

# A Computational Analysis of Post Second World War Immigrant Situations in UK Political History Based on parliamentary debates 1940-2024

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# Introduction

## **Research Aim :**

To explore how immigration is framed and debated within the UK Parliament across decades, examining the interplay of polarization, framing, and tone.

**Background:** Relevance: Immigration remains a divisive and critical topic in UK politics, reflecting broader societal and ideological divides. Insights could inform discussions about political communication and public opinion formation.





# Related Work

Computational analysis of 140 years of US political speeches reveals more positive but increasingly polarized framing of immigration. (D. Carda et al, 2022)

- ❖ While US politics are dominated by two parties, the UK's multi-party context offers a unique lens to understand the dynamics of political discourse.



# Our Dataset

**Source:** UK Hansard archives (1940–2024),  
focusing on immigration debates.

## Key Features:

- Speaker details (e.g., name, party affiliation).
- Date and title of debates.
- Debate content and themes.

## Overview:

- Size: 33,368 rows.
- Parties: Conservative, Labour, Liberal Democrat, Scottish National Party.
- Frames: Crime, legality, migration, economy, culture, and more.
- Historical Coverage: Key debates from the mid-20th century to contemporary issues, including post-WWII immigration and Brexit-related policies.





# Methodology

## **Tone Annotation:**

- Annotated speeches for pro- or anti-immigration sentiment.
- Leveraged NLP models (BERT) to supplement manual efforts, ensuring scalability and precision.

## **Polarization Metrics:**

- Odd-ratio visualizations from US studies to highlight contrasts in framing strategies in UK.
- Examined tone consistency and divergence across parties.

## **Framing Analysis:**

- Identified frames (e.g., economic impact, cultural integration) through manual and computational annotation.
- Focused on comparing dominant frames across political parties and time periods



# Tone Trends and Annotations

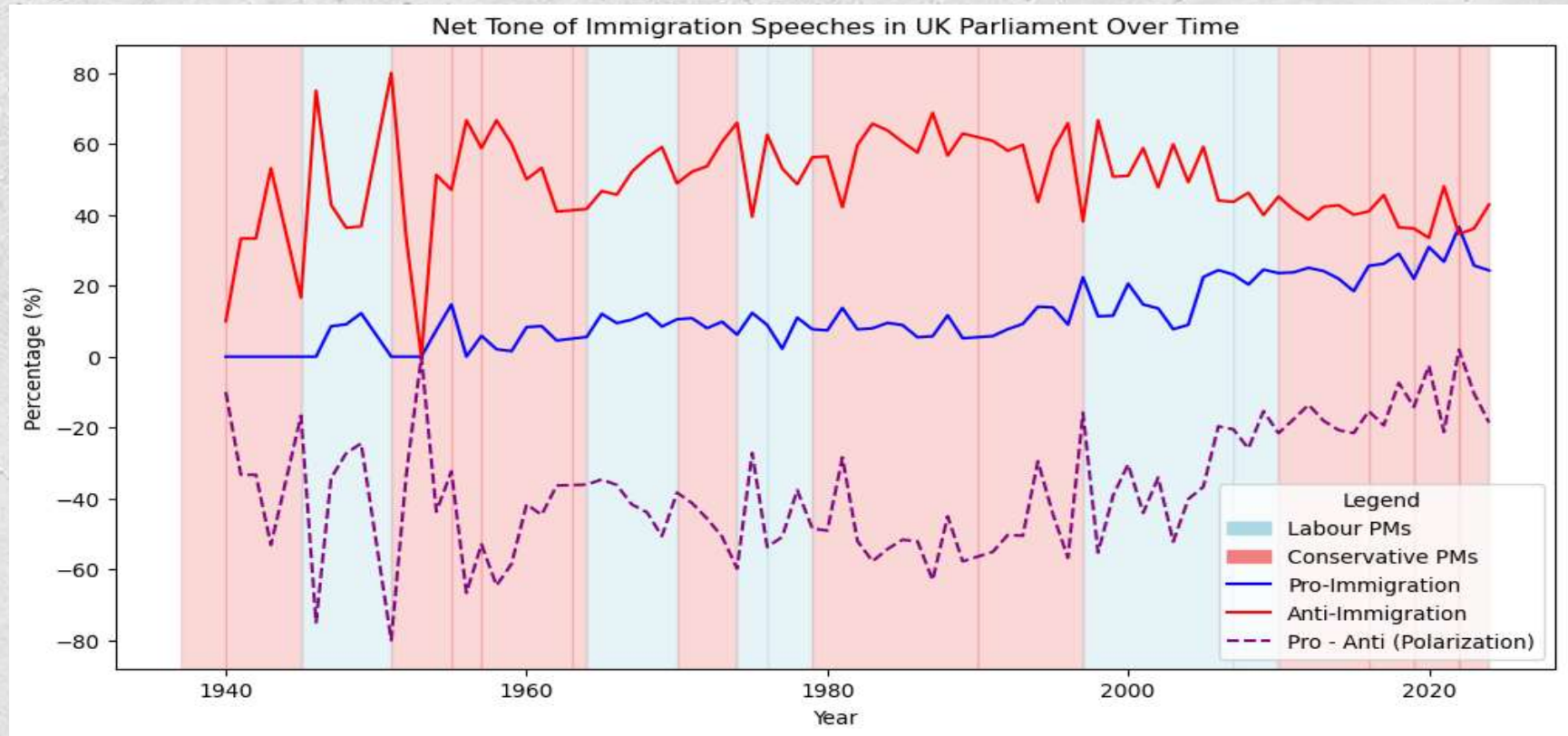
## **Polarization and Tone Analysis:**

- Analyze the tone (% pro vs. % anti-immigration) across UK parliamentary debates on immigration.
- Examine trends across the four major parties: Conservative, Labour, Liberal Democrat, and Scottish National Party





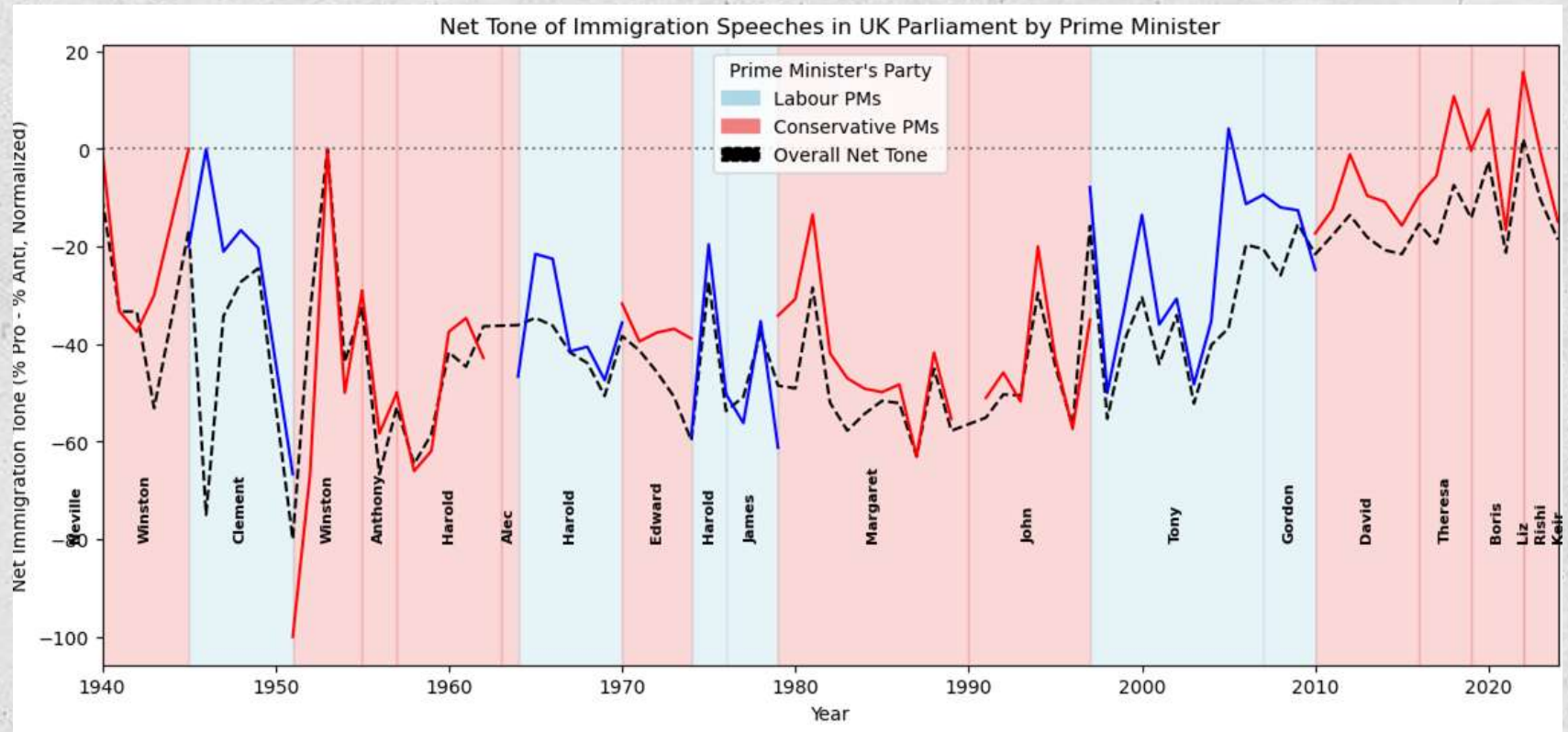
# Net Tone of Immigration Speeches in UK Parliament (1940-2024)



- **1940-1980:** Anti-immigration sentiment dominated.
- **Since the 1990s:** Support for immigration increased.
- **Post-Brexit (2016):** A renewed rise in negative sentiment.



