How has the Brazilian Amazon been constructed as a problem? The economy, the environment, the people, and the nation in the presidential speeches since 1985

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Abstract

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1 Introduction

We need to protect the Amazon from foreign interests. We need to exploit the Amazon's natural resources. We need to provide better living standards for the people in the Amazon. We need to preserve the Amazon as a standing ecosystem. Historically, the Brazilian federal government proposed diverse policies to deal with the Amazon. Each of these policies contains an implicit assumption of what needs to be solved, or in other words, it represents the Amazon region, the forest, or its peoples as a particular problem. In the four examples above, the Amazon is represented as an issue of national sovereignty, economic integration, social development, or environmental conservation. Some of these constructions, and their proposed solutions, have been described within the policy cycles of Brazilian governments (Acker 2014; Hecht and Cockburn 1990; Hochstetler and Keck 2007). However, policy cycles are usually represented monolithically, advancing a view that specific governments see the Amazon as an instance of only one specific problem. Albeit the current calls to understand the environment as a social-cultural construction and to identify the effect of culture on environmental outcomes (Waroux et al. 2021), we lack empirical accounts of how the Brazilian Amazon has been constructed as a problem in discourses over time, by geographical location, and between and within governments.

In this article, we investigate how the Brazilian Amazon has been constructed as a problem in political discourses. Building on Hirschman's (1963) concept of chosen problems in policymaking, we propose a framework to identify problem-constructions in political discourses. Although problem-construction takes place in a series of instances (e.g. policy committees, legislative bodies, media, etc.), we analyze the case of discourses by Brazilian presidents since 1985. We opt for presidential speeches for two reasons. First, presidential discourses have the power to introduce and justify the public policy, as well as shape its perception to broad audiences (Zarefsky 2004). In turn, policy perception is key for policy adoption and implementation (Alesina and Giuliano 2009; López et al. 2020). When Brazilian presidents speak about the Amazon it not only makes headlines, nationally and internationally (Brice and Smith 2021; Harris 2021; Miranda 2021), but also incites responses, shapes expectations, and feeds into the behavior of many actors involved in the Amazon, from investors to agribusiness to local farmers. Deforestation rates in Brazil are more responsive to the government's environmental policy than exogenous factors such as market fluctuations (Assunção, Gandour, and Rocha 2015; Capobianco 2019, 2021). Ethnographic research has also shown that policy expectations,

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generated from material and discursive governmental practices, are a crucial factor in decisions to deforest on the ground (Campbell 2015). Thus, understanding how policy comes about discursively is important. Second, we argue that presidents can employ specific problem-constructions that build objects as specific problems depending on the context. Problem-construction varies by geographic location. Presidential discourses take place in a series of sites with diverse audiences, from launching a new bridge in a small municipality in the middle of the Amazon to a keynote speech in a business association in São Paulo or at the UN general assembly in New York. Working with presidential discourses allows us to identify this variation in meaningful ways and better how the Amazon is socially constructed.

To investigate how the Brazilian Amazon has been constructed as a problem in political discourses, we create a dataset containing 6130 official presidential speeches by all Brazilian presidents since 1985. We subset the dataset by identifying Amazonian-related statements within these speeches. We find that 2014 sections in these discourses refer to the Amazon at least once. We then develop a codebook grounded on Amazonian historiography to code how each of these statements constructs the Amazon as a particular problem. We use this codebook to manually code a randomly selected training set of the Amazonian-related statements. Using R, we train a supervised machine-learning model in the hand-coded set and automatically label the remaining set of Amazonian statements. We then conduct a descriptive and inferential analysis of this data, tying our findings to endogenous and exogenous events related to deforestation.

Our findings are threefold. First, events such as the death of Chico Mendes, the 1992 Earth Summit, the 2009 Copenhagen Summit, the 2015 Paris Summit, and the 2021 London Summit drive presidents to speak about the Amazon. That seems to be the case even after controlling the share of annual speeches mentioning the Amazon for deforestation, inflation, and president speaking. Second, there was a sharp decrease in economic-related problem-constructions from the late 1990 to 2010, matched by an increase in speeches that construct the Amazon as a problem of social development and environmental conservation. This trend was reversed in the mid-2010s, with sovereignty making a strong comeback. Finally, using a multinomial regression model, we find that presidents are more likely to construct the Amazon as a problem of environmental conservation, than economic integration or social development, as presidents move farther away from the Amazon.

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This article proceeds as follows: first, we review Amazonian literature to identify the main policy cycles and their underlying problem-construction. We then propose a theoretical framework to understand problemconstruction and discourse. In the methodology section, we operationalize our framework and present the codebook. Section four portrays our main results. Finally, we conclude by discussing our findings and proposing future research.

2 Amazonian policy cycles, discourse, and problem construction

For the purposes of this article, we understand Amazonian literature as the body of research by social and environmental scientists that tells the story of diverse policies adopted to solve problems in the region. The three main policy cycles we identify in Amazonian literature are national sovereignty, economic integration, and environmental conservation. We tie each one of them to a specific problem and consequently a solution. We close the sub-section by reviewing the relationship between policy, presidential discourse, and environmental problems.

2.1 Literature Review: policy-cycles in the Amazonian literature

2.1.1 National sovereignty

In The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon, Hecht and Cockburn write that all over the world tropical forests are destroyed, but "what imbues the case of the Amazon with such passion is the symbolic content of the dreams it ignites" (1990, 1). These dreams of fortunes to be found in the Amazon composed of the imaginaries of *bandeirantes*[2] from the southeast of Brazil and colonizers from everywhere else. It rendered the territory the venue for aspiration and the object of an intense scramble in the subsequent centuries, defined as "a (...) form of nation building (...)" (Hecht and Cockburn 1990, preface). The Portuguese empire and subsequently the Brazilian monarchy were concerned with establishing their territory. In the process of securing

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[2] *Bandeirantes* means "flag-carriers", the word is used to designate Portuguese colonials and later Brazilian explorers, expanding the Brazilian territory beyond what the Tordesillas Treaty established. The treaty allocated almost the whole Amazonian territory to the Spanish Empire, the bandeirantes took much of the territory afterwards.

Amazonian borders, Brazil thwarted "the imperial ambitions of France, Britain, the United States, Belgium, Bolivia, and Peru" (Hecht 2013, 8), and when the dust settled and the scramble was over, half of the Amazon emerged Brazilian. While Brazilian military diplomacy was very successful, the process did not come without its traumas. A significant experience was the negotiations with Bolivia in 1902 to secure the Amazonian state of Acre, during which they found out about American attempts to trick Brazil (Hecht and Cockburn 1990). This case was still part of the memory of the generals who led the country during the military dictatorship of 1964 and wanted to protect Brazil's sovereignty over the Amazon from the communist threat during the Cold War(Garfield 2013).

As we move from a world where non-state actors gain importance in environmental governance and international politics generally (Silva-Muller and Faul 2022; Andonova 2014; Westerwinter 2021), the sovereignty problem becomes more varied. Multiple non-state actors (NGOs, foundations, IOs, and so on) join the conversation about Amazonian policies more substantially as the military dictatorship starts to end (Hochstetler 2021; Capobianco 2019; Franchini and Viola 2019). Threads to national sovereignty, consequently, can be interpreted as coming from a different set of actors than before. Allegedly false claims about the Brazilian Amazon in international and domestic fora, for instance, are often tied to strategies of 'internationalizing' the Amazon. This might come both from foreign actors as well as domestic non-state actors. Relatedly, mentions of Amazonian myths which have been debunked as the 'Earth of the Lungs', are also tied to internationalizing strategies.

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The sovereignty policy cycle in the Amazon advances the view that the Brazilian Amazon belongs to Brazil while any foreign or non-state, presence in the region is part of a broad strategy to take the region. The policy solutions to the issue of sovereignty, included the monitoring of the borders, strict regimes related to entry in the region, assertions of ownership nationally and internationally, and combating alleged disinformation from actors perceived as a threat.

2.1.2 Economic integration

The Vargas dictatorship (1937-46) and the military dictatorship (1964-89) took over the task of modernizing the Amazon. In 1966, the Brazilian Military launched Operation Amazon, a policy to modernize the region based on a set of assumptions (Acker 2014). First, nature should be conquered by men. Second, exploiting natural resources would render the Amazon region a global powerhouse. Third, such a project would integrate the region with the rest of the country. Concretely, this meant a series of infrastructure projects, such as roads and dams, incentives for settlers to develop ranches and expand the agricultural frontier, and the establishment of tax-free zones to attract industry. The capital to conduct such changes, paradoxically, came from national and international sources (Acker 2014), leading to a series of national and international enterprises settling in the Amazon region. Capobianco (2019) describes the period from the 1950-80 in a similar fashion, referring to a wider range of policies of economic integration: the 1953 Plano de Valorização Econômica da Amazônia; the 1966 Superintendência do Desenvolvimento da Amazônia; the 1967 Superintendência da Zona Franca de Manaus; the 1970 Plano de Integração Nacional; the 1975 Programa Polamazônia; the 1980s Programa Grande Carajás and Programa Calha Norte; among others.

