FEDERAL UNIVERSITY OF PARÁ
CENTER FOR ADVENCED AMAZONIAN STUDIES

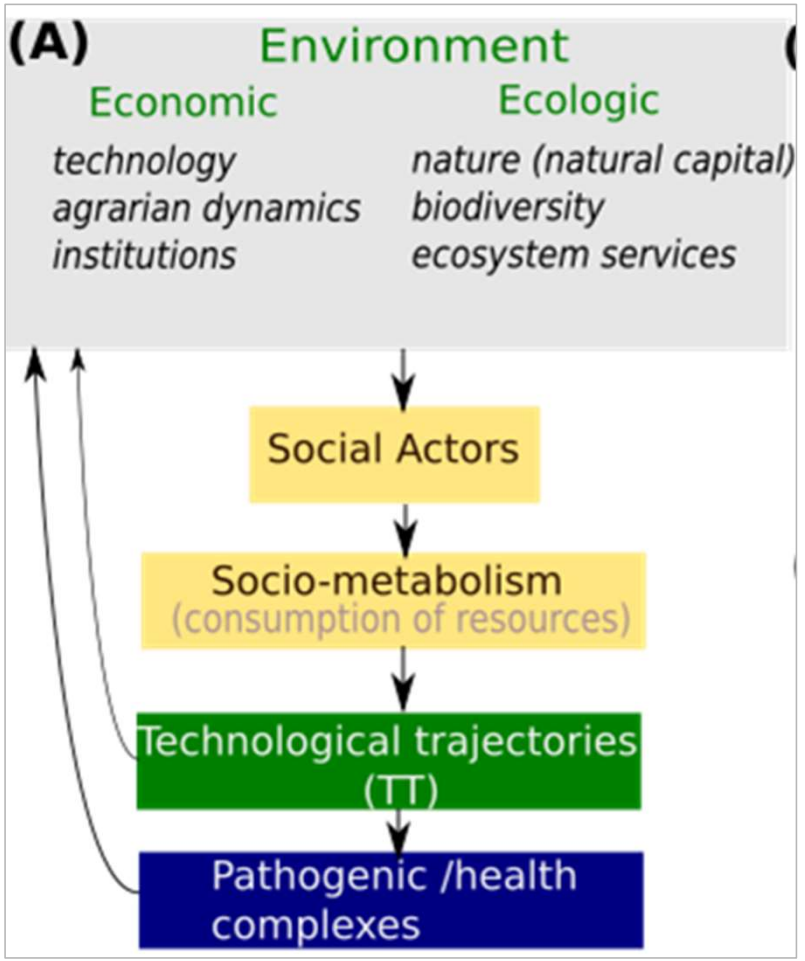
PRODUCTIVE FORESTS AND SOCIOBIOECONOMY IN THE AMAZON

Danilo Araújo Fernandes (UFPA)
Research Group Agrarian Dynamics and Sustainable Development in the Amazon

Berlin,
September, 2024

Theoretical starting points of the research

- Recognition of the diversity of agents and structures and the complex perception of their relationships;
- Reading of rural-based Technological (or techno-productive) Paradigms understood as society-nature relations (dependent on the specific conditions of interaction with the biome in which they are inserted);
- Observation of the agrarian dynamics of the Amazon based on some premises:
  - Structural diversity (result of the interaction between paradigms, rationalities and biomes) Configuration of different technological trajectories based on the rationality pattern of the agents and their relationship with nature (biome);
  - Competition of trajectories as the basis of disputes in the institutional field.



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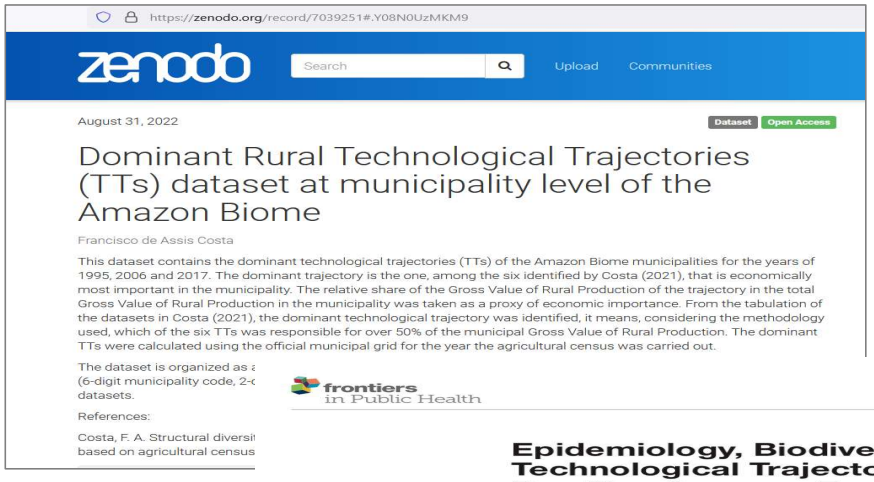