# Net Tone of Immigration Speeches by UK Prime Ministers

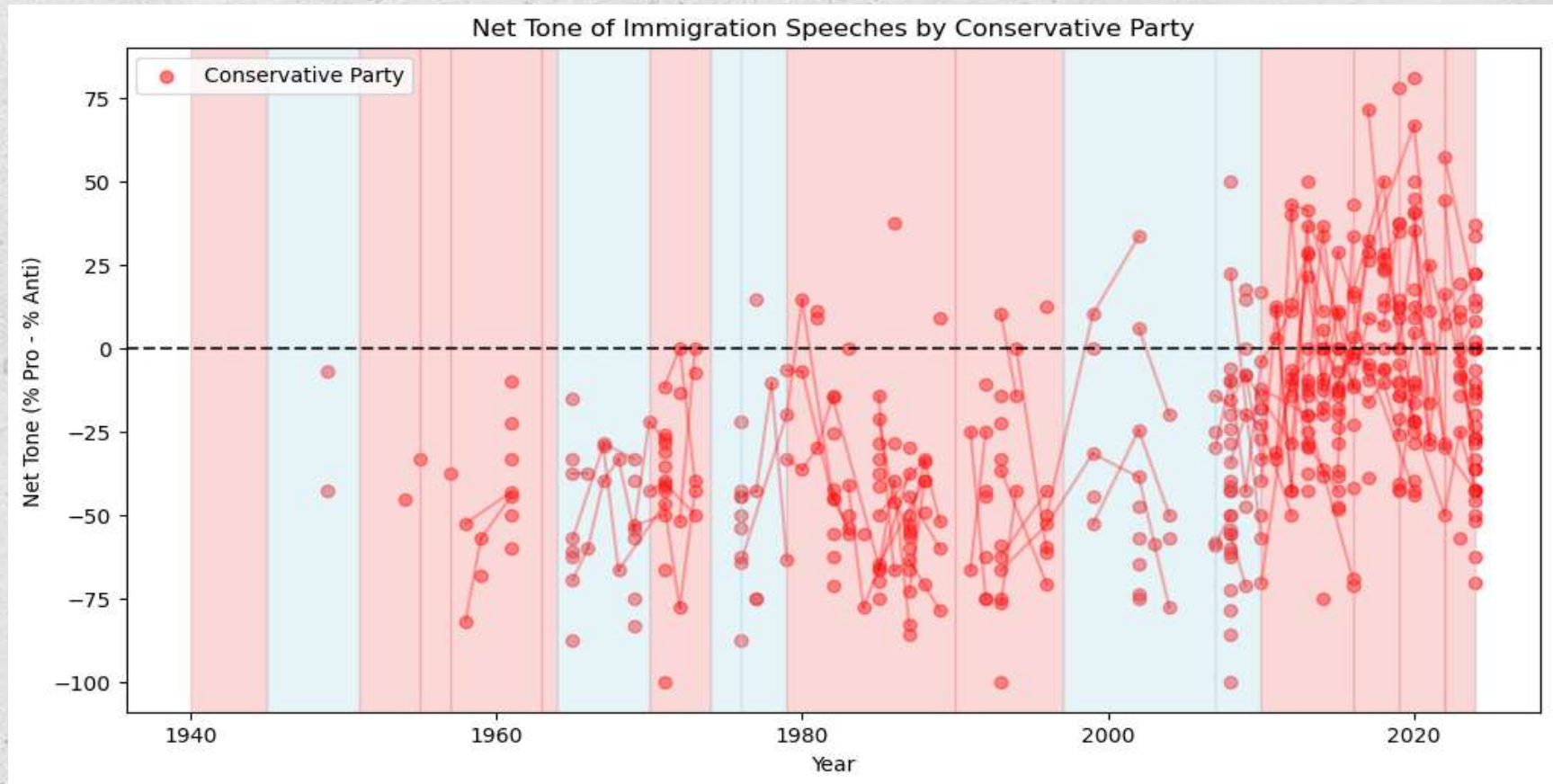


- **Labour Party (Blue):** Generally more pro-immigration.
- **Conservative Party (Red):** Generally more restrictive.
- **Tony Blair (1997-2007):** Marked an increase in pro-immigration sentiment.
- **Boris Johnson (2019-2022):** Negative sentiment towards immigration increased.





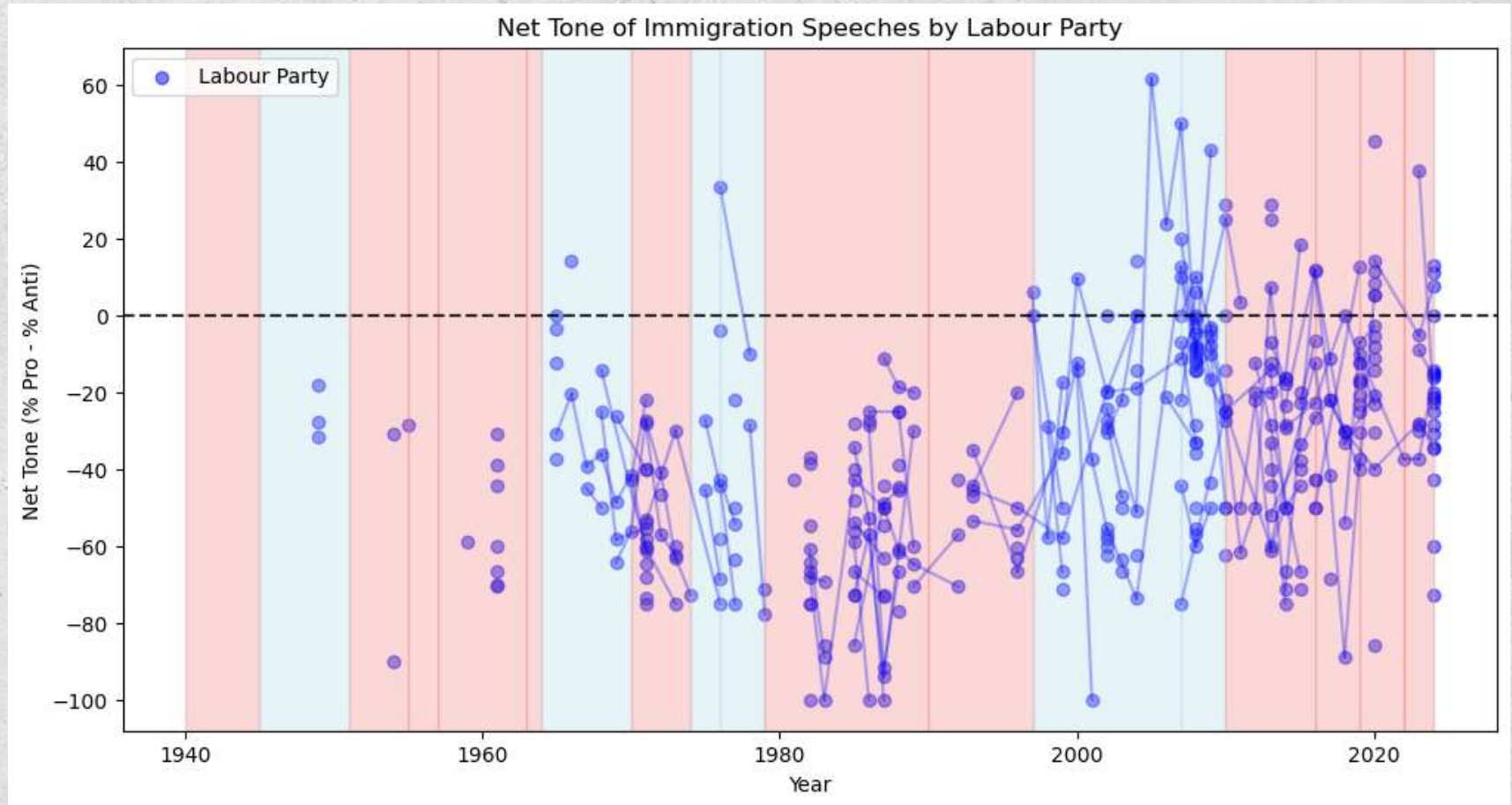
# Net Tone of Immigration Speeches by Conservative Party



- Conservative Party historically leans anti-immigration.
- Some moderation between the 1990s-2010s.
- Stronger anti-immigration sentiment post-Brexit (2016).



# Net Tone of Immigration Speech Labour Party

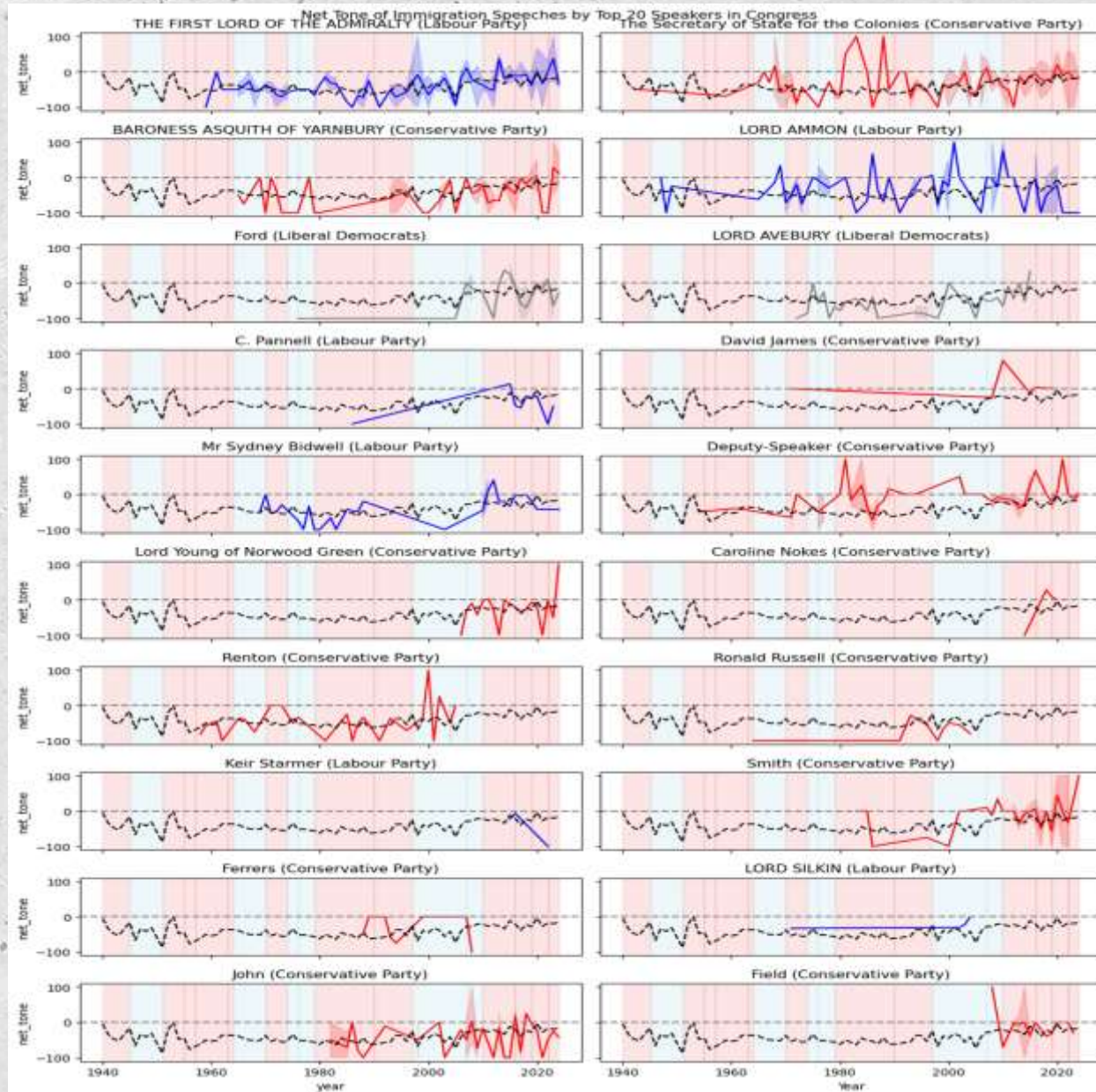


- Labour Party tends to be more pro-immigration.
- Peak pro-immigration sentiment during Tony Blair (1997-2007).
- Slight decline post-2010 but still more supportive than Conservatives.

