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Ecological fiscal transfer (ICMS Ecológico) in the Brazilian Amazon:  
experiences and lessons

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ABSTRACT

ICMS is a value-added tax on operations related to the circulation of goods and services. It is the most important revenue source for Brazilian states. The Federal Constitution (Brazil, 1988) establishes that states must transfer 25% of the total collected from this tax to the municipalities. Since states have the prerogative to define rules for the transfer of up to 15% of this resource, 16 Brazilian states established legislation creating ICMS transfer criteria based on environmental parameters, called “ICMS Ecológico” (ICMS-E), aiming to compensate, stimulate or reward municipalities with appropriate environmental practices. Each state establishes its priority criteria, and municipalities get their share of the fiscal transfer according to their performance. The use of ICMS-E resources is not bound to environmental expenditures, but the policy stimulates improvements in local environmental conditions since there is a positive competition between municipalities to improve their relative position in the environmental quality rankings used to calculate the fiscal transfers.

The research aims to analyze the adoption of the ICMS-E in Brazilian Amazon states. These states face great challenges in combining environmental conservation and socioeconomic development. They have vast areas of preserved forests, but also high poverty rates and low tax collection capacity. Thus, public policies are needed to induce municipal administrations to consider

environmental resources as assets, and not as costs, while strengthening the fiscal capacity of these federal entities. We intend to verify how the ICMS-E helps in this task, analyzing the general characteristics of these legislations, their local differences, and changes and differences over time. The methodology is based on a review of the Amazonian states' legislation and documents available on the state public administration websites.

Some preliminary results of the research are:

- It is a mature regulatory policy, implemented since the 1990s, with different criteria and methodologies according to local interests. However, it needs to be periodically revised and refined, generating learning in the monitoring of the policy.

- Criteria that are evaluated periodically and that allow municipalities a change in the receipt of resources as they improve their environmental performance are relevant to the success of the ICMS-E policy.

- Criteria should be defined on issues the municipalities can act on, such as objective parameters of municipal environmental management (% of the territory in protected areas, waste and sewage collection and treatment, staff dedicated to environmental policy, etc.)

- Criteria indicators should be simple and easy to monitor, as well as allow municipalities to understand what they need to achieve to improve their transfer.

- Some states have created ICMS-E Monitoring Councils, composed of representatives of state and municipal governments, and other civil society actors. These Councils have been useful for aligning the different actors who have an interest in the policy.

- It can be concluded that the higher the percentage destined for the ICMS-E transfer, the greater the positive response of the municipalities to the state stimulus for environmental preservation.

Key-word: Ecological fiscal transfer (ICMS Ecológico); Brazilian Amazon states;

## INTRODUCTION

The Legal Amazon corresponds to the area covered by the Superintendency for the Development of the Amazon (SUDAM), which is an autarchy linked to the Ministry of Regional Development. Its objective is to define

proposals and economic and social goals that lead to the sustainable development of its delimited area. Law n. 124/ 2007 established this area.

The states that compose the Legal Amazon correspond to 59% of the Brazilian territory, and extensive tropical forests cover the vast majority of this area. These states also have high poverty rates and low tax collection capacity. With such characteristics, they face significant challenges in combining environmental conservation actions and socioeconomic development. The Legal Amazon is important because this is a strategic area for international climate change negotiations in which Brazil is involved.

Facing the challenges requires sustainable development solutions that encourage the different subnational actors to improve environmental management, guaranteeing the quality of life, economic dynamism, and preservation of the environment, including forest peoples with their sociocultural diversity.

The Ecological fiscal transfer (ICMS-E), already successfully used in several Brazilian states, has the capacity to promote significant gains in terms of sustainable development. Its implementation can stimulate nature conservation actions by municipal administrations, reducing costs with the recovery of degraded areas, environmental disasters, and health services, in addition to contributing to municipal finances. It also expands the possibility of sustainable businesses, such as tourism, bioeconomy, and forestry concessions.

Of the nine states that make up the Legal Amazon, six have environmental criteria for transferring ICMS to municipalities, namely: Rondônia, Amapá, Mato Grosso, Tocantins, Acre, and Pará.

