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TAX REFORM AND TAX FEDERALISM: AN ANALYSIS OF PROPOSALS FOR THE CREATION OF A NEW VALUE-ADDED TAX FOR BRAZIL

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ABSTRACT
This paper analyses two tax reform bills that are being discussed at the Brazilian National Congress, by comparing them and pointing their advantages and drawbacks. Moreover, the paper provides four empirical contributions to the debate: i) neutral rate estimates for the new Goods and Services Tax (IBS) and its shares between federal entities and budget earmarks; ii) simulation of the new tax model transition rules; iii) regressivity measures of the single rate IBS compared to the current model with differentiated rates, as well as cost estimates for implementing a mechanism to reimburse the tax paid by low income households; and iv) assessment of the potential impact on the revenue sharing between state and local governments.

Keywords*: tax reform; Goods and Services Tax; tax federalism.*

JEL: H25, H71.

1. INTRODUCTION

The discussion about tax reform proposals that attempt to merge several federal and subnational taxes into a Value Added Tax (VAT), in line with best international practices, has been recurrent on the Brazilian economic agenda in recent decades. Since the re-democratization, three broad reform proposals with this content have been debated in the National Congress: IPEA's proposal, presented to the 1987 National Constituent Assembly; the Proposal for Constitutional Amendment (PEC) #175/1995, at the beginning of Fernando Henrique Cardoso's government; and the PEC #233/2008, during the second mandate of Luiz Inácio Lula da Silva's government.[1] The tax model formats of the proposals varied: from the creation of a single VAT of federal competence and shared with subnational governments to a dual VAT system, bringing together, on the one hand, the taxes of federal competence - Tax on Industrialized Products (IPI), Program for Social Integration (PIS)/Contribution for the Financing of Social Security (COFINs) etc. - and, on the other hand, the subnational ones - the State Tax on the Circulation of Goods and Services (ICMS) and the Municipal Service Tax (ISS). None of the reform proposals succeeded politically, either because of the federal conflicts involved in redistributing revenues or because of resistance from different interest groups in society and in Parliament.

In the face of successive failures, the initial impetus of the reform effort was dehydrated and divided into three vectors of specific changes: (i) the Federal Government trying to modernize the PIS/COFINs collection system; (ii) the municipalities introducing a minimum tax rate and expanding the list of services subject to the taxation of their tax, the ISS; and (iii) the states seeking an agreement to this day inconclusive to end the tax war and correct the distortions of the ICMS. In practice, however, the gamble of the last decade - to move forward with one-off measures rather than wide-ranging reforms - has not proved successful either. Given the distributive conflict between the spheres of the Federation and the sectors of the economy affected by these changes, the advances achieved, after more than three decades of debate, were not very significant, and we persist with an extremely inefficient and regressive tax system.

In 2019, the option for a broad reform, with a focus on modernizing and simplifying the taxation of goods and services, gained a new emphasis. The presidents of the two houses of the

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[1] Rezende *et al.* (1987), Afonso, Rezende and Varsano (1998) and Zouvi *et al.* (2008) discuss, in detail, each of these three proposals for tax reform to institute VAT. Another important reference is Lukic (2014), who jointly analyzes the three proposals processed by Congress since the 1987-1988 Constituent Assembly.

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National Congress defined tax reform among the priorities to be addressed in the second half of the year and two proposals began to be considered: PECs nos. 45/2019 and 110/2019. Soon afterwards, a Mixed Committee on Tax Reform was created with the purpose of gathering the two PECs into a single text, to be considered by the National Congress in 2020. The new proposals are the result of the experience accumulated from previous failures and seek, through some innovative and pragmatic instruments, to deal with several of the distributive conflicts, by providing very smooth transition mechanisms for the new taxation model and for federative sharing. [2]

For these virtues and the exhaustion of the old tax model, the proposal to replace the taxes of the three federative spheres by a VAT, aligned with international best practices, called the Tax on Goods and Services (IBS), seems to have won the sympathy of most state treasury secretaries. However, other dissenting voices, mainly from the legal environment, have presented a series of formal arguments to try to disqualify the tax reform, especially in the version of PEC #45/2019, which provides that the new tax will have a single rate (not differentiated by good or service) and shared management between the three spheres of the Federation.

Basically, according to the critics of the reform, this modeling would be unconstitutional because it hurts the federative pact by supposedly removing from the states and municipalities the autonomy to manage their budgets, and does not respect the principle of ability to pay, to the extent that all goods or services would be charged equally. The background to this controversy is evidently a distributive conflict, led by the potential and eminent losers in this process of standardizing the tax burden located in the services sector and especially in the corporations of liberal professionals organized under the corporate form.

In this context of exacerbated distributive conflict, this monograph seeks to make a detailed technical analysis of the tax reform proposals in Congress, comparing them and pointing out their virtues and limitations. In addition, the paper offers four important empirical contributions to the debate:

1) Unprecedented estimates of what the neutral tax rate would be for the new IBS, and how this rate would be divided among the three entities of the Federation and their distinct suballocations;

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[2] The single text should also incorporate a project of the Executive Branch, but which had not been sent to Congress at the time of completion of this monograph.

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2) Simulation of the transition rule for the new taxation and sharing model, based on the destination principle;
3) Measurement of the degree of regressivity of the IBS at a single rate *vis-à-vis* the current consumption tax model and the estimated tax cost of implementing the tax refund mechanism for the poorest households;
4) Evaluation of the potential impacts of the reform on federative sharing at the state and municipal levels.

In terms of structure, the text is divided into three sections in addition to this introduction. The next section will detail the two tax reform proposals and the instruments designed to mitigate the main sources of resistance. In parallel, this section 2 will present the first three empirical contributions listed above. Section 3 will be devoted to the evaluation of the potential distributional impacts of the reform on the federative division, which corresponds to the fourth and last empirical contribution of the text. This is followed by the final considerations.

2. ANALYSIS OF TAX REFORM PROPOSALS IN BRAZIL

The two main proposals being processed in the National Congress during the 2018-2020 triennium follow the basic principles of broad reforms, with a focus on modernizing and simplifying the taxation of goods and services.[3] At the end of 2018, the Special Committee on Tax Reform of the House of Representatives approved a tax reform proposal presented by the then Congressman Luiz Carlos Hauly, as a substitute to PEC #293/2004, which reforms the national tax system. In the same commission, congressman Mendes Thame presented a second substitute text - the Global Substitutive Amendment #7/2018 - to PEC #293/2004, with an alternative reform that follows the general lines of the proposal of the Center for Tax Citizenship (CCiF). The Special Commission on Tax Reform approved the admissibility of Amendment #7/2018 and some of its items were incorporated into the final text of the substitute to PEC #293/2004. Even so, there is a possibility that the plenary of the House of Representatives may decide to adopt the full text of the Global Substitutive Amendment #7/2018. In theory, the two texts with alternative tax reform proposals are ready to be submitted to the House floor. [4]

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[3] For a comprehensive overview of the taxation matters under discussion in Congress, see Araujo and Neto (2019). Orair and Gobetti (2018) also provide a broader overview of the tax reform proposals under debate.

[4] The text of the substitute adopted by the committee for PEC #293/2018 and the Global Substitutive Amendment #7/2018 are available, respectively, at: <http://twixar.me/KnfT> and <http://twixar.me/nnfT>. The two tax reform

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In 2019 there was a turnaround with the beginning of the new legislature. In April of this year, PEC #45/2019 was filed in the Legislative Chamber, whose signatory is Congressman Baleia Rossi. The text of PEC #45/2019 is identical to that of Amendment #7/2018 for tax reform formulated by CCiF. The Constitution and Justice and Citizenship Commission (CCJC) approved its admissibility and, in July 2019, a special commission was established with the purpose of analyzing PEC #45/2019, whose rapporteur was assigned to Congressman Aguinaldo Ribeiro.

Almost simultaneously, PEC #110/2019 was filed in the Federal Senate in July 2019, with Senate President Davi Alcolumbre as its first signatory. This PEC reproduces the final text of the substitute to PEC #293/2004, approved in the House Special Committee on Tax Reform, in December of the previous year, under the report of former Congressman Luiz Carlos Hauly. PEC #110/2019 was under analysis by the Constitution, Justice and Citizenship Committee (CCJC) of the Senate, which appointed Senator Roberto Rocha as rapporteur.[5] Until the two houses reached an agreement and set up a Temporary Mixing Commission on Tax Reform, which was installed in March 2020, under the chairmanship of Senator Roberto Rocha and the Rapporteur of Congressman Aguinaldo Ribeiro. The Mixing Commission aims to bring together the two PECs, in addition to a possible project of the Executive Branch, in a single text to be presented in an opinion by the rapporteur.

After all, the discussions on tax reform underway in the National Congress in the 2018-2020 triennium revolve around two proposals: *i)* that of the Federal Senate (PEC #110/2019), with the same content as the final text of the substitute presented in the House by former Congressman Luiz Carlos Hauly (PEC #293/2004); and *ii)* that of the Legislative Chamber (PEC #45/2019), formulated by CCiF and with identical wording to the text of the Global Substitutive Amendment #7/2018 to PEC 293/2004.

The two proposals share a similar diagnosis about the main problems of the current fragmented model of taxation of goods and services in the country. The priority objective of both is to promote the migration to a new model with two taxes: a modern tax on added value, called IBS; and a Selective Tax (IS) levied on specific goods whose consumption is to be discouraged (alcoholic beverages, tobacco products, etc.). Table 1 lists the main differences between the current and the proposed new model.

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proposals are detailed in CCiF (2017) and in the complementary texts presented by the rapporteur of PEC #293/2004. These texts are available on the commission's website at: <http://twixar.me/GnfT>.

[5] The proceedings and documents relating to PECs nos. 45/2019 and 110/2019 are available, respectively, at: < https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2196833> and < https://www25.senado.leg.br/web/atividade/materias/-/materia/137699>.

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TABLE 1

Comparison between the current and the new model of taxation of goods and services

Current Model	**New model**
Multiple taxes (IPI, PIS/COFINs, ICMS, ISS, etc.) administered autonomously by the federal entities and countless competence conflicts between them.	Unification of the taxation of goods and services in the IBS, with uniform legislation throughout the country, which prohibits the autonomous concession of tax benefits.
Coexistence between cumulative and non-cumulative taxes and regimes, with difficulties in using tax credits that, in practice, cause all of them to cascade throughout the production chain and on exports and investments.	A value-added tax, with full use of tax credits, which makes its incidence non-cumulative and exclusive on final consumption (and not on exports and investments).
Narrow bases eroded by the tax war between the federated entities for granting tax benefits.	Broad base on goods and services, tangible and intangible.
A model for collecting and sharing subnational taxes that prioritizes the principle of origin and biases the distribution of revenues in favor of the localities that concentrate economic enterprises.	Collection and distribution at the destination that favors the localities where consumers are concentrated and where they normally demand public services.
Complex management that imposes high compliance costs for taxpayers to meet their tax obligations.	Simple management by a fully computerized and integrated system in the national territory.
Low degree of transparency for taxpayers about the amount of tax embedded in the price of products.	Tax transparency of the single tax, with a standard rate on final consumption.

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There are differences in the degree of scope of the two proposals. The House proposal (PEC #45/2019) focuses exclusively on replacing the five main taxes levied on goods and services - IPI, federal PIS and COFINs, state ICMS and municipal ISS. The Senate's (PEC #110/2019) is more comprehensive because it adds four other taxes to be replaced - Tax on Financial Transactions (IOF), Contribution for Intervention in the Economic Domain on fuel transactions (Cide-fuel), Public Service Employee Savings Program (Pasep) and education wage, all federal - in addition to a set of ancillary measures of taxation on payroll, income and property that boils down to purely punctual actions (Chart 2). The axis of the two proposals in Congress converge towards the priority objective of reforming the taxation of goods and services in the country.

The two proposals show more similarities in terms of the instruments incorporated to mitigate the usual sources of resistance to proposals to modernize the taxation of goods and services. Table 3 lists some of these main sources of resistance and the instruments designed to mitigate them, which we will detail in the text below.

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TABLE 2

Main tax measures foreseen in the House (PEC #45/2019) and Senate (PEC #110/2019) proposals

	House Proposal	**Senate Proposal**
Taxes on goods and services	Replacement of five taxes (federal PIS, COFINs and IPI, state ICMS and municipal ISS) by two: national IBS and federal IS.	Replacement of nine taxes (PIS, COFINs, IPI, Cide-fuel, IOF, Pasep, and federal education allowance, state ICMS, and municipal ISS) by two: state IBS and federal IS.
Income Taxes		Extinction of the Social Contribution on Net Profit (CSLL), which is incorporated into the Corporate Income Tax (IRPJ), with gradual de-linking from social security. Broadening of the IRPF tax base to include indemnities.
Payroll taxes		End of the educational salary, which is incorporated into the state IBS.
Property Taxes		Transfer of the competence to tax inheritances and donations (Tax on Transmission Causa Mortis and Donation - ITCD) from the state to the federal level. Expansion of the tax base of the Tax on Ownership of Motor Vehicles (IPVA) to include, in addition to land motor vehicles, water and air vehicles (excluding vehicles for commercial use in fishing or public transport of passengers and cargo). Gradual redirection of all ITCD and IPVA revenues to the municipalities.