The economic integration problem advances the view that the Brazilian Amazon needs to be developed and modernized. These policy solutions are often centralized by the federal government (Becker 2005) and have at their core the development of the necessary infrastructure (physical, fiscal, or monetary) to integrate the region into the national and international economy.

2.1.3 Environmental conservation

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The rapid economic changes in the region in the 1960s, 1970s, and 1980s were matched with the birth of environmental institutions such as the New Forest Code (1964), the Secretary of Environment (1973), and the National Environment Law (1980) (Drummond and Barros-Platiau 2006). A common explanation for the creation of these institutions in the Amazonian literature is the impression of the lack of control over the market engendered years of centralized economic integration in the region (Acker 2021; Capobianco 2021; Hecht and Cockburn 1990). As deforestation, fires, and violence rose in the region, catching international attention, the military government deemed as necessary the establishment of environmental bureaucracies. This process accelerated in the late 1980s, with the birth of modern environmentalism (Viola 1987) in the 1980s, epitomized in the 1992 Earth Summit in Rio de Janeiro (Hochstetler 2021; Capobianco 2021). Hochstetler and Keck (2007) argue that during preparations for the summit, a new form of Brazilian environmentalism emerged: socio-environmentalism. They define it as an emphasis on the local livelihoods of people while protecting nature. Capobianco (2019) argues in a similar line, establishing socio-environmentalism as the main government response in the 1990s and early 2000s in a series of policies: the 2001 Sistema Nacional de Unidades de Conservação; the 2003 Programa Amanônia Sustentavel; the 2004 Plano de Ação para a Prevenção e Controle do Desmatamento na Amazônia Legal; the 2004 Plano BR-163 Sustentável; the 2010 Lei Nacional das Mudanças Climáticas; among others.

The conservationist policy cycle advances the view that Amazon should be preserved, deforestation should be halted, and the sustainable practices of indigenous and local peoples should be maintained through the protection of their territories and rights to self-determination (Hochstetler and Keck 2007). The policy solution implies more investment in command-and-control infrastructure (as remote-sensing technology for environmental outcome measurement), more investment in the valuation of standing ecosystems through incentive schemes, and more policies facilitating indigenous environmental practices.

2.1.4 Policy and discourse

While policy cycle periods in Amazonian literature have been widely adopted, there is more variation in Amazonian problems and policies than the literature suggests. Different authors have

proposed similar periodization for policy cycles in the Amazon: a focus on sovereignty until the military dictatorship of 1964, followed by strong economic integration policies until the mid-1980s, and finally a shift to conservation after the 1992 Earth Summit. At the macro-historical level, the wider Amazonian vision of the 1964 military dictatorship, encompassed by the whole group of policies they adopted, for instance, did favor economic integration. Nevertheless, at the level of policies adopted, there is more variation than these periods would suggest. For example, the 1980 Projeto Calha Norte had objectives to protect the borders, integration of the region, and preservation of the forests. Framing this policy as an issue of economic integration, then, can be seen as a choice. Hence, while the literature might represent governments as coherent proponents of a particular policy retroactively, political actors might have adopted strategies that outline problem-constructions of policies differently. For historical inquiry, it is important to periodize policy cycles comprehensively. We largely agree with what the literature assigns to previous governments. However, the possibility of varied portrayals of the same policy opens an understanding of agenda-setting and policy adoption that is less linear. Problem-construction at the level of discourse is also more varied. They are not monolithic in time, across location, or even by the same speaker. While governmental discourses in Brazil have been studied for a topic such as inflation Fonseca et al. (2021) or race relations Van Dijk (2020), we only find one systematic analysis of Amazonian discourse. Barros (2020) investigates Amazonian discourse in the Brazilian Congress to identify the arguments put forth by congressmen. The main finding is that the economic value of the Amazon for the cattle industry is the most salient narrative, leading the author to conclude there is a mismatch between the international debate (which focuses on preservation) and the national debate (which focuses on economic development).

Alternatively, several studies analyze environmental discourse in American presidential discourses. Calderwood (2019) examines 2919 mentions of climate change in American official presidential speeches since 1989. Among various findings, one that stands out is that American presidents frequently sidestep the environmental aspects of climate change. He also identifies a shift from economic to security framing of climate issues, side-lining its environmental aspects. Calderwood (2020) also tests the effect of geographic location and type of communication regarding climate change. Building prominently on Putnam (1988), he hypothesizes that presidents are more likely to mention climate change in foreign locations, and that location influences the specific discursive approach and tone they adopt. He finds evidence in support of his hypothesis, suggesting American

presidential discourse at the top on global warming changes based on location. Elsewhere, Bevitori (2015) investigates how the 'environment' has been constructed in American presidential discourse since 1960 using a more automated approach. The author finds that mentions of the environment are typically co-selected with the pronoun 'our', as well as with 'economy', 'clean', and 'preserve'.

While these findings are US-specific, they indicate that presidents raise different points about the Amazon in local, national, or international settings, depending on whom they assume their audience is at that specific instance. That entails the same president can combine, substitute, or change how they talk about the Amazon and these views can reflect, or not, the current political scenario, issues on the agenda, or talk to a different policy cycle at times.

2.2 Theoretical framework: problem construction and presidential discourse

In "Journey towards Progress", Hirschman (1963) analyzes three policy problems in three different Latin American countries. The author draws a conceptual distinction between pressing problems (pressured by outside parties to the government) and chosen problems (chosen by the government at their discretion). Pressing problems can be either privileged or neglected, depending on the degree of pressure exercised by the interested group. Problems can change from pressing to chosen across time and in space as a function of solutions becoming available, a change in the level of government control in society, or a shift of interests from top policymakers (Hirschman 1963, 388–91). Choosing a problem, though, entails a decision on how to represent it (Bacchi 2009). As Bacchi argues, policies have a cultural dimension as "it takes shape within specific historical and national or international contexts". (2009, 10). The existence or proposal of a policy generally implies that there is a (public) problem that needs (governmental) action to be fixed. The alleged problem is not always explicitly stated in the policy. Hirschman exemplifies chosen problems with the case of the construction of Brasilia (1975, 388). But building Brasilia can also be constructed as solving a problem of regional inequality, a problem of a dormant economy without state investment, a problem of political representation, or all three. Different representations speak to different audiences.

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Depending on how the problem is represented to be, it can be a solution to problems that are considered pressing. Different problem-constructions can address the demands of different constituencies and it is up to the discretion of the political actor to construct a particular problem in a particular way given context. Problem-construction takes place in different sites: national media, legislative bodies, international fora, and policy committees, among others. What eventually becomes policy is a product of a multi-faceted process in all these different sites. One avenue through which governments can emphasize the representations of a problem is discourse. Working on the case of gender discourse, Pike proposes a discursive spectrum approach, where "language serves as an entry point to reveal the range and complexity of attitudes"(2019, 287). Thus, we assume that problem-construction at the level of discourse is varied. They are not monolithic in time, across location, or even by the same speaker.

We argue that presidents can employ specific problem-constructions that build objects as specific problems depending on the context. In the specific case of the Brazilian Amazon, we contend that Amazonian problemconstruction connects the region to pressing national issues such as sovereignty, economic integration, social development, or environmental conservation. Presidents choose to represent the region as a particular problem. As Bacchi (2009), we argue that problem-constructions touch on shared meanings about the region that are available to the speaker as part of larger social-cultural history. Thus, the ways a president speaks are culturally and historically mediated and need to be embedded in the wider history of the region and country.

These are the cornerstones of our framework: while governments are sometimes portrayed as proponents of a specific policy solution, the way they construct the Amazon as a problem varies. The specific problemconstructions that we propose are embedded in Amazonian historiography and connect presidential speeches to Brazilian larger social-cultural history. We propose a framework to understand variation in problemconstruction as a choice that is responsive to geographic location, time, and speaker.

3 Research Design

To operationalize our theoretical framework, we adopt a mixed-methods approach using manual coding and supervised machine learning. We explain our research design and each step of the procedure in this section, but a full-fledged extended methodology is available in the abstract.

3.1 Data and modeling: operationalizing Amazonian problem construction

We build upon the dataset provided by (Cezar 2020) which contains all official speeches by Brazilian Presidents from 1985 to 2019 scrapped from the archives of the Brazilian Presidential Library. We update the dataset by scraping and adding all official speeches from 2020 and 2021. The final dataset encompasses 6130 speeches for all the presidents of Brazil since 1985. We then identify all speeches about the Amazon as a region, people, or forest out of the 6130 speeches. We do so by detecting all speeches in which the stem "amazon" appears. In Portuguese, the stem captures terms such as "Amazonia", "Amazonica", "Amazonidas", "Amazonense(s)", "Amazonas", among others. We find that 946 speeches are, at least partially, about the Amazon from the 6130.

