# One Amazon Problem? Problem-constructions and Transnationalism in Brazilian Presidential Discourse since 1985

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### Abstract

The Amazon is a complex object of policy as it comprises environmental, economic, social, and sovereignty concerns. Despite this complexity, governments are often portrayed as having a single understanding of the Amazon as a political problem. We investigate how the Amazon has been constructed as a problem in Brazilian presidential speeches. To do so, we develop a framework that accounts for how important actors in transnational politics, as presidents, construct policy objects as particular problems depending on where and when they speak and when. Using supervised machine learning, we classify statements about the Amazon in 6240 presidential speeches since 1985. We find that presidents often construct the Amazon as an environmental problem when speaking far away from the Amazon, whereas they usually construct it as economic or social problems when in the Amazon. Furthermore, presidents increasingly construct the Amazon as multiple problems rather than only economic or environmental problems.

**Keywords:** discourse analysis, presidential speeches, transnational governance, environmental policy, Brazilian Amazon, supervised learning

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# Introduction

The Brazilian Amazon, which covers around 60% of the whole biome, is home to over 28 million people. The Rainforest spans over seven international borders and contains enormous amounts of highly valued minerals such as iron ore and gold. Its most inhabited city, Manaus, enjoys a distinct fiscal regime designed to create jobs in the region and connect its economy to the rest of the country. At the same time, an extensive portion of the Brazilian Amazon is protected by a combination of indigenous territories and protected areas. The Brazilian Amazon is, thus, a complex object of policy as it comprises environmental, economic, social, and sovereignty concerns. Despite this complexity, governments are often portrayed in the literature about policies in the Amazon as having a single understanding of what the Amazon problem is and consequently, proposing coherent policies for the region. Although it is helpful to compare variation across different governments, this analysis oversimplifies policies and discourse within governments misrepresenting what, in reality, is more intricate and inconsistent. In this article, we ask how has the Amazon been constructed as a political problem since 1985?

We combine Bacchi (1999)'s theory of problem representation and Keck and Sikkink (1998)'s theory of transnationalism to develop a framework outlining how transnational actors, as Presidents, construct objects of policies as particular problems depending on where and when they participate in politics. To examine this variation, we created a dataset containing 6240 official speeches by all Brazilian presidents since 1985. Drawing from the socio-cultural history of the Brazilian Amazon, we inductively developed a codebook to categorize problems related to political concerns over the Amazon. These problem-constructions relate to national sovereignty, economic integration, social development, or environmental conservation. We employ supervised machine learning to classify how the Amazon related statements construct it as a problem, and then conduct an inferential and descriptive analysis of the data. A systematic focus on presidential speeches is important because while many scholars recognize decisions to deforest on the ground are derived from what the government says and does (Capobianco 2021; Campbell 2015), we lack empirical accounts of the Amazon in presidential discourse.

We have four main findings. First, when presidents are far away from the Amazon region, they are more likely to construct the Amazon as an issue of environmental conservation. Within the Amazonian region, presidents usually construct the Amazon as an issue of social development and economic integration. Second, presidents are more likely to construct the Amazon as an environmental conservation problem when environmental related issues are not urgent (e.g. lowering deforestation rates). When environmental related issues become more urgent (e.g. rising deforestation rates), presidents tend to side-step the issue and construct the Amazon as an issue of economic integration. Third, we find that high-profile environmental events, which receive strong international media attention, drive up the frequency at which the Amazon appears in discourses, but does not systematically change how the Amazon is constructed as a problem. Finally, we find that presidents are increasingly more likely to mix problem-constructions and construct the Amazon as a complex and multifaceted object of policy.

Empirically, we contribute to the literature about the Amazon by providing the first overview of where, how, and when the Amazon has been constructed as a problem in presidential speeches. We show how the same government constructs the Amazon as a different problem depending on where they speak and how urgent an aligned issue is. Analyses of Brazilian environmental discourse and policies do not adopt methodological strategies that distinguish how important actors behave differently inside and outside the country, by doing so we reveal how the Amazon as a problem varies in transnational politics. Conceptually, problem-constructions highlight the extent to which Amazonian problems are ignored or privileged in transnational politics, and avoids assumptions of the Amazon as a solely environmental problem.

This article is divided into 4 sections. First, we outline the connection between problem-constructions, transnationalism, and presidential speeches. Next, we present our research design including the description of our data and methodological approaches. In the third part, dedicated to the analysis, we display the results of our inferential models and move to explain developments in problem-constructions over time. We conclude by summarizing the empirical and conceptual contributions of the article.

# 2. Theory: problem-constructions, transnational settings, and problem urgency

## 2.1 Problem-representation in presidential discourse

Scholars writing about policies in the Brazilian Amazon often describe federal governments as proponents of a cohesive set of policies toward the Amazon (see Drummond and Barros-Platiau 2006; Pádua 2012; Franchini and Viola 2019; Capobianco 2019; Pereira and Viola 2021). The 1964 military dictatorship, for example, is associated with securing sovereignty in the region by populating it and integrating it into the national economy (Drummond and Barros-Platiau 2006). Whereas, governments from the late-1980s up to the late-2000s are associated with a turn towards policies that focus on environmental conservation of the Amazon (Pádua 2012). The presidencies of Rousseff (2011-2016) and Temer (2016-2018) are connected to the de-prioritizing of environmental conservation policies, while Bolsonaro (2019-2022) with the dismantling of environmental policies (Capobianco 2019). These works are important to understand how different governments acted towards the Amazon, but they represent governments monolithically by bundling them into cohesive policy cycles.

Elsewhere, social scientists have shown that there is more variation and contradiction within a specific government's policies and discourse (see López 2023; Fairfield and Garay 2017; Ponce de Leon 2021) than suggested by the literature above. We argue that the reason behind monolithic representations of governments in literature about the Amazon is conceptual: many studies of the region contain an explicit or implicit assumption of what the "Amazon problem" is. Because of the Amazon Rainforest role in global climate-mitigation, , and consequently, as an environmental problem. If the Amazon is thought of as an environmental problem, then it demands an environmental solution. The Amazon region, its peoples, and

3

forests, though, are a historically complex object of policies that comprise economic, social, and sovereignty concerns.

Bacchi (1999, 63) places the question of "what is the problem represented to be" in the center of policy studies. The existence or proposal of a policy implies that there is a (public) problem that needs (governmental) action to be fixed. Hence, discourse represents, implicitly or explicitly, objects of policies as instances of a specific problem.Problem-representation matters because it carries implications related to who is involved both in the root causes and in the solutions of the problem (Bacchi 1999). It also helps us shed light on what problems are ignored or privileged.

Following Bacchi, we place discourse about policy objects at the center of our conceptual framework. We define policy objects as objects that demand dedicated political attention and argue that by deciding to speak about a policy object, governments are making a deliberate choice to represent, or construct it, as a specific problem. The problem might be either explicitly stated, or implicitly hidden in the underlined solution. This is what we label as problem-constructions.

Presidential discourses are a good instance to identify problem-constructions over time. Presidential speeches and policy share a co-constitutive relationship as speeches have the power to introduce, define, and justify public policy, as well as shape issue perception to broad audiences (Zarefsky 2004). This is particularly true in the Brazilian context where the executive branch of government, led by the president, has historically been the primary player in shaping public policy, especially after the 1988 constitution (Macaulay 2017). In Brazil's hybrid system, often referred to as a Coalitional Presidentialism (Couto, Soares, and Livramento 2021), presidents build legislative support for a broad agenda through the distribution of positions in the state bureaucracies. This means that presidents often have enough power and support to implement the agenda they deem appropriate. We thus consider presidential speeches an adequate instance to identify various problem-constructions for the same policy object.

## 2.2 Transnational settings, urgency, and variation in problem-constructions

The possibility of different problem-constructions for the same policy object in political discourse requires an explanation of why they vary. There are two potential theories for explaining variation in problem-construction in international/transnational politics: Putnam's two-level game and Keck and Sikkink's transnational networks.