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TABLE 3

Sources of resistance and instruments foreseen in the House (PEC #45/2019) and Senate (PEC #110/2019) proposals

Source of resistance	**House Proposal**	**Senate Proposal**
Loss of budgetary autonomy of the federal entities	Preservation of restricted autonomy for the entities of the Federation that manage their rates individually. The three entities share the uniform IBS calculation basis in the national territory, but each preserves autonomy to set its own rates by its own legislation.	Preservation of restricted autonomy for the states that assume the competence for the IBS, subject to the conditionalities of the national legislation, which prohibits the autonomous concession of tax benefits. Expansion of transfers to municipalities to compensate them for the loss of competence to tax services.
Loss of revenues from specific budgets (social security, health, education, etc.)	Limited impact on the structure of revenue linkages and apportionments, through the single rate system that reproduces the current tax linkage and apportionment rules.	Limited impact on the structure of revenue binding and sharing, through fixed IBS coefficients that reproduce the main rules for binding and sharing of current taxes.
Taxpayer aversion to tax increases	Almost zero revenue gains, ensured by the transition mechanism that calibrates the IBS rates to compensate for (and not exceed) the loss of revenue from the replaced taxes.	Almost zero revenue gains, ensured by the transition mechanism that calibrates the IBS rates to compensate for (and not exceed) the loss of revenue from the replaced taxes.
Companies that made investments counting on tax benefits	A smooth transition mechanism for taxpayers, with a ten-year term, which facilitates adaptation without imposing excessive damage to pre-existing investments.	A smooth transition mechanism for taxpayers, with a six-year term, which facilitates adaptation without imposing excessive damage to pre-existing investments.
Loss in the budgets of federal entities benefited by the current model	An even smoother transition mechanism for federative sharing, with a fifty-year term, which makes the risk of losses very remote.	An even smoother transition mechanism for federative sharing, with a fourteen-year term and a higher risk of losses. Constitution of a fund with resources set aside to cover losses in municipal revenues.
Loss of regional policy instrument	Need to strengthen the regional development policy with Federal Government resources, to replace the use of tax benefits.	Establishment of regional funds to equalize the disparities in revenues among the federated entities, with resources destined for investments in infrastructure.
Loss of purchasing power of low-income families	Institution of a tax refund mechanism for low-income families, to compensate for the elimination of differentiated tax rates on necessities.	Institution of a tax refund mechanism for low-income families and tax rate exceptions foreseen in the national legislation (food, medication, public transportation, fixed assets, basic sanitation and education, etc.).

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2.1 Preservation of restricted autonomy for the entities of the Federation

The main measure in the House proposal is the creation of a new tax (IBS), which, after a transition period, will replace the five main taxes on goods and services. The IBS will be uniform throughout the country, with the Federal Government, the states, the Federal District and the municipalities exercising their competence exclusively through rate administration. The autonomous concession of exemptions, incentives and any other tax or financial benefits by the entities of the Federation is forbidden. The IBS will be regulated by a complementary law, which will create the National Management Committee, composed of representatives from the three federative entities, which will be responsible for managing the tax in terms of defining the criteria for collection, inspection and operationalization of the revenue sharing, among other duties.

The migration to the new IBS, under a joint management and a uniform legislation in the national territory, inevitably reduces the degrees of freedom of the federal entities in comparison with the current situation, in which each one manages its taxes autonomously. This, perhaps, is the main source of resistance to the tax reform proposal. Some critics even raise the thesis that the proposal hurts the federative pact by removing from states and municipalities the autonomy to manage their budgets.

The counter-argument of the IBS advocates is that the proposal provides budgetary autonomy to the federal entities by giving them the right to individually manage their tax rates. To illustrate how this system would work, Table 1 presents an estimate of IBS rates. The essence of the proposal is that the IBS rate be a single rate for the taxpayer and be broken down into three sub rates from the standpoint of public budgets. Our calculations suggest that the IBS would have a reference rate of 26.9% for the taxpayer, which would be divided by the three entities of the Federation, the Federal Government being responsible for 10.2%; the states for 14.7%; and the municipalities for 2.0%.

These reference rates were calibrated to replace the revenue with the old taxes, according to the guidelines of PEC #45/2019. That is, the federal IBS reference rate provides a collection estimate equal to the sum of PIS/COFINs and IPI (less revenue gains from the new IS); the state IBS reference rate, equal to the total ICMS collected by the states; and the municipal IBS rate, equal to the total ISS of the municipalities. [6]

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[6] The calculation was based on tax collection and household final consumption expenditure in the national accounts in 2016. To arrive at an approximation of the VAT calculation base, the current consumption taxes were excluded and an adjustment factor of 0.88 was applied to control for the influence of factors not considered (informality, evasion, differences in national accounts concepts, etc.). This factor was calibrated to coincide with that observed

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PEC 45/2019 allows IBS rates to vary between states and municipalities, above or below the reference rates. A municipality may legislate, for example, a municipal IBS rate of 2.5% and its neighbor, 1.5%. If the federal and state rates remain at their reference levels, the IBS rate for taxpayers will be 27.4% in the first locality and 26.4% in the second. The revenue gains or losses from rate deviations in relation to the references will be fully appropriated by the entity that instituted them, giving them restricted autonomy to manage their budgets. It is as if each of the federal entities were administering its own tax, subject to the restriction that its autonomy must be exercised exclusively through rates (and not through other instruments, such as the concession of tax benefits).

in Hungary, an emerging country with the highest VAT rate in the entire Organization for Economic Cooperation and Development (OECD) (27%).

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TABLE 1

Estimates of reference rates and revenues of the national IBS and federal IS according to the criteria of the House proposal (PEC #45/2019)

	Reference Rates (%)	Current Taxes and Ties	Revenue (% GDP
National IBS	26.9	PIS/Cofins + IPI (less IPI tobacco and IPI beverages) + ICMS + ISS	12.1
Federal IBS	10.3	PIS/Cofins + IPI	4.6
Federal quota	9.4	PIS/Cofins + IPI (net of transfers)	4.2
Social Security	5.0	70% of Cofins	2.3
Unemployment insurance and allowances	0.8	42% of PIS	0.4
BNDES	0.5	28% of PIS	0.2
Regional funds	0.04	3% of IPI	0.02
Education	0.1	18% of IPI (net of transfers) 30% of COFINs + 30% of PIS + 33.1% of	0.1
Free	2.9	of IPI (deducting IPI tobacco and IPI	1.3
State quota	0.4	beverages)	0.2
Education	0.1	FPE (21.5% of IPI) + state share of	0.05
	0.1		0.02
	0.3		0.1
	0.4		0.2
Health	0.1	IPI export (75% x 10% of IPI)	0.05
Free[2]	0.1	25% of state share	0.03
Municipal Quota	0.2	12% of state share	0.1
Education	14.7	63% of state share	6.6
Health	11.0	FPM (24.5% of IPI) + municipal share of IPI export (25% x 10% of IPI)	4.9
Free[2]	2.8	25% of municipal share	1.2
State IBS	1.3	15% of municipal share	0.6
State Quota	6.9	60% of municipal share	3.1
Education	3.7	ICMS	1.6
Health	0.9	75% of ICMS	0.4
Free[2]	0.6	25% of the state parcel	0.2
Municipal Quota	2.2	12% of the state parcel	1.0
Education	2.0	63% of the state parcel	0.9
Health	0.5	25% of ICMS	0.2
Free[2]	0.3	25% of municipal parcel	0.1
Municipal IBS	1.2	15% of municipal parcel	0.5

Prepared by the authors. Notes: [1] The proposal maintains the minimum of 15% of net current revenue (RCL) of the Federal Government for health actions that can reduce the free share (depending on the volume of social security revenue). [2] The proposal foresees the inclusion of unique rates for other destinations defined in the states and municipalities' own legislations that reduce the free rates. Note: BNDES - National Bank for Economic and Social Development; FPE - State Participation Fund; FPM - Municipal Participation Fund.

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PEC #110/2019 has several similarities. It proposes to introduce a new tax, baptized with the same name of IBS, to be regulated by complementary law, with uniform national legislation and prohibition to the autonomous concession of tax benefits by the federal entities. The main difference is that the "Hauly proposal" delegates the competence of the IBS to state governments. Another difference is that the National Management Committee of the IBS will be composed only of representatives of the states and municipalities (and not of the Federal Government). The most immediate consequence of this IBS format is to displace a significant part of the tax collection to the state government. According to our calculations, presented in Table 2, the tax collection under the responsibility of state governments, as a proportion of GDP, would go from 6.6% with the ICMS to something around 11.2% with the state IBS.

The concentration of tax collection in the state sphere would not be greater only because it is planned to create a federal IS with a broad tax base. The two tax reform proposals contemplate a federal IS, to be regulated by supplementary law, which would be levied in a single stage (single-phase) on specific goods and services. The House bill defines the main purpose of this tax as extra tax, intending to discourage the consumption of certain goods and services, such as cigarettes and alcoholic beverages. The Senate proposal, on the other hand, assigns a complementary tax collection function to the federal IS, with incidence on a broader list of products: oil and its derivatives, fuels and lubricants of any origin, natural gas, electricity, telecommunications services, non-alcoholic beverages and new motor vehicles, on land, water and air. This was the solution found to dehydrate the state IBS a little and keep a certain amount of revenue in the federal sphere. The estimates in Table 2 indicate that the federal government's collection would fall from 5.7% of the GDP with the taxes that would be eliminated to 2.0% of the GDP with the federal IS with a tax collection function (and not merely extra tax).

To compensate for the collection losses imposed on the Federal Government and the municipalities, the Senate proposal determines that the state IBS revenues be shared with the other federal entities. The proposal creates a very complex system for sharing the new taxes, as shown in Table 2: the federal IBS revenues are shared with the state governments and the state IBS revenues are shared with the municipal governments and the Federal Government, with one part of the federal share of the state IBS giving rise to new transfers to the municipal governments and the other part returning to the state governments. The sharing coefficients of the new taxes were calibrated so that the flows of intergovernmental transfers neutralize the concentration of collection at the state level. The result is a distribution of the revenues appropriated by the three spheres of government like the current one. This is what our

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calculations in Table 2 indicate, based on the sharing rules of the new taxes, which arrive at estimates of revenues (after transfers) appropriated by the federal, state and municipal governments very close to the current structure, around 5.2%, 5.2% and 2.8% of GDP, respectively. [7]

An additional resource expected to compensate municipalities, which lose the competence to tax services with the extinction of the ISS, is the expansion of transfers. The Senate proposal establishes a gradual redirection of IPVA and ITCD revenues to municipalities, currently appropriated by state governments.[8] In 2016 figures, this redirection represents a gain of around 0.4% of GDP. And these gains should be even greater because the PEC stimulates a set of measures with tax collection impact, such as the expansion of the IPVA tax base for water and air vehicles, the regulation of new ITCD tax rates and the change in the administration of the latter tax, which is federalized and integrated with Income Tax (IR).

[7] The difference found in the state and local government figures is explained by the fact that the proposal's sharing coefficients were calibrated with 2015 data, and our calculations take 2016 as the base year.

[8] Starting in the first year after the end of the ISS, when the coefficient for the municipal share of IPVA will increase from 50% to 55% and a coefficient for the ITCD of 10% will be created, being up to a complementary law to define the criteria for sharing among the municipalities. The two municipal share coefficients will be increased, respectively, by 5 percentage points (p.p.) and 10 p.p. in each of the subsequent years, until 100% at the end of ten years.

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TABLE 2

Revenues and destinations of current taxes and the new model of the Senate proposal (PEC #110/2019)

(In % GDP)

Federal Government			
Current Taxes	Recipes	New model	Recipes
Total revenue	5,74	Total revenue	2,02
IPI	0,67	IS	2,02
Regional funds (3%)	0,02	State quota (20%)	0,4
FPM (24.5%)	0,16	Net revenue (80%)	1,62
FPE (21.5%)	0,14	Education (7.79% + 3.37%)[1]	0,18
State IPI export quota (10% x 75%)	0,05	Unbound	1,44
Municipal share of IPI export (10% x 25%)	0,02		
Education (18% x 44%)	0,05		
Unbound	0,22		
COFINs	3,23		
Social Security (70%)	2,26		
Unbound by DRU (30%)	0,97		
PIS/Pasep	0,85		
Salary bonuses and unemployment insurance (70% x 60%)	0,36		
BNDES (70% x 40%)	0,24		
Unbound by DRU (30%)	0,25		
Educational allowance	0,31		
State and municipal dues	0,19		
Education (FNDE)	0,12		
Cide-fuel	0,14		
State and municipal dues	0,02		
Specific destinations	0,08		
Unbound by DRU (30%)	0,04		
IOF	0,54		
Education (18%)	0,1		
State and municipal dues (IOF-Gold)	0		
Unbound	0,44		
Transfers	-0,58	Transfers	3,14
Received	0	Received	3,98
Passed on	-0,58	Passed on[2]	-0,84
Appropriate Revenue	5,16	Appropriate Revenue	5,16

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TABLE 2
Continued

State Government			
Current Taxes	Recipes	New model	Recipes
Total revenue	6,59	Total revenue	11,19
ICMS	6,59	State IBS	11,19
Municipal quota (25%)	1,65	Federal quota (35.57%)	3,98
Net revenue	4,94	Regional funds (0.59%)	0,02
		Education (7.79% + 3.37%)[1]	0,44
		FPE (4.23%)[3]	0,17
		FPM (4.82%)[3]	0,19
		IPI export state quota (1.97% x 75%)	0,06
		IPI export municipal share (1.97% x 25%)	0,02
		Social security, BNDES, unemployment insurance and bonuses[4]	3,07
		Municipal quota (22.91%)	2,56
		Net revenue (41.52%)	4,65
Transfers	-1,35	Transfers	-5,91
Received	0,29	Received	0,63
Passed on	-1,65	Passed on	-6,55
Appropriate Revenue	5,24	Appropriate Revenue	5,28
City Government			
Total revenue	0,88	Total revenue	0
ISS	0,88		
Transfers	1,94	Transfers	2,78
Received	1,94	Received	2,78
Passed on	0	Passed on	0
Appropriate Revenue	2,82	Appropriate Revenue	2,78

Prepared by the authors.
Notes: [1] Includes the additional 3.37% coefficient, which replaces the salary-education linkage (including the portion to be transferred to states and municipalities proportionally to the number of students enrolled in the public network). [2] Includes transfers from FPE, FPM, and IPI exports. [3] Includes the additional that replaces state and municipal quotas of Cide-fuel. [4] The percentages for the current PIS, which allocates resources for the salary bonus and unemployment insurance, and for BNDES, will be defined by law and will reduce the social security portion defined by residue.
Note: DRU - Desvinculação de Receitas da União (Divestment of Federal Government Revenues); FNDE - Fundo Nacional de Desenvolvimento da Educação (National Fund for Education Development).