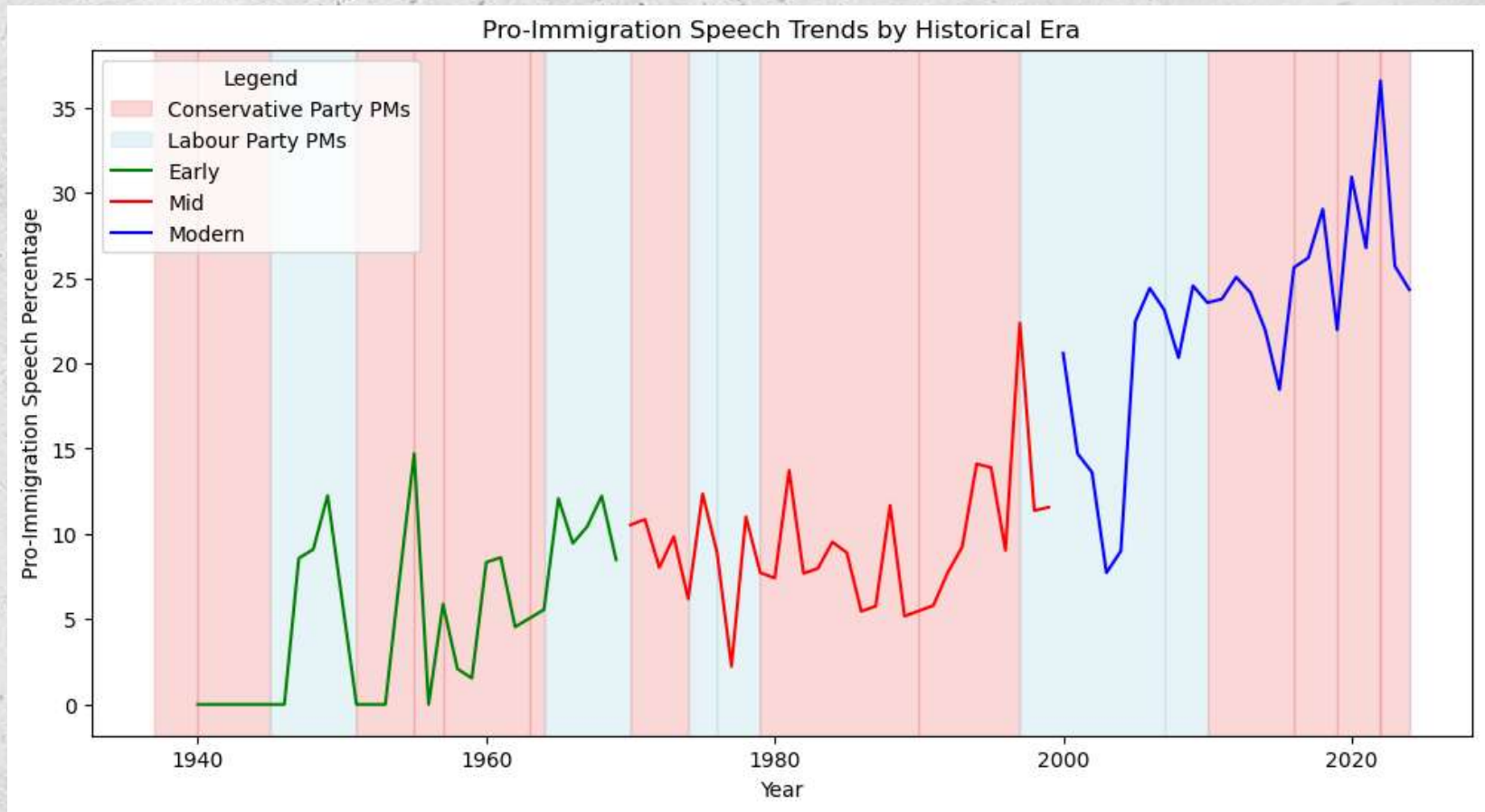




# Top 20 Speakers on Immigration (1940-2024)



# Pro-Immigration Speech Trends by Historical Era

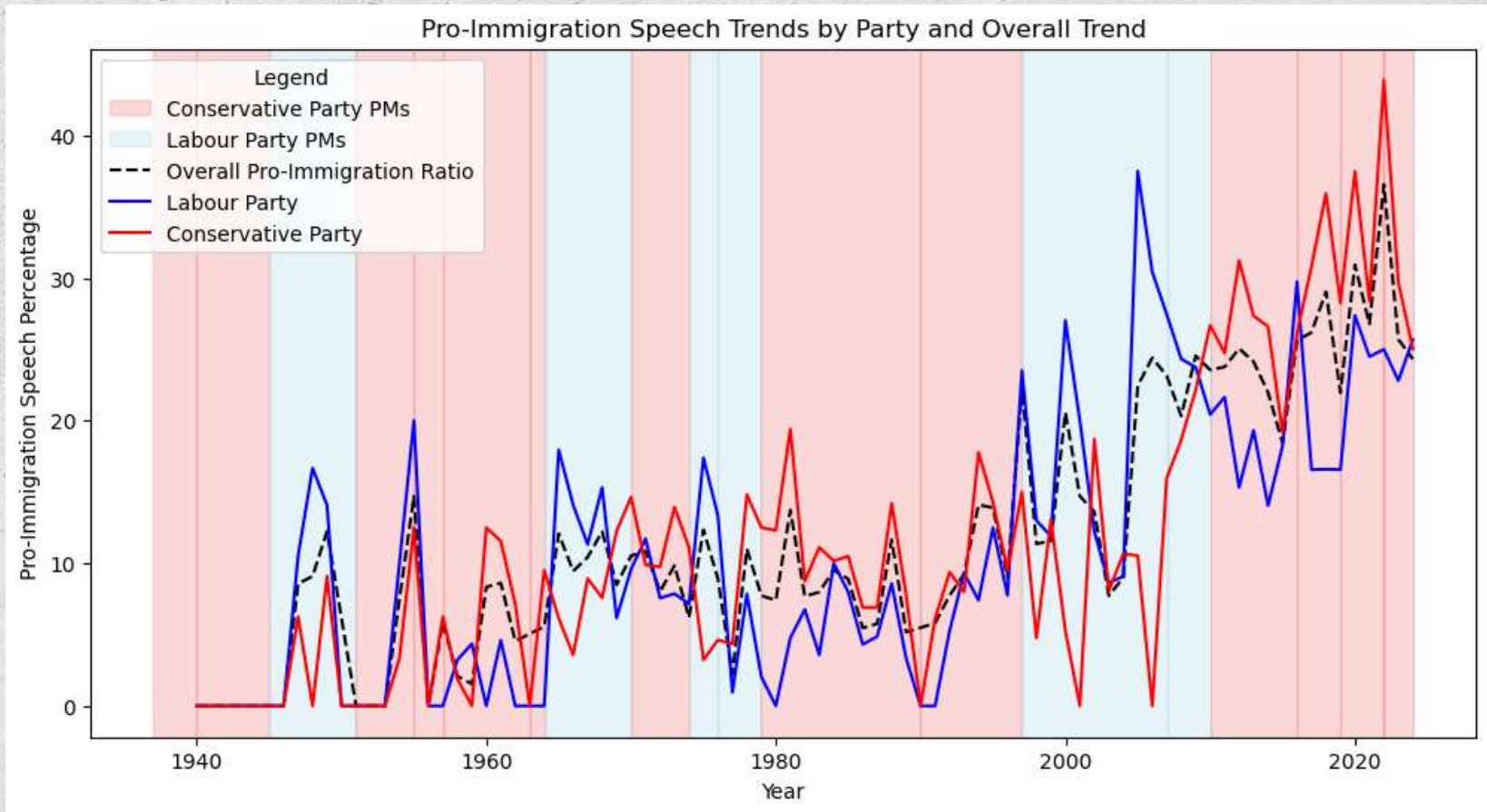


- **Early (1940-1970):** Dominated by anti-immigration rhetoric.
- **Mid (1970-2000):** Gradual shift towards openness.
- **Modern (2000-2024):** Increased polarization in opinions.





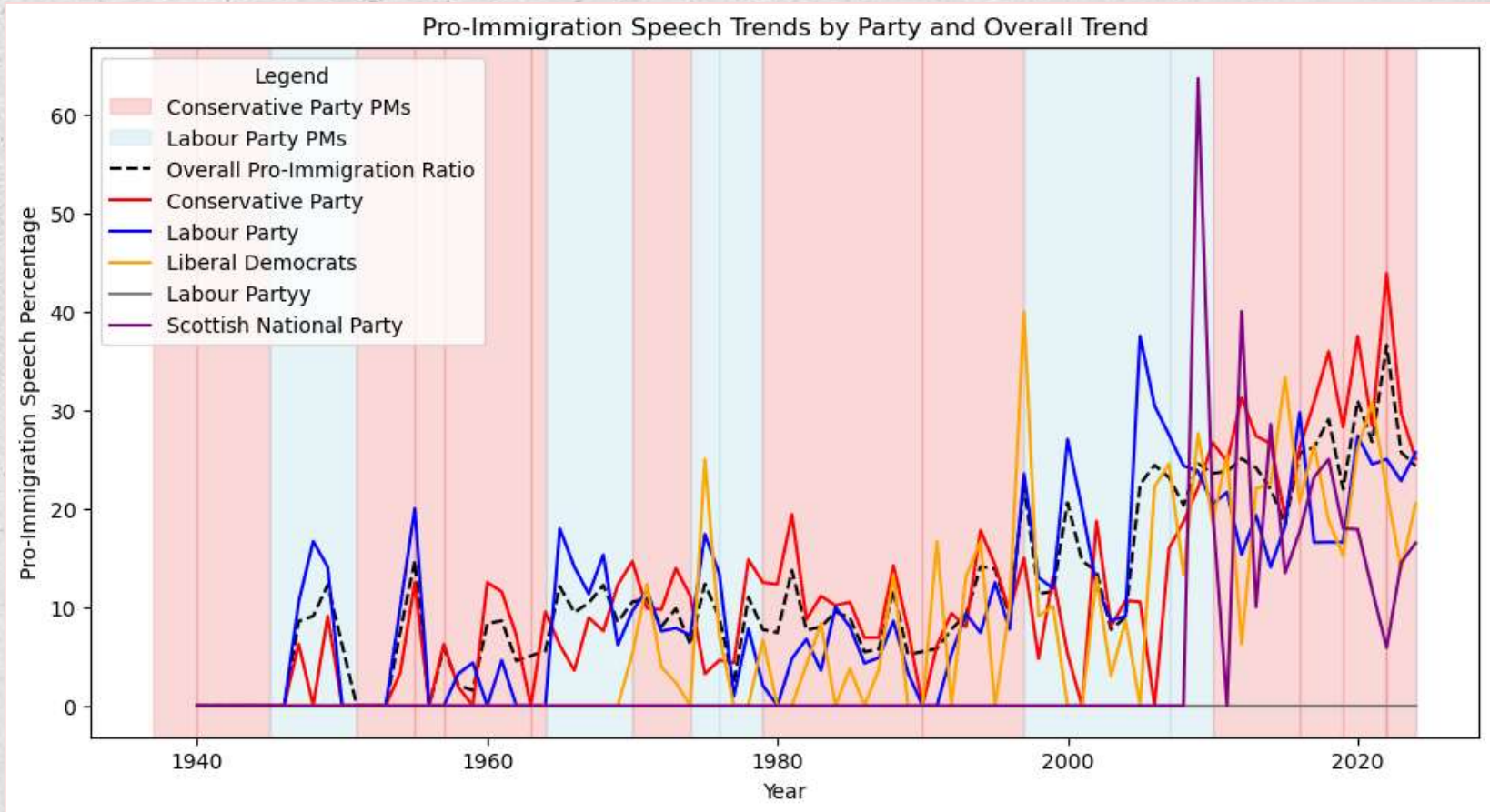
# Pro-Immigration Speech Trends by Party and Overall Trend



- Labour Party remains more pro-immigration.
- Conservative Party remains more restrictive.
- Overall sentiment shifts are influenced by economic and social changes.



