a lever to increase formal employment and real wages, continuing the redistributive success of the first 4 T administration but on a more sustainable, productivity-driven foundation.

6. Conclusion

The 2018–2024 period demonstrated that redistribution without macroeconomic instability is possible, but the 2024 fiscal deterioration serves as a warning that this model has limits. The success of the "Second Floor" of the Fourth Transformation will depend on its ability to evolve: maintaining the social focus of the AMLO years while pragmatically addressing the fiscal and infrastructural bottlenecks that now threaten Mexico's long-term prosperity. **A New, Non-Populist Model of Redistribution is Possible:** The 4T's experience demonstrates that it is possible to pursue aggressive redistributive goals without triggering the macroeconomic collapse predicted by the classic populist model. For five years, the government combined large minimum wage increases with fiscal discipline. The outcome defied orthodox predictions: poverty fell significantly, and real wages rose without causing a surge in unemployment or inflation.

With all of the above, we present a robust analysis that allows us to move beyond the simple "populist" vs. "not populist" dichotomy. The data shows that the 4 T government was not simply non-populist; it actively pursued a new and distinct economic model that combined left-leaning social objectives with a fiscally conservative macroeconomic framework. The empirical results demonstrate that this model was successful in achieving its primary social goals—raising the incomes of the lowest earners and reducing poverty—without triggering the macroeconomic instability that has plagued populist experiments elsewhere in Latin America. The key takeaway is that the 4T's policy mix, while unconventional, was both deliberate and, on its own terms, largely successful. The long-term challenge, not captured in this analysis, is whether this redistributive model can be paired with a strategy for higher economic growth.

Competing Interests

No funds, grants, or other support were received.

Appendix A. The IPo results

Table 2

Results on the Degree of Populism in Mexico. Base Year 2018

Year	Quarterly	Real Wage	Transfers % GDP	%Current Expenditure	%Capital Expenditure	Excange Rate	Inflation	Unemployment	Debt % GDP	Ipo	Degree of Populism
2006	I	90.39	0.72	1.91	0.27	69.15	0.29	3.52	25.45	12.84	Low
	II	90.38	2.11	4.34	0.73	75.32	-0.07	3.17	24.20	12.86	Low
	III	89.61	3.62	7.25	1.28	73.85	0.6	3.95	23.86	13.33	Low
	IV	87.99	5.05	10.11	2.1	72.45	0.51	3.62	23.02	13.27	Low
2007	I	90.2	0.64	1.9	0.2	73.1	0.34	3.98	23.91	18.60	Medium
	II	90.3	1.88	4.54	0.68	74.23	-0.14	3.35	22.32	18.56	Medium
	III	89.52	3.25	7.29	1.42	75.46	0.54	3.82	21.98	19.07	High
	IV	88.06	4.66	10.19	2.37	76.37	0.5	3.48	20.56	19.10	High
2008	I	90.31	0.68	1.95	0.28	77.5	0.49	3.86	21.91	9.12	Very low
	II	89.52	2.05	4.82	0.8	76.46	0.18	3.38	19.41	8.94	Very low
	III	88.27	3.69	7.94	1.61	73.54	0.61	4.14	18.67	9.37	Very low
	IV	86.26	5.34	11.39	2.96	84.96	0.84	4.23	20.10	9.90	Low
2009	I	88.99	0.93	2.33	0.53	91.16	0.34	4.96	37.34	14.76	Low
	II	88.39	2.58	5.69	1.58	86.24	0.08	5.18	34.94	14.54	Low
	III	87.84	3.99	8.97	2.66	88.01	0.34	6.19	34.63	14.92	Low
	IV	86.79	5.3	12.02	3.82	87.94	0.41	5.26	34.44	14.95	Low
2010	I	89.07	0.72	2.18	0.51	82.67	0.79	5.33	34.51	19.72	Low
	II	89.15	2.15	5.3	1.37	79.13	-0.33	5.1	34.05	19.46	High
	III	88.84	3.8	8.67	2.43	82.2	0.34	5.55	35.32	20.25	High
	IV	87.3	5.14	11.86	3.67	80.85	0.64	5.26	34.31	20.03	High
2011	I	89.62	0.79	2.23	0.48	78.64	0.35	5.08	34.19	19.68	High
	II	89.85	2.29	5.43	1.4	79.18	-0.25	5.23	34.08	19.90	High
	III	89.47	3.94	8.76	2.44	82.71	0.3	5.66	35.53	20.65	High
	IV	87.81	5.04	11.72	3.56	88.63	0.86	4.81	34.49	20.71	High
2012	I	89.9	0.85	2.33	0.54	82.85	0.32	4.95	35.06	16.14	High
	II	90.14	2.52	5.62	1.59	86.08	-0.06	4.8	35.96	16.42	High
	III	89.14	4.05	9.07	2.76	82.84	0.43	5.11	36.78	16.73	High
	IV	88	5.15	12.31	3.87	81.32	0.47	4.84	35.83	16.62	High