Thus, this article aims to analyze the adoption of ICMS-E in the states of the Legal Amazon. It is intended to present the legislation in force in each state, its main rules and criteria, and the effects observed from its implementation to identify the lessons learned from the initiatives undertaken.

## METHODOLOGY

To carry out this work, we analyzed the relevant legislation and the State Secretariats for the Environment and Treasury websites of the six states mentioned. We also carried out bibliographical research on the ICMS-E, seeking

to point out the advantages and disadvantages of each initiative and whether they were effective in achieving the best environmental results.

### THE ECOLOGICAL FISCAL TRANSFER (ICMS-E)

The tax on operations related to the movement of goods and the provision of interstate, intercity, and communication services (ICMS) is Brazil's leading source of state revenue. According to the Federal Constitution (Brazil, 1988), 25% of the total collected by this tax must be passed on to municipalities, with most of this amount distributed in proportion to the value added in the circulation of goods and provision of services generated in the territory. However, 35% of the municipal share must be distributed according to criteria established by the state government, observing the obligation of at least 10% to be distributed according to indicators related to education (BRASIL, 1988).

16 Brazilian states took advantage of this opportunity and established legislation creating criteria for passing on ICMS based on environmental parameters. This situation led to the Ecological Fiscal transfer (ICMS-E), which aims to compensate, encourage or reward municipalities that maintain good environmental practices in their territories.

The ICMS-E is not a new tax, but instead a policy that reallocates existing ICMS funds based on the environmental performance of municipalities. The transfer of these funds does not necessarily have to be used for environmental purposes, but rather can be used to supplement municipal accounts and implement assistance policies. However, the ICMS-E can encourage positive competition between municipalities by rewarding those that meet environmental criteria with higher state transfers.

This policy has been in place for over 30 years and has proven to be adaptable to changing contexts while still maintaining its environmental regulatory function. Currently, there are ten Brazilian states that have not yet approved the ICMS-E, with the majority located in the northeast region. Despite this, all regions of the country have at least one state where the ICMS quota is not distributed based on environmental criteria.

Among the states that compose the Legal Amazon, Maranhão, Amazonas, and Roraima do not have ICMS-E policies. Nevertheless, they have vast

protected areas with a vocation for developing actions that combine social justice, economic dynamism, and environmental preservation.

The definition of transfer criteria corresponds to each state's strategic and political options and must be understood within each specific context. In Brazil as a whole, the ICMS-E distribution criteria are pretty varied and may include the existence of Protected Areas, water supply sources, garbage collection, and recycling systems; the characteristics and quality of environmental management, with a focus on the creation of councils and municipal funds for the environment; as well as the existence of environmental policies for reforestation, firefighting, among others (CASTRO et al., 2018). In the case of states in the Legal Amazon, there is a greater appreciation of Protected Areas and Indigenous Lands.

The methods used to distribute resources are varied, including proposals for ranking performance and preserving certain areas. However, these calculations could be more transparent and understandable. Without clear communication from the state regarding accounting, criteria, and transfers, municipalities are unlikely to be aware of the policy and its goals. This lack of awareness can reduce the incentives for municipalities to meet environmental criteria, rendering the proposal ineffective (CASTRO et al., 2018). Therefore, it is crucial for the state to communicate clearly and openly about the regulatory policy and its implementation.

## ICMS-E IN THE LEGAL AMAZON STATES

Below, we will present the ICMS-E initiatives implemented by the legal Amazon states.

### RONDÔNIA

The state of Rondônia implemented the ICMS-E through Complementary Law 147/96. This law designates 5% of the ICMS quota based on the territorial occupation of municipalities with Protected Areas (federal, state, or municipal). The law takes into consideration the relationship between these areas and the total Protected Area in the state, including Indigenous Lands in the category of Protected Areas. Decree nº 11.908/05 establishes the rules for the calculation. It points out that the larger the area covered by this land category, the greater the

municipal participation index and the greater the financial contribution received as ICMS-E (CARNEIRO et al., 2018).