# Pro-Immigration Speech Trends by Party and Overall Trend (Including Minor Parties)



- Liberal Democrats & SNP (Scottish National Party) are more pro-immigration.
- Labour & Conservative remain dominant in policy influence.
- Minor parties have limited impact on national immigration policy.





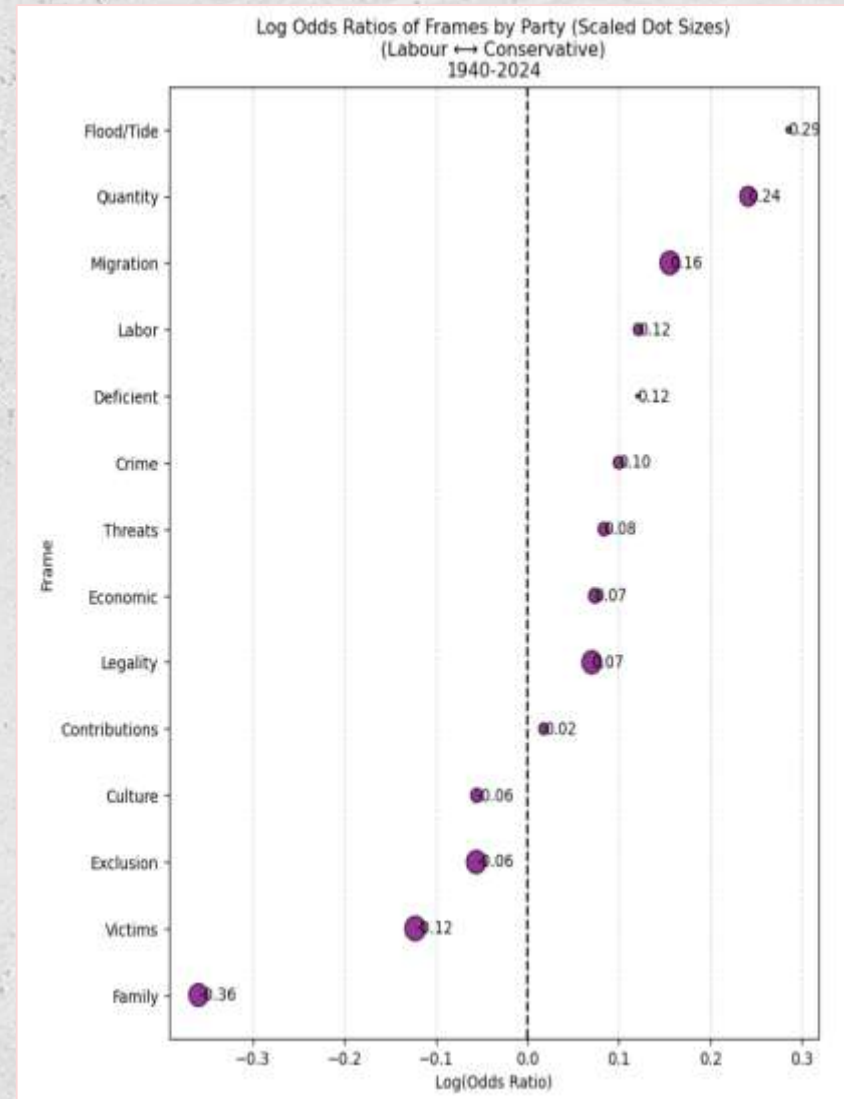
# Terms added to each of the frames

| Frame                | Automatic Expansion Terms   |
|----------------------|---|
| <b>Contributions</b> | energetic (a), enterprising (a), enterprising (n), entrepreneurial (a), intelligent (a), intelligent (n), motivate (n), motivate (v), patriotic (a), patriotic (n), productive (a), productive (n), productive (v), resourceful (a), selfreliant (a), selfrespecting (n), talented (a), thrifty (a), thrifty (n), welleducated (a)  |
| <b>Crime</b>         | adultery (n), apprehending (a), felonious (a), felony (n), habitual (a), indictable (a), informer (n), kidnap (v), kidnaping (n), kidnapping (n), larceny (n), manslaughter (n), murder (n), murder (v), murderer (n), offender (n), perjury (n), perpetrator (n), rapist (n), trumpedup (a)  |
| <b>Culture</b>       | amalgamation (n), americanism (n), anglosaxon (n), caste (n), caucasian (a), civilization (n), cultural (a), cultural (n), folklore (n), individuality (n), lineage (n), linguistic (a), mosaic (a), mosaic (n), multicultural (a), multiethnic (a), nationhood (n), pluralism (n), richness (n), tapestry (n)                      |
| <b>Deficient</b>     | addicted (a), degraded (a), depraved (a), idiot (n), idiotic (a), illegitimate (a), immoral (a), infected (a), institutionalized (a), lazy (a), lunatic (a), lunatic (n), obese (a), overweight (a), pauper (n), pauperism (n), unclean (a), uneducated (a),unemployable (a), unwanted (a)  |
| <b>Economic</b>      | capitalization (n), depreciation (n), financing (n), fnma (n), investment (n), loan (n), loan (v), loans (n), mortgage (n), mortgage (v), passthrough (n), payment (n), payments (n), premium (a), premium (n), sales (n), savings (n), subsidy (n), taxfree (n), taxfree (v)   |
| <b>Exclusion</b>     | apply (n), apply (v), banning (n), circumvent (v), discourage (n), discourage (v), disqualify (v), inhibit (v), nullify (v), penalize(v), permit (n), permit (v), preclude (n), preclude (v), prohibiting (n), proscribe (v), remove (v), restricted (a), revoke (v), waive (v)   |
| <b>Family</b>        | aunt (n), bride (n), brother (n), cousin (n), daughterinlaw (n), father (n), father (v), grandfather (n), grandfather (v), grandmother (n), mother (n), mother (v), mother-in-law (n), nephew (n), niece (n), parents (n), sibling (n), son-in-law (n),stepfather (n), stepmother (n)   |
| <b>Flood/Tide</b>    | avalanche (n), deluge (n), deluge (v), drift (n), drift (v), flooding (n), hemorrhage (n), hemorrhage (v), infusion (n), inundate (v), inundation (n), melt (n), melt (v), overflow (n), overflow (v), seepage (n), swarm (n), swarm (v), tidal (a), torrent (n)  |
| <b>Labor</b>         | apprentice (n), artisan (n), bricklayer (n), electrician (n), employers (n), helper (n), journeyman (n), labor (n), labor (v), laborers (n), lowwage (n), mechanic (a), mechanic (n), parttime (n), seasonal (a), skilled (a), wages (n), workers (n), workman (n), workmen (n)   |
| <b>Legality</b>      | admissible (a), admission (n), certificate (n), certificate (v), certification (n), conditional (a), disqualification (n), ineligibility(n), noncitizen (n), nonquota (n), nonresident (a), nonresident (n), probationary (a), qualifying (n), readmission (n), registry (n), residence (n), residency (n), revocation (n), vis (n) |
| <b>Migration</b>     | admittance (n), checkpoint (n), commute (n), commute (v), crossing (n), embarkation (n), emigrant (n), entering (n), evacuate (v), ingress (n), landed (a), locate (v), overland (n), repatriation (n), sail (n), sail (v), sailing (n), trek (n), unload (v), voyage (n)   |
| <b>Quantity</b>      | aggregate (a), aggregate (n), aggregate (v), oneeighth (a), oneeighth (n), onefifth (a), onefifth (n), onefourth (a), onefourth (n), onehalf (a), onehalf (n), onehalf (v), onequarter (n), onesixth (n), onetenth (a), onetenth (n), onethird (a), onethird (n), onethird (v), percent (n), upwards (a)                            |
| <b>Threats</b>       | aggressor (n), alqaida (n), cowardly (a), deadly (a), hostile (a), hostile (n), infiltration (n), insidious (a), isis (n), jihadist (n), menace (n), menace (v), murderous (a), onslaught (n), sabotage (n), sabotage (v), terror (n), terrorism (n), terrorize(v), threat (n)  |
| <b>Victims</b>       | desperation (n), destitute (a), destitute (n), destitution (n), downtrodden (a), downtrodden (n), hapless (a), impoverishment (n), misery (n), oppressed (a), oppression (n), povertystricken (a), povertystricken (v), privation (n), starving (n), succor (n), torment (n), torment (v), underprivileged (a), wartorn (a)         |



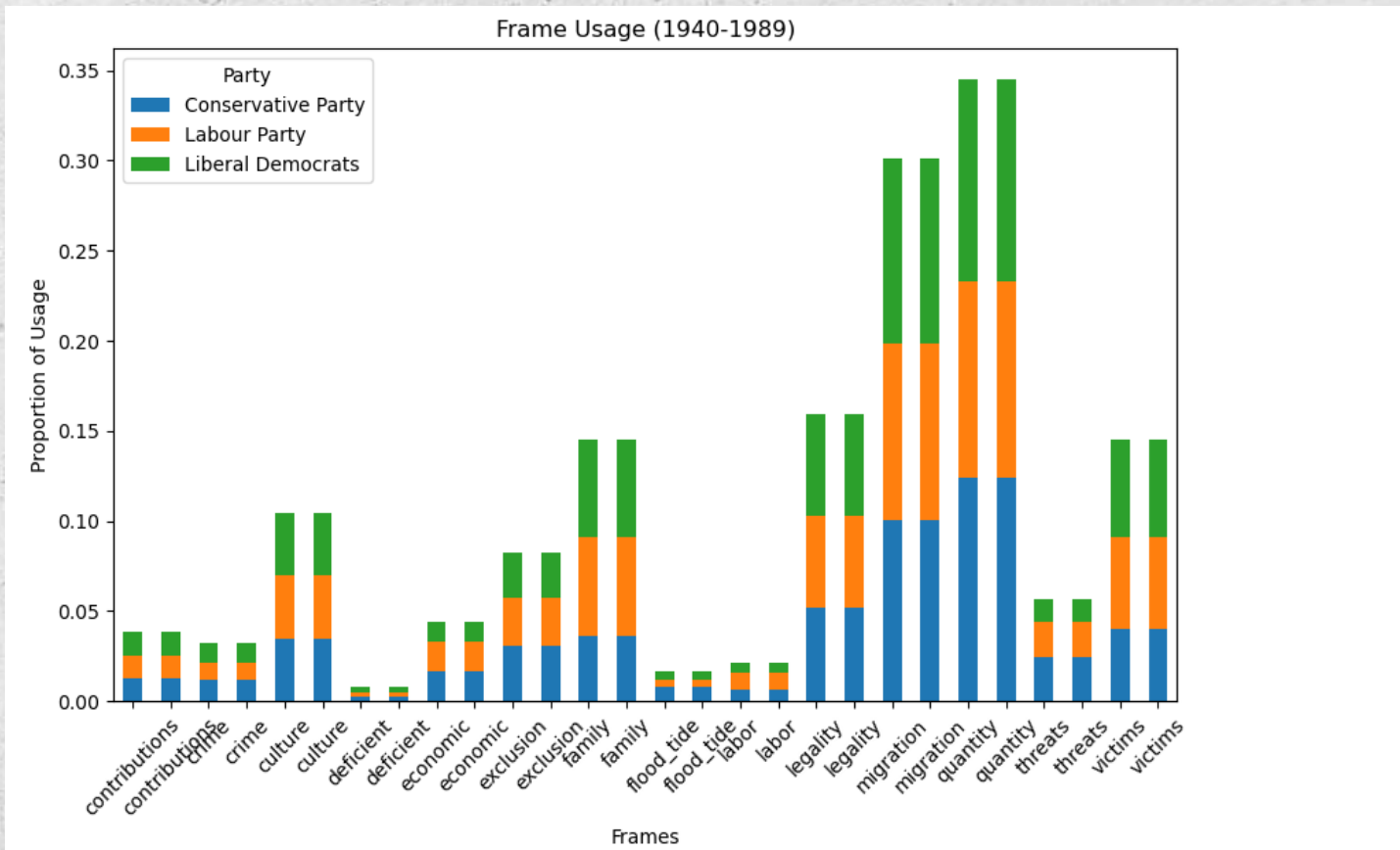
# Framing Analysis

- Frames on the right side (positive values) are more frequently associated with the Conservative party, while those on the left (negative values) are more aligned with Labour Party
- "Flood/Tide" (0.29) and "Quantity" (0.24) are strongly Conservative-associated, emphasizing restrictive or control-oriented narratives
- "Family" (-0.36) and "Victims" (-0.12) are more aligned with Labour, reflecting empathetic or inclusive perspectives