In summary, the two tax reform proposals have as a priority objective to promote the migration to an entirely new model of taxation of goods and services in the country. It is proposed to replace the current fragmented model, which is characterized by the coexistence of a set of narrow-based taxes and administered autonomously by the three entities of the Federation, by a model based on a broad-based tax and uniform legislation throughout the country, which prohibits the autonomous granting of tax benefits.

The proposals follow different paths to deal with resistance to the loss of autonomy of the federated entities that results from this migration. The House proposal introduces an

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ingenious system of subdividing the IBS into federal, state and municipal rates that can be administered individually, restricting, without eliminating, the autonomy of the Federation's entities. The three share the tax calculation basis, which will be uniform throughout the country, but each will be free to change its rates by its own legislation. The regulation of the tax will be the responsibility of the National Management Committee, composed of representatives from each.

The Senate proposal seeks to overcome the resistance of the federal entities, preserving the subdivision of federal competencies and giving the states a prominent position in the new model. The states assume responsibility for the IBS, with revenue sharing with the other entities, and the Federal Government is left with a broader-based IS, which somewhat mitigates its revenue loss. The management autonomy of the country's main tax, the state IBS, will be restricted by uniform legislation in the national territory and its regulation will occur by the National Management Committee, which will require compliance with a set of conditions, such as the prohibition of granting tax benefits - except for exceptions provided for in national law. In this case, the IBS Management Committee will be composed only of representatives of the subnational entities (and not of the Federal Government).

In relation to the municipalities, the compensation takes place through the expansion of intergovernmental transfers of property taxes. The municipalities lose the competence to tax services and receive in exchange a more than compensatory amount of transfer revenues. This is a more pragmatic proposal, to circumvent resistance from the federated entities, which simultaneously places the state governments in the prominent position of the new model and increases the share of revenues of municipalities to compensate them - unlike the proposal of the House of Representatives, which provides a technically more well-designed solution for sharing the duties among the three federated entities.

2.2 Limited impact on the structure of revenue assignments and breakdowns

An additional source of resistance from interest groups in society is the risk that the migration to the new model of taxation of goods and services will change the allocation structure of current taxes and cause revenue losses in specific budgets (social security, health, education, etc.). The Senate proposal (PEC #110/2019) eliminates part of this risk by setting binding coefficients and apportionments for the state IBS and the federal IS, which result in a revenue allocation structure close to that of the taxes they are intended to replace. Under the current Brazilian budgetary framework, the multiple taxes that are levied on goods and services are

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subject to different budget allocation rules, and some of them are shared with states and municipalities.

Basically, what the Senate proposal does is to fix coefficients of the new taxes that reproduce the main linkages. As an example, let's take the case of the financing programs for the productive sector of the regional funds - Midwestern Financing Fund (FCO), FNE and FNO -, which are made with 3% of the IPI collection and are equivalent to 0.02% of GDP. The PEC #110/2019 redefines this linkage to 0.59% of the federal share of the state IBS, which, according to our calculations, would result in the same 0.02% of GDP. The main rules for linkages and distribution of the taxes that are intended to be eliminated are redefined by equivalent coefficients, from which it is possible to arrive at a linkage structure close (but not identical) to the current one, which is detailed in Table 2. [9]

The House proposal (PEC #45/2019) introduces an alternative linking and apportioning system called singular rates. Under this system, the current rules for linkages and apportionments are replaced by equivalent IBS sublevels. Let us return to the example of the regional funds. Our estimates suggest that the same 0.02% of GDP in revenues could be raised by an IBS rate of 0.04% - called the singular reference rate of the regional funds, whose estimated resources are equal to the current IPI linkage. The same logic can be replicated for each of the current revenue allocations and results in the singular rates, shown in Table 1. The proposal is that the IBS (federal, state or municipal) should be composed of the sum of these singular rates with a residual free rate (non-binding) and that its revenues should be assigned to each destination, according to the participation of the singular rates in the total rate.

The single rate system would be neutral in relation to the current budget allocation structure, if all rates were fixed at their reference levels, something that will not necessarily occur. The House proposal allows the individual rates to be changed by law of the respective federated entity, if some minimum floors are observed. The Federal Constitution and its complementary legislation, for example, determine the minimum investment of 25% of ISS revenues in the maintenance and development of education and 15% in public health actions and services. Whenever the municipality increases its ISS, the revenues linked to spending on

[9] There are divergences in the volumes of revenues from linkages and apportionments of the current structure and the new model in Table 2. The main reason is that the coefficients of the PEC were fixed so that the current structure coincides with the new structure, composed of the state IBS, the federal IS and the new IR, since it is foreseen to incorporate the CSLL to the IRPJ. For this reason, the isolated linkages of the IBS and the federal IS should not necessarily coincide. Another reason is that our calculations refer to 2016 and the definition of the PEC coefficients considered data from 2015. It was not possible to find references in the wording of the PEC to IOF-Gold transfers.

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health and education grow proportionally. These linkages would be replaced by unique reference rates of 0.5% for education and 0.3% for health, which, according to our calculations, maintains the same level of current revenues. If the municipality wants to increase its free (non-binding) revenue, it is enough to approve a law that increases the municipal IBS rate, without changing the singular health and education rates. Another flexibility allowed is for the municipality to reduce its education rate from 0.5% to 0.4%, if it compensates, via an equivalent increase of the health rate from 0.3% to 0.4%, considering that, in this specific case, the proposal foresees that the sum of the two rates cannot be set lower than the sum of the two reference rates, i.e., 0.8%.

This type of minimum floor for health and education, given by the sum of the respective reference rates, is set for the IBS revenues (including transfers) of the three levels of government, which may set one of the two rates below the reference, provided that this gap is compensated by a surplus in the other rate. In addition, PEC #45/2019 defines individual minimum floors corresponding to the reference rates for intergovernmental transfers (FPE, FPM, IPI export and municipal share of the state IBS) and for regional funds. The other individual rates have #minimum floor (social security, BNDES and unemployment insurance and salary bonuses) and, in theory, can be zeroed by federal law. In short, the system of unique rates facilitates the introduction of changes in the rules of linkages and creates a path for budgetary flexibility.

2.3 Near zero revenue gains

One of the main sources of resistance to tax reforms is the taxpayers' aversion to tax increases, especially in a country that already has a tax burden that, like ours, excessively burdens goods and services. For this reason, the two proposals for tax reform forecast that the tax collection gains will be almost nil during the entire period of migration from the old to the new tax model. This result derives from the transition mechanism foreseen in each proposal, which calibrates the IBS rates to compensate exactly for the loss in tax collection with the substitution of the old taxes.

The House proposal establishes a two-year test period, followed by a proper transition period of eight years. During the test, the IBS will be introduced at a modest rate of 1%. In return, the COFINs rate will be reduced to cause a loss in tax collection in an amount equal to the estimated revenue gain from the IBS. In the eight subsequent years, the rates of five taxes (PIS, COFINs, IPI, ICMS, and ISS) will be gradually reduced, at the rate of one-eighth per year,

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until they are zeroed out in the last year of the transition. At the same time, the IBS reference rates will be increased to restore, in each year of the transition, the estimated revenue loss caused by reducing the rates of the five taxes, after deducting the revenue gain from the introduction of the federal IS in the first year of the transition. [10]If the rates of the IBS (federal, state and municipal) are always maintained at their reference levels, the rate calibration mechanism guarantees a relatively stabilized collection, in proportion to the tax base. Since there is #restriction for the federal entities to set rates higher or lower than the reference rates, it is most likely that the tax burden will gravitate around its current level during the transition period.

This mechanism of rate calibration to ensure that the revenue gains from the new taxes will only neutralize the losses from the old ones, without changing (or hardly changing) the overall revenue, was incorporated in the Senate proposal. The transition periods, however, are shorter. The test period with a rate of up to 1% of the IBS (and compensatory reduction in the COFINs) is shortened to one year, and the conclusion of the transition is in another five years, during which time the rates of nine taxes (PIS, COFINs, IPI, ICMS and ISS, Cide-fuel, IOF, Pasep and education allowance) would be reduced by one-fifth each year until they are zeroed out - at the same time that the rates of the state IBS and the federal IS will be gradually increased and fixed at levels that restore the loss of revenue from the old taxes.

2.4 Smooth transition mechanism for taxpayers

Even if the tax burden remains constant during the transition period, the intended uniformization in the tax rates on goods and services tends to generate losers among the economic sectors. This is the case of companies that made investments counting on tax benefits under the current model and that would incur losses under the new model. The objective of reducing these losses is an additional justification for the two tax reform proposals to contain smooth transition mechanisms that ensure the coexistence of the old model with the new, in which the former gradually disappears to make way for the latter. Instead of an abrupt change, the migration to the new model is done gradually over a relatively long period, ten years for the House proposal and six years for the Senate proposal, including test periods, which facilitates the adaptation of taxpayers without imposing excessive damage to pre-existing investments.

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[10] The precise criteria for the calculation of the rates will be defined in a complementary law. The guidelines of the PEC only indicate that the rates will be set by the Federal Senate based on a technical study prepared by the Federal Audit Court (TCU), and any errors in estimates may be corrected in subsequent years.

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2.5 Even smoother transition mechanism to federative sharing

As we have seen, the architectures of the tax reform proposals were designed not to cause substantial changes in the shares of revenues appropriated by the three spheres of government (federal, state, and local).[11] If it is true that the reform foresees an (almost) neutral impact in terms of vertical distribution of revenues among these three spheres, the same cannot be said about the horizontal distribution of revenues among the units of one of them - that is, among the 26 states and the Federal District, and among the 5,568 municipalities. Quite the contrary, the migration to the new IBS has great potential to redistribute revenues among the states and among the municipalities.

The current subnational tax collection model, described in Exhibit 4, follows a hybrid of the destination and origin principles, but excessively privileges the latter. The origin principle is also privileged in the ICMS sharing model, which is shared among the state's municipalities predominantly by the municipal added value criterion, that is, in proportion to the value of production ascertained in each location. The result is a subnational tax collection and sharing model that biases the distribution of revenues in favor of the places where economic enterprises are concentrated and to the detriment of those where consumers are concentrated and where they usually demand public services.

[11] At least when it comes to the comparison between the new taxes and those replaced, the Senate proposal expands the municipalities' share by other transfer flows from property taxes.

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TABLE 4

Comparison between the current and the new model for collecting and sharing subnational taxes

Current Model	New model	
	House Proposal	Senate Proposal
Collection Model		
Destination and Source Hybrid	Based entirely on fate	
The ICMS on interstate operations for the commercialization of goods and services is divided into two rates. The first rate of 12% or 7%[1] is charged to the state of origin. The state of destination keeps the difference between its internal rate, usually between 17% and 18%, and the interstate rate.	The state IBS will be levied by the state of destination (place of consumption).	The state IBS will belong to the state of destination (place of consumption).
The ISS on inter-municipal operations is due to the place of establishment of the service provider (origin), except in the exceptions provided by law, when it will be collected at the place of service provision (destination).	The municipal IBS will be levied by the municipality of destination (place of consumption).	There will be #municipal tax or rate.
Sharing Model		
Prioritization of the Origin Criterion	Prioritizing the Population Criterion	Prioritization of the target criterion
The municipal share of ICMS (25% of total revenues) is shared by two criteria: • 75% proportionally to the tax value added of each municipality; and • 25% by own criteria defined in state laws.	The municipal share of the state IBS (25% of total revenues) will be shared by two criteria: • 75% proportionally to the population of each municipality; and • 25% by own criteria defined in state laws.	The municipal share of the state IBS (22.91% of total revenues) will be shared by two criteria: • 84.26% belong to the municipality of destination (place of consumption); and • 15.74% by own criteria defined in state laws.

Prepared by the authors. Note: [1] The reduced rate of 7% applies when the operation is originated from a state in the South and Southeast regions (excluding Espírito Santo) and destined to states in other regions (including Espírito Santo).