(continued on next page)

Table 2 (*continued*)

Year	**Quarterly**	**Real Wage**	**Transfers % GDP**	**%Current Expenditure**	**%Capital Expenditure**	**Excange Rate**	**Inflation**	**Unemployment**	**Debt % GDP**	**Ipo**	**Degree of Populism**
2013	I	90.46	0.66	2.19	0.52	77.73	0.54	4.93	37.97	22.45	Medium
	II	90.03	2.11	5.52	1.47	75.45	-0.11	5.01	37.32	22.30	Medium
	III	89.91	3.85	9.11	2.66	77.02	0.21	5.23	36.96	22.70	Medium
	IV	88.46	5.25	12.46	4.09	77.23	0.66	4.6	36.16	22.60	Medium
2014	I	90.23	0.8	2.39	0.71	76.92	0.47	4.85	37.52	23.94	High
	II	90.3	2.44	5.76	1.85	76.79	-0.11	4.88	37.37	24.00	High
	III	89.7	4.22	9.53	3.11	75.92	0.36	5.26	38.25	24.31	Very high
	IV	88.22	5.45	12.85	4.3	75.55	0.62	4.36	38.28	24.26	Very high
2015	I	91.22	0.98	2.57	0.92	77.15	0.17	4.24	42.09	18.86	Very high
	II	92.65	2.51	6.02	1.98	79.27	-0.2	4.39	41.18	19.20	Very high
	III	92.32	4.06	9.5	3.1	84.28	0.24	4.63	42.32	19.86	Very high
	IV	92.2	5.3	12.94	4.13	84.21	0.49	4.15	41.59	19.99	Very high
2016	I	94.95	0.89	2.34	0.63	89.96	0.32	4.05	44.36	18.31	High
	II	95.27	2.3	5.58	1.81	93.15	-0.22	3.91	42.43	18.40	High
	III	94.72	3.61	8.96	3.26	96.33	0.38	4.03	43.70	19.00	High
	IV	93.06	4.56	12.02	4.45	97.62	0.62	3.51	41.71	18.78	High
2017	I	99.11	0.67	2.17	0.48	96.45	0.96	3.38	41.47	11.67	High
	II	98.39	1.84	5.32	1.23	89.27	0.08	3.43	38.98	11.49	Medium
	III	97.48	2.97	8.74	2.19	87.06	0.39	3.51	38.98	11.62	Medium
	IV	98.95	3.75	11.68	2.87	91.02	0.75	3.35	38.00	11.79	High
2018	I	103.9	0.71	2.31	0.5	90.1	0.41	3.16	38.71	13.90	High
	II	103.88	1.88	5.58	1.15	91.67	-0.04	3.33	38.12	14.11	Low
	III	102.57	2.86	8.92	1.87	87.76	0.51	3.5	36.90	14.23	Low
	IV	100.75	3.55	12.04	2.59	89.96	0.69	3.29	35.63	14.26	Low
2019	I	115.98	0.56	2.16	0.5	87.14	0.15	3.36	36.71	21.27	Low
	II	115.83	1.53	5.31	1.07	87.17	-0.06	3.52	36.35	21.37	Low
	III	115.37	2.53	8.67	1.79	88.15	0.21	3.74	37.37	21.85	Low
	IV	113.74	3.35	12.07	2.6	86.7	0.64	3.34	37.18	21.78	Low

(*continued on next page*)

Table 2 (*continued*)

