

# **Network Analysis of Brazilian Chamber of Deputies and Voting Patterns**

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# Brazilian Chamber of Deputies

## Definition

The lower chamber of the National Congress of Brazil that forms the Legislative Power of the Union alongside the Federal Senate

## Composition

513 Federal Deputies who are elected by **proportional representation** by state to serve four-year terms

## Purpose

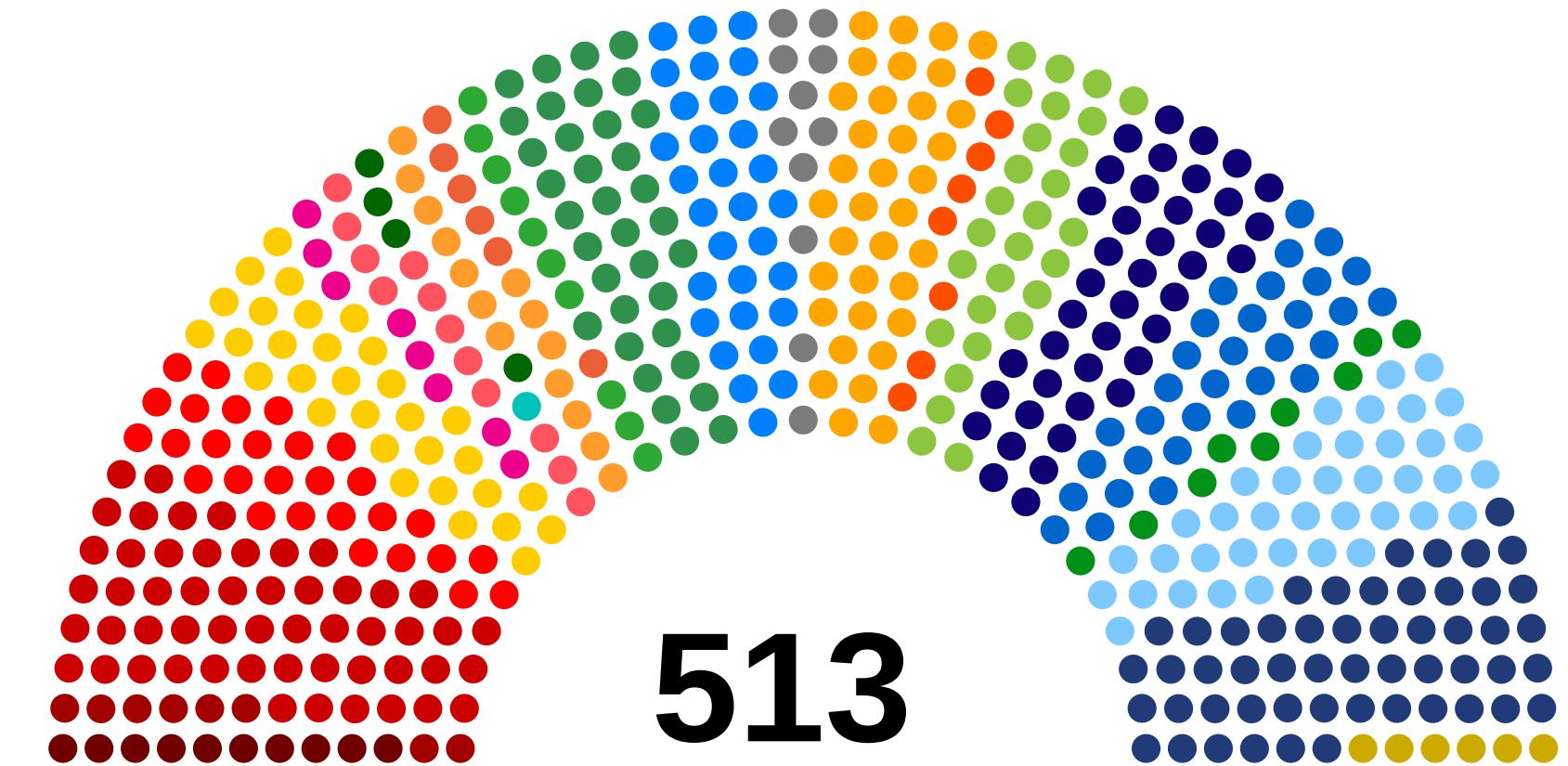
**Represent** the Brazilians interests, **legislate** on matters of national interest, and **fiscalize** the acts of the Executive