Putnam (1988) argues that the outcomes of international negotiations lie within the overlap between the interests of domestic and international groups. At the national level, interest groups pressure the government to adopt favorable policies. Internationally, the government seeks to fulfill domestic preferences "while minimizing the adverse consequences of foreign developments" (Putnam 1988, 434). The theory has been expanded to cover multi-levels games (Collinson 1999), but its core remains the same: the outcome of negotiations should lie within the overlap of distinct interest groups. Consequently, presidential speeches are

not necessarily contradictory across venues but a common denominator of the interests of different groups. Adopting two-level games to explain American presidential speeches about climate change, Calderwood (2020) found supporting evidence that location does not change the content of the speech, but can lead presidents to side-step the issue.

The two-level game theory implies that actors respond rationally to systemic pressures imposed by their position in relation to interest groups. This view seems incompatible with the possibility of contradictory policies and of varied problem-constructions. Rather, we start from the idea of transnationalism as relationships that transcends nation-states and incorporates non-state actors, from the local level to the international level (Nye and Keohane 1971; Keck and Sikkink 1998). In this context, international summits are considered a transnational setting because non-state actors participate in and shape them. We view, for instance, summits as the United Nations Framework Convention of Climate Change (UNFCCC) not only as a purely intergovernmental body, but as a transnational space composed of international media, corporations, non-governmental organizations, and social movements.

While Keck and Sikkink (1998) theory is developed in the context of value-based advocacy groups, hence non-state actors, the overall view of international politics holds for state actors. Their theory rejects the dichotomy of international and domestic levels and argues that the identity and goals of transnational actors are not derived from their structural location vis-a-vis domestic and foreign interest groups. Rather, international politics as transnational networks have "a structured and structuring dimension" (Keck and Sikkink 1998, 4): state and non-state actors participate in and shape international politics.

Important participants of transnational networks, as presidents, can use a myriad of tactics to introduce, define, persuade, socialize, and pressure when interacting with other actors. They can create politically meaningful information and/or move it where they believe it can have an impact (Keck and Sikkink 1998, 24). They can also leverage institutions to realize symbolic or material gains. In this sense, the positions of actors in transnational networks derive from complex interactions in which their identities and goals are malleable and can vary depending on the space and time of the interaction.

Problem-constructions are choices transnational actors have of how to represent objects of policies as problems. If malleable identities across space and time are a defining feature of transnational politics, it follows that transnational actors', as presidents, choice of problem-constructions depend on their views of an audience at a certain period. Specifically, how urgent a problem is in a certain space and/or at a certain time.

*Space*

Transnational actors construct problems and attempt to inform and/or leverage audiences for symbolic or material gains according to their expectations of that audience. We conceptualize space in terms of settings. Settings are levels of aggregation for transnational audiences that make sense in light of the object of policy under study. This indicates how transnational actors construct policy objects as problems can vary, for instance, within the country — speaking inside the Amazon region versus outside — because presidents identify these audiences as distinct. The same holds true when speaking abroad — in Amazonian countries, non-Amazonian countries, and at international summits — where presidents' expectations

and identities of an audience could diverge completely from that of domestic actors. In each one of these settings different problems might be more urgent and the president's expectations about what can be leveraged for material and symbolic gains might influence how a problem is implicitly or explicitly constructed.

*Time*

How presidents construct policy objects varies over time as the urgency of certain problems changes not only across settings but in time as new information arises. We conceptualize time as the urgency of a broad and related issues to those surrounding a policy object. This is largely defined by factors exogenous to the speaker. This indicates, for instance, that as climate change becomes more urgent and mainstreamed as a broad issue, it is more likely that actors will consider mentioning climate change when discussing various forms of public policy. For instance, when speaking about subsidies for fossil fuel companies in the 1980s, presidents would likely not mention the dangers of climate change, whilst today, climate change would likely be mentioned given the increased relevance of the topic.

While time and space interact, here we are interested in their cumulative effects: when speaking in the 1990s to an audience that finds climate change urgent, certain transnational actors would likely mention it as a problem independently of the perceived urgency of a climate breakdown at the time. Accordingly, certain transnational actors might even consider touching upon the issue while speaking at a business association today, because of its urgency.

Our conceptual framework, thus, combines Bacchi's theory of problem-representation and Keck and Sikkink's theory of transnationalism to account for diverse problem-constructions. We help to advance the literature about the Amazon in three main ways. First, we provide an outlook of the region, its people, and forest beyond its environmental nature by focusing on different problem-constructions. In doing so, we take a step back and avoid assuming what type of problem the Amazon is. Instead, we focus on how the Amazon has been represented as a problem. Second, many analyses of Brazilian environmental policies center on its national and international nature without adopting methodological strategies that distinguish how important actors behave differently in both scenarios (Hochstetler and Keck 2007). Our focus on presidential speeches afford us the analytical leverage to identify transnational variation, as speeches take place in multiple settings over time. Finally, presidential speeches in Brazil have been studied for topics such as race relations (Da Silva and Larkins 2019) and inequality (Grangeia 2017). When it comes to the environment, studies tend to focus primarily on Bolsonaro's discourse (Marquardt, Oliveira, and Lederer 2022; Mendes Motta and Hauber 2022). We argue, however, that a longitudinal view across Brazilian presidents is important to understand how much continuity and change there is.

If our conceptual framework holds, it entails that transnational actors view different settings as distinct policymaking instances. While there might exist convergences of priorities over time, as problems become more urgent, contradictions become possible. This does not mean that policies and priorities change instantaneously and consequently do not matter. Rather, presidents will focus on representing issues in forms aligned with what their perception of an audience are.

# 3. Research design

To create a dataset containing all Brazilian presidential speeches, we update a dataset of all Brazilian presidential speeches from 1985 to 2019 (Cezar 2020) to include speeches from 2020 to 2022. The final dataset contains 6240 speeches with their date and state or country location. We proceed to identify speeches that refer to the Amazon as a region, people, or forest, by detecting the stem "amazon". In Portuguese, the stem captures terms such as "Amazonia", "Amazonica", "Amazonidas", "Amazonense(s)", "Amazonas", among others. We find that 968 speeches are, at least partially, about the Amazon.

We use the poldis R package (Sposito 2021) to extract two sentences before and after each reference to the Amazon in the presidential speeches. We opt for picking two sentences around, rather than words, because sentences usually contain a cohesive idea. These sentences form our unit of analysis: 2048 unique Amazonian statements, with an average length of 131 words.

## 3.1 Operationalizing Amazonian problem-constructions

We use a codebook developed through an inductive process and informed by the literature to categorize Amazonian statements into four problem-constructions: national sovereignty, economic integration, environmental conservation, and social development. While the three formers are present in the literature, we argue a fourth one exists in speeches: social development.

*National Sovereignty* In the process of securing Amazonian borders since the 18th century, Brazil thwarted "the imperial ambitions of France, Britain, the United States, Belgium, Bolivia, and Peru" (Hecht and Cockburn 1990, 8), and secured the Amazon as Brazilian. While military diplomacy was very successful, the process did not come without its issues and sovereignty in the Amazon became one of the main military concerns(Rajão et al. 2020). More recently, as we move to a world where non-state actors gain importance in international politics (Andonova 2014; Keck and Sikkink 1998), sovereignty-related problems become more varied. Threats to national sovereignty, consequently, broaden from nation-states to a wide set of actors. The sovereignty problem-construction advances the view that the Brazilian Amazon belongs to Brazil and any foreign or non-state presence in the region can be part of a broad strategy to take the region. The policy solutions to the issue of sovereignty included the monitoring of the borders and strict regimes related to entry into the region.