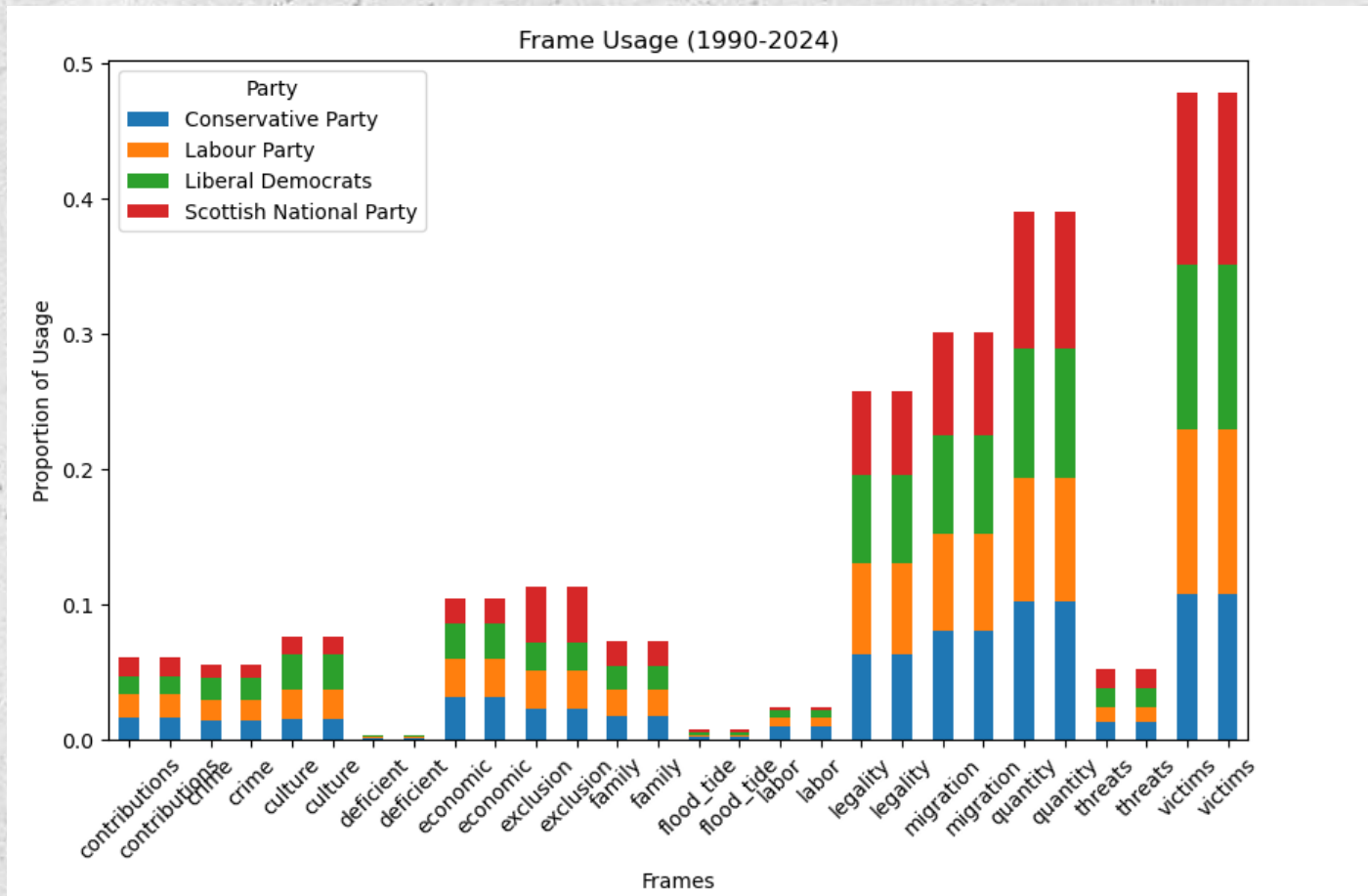
# Lexicon Development for Framing Analysis



- "migration," "family," and "economic" are the most prominent
- Conservative Party focusing on "migration" and "legality,"
- Labour Party on "economic" and "victims,"
- Liberal Democrats on "family" and "culture."



# Lexicon Development for Framing Analysis



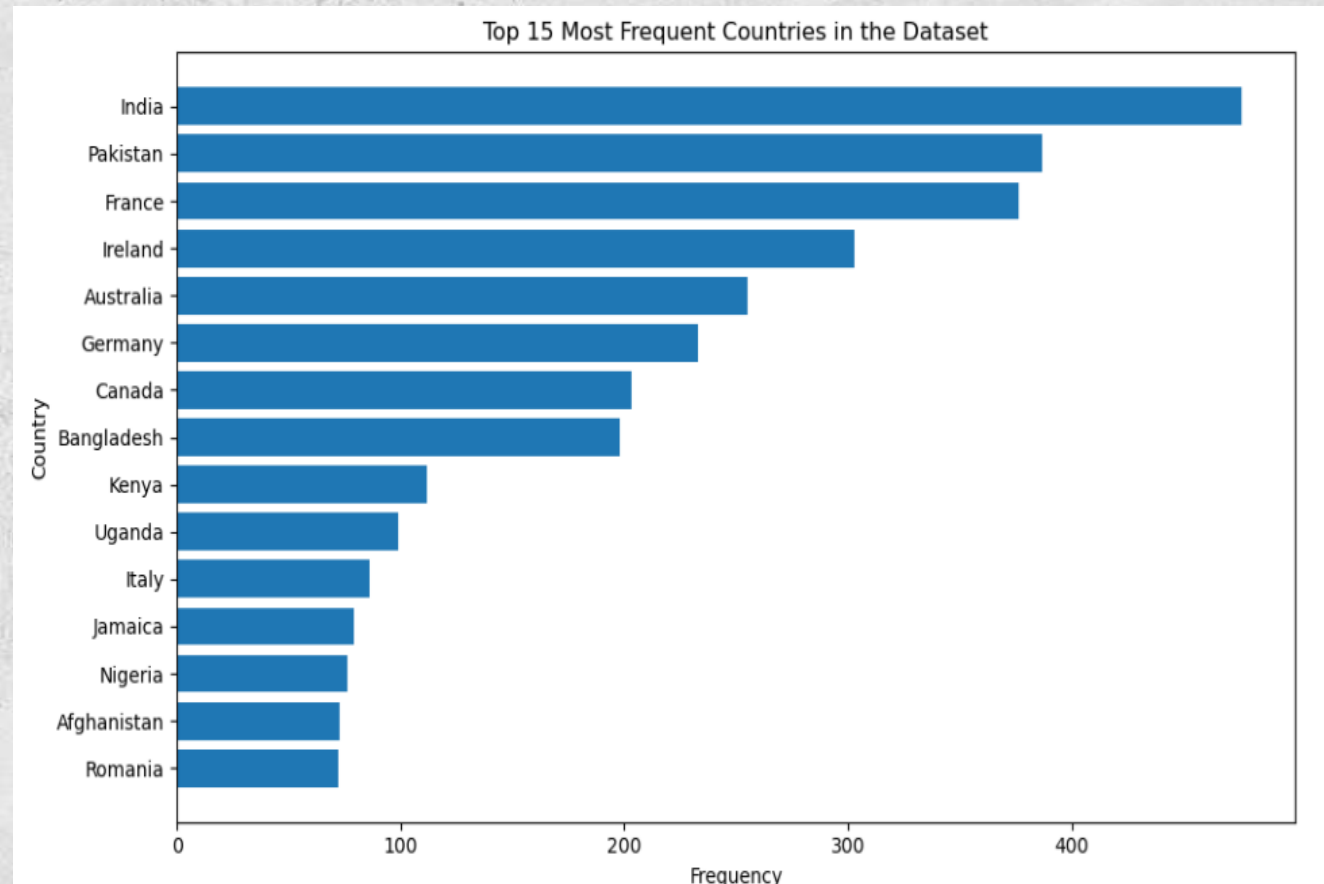
- "migration," "quantity," and "victims" are the most frequently used across all parties, with the SNP (red) contributing heavily to these frames
- The Conservative Party (blue) focuses on "legality" and "quantity,"
- the Labour Party (orange) and Liberal Democrats (green) emphasize "economic" and "family" frames





# Countries, Regions, and Human Capita

- India ranks the highest with the most mentions, followed closely by Pakistan and France
- Other countries like Ireland, Australia, and Germany also appear frequently, reflecting their relevance or association with the dataset's themes
- Countries like Kenya, Uganda, and Bangladesh have moderate frequencies, while Romania, Afghanistan, and Nigeria are among the less frequently mentioned within the top 15