Using the poldis R package, we proceed to extract two sentences before and two sentences after the sentence in which the stem "amazon" appears. We opt for picking two sentences before and two sentences after, rather than words, because sentences usually contain a cohesive idea. By doing so we create our unit of analysis: an Amazonian statement. We use Amazon statements as our unit of analysis for two main reasons. First, working at the level of statements allows us to identify only passages that are meaningful for our specific purpose. Second, it increases the number of our observations and its variety meaningfully, allowing for more specificity in our analysis. This process yields 2014 unique Amazonian statements across the 946 speeches about the Amazon identified. When an Amazonian statement contains two or more matches of the stem "amazon", we get two sentences before the first match and two sentences after the last match. On average, an Amazonian statement contains 123 words.

After revising the literature (section 2), we selected a random sample of these Amazonian statements to develop a codebook for identifying how the Amazon is constructed as a problem in presidential discourse (see Table 1 below). We understand Amazonian problem-constructions as Weberian ideal types, that is, a unified analytical construct portraying a 'pure' version of a phenomenon. This serves the purpose of allocating empirical observations within a range of possibilities. We identify the three problem-constructions derived from the literature (national sovereignty, economic integration, and environmental conservation) in the sample of Amazonian statements. However, in addition to them, we inductively identified a fourth problem-construction that the literature does not explicitly cover: social development. Presidents sometimes opt to emphasize the lack of hospitals, sanitation, and schools concerning peoples' constitutional rights when speaking about the Amazon. We saw this code category as substantially different from the other three, hence, we created the code category 'social development'. In their conceptualization, each code is mutually exclusive in its conceptualization, meaning that they cover different forms of constructing the Amazon as a problem, though each Amazonian statement might be assigned to one or more codes. A statement can, for example, construct the Amazon as a problem of sovereignty and a problem of economic integration, or a problem of social development and conservation. Amazonian statements, thus, can be either coded as pure-types or mixed-types.

Table 1: Amazonian problem construction codebook

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 the territory. Relatedly, we also understand sovereignty as raising concerns about wrong perspectives and criticism from foreign and non-state actors about governments' actions related to the Brazilian Amazon. In all, it advances the view that the Amazon is a Brazilian, foreign, and non-state presence in the region that 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 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)

With the codebook in hand, each one of the authors, separately, hand-coded the same set of 1007 randomly selected Amazonian statements. This amount refers to 50% of all the Amazon Statements identified. Intercoder agreement for each of the four main categories was 85%, on average. For each non-matching coded observation, the co-authors discussed and sorted their disagreements. Statements that mention the stem "amazon", but are not about the Brazilian Amazon, for example, might a greeting to the Governor of the Amazonas, were coded as false positives. The manually coded data is then randomly divided into a training set, containing 80% of the hand-coded observations (806 observations), and a validation set, containing the remaining 20% of the hand-coded data (201 observations). The training set is used to train the supervised machine-learning model that automatically classifies observations while the validation set is used to make sure the model fit is appropriate.

We chose to employ a support-vector machine (SVM) algorithm to label texts, that is, a non-probabilistic linear classifier that classifies documents by assigning points in mapped space to maximize the gap between binary categories [Meyer et al. (2021); Noble (2006)][3]. After the SVM model is trained and tuned, and the model shows to appropriately fit the validation set, we use the model to automatically code the remaining 1007 Amazonian statements. The model was also trained to identify false-positive observations, which we chose to delete for analysis since these are not meaningful statements about the Amazon. The final dataset for analysis contains 1895 coded Amazonian statements. Finally, we use poldis once more to extract locations for all speeches in the data. These locations represent the Brazilian state in which certain speech was given or an international country.

3.2 Analysis and limitations

To analyze our data, we first present a series of different plots on proportions of Amazonian statements and problem-constructions over time and by presidents. We control proportions for

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[3] For more information on this please see the extended methodology. The document includes a detailed discussion of how the SVM algorithm and the performance of trained models for labeling the validation set. The extended methodology also includes a more detailed codebook table with further coding guidelines.

factors that might affect the incidence of the Amazon in speeches and portray both real and controlled curves. To test whether different problem-constructions change according to location, we run a multinomial regression model in which different problem-constructions (as categories) are the dependent variable and location is the independent variable. We also control for annual deforestation rates, annual inflation rates, and election years in the model. We interpret the plots and model considering multiple Amazon-related events and policies over the last 30 years, as well as their correlations with different presidents and locations, while embedding problem-construction in contemporary happenings.

These procedures come with their limitations. Our codebook is developed using specific Amazon-related vocabulary. For example, a statement will be coded as economic integration if it is meaningful support to the Zona Franca of Manaus or a Dam in the Amazon. However, the economy is generally a topic that presidents speak about. Hence, the high incidence of economic integration in Amazonian statements can also be related to the higher importance of this problem-construction in Brazil in time. Moreover, we classify statements as Amazonian based on a dictionary composed of a single lexicon stem: "amazon". We chose to do so knowing that a few speeches about the Amazon might not contain the lexicon "Amazon", for example, when the president says, "the forest" or "deforestation". Hence, we might be missing statements about Amazon that do not refer to it. However, we consider this safer as we cannot be sure that mentions of the forest or deforestation do not correspond to other biomes such as the Cerrado or the Mata Atlantica. Nevertheless, our dataset covers only what is considered an official remark. Presidents, though, give interviews, appear in debates, talk at campaign rallies, and more recently started to appear on social media. Problem-construction within presidential discourse, thus, also happens in different sites for which we do not account for in this paper.

4 How has the amazon been constructed as a problem?

This section presents the three main findings of our analysis. We open with a broad overview of the evolution of the incidence of Amazon in all presidential speeches since 1985. In section 4.2, we focus unpack speeches that mention the Amazon, introducing the specific problem-constructions we

presented in section 2.1. Finally, we run a multinomial model to show how problem-constructions change as the speaker moves further away from the Amazon region.

4.1 The rises and falls of the Amazon as a topic in presidential speeches
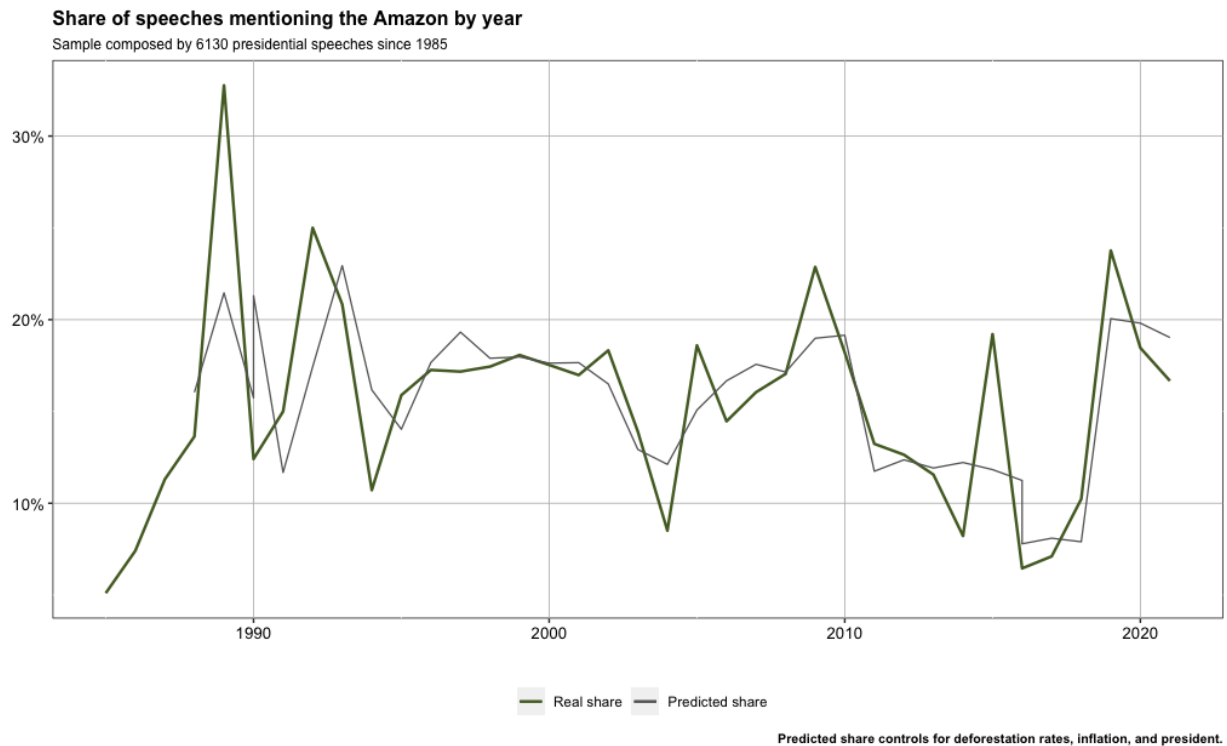
Figure 1: Share of speeches mentioning the Amazon by year

Figure 1 shows the proportion of speeches that mentions the Amazon in relation to all speeches each year. The predicted share curve controls the incidence of deforestation[4], economic

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[4] The reasoning here is that knowledge of high or low deforestation rates might drive presidents to speak about the Amazon. Nevertheless, matching deforestation with speech dates is a complicated endeavor. INPE published consolidated deforestation data with almost two years of delay until 2005 (Capobianco 2021, 60). Preliminary data was published earlier, but with lower degrees of confidence in the findings. For the subsequent years, the consolidated figures for a given year came out in August of the subsequent year. However, it also seems to be the case that the executive government has access to the data before everyone else. In addition, other sources indicating if deforestation is going up or down, such as fire data or lower resolution deforestation data (DETER for example), or even other sources, circulated within the year the data covered. The year 1988 is particularly indicative of these complications: a report dating 1988 was circulating with deforestation and fire figures (Fearnside 1990), and a New York Times article about the issue of

situation, and speaker (see appendix for methodological details). We observe various local maxima: 1989, 1992, 2005, 2009, 2015, and 2019. These points coincide with events that help us explain the rises and falls of the Amazon in presidential discourse.