The document CL 147/96 raises a concern about conserving the Protected Area (PA). It states that the amount passed to the municipality will be reduced if there is evidence of invasions or illegal exploitation in the PA. However, there is no clear system in place to evaluate the quality of Protected Areas, as pointed out by Oliveira and Murer (2010). In Rondônia, municipalities only need to register their Protected Areas with the State Secretariat for the Environment to receive the ICMS-E transfer. They do not have to comply with any regulations or monitoring of their Protected Area.

In Rondônia, there is a contradiction in the criteria used to distribute the ICMS quota to municipalities. While 5% is allocated for environmental considerations, another 5% is allocated based on agricultural and extractive production. This means that the promotion of traditional agricultural production counteracts efforts to encourage environmental conservation in the state.

According to studies by Oliveira and Murer (2010) and França (2015), contradictory stimuli have a significant impact. Oliveira and Murer (2010, p. 212) found that the Municipalities of Rondônia had a minimal role in creating new Protected Areas, not acting positively given the ecological transferring. As a result, there was a noticeable increase in deforestation, primarily due to agricultural expansion during that period.

According to Carneiro et al. (2018), between 2013 and 2016, 33% of Rondônia's municipalities did not receive ICMS-E resources because they lacked Protected Areas. This situation indicates that, despite implementing this policy for over 20 years, there are still obstacles to its effectiveness. It is possible that municipal managers were not properly informed about the ICMS-E criteria or that the remuneration offered was insufficient to encourage the creation of Protected Areas compared to the other productive activities developed in the municipalities (generally linked to agriculture and exploitation of wood).

Furthermore, there has been no execution of the plan to evaluate the quality of protected areas due to the absence of management tools that can regularly monitor incidents of invasion or illegal exploitation.

In 1996, Amapá passed a law (n° 322/96) that established environmental criteria for distributing the ICMS quota. However, this law allocated the same percentage (1.4%) to both environmental and cultivated areas, which may have hindered the state's goal of promoting environmental protection through the ICMS-E. As a result, municipalities may have received resources for protecting the environment while also contributing to increased pressure on the agricultural frontier (FARIAS, 2017).

According to Mendes (2009), between 1996 and 2008, the majority of the ICMS quota (which includes all state parameters) was given to just two municipalities, Macapá and Santana. They received 80% of the resources, even though they did not meet the environmental criteria. This shows that the 1.4% of the ICMS quota that is divided based on environmental criteria is not enough to make a significant impact.

Mendes (2009) also points out that, up until 2008, no municipalities had created any Protected Areas in Amapá. This highlights how the policy did not encourage the expansion of such areas. The low values contributed to the disinterest of municipal managers in receiving resources due to environmental preservation.

Law n° 322/96 was replaced by Complementary Law n° 120/2019 due to criticisms. The new law increased the percentage of the ICMS quota to be distributed based on the environmental criterion from 1.4% to 2%, while reducing the cultivated area criterion to 1%. The aim of this change is to promote environmentally friendly activities over agricultural production, which often puts pressure on natural resources. However, the percentage of 2% for the environmental criterion is still low compared to the 5% allocated to this criterion by most Brazilian states (CASTRO et al., 2019).

The recently implemented law in Amapá has upheld the existing guidelines for the allocation of ICMS quota, with a focus on environmental criteria. The law mandates that the distribution of resources be based on the Conservation Index of each Municipality. The index takes into account the size and quality of Protected Areas, including federal, state, municipal, and private lands. The calculation of the Conservation Index involves assessing the management category of the area, such as ecological station, park, indigenous area, etc., as well as a Quality Factor (CL 120/2019).

According to CL 120/2019, the Quality Factor takes into account various factors such as management plans, infrastructure, protection of surroundings and structures, and inspections of designated protected areas. This factor was previously included in Law n° 322/96 but was never implemented due to the lack of regulation, a situation that remains until now (June 2023).

## MATO GROSSO

Mato Grosso introduced the ICMS-E through Complementary Law No. 73/2000 and Decree No. 2758/2001. These regulations state that 5% of the ICMS quota must be allocated based on the existence of Protected Areas and Indigenous Lands in the municipality, taking into account their total area and management type. Initially, basic sanitation was also considered, but this criterion was removed in 2004. Instead, the social criterion was established with 11% of the ICMS quota, while the 5% allocation for PA and Indigenous Lands was maintained by Law n° 157/2004.