The two proposals reform this tax collection model by introducing the new IBS, based entirely on the destination principle. The House proposal defines that in interstate and intercity IBS operations, the tax rate of the state and municipality of destination will apply and the tax will belong to the state or municipality of destination. More precisely, the collection of the IBS will be centralized throughout the country and its revenues will be distributed to each federal entity in proportion to the net balance between credits and debits of the tax attributable to each. The tax due to the subnational entities is calculated according to the respective state or municipal IBS rates, which replace the ICMS and ISS. The change extends to the state tax sharing model. The rules for sharing the municipal share of the ICMS, which prioritize the value-added criterion, are replaced by new rules for sharing the municipal share of the state

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IBS, which prioritize the population criterion (Table 4). The introduction of this population criterion enhances the distributive character of the new model.

The Senate proposal, on the other hand, defines that the state IBS will belong to the state of destination of the good or service, and may be collected in the state of origin and passed on to the state of destination, according to rules to be established in the complementary law that will regulate it. The competence for the IBS is delegated to the state, which must pass on 22.91% of the revenues to the municipalities. The municipal share of the IBS will be distributed according to two criteria: 84.26% of the revenues will belong to the municipality of destination, replacing the ISS and the portion of the municipal share of ICMS distributed according to the value-added criteria; and 15.74% will be passed on according to state law, just like the remaining portion of the municipal share of ICMS is today.

In common, both tax reform proposals promote a migration to a new tax collection and distribution model that prioritizes the destination principle (or population, in the case of the House proposal's sharing rule). This migration has the potential to promote a significant redistribution of revenues to the benefit of state and municipal governments, which concentrate proportionally more consumers and are disadvantaged by the origin-based criteria - to the detriment of those that concentrate proportionally more enterprises in their territory and are currently benefited. This is undoubtedly an important change, because consumption usually takes place at the consumer's place of residence, where he or she pressures the demand for public services the most. In other words, the new model brings, implicitly, a federative tax equalization effect, in the sense of reducing disparities between available revenues and demand for public services in the states and municipalities.

Even if equalization is desirable from the point of view of the Federation as a whole, an abrupt migration to the new collection and sharing model would impose very large losses on the budgets of certain states and municipalities. The risk of incurring in revenue losses causes concern and resistance from governors and mayors. To minimize this risk, the two tax reform proposals propose mechanisms for gradual transition to federal sharing, with even longer time frames than the transition for taxpayers.

The transition mechanisms of the federative sharing of the two proposals follow the same logic. The revenue sharing of the new IBS is done by a hybrid model during the transition: a first portion by criteria based on the current revenues of the taxes to be replaced (i.e., the ICMS of the states and the ISS of the municipalities), decreasing over time; and the remaining portion by the new criteria, which prioritize the destination, growing gradually until it becomes

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the only sharing criterion. The differences are less in the conception of this model and more in the specific sharing criteria and in the transition deadlines.

The transition period in the House proposal is fifty years, subdivided into two stages. During the initial twenty-year stage, a first portion of the IBS revenues will be passed on annually to each state and municipality to replace the amount equivalent to the loss of ICMS or ISS revenues, adjusted for inflation.[12] The excess revenues from the IBS, after the replacement of the ICMS and ISS losses, will be passed on to the states and municipalities according to the criteria of the new destination-based collection model. In the second stage, of thirty years, the IBS transfers by the criteria of replacement of losses will be reduced by one-thirtieth per year until it reaches zero - by construction, the revenue surplus distributed by the criteria of the new destination-based model will grow faster.

The didactic example presented in Chart 1 helps to understand how the transition would take place for two hypothetical municipalities if the IBS were introduced in 2021. It was assumed that the two municipalities have the same *per capita* consumption level and the same population, under a scenario in which the tax bases grow at 2% per year. Municipality A hosts an economic enterprise of high added value that causes its revenues from ISS and ICMS to be initially double those of Municipality B. [13]Under these assumptions, a sudden transition to a new destination-based model would lead to a 33% decrease in revenues for Municipality A and a 50% increase in revenues for Municipality B, so that both would have the same *per capita* revenue level. Transition mechanisms postpone this convergence to smooth revenue trajectories.

Charts 1A and 1B simulate the trajectories of revenues in the two municipalities, according to the transition rules of the House proposal. After an initial two-year test, the ISS and ICMS revenues start to fall until they are zero in 2030, while the IBS revenues grow and are distributed according to two different criteria. The first criterion is the replacement of the ISS loss. The replacement of the loss is full for twenty years and becomes partial and decreasing in the following years. This criterion ensures that the sum of ISS and municipal IBS transfers, by the loss replacement criterion, remains constant (in real values) during all years of the 2023-2042 period for the two municipalities in Charts 1A and 1B. The municipal IBS revenue surplus, since 2023, is distributed by the more equitable criteria of the new destination-based model and starts the process of convergence of the two municipalities' revenues. From 2043 on,

[12] Provided that the state or municipal IBS rate coincides with the reference rate. If the state or municipality sets a different rate, the revenue gain or loss will be fully appropriated by the entity in question.
[13] For simplicity, we admit that the revenues distributed according to state law follow the destination criterion.

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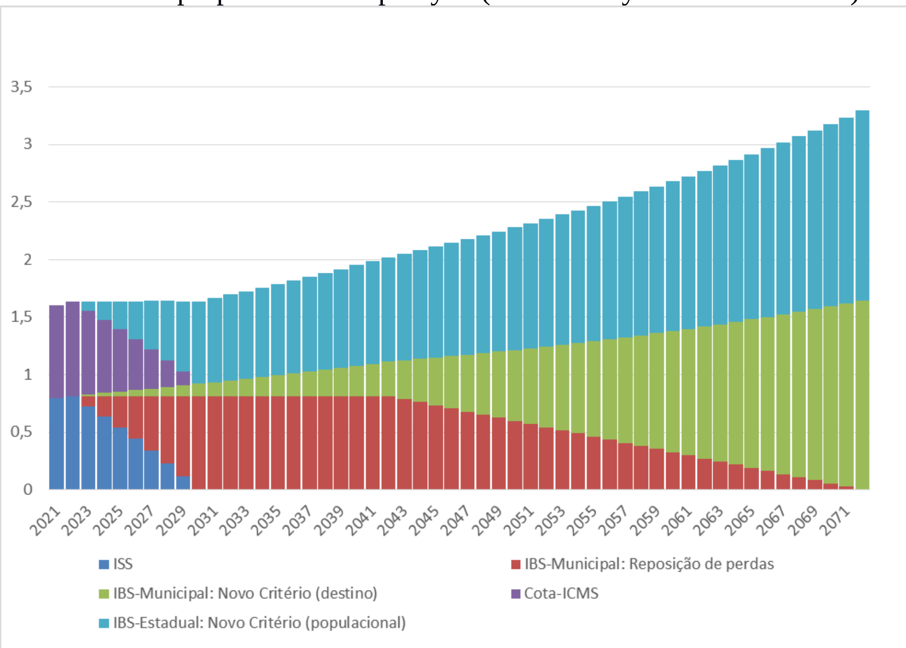
the loss replacement transfer begins to decline and an increasing volume of IBS revenues is shared by the new destination-based criteria. At this stage of the transition, the replacement for losses is #longer complete and there are chances that eventual municipalities will have real revenue losses. In our example in Charts 1A and 1B this does not occur. The convergence continues with the revenues of municipality B growing more than those of municipality A, until they equalize in 2072.

CHART 1

Simulation of the revenue trajectory of two hypothetical municipalities under the transition rules of the House proposal (PEC #45/2019) and the Senate proposal (PEC #110/2019)

1A - Council's proposal: Municipality A (benefited by the current model)



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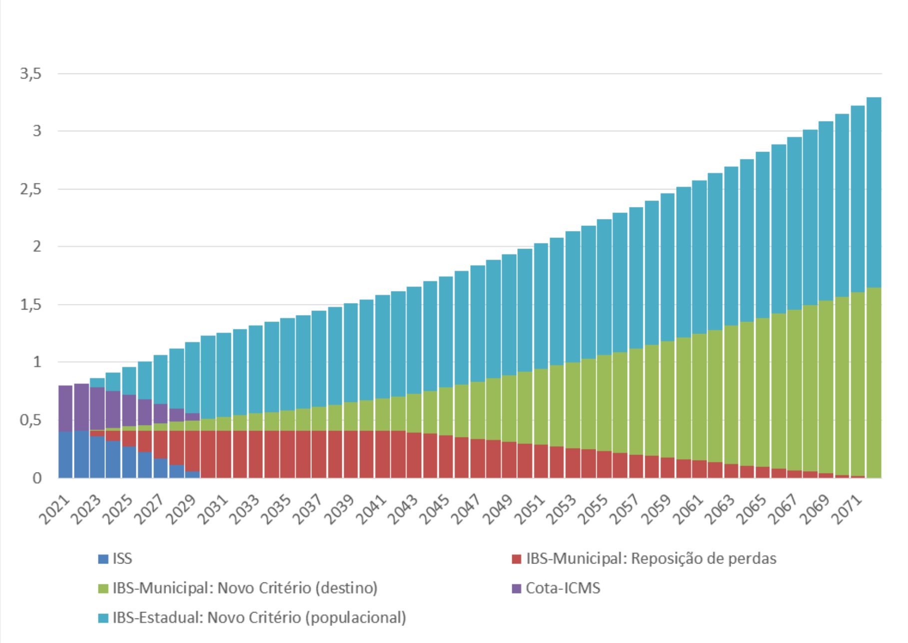
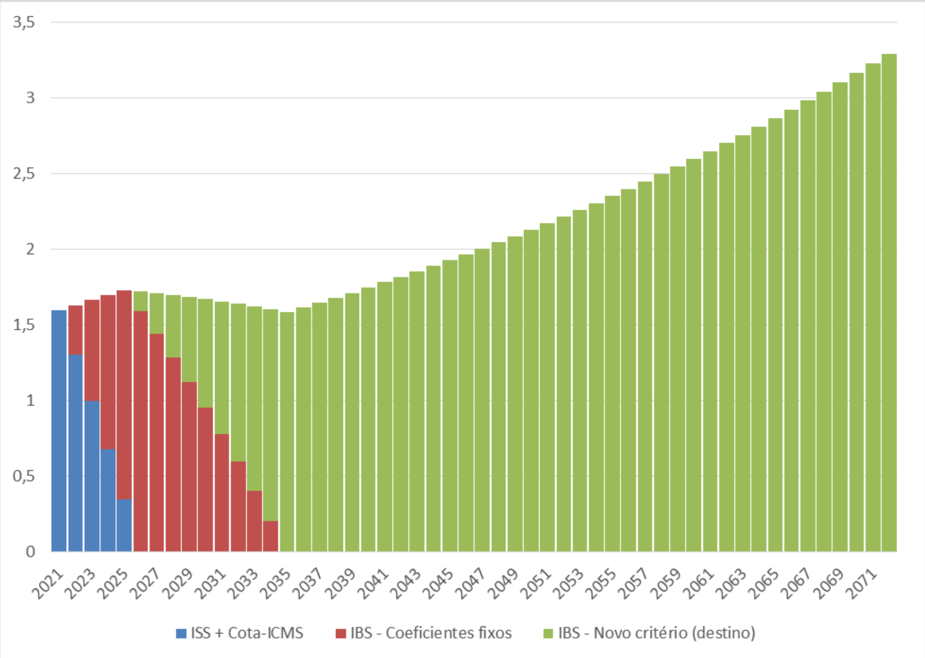
1B - Council's proposal: municipality B (hampered by the current model)



1C - Senate Proposal: Municipality A (benefited by the current model)



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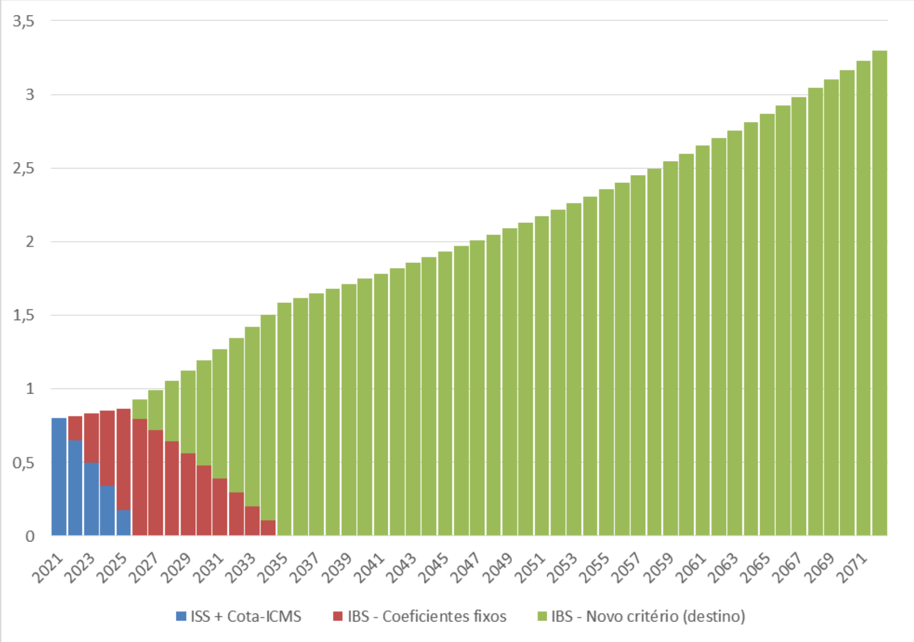
1D - Senate proposal: municipality B (hampered by the current model)



Prepared by the authors.

An additional issue is that the House proposal does not foresee that the loss replacement criterion applies to the replacement of the municipal share of ICMS by the state IBS, but only to the replacement of ISS by the municipal IBS and ICMS by the state IBS. The state IBS belonging to the municipalities is shared from the beginning by the new population criterion. This opens the possibility that municipalities with high tax value added, compared to their populations, may incur real revenue losses at the beginning of the transition - as occurs in our didactic example in Chart 1A with municipality A, in the 2029-2030 biennium.