First, we observe a steady increase from about 5% in 1985 to 32% in 1989. This is the period when the Brazilian Constitution was written. Indigenous and traditional populations were instrumental in advocating for constitutional environmental rights and the protection of their territories (Hecht and Cockburn 1990). These were eventually enshrined in article 225, which gives all Brazilians a right to a balanced environment, and in article 231, which grants indigenous and traditional populations a right over their territory. Two other factors are likely to explain this increase: in 1988 Chico Mendes was brutally murdered and the New York Times published an article with pictures of the Amazon burning (Simons and Times 1988). Both incidents caught unprecedented international attention. President Sarney responded to these publicly, and proposed a new set of policies to address, named Nossa Natureza (Capobianco 2021).

While in 1990 there was a decrease to about 12.4%, we observe a novel increase to 15% and 25% in 1991 and 1992 respectively. The driver of this increase is likely to be the 1992 Earth Summit, which was being prepared by various state and non-state actors in the region and brought international attention to environmental topics in Brazil. One of the big announcements was the consolidation of the first transnational partnership for the Amazon, the G7 Pilot Programme, which brought a high number of financial resources to the region for public policy implementation (Capobianco 2021). During the Cardoso years (1994-2002), Amazonian speeches averaged about 16% without strong variation. There were no major international or domestic events that drove the topic up.

We observe an increase from 8.5% in 2004 to 22.8% in the year of the Copenhagen Summit, 2009. This coincides with the Presidency of Lula and the steepest decrease in deforestation rates since data is available. Lula led the delegation to Copenhagen with a self-image of "we do not promise, we

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deforestation rates for 1988 was written with comments by an INPE scientist (Simons and Times 1988). Hence, we believe the most appropriate way of matching is without any lags on deforestation.

deliver" (Franchini and Viola 2019) when the stakes about climate change were high. A somewhat different pattern can be identified in the lead-up to the 2015 Paris COP, which was also building up to become a key turn in climate politics after the failures of Copenhagen. From 2010 to 2014, we identify a steady decrease from 18.2% to 8.2%, which is followed by a sharp increase in the year of the COP, reaching 19.2%. Disagreements related to the priority of environmental preservation over economic development, most notably in the case of Itaipu Dam, led the environmental minister Marina Silva to resign and run for the presidency on her agenda in 2010. These are also the years when Brazil entered a long period of political and economic instability, which led to the impeachment of Dilma Roussef. Brazil went to the Paris COP with deforestation numbers slightly higher than Copenhagen, and a perception that there was a turn towards less conservation since Marina Silva left the government and the 2011 New Forest Code was approved.

We subsequently observe a steady increase from 6.4% in 2016 to almost 24% in the first year of Bolsonaro's presidency, 2019. As the narrative of the climate crisis picks up in the late 2010s, international media attention about the Amazon reaches unprecedented coverage. Pictures of the Amazon on fire and of the red sky afternoon in São Paulo circulated on social media and international media outlets in 2019. President Bolsonaro engages in an international debacle with President Macron and others, which drove the topic up strongly on the presidential agenda. President Bolsonaro retrieves Brazil's hosting status for COP25, and a strong process of dismantling environmental governance starts taking place.

The local maxima of the graphs, both controlled and real, suggest that international events and media coverage also correlate with presidents speaking about the Amazon. We are yet to inspect, though, whether specific problem-constructions about the Amazon change over time.

4.2 Amazonian problem construction in time

Figure 2 portrays plots with the proportions of different mixed and pure problem-constructions over time. We conceptualize four pure problem-constructions: sovereignty, economic
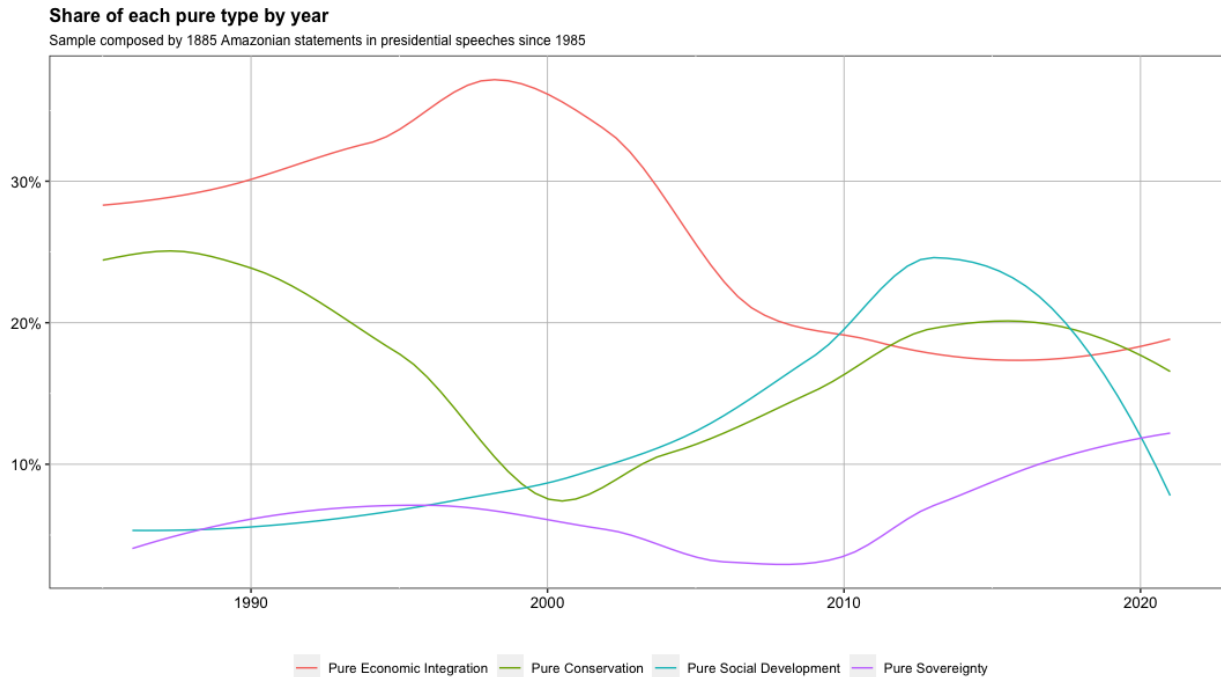
integration, social development, and conservation. At the level of the speech, though, presidents might mix multiple problem-construction in an Amazonian statement. These are what we call mixed types. Pure problem-constructions dominate, with their joint average at 55.8%. We observe a strong variation over time for most of these constructions, suggesting the narratives do respond differently to factors that affect Amazonian statements, some of which were discussed in the section above.
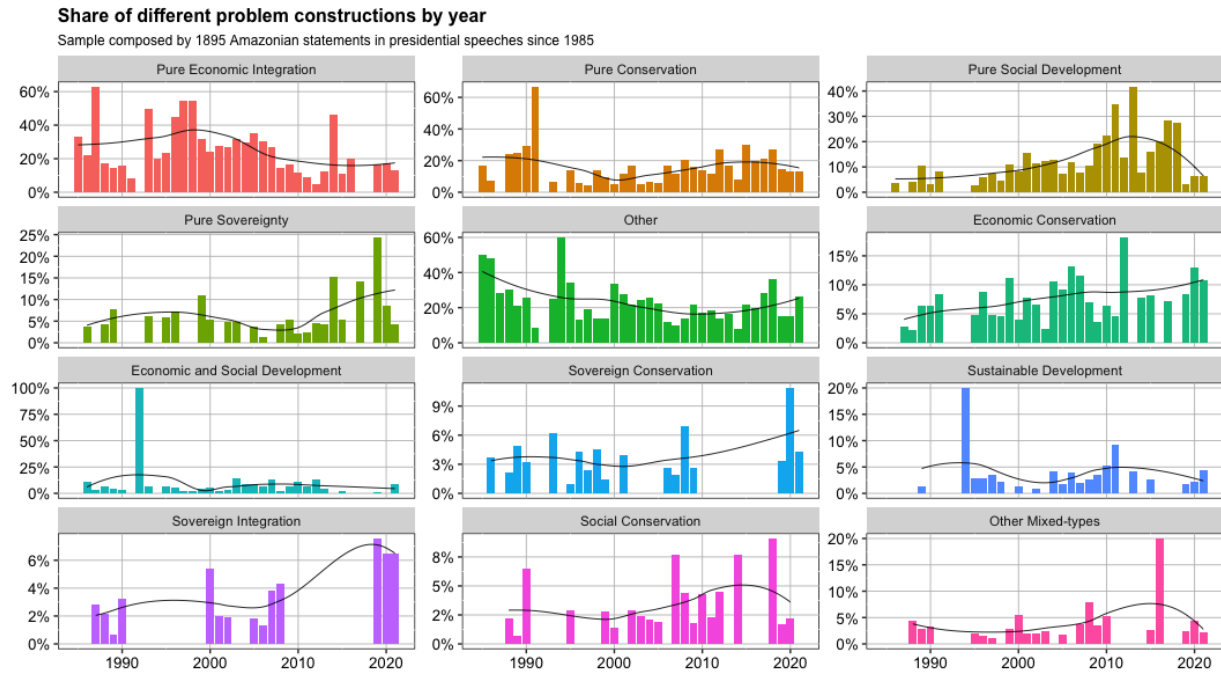
Figure 2: Share of different problem constructions by year