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August 31, 2022 Dataset Open Access

Dominant Rural Technological Trajectories (TTs) dataset at municipality level of the Amazon Biome

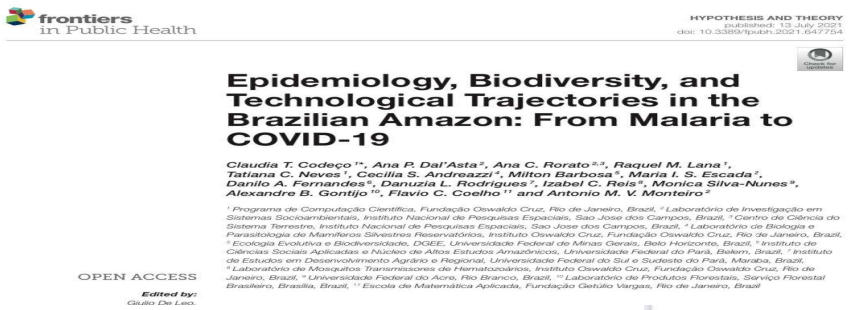
Francisco de Assis Costa

This dataset contains the dominant technological trajectories (TTs) of the Amazon Biome municipalities for the years of 1995, 2006 and 2017. The dominant trajectory is the one, among the six identified by Costa (2021), that is economically most important in the municipality. The relative share of the Gross Value of Rural Production of the trajectory in the total Gross Value of Rural Production in the municipality was taken as a proxy of economic importance. From the tabulation of the datasets in Costa (2021), the dominant technological trajectory was identified, it means, considering the methodology used, which of the six TTs was responsible for over 50% of the municipal Gross Value of Rural Production. The dominant TTs were calculated using the official municipal grid for the year the agricultural census was carried out.

The dataset is organized as a
(6-digit municipality code, 2-
datasets.

References:

Costa, F. A. Structural diversi
based on agricultural census



frontiers in Public Health

HYPOTHESIS AND THEORY
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Epidemiology, Biodiversity, and Technological Trajectories in the Brazilian Amazon: From Malaria to COVID-19

Claudia T. Codeço[1], Ana P. Dal'Asta[2], Ana C. Rorato[2,3], Raquel M. Lana[1], Tatiana C. Neves[1], Cecilia S. Andreazzi[1], Milton Barbosa[4], Maria I. S. Escada[2], Danilo A. Fernandes[5], Danuzia L. Rodrigues[2], Izabel C. Reis[6], Monica Silva-Nunes[6], Alexandre B. Gontijo[10], Flavio C. Coelho[11] and Antonio M. V. Monteiro[2]*

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scientific data

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DATA DESCRIPTOR

Trajetorias: a dataset of environmental, epidemiological, and economic indicators for the Brazilian Amazon

Ana C. Rorato[1,11], Ana Paula Dal'Asta[1,11], Raquel Martins Lana[2,11], Ricardo B. N. dos Santos[3,11], Maria Isabel S. Escada[1,11], Camila M. Vogt[4], Tatiana Campos Neves[5], Milton Barbosa[6], Cecilia S. Andreazzi[7,8], Izabel C. dos Reis[9], Danilo A. Fernandes[3], Mônica da Silva-Nunes[10], Anielli R. de Souza[1], Antonio M. V. Monteiro[1] & Claudia T. Codeço[5]

The Trajetorias dataset is a harmonized set of environmental, epidemiological, and poverty indicators for all municipalities of the Brazilian Legal Amazon (BLA). This dataset is the result of a scientific synthesis research initiative conducted by scientists from several natural and social sciences fields, consolidating multidisciplinary indicators into a coherent dataset for integrated and interdisciplinary studies of the Brazilian Amazon. The dataset allows the investigation of the association between the Amazonian agrarian systems and their impacts on environmental and epidemiological changes, furthermore enhancing the possibilities for understanding, in a more integrated and consistent way, the scenarios that affect the Amazonian biome and its inhabitants.