*Economic Integration* The Vargas dictatorship (1937-46) and the military dictatorship (1964-89) took over the task of modernizing the Amazon (Becker 2005). In 1966, the Brazilian Military launched 'Operation Amazon', a policy to modernize the region based on three assumptions (Acker 2021). First, it assumed that nature should be conquered by mankind. Second, it assumed that exploiting natural resources would render the Amazon region economically profitable. Third, it assumed that populating the region was necessary to integrate it into the country and exert control over the territory. Concretely, this meant a series of major infrastructure projects, incentives for settlers to expand the agricultural frontier, and the establishment of a tax-free zone in Manaus to attract industry. The economic integration

problem-construction advances the view that the Brazilian Amazon needs to be developed and modernized. These policy solutions have at their core the development of the necessary infrastructure to integrate the region into the national and international economy.

*Environmental Conservation* The rapid economic changes in the region from the 1960s to the 1980s were matched with the birth of domestic environmental institutions (Drummond and Barros-Platiau 2006). The creation of these institutions stemmed from the impression of the lack of control over the environment, following the efforts to economically integrate in the region (Acker 2021; Capobianco 2021; Hecht and Cockburn 1990). This process accelerated in the late 1980s with the birth of modern environmentalism (Viola 1987). The environmental conservation problem-construction emphasizes that the Amazon should be preserved by the creation of protected areas and deforestation should be halted. The policy solutions imply, for example, further investments in command-and-control institutions, the valuation of standing ecosystems through incentive schemes, and the creation of protected areas.

*Social Development* As democracy established itself in Brazil, especially with the 1988 constitution, settlers in the Amazon became electorates with constitutional rights. Governments can emphasize the lack of hospitals, sanitation, and schools concerning peoples' dignity, standards of living, and other constitutional rights. However, such emphasis can be masked within both the economic integration and environmental conservation accounts. While for some groups, such as indigenous peoples, constitutional rights and preservation of the forest go hand in hand, providing better standards of living to large portions of populations of the Amazonian states and conservation are not necessarily connected. Social development is a problem-construction that focuses on constitutional rights, citizenship, and dignity. The policy solutions imply enabling access to water, sanitation, electricity, internet, and radio, as well as the construction of schools and hospitals.

An Amazonian statement can be coded as referring to multiple problem-constructions (see Figure 1 below). Amazonian statements, thus, can be pure-type statements (i.e. they construct the Amazon as a single problem) or mixed-types (i.e. they construct the Amazon as multiple issues).

Figure 1: Operationalization of problem-constructions
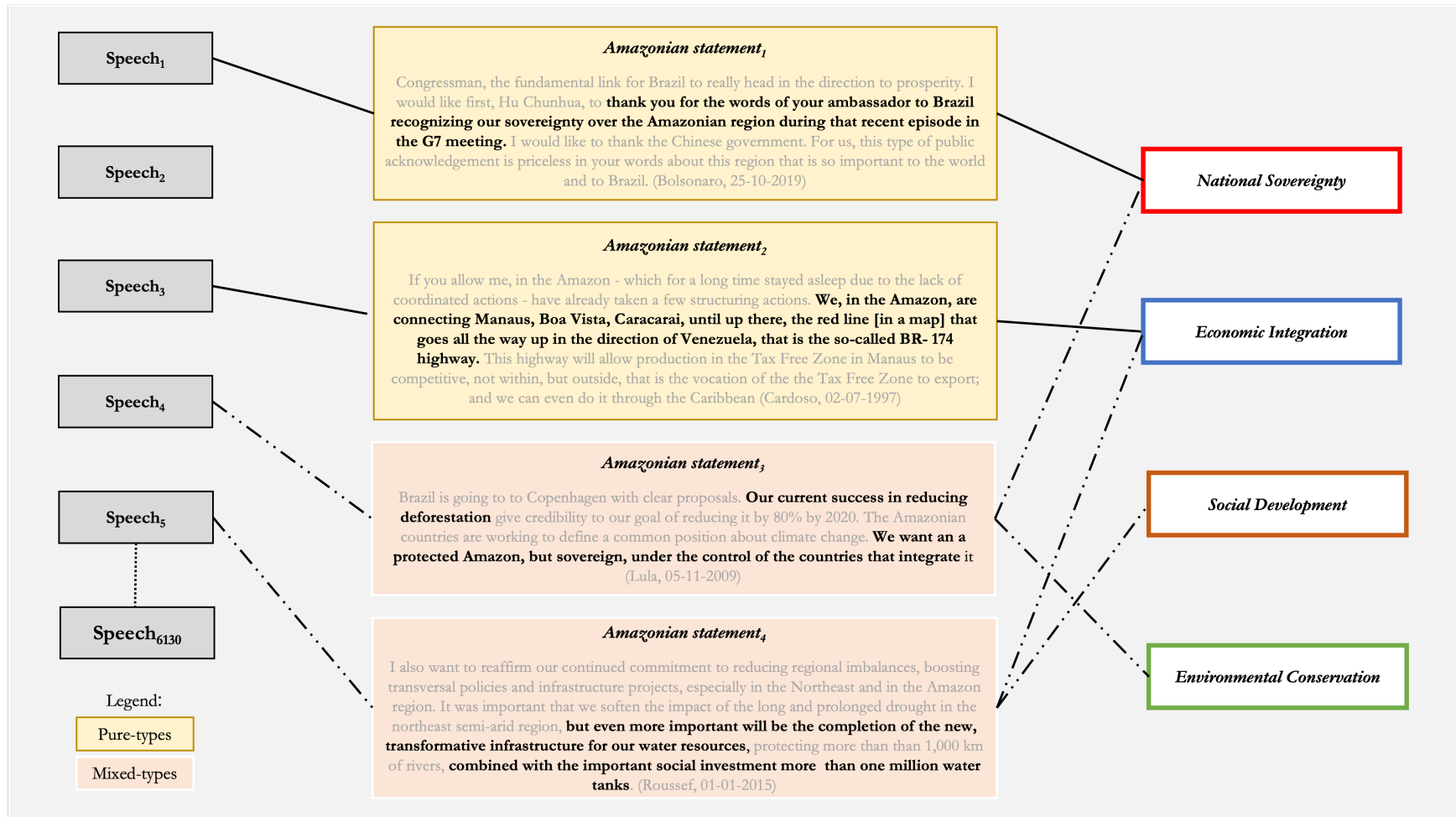
We randomly select a sample of 1024 Amazonian statements (50% of our data) and each author hand-codes it separately. Once manual coding was finished, the average intercoder agreement was 86%, the authors resolved disagreements through discussion and refined the codebook (see appendix). We then randomly divided the hand-coded data into a training set (80% of observations) and validation set (20% of observations) to train a machine learning algorithm. We chose to hand code half of the observations because there are several nuances in how presidents talk about the Amazon over time, and thus the training set size should be increased (see Grimmer, Roberts, and Stewart 2022).

We use a support-vector machine algorithm, a non-probabilistic linear classifier appropriate for binary categories (Meyer et al. 2021; Noble 2006), to train a model to label text. The model was validated by testing it on the validation set. As a robustness check, the authors randomly select 100 automatically coded statements and find that the automated model is 95% accurate in coding these statements as the authors would. The final dataset, excluding false positive matches, contains 1924 coded Amazonian statements [1]. Automating the code saved the authors about two months.

## 3.2 Operationalizing settings and urgency

Our explanation for variation in problem-constructions is based on the setting of a speech and the urgency of an aligned issue. This comprises our independent variables.

*Settings*

To operationalize settings, we extract the location of the speech and create four distinct settings: Amazonian states within Brazil, non-Amazonian states within Brazil, Amazonian countries, and non-Amazonian countries. Each one of these settings encompasses audiences that can have different expectations in reference to our policy object, the Brazilian Amazon. When speaking in Amazonian states presidents face audiences that likely have distinct social, economic, or environmental demands in relation to the Brazilian Amazon. Such expectations might be distinct from the ones' audiences in non-Amazonian Brazilian states. Furthermore, during visits to Amazonian countries, presidents may perceive them as peers facing similar challenges and adjust their speeches accordingly. Conversely, when speaking in non-Amazonian countries or at international events such as the UNFCCC or visits to the US or France, presidents may tailor their speeches to align with what they perceive as possible symbolic or material gains from the audience.