The plots reveal several trends. We start with analyzing pure types. Pure economic integration statements, which were dominant, decreased in incidence as of the late 1990s. Concurrently, pure conservation, as well as pure social development, increased; both surpassing the proportion of economic integration problemconstruction in 2010. President Cardoso deemed responsible for solving the national problem of inflation, was the main user of the economic integration problem-construction. With the end of his presidency, environmental conservation starts increasing. Capobianco (2021) argues that the unprecedented decrease in deforestation we observed from 2004 to 2012 was a product of an increase in the perception of stronger federal policies and presence in the Amazon region, which in turn engendered a perception of a higher risk of being caught and fined for
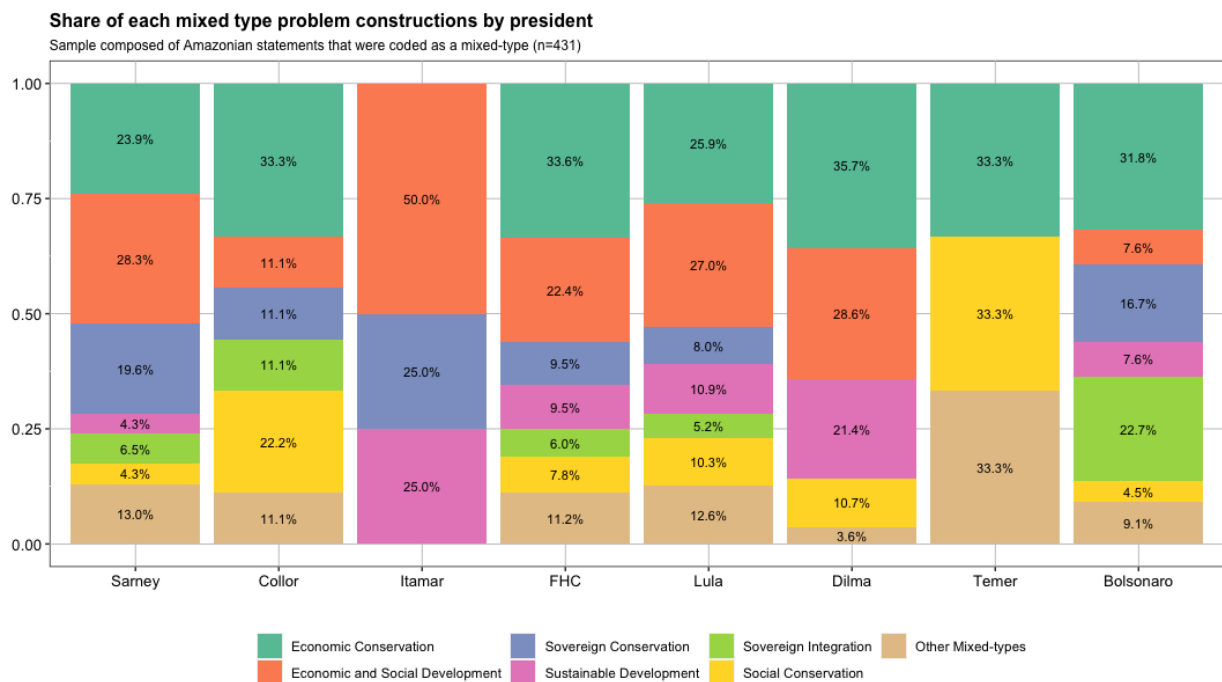
20

deforestation. This correlates with our findings: a higher incidence of the Amazon as a topic overall can generate a perception of more attention from the top, and a shift from economic integration to conservation can generate a perception of a higher chance of being caught for illegal deforestation.

Share of each pure type by year
Sample composed by 1885 Amazonian statements in presidential speeches since 1985

Figure 3: Share of each pure type by year

As of the mid-2010s, we a reverse of this trend with a twist: economic integration starts picking up again to detriment of conservation and social development problem-constructions, but with sovereignty increasing steadily. Figure 3 shows these shifts and reversals more clearly. It highlights the decrease in economic integration and increase in social and conservation problem-constructions preceding Lula's presidential mandate. Relatedly, figure 3 also shows that while the reversal precedes the mandate of President Bolsonaro, it was with him and his dismantling of social and environmental policies that sovereignty and economic integration reaches their actual maximum and a new local maximum (respectively).

We now move to mixed types, which average at 17.7% for all presidents. Overall, presidents prefer pure problem-constructions. While there is some variation in time for every single mixed type (figure 4), some of them have low counts and interpretations are not adequate. We focus our discussion on those with higher incidence. First, the most frequent mix overall is that of economic integration with environmental conservation, which averages at 29.15% in relation to mixed types only, and 6.8% in relation to all problem-constructions. We observe an increase in time, reaching its peak in early 2010. President Dilma was the most frequent user of this mix. A close second is economic and social development being used together in about 22.9% of all mixed type statements and 5.4% of all statements.

Share of each mixed type problem constructions by president
Sample composed of Amazonian statements that were coded as a mixed-type (n=431)

Figure 4: Share of each mixed type problem construction by president

We interpret the appearance of mixed types as a more complex understanding of Amazonian problems. All other mixed types appeared less than 2.6% on average in relation to all statements. We can also interpret mixed types, though, by looking at what composes their time. Mixed types using conservation were quite frequent in the lead-up and aftermath of the 1992 Earth Summit. This includes the mix type we label sustainable development, which constructs the Amazon as a problem

of economic integration, social development, and environmental conservation. This follows a global agenda of understanding interconnections of social, environmental, and economic domains. As we show that Amazonian incidence in discourse does respond to global issues, this is not a surprise given agendas such as the Millennium Development Goals and the Sustainable Development Goals.

We also observe the comeback of sovereignty being used in mixed types, mostly to detriment of conservation social development. This becomes more apparent in a comparison between Lula and Bolsonaro, the two presidents that mix the most with proportions more than 11% above presidential averages: 29.4% and 31.3% respectively. While the former frequently mixed conservation with other problem-constructions, the latter prefers mixing with sovereignty. The combination of sovereignty with economic integration, which was also characteristic of the military dictatorship policies for the region, reaches its highest level with Bolsonaro: 22.7% of all mixed types. Now that we've inspected and developed pure and mixed types, we can check if these specific problem-constructions vary depending on where the president is speaking.