The Protected Areas and Indigenous Lands criterion is calculated by finding the percentage ratio between the Municipality Conservation Factor and the State Conservation Factor. The Municipality Conservation Factor is based on the Municipalities Protected Areas Index, while the State Conservation Factor is based on the sum of the Protected Areas Indexes of all municipalities in the state. This calculation is similar to the one used for Amapá, taking into account both quantitative factors (such as the area of the PA, the state, and its municipalities) and qualitative factors.

Normative Instruction n. 001/2010 established the qualitative criteria for the distribution of ICMS-E. These criteria are important because Law n. 73/2000 allows the state environmental agency to decrease a municipality's Conservation Factor if there is environmental damage in a PA within its jurisdiction. The minimum and maximum scores are considered according to the land situation, surroundings characteristics, zoning, management plan, and social appropriation of the area, among other criteria defined by the Technical Chamber of the ICMS-E.

The ICMS-E Technical Chamber was formed by IN n° 001/2010 and includes members from the Departments of Environment and Finance of the State of Mato Grosso, representatives from the Association of Municipalities of



Mato Grosso, FUNAI, Court of Auditors, and non-governmental organizations. The purpose of this Chamber is to establish the guidelines for the Program in the state. Unfortunately, there is currently no available information regarding its current operation.

Miranda's research (2012) shows that of the 141 municipalities in the state, only 86 received resources from the ICMS-E in 2009. Furthermore, these transfers seem to have high economic importance only in 24 municipalities in the state. However, it is interesting to point out that, according to the author, the municipalities with the lowest GDP in Mato Grosso do not obtain funds through the ICMS-E, losing the opportunity to increase their revenues.

Mattei and Meirelles Neto (2015) state that municipalities that receive a high proportion of their total revenue from ICMS-E tend to prioritize the preservation of their natural resources as they receive financial compensation. In a more recent study, Spanholi (2022) discovered that Mato Grosso municipalities that received ICMS-E had a higher average expenditure on environmental management compared to those that did not receive it. This finding suggests that even if a municipality is not required to allocate resources towards environmental policies, receiving ICMS-E is linked to expenses on environmental management.

## TOCANTINS

In Tocantins, a law n. 1,323/02 mandates that 13% of the ICMS quota in the state must be distributed based on environmental criteria. The distribution of this percentage is determined by several factors, including the presence of a Municipal Environmental Policy (2%), efforts in fire control and combat (2%), soil conservation (2%), protection of Protected Areas and Indigenous Lands (3.5%), and basic sanitation with proper garbage disposal (3.5%). Each criterion is further evaluated based on quantitative and qualitative indices.

Matsubara (2017) reported that Protected Areas at the municipal level in Tocantins have increased between 2003 and 2016, but only in a small amount compared to the entire state area. The author also highlighted the significant concentration of ICMS-E transfer within the Protected Areas and Indigenous Lands criteria. However, there is a lack of mechanisms to assess their effectiveness and the participation of civil society and environmental institutions, so adjustments to the legislation were required.

Thus, in 2015, Law n. 2959 was revised by Laws No. 3319/17 and n. 3348/18, which established new standards for distributing the ICMS share in the state. These standards were based on the Participation Index of Municipalities, which used data from the previous year and applied it to the following year. The law ensured that 13% of the ICMS quota would be transferred for environmental criteria. A Special Commission was also established, consisting of members from both state and municipal governments. Their role was to monitor and discuss the application of ICMS-E.

The legal system has established that the responsibility of raising environmental concerns and preparing indexes lies with the Instituto Natureza do Tocantins (Naturatins). There have been some changes in relation to the 2002 law, such as the replacement of the criterion of Protected Areas and Indigenous Lands with the Index of Biodiversity Conservation and Indigenous Lands and Quilombolas of the Municipality. Additionally, the criterion for basic sanitation now includes water conservation, and a new criterion for Sustainable Tourism has been created. However, it is unclear how this index related to Sustainable Tourism is accounted for in the current legislation.