This operationalization of settings comes with limitations. While we would ideally like to capture the exact venue of the speech (i.e. multilateral mechanism, private fora, bilateral visit, bridge inauguration), it is difficult to programmatically code exact locations from thousands of speeches that often mention multiple locations in the same text. Nevertheless, we believe the four settings coded are enough to demonstrate whether, and how, problem-construction might change transnationally.

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[1]We also train the model to identify false positive matches in Amazonian statements. These are statements that contain the stem "amazon" but are not meaningful as they might salute the governor of the Amazon, for example.

*Urgency*

Beyond setting, timing matters because issues aligned to certain problem-constructions vary in their urgency over time. To capture the urgency of aligned issues, we use two proxies: lagged deforestation rates in the Brazilian Amazon and annual inflation rates. When deforestation rates are high, the problem of environmental conservation can be perceived as more urgent. Relatedly, when inflation is high, the problem of economic integration issues can be perceived as more urgent. We opt for lagging deforestation rates by one year as the consolidated rates for a certain year are published in the following year. Since both annual deforestation rates and annual inflation rates come in different measurements (i.e. percentage and kilometers square) we scale these values to facilitate interpretation of coefficients. Scaling variables do not affect statistical inference in regression models.

This approach to operationalizing urgency also has its limitations. Ideally, we would like to add additional proxies of urgency for social and sovereignty issues. However, social development indicators (e.g. life expectancy, education levels, access to sanitation) generally increased over time in Brazil. In terms of national sovereignty, the way we conceptualize the problem-construction entails internal and external threats which are not easily measured. Despite these limitations, we can draw some conclusions from the urgency of environmental and economic issues and their aligned problem-constructions.

## 3.3 Inferential and descriptive strategies

We use fixed-effect logistic regression models to predict the probability of a speech mentioning the Amazon (model 1) and each of the four problem-constructions (models 2-5). The fixed-effects models are indexed by the president, since each president might have individual-specific characteristics that can influence outcomes. Presidents' political ideology can affect their preferred problem-construction. As well, presidents might have preferences for a specific setting given their agenda[2]. Fixed-effects models help to control for these possible individual-specific issues and other unit-unvarying characteristics (Allison 2009).

The dependent variables of the model are the share of speeches that mention the Amazon (model 1) and the share of a problem-construction (models 2-5). We chose to model each construction separately, and to focus on pure-types (i.e. statements that construct the Amazon as a single problem), to provide unambiguous interpretations and more robust findings. Our main explanatory variables are settings and urgency, as described above. We add one control, election years, due to the possibility of presidents constructing the Amazon in systematically different ways during campaigns.

We wrap the analysis with a descriptive and longitudinal analysis of Amazonian speeches in time, considering the findings of the models. It is important to outline that we do not make any causal claims. Many scholars inquire and find causal relationships between discourse and outcomes. Our research design and data do not allow us to do so. Instead, we focus on the relationships in themselves rather than their order or cause.

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[2]Figure 5 (in appendix) confirms presidents have a similar share of speeches by setting, weakening the possibility of presidents picking settings according to their agendas.

# 4. How has the Brazilian Amazon been constructed as a problem?

We open our analysis with the models predicting the probability of presidents mentioning the Amazon in speeches (model 1) and of presidents employing certain problem-construction (model 2-5). Subsequently, we plot and discuss the longitudinal developments of Amazonian speeches and of problem-constructions considering the model results.

## 4.1 The Amazon problem: setting and urgency

Following our framework, we argue that presidents' expectations about an audience at a certain setting and the urgency of specific aligned issues explain variations in when the Amazon is a problem and what type of problem it is. Our models, below, confirm the expected relationships.

| | Dependent variable: | | | | |
|---|---|---|---|---|---|
| | Amazon Speech | Environmental Conservation | Economic Integration | Social Development | National Sovereignty |
| | (1) | (2) | (3) | (4) | (5) |
| Amazonian Countries | −0.167*** | 0.012 | 0.091** | −0.097*** | −0.004 |
| | (0.033) | (0.032) | (0.039) | (0.028) | (0.022) |
| Non Amazonian States | −0.403*** | 0.079*** | −0.039* | −0.013 | 0.028** |
| | (0.025) | (0.018) | (0.022) | (0.016) | (0.012) |
| Non Amazonian Countries | −0.430*** | 0.202*** | −0.056 | −0.057** | −0.004 |
| | (0.026) | (0.031) | (0.037) | (0.027) | (0.021) |
| Deforestation | −0.075*** | −0.098** | 0.303*** | −0.045 | −0.030 |
| | (0.025) | (0.047) | (0.056) | (0.041) | (0.031) |
| Inflation | 0.232*** | 0.164** | −0.291*** | 0.072 | 0.102** |
| | (0.049) | (0.071) | (0.086) | (0.063) | (0.048) |
| Election Year | −0.010 | 0.041* | 0.011 | 0.008 | −0.016 |
| | (0.012) | (0.022) | (0.026) | (0.019) | (0.014) |
| Observations | 6,167 | 1,924 | 1,924 | 1,924 | 1,924 |
| $R^2$ | 0.066 | 0.035 | 0.031 | 0.010 | 0.007 |
| Adjusted $R^2$ | 0.064 | 0.028 | 0.025 | 0.004 | 0.0001 |
| F Statistic | 72.132*** (df = 6; 6153) | 11.499*** (df = 6; 1910) | 10.249*** (df = 6; 1910) | 3.320*** (df = 6; 1910) | 2.197** (df = 6; 1910) |

*Note:*          *p<0.1; **p<0.05; ***p<0.01

Table 1: Log odds for fixed-effects logistic regressions indexed by president

We start by first scrutinizing the relationship between the setting and problem-construction. Model 1 addresses the question of when the Amazon is a problem to begin with. We model the probability of a speech generally mentioning the Amazon in relation to the reference category, Amazonian states within Brazil. The findings are intuitive: the likelihood of mentioning the Amazon in speeches decreases as presidents move away from the region and biome.

The following models (2-5) address the question of how the Amazon is constructed as a problem in different settings. In terms of environmental conservation (model 2), we observe that when speaking in non-Amazonian countries, be it in international summits, bilateral meetings, or fora, presidents are much more likely to construct the Amazon as an issue of environmental conservation, in relation to when they speak within Amazonian states in Brazil (reference category). To a lesser extent, this also holds for when presidents speak in non-Amazonian states within Brazil, where they are more likely to construct the Amazon as an issue of environmental conservation. While the results for economic integration (model 3) and social development (model 4) problem-constructions are not as robust, they are strong enough to suggest the opposite direction: constructing the Amazon as issues of economic integration and social development are less likely to take place when presidents speak in outside of Brazil and other Amazonian countries. Lastly, when it comes to national sovereignty (model 5), the problem-constructions are more likely to take place when presidents speak at non-Amazonian states in Brazil than when they speak elsewhere.

We interpret these findings to be consistent with our conceptual framework: presidents construct the Amazon as different problems based on their expectations of settings. When it comes to non-Amazonian countries, it is likely that Brazilian presidents construct the Amazon as an issue of environmental conservation to leverage financial support for policies in the Amazonian region. The Brazilian government successfully funded domestic public policy with transnational financial support on several occasions since the 1990s, most notably with the Amazon Fund which provided over USD 1 billion for the region(Silva-Muller and Faul 2022). That is, presidents realize material and symbolic gains outside of Brazil and of Amazonian countries, by constructing the Amazon as an environmental problem.