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THE UNIVERSITY OF CHICAGO

ASU Arizona State University

UFMG UNIVERSIDADE FEDERAL DE MINAS GERAIS

UNIFESSPA Universidade Federal do Sul e Sudeste do Pará

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Trajetorias dataset: Sinbiosis Trajectories Project

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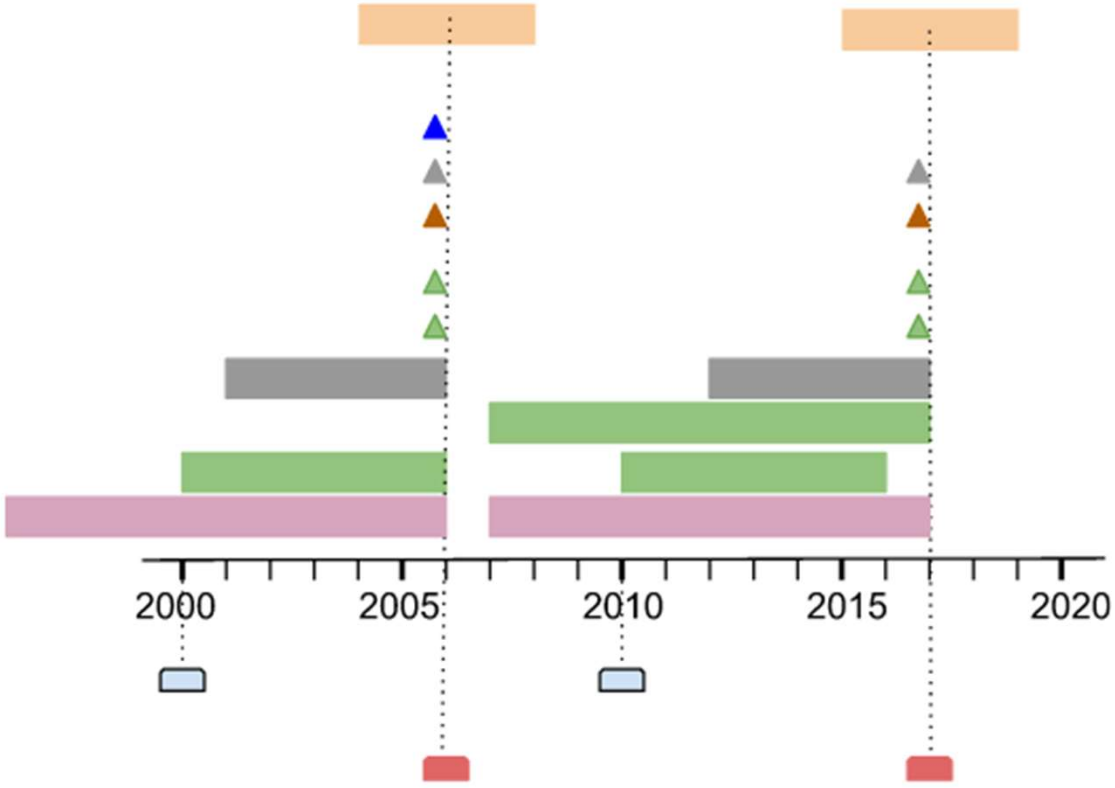


Vector borne diseases

River density
Road density
Pasture, crop, urban areas

Secondary vegetation
Fragmentation indices

Fire indice
Degradation indices
Deforestation indices
Climate indices

Accumulated measurements

Demographic indices
Poverty indices

Agrarian censuses

Theoretical premises about the relationship between “production” and “nature”

- Industrial dynamics: nature seen as raw material and basic input - input (still life, generic material);

- Agrarian and/or rural dynamics:
  - nature seen as living, specific matter (biome, ecosystem);
  - nature as productive capital or “natural capital” influence of the ecological context on the production process;

Agricultural paradigm (mechanical chyme genetic): modernization and homogenization (industrialist paradigm applied to rural areas): mostly linked to global chains, large-scale production;

Agroextractive or agroforestry paradigm: conservation and maintenance of the biome (alternative paradigm to monoculture and commoditization of agriculture): more adapted to diversity and compatible with smaller-scale production; as well as serving regional and local markets and specific products (where quality, added value and specificity represent the key elements of competitiveness)

Competition of Techno-productive Trajectories ⇨ Competing trajectories between land uses