# Political Parties

To stand for election, it is mandatory to be a member of a party

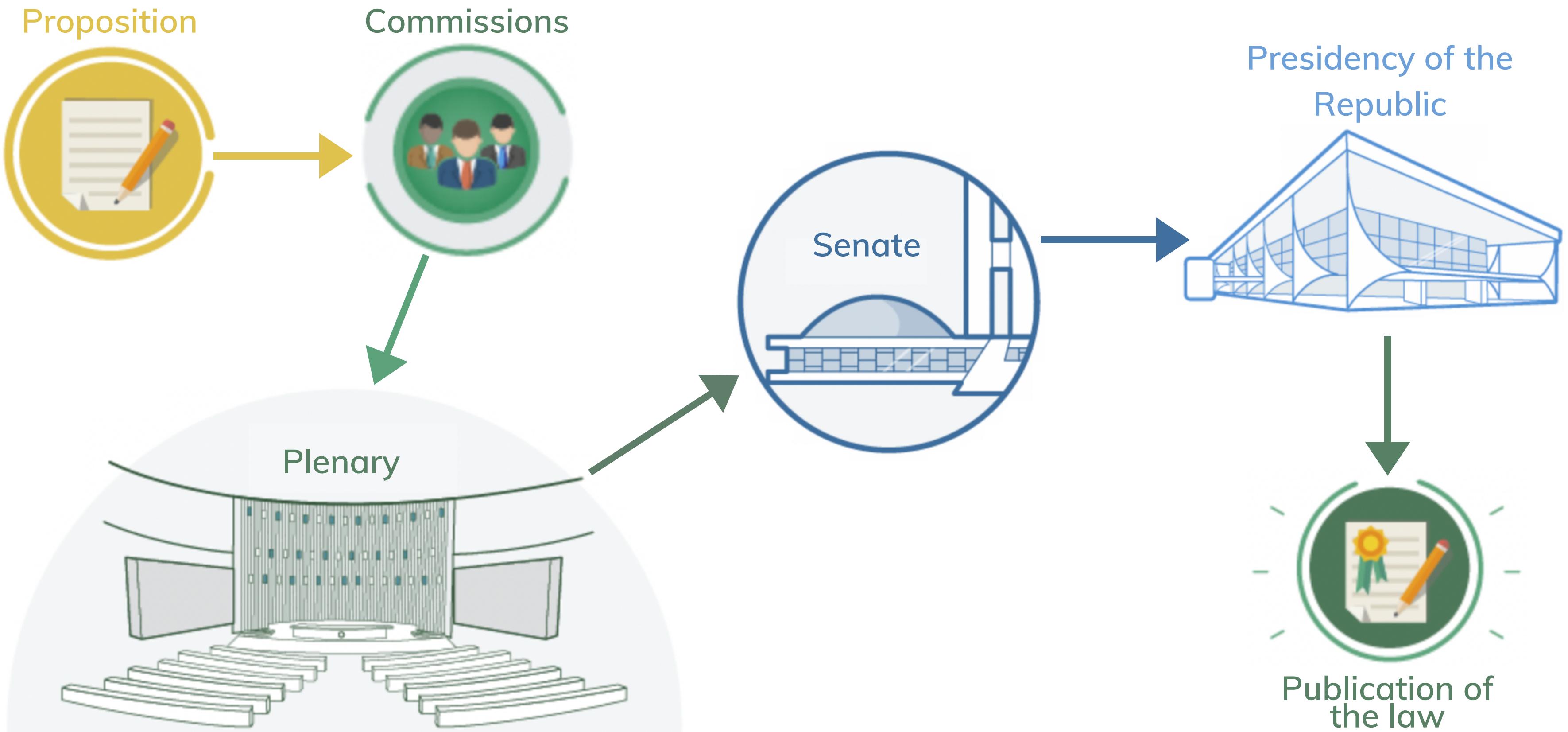
With 33 registered parties, Brazil is the country with the largest number of political parties in the world. 24 have elected deputies

The departure of a deputy from the party can be considered party infidelity, causing the loss of mandate



Composition of the seats of the Chamber of Deputies of Brazil in 2019

# Votes



# Chamber of Deputies

## Data



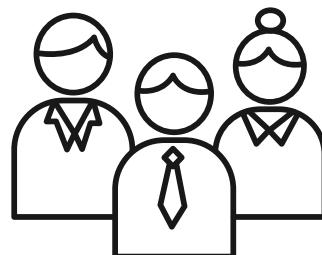
### Where

Chamber of Deputies [Open Data Service](#) delivers raw data in JSON or CSV files.



### How

The Python package [\*DadosAbertosBrasil\*](#) allows you to retrieve the data. Larger files can be downloaded.



### What

From the raw data, one can access accurate information since 2003, such as the [deputies](#), the [votes](#), and the [propositions](#).

# What are our questions?

**Are the parties consistent?**

Members of the same party should be ideologically similar

**Is the ruling party able to create a base?**

Are there enough deputies who are ideologically similar to the government?

**Do we need so many parties?**

Different parties must be ideologically different on some topics

**Who are the most influent deputies?**

Who are the deputies that have the most similarities with the others?

**How do the parties interact?**

Do parties become closer or farther over time?