Decree No. 5,264/15 explains how to calculate these indices based on quantitative and qualitative information. Data for calculating transfers are taken from official statistics and questionnaires answered by municipalities and forwarded to the state government.

Research conducted by Mitye (2021) shows that financial transfers have significantly increased over the past two decades since the implementation of ICMS-E. The amount of money distributed among municipalities has risen by approximately 1,700%. These findings are supported by Matsubara (2017), who notes that all municipalities in Tocantins have adopted the ICMS-E policy, resulting in a significant improvement in the distribution of ICMS to municipalities with over 30% of their land occupied by Indigenous Lands.

## ACRE

Acre instituted the ICMS-E from Law n. 1,530/04 but began progressively implementing the tax distribution based on environmental parameters in 2010, per Decree no. 4,918/2009. This legislation defined that 5% of the ICMS quota would be passed on to municipalities with Environmental Preservation Areas,

Indigenous Lands, and Municipal Environmental Systems. The Municipal Environmental System would comprise the Municipal Environmental Council, the Municipal Environmental Fund, and the managing body of the municipal environmental policy.

The application of ICMS-E in Acre follows specific calculations and rates established by Ordinance No. 91/2010 of the Secretary of State for the Environment. This ordinance determines that the participation index for the ICMS-E of each municipality is determined by the existence of UC (with a weight of 90%) and Indigenous Lands (with a weight of 10%), corrected by a correction factor depending on the area and population.

The Municipal Environmental System was not included in the transfer criteria outlined in Ordinance N. 91/2010, despite being regulated by it. This ordinance was used to distribute ICMS-E in the State until 2018. However, a final regulation of the indices was needed, but faced political opposition, as described by Maia et al. (2014).

In 2019, Law N. 3,532 was enacted, which established new parameters for the distribution of the ICMS share in Acre. The percentage of ICMS share distributed to municipalities based on environmental criteria was reduced from 5% to 2.5%. The new criteria now takes into account the area occupied by Protected Areas in the municipality, including Indigenous Lands, as well as the Effectiveness Index of Municipal Management - IEGM of each municipality regarding the environment.

The IEGM is determined by the Court of Auditors of the State of Acre (TCE/AC), which releases the responsibility for managing the state Executive Branch in collecting and analyzing municipal data. This environmental index seeks to evaluate the evolution of municipal public policies related to solid waste, basic sanitation, and environmental education, as well as to consider the municipal structure of environmental management. The indices that comprise the environmental index are calculated by the percentage ratio between the data for each municipality and the total for the State, obtained by adding the data corresponding to each index.

Law No. 3,532/19 also created the Deliberative Council for the ICMS Participation Index of Municipalities (CODIP/ICMS). This is a group of representatives from both state and municipal governments who are responsible

for making decisions about the distribution of the state's ICMS share. The CODIP/ICMS is an advisory, deliberative, and normative body.

Reducing the percentage allocated to ICMS-E in Acre could lead to regrettable consequences, such as discouraging municipalities from improving their environmental performance. However, the initial legislation on this matter in the state was ineffective in adapting to changes in environmental management over time.

The lack of effectiveness was due to the unchanged calculation method outlined in Ordinance N. 91/2010 for the allocation of ICMS-E funds for eight years. The allocation was solely based on the presence of Protected Areas, which meant that regardless of any improvements made in environmental management, resource distribution would remain the same. As a result, municipalities had no incentive to compete and enhance their environmental quality.

The recent changes made by Law n 3.532/19 should increase the chances of identifying improvements in environmental management quality of municipalities. This will encourage municipalities to be more engaged in environmental efforts. By properly implementing the legislation, even with reduced percentages, it is possible to expect better environmental outcomes.

In this sense, the partnership between the state government and the TCE/AC will be fundamental in the survey and analysis of the municipal information that composes the IEGM in the environmental dimension. Such an index can capture management changes annually, favoring those with good environmental performance with more significant transfers and encouraging those in a worse situation to improve their conditions.

## PARÁ

In Pará, for a municipality to be eligible for ICMS-E distribution, Law nº 7.638/2012 requires establishing a Municipal Environmental System that encourages citizen engagement. This system should include a Municipal Environmental Council, a Municipal Environmental Fund, a public entity responsible for managing the Municipal Environmental Policy, and other necessary resources to support municipal environmental policies.