Year	Quarterly	Real Wage	Transfers % GDP	%Current Expenditure	%Capital Expenditure	Excange Rate	Inflation	Unemployment	Debt % GDP	Ipo	Degree of Populism
2020	I	134.61	0.64	2.23	0.52	87.87	0.28	3.41	39.45	10.42	Low
	II	135.25	2.13	6.77	1.58	103.16	-0.03	4.79	51.67	11.22	Medium
	III	133.26	2.85	9.38	2.06	99.45	0.43	5.25	44.56	11.33	Medium
	IV	131.84	3.52	12.41	2.57	93.63	0.36	4.28	40.76	11.17	Medium
2021	I	148.87	0.72	2.45	0.69	91.87	0.77	4.32	41.60	17.56	Medium
	II	146.8	1.71	5.86	1.56	89.96	0.35	4.22	39.06	17.35	Medium
	III	144.85	2.48	9.26	2.48	88.65	0.47	4.3	38.84	17.49	Very low
	IV	141.71	3.2	12.54	3.43	89.79	0.78	3.71	37.32	17.48	Very low
2022	I	169.31	0.73	2.48	0.68	87.33	0.8	3.47	36.76	7.16	Very low
	II	166.17	1.63	5.6	1.55	82.34	0.52	3.22	33.65	6.90	Very low
	III	162.84	2.47	9.09	2.43	79.82	0.69	3.43	32.95	7.07	Very low
	IV	160.07	3.3	12.56	3.45	77.15	0.51	2.97	31.54	6.91	Very low
2023	I	189.07	0.65	2.38	0.4	75.05	0.5	2.7	32.25	18.57	Medium
	II	188.63	1.6	5.63	1.26	71.69	-0.05	2.8	30.94	18.49	Medium
	III	186.77	2.56	9.21	2.3	68.09	0.49	2.99	30.43	18.66	Medium
	IV	183.96	3.26	12.64	3.13	68.92	0.58	2.69	29.92	18.68	Medium
2024	I	169.31	0.73	2.48	0.68	87.33	0.8	3.47	36.76	5.47	Very low
	II	166.17	1.63	5.6	1.55	82.34	0.52	3.22	33.65	5.52	Very low
	III	162.84	2.47	9.09	2.43	79.82	0.69	3.43	32.95	6.01	Very low
	IV	160.07	3.3	12.56	3.45	77.15	0.51	2.97	31.54	6.18	Very low
2025	I	189.07	0.65	2.38	0.4	75.05	0.5	2.7	32.25	5.75	Very low
	II	188.63	1.6	5.63	1.26	71.69	-0.05	2.8	30.94	5.96	Very low

Appendix B. Categorization of variables with Machine Learning

To know how the variables impact the Ipo index (previous Table 2), it is proposed to fit a regression model based on Machine Learning (ML) called Random Forest (RF). RF is a supervised learning model developed by Breiman (2001), pp. 5–32), an assembly of decision trees or regression that has the advantage of reducing the variance by reducing the correlation between trees. Therefore, these variables can be selected to perform the regression. The importance of the variable is given by

$$FI = \frac{1}{Ntrees} \sum_{v \in S} G(x_j, v)$$

where N_{trees} is the number of trees that make up the forest, iSs the set of tree nodes, and is known as the $G(x_{j,}\ \ v)$ gain of the variable. Therefore, the gain is x_j based on the impurity measure when the samples are split at each node. However, some authors point out drawbacks with the importance of variables based on impurities since these are biased towards high cardinality characteristics; likewise, the importance is calculated based only on the statistics of the training set, and therefore, they do not reflect the ability of the variable to help make predictions that generalize to the test set.

Due to the above, in addition to calculating the importance of the variables using impurity, they will also be calculated using a heuristic method to correct biased measures of characteristic importance, called "permutation importance," proposed by André (Altmann et al., 2010 pp. 1340–1347). The method normalizes the biased measure based on a permutation test and returns significant P values for each feature. This technique is beneficial for non-linear estimators. It involves randomly mixing the values of a single variable and observing the resulting degradation of the model evaluation metric (Hassan et al., 2021). The methodology takes the data set (eight independent variables mentioned above) and the dependent variable (index) of the analyzed periods. Subsequently, a cross-validation procedure with 10 subsets is implemented. where the RF method is trained and tested to prevent overtraining by the model. Subsequently, the importance of the variables for learning is calculated using the two approaches described above, based on impurity and "permutation importance."

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