On the other hand, the Senate's proposal foresees a transition mechanism of federative sharing for a period of fourteen years, subdivided between the initial stage, of four years, and the final stage, of ten years. In the first four years, the distribution of revenues from the new taxes (IBS and IS) follows a single criterion, based on coefficients calculated by the share of each entity in the revenues of the taxes that will be eliminated (net of transfers), considering the averages of the three previous years. These coefficients continue to be calculated in the first two years of the final stage and, after the elimination of the old taxes, they are frozen and used as a reference for the sharing in the following years. During this final stage of the transition, the distribution of revenues from the new taxes (IBS and IS) follows a weighted average of two criteria: the coefficients, which reproduce the distribution of the old taxes, and the new model based on destination. The average is weighted by variable weights over time, with the weight of the first criterion initially set at 90% and dropping 10 p.p. per year until it reaches zero, and

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the weight of the second starting at 10% and growing by an equivalent amount until 100% in the last year of the transition.

The simulations of the revenue trajectories in the two hypothetical municipalities by the transition rules of the Senate proposal are presented in Charts 1C and 1D. The transition periods are always shorter - the IBS test period is one year, and revenues from ISS and ICMS start to fall already in the following year, becoming extinct in 2026. From 2022 to 2025, the municipal share of the IBS is fully distributed by the coefficient criterion calculated by the share of the sum of ISS and the share of ICMS of each municipality in relation to the total revenues of the taxes to be replaced (PIS/COFINs, IPI, ICMS, ISS, etc.). The sharing in the years 2026-2034 is now done by the weighted average of two criteria, with decreasing weights for the coefficient one and increasing weights for the new destination criterion. The combination of the later introduction of the new destination criterion and the shorter transition period makes the convergence process of the two municipalities' revenues much faster. Convergence begins in 2026 and the revenues of the municipalities are matched in 2035, thirty-seven years earlier than in the House proposal. In contrast, municipality A incurs real revenue losses during all years of the 2026-2035 decennium.

The analysis of Chart 1 allows us to identify the main similarities and differences between the two transition mechanisms of federal sharing. Both are based on a hybrid model, with a gradualist *phase-in/phase-out* process: at the beginning of the period there is a predominance of criteria based on the current sharing structure, which are progressively removed; as time goes by, the new criteria gain importance, until the full conversion to the single model at the end of the transition. This gradual process softens the revenue trajectories during the migration to the new model, even if it does not eliminate the risk of losses in the budgets of the federal entities, benefited by the current model of collection and distribution of subnational taxes.

The risk of losses is increased by the transition mechanism of the Senate proposal. The introduction of the new criterion, based on fate, is postponed for a few years and the transition is concentrated in a shorter period, with a greater destabilizing effect on revenues. In the case of the transition of the House proposal, the new criterion is introduced more immediately and for a much longer transition period, which ensures a more stable revenue path and a lower risk of losses. In our example in Charts 1C and 1A, municipality A observed revenue losses during the entire decennium 2026-2035 by the Senate proposal and only in the biennium 2029-2030

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by the House proposal, and in the latter case the losses are explained by the absence of a transition model for the replacement of the ICMS share by the state IBS share.

Roughly speaking, there is a kind of *trade-off* between the period for the transition to the new model and the risk of revenue losses that overlaps with the specific designs of the transition mechanisms. The faster the transition, the greater the risk to the budgets of units of the federal entities that benefit from the current model. Such findings, drawn from the analysis of the municipalities, are generalizable to the states that are subject to the same transition rules of federative sharing. The only caveat is that the risk of losses is lower because the differentials in appropriated revenues among states are much smaller than among municipalities. [14]

Another important caveat is that the risk of losses should be relativized when we consider the differential effect that tax reform can have in terms of growth in revenue of the federal entities. The migration to a modern model of taxation of goods and services, which eliminates numerous inefficiencies of the current model, has the potential to leverage the growth of the Brazilian economy in the medium and long term and, indirectly, the tax bases. Therefore, the growth in tax collection, induced by the expansion of the tax base, is projected to be higher in the scenario with the new IBS than in the scenario with the current taxes. When we consider this differential effect of higher tax collection growth and a gradual transition mechanism of long term, the risks of losses in the budgets of the federal entities become remote.

This is the wager of the "CCiF proposal" (PEC #45/2019) by setting a transition period of fifty years for the federal sharing and dispensing with a compensation mechanism for losses in the budgets of the federal entities - unlike the "Hauly proposal" (PEC #110/2019), which shortens the transition period to fourteen years and implicitly admits the risk of losses. To deal with such losses, PEC #110/2019 contains a provision that determines the establishment of a fund for the purpose of reducing *per capita* revenue disparities among municipalities, which will have a portion of the resources set aside to compensate for any losses in municipal revenues during the transition period. The proposal does not provide any details about the sources of resources, the portion destined to compensate for losses, and the allocation criteria, which will have to be defined in a complementary law.

A valid criticism is that the transition periods for the federal sharing of the two tax reform proposals are too long. Extended deadlines have the advantages of reducing the risk of revenue losses for the federal entities, currently benefited by the current model and more time

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[14] This topic will be further explored in the next section, which assesses the impacts of the transition to the new model on state and municipal revenues.

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for the adaptation of budgets to the new tax model, under the burden of excessive postponement of the period of living with the imperfections of the current model. An eventual shortening of these deadlines would amplify the risks of losses in the budgets of the federal entities and the sources of resistance to the approval of tax reform, unless it were possible to allocate additional revenues in a loss compensation fund. We will return to this subject later.

2.6 Need for strengthening regional development policy

Aside from the debate about mechanisms to compensate for the loss of revenues of the federal entities, a second question concerns the compensation for the loss of autonomy through a regional policy instrument. The current model of autonomous management of the ICMS and ISS, with part or all the collection on interstate or inter-municipal operations falling to the state or municipality of origin, opens space for the units of the Federation to use tax benefits to attract investment and promote regional development. Over the last decades, however, there has been a gradual deterioration of this regional policy instrument, due to deficiencies in its design, lack of coordination, non-selectivity and susceptibility to the influence of interest groups. Under these conditions, the tax model has stimulated the ICMS and ISS tax wars. That is, an uncooperative game of predatory competition - via excessive concession of tax benefits - among the units of the federated entities that, to attract economic enterprises of each unit, culminated in the corrosion of the tax bases of all of them. Furthermore, this game resulted in inefficiencies in the allocation of investments and in aggressive tax planning practices by companies.

The two tax reform proposals prevent this type of predatory tax war by instituting the new IBS, collected entirely at the destination and with uniform legislation in the national territory, prohibiting the autonomous concession of tax benefits. The loss of autonomy for the concession of tax benefits implies the loss of a regional policy instrument - which, despite its exhaustion and notable inefficiencies, is one of the few available to subnational governments. Not by chance, the two proposals for tax reform establish, among their guidelines, the need to replace the use of tax benefits by another format of regional development policy.

The reference to regional development policy is made more vaguely in the House proposal. The justification of PEC #45/2019 presents a generic defense in favor of the allocation of Federal Government resources to strengthen this policy, without going into details about the sources and criteria for application of resources that would be up to infra-constitutional legislation.

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The Senate proposal goes a little further, by including a provision determining that the federated entities will constitute two funds to equalize the disparities in *per capita* revenue between the units of the federated entities, one state and one municipal, with resources earmarked for investments in infrastructure. The regulation will be the responsibility of a complementary law, which may provide for the hypothesis of allocating part of the tax collection to the two funds. In other words, the Senate proposal advances in the sense that it explicitly determines the creation of two funds to fund a new regional development policy, but does not clarify how the funds would operate in terms of management, allocation criteria and sources of resources.

The distrust of the redesign of regional policy is perhaps the main source of resistance to tax reform on the part of representatives of state and municipal governments. The migration to the new tax collection and sharing model that prioritizes the destination already embodies a tax equalization effect that redistributes revenues in favor of localities with a lower degree of socioeconomic development, part of which could be channeled to a much more efficient regional development policy than the one promoted today, via tax war. This does not exhaust the question, however, from the perspective of the subnational entities, which demand a specific instrument to combat inequality.

In the absence of a more precise definition of the format of a fund to support the new regional policy (and that may also have the attribution of compensating losses in the budgets of the federated entities), it will continue to be difficult to overcome the resistance of the representatives of the governments of the Federation entities. One way out of this impasse is for the Federal Executive to assume a protagonist role during the process of approving the tax reform, with the Federal Government giving up revenues to make the constitution of the new regional fund feasible and acting in the coordination of the subnational governments, with the objective of reaching a consensual solution for the format of this fund.

2.7 Uniform tax rates and tax refunds for low-income families

The House proposal preserves the autonomy for each state and municipality to set its IBS rate, but requires that this rate be the same for all goods and services consumed within the local authority. This standardization represents a radical change from the current situation, where the rates vary widely among goods and services. In the case of the ICMS, for example, the effective tax rates for products such as gasoline range from 25% to 32% in all the country's states, while other products are practically exempt, due to the differentiation of rates and other tax benefits

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often granted by criteria that lack social and economic justification. On the one hand, the standardization of tax rates on goods and services equalizes tax treatments that would eliminate several arbitrariness in our system. On the other hand, it makes it impossible to use differentiated tax rates for distributive policy purposes.

On this aspect, the Senate proposal is a little more flexible. It defines that the IBS will have a standard rate for most goods and services and possible differentiated rates or tax benefits for specific goods and services defined in the complementary law that will regulate the tax. PEC #110/2019 also establishes a prior list of goods and services that may receive differentiated treatment, including food, medicines, public transportation, fixed assets, basic sanitation, and education. This flexibility creates some room for the pursuit of distributive objectives through the differentiation of IBS rates, with the scope reduced to the exceptions provided for in the national legislation.

It is important to keep in mind that the standardization of tax rates on goods and services would not necessarily make the tax profile more regressive, in the sense that it would proportionally burden the income of the poorest more than that of the richest. To evaluate this hypothesis, we proceeded to a comparative analysis of the incidence of the current differentiated rates in relation to a uniform rate.

Chart 2 shows the proportions of the five main taxes on goods and services (IPI, PIS, COFINs, ICMS and ISS) in the average household income *per capita for* each of the tenths of the distribution, taken from the work of Silveira (2012), who applies the numerous tax rate legislations, tax breaks and exemptions for each of the products in the household consumption basket of the Family Budget Survey (POF) of the Brazilian Institute of Geography and Statistics (IBGE). With microdata from Silveira's (2012) tax incidence matrix, we conducted a counterfactual simulation exercise, which consists of recalculating the weights of taxes on household income if the differentiated rates of the five taxes were replaced by a uniform rate that generates the same level of tax collection. [15]

CHART 2
Weight of the current taxes with differentiated rates (IPI, PIS/COFINs, ICMS and ISS) and of the IBS with a uniform rate, by tenths of the distribution of *per capita* household income

[15] It should be noted that this is merely a static simulation exercise that captures only the effect of taxes on final consumption. A more accurate evaluation, which is beyond the scope of this text, should take into consideration dynamic effects and the taxes embedded in the inputs, given that the current model of taxation of goods and services has a cumulative nature.

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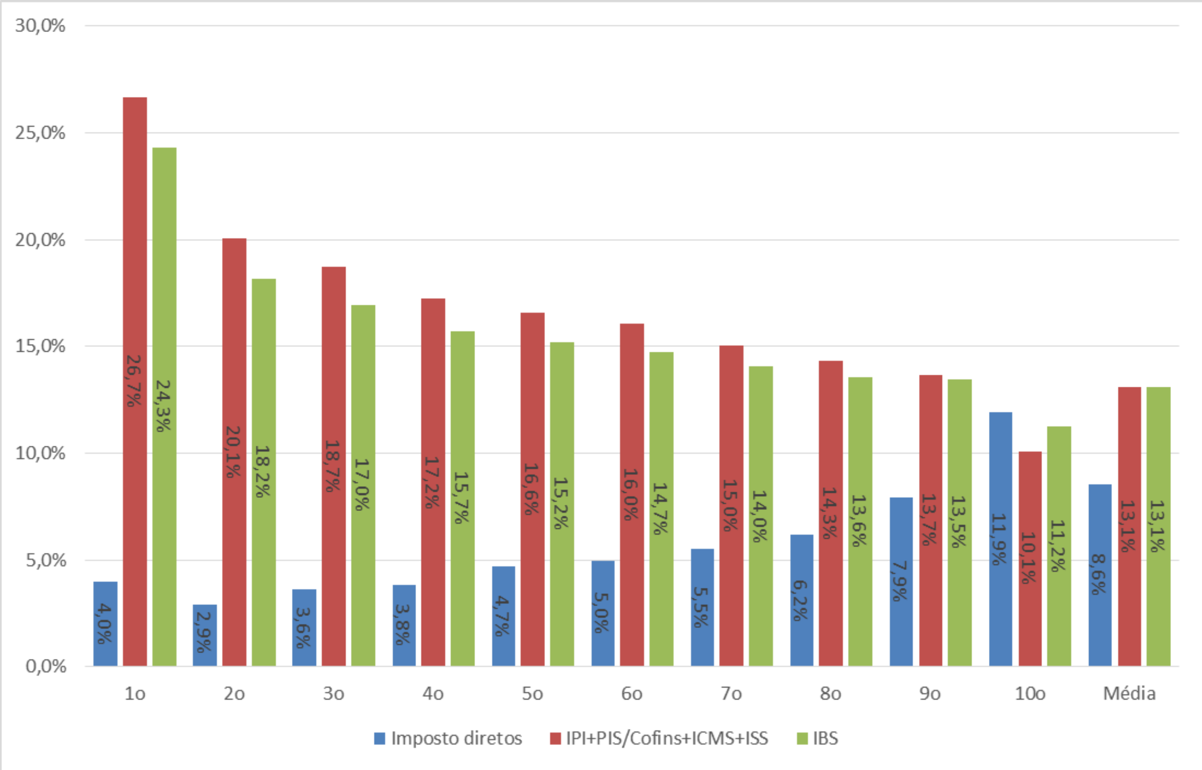

Prepared by the authors using data from Silveira's tax incidence matrix (2012).