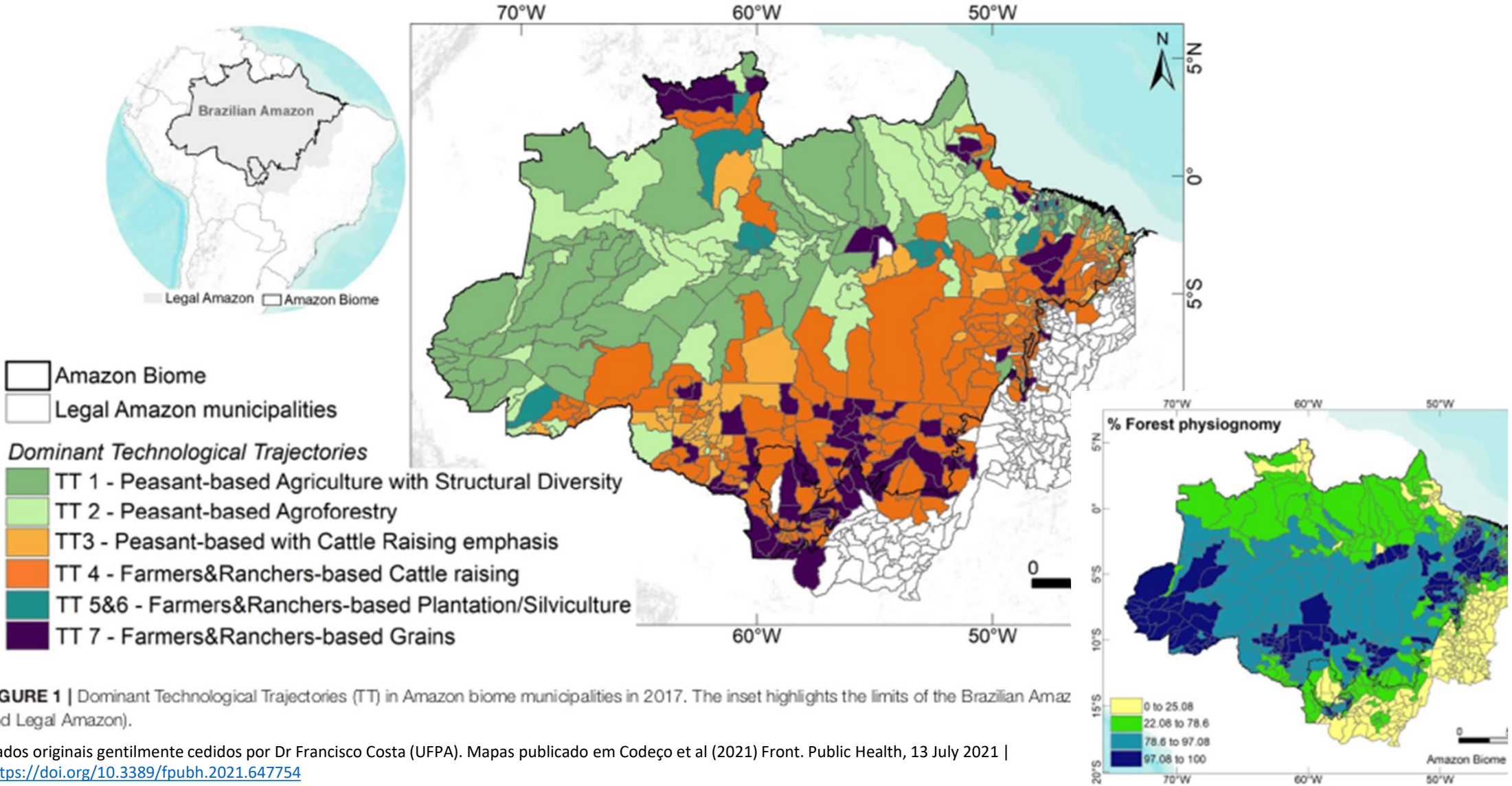
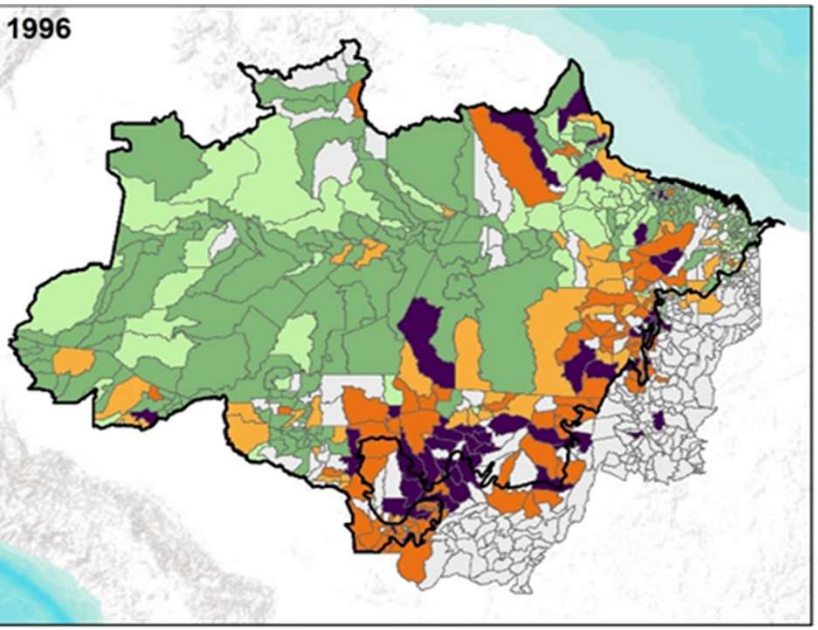
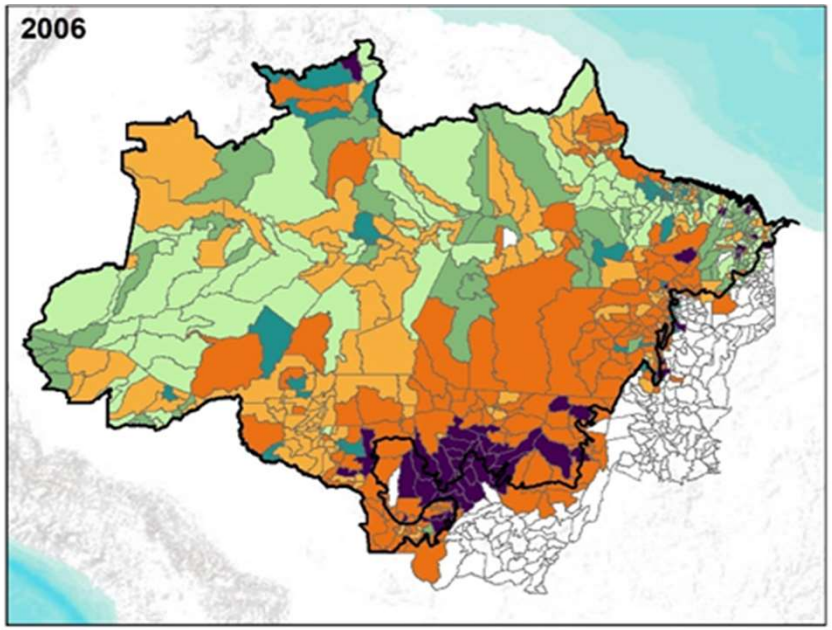
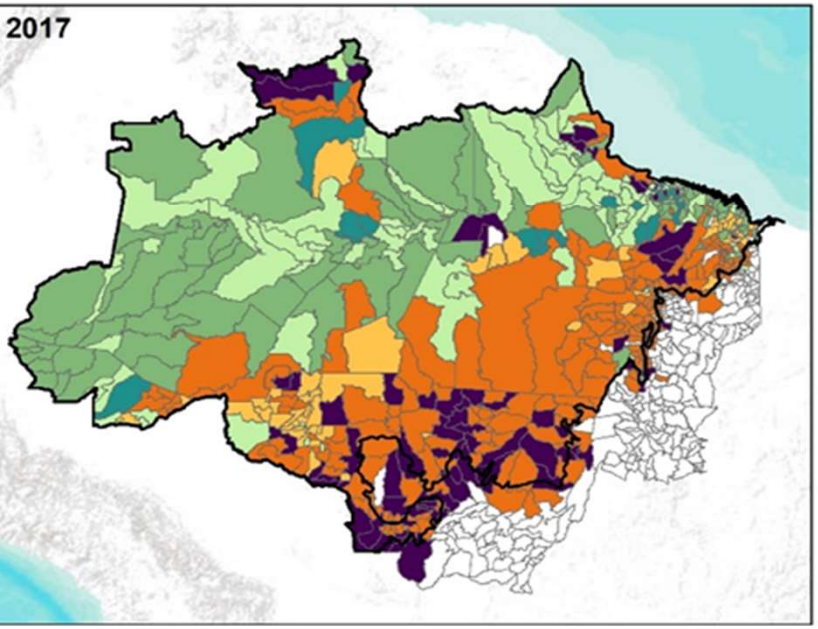