4.3 An Amazonian three-level game? Boasting conservation outside, talking to people inside

Figure 5, below, illustrates the share of pure-type problem-construction by locations in Brazil. We divide locations into Amazonian states (i.e. all the Brazilian states in which the Amazon biome is present), nonAmazonian states (other Brazilian states), and Brasilia (the capital of Brazil where the federal government is located), and international (countries outside of Brazil). The plots reveal several trends. Presidents consistently construct the Amazon as an issue of pure economic integration within Amazonian states more often than all other constructions in time. Relatedly, we observe a steady decrease since the mid-1980s in pure conservation constructions in Amazonian states. This differentiates Amazonian states from national or international settings, where the relationship among problem-constructions appears less hierarchical. In Brasilia, for once, the conservation problem-construction remains the most frequent since the mid-2000s. Outside of Brazil, conservation was the most used construction from the mid-2000s to the mid-2010s. Nonetheless, pure social development constructions, which increased in the early-2000s to become the second most used construction within Amazonian states, disappeared around 2015. In line with this, we also see a large increase in the

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frequency of social development constructions in Brasilia and non-Amazonian states from the mid-2000s to the mid-2010s, but not internationally. This implies that constructing the Amazon as an issue of social development is a construction deployed within the country. Alternatively, while there is some variation in the frequency in which pure sovereignty constructions were employed in the Amazonian States, other States, and Brasilia, this problem-construction has been increasing since the early 2010s in all these settings. In international settings, however, pure sovereignty did not appear until the mid-2000s. As with social development, sovereignty seems to be employed domestically as a problem-construction for the Amazon.
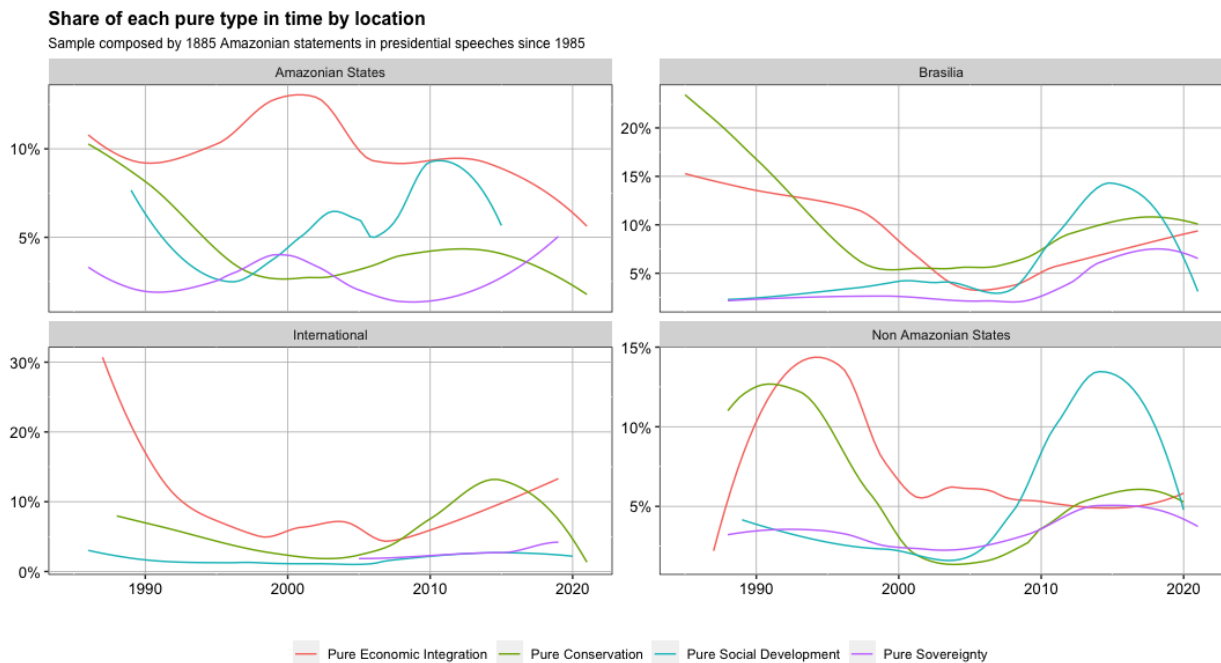
Figure 5: Share of pure type in time by location

To ensure these results are robust, we run a multinomial regression. Our dependent variable is problem-constructions (categorical), while our main dependent variable is location (categorical). The reference category for the multinomial model is environmental conservation in Amazonian states. As in section 4.1, we add controls for deforestation rates (numerical), inflation (numerical), and election year. Table 2 displays our results in log odds. Since the model accounts for both mixed and pure-type Amazonian problem-constructions, and this makes for a large table, we only display the results for

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pure-types to facilitate visualization [5]. Figure 6 shows the relative probability of problem-constructions and location in relation to environmental conservation in Amazonian states. For example, the bar for economic integration in other states represents a 50% percent probability of using this problem-construction in relation to our reference category. Hence, the lower the probabilities displayed in bars in figure 6, the less likely presidents are to construct the Amazon as an issue of environmental conservation in Amazonian states.

Table 2: Amazon Problem construction by location

	Economic Integration vs Environmental Conservation	Social Development vs Environmental Conservation	Sovereignty vs Environmental Conservation
Brasilia vs Amazonian States	-1.024***	-1.002***	-0.206
	(0.169)	(0.205)	(0.260)
International vs Amazonian States	-0.612***	-1.583***	-1.427***
	(0.192)	(0.303)	(0.431)
Other States vs Amazonian States	0.023	-0.041	0.324
	(0.197)	(0.230)	(0.302)
Election Year	-0.241	0.028	-0.684**
	(0.186)	(0.215)	(0.298)
Annual Deforestation	0.063***	-0.031*	0.004
	(0.013)	(0.016)	(0.019)
Average Inflation	-0.001***	-0.001***	-0.0001
	(0.0001)	(0.0002)	(0.0002)

Note:

**The multinomial regression coefficients are displayed in log odds.**

Standard errors are displayed in parentheses.

*** for p-value < 0.001 ; ** for p-value < 0.01 ; and * for p-value < 0.05.

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[5] Please find the full regression table in the appendix below.

The results of our model corroborate some of the visible patterns in figure 5. Presidents are more likely to construct the Amazon as an issue of environmental conservation when they are far away from the Amazon. The negative statistically significant coefficients of problem-constructions such as pure economic integration and pure social development in both international settings and Brasilia, in relation to environmental conservation problem-constructions in Amazonian states, indicate that presidents are less likely to construct the Amazon as an issue of economic integration and social development in those locations. Figure 6 shows that in international settings, constructions of social development are 33% less likely than in Amazonian states. As well, we see that economic integration constructions are 15% less likely in international settings. In Brasilia, both economic integration and social development constructions are 13% less likely than in Amazonian states.
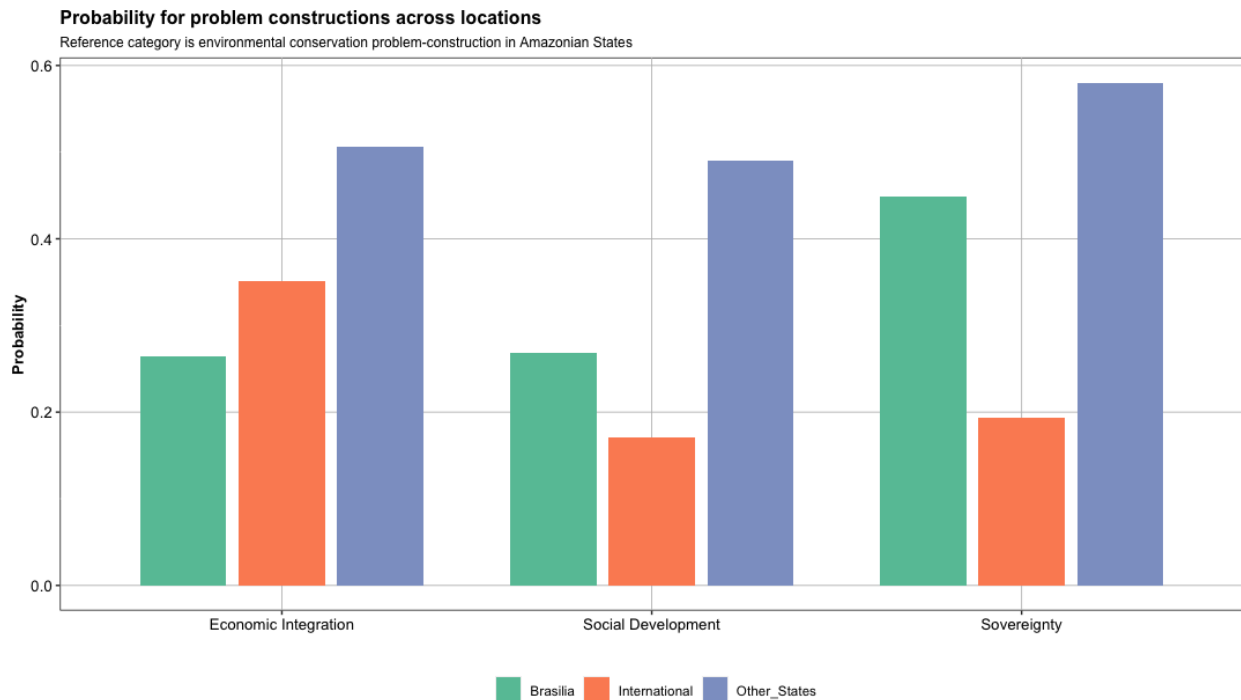
Figure 6: Probability for problem constructions across locations

Constructing the Amazon as an issue of sovereignty happens within Brazil. The negative statistically significant coefficient (table 2) for constructing the Amazon as a problem of pure sovereignty in international settings, in relation to Amazonian states, indicates that presidents are less likely to construct the Amazon as an issue of economic integration and social development in those

locations. Figure 6 illustrates that presidents are 21% less likely to construct the Amazon as an issue of sovereignty internationally in relation to Amazonian states. The probabilities of sovereignty constructions around 0.5 (equal probability) for Brasilia and other non-Amazonian states corroborates that the Amazon as an issue of sovereignty is an internally performed issue.