**How do deputies from the same region interact?**

Do they vote more similarly?

# Why do those questions matter?

## Representation

Deputies are the main representatives of the population at the national level. Senators are responsible for representing the interests of their states, not the people.

## Proportional vote

Seats are divided according to the votes by party, and then according to the most voted deputies.

## Lack of governability

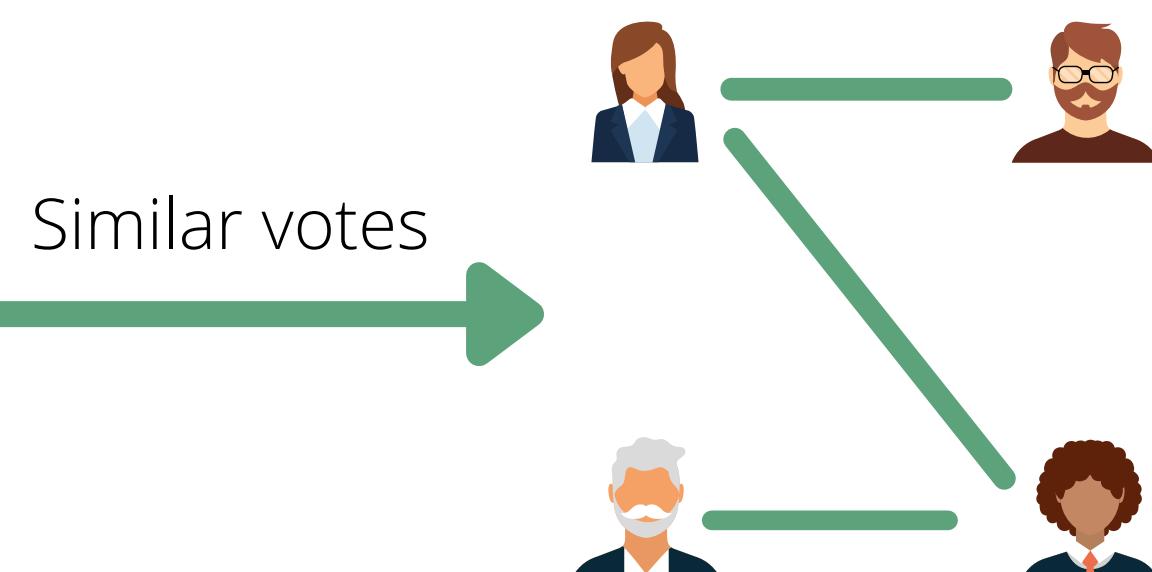
The more parties present in the Legislative, the more complicated it is for the Executive to negotiate and guarantee its policies.

# How will we answer?

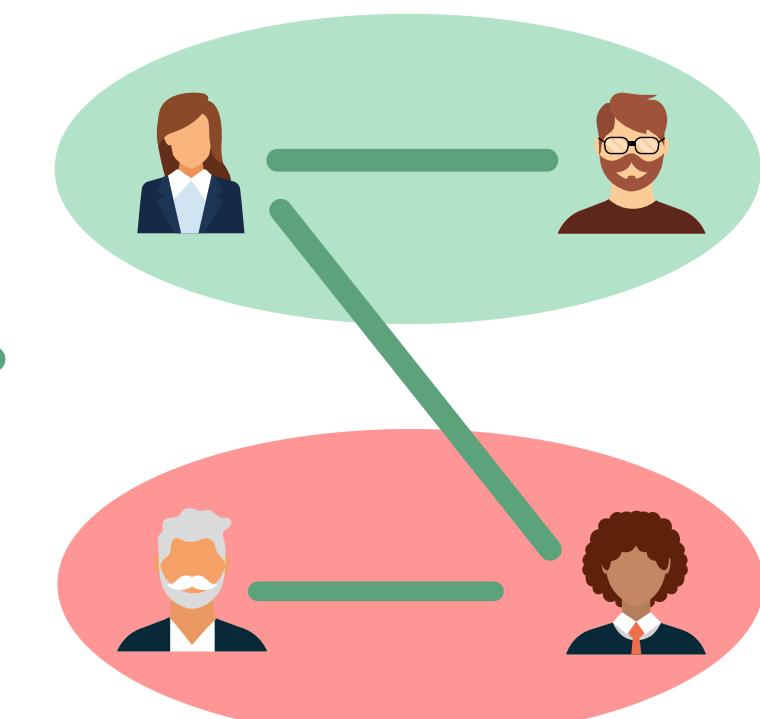
Deputies voting pattern

	Yes	Yes		
	No	No	No	Abstain
	Yes	Yes		Yes
	No		No	
			Yes	Yes
			Abstain	No
	Yes	Yes	Yes	Yes
		Abstain	No	