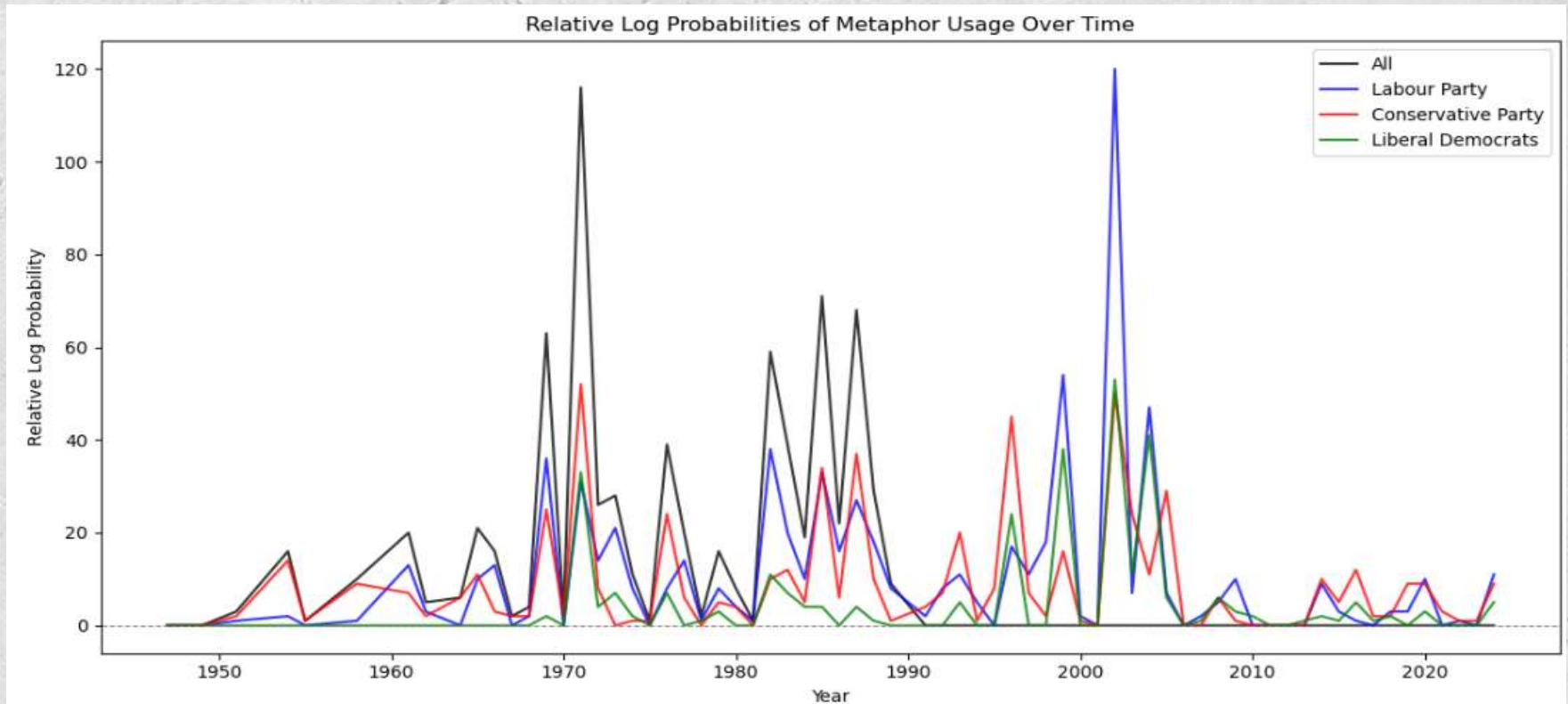


## Target words used for each of our metaphorical categories

| Metaphor            | Terms in BERT vocabulary   |
|---------------------|--|
| <b>Animals</b>      | animal, animals, beast, beasts, brute, cattle, cow, cows, dog, dogs, herd, herds, hog, horse, horses, livestock, pig, pigs, sheep  |
| <b>Cargo</b>        | thing, things, object, objects, cargo, goods, merchandise, item, items, commodities, packages, products, baggage, shipment, shipments, stuff, material   |
| <b>Disease</b>      | disease, diseases, virus, viruses, infection, infections, illness, illnesses   |
| <b>Flood/Tide</b>   | flood, flooding, floods, ocean, oceans, river, rivers, stream, tide, tides, water, waters, wave, waves   |
| <b>Machines</b>     | machine, machines, machinery, equipment, apparatus, appliances, hardware, engine, engines, tool, tools, device, devices  |
| <b>Vermin/Pests</b> | rat, rats, worm, worms, bug, bugs, parasite, parasites, insect, insects, pest, flea, rodents   |
| <b>Random</b>       | adoption, aerial, agricultural, amtrak, announcements, antenna, brave, cadet, captures, carroll, champaign, charley, ecosystem, excuses, exit, french, freshman, goal, headache, inter, knock, liberty, lifeboat, london, manifest, mrs, multimedia, narcotics, nitrate, orr, ow, parliamentary, plantation, proof, protect, provider, ready, reese, revolutionaries, ribbons, sanders, satisfaction, scope, series, sucker, superstructure, whig, whiskey |



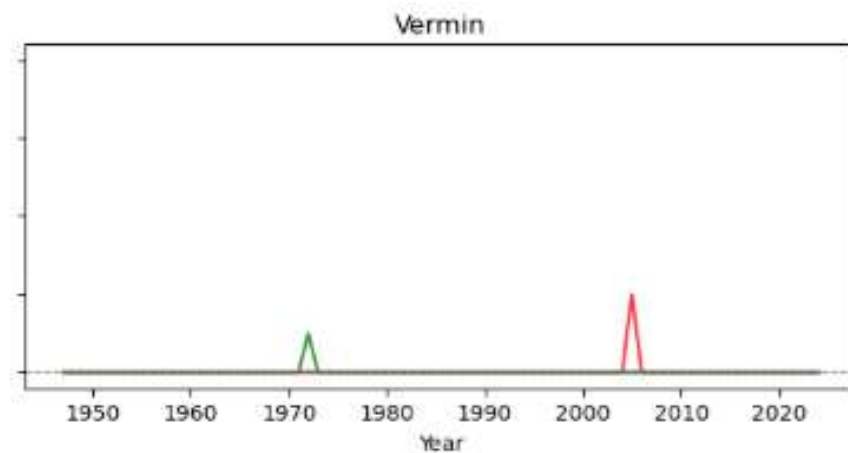
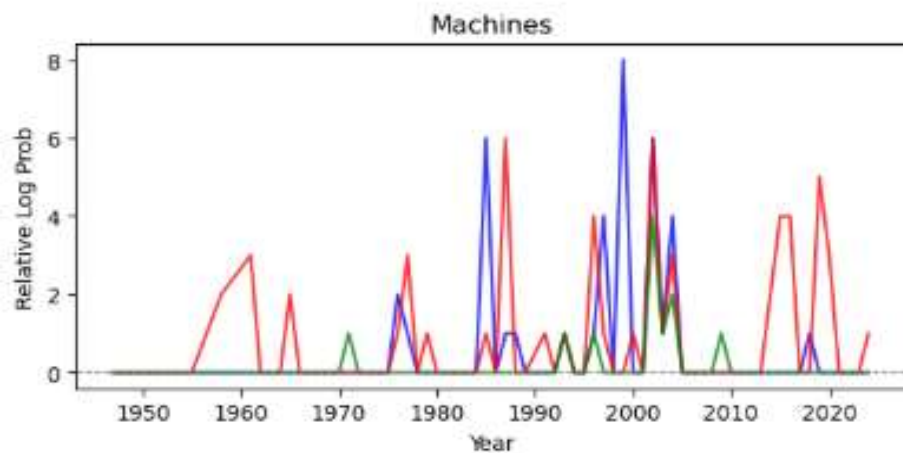
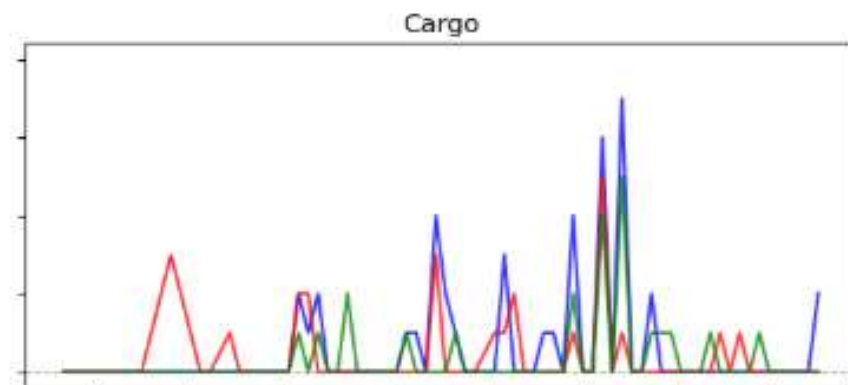
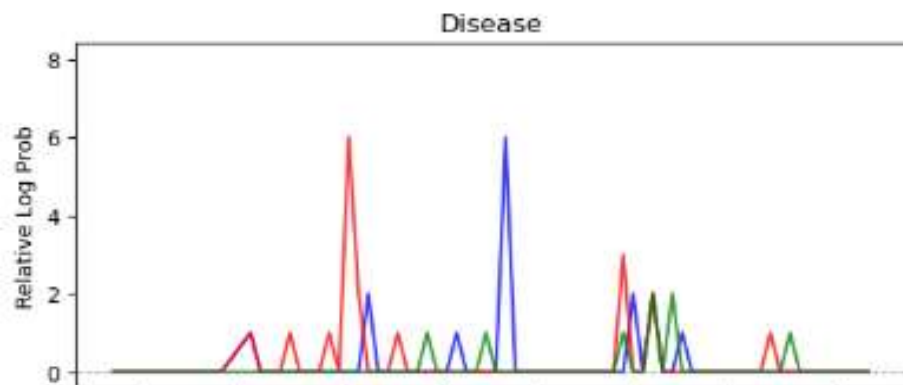
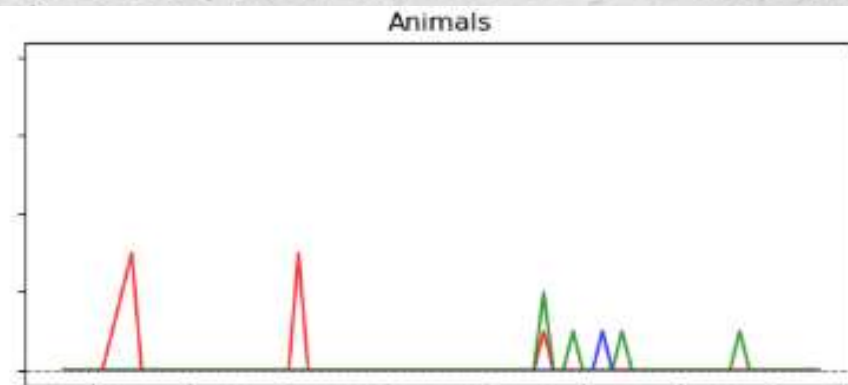
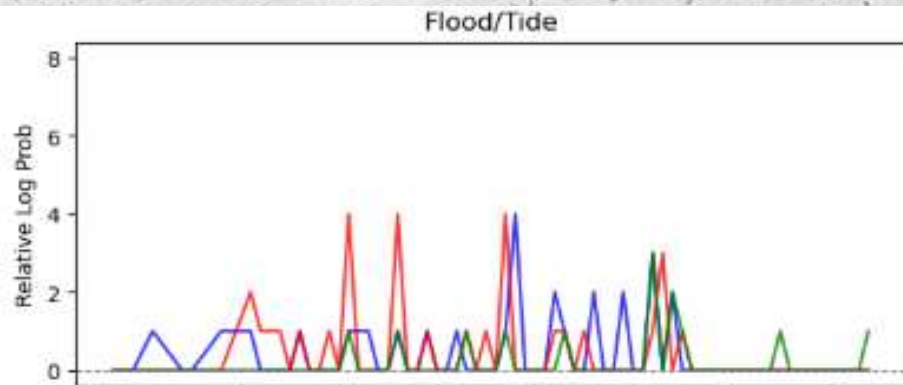
# Dehumanizing Metaphors



- All parties (black line) and separating them by Labour (blue), Conservative (red), and Liberal Democrats (green)
- The graph highlights significant spikes in metaphor usage, indicating periods of intensified rhetorical expression, with noticeable peaks in the late 20th and early 21st centuries
- Labour appears to have distinct peaks around the year 2000, while other parties show variability across different decades



# Dehumanizing Metaphors





# Sentiment and Tone Classification

The proportion of 'pro' sentiment for each *party* is:

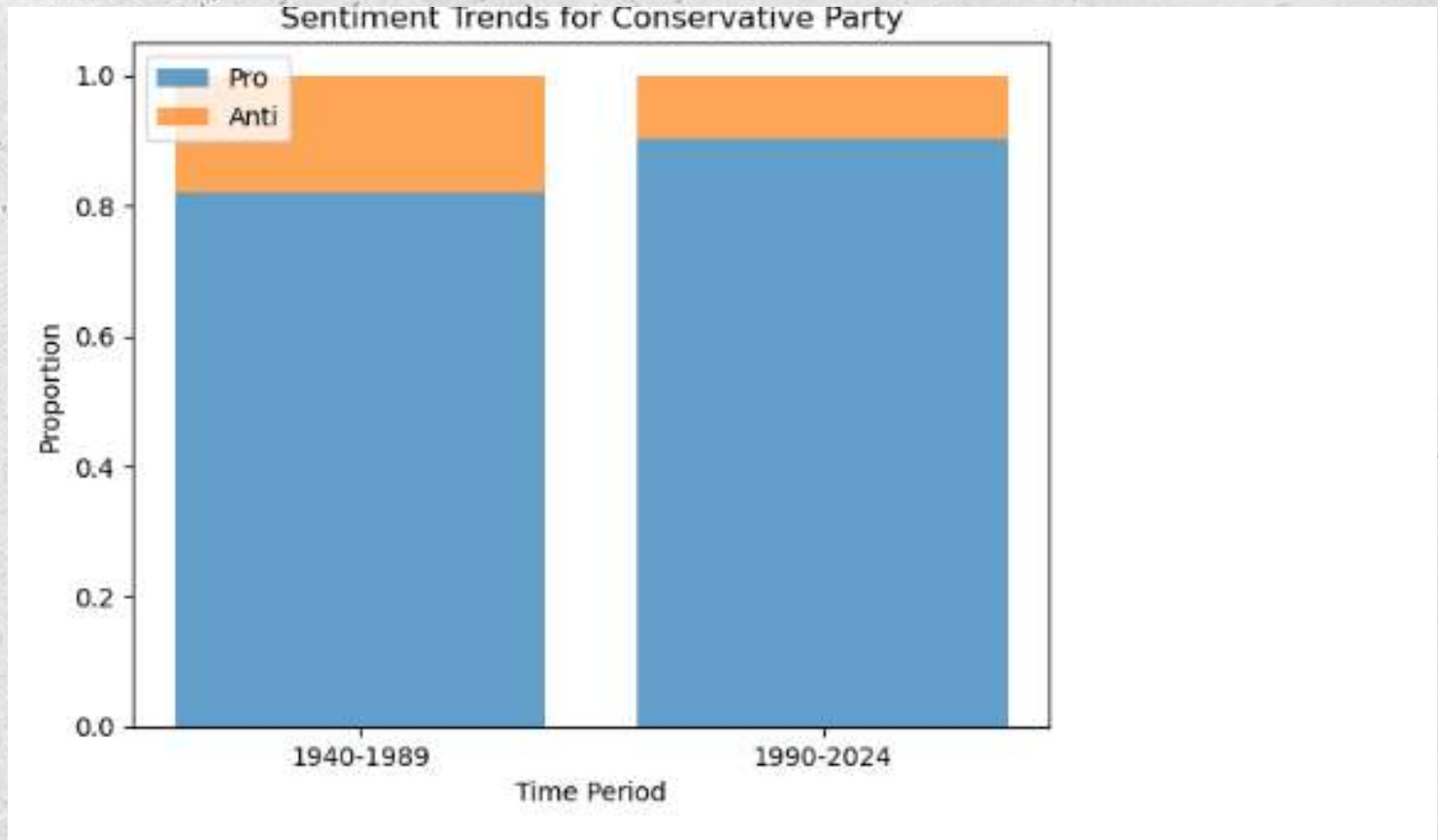
$$\text{pro\_percentage}_{\text{party}} = \frac{n_{\text{party}, \text{'pro'}}}{N_{\text{party}}}$$

The proportion of 'anti' sentiment for each *party* is:

$$\text{anti\_percentage}_{\text{party}} = \frac{n_{\text{party}, \text{'anti'}}}{N_{\text{party}}}$$



# Sentiment and Tone Classification

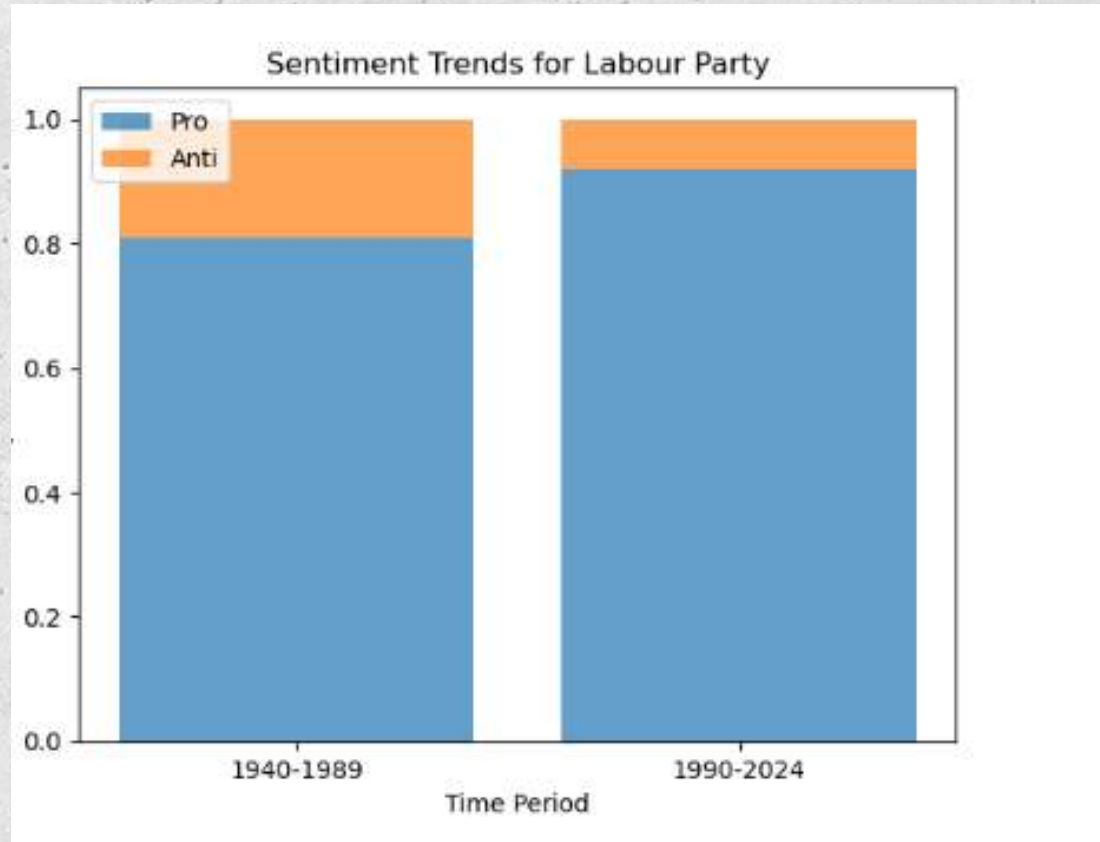


- Conservative Party speeches across two time periods: 1940-1989 and 1990-2024
- The "Pro" sentiment dominates both periods, with only a small portion of "Anti" sentiment present
- The proportions appear relatively stable across time, showing no significant shift in sentiment trends





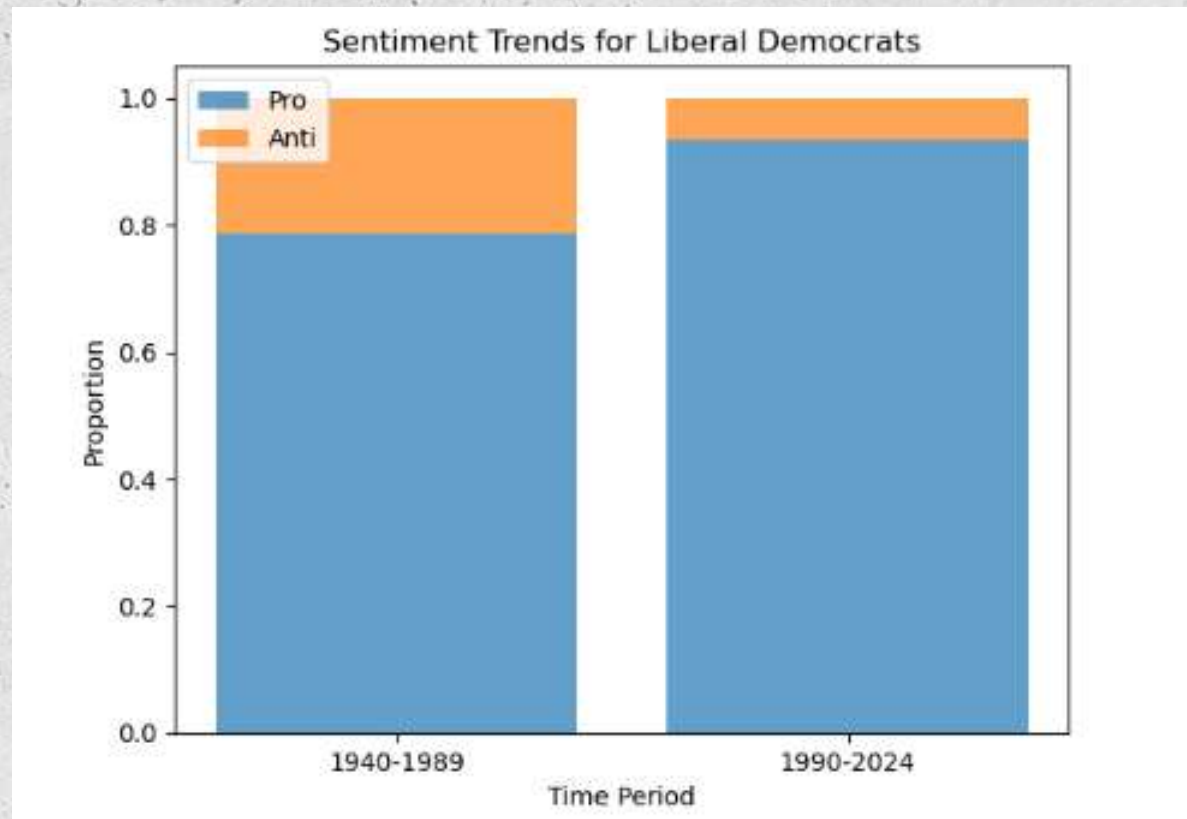
# Sentiment and Tone Classification



- The sentiment proportions for the Labour Party over the same two time periods.
- "Pro" sentiment is the majority, but the "Anti" sentiment is slightly more pronounced than in the Conservative chart
- The proportion of "Pro" versus "Anti" sentiment appears stable between the two periods. This indicates that the Labour Party has predominantly maintained a supportive stance on immigration