In turn, when speaking within the Brazilian Amazon, presidents see their audiences as local constituencies. Presidents pursue a national agenda of economic integration and social development within Brazil while, concurrently, financing environmental policies with transnational funds. For example, rural credit offered to local agricultural producers in Amazonian states went up from 500 million reais a year in 1999, to over 4 billion reais a year by 2012 (Capobianco 2021). As well, the special fiscal regime in Manaus, designed to increase industry presence in the region, was largely maintained. Moreover, additional roads and dams (e.g. the BR-163 highway and the Belo Monte dam and hydroelectric power plant) were constructed during the same period. Presidents likely highlight and push for economic and social problem-constructions within the Amazon as they speak to voters to whom they are constitutionally accountable and who are perceived as more interested in socio-economic problems than environmental ones. Thus, we interpret this as evidence that presidents view settings as distinct policymaking instances.

We also argue that the urgency of an aligned issue in time influences the likelihood of

the president mentioning the Amazon and what they will say. We find evidence across our models that this holds in unexpected ways. Presidents are less likely to generally mention the Amazon in speeches when deforestation rates increase and so the urgency of environmental related issues (model 1). The opposite is true for inflation. As inflation increases, and so the urgency of economic problems, presidents are more likely to generally mention the Amazon in speeches (model 1). This relationship is more intricate when we look at how amazonian constructions vary in presidential speeches as environmental or economic issues become more urgent (models 2-3). We find evidence that when the urgency of environmental related issues increases, the probability of presidents constructing the Amazon as an environmental conservation problem decreases and the probability of constructing it as an issue of economic integration increases. Alternatively, as the urgency of related economic issues increases, the probability of presidents constructing the Amazon as an issue of economic integration decreases and the probability of constructing it as an issue of environmental conservation increases.

In line with our framework, the urgency of aligned problems relates to problem-constructions in intricate ways. We interpret that, by opting for an alternative problem-construction to an aligned one which is urgent, presidents often side-step issues as they get more urgent, while boosting about positive aligned outcomes to attempt and collect benefits as aligned issues become less urgent.

## 4.2 Amazonian speeches over time

Looking at speeches that mention the Amazon over time (model 1) reviews several interesting trends. Figure 2, below, shows the proportion of speeches that mentions the Amazon in relation to all speeches in a year. By investigating its development in time, we can identify instances when the Amazon in itself becomes more urgent as a problem, and when not. On average, presidents mention the Amazon in 15.5% of their speeches [3]. This suggests the Amazon is a topic of relative high importance for presidents generally. However, we observe four peak years (one standard deviation from the mean) in the figure: 1989, 1992, 2009, and 2019. We find that these peak years coincide with high-profile environmental events, but not with domestic policy adoption.

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[3]For comparison purposes, the averages for other policy objects in the same corpus of speeches are inequality (13.7%), criminality (17.3%), inflation (19.1%), and unemployment (13.3%).

Figure 2: Amazonian speeches in time

**Share of speeches that mention the Amazon per year**

Sample composed by all 6240 speeches since 1985
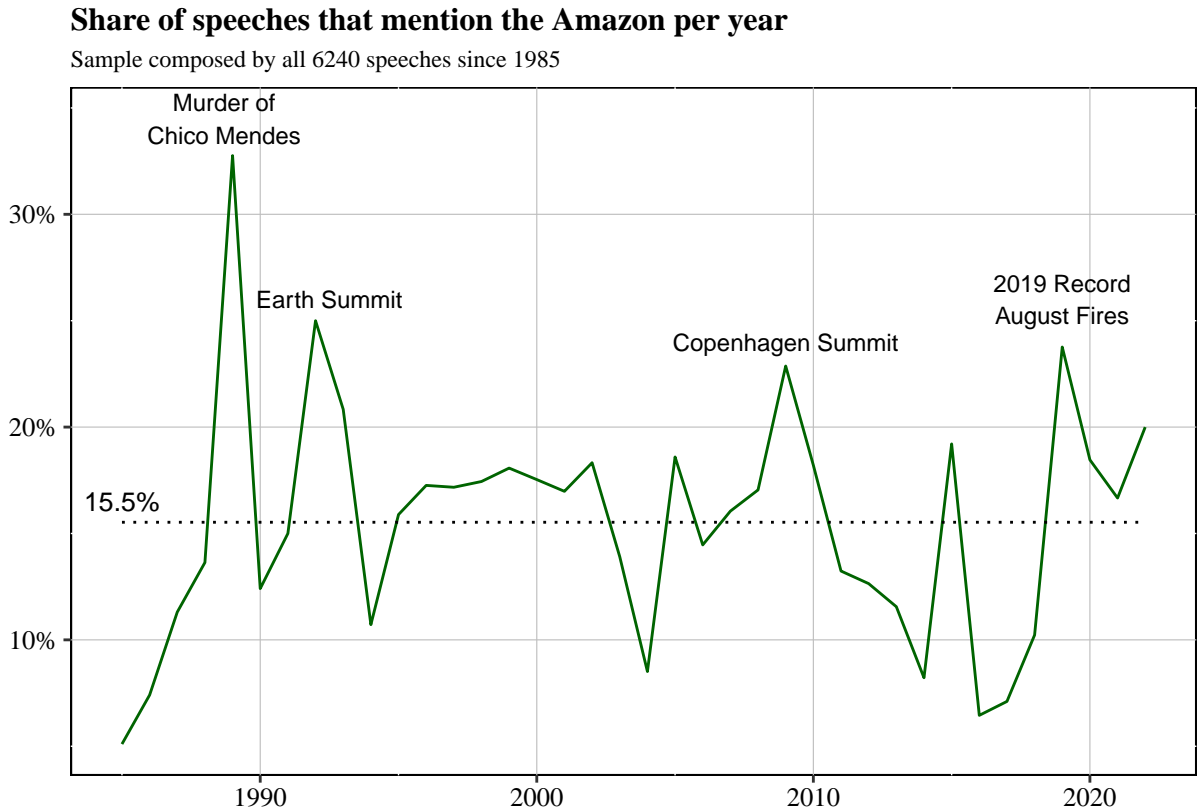


In 1989 the Amazon appeared in 32% of all speeches. This coincides with the brutal murder of the environmental activist Chico Mendes in the last days of 1988. The incident caught unprecedented transnational media attention and then President Sarney (1985-1989) responded to this with a set of policies to address deforestation (Capobianco 2021). One of the responses was to host the 1992 Earth Summit (Keck and Sikkink 1998), which also led to a peak in 1992. During the summit, we saw the realization of the first transnational partnership for the Amazon, the Pilot Programme of the G7 for the Protection of Rainforest (PPG7), which brought a high number of financial resources to the region for public policy implementation (Capobianco 2021).

Throughout the rest of the 1990s and 2000s, during the Cardoso (1995-2002) and Lula presidencies, there were no peaks. In 2009, however, we observed another peak which coincided with the Copenhagen Summit. Lula led the delegation to the summit with a strong climate leadership self-image of "we deliver" (Franchini and Viola 2019), in a moment when deforestation rates have been decreasing since 2005. From 2010 to 2016, except for 2015 when the Paris summit took place, we see a general decrease in mentions of the Amazon in all official presidential speeches. In this period, the urgency of environmental problems was increasing as deforestation rates were rising. The period was also marked by political and economic instability which culminated in the impeachment of President Rousseff in 2016. By 2016 mentions of Amazon in official speeches went down to 6%, their lowest share since 1985.