The results show that taxes on goods and services (IPI, PIS/COFINs, ICMS and ISS) are clearly regressive. They fall proportionally more on the income of the poorest, starting at 26.7% of the income of the first tenth of the distribution and gradually falling to 10.1% of the income of the richest tenth. Our exercise suggests that the replacement by a uniform tax rate mitigates somewhat the regressive profile of taxation. The tax incidence continues to decline as we move from the bottom to the top of the distribution: from 24.3% of the income of the poorest tenth to 11.2% of the income of the richest tenth. The tax shares of income, however, fall a bit for the top nine tenths of the distribution, and the only exception is the richest tenth, which sees its taxation slightly increased.

These results are in line with other OECD studies, which suggest that differentiated tax rates are not only inefficient, but also regressive in the sense that they benefit rich families more than poor families, both in absolute and relative terms (OECD, 2016, p. 47; OECD and KIPF, 2014). Considering these results, one cannot assertively state that the standardization of tax rates on goods and services would make the Brazilian tax system more regressive. This does not mean failing to recognize that the review of some special rates and exemptions, such as those on the basic food basket and medicines, may have the relevant impact of reducing the purchasing power of low-income families.

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To avoid this effect, the House and Senate proposals define, among their guidelines, the institution of a mechanism for partial refund of the tax collected by low-income taxpayers. The refund can be made via income transfers to families identified in the Federal Government's social program registry, and the amount to be transferred can be defined by crossing data from the Individual Taxpayer Registry (CPF) declared by taxpayers at the time of their purchases, like what already occurs in tax credit refund programs present in several Brazilian states - or in a simpler manner, by estimating the amount of tax contained in the average basket of household consumption. The two proposals refer to a complementary law that will be responsible for defining the criteria and the way in which the tax refund for low-income families will be carried out.

A well-designed cash transfer mechanism that would return some of the IBS paid by the poorest can partially neutralize its regressivity. Suppose, for example, that one wished to make the post-devolution tax incidence in the top three tenths of the distribution converge to the national average of 13.1% in Chart 2. To do so would require returning 46% of the tax paid by families in the poorest tenth of the country, 28% of the second tenth, and 23% of the third tenth, at a total cost estimated at R$ 18.9 billion, or 1.3% of IBS revenues. A bolder proposal that extends this convergence to the fourth and fifth tenths of the distribution, returning, respectively, 17% and 14% of the tax paid by families, would have a total cost of R$ 30.7 billion, or 2% of IBS revenues. The result would be to convert the incidence profile of the IBS, post-return to the poorest families, into approximately neutral on income distribution.

The absence of progressivity in a tax such as the IBS, by itself, is not a problem. Ideally, the tax system should be evaluated from a systemic perspective, where there is #need for all parts of the system to simultaneously pursue all objectives. The main purpose of a modern VAT is revenue-raising, given its greater ability to raise - with less distortion - the revenue governments need to achieve their spending and distributional goals. Its eventual regressive effect will not be a problem if it is compensated by the other parts of the system, as is the case with the Personal Income Tax (IRPF), which is considered a much more appropriate tax instrument to pursue distributive objectives, or when the revenue potential of the VAT is channeled to strengthen social, sectorial and regional policy instruments.

There are other ways to pursue progressivity in the Brazilian tax system, which we will explore in the final considerations of this text. In any case, the simple uniformization of tax rates intended by the tax reform proposals that instituted the IBS, combined with a mechanism

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for partial refund of the tax collected by low-income taxpayers, somewhat mitigates the regressivity of the taxation of goods and services in Brazil.

3. SIMULATIONS OF THE IMPACT ON FEDERATIVE SHARING

The tax reform, as seen above, was designed to be neutral from the point of view of the overall tax burden and the vertical distribution of revenue among the three spheres of the Federation, but it may have significant repercussions on the horizontal distribution among states and municipalities. Taking the House proposal as a reference, these distributional impacts originate from three vectors: *i)* the adoption of a broad-based taxation on the consumption of goods and services, with a single tax rate; *ii)* the full adoption of the destination principle in the allocation of who has the right to collect the tax on interstate and intercity transactions (replacing the hybrid models of ICMS and ISS, which prioritize the origin principle); and *iii)* the redistribution of the municipal quota in the state IBS by the population criterion, instead of the tax added value.

To assess these potential distributional impacts, the first and main challenge of this study was to estimate a good *proxy of* how the consumption of goods and services, the new tax base of the IBS, is distributed in the country, not only among the states, but also among the municipalities. This is because we need to estimate the effects of the substitution of ICMS by state IBS and ISS by municipal IBS.

As is well known, the System of National Accounts (SNA) does not have estimates of household consumption broken down by municipality, nor by state. Thus, the strategy used to measure the participation of each state and municipality in the new tax base was based on the income measured by the latest IBGE census, 2010, and the average propensity to consume for each Federation Unit (UF), calculated from POF data from 2008-2009. [16]

Note that the fact that the information is from a decade ago does not hinder its application in this simulation exercise, since we are not interested in measuring the value of consumption in absolute terms in each state and municipality, but only in relative terms. That is, what matters is to obtain a reasonable *proxy of* what would be the participation of each federal entity in total consumption.

[16] The results of the 2017-2018 POF were not available at the time this study was being prepared and, therefore, were not considered in the estimates. A preliminary analysis of these data indicates some relevant changes in the participation of each federal unit in national consumption, probably due to methodological changes. São Paulo, for example, raised its share in consumption from 27.8% to 29.6% between the two POF's, which tends to significantly reduce the estimates of its aggregate loss with the tax reform.

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Of course, these shares may have changed over the decade due to the different rates of income growth in each place and region. Therefore, we corrected the consumption values initially estimated by the GDP variation of each municipality between 2010 and 2016 and extracted an average between the relative shares obtained in each of the two time periods. [17]

Thus, we arrive at the *proxy to* be used in the simulations of what the collection of each federal entity would be if the changes were implemented immediately, i.e., without the transition rule. This hypothetical exercise serves to evaluate the long-term distributive potential of the reform, comparing what each state collects today with what it would collect if the new model were already in effect.

Certainly, the *proxy* used has its imperfections and the effects of tax reform and future economic growth will alter the relative shares considered, but the objective of the study is not to predict exactly how much revenue each entity will receive, but to analyze qualitatively the redistributive trends. In other words: who are the potential winners and losers from the reform? As such, the numbers we will present below should be interpreted with caution. This qualitative perspective requires that the focus be more on the signs (positive or negative) than on the magnitudes of the gains and losses. Even because the transition rule will contribute, in practice, to smooth out the distributional impacts over time.

Initially, we present a table comparing the current ICMS and ISS revenue by UF, based on the year 2018, and the potential revenue with the new IBS if the migration were to be done abruptly. Table 3 provides an initial idea of the long-term distributional effects of the reform. Its last two columns indicate, in relative terms, the current share of each UF in the amount of consumption taxes, either in the current scenario, with ICMS and ISS, or in the potential scenario, with the new IBS.

Eight UFs tend to lose, in relative terms, participation in the new IBS, while nineteen tend to gain. The gainers are precisely the UFs that are net consumers, that is, that consume more than they produce and that, in general, are the poorest. It is important to note, however, that this preliminary analysis considers the UF as a set formed by the state government and all the municipalities in that state, i.e., it does not yet allow us to evaluate the distributional impact within each UF, among the different municipalities and between these and the state. For example, although São Paulo appears in the following table as the state with the largest absolute

[17] We decided to use the average of the participation coefficients obtained for 2010 and 2016 out of caution, since the 2016 consumption estimate is more current, but was obtained by varying GDP between the two periods, which is a rather imperfect *proxy of* what may have occurred with consumption - especially if we remember the impacts of the crisis on the composition of output. So, we opted to consider the average between the two points in time.

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value of loss, there are municipalities in São Paulo that would potentially gain from the reform, as we will see below. [18]

TABLE 3
Distribution of current ICMS and ISS revenue compared to the potential IBS estimate (R$ million)

UF	ICMS	IBS E	ISS	IBS M	ICMS+ISS	IBS-E+M	Difference	ICMS+ISS	IBS-E+M
AC	1.413	1.757	118	239	1.531	1.996	464	0,3%	0,4%
AL	4.268	5.196	381	708	4.649	5.904	1.255	0,9%	1,1%
AM	9.276	7.848	773	1.069	10.050	8.916	-1.133	1,8%	1,6%
AP	855	1.713	96	233	952	1.946	994	0,2%	0,4%
BA	23.508	26.380	2.569	3.592	26.076	29.971	3.895	4,8%	5,5%
CE	11.967	14.401	1.389	1.961	13.356	16.362	3.006	2,4%	3,0%
DF	8.135	10.851	1.712	1.477	9.847	12.328	2.482	1,8%	2,3%
ES	10.136	8.497	1.142	1.157	11.277	9.654	-1.623	2,1%	1,8%
GO	15.691	15.780	1.328	2.149	17.020	17.928	909	3,1%	3,3%
MA	6.950	10.632	846	1.448	7.795	12.080	4.284	1,4%	2,2%
MG	49.228	43.390	4.120	5.908	53.347	49.298	-4.049	9,8%	9,0%
MS	8.569	6.394	736	871	9.305	7.265	-2.040	1,7%	1,3%
MT	10.438	8.853	904	1.205	11.343	10.059	-1.284	2,1%	1,8%
PA	10.918	15.571	1.141	2.120	12.058	17.691	5.632	2,2%	3,2%
PB	5.547	6.860	427	934	5.973	7.794	1.820	1,1%	1,4%
PE	15.665	15.526	1.649	2.114	17.314	17.640	325	3,2%	3,2%
PI	4.482	5.563	369	757	4.851	6.320	1.470	0,9%	1,2%
PR	30.081	30.586	3.192	4.165	33.273	34.751	1.477	6,1%	6,4%
RJ	42.388	47.021	8.456	6.402	50.843	53.423	2.579	9,3%	9,8%
RN	5.662	6.451	622	878	6.284	7.330	1.045	1,1%	1,3%
RO	3.695	3.775	283	514	3.978	4.289	311	0,7%	0,8%
RR	880	1.187	88	162	967	1.348	381	0,2%	0,2%
RS	34.839	30.887	2.814	4.205	37.653	35.092	-2.560	6,9%	6,4%
SC	21.307	20.119	1.936	2.739	23.242	22.858	-384	4,3%	4,2%
IF	3.458	4.040	431	550	3.889	4.590	700	0,7%	0,8%
SP	139.025	128.102	27.762	17.442	166.786	145.543	-21.243	30,5%	26,6%
TO	2.852	3.854	242	525	3.094	4.378	1.284	0,6%	0,8%
Total	481.231	481.231	65.523	65.523	546.754	546.754	-	100%	100%

Prepared by the authors.

Furthermore, the case of São Paulo illustrates another interesting phenomenon to highlight: the data indicate that tax reform, synthesized in the origin-destination change, would affect, in a more substantial way, the participation of São Paulo in ISS than in ICMS. And this is explained in part by the aggressive tax war promoted by some São Paulo municipalities, such as Barueri and Poá, which offer tax incentives for credit card companies, *leasing* operators and other service providers to set up their head offices in these cities. In this way, due to the

[18] Remembering that São Paulo's loss may be smaller than indicated, according to the new figures from the 2017-2018 POF, which were only released during the review phase of this text. Qualitatively, however, the nature of the impacts does not change and indicates long-term gains for the poorest federal units.

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collection of ISS at the source, these municipalities end up concentrating a much larger collection than expected by the simple differential of GDP or economic development.

This allocation distortion becomes very clear when we verify that the ICMS of São Paulo represents 28.9% of the national amount, while the ISS of São Paulo's municipalities reaches 42.4% of the total. With the unification of the taxable bases and rates of the two taxes and their collection at the destination, the participation of São Paulo in the ISS (both state and municipal) would converge to 26.6%, which is the rough estimate of how much of the national consumption is concentrated in São Paulo.

Once again, however, it is worth remembering that this reduction in the participation of São Paulo in the ISS - or rather, in its substitute, the municipal IBS - does not imply that all or most municipalities in São Paulo would potentially lose with the change. It is enough for a municipality to have a consumption base broader than the base it taxes today with ISS for it to gain revenue under the new model. In addition, the gains/losses of municipalities with the municipal IBS may, in some cases, be neutralized by gains/losses in the sharing of the share of the state IBS (substitute for ICMS, in which municipalities participate with 25%).