The indices are computed yearly, and 8% of the ICMS quota value is assigned based on ecological standards. Prior to July 2016, environmental

criteria were based on three factors: the proportion of municipal land taken up by Protected Areas, including Indigenous Lands (25%), the quantity of vegetation cover in the municipalities (25%), and the level of environmental regularization through the Rural Environmental Registry (50%) (as stated in Decree No. 775/2013).

Since 2016, the State Secretariat for the Environment and Sustainability of Pará has been adjusting the criteria for distributing resources to municipalities using multivariate statistics. Additionally, it publishes yearly ordinances that set the index for the transfer of ICMS-E from the state for the upcoming year.

In 2021, Ordinance N. 747 established the distribution parameters for the year 2022 with the following variables and weights:

- I – Rural Environmental Registry (14.16%);
- II – Permanent Preservation Area (11.06%);
- III – Legal Reserve Area (10.70%);
- IV – Anthropized Area, negatively computed in the model (-13.12%);
- V–Native Vegetation Reserve (13.87%);
- VI – Restricted Use Areas (12.02%);
- VII – Sustainable Use Areas (12.48%);

VIII – Level of environmental regularization through the Rural Environmental Registry (12.61%).

This methodology is quite elegant but requires annual updating of the weights and not just the variables. The method used to attribute weights is that of principal components, which requires complex statistical treatment. That is, the coefficient is not fixed a priori, and the weight of each criterion is given endogenously in the model.

By changing the methodology, criticism of the previous criteria was reduced. Merlin and Oliveira (2016) reported that during the first year of the ICMS-E implementation in Pará, there was a significant concentration of transfers in a few municipalities, including ones with high deforestation rates. Ferreira (2016) also criticized the inclusion of Protected Areas of different categories, given the conflicts of use in areas intended to protect the Amazon biome. He also questions using the level of environmental regularization among the legislation's environmental criteria. The author states that "the integrity of the environment is

not simply measured by calculating the area of a Protected Area or the area included in the Rural Environmental Registry" (FERREIRA, 2016, p. 120).

On the other hand, Merlin and Oliveira (2016) assure that the reasons for this discrepancy between the objectives outlined with the ICMS-E and its practical result seem to stem from the incomplete implementation of the environmental management system, which has not yet been fully implemented.

Table 1 summarizes the data presented:

Table 1 – Characteristics and results of the implementation of ICMS-E in the states of the Legal Amazon\*

Legal Amazon states that have ICMS-E	Year of the first ICMS-E law	Percentage ICMS-E	Environmental criteria	Characteristics and results.
Rondonia	1996	5%	Protected Areas and Indigenous Lands	No new municipal protected areas have been created over time. The system for assessing the quality of protected areas has not been implemented. There are contradictory criteria for the distribution of ICMS.
Amapá	1996	2%	Protected Areas and Indigenous Lands	No new municipal protected areas have been created over time. The protected area quality assessment system has not been implemented. There are contradictory criteria for the distribution of ICMS.
Mato Grosso	2000	5%	Protected Areas and Indigenous Lands	The protected area quality assessment system has not been implemented. An ICMS-E technical chamber was set up. The policy results were positive, as the ICMS-E induced municipalities to spend more on environmental management.
Tocantins	2002	13%	Municipal Environmental Policy; Control and fight fires; Soil conservation and management; Protected Areas, Indigenous Lands and Quilombolas; Basic sanitation and water conservation; Sustainable tourism.	Every year, there is a process in place to evaluate the effectiveness of environmental management. An ICMS-E commission oversees this process. Municipalities have increased the number of protected areas and the distribution of ICMS-E has improved, indicating progress in the environmental outcomes of these areas.
Acre	2004	2,50%	Protected Areas, Indigenous Lands, and Municipal Environmental Management Effectiveness Index	Before the new law, no positive results were identified from the ICMS-E policy. The new legislation created an ICMS Council, rules to value municipal environmental management, but reduced the quota transfer percentage according to environmental criteria.