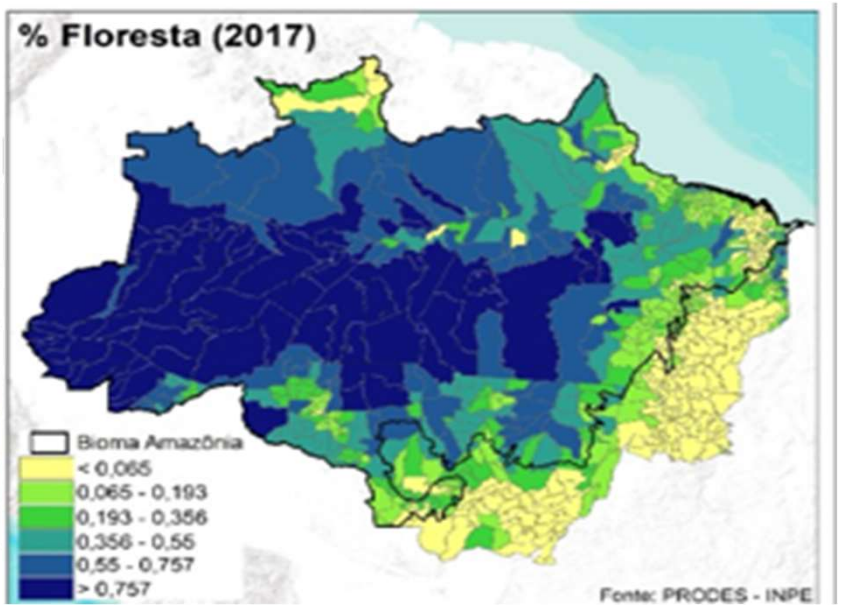
FIGURE 1 | Dominant Technological Trajectories (TT) in Amazon biome municipalities in 2017. The inset highlights the limits of the Brazilian Amaz and Legal Amazon).