# Sentiment and Tone Classification

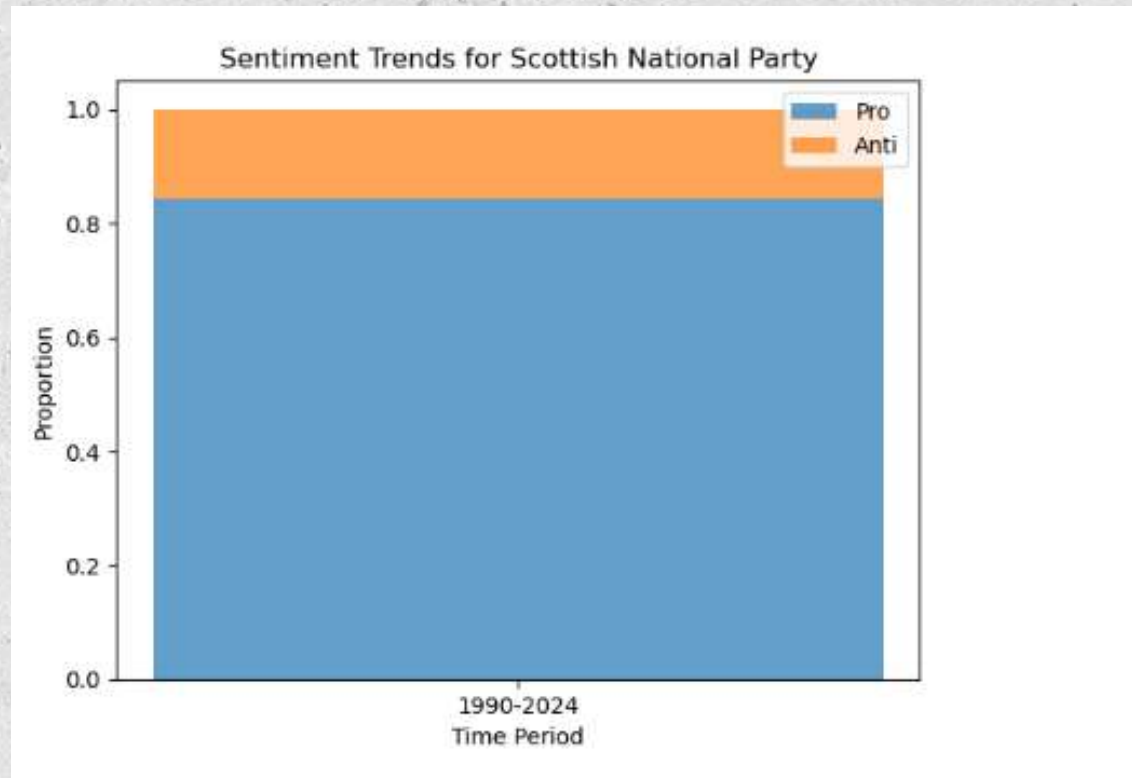


- The sentiment distribution for the Liberal Democrats in 1940-1989 and 1990-2024.
- The "Pro" sentiment is highly dominant, with "Anti" sentiment occupying a smaller but noticeable proportion
- Compared to the other two parties, the Liberal Democrats exhibit a stronger "Pro" stance





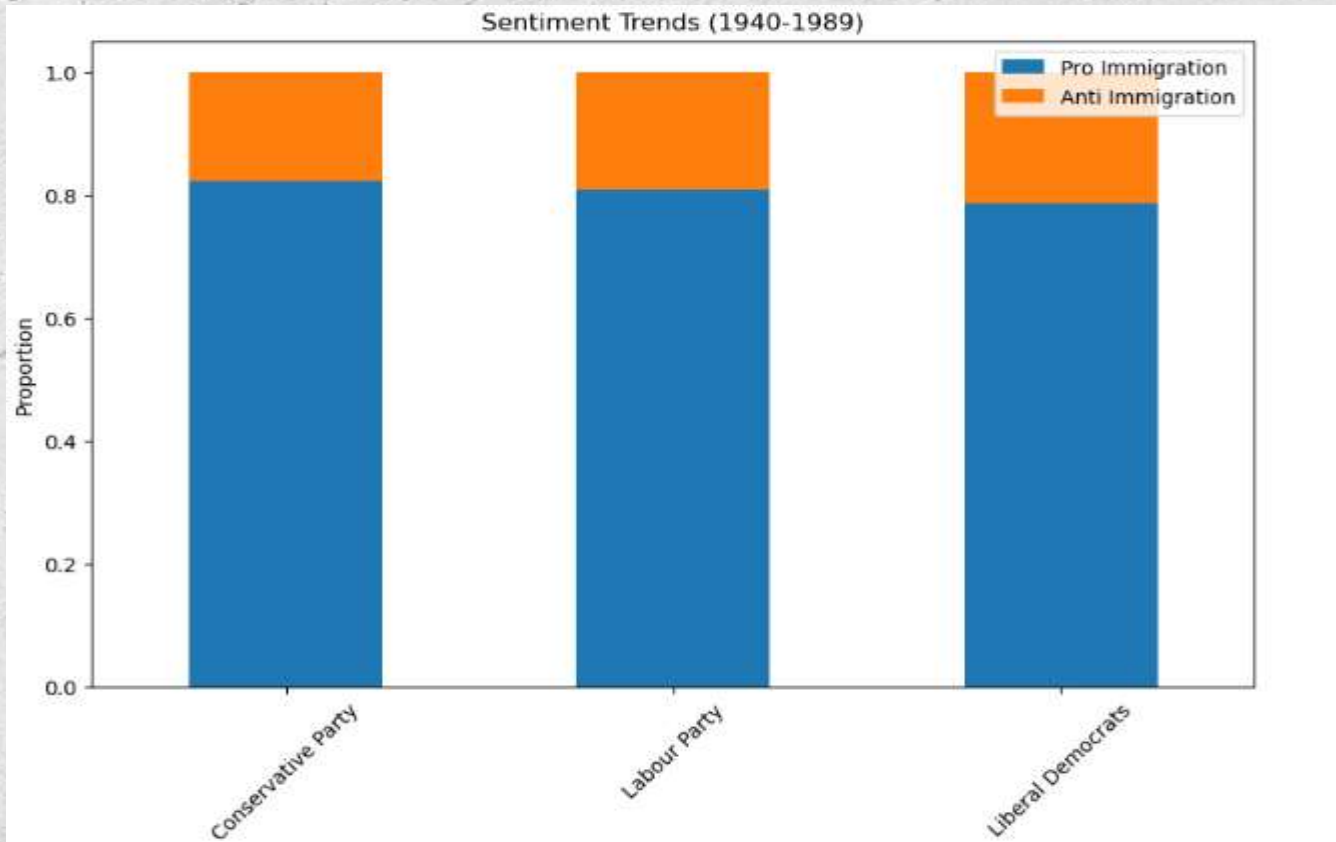
# Sentiment and Tone Classification



- The sentiment trends for the Scottish National Party (1990-2024)
- The "Pro" sentiment is the majority, with "Anti" sentiment forming a smaller portion
- Unlike the other parties, the chart only covers one time period, providing a snapshot rather than a trend



# Sentiment and Tone Classification

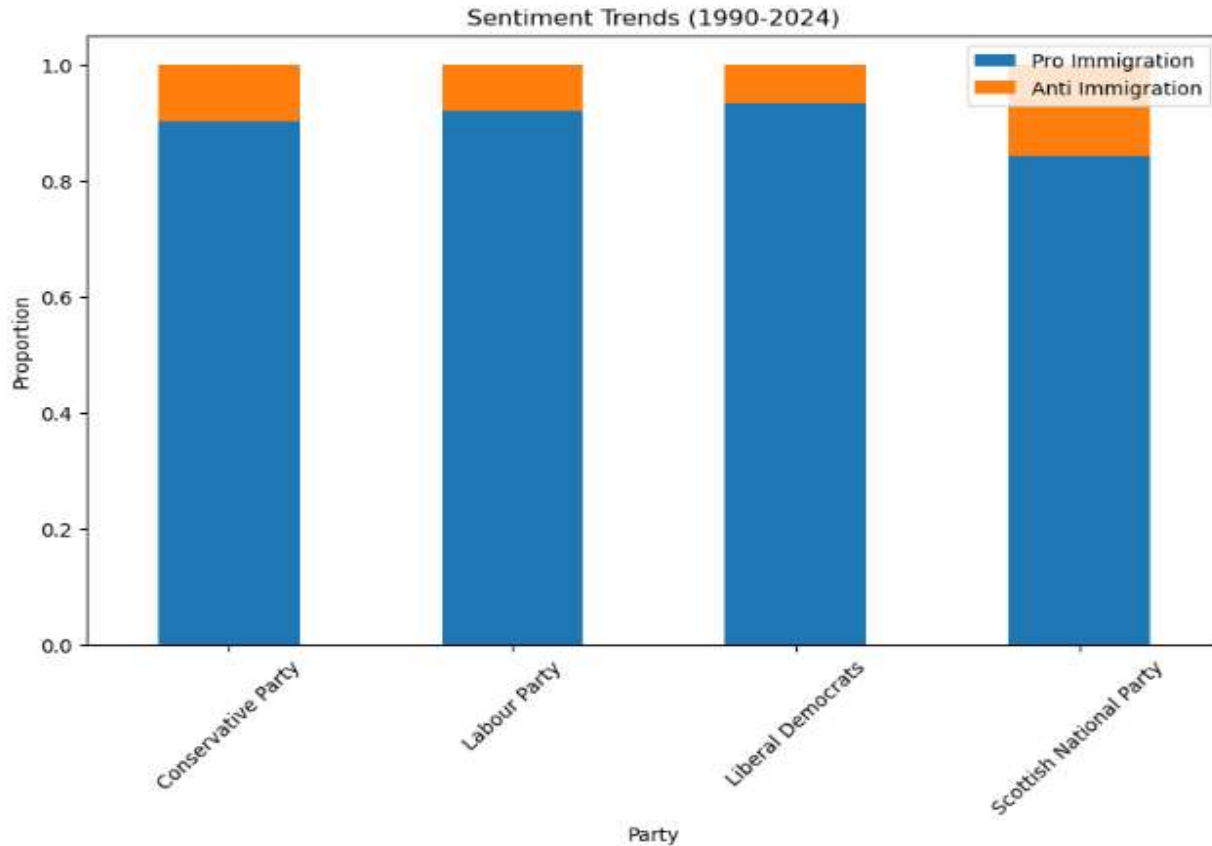


- This bar chart compares the proportion of "Pro Immigration" and "Anti Immigration" sentiment across three political parties
- All parties show a dominant "Pro Immigration" sentiment, with the "Anti Immigration" sentiment being relatively smaller.
- Among the three, the proportions appear consistent across parties, suggesting broad support for immigration during this time.





# Sentiment and Tone Classification



- The "Pro Immigration" sentiment remains dominant across all parties, with "Anti Immigration" sentiment being a minor proportion
- The addition of the SNP in this period reflects its alignment with "Pro Immigration" sentiment
- The sentiment proportions across all parties are similar, indicating consistent attitudes toward immigration over time



# Future work

- Estimated tone by party over time (top), and estimated difference in party biases (bottom), after accounting for the effect of geography
- Percent of respondents in each party who answered that they wanted immigration
- Average tone of immigration speeches when considering only those speeches that mention the country or nationality for each of the most frequently mentioned nationalities and the percent of the US foreign-born population from each of these countries over time
- Difference in the frequency of pro or anti immigration speeches for the fourteen most frequently-mentioned nationalities when considering only those speeches which mention a particular country or nationality.
- Relative usage frequency for each of frames in speeches mentioning into different countries





# Acknowledgments

- Methodological Inspiration: Adapted techniques from studies of US political discourse and RELATIO: Text Semantics Capture Political and Economic Narratives
- Data Source: UK Hansard archives, a comprehensive resource for parliamentary records.