16

We subsequently observe a steady increase reaching 24% in 2019, the first year of Bolsonaro's presidency. At the time, international and national media brought attention to record burning of the Amazon, which led up to a red sky afternoon in São Paulo in August 2019. Right after being elected in 2018, Bolsonaro went on to retrieve Brazil's hosting status for COP25. Alongside this, Bolsonaro's dismantling of environmental governance and the threats to leave the Paris Agreement had strong media attention, and, as a response, the Amazon became prominent in his speeches. This event also drove the proportion of speeches mentioning the Amazon up.
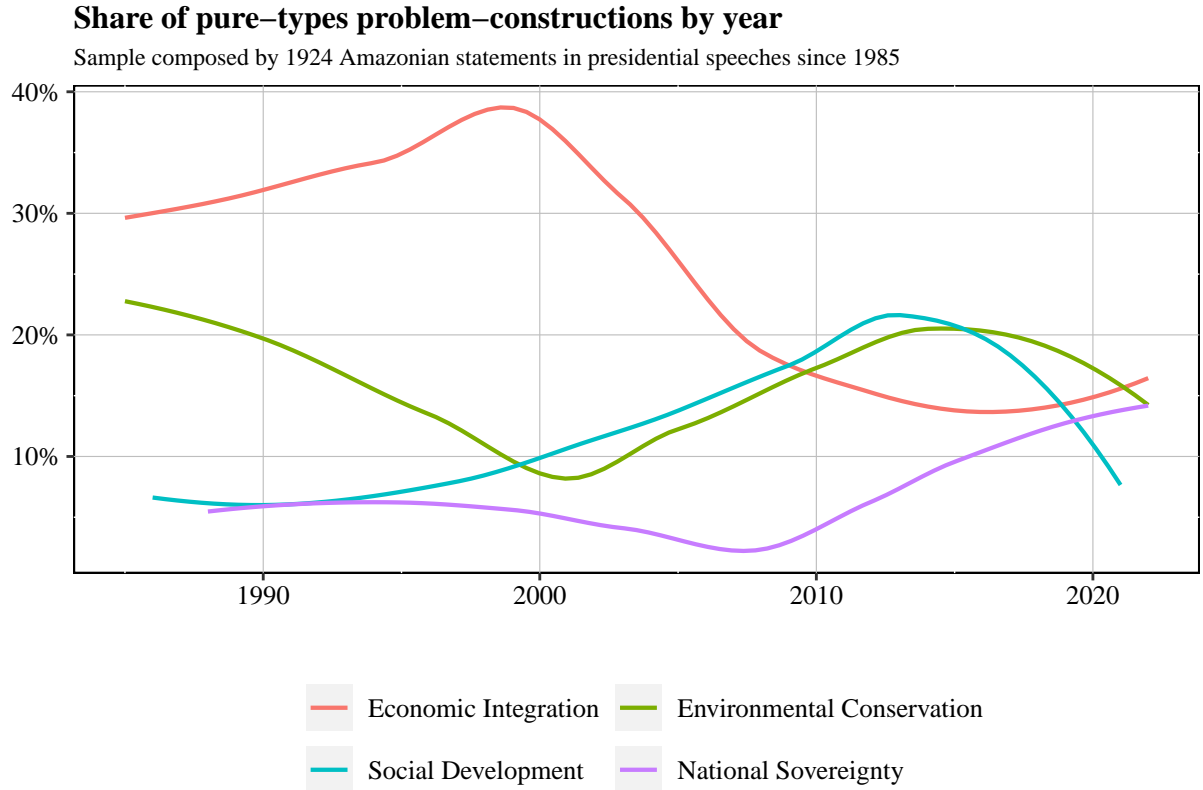
The figure 2, above, also shows that the frequency at which the Amazon is mentioned, as a general topic in speeches, does not coincide with proposed environmental policy solutions. In 2000, for instance, Brazil adopted a strong legislation regulating the creation of protected areas (Silva-Muller and Faul 2022). In 2004, President Lula decreed the creation of Brazil's Plan to Combat and Control Deforestation in the Brazilian Amazon. In 2008, Brazil announced the Amazon Fund, the largest fund of this kind ever created. Finally, in 2012, the revision of the Forest Code, debated in 2010 and 2011, pardoned thousands of illegal deforesters in the Amazon (Sant'Anna and Costa 2021). Yet, these policy landmarks do not seem to be systematically meaningful for when Amazon is mentioned as a general problem more often.

The longitudinal trends in Amazonian speeches reveal a dynamic that our models did not capture: we find that all peak years coincide with high-profile environmental events within the country that gain large repercussions within and outside of the country. These are events that received distinct coverage from transnational actors as media and civil society outside of Brazil, which is likely one of the reasons why it temporarily drives the topic up. This suggests that the Amazon is mentioned more in presidential speeches as transnational attention towards it increases. While our measure of urgency of the environmental problem does not capture these events, these events change how urgent of a problem the Amazon is in certain years.

## 4.3 Amazonian problem-constructions in time

While we identified the effects of setting and urgency on problem-constructions (models 2-5), the developments of problem-constructions in time also reveal unique trends. Figure 3, below, illustrates the annual share of pure-types problem-constructions since 1985.Interestingly, and to begin with, peak years identified in Figure 2 do not coincide with increases of specific problem-constructions in Figure 3.

Figure 3: Pure-types constructions in time

**Share of pure–types problem–constructions by year**

Sample composed by 1924 Amazonian statements in presidential speeches since 1985

Legend:
- Economic Integration
- Environmental Conservation
- Social Development
- National Sovereignty

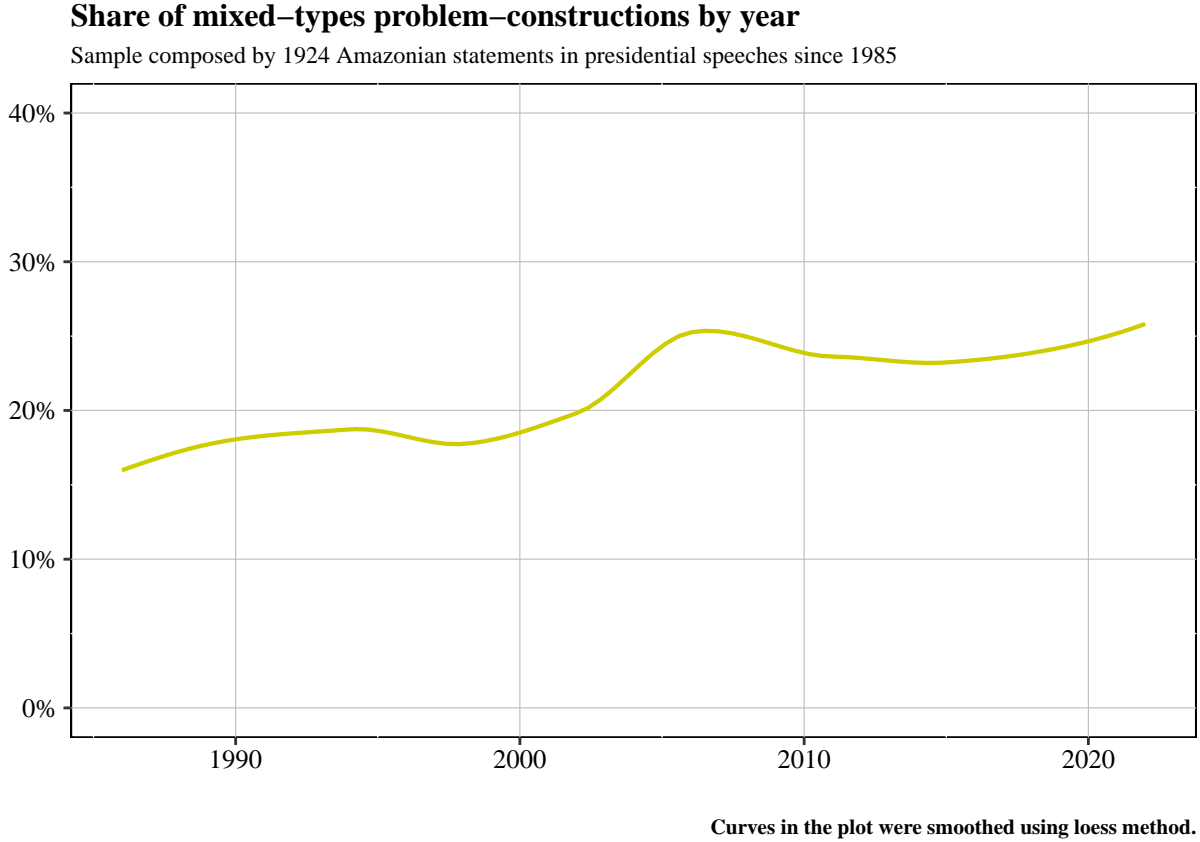**Curves in the plot were smoothed using loess method.**