In the case of the Federal District and Rio de Janeiro, for example, the lower volume of the municipal IBS estimate (in relation to the current ISS) is more than compensated by the increase in the state IBS (in comparison to the ICMS), which also tends to benefit most of the Fluminense municipalities. In Espírito Santo and Mato Grosso do Sul, on the contrary, the relative drop in the estimate of the state IBS is much more accentuated than the gain with the municipal IBS, causing losses not only for the state - following the example of São Paulo, Minas Gerais, Rio Grande do Sul and Santa Catarina - but also for many municipalities.

Nationally, the biggest winners from the tax reform are the states and municipalities in the Northeast and the North (except Amazonas), especially the cases of Pará and Maranhão, with estimates of around R$ 5.6 billion and R$ 4.3 billion, respectively, which represents an important tax opportunity for these units to strengthen their infrastructure. Bahia, Ceará, Paraíba, Alagoas and Rio Grande do Norte, as well as the former territories, also present significant gain estimates.

In general, we can see from Table 4 that all the low-income states tend to benefit from the reform, channeling 72.5% of the estimated R$ 34 billion redistributed over time. The wealthier states of the Federation (among which are some in the Midwest, due to their high

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GDP *per capita*) tend to lose R$ 27.5 billion, although Rio de Janeiro, the Federal District and Paraná are potential winners. [19]

[19] The states were divided into three groups according to their GDP *per capita* level: low income (up to R$ 20,000 per inhabitant), middle income (between R$ 20,000 and R$ 30,000), and high income (above R$ 30,000).

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TABLE 4
Potential distributional effects by income level
(R$ thousands)

Renda	UF	PIB *per capita*	Ganho no longo prazo	Perda no longo prazo
Baixa	AC	16.712	464.499	-
	AL	14.614	1.255.342	-
	AP	18.193	994.387	-
	BA	16.805	3.895.043	-
	CE	15.323	3.005.997	-
	MA	12.173	4.284.221	-
	PA	16.500	5.632.457	-
	PB	14.664	1.820.446	-
	PE	17.637	325.356	-
	PI	12.794	1.469.605	-
	RN	17.041	1.045.402	-
	SE	17.026	700.106	-
Média	AM	22.079	-	1.133.303
	ES	27.283	-	1.623.326
	GO	26.933	908.571	-
	MG	25.745	-	4.048.987
	RO	21.909	311.044	-
	RR	21.254	380.908	-
	TO	20.445	1.284.369	-
Alta	DF	78.511	2.481.548	-
	MS	33.993	-	2.039.745
	MT	37.184	-	1.283.914
	PR	35.460	1.477.412	-
	RJ	38.195	2.579.486	-
	RS	35.937	-	2.560.411
	SC	36.864	-	383.847
	SP	45.203	-	21.242.667
Total		30.180	34.316.199	34.316.199
Baixa		15.807	24.892.861	-
Média		25.292	2.884.891	6.805.616
Alta		41.738	6.538.446	27.510.583

Prepared by the authors.

Before doing so, however, we will introduce another variable of interest in the analysis of the distributional effects: the *per capita* GDP of the UFs, which was obtained by adding up all the tax revenues and current transfers of the federated entities. The consolidation of the accounts of the 27 UFs and their 5,568 municipalities would merit a separate chapter due to the degree of complexity and difficulty involved in collecting, standardizing, and correcting inconsistencies in the available data, especially at the municipal level. [20]

[20] Succinctly, the consolidation required the use of different sources of information, from balance sheets prepared by the subnational entities themselves to data from national and federal bases. Thus, it was possible to test the consistency of the numbers declared and to construct a matrix of intergovernmental transfers.

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From the consolidation of current revenues by Federal Government, it is possible to see in Table 5 how different the weight of the ICMS and ISS is for the regions of the country. While in the South, Southeast, and Center-West these two taxes represent more than 40% of net revenues, and in some cases exceed 50%, in the North and Northeast they are around 30%. This difference tends to be reduced with tax reform, to the extent that the IBS would be proportional to consumption and, therefore, although correlated with income, less concentrated and less unequal than the ICMS and ISS (ranging from R$ 1.7 thousand *per capita* in Maranhão to R$ 3.2 thousand in São Paulo).

It should be noted, however, that the disparities in RCL *per capita* among the UFs would survive this tax reform because other distortion-generating devices, present in our federative model, would not be altered. This is the case of the Constitutional Fund of the Federal District (FCDF) and the criteria for distribution of the FPE, responsible for placing the federal capital and the former territories at the top of the *ranking of* RCL *per capita*.

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TABLE 5
Potential effects of the reform on RCL *per capita* (states plus municipalities) - ranking from highest to lowest current RCL *per capita*
(In R$)

UF	RCL atual	RCL pós-reforma	ICMS/ISS	IBS	Diferença
DF	12.079	12.914	3.310	4.144	834
RR	8.899	9.560	1.678	2.338	661
AC	7.845	8.379	1.762	2.296	534
MT	7.690	7.317	3.295	2.922	-373
MS	7.688	6.945	3.386	2.644	-742
TO	7.589	8.414	1.989	2.815	826
AP	7.475	8.674	1.147	2.346	1.199
SP	7.024	6.557	3.662	3.196	-466
RS	6.960	6.734	3.323	3.097	-226
SC	6.819	6.765	3.285	3.231	-54
RJ	6.740	6.891	2.963	3.113	150
PR	6.584	6.714	2.932	3.062	130
RO	6.459	6.636	2.263	2.440	177
ES	6.380	5.972	2.839	2.430	-409
GO	5.884	6.015	2.459	2.590	131
SE	5.827	6.135	1.707	2.014	307
MG	5.629	5.437	2.535	2.343	-192
AM	5.607	5.330	2.463	2.185	-278
PI	5.374	5.824	1.486	1.936	450
RN	5.236	5.537	1.806	2.107	300
AL	5.013	5.391	1.399	1.777	378
PE	4.876	4.910	1.823	1.858	34
PB	4.813	5.268	1.495	1.950	456
BA	4.681	4.944	1.760	2.023	263
CE	4.481	4.812	1.472	1.803	331
PA	4.357	5.019	1.416	2.078	662
MA	4.207	4.816	1.108	1.717	609
Média	6.127		2.622		0

Prepared by the authors.

As already pointed out, tax reform would have a positive effect on the *per capita* income of the poorest states of the Northeast, besides benefiting UFs that today are privileged by these other funds. This observation, however, does not represent a criticism of the tax reform proposal under discussion, but rather of the other elements of our federative model that generate such distortions.

According to our Constitution, the participation funds should play an equalizing or reducing role in regional inequalities, but they do not adequately fulfill this role, since their

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distribution criteria disproportionately benefit the former territories and some states that, over the last decades, have grown rapidly, such as Mato Grosso and Mato Grosso do Sul.

On the other hand, the FCDF, created to help finance public services in the federal capital, perhaps justifiable decades ago, has grown to such an extent that today it alone provides a revenue of more than R$ 4.5 thousand per inhabitant per year, a figure that - by way of financial aid for public health, education and security - exceeds the *per capita* tax revenue of the richest state in the Federation, São Paulo.

In other words, the Federal District accumulates tax revenues and state and municipal transfers that provide it with a *per capita* income of R$ 8.7 thousand (second highest in the country) and, after that, it still receives a special supplement from the Federal Government (R$ 13.7 billion in 2018), which raises its final budget allocation to R$ 12.1 thousand per inhabitant per year.

Perhaps the approval of the tax reform, or even the debate around its possible distributive effects, which are positive overall, will open the way for other reforms to be made in the federal sharing system. One of these reforms, already approved in Congress and currently suspended by the Supreme Court (STF), concerns the criteria for distribution of oil *royalties*, which, as we shall see below, is responsible - along with the ICMS share - for the greatest distortions in *per capita* revenues at the municipal level.

Table 6 highlights this problem by comparing the reality of the municipalities that have the thirty highest *per capita* revenues in the country (in 2018) with those with the ten lowest and showing that, in general, the cases of extreme abundance of resources are explained by two factors: oil *royalties* and/or disproportionately high value of ISS or ICMS share.

Among the most revenue-rich municipalities in the country is Presidente Kennedy, in Espírito Santo, which leads the *ranking* with a revenue of R$ 36.9 thousand per inhabitant per year, of which 72% comes from oil *royalties.* At the other extreme, with a *per capita* income 36 times lower, is the city of São Gonçalo, which, despite being in an oil-producing state such as Rio de Janeiro, receives an insignificant amount of *royalties* and of the ICMS share.

While the revenue of São Gonçalo tends to be significantly increased in the long run, an estimated 60%, with the introduction of the IBS and the change in the criteria for sharing the share (which would be based on population, according to the proposal of the House of Representatives), the revenue of Presidente Kennedy tends to suffer a small reduction, of about

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1.4%. This is because the ISS and the ICMS share have a small weight in the revenue of the municipality of Presidente Kennedy. [21]

The municipalities whose abundant revenue comes from ISS or ICMS, such as Guamaré (Rio Grande do Norte), São Francisco do Conde (Bahia), Paulínia (São Paulo), Barueri (São Paulo), among others, tend to be more affected by the tax change, with a significant reduction in their *per capita* budget allocation in the medium and long term, once the transition rule is implemented.

In summary, this table shows that tax reform has an important power to increase the revenue of very poor municipalities (as well as poor states), but on the other hand it is not enough to eliminate many cases of extraordinarily high revenues, since it is a change restricted to the mechanism of consumption taxation and the revenue sharing resulting from it.

[21] This trend would not change qualitatively if we used the criteria of the Senate proposal for the distribution of the municipalities' share in the state IBS. Instead of population, the Senate proposal foresees consumption itself as the basis for sharing.

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TABLE 6
Potential effects of the reform on the *per capita* revenue of the thirty richest and the ten poorest municipalities
(In R$)

UF	Municípios	População		RCL pré-reforma	ISS/ICMS[1]	Royalties	Outras	RCL pós-reforma	Diferença
ES	Presidente Kennedy	11.488	Ranking das trinta maiores receitas per capita atuais	36.961	990	26.686	9.285	36.443	(518)
SP	Ilhabela	34.333		27.741	623	21.891	5.227	28.356	614
RN	Guamaré	15.349		15.784	11.815	1.194	2.775	4.667	(11.117)
MG	Serra da Saudade	786		15.317	2.112	-	13.205	13.821	(1.496)
MG	São Gonçalo do Rio Abaixo	10.818		15.182	6.936	5.947	2.300	8.791	(6.391)
GO	Alto Horizonte	6.218		15.068	3.648	3.122	8.298	12.029	(3.038)
MS	Santa Rita do Pardo	7.801		14.502	1.310	179	13.013	13.834	(667)
SP	Borá	836		14.474	4.141	-	10.333	11.080	(3.394)
RS	Engenho Velho	1.088		14.006	1.887	-	12.119	13.154	(852)
BA	São Francisco do Conde	39.338		12.975	9.229	821	2.925	4.395	(8.580)
TO	Lajeado	3.101		12.704	5.711	92	6.900	7.964	(4.740)
RJ	Maricá	157.789		12.474	1.162	9.031	2.281	12.385	(89)
SP	Paulínia	106.776		12.171	8.774	5	3.392	4.385	(7.786)
MT	Araguainha	956		11.617	1.987	-	9.631	10.334	(1.284)
PR	Jardim Olinda	1.343		11.364	1.424	226	9.715	10.765	(599)
ES	Itapemirim	34.032		11.332	1.319	7.148	2.865	10.543	(789)
RS	Pinhal da Serra	1.965		11.305	4.172	931	6.201	7.877	(3.428)
RJ	São João da Barra	36.138		11.220	3.536	4.588	3.096	8.499	(2.721)
SP	Nova Castilho	1.255		11.217	2.353	-	8.864	9.620	(1.597)
SP	São Sebastião	87.596		10.772	1.358	1.573	7.841	10.155	(617)
SP	Uru	1.177		10.652	2.861	90	7.702	8.664	(1.989)
MG	Jeceaba	4.973		10.494	6.830	-	3.665	4.515	(5.979)
SP	Barueri	271.306		10.212	6.945	8	3.259	4.194	(6.018)
MG	Grupiara	1.389		10.044	1.283	2.281	6.480	9.402	(643)
PR	Itaipulândia	10.961		9.919	999	6.222	2.698	9.835	(84)
RS	Capão Bonito do Sul	1.668		9.880	3.013	-	6.866	7.589	(2.291)
RJ	Quissamã	24.246		9.856	3.697	3.800	2.359	6.951	(2.905)
PR	Saudade do Iguaçu	5.459		9.774	6.181	282	3.312	4.369	(5.406)
RS	Lagoa dos Três Cantos	1.611		9.773	2.088	-	7.685	8.555	(1.218)
RS	União da Serra	1.192		9.712	2.564	-	7.148	8.134	(1.578)
PA	Bragança	126.436	(...) e das dez menores	1.282	101	0	1.181	1.818	536
GO	Águas Lindas de Goiás	207.070		1.262	97	0	1.164	1.825	563
PA	Vigia	53.191		1.261	130	1	1.131	1.754	493
RJ	São João de Meriti	471.888		1.245	256	32	956	1.872	627
SP	Carapicuíba	398.611		1.234	310	5	920	1.792	557
PA	Ananindeua	525.566		1.216	215	0	1.000	1.670	455
AP	Santana	119.610		1.188	303	0	885	1.617	429
GO	Novo Gama	113.679		1.182	65	0	1.117	1.801	619
MG	Ribeirão das Neves	331.045		1.133	220	0	913	1.541	408
RJ	São Gonçalo	1.077.687		1.045	249	20	776	1.673	629

Prepared by the authors.
Note: [1] Includes the sum of municipal revenues with the share of the Kandir Law and IPI exports, which are shared by the same criteria as the ICMS share.