Nevertheless, we see that some of the control variables (table 2) correlate with some Amazonian problem-constructions in interesting ways. For example, pure sovereignty constructions correlate negatively with election years in relation to conservation. Also, annual deforestation rates correlate positively with economic integration constructions in relation to conservation. This indicates that the Amazon is more likely to be constructed as an issue of economic integration as deforestation increases.

The Amazon, as a region and a forest, has been the topic of international negotiations, national debates, and local policy implementation; though our results show that how the Amazon has been constructed as an issue differs on each of these three levels. Putnam (1988) seminal article on the two-level game between domestic and international politics analyzes how negotiations at both levels make policies possible. The author argues that both domestic and international levels should be considered. Agreements are made in the overlap between the position of domestic actors and international actors; so negotiators play a two-level game to maximize the area of overlap, bringing both to a more moderate position in issues (Putnam 1988). This implies not only that audiences' priorities in each setting change, but that which policies are appropriate to solve the "Amazon issue" could differ as well. The three-level game entails that conservation might be a desirable construction when speaking internationally about the Amazon, or in Brasilia, but not for local electorates.

This three-level game led to different policies being negotiated and maximized at the interplay between the levels. Take, for once, how the Brazilian government successfully funded domestic public policy with international support since the 1990s (e.g. 1992 Programa Piloto para Proteção das Florestas Tropicais), by creating a federal fund for the protected areas (e.g. 2001 Amazon Region Protected Areas program), and by assuring international funds with the establishment of the Amazon Fund in 2008 which provided over USD1 billion for environmental conservation in the Amazon

(Silva-Muller and Faul 2022). Still, this does not mean, though, that the national agenda of economic integration or social development was not pursued. During the same time rural credit offered to local agricultural producers in Amazonian states, went up from 500 million reais a year in 1999 to over 4 billion a year by 2012 (Capobianco 2021). Nowadays, it has reached unprecedented levels.

5 Discussion: The Amazon frontier and democracy

Pacheco (2019) proposes that we see the Amazon frontier as a key analytic category to understand the Brazilian state and democracy. Specifically, the author states that the natural richness of the region has been instrumentally transformed in political support through resource exploration by different governments over the last centuries. The costs for said economic benefits are the livelihoods of indigenous and traditional populations and the ecosystems they reside in. Political stability, thus, can be seen as a product of the trade-off between both. Policies during the military dictatorship were strongly geared toward integrating the Amazon into the national territory and international economy. These were times when deforestation increased, but political stability was achieved as those bearing the costs of said deforestation were being targeted. Generally high levels of violence in the region, epitomized in the assassination of Chico Mendes, serve as evidence for that (Hecht and Cockburn 1990).

The Amazon frontier as an analytic category can help us shed light on the differences we identify between the discourse in Amazonian States compared to Brasilia and other States. Whereas presidential discourses at the top matter to define and justify public policy (Zarefsky 2004), presidents shape their discourses according to who their audience might be and what "they want to hear". If presidents promote an agenda of economic and social development within Brazil that diverges from the one the president promotes outside of Brazil, the question for democracy becomes to what extent the implemented agenda responds to domestic versus international demands. Or, as Putnam (1988) puts it, what's the actual overlap between the international and domestic overlap. The domestic policies and transnational support that led to the decrease in deforestation from 2004 to 2012 happened concurrently with a period of strong economic growth and social development in Brazil and worldwide. With the strengthening of environmentalism and indigenous participation in politics in the

late 1980s and 1990s, we can interpret the fall of economic integration and the rise of social and conservation problem-constructions as a new relationship between granting local livelihoods their rights and economic exploitation.

While unprecedented, this new balance was not long-standing. Democratic decay is slow, and the embryo of Bolsonaro's Amazonian discourse was breeding half a decade before he took office. We observe the decrease in conservation-related statements in the mid-2010s, and the soft increase of sovereignty both pure and in mixes already late 2000s (figure 3). The hard increase in sovereignty comes in the early 2010s. As we conceptualize and operationalize sovereignty as boundary-making vis-à-vis internal and external perceived threats to the Amazon, we interpret this increase as attacks on indigenous and traditional populations. On the policy side, the Itaipu Dam in the late 2000s and the 2011 Forest code is seen as a turning point: political opposition to conservation got particularly organized and managed to lobby the executive and conquer this policy wins, which were largely opposed by environmentalists. The political forces in Brazilian democracy that drive these changes in problem-construction were long in the making, as the earlier and softer shifts in discourse suggest. Bolsonaro's problem-construction is the strongest form of this shift.

6 Conclusion

This paper answers how the Amazon has been constructed as a problem in Brazilian presidential speeches since 1985. Our findings show that these constructions are not monolithic within governments, in time, or across different locations. Conceptually, this contributes to understanding the social construction of the Amazon in discourses and how these might relate to outcomes such as policies and environmental outcomes. Empirically, we build the first comprehensive overview of the Amazon in presidential discourse.

References

Acker, Antoine. 2014. ""O maior incêndio do planeta": como a Volkswagen e o regime militar brasileiro acidentalmente ajudaram a transformar a Amazônia em uma arena política global." *Revista Brasileira de História* 34 (December): 13–33. https://doi.org/10.1590/S0102-01882014000200002.

———. 2021. "Amazon Development," Oxford research encyclopedia of latin american history.,. https://doi.org/10.1093/acrefore/9780199366439.013.837.

Alesina, Alberto F., and Paola Giuliano. 2009. "Preferences for Redistribution." https://www.nber.org/papers/w14825.

Andonova, Liliana B. 2014. "Boomerangs to Partnerships? Explaining State Participation in Transnational Partnerships for Sustainability." *Comparative Political Studies* 47 (3): 481–515. https://doi.org/10.1177/0010414013509579.

Assunção, Juliano, Clarissa Gandour, and Rudi Rocha. 2015. "Deforestation Slowdown in the Brazilian Amazon: Prices or Policies?" *Environment and Development Economics* 20 (6): 697–722. https://doi.org/10.1017/S1355770X15000078.

Bacchi, Carol Lee. 2009. *Analysing Policy: What's the Problem Represented to Be?* Pearson.

Barros, Antonio Teixeira de. 2020. "Discursos parlamentares sobre a Amazônia: sobre o que falam os deputados brasileiros." *Política & Sociedade* 19 (46): 299–331. https://doi.org/10.5007/2175-7984.2020.e66962.

Becker, Bertha K. 2005. "Geopolítica da Amazônia." *Estudos Avançados* 19 (April): 71–86. https://doi.org/10.1590/S0103-40142005000100005.

Bevitori, Cinzia. 2015. "Discursive Constructions of the Environment in American Presidential Speeches 1960–2013: A Diachronic Corpus-Assisted Study." *Corpora and Discourse Studies*, 110–33. https://doi.org/10.1057/9781137431738_6.

Brice, and Smith. 2021. "The Amazon Is Fast Approaching a Point of No Return." *Bloomberg.com*, July. https://www.bloomberg.com/news/features/2021-07-29/amazon-rainforest-deforestation-land-grabs-surge-under-bolsonaro-in-brazil.

Calderwood, Kevin J. 2019. "Discourse in the Balance: American Presidential Discourse about Climate Change." *Communication Studies* 70 (2): 235–52. https://doi.org/10.1080/10510974.2019.1572636.

———. 2020. "Going Global: Climate Change Discourse in Presidential Communications." *Environmental Communication* 14 (1): 52–67. https://doi.org/10.1080/17524032.2019.1592005.

Campbell, Jeremy M. 2015. *Conjuring Property: Speculation and Environmental Futures in the Brazilian Amazon.* Illustrated edition. Seattle: University of Washington Press.

Capobianco, João Paulo. 2019. "Avances y retrocesos de la sostenibilidad en la Amazonia: un análisis de la gobernanza socioambiental en la Amazonia," January. https://gredos.usal.es/handle/10366/139311.

———. 2021. *Amazônia: Uma Década de Esperança.* 1ª edição. São Paulo: Estação Liberdade.

Cezar, Rodrigo Fagundes. 2020. "Brazilian Presidential Speeches from 1985 to July 2020." https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/M9UU09.

Da Silva, Antonio José Bacelar, and Erika Robb Larkins. 2019. "The Bolsonaro Election, Antiblackness, and Changing Race Relations in Brazil." *The Journal of Latin American and Caribbean Anthropology* 24 (4): 893–913.

Drummond, Jose, and Ana Flavia Barros-Platiau. 2006. "Brazilian Environmental Laws and Policies, 1934-2002: A Critical Overview." *Law <Html_ent Glyph="@amp;" Ascii="&"/> Policy* 28 (1): 83–108. https://doi.org/10.1111/j.1467-9930.2005.00218.x.