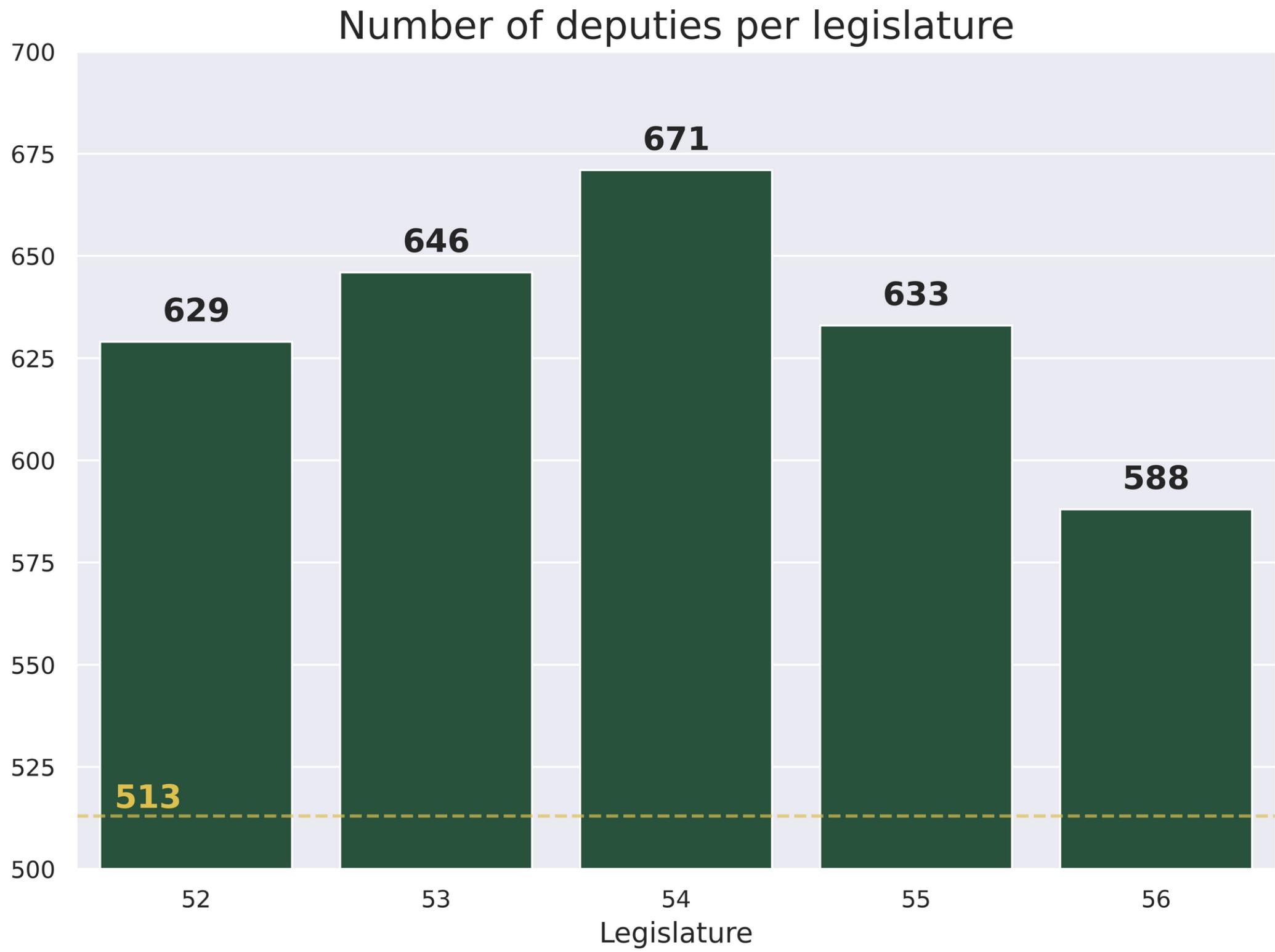
Similar votes



Cluster detection  
and analysis

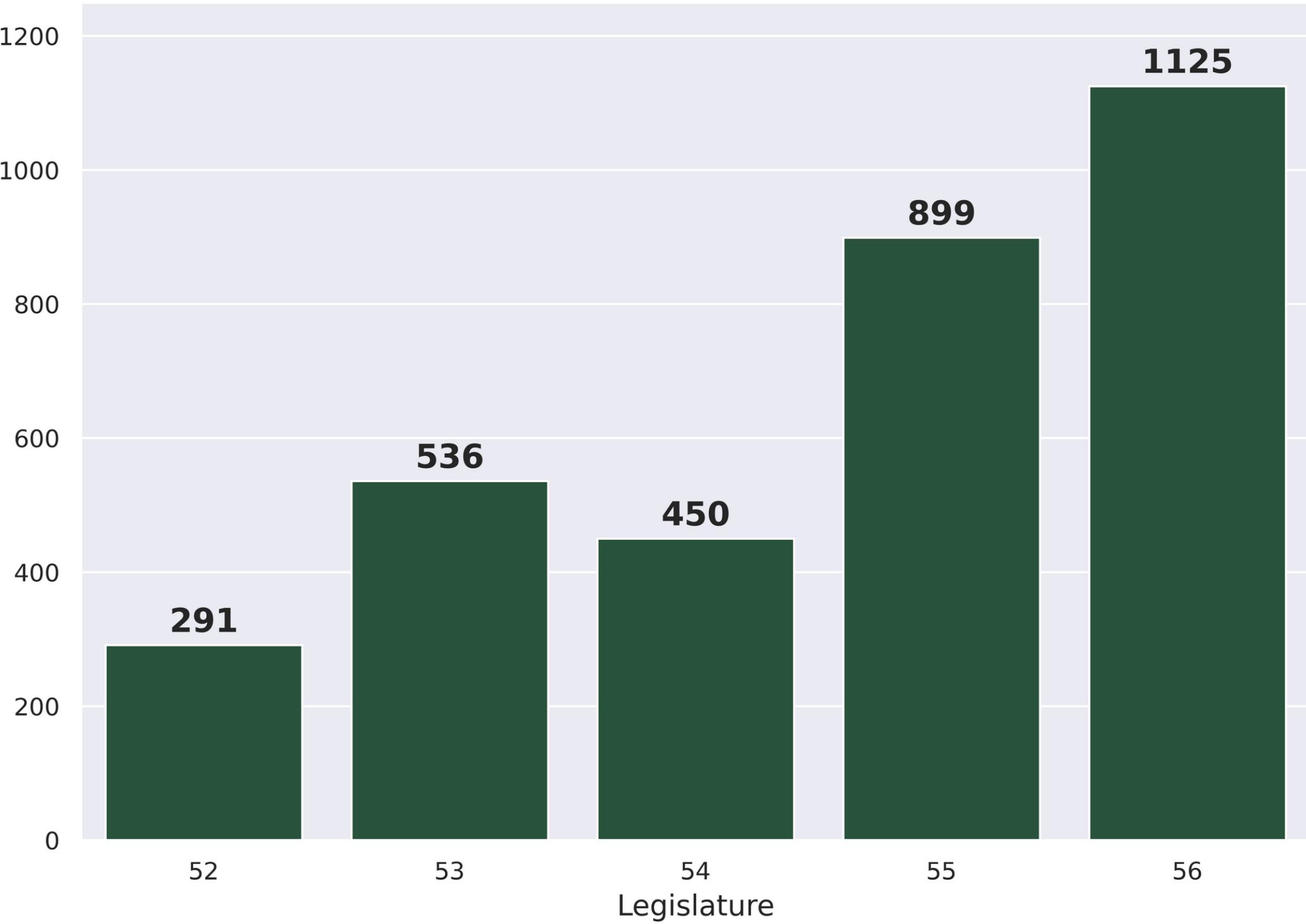


# Preliminary metrics



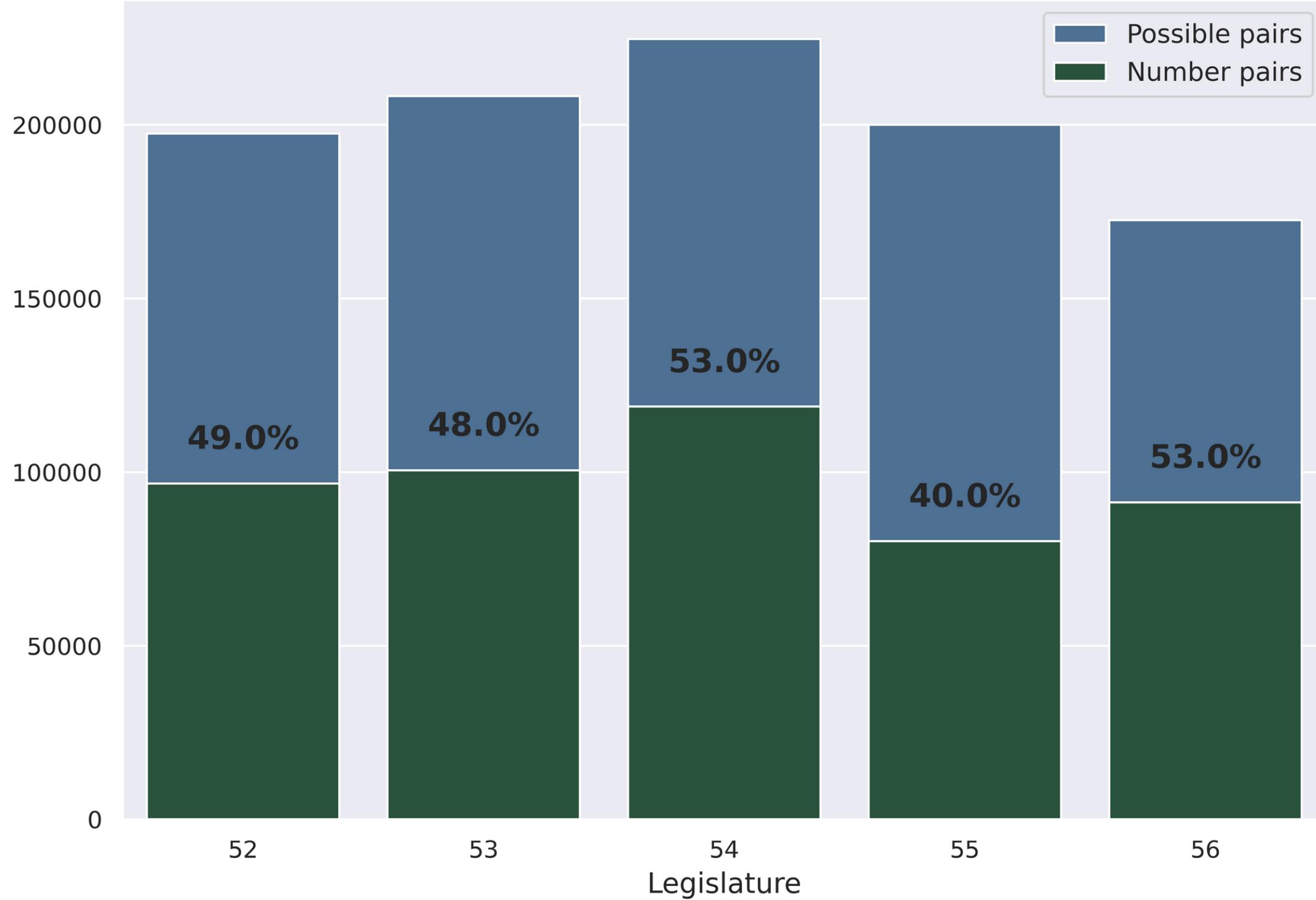