Pure economic integration constructions were the most frequent from 1985 to 2009. This is especially pertinent during Cardoso's presidency (1995-2002), when construction of the Amazon as an issue of economic integration increased while environmental conservation constructions decreased. This was a period when the urgency of the environmental problem grew as deforestation rates increased so, following our model findings, Cardoso was more likely to avoid environmental conservation constructions. When Lula took office (2003-2010), construction of the Amazon as an issue of environmental conservation and social development increased. During this period, deforestation rates sharply decreased and so did the urgency of environmental problems. Lula was, therefore, more likely to employ environmental conservation constructions. From around 2010 until the mid-2010s, especially during the Rousseff (2011-2016) administration, we see a reversal at the top whereas environmental conservation and social development problem-constructions surpass economic integration. However, with the presidencies of Temer (2016-2018) and Bolsonaro (2019-2022), a period of sharp increase in deforestation rates, economic integration constructions become the most favored Amazonian problem-construction again.

We also identify a steady increase of sovereignty as salient problem-constructions from 2008 onwards, much before Bolsonaro was elected. This might relate to policy developments that were taking place. The revision of the Forest Code, adopted in 2012, inaugurated a new phase of strong representation of agri-businesses in government and congress and, consequently,

strong civil society criticism of the government (Horochovski et al. 2016). In a period when sovereignty-related issues broadened from nation-states to a wider set of actors, presidents might become more assertive about Brazil's sovereignty over the Amazon while rebating broad criticism from civil society actors with accusations of internationalization attempts. Therefore, the political forces in Brazilian politics that drove policy and discursive changes in problem-construction were long in the making. Bolsonaro's problem-constructions, characterized by a unique combination of economic integration and sovereignty, is the strongest form of this shift.

Our operationalization of problem-constructions (see Figure 1) also foresees the possibility of presidents mixing multiple constructions within the same Amazonian Statement. Figure 4, below, shows that constructing the Amazon as multiple issues generally increased from 18%, in 1985, to 29%, in 2022, as a share of all constructions. Mixed-type problem-constructions in discourse offer more complex and multifaceted understandings of the Amazon as a problem. The increase in mixed-type constructions suggests that later presidents see the Amazon as an important mix of environmental, economic, social, and sovereignty-related problems. Indeed, we observe an increase in policies that attempt to address environmental, economic, and social problems, for instance. Examples of this are payment for ecosystem services conditioned for low income populations residing in the Amazon (Silva-Muller 2022). Relatedly, this is aligned with transnational processes such as the Millennium Development Goals and the Sustainable Development goals, that highlight the importance of forward human well-being in the economic, social, and environmental spheres.

Figure 4: Mixed-types problem-constructions in time

**Share of mixed–types problem–constructions by year**

Sample composed by 1924 Amazonian statements in presidential speeches since 1985



Curves in the plot were smoothed using loess method.

We interpret the increased balance in pure-types and the general increase in mixed-types Amazonian problem-construction as evidence that presidents increasingly find ways to reconcile the binary between economic and the environmental ways of seeing the Amazon that had prevailed in the previous years decades. We interpret this as evidence of the Amazon becoming increasingly recognized as an intricate policy object in transnational politics.

# 5 Conclusion

This paper investigated how the Amazon has been constructed as a political problem over time through Brazilian presidential speeches. We have four main findings. First, when presidents are far away from the Amazon region, they are more likely to construct the Amazon as an issue of environmental conservation. Within the Amazonian region, presidents usually construct the Amazon as an issue of social development and economic integration. Second, we find that presidents are more likely to construct the Amazon as an environmental conservation problem when environmental related issues are not urgent (e.g. lowering deforestation rates). When environmental related problems become more urgent (e.g. rising deforestation rates), presidents tend to side-step the issue and construct the Amazon as an issue of economic integration. Third, we find that high-profile environmental events, which receive

strong international media attention, drive up the frequency at which the Amazon appears in discourses, but does not affect systematically how the Amazon is constructed as a problem. Finally, we find that presidents are increasingly more likely to mix problem-constructions and construct the Amazon as a complex and multifaceted object of policy.

Overall, our findings suggest that we must move beyond assuming the Amazon is a single issue to identify how discourse and policy reflects its environmental, social, economic, and sovereignty-related complexity.By doing so, we can better understand the cohesive, the negotiated, and the contrasting discourses and policies forwarded by transnational actors as they perceive transnational settings as distinct policymaking instances. By capturing this variation in discourse, we can better understand why, when, and how, various overlapping policies directed at the same object are developed and implemented. Concretely, this implies that even as the environmental crisis becomes more salient, we will likely not see coherent and cohesive environmental, economic, and social discourses or policies towards the Brazilian Amazon.

In terms of future research, we see at least three possibilities.First, scholars should investigate how problem-constructions change across settings and over time for other Amazonian countries or other policy objects, and in comparative ways. For example, recent literature demonstrates that reductions in deforestation in the Amazon lead to increased deforestation in the Cerrado biome(Villoria et al. 2022). By comparing the Amazonian statements and Cerrado statements, we could identify to what extent other problems are ignored in favour of the "Amazon problem". Moreover, social media can change political communications in fundamental ways. The spread of political communications in social media could, on the one hand, contribute to diminishing the importance of physical settings and make presidents less likely to afford diverging problem-constructions. On the other hand, micro-targeting of social media algorithms could enhance how different problem-constructions are distributed to audiences. We look forward to works that investigate variation in problem-constructions in the era of social media. Finally, in a forthcoming article, Ajzenman, Cavalcanti, and Da Mata (2020) propose an identification strategy that ties Bolsonaro's speech to covid-19 infections. While we do not explicitly conceptualize how various problem-constructions might directly affect outcomes, we look forward to similar studies that identify how different problem-constructions affect (environmental) outcomes in more direct ways.

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# Disclosure Statement

The authors report that there are no competing interests to declare.