Fearnside, Philip M. 1990. "The Rate and Extent of Deforestation in Brazilian Amazonia." *Environmental Conservation* 17 (3): 213–26. https://doi.org/10.1017/s0376892900032355.

Fonseca, Elize Massard da, Nicoli Nattrass, Lira Luz Benites Lazaro, and Francisco Inácio Bastos. 2021. "Political Discourse, Denialism and Leadership Failure in Brazil's Response to COVID-19." *Global Public Health* 16 (8-9): 1251–66.

Franchini, Matias Alejandro, and Eduardo Viola. 2019. "Myths and Images in Global Climate Governance, Conceptualization and the Case of Brazil (1989 - 2019)." *Revista Brasileira de Política Internacional* 62 (September). https://doi.org/10.1590/0034-7329201900205.

Garfield, Seth. 2013. *In Search of the Amazon: Brazil, the United States, and the Nature of a Region.* Durham: Duke University Press Books.

Harris, Bryan. 2021. "Drought Puts Amazon at Risk of 'Large-Scale Dieback', Researchers Warn." *Financial Times*, July. https://www.ft.com/content/02071ae7-dcf5-4c61-9c3c-b55f5aef8b0e.

Hecht, Susanna B. 2013. *The Scramble for the Amazon and the "Lost Paradise" of Euclides Da Cunha.* First edition. Chicago: University of Chicago Press.

Hecht, Susanna B., and Alexander Cockburn. 1990. *The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon, Updated Edition.* Chicago, IL: University of Chicago Press. https://press.uchicago.edu/ucp/books/book/chicago/F/bo10387801.html.

Hirschman, Albert O. 1963. *Journeys Toward Progress: Studies of Economic Policy-Making in Latin America.* Twentieth Century Fund.

———. 1975. "Policymaking and Policy Analysis in Latin America: A Return Journey." *Policy Sciences* 6 (4): 385–402. https://www.jstor.org/stable/4531616.

Hochstetler, Kathryn. 2021. "Climate Institutions in Brazil: Three Decades of Building and Dismantling Climate Capacity." *Environmental Politics* 30 (sup1): 49–70. https://doi.org/10.1080/09644016.2021.1957614.

Hochstetler, Kathryn, and Margaret E. Keck. 2007. *Greening Brazil: Environmental Activism in State and Society.* https://doi.org/10.1215/9780822390596.

Htun, Mala. 2004. "From" Racial Democracy" to Affirmative Action: Changing State Policy on Race in Brazil." *Latin American Research Review*, 60–89.

López, Matias, Graziella Moraes Silva, Chana Teeger, and Pedro Marques. 2020. "Economic and Cultural Determinants of Elite Attitudes Toward Redistribution." *Socio-Economic Review*, May. https://doi.org/10.1093/ser/mwaa015.

Malheiros-Poulet, Maria Eugenia. 1995. "Os Processos Metafóricos Do Vocabulário Da Inflação No Brasil." *Organon* 9 (23).

Meyer, David, Evgenia Dimitriadou, Kurt Hornik, Andreas Weingessel, and Friedrich Leisch. 2021. *E1071: Misc Functions of the Department of Statistics, Probability Theory Group (Formerly: E1071), TU Wien.* https://CRAN.R-project.org/package=e1071.

Miranda, David. 2021. "Bolsonaro's 1,000km Amazon Railway Will Cause Climate Chaos. It Must Be Stopped." *The Guardian*, July. https://www.theguardian.com/commentisfree/2021/jul/28/bolsonaro-amazon-railway-climate-chaos-must-be-stopped.

Noble, William S. 2006. "What Is a Support Vector Machine?" *Nature Biotechnology* 24 (12): 1565–67.

Pacheco, João. 2019. *Ecxterminio y Tutela: Procesos de Formación de Alteridades En El Brasil.* UNSAM Edita. Ciencias sociales. http://www.unsamedita.unsam.edu.ar/product/exterminio-y-tutela-procesos-de-formacion-de-alteridades-en-el-brasil/.

Pike, Isabel. 2019. "A Discursive Spectrum: The Narrative of Kenya's "Neglected" Boy Child." *Gender & Society* 34 (2): 284–306. https://doi.org/10.1177/0891243219863029.

Porto, Mauro P. 2007. "Framing Controversies: Television and the 2002 Presidential Election in Brazil." *Political Communication* 24 (1): 19–36.

Putnam, Robert D. 1988. "Diplomacy and Domestic Politics: The Logic of Two-Level Games." *International Organization* 42 (3): 427–60. http://www.jstor.org/stable/2706785.

Silva-Muller, Livio, and Moira Faul. 2022. "Protecting the Amazon and Its People: The Role of Civil Society in the Local Effectiveness of Transnational Partnerships." In, 1st ed., 288. Routledge Research in Environmental Policy and Politics. Taylor; Francis Routledge. https://www.routledge.com/Partnerships-for-Sustainability-in-Contemporary-Global-Governance-Pathways/Andonova-Faul-Piselli/p/book/9780367708870#:~:text=%22Partnerships%20for%20Sustainability%20provides%20a,collaboration%20of%20public%20and%20private.

Simons, Marlise, and Special To the New York Times. 1988. "Vast Amazon Fires, Man-Made, Linked to Global Warming." *The New York Times*, August. https://www.nytimes.com/1988/08/12/world/vast-amazon-fires-man-made-linked-to-global-warming.html.

Van Dijk, T. 2020. *Antiracist Discourse in Brazil: From Abolition to Affirmative Action.* Lexington Books. https://books.google.ch/books?id=fBr8DwAAQBAJ.

Viola, Eduardo J. 1987. "O Movimento Ecológico No Brasil, 1974-1986: Do Ambientalismo à Ecopolítica." *Revista Brasileira de Ciencias Sociais* 3 (93): 5–26. http://anpocs.com/images/stories/RBCS/03/rbcs03_01.pdf.

Waroux, Yann de, Rachael D. Garrett, Mollie Chapman, Cecilie Friis, Jeffrey Hoelle, Leonie Hodel, Kelly

Hopping, and Julie Gwendolin Zaehringer. 2021. "The Role of Culture in Land System Science." *Journal of Land Use Science* 16 (4): 450–66. https://doi.org/10.1080/1747423X.2021.1950229.

Westerwinter, Oliver. 2021. "Transnational Public-Private Governance Initiatives in World Politics: Introducing a New Dataset." *The Review of International Organizations* 16 (1): 137–74. https://doi.org/10.1007/s11558-019-09366-w.

Zarefsky, David. 2004. "Presidential Rhetoric and the Power of Definition." *Presidential Studies Quarterly* 34 (3): 607–19. https://www.jstor.org/stable/27552615.

Appendix

Table 3: Multinomial Regression Full

	EI	SD	SOV	EI-CON	EI-SD	SOV-CON	SD-EI-CON	SOV-EI	SD-CON	Other
Brasilia	-1.024*** (0.169)	-1.002*** (0.205)	-0.206 (0.260)	-0.341 (0.248)	-1.019*** (0.273)	0.420 (0.257)	-1.197*** (0.330)	-1.212*** (0.342)	0.860*** (0.318)	-0.892*** (0.172)
International	-0.612*** (0.192)	-1.583*** (0.303)	-1.427*** (0.431)	-0.265 (0.292)	-0.980*** (0.336)	-0.451 (0.367)	-1.110*** (0.407)	-1.105*** (0.395)	-0.117 (0.328)	-0.774*** (0.202)
Other States	0.023 (0.197)	-0.041 (0.230)	0.324 (0.302)	0.149 (0.296)	0.071 (0.292)	0.823*** (0.306)	-0.466 (0.373)	-0.136 (0.366)	-0.074 (0.354)	-0.159 (0.206)
Election Year	-0.241 (0.186)	0.028 (0.215)	-0.684** (0.298)	-0.059 (0.253)	-0.254 (0.281)	-0.573 (0.406)	0.064 (0.367)	-1.243** (0.547)	-0.067 (0.405)	-0.451** (0.194)
Annual Deforestation	0.063*** (0.013)	-0.031* (0.016)	0.004 (0.019)	0.023 (0.017)	0.047** (0.019)	0.005 (0.027)	-0.013 (0.026)	-0.001 (0.028)	0.011 (0.026)	0.059*** (0.013)
Average Inflation	-0.001*** (0.0001)	-0.001*** (0.0002)	-0.0001 (0.0002)	-0.0001*** (0.0002)	-0.0005** (0.0002)	0.0002 (0.0002)	-0.001** (0.0004)	-0.0004 (0.0004)	-0.001* (0.0004)	-0.0002* (0.0001)

Note:

The multinomial regression coefficients are displayed in log odds.

Standard errors are displayed in parentheses.

*** for p-value < .001

** for p-value < 0.01

* for p-value < 0.05