# Preliminary metrics

Number of registered votes per legislature

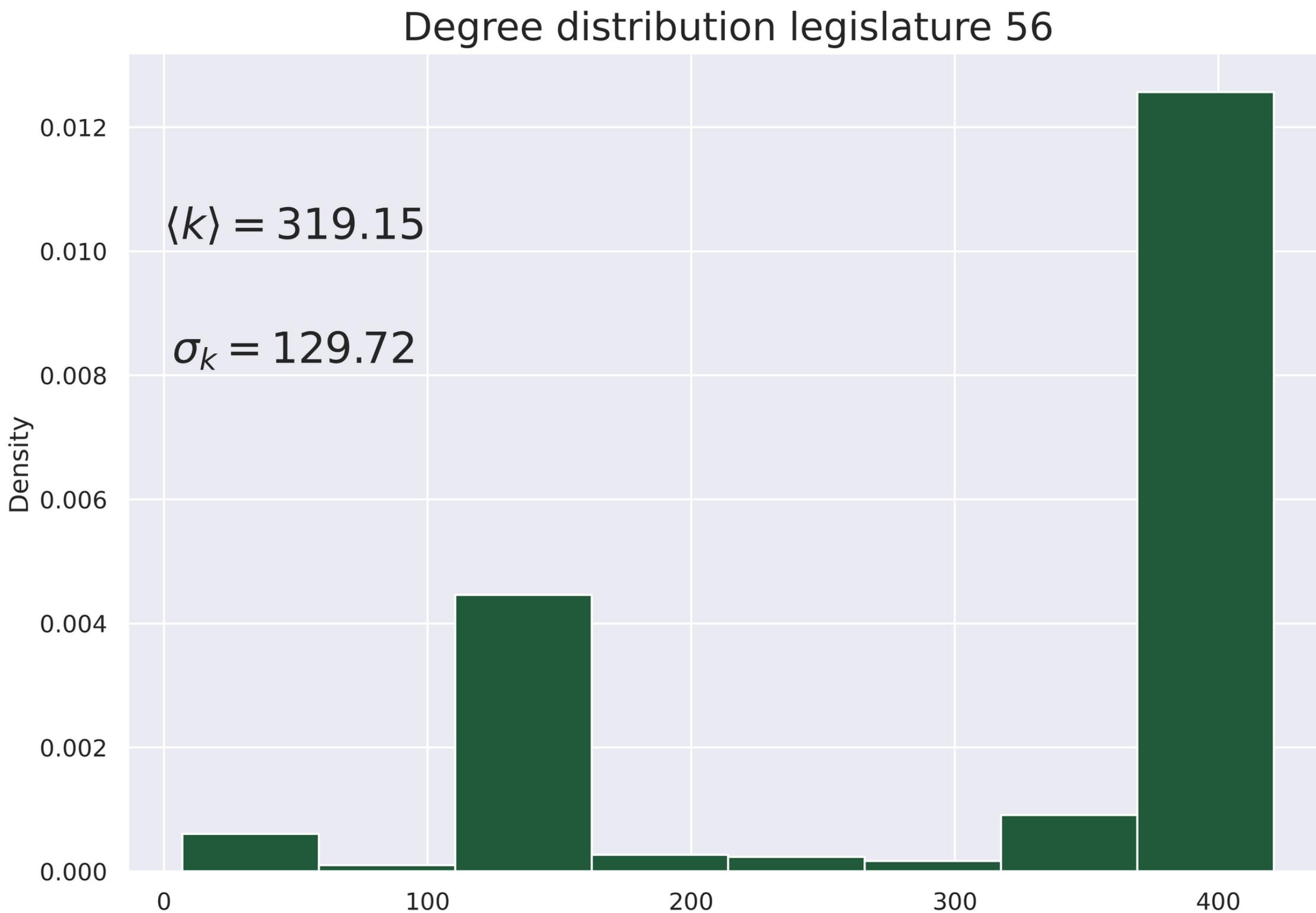


# Preliminary metrics

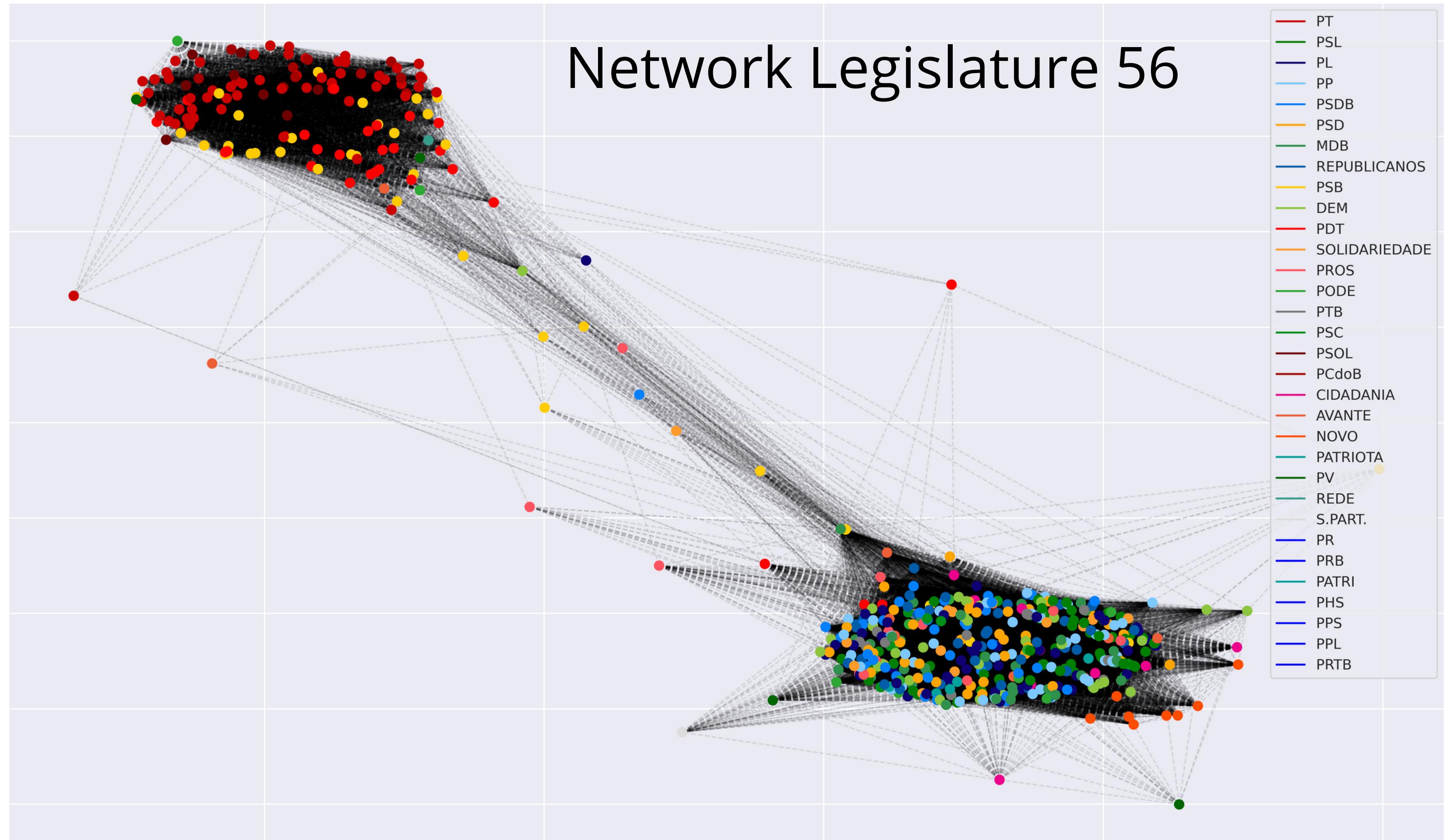
Number of edges per legislature



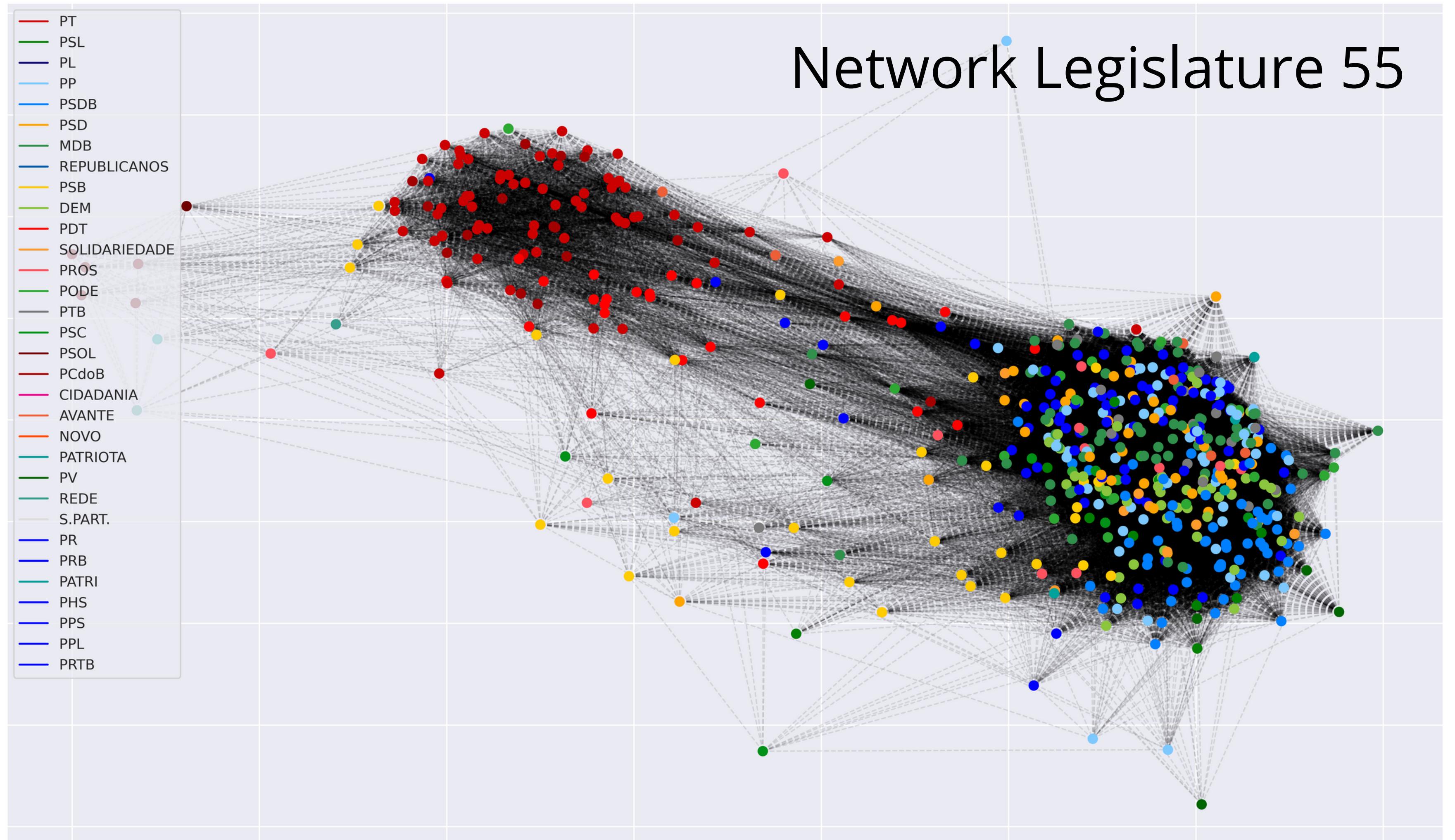
# Preliminary metrics



# Network Legislature 56



# Network Legislature 55





# What else can we do?

## Proposition themes

Analyze how the similarity network differs when it is built with votes on specific themes (eg economic, social, educational)

## Front of deputies

Examine the sub-network of deputies participating in certain thematic fronts

## Dashboard

Report results in a dashboard that allows the analysis of various characteristics of nodes and edges

# A QUICK RECAP

## IDEOLOGY NETWORK

Build from the deputies' voting pattern



## DEPUTIES

Chamber of deputies represents people



## DEPUTIES CLUSTERS

Formed by parties or regions