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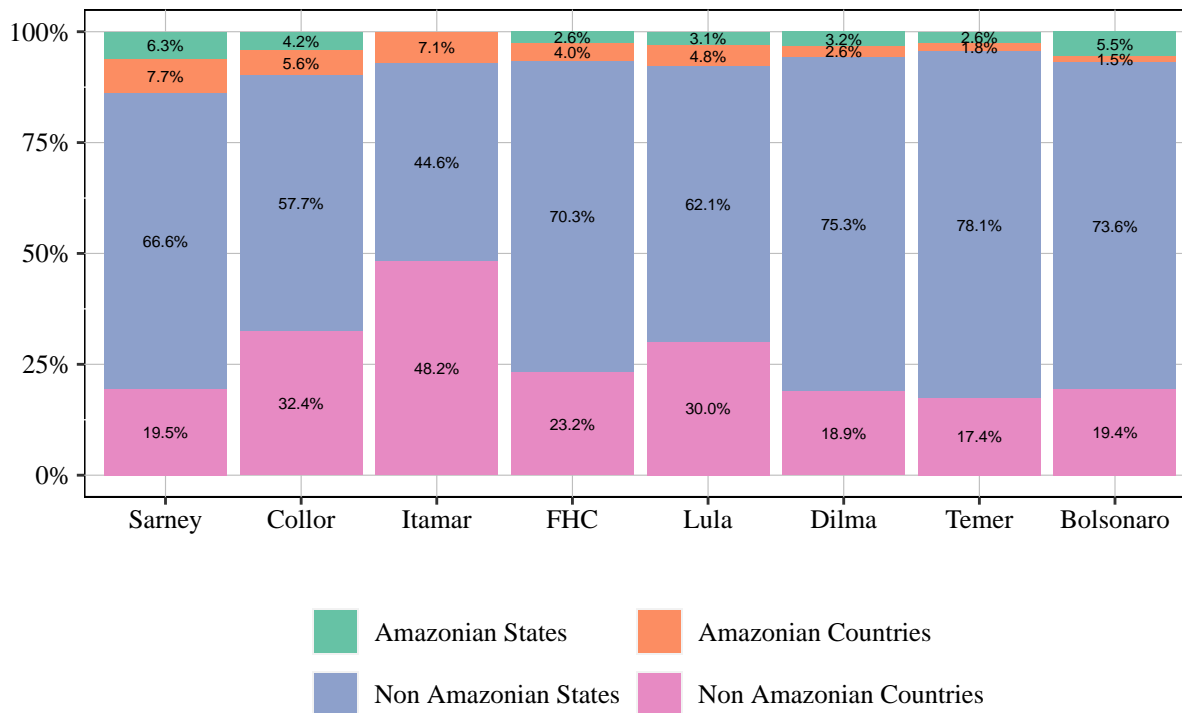Ponce de Leon, Zoila. 2021. "Healthcare Reform Out of Nowhere? Policy Reform and the

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# Appendix

**Share of speeches in each setting by president**

Sample composed by all 6240 speeches since 1985

| problem-construction | Description | Example |
|---|---|---|
| **National Sovereignty** | This code constructs the Amazon region and/or forest as an issue of national sovereignty. We understand claims of sovereignty as a particular problem-construction that touches on imaginaries of external threats to territory. Relatedly, we also understand sovereignty as raising concerns about wrong perspectives and criticism from foreign and non-state actors about government action related to the Brazilian Amazon. In all, it advances the view that the Amazon is Brazilian, foreign, and non-state presence in the region needs to be monitored closely. | Congressman, the fundamental link for Brazil to really head in the direction to prosperity. I would like first, Hu Chunhua, to thank you for the words of your ambassador to Brazil recognizing our sovereignty over the Amazonian region during that recent episode in the G7 meeting. I would like to thank the Chinese government. For us, this type of public acknowledgement is priceless in your words about this region that is so important to the world and to Brazil. (Bolsonaro 25/10/2019) |
| **Economic Integration** | This code constructs the Amazon region and/or forest as an issue of economic integration. It advances the view that the Amazon needs to be developed and connected to the national economy. This includes expanding the agricultural frontier through incentives, creating a diverse set of infrastructure (roads, dams, internet, radio, energy), fostering differing industries (tourism, mining, cattle, agriculture and so on) through tax-free zones, as well as facilitating the exploitation of natural resources for developmental purposes. | If you allow me, in the Amazon - which for a long time stayed asleep due to the lack of coordinated actions - have already taken a few structuring actions. We, in the Amazon, are connecting Manuas, Boa Vista, Caracarai, until up there, the red line [in a map] that goes all the way up in the direction of Venezuela, that is the so-called BR-174 highway. This highway will allow production in the Tax Free Zone in Manaus to be competitive, not within, but outside, that is the vocation of the the Tax Free Zone to export; and we can even do it through the Caribbean (Cardoso 02/07/1997) |
| **Social Development** | This code constructs the Amazon region and/or forest as an issue of social development. It advances the view that Amazon is full of citizens who should have their rights guaranteed. This refers to the construction of schools and universities (right to education), of hospitals (right to health), and of housing (right to house). This also includes guarantees of a dignified life with decent employment, access to water and sanitation, as well as access to electricity, internet, radio, and light. Finally, this includes referrals to culture and the right to vote. | The state does not work for profits, the state needs to guarantee dignity, we find that a citizen who lives in the riverside of the Amazon river, 600 kilometers from Manaus, has the right to have the electricity in their house, to owe a fridge, to owe a television where to watch the soap operas. We have invested over 14 billion reais in this program, in three and a half years. Do you know how many electrical lines we have already built? One million kilometers of lines. (Lula 20/11/2009) |
| **Environmental Conservation** | This code constructs the Amazon region and/or forest as an issue of conservation. This problem-construction focuses on the value of a standing forest and of the preserved ecosystem in the region. The conservationist narrative advances the view that Amazon should be preserved, deforestation should be halted, and the practices of indigenous and traditional populations should be maintained and fostered. It advances the view that the emission of greenhouse gasses should be halted, that renewable energy should be supported, and that protected areas should be created. | I have put in place emergency measures, I have suspended the exports of wood logs, I have suspended the fiscal incentives and credits to projects that could damage the environment in the amazon and I have made a license mandatory to gold mining that prohibits utilizing mercury in the process. This began the restructuring of the governmental system of control and preservation of the environment, I have created the Brazilian Institute for the Environment and Natural Resources [IBAMA], which will be headed by Dr. Mesquita (Sarney 20/07/1989) |

Table 2: Amazonian Problem-Construction Codebook

|  | Dependent variable: | | | | |
|---|---|---|---|---|---|
|  | Amazon Speech | Environmental Conservation | Economic Integration | Social Development | National Sovereignty |
|  | (1) | (2) | (3) | (4) | (5) |
| Amazonian Countries | −0.162*** | 0.005 | 0.086** | −0.103*** | −0.001 |
|  | (0.033) | (0.032) | (0.039) | (0.029) | (0.022) |
| Non Amazonian States | −0.404*** | 0.079*** | −0.052** | −0.009 | 0.030** |
|  | (0.025) | (0.019) | (0.022) | (0.016) | (0.012) |
| Non Amazonian Countries | −0.431*** | 0.195*** | −0.076** | −0.048* | −0.003 |
|  | (0.026) | (0.031) | (0.037) | (0.027) | (0.021) |
| Franco | −0.009 | 0.228*** | −0.127 | −0.024 | −0.033 |
|  | (0.039) | (0.060) | (0.115) | (0.062) | (0.050) |
| Collor | 0.051 | −0.167** | 0.064 | −0.046 | 0.011 |
|  | (0.052) | (0.079) | (0.133) | (0.076) | (0.061) |
| Cardoso | 0.054** | −0.077*** | 0.073 | 0.007 | 0.016 |
|  | (0.021) | (0.028) | (0.074) | (0.034) | (0.029) |
| Lula | 0.040* | −0.043 | −0.058 | 0.061* | −0.010 |
|  | (0.021) | (0.028) | (0.074) | (0.034) | (0.029) |
| Rousseff | 0.010 | 0.003 | −0.138 | 0.159*** | 0.010 |
|  | (0.023) | (0.038) | (0.085) | (0.042) | (0.035) |
| Temer | −0.043 | 0.066 | −0.269** | 0.243*** | 0.039 |
|  | (0.029) | (0.074) | (0.125) | (0.071) | (0.057) |
| Bolsonaro | 0.076*** | −0.068** | −0.136 | −0.035 | 0.108*** |
|  | (0.026) | (0.034) | (0.087) | (0.040) | (0.034) |
| Constant | 0.510*** | 0.125*** | 0.319*** | 0.092*** | 0.020 |
|  | (0.029) | (0.027) | (0.062) | (0.030) | (0.025) |
| Observations | 6,167 | 1,924 | 1,924 | 1,924 | 1,924 |
| $R^2$ | 0.064 | 0.045 | 0.025 | 0.032 | 0.014 |
| Adjusted $R^2$ | 0.063 | 0.040 | 0.020 | 0.027 | 0.009 |
| F Statistic | 422.133*** | 90.726*** | 40.387*** | 58.535*** | 29.643*** |

*Note:* $^*$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

Table 3: Random-effects logistic regressions for settings and president indexed by year