Dados originais gentilmente cedidos por Dr Francisco Costa (UFPA). Mapas publicado em Codeço et al (2021) Front. Public Health, 13 July 2021 | https://doi.org/10.3389/fpubh.2021.647754









Techno-productive Trajectories

(contributes more than 50% to the Municipal VBPT – Agricultural and Agroextractivism Sector)

Homogenization Trajectories (T7)

- Trajectories based on large employer monoculture establishments of temporary crops (on a salaried basis), which grew from 1995 to 2017, at 9.2% p.a.

Homogenization Trajectories (T7)

- Trajectories based on large salaried employers, with hegemonic meat production, which grew from 1995 to 2017, at 8.4% p.a.

Trajectory based on diversity and diversification (T2)

- Alternative techno-productive trajectory: based on 186 thousand family-based establishments with 404 thousand workers in 2017. This is a technologically based trajectory on production systems based on species diversity, currently called agroforestry systems – SAFs, whose Gross Value of Production has grown from 1995 to 2017 at 4.2% p.a.

Agroforestry or agroextractivist trajectories

- Rural production based on diversity and diversification
- Small Producers Tacit (traditional) knowledge
- 186 thousand family-based establishments with 404 thousand workers
- in 2017 Gross Production Value has grown from 1995 to 2017 at 4.2% p.a..

Bioeconomy: concept and scope

Biologization of the mechanical-chemical paradigm (agricultural paradigm)	**Evolution of an alternative paradigm of a Biome-based economy**
Biotechnology Bioeconomy (b1)	Bioecological bioeconomy or Sociobioeconomy (b3)
Bioresources Bioeconomy (b2)	

- **BIOLOGIZATION OF THE MECHANIC-CHEMICAL PARADIGM**
  - **Biotechnology Bioeconomy – b1**: innovations in biological-based processes – biotechnologies capable of appropriation in different sectors of the economy

    Ex.: biorefineries
  - **Bioeconomy of Bioresources – b2**: development of products from biological raw materials and formation of new value chains.

    Ex.: sugarcane ethanol; biofuel from palm oil

- **ALTERNATIVE PARADIGM (Agroextractivism or Agroforestry)**
  - **Bioecological bioeconomy or Sociobioeconomy – b3**: valorization of ecological processes that optimize the use of energy and nutrients based on biodiversity (Biome-based economy)
  - Counterpoint
    - monoculture and soil degradation;
    - to the industrialist paradigm (?)
  - Solutions (knowledge, technology, goods and services) guided by agroextractive or agroforestry principles