Table 7 reinforces this evidence by indicating, for the 5,568 Brazilian municipalities (except Fernando de Noronha, which has #municipality), that tax reform tends to raise the minimum revenue *per capita* in absolutely all the country's UFs, even in the richest regions, and to equalize a little the average revenue *per capita*, reducing the differences between state averages. It has limited power, however, to eliminate situations of disproportionately high revenue, since not all cases of this type of discrepancy are explained by the ISS or the ICMS share.

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In this sense, tax reform should serve as a starting point for a broader process of revision of our federal sharing model, which encompasses the rules for distribution of *royalties* and advances to the rules for distribution of FPEs and FPMs.

TABLE 7
Potential effects of tax reform on municipal *per capita* revenues
(In R$)

UF	RCL *per capita* atual			RCL *per capita* pós-reforma		
	Mínimo	Máximo	Média	Mínimo	Máximo	Média
AC	1.467	3.195	2.034	1.780	3.234	2.282
AL	1.955	6.117	3.031	2.258	6.260	3.253
AM	1.391	9.404	2.367	1.646	7.631	2.417
AP	1.188	4.194	1.975	1.617	3.700	2.295
BA	1.413	12.975	2.532	1.779	6.269	2.734
CE	1.512	6.488	2.447	1.815	6.042	2.645
DF	-	-	-	-	-	-
ES	1.616	36.961	3.637	1.783	36.443	3.481
GO	1.182	15.068	3.754	1.801	12.029	3.633
MA	1.440	7.234	2.339	1.941	5.423	2.704
MG	1.133	15.317	2.899	1.541	13.821	2.952
MS	2.294	14.502	4.232	2.457	13.834	3.837
MT	1.639	11.617	3.826	1.983	10.334	3.583
PA	1.216	9.709	2.304	1.670	8.027	2.638
PB	1.553	7.028	2.867	1.787	7.024	3.142
PE	1.363	8.017	2.282	1.566	3.932	2.433
PI	1.673	8.901	2.805	2.108	9.289	3.159
PR	1.574	27.888	3.998	2.199	26.823	3.949
RJ	1.045	12.474	4.299	1.673	12.385	3.896
RN	1.660	15.784	3.158	2.018	7.446	3.291
RO	1.774	9.041	2.913	2.097	6.082	2.923
RR	1.472	2.921	2.009	1.753	3.163	2.304
RS	1.582	14.006	4.628	2.172	13.154	4.318
SC	2.058	9.602	4.111	2.352	8.140	3.882
SE	1.395	7.556	3.052	1.772	6.632	3.083
SP	1.234	27.741	3.842	1.792	28.356	3.639
TO	1.704	12.704	3.246	2.303	8.137	3.533
Total	**1.045**	**36.961**	**3.321**	**1.541**	**36.443**	**3.330**

Prepared by the authors.

Finally, we conclude this section by presenting a table summarizing the effects of the tax reform on the municipal sphere, counting how many municipalities gain and how many lose with the changes in consumption taxation and the way resources are distributed. Besides the direct impact of the replacement of ISS and ICMS by IBS (municipal and state), we estimate the indirect effect on the Fund for Maintenance and Development of Basic Education and Valorization of Education Professionals (FUNDEB) - which is formed today by 20% of some revenues, including ICMS - and on federal and state transfers that are based on the ICMS share criterion. As the current distribution criterion, based predominantly on the value added, would

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be modified for the population, this would affect not only the apportionment of the state IBS share but also the transfers from the Kandir Law and the so-called Fund for Compensation for the Export of Industrialized Products (FPEX), or IPI export (10% of IPI revenue destined to compensate the states that export industrialized products, with 25% of the resources divided among their municipalities).

When considering this set of impacts, we can see in Table 8 that the reform tends to benefit approximately 70% of the country's municipalities (including in those states considered losers), with an estimated redistribution of revenues in the municipal sphere of around R$ 32.4 billion. Moreover, taken together, the municipalities tend to have a revenue gain over the states, estimated at R$ 2.9 billion, although the reform was designed to be neutral in this respect. This is explained by two factors: *i)* the indirect effects of the FUNDEB; and *ii)* the impossibility for state governments to continue using, in the new tax model, funds with part of the ICMS revenue that is not shared with the municipalities (as is the case of funds to combat and eradicate poverty).

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TABLE 8
Potential effects of tax reform on municipal revenues

UF	Número de municípios	Efeito sobre a receita de ICMS/ISS *versus* IBS				Efeito sobre a RCL, inclusive reflexos do FUNDEB				
		Municípios que ganham	Municípios que perdem	Ganho (R$ milhares)	Perda (R$ milhares)	Municípios que ganham	Municípios que perdem	Ganho (R$ milhares)	Perda (R$ milhares)	Resultado líquido (R$ milhares)
AC	22	21	1	186.721	350	22	-	211.752	-	211.752
AL	102	93	9	592.931	72.550	96	6	716.889	67.548	649.341
AM	62	54	8	423.771	412.927	48	14	344.565	490.384	(145.819)
AP	16	13	3	323.051	18.124	14	2	377.791	15.459	362.332
BA	417	377	40	3.035.024	1.350.836	382	35	3.404.945	1.323.114	2.081.831
CE	184	153	31	1.454.697	304.949	160	24	1.777.739	272.670	1.505.069
DF[1]	1	1	-	419.837	-	1	-	419.837	-	419.837
ES	78	41	37	462.208	787.524	27	51	365.260	908.667	(543.408)
GO	246	137	109	1.484.160	505.842	136	110	1.498.596	510.768	987.827
MA	217	207	10	1.787.332	305.059	209	8	2.303.417	261.170	2.042.248
MG	853	674	179	3.642.639	2.007.843	660	193	3.469.545	2.137.371	1.332.173
MS	79	32	47	187.601	484.428	23	56	70.953	615.858	(544.905)
MT	141	58	83	462.395	462.553	55	86	400.954	551.833	(150.879)
PA	144	129	15	2.388.387	506.963	133	11	2.982.161	433.512	2.548.648
PB	223	207	16	877.198	87.907	213	10	1.031.326	79.286	952.040
PE	184	165	19	1.566.548	1.039.490	165	19	1.557.098	1.047.703	509.395
PI	224	209	15	748.099	93.782	212	12	858.383	66.007	792.376
PR	399	223	176	2.076.075	1.065.252	222	177	2.143.688	1.082.803	1.060.885
RJ	92	38	54	2.565.438	2.871.456	38	54	2.870.310	2.590.667	279.643
RN	167	143	24	661.474	225.578	146	21	753.911	221.790	532.121
RO	52	37	15	267.370	35.846	37	15	274.651	35.573	239.078
RR	15	15	-	133.477	-	15	-	154.184	-	154.184
RS	497	190	307	1.845.031	1.227.361	165	332	1.601.962	1.397.886	204.076
SC	295	132	163	1.220.493	702.855	125	170	1.147.529	771.288	376.241
SE	75	49	26	343.396	162.874	51	24	406.615	149.652	256.964
SP	645	321	324	3.967.281	16.568.096	306	339	3.595.763	17.335.108	(13.739.345)
TO	139	117	22	547.934	55.595	124	15	645.618	47.750	597.868
Total	**5.569**	**3.836**	**1.733**	**33.670.571**	**31.356.039**	**3.785**	**1.784**	**35.385.444**	**32.413.869**	**2.971.575**

Prepared by the authors. Note: [1] The calculations for the Federal District were made only for ISS plus 25% of the ICMS (following the example of a municipality).

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4 FINAL CONSIDERATIONS

The tax reform proposals summarized in PECs 45/2019 and 110/2019, originating in the House of Representatives and the Federal Senate, respectively, seek to modernize and simplify our consumption taxation model, inaugurating an IBS, along the lines of a VAT, in line with international best practices, to replace the various overlapping federal, state and municipal taxes. Under a more general view, as we have seen throughout this study, the two proposals have more similarities than differences, both in their possible effects on the economy and the lives of taxpayers, and on the federative sharing, to the extent that they are based on the destination principle, according to which the tax belongs to the place where the good or service is consumed.

In this sense, it is necessary to point out that tax reform is important not only for the business world and to eliminate the tax war, as has been repeated exhaustively in recent years, but also to reduce serious federal tax imbalances that exist today due to the way tax competencies and resources are divided among the different federative entities.

In general, both proposals tend to deconcentrate revenues from the units of the poorest entities, by migrating from a model of collection and sharing of subnational taxes that prioritizes the principle of origin to one that prioritizes the destination (or population, in the case of sharing in the House proposal). This change, as evidenced, would change the way the ICMS is currently shared, and especially the ISS, whose revenue is extremely concentrated in the richest regions.

Our simulations indicate that the origin-destination change in the way the new IBS (replacing ICMS and ISS) will be appropriated by states and municipalities has the potential to promote a redistribution about R$ 25 billion from richer to poorer UFs, where consumption is higher than production. Moreover, the House proposal would have an additional distributive effect by providing that the municipal share of the state IBS be distributed based on population, rather than consumption, as in the Senate proposal.

In the municipal sphere, our estimates point to a redistributive potential of more than R$ 30 billion with the implementation of the House proposal, in clear benefit to the poorest and most populous municipalities. Not all wealthy municipalities, however, are significantly affected, to the extent that ISS and ICMS revenues are not always the main factor explaining the higher *per capita* revenue indicators (as in the case of *royalty* recipients). In general, the House proposal has greater redistributive impacts than the Senate's at the municipal level. On the other hand, it has longer transition periods for the new collection and sharing model, which softens the revenue trajectories.

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For the body of work, and not only because of this federative dimension, we believe that the House proposal provides a technically more well-designed solution than the Senate one.

1) The definition that the IBS will be a national tax jointly managed by the three federated entities, each with its own rates, restricts without eliminating federative autonomy, unlike the alternative of a shared state tax, which removes tax competence from the municipalities. This ensures flexibility for each state and municipality to change its tax rate according to its tax needs, if this rate is the same for all goods and services.
2) The use of the IS for non-tax purposes only and the prohibition of the concession of tax benefits from the IBS, unlike the Senate proposal, which foresees an IS with a collection purpose, as well as a greater flexibility for the concession of new tax benefits that can be foreseen in the national law, opening room for the return of a series of the current distortions - for example, the non-fulfillment of credits.
3) The ingenious way in which the system of single rates allows the issue of linkages and apportionments to be handled, giving the entities freedom, but at the same time offering minimum revenue guarantees for the budgets of areas such as health and education, and for intergovernmental transfers.

In addition, both proposals foresee that the complementary law that will regulate the new tax will establish criteria for its refund to the poorest families, to reduce the regressivity inherent in any indirect tax. Our estimates indicate that the cost of implementing a tax refund mechanism for low-income taxpayers ranges from R$ 18 billion to R$ 30 billion.

Calculations also suggest that, even without this transfer mechanism, a tax with a single rate around 27% - the rate needed to maintain the same revenue as the taxes to be abolished by the House proposal - would be slightly less regressive than the current model, in which rates can be differentiated. This reinforces the evidence that the selectivity of the ICMS rates, especially, is not currently used for distributive purposes, but merely for tax collection. This becomes explicit when we verify that the highest rates are applied to fuels, electricity and communications, with considerable impact on the consumption basket of the poorest. Thus, the new IBS, combined with the mechanism of tax devolution to the poorest, may contribute to make our model of consumption taxation a little less regressive and perhaps even approximately neutral.

Finally, we emphasize that, although it is not the task of the IBS reform to circumvent the regressivity problem of our tax system, it would be possible to embed in the proposals being considered in the National Congress an explicit provision that contributes in this direction.

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Under the transition mechanisms foreseen in the tax reform proposals, the IBS rates should be calibrated to only neutralize the losses with the taxes to be eliminated, without changing (or hardly changing) the estimated global tax collection. It would be enough, for example, to establish that the rate calibration will be done to neutralize the losses from the old taxes, net of additional revenue gain measures. The proposal could also establish guidelines so that the additional measures are focused on increasing the collection of the IRPF, which is considered the instrument par excellence for pursuing distributive objectives on the revenue side.

In the absence of this type of additional revenue gain measure, the IBS rate should reach levels close to 27%, according to our estimates, which would place Brazil among the countries with the highest standard VAT rates in the world, alongside Hungary, which taxes at 27%, and above countries such as Norway, Denmark and Sweden, with rates of 25%. If progress is made in the agenda to increase the collection of the IRPF, through measures such as the review of deductions and exemptions (for example, the resumption of the taxation of dividends), the collection gains would be taken into account for the purposes of calibrating the IBS rates, whose rate would be below 27% at the end of the transition period. Such an adjustment would contribute to increase the progressiveness of our income tax model and simultaneously reduce the regressive impacts of taxation on consumption.

In the same propositional line, we consider that the tax reform should be complemented by changes in the other sharing mechanisms of our federative model, to correct serious distortions, present today in the distribution rule of *royalties* (especially oil) and in the apportionment of the FPEs and FPMs, as well as in the FCDF.

In summary, it is necessary that tax reform be only the first step towards the construction of a fairer and more balanced federative model, in which the disparity in budgetary allocation between the federated entities is not as great as it is today. These differences, as we have discussed, are not related to the merits (or demerits) of the Federation entities, but to political decisions made in the past regarding how resources are shared out.

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