Pará	2001	8%	Rural Environmental Registry; Permanent preservation area; Legal Reserve Area; Anthropized Area, negatively computed in the model; Native Vegetation Reserve; Restricted Use Areas; Sustainable Use Areas	In the state, there is currently no board for ICMS-E. The municipal environmental system is a requirement to participate in politics. A complex transfer calculation system was established but is still being implemented, which distorted the policy results.
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\*Amazonas, Roraima and Maranhão do not have ICMS-E.

Source: Own elaboration



The states within the Legal Amazon region prioritize the importance of Protected Areas and Indigenous Lands when transferring funds through the ICMS-E policy. This is a suitable approach as these states have numerous protected areas. According to Carneiro et al. (2018), by including Protected Areas in the ICMS-E legislation, municipalities start viewing their conservation as a way to generate revenue instead of an obstacle to their development. The reason for this is that the resources from the ICMS-E may exceed the profits from activities that cause harm to the environment, which, even illegally, would be carried out in these areas.

Recently, some states have changed their criteria for transferring the ICMS-E quota. They now consider not only the environmental characteristics of municipalities, but also the quality of their environmental management. Municipalities with dedicated environmental secretariats, active Councils and Municipal Funds for the Environment, and established environmental policies are now prioritized for ICMS-E transfer.

According to Xerente and Bilac (2018), criteria related to environmental management have encouraged municipalities to build policies for the area, being an essential pedagogical tool. It also helps improve the performance of environmental agencies and fosters collaboration with other public agencies to ensure compliance with state legislation. The authors also point out that Municipal Environmental Councils are required in some states for the transfer of ICMS-E. This helps involve the local population in the decision-making and supervision of environmental policies. Some states also create a council on the ICMS-E that includes various segments of society. This approach can improve understanding of the policy, as evidenced by the fact that states with such councils have the best policy outcomes.

In the analyzed states, the transfer percentages for ICMS-E range from 2% to 13%. This discrepancy, coupled with the conflict between environmental and agricultural criteria in allocating ICMS quota, leads to uneven environmental outcomes and the low establishment of new protected areas. Additionally, it is essential to acknowledge that some ICMS-E policies in these states have only been partially implemented and require the creation of regulations and stable data collection and processing systems for effective results.

Regarding data collection, it is worth noting that the ICMS-E policy has more impact in areas where municipalities' environmental performance is evaluated on a qualitative and yearly basis. However, this evaluation process requires states to have the ability to analyze and process the gathered information and for the municipalities to provide it. This evaluation process can be a challenge for places with limited resources.

## FINAL CONSIDERATIONS

The objective of this work is to present and examine the application of ICMS-E in the states of the Legal Amazon. These states share common challenges in terms of preserving the environment, enhancing socioeconomic indicators, and promoting businesses that prioritize their natural resources.

The ICMS-E is a mature regulatory policy that meets state and municipal interests and presents positive results for the preservation of the environment. In addition, implementation experiences allow different criteria and methodologies to be improved and revised over time, generating learning in the follow-up of policies.

Considering the Legal Amazon, the states of Maranhão, Roraima, and Amazonas are the only ones that have not implemented an ICMS-E policy. In the other states (Acre, Amapá, Pará, Tocantins, Rondônia and Mato Grosso) it is possible to observe different environmental criteria for the distribution of resources from the ICMS quota.

Some lessons can be learned from the ICMS-E policies in the states of the Legal Amazon:

- When criteria that contradict environmental goals are used to allocate ICMS-E, as incentives in agriculture, it reduces the effectiveness of this policy. This is because the stimulus is not properly directed towards environmental preservation.
- Some states created ICMS-E Monitoring Councils. These Councils have been helpful in aligning the different actors interested in the policy.
- It is important for states to establish clear and regularly reviewed standards, which enable local governments to receive compensation for making progress in their environmental efforts

- The evaluations of these improvements must be simple to respect the state's ability to monitor and indicate their scope and allow municipalities to understand what they need to achieve to improve their transfer.
- The states must establish a transfer percentage of ICMS-E that encourages municipal preservation actions. Research shows that the higher the percentage designated for transfers as ICMS-E, the more likely city halls are to respond positively to the state's environmental preservation incentives.

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