

Immigration in the Manifestos and Parliament Speeches of Danish Left and Right Wing Parties between 2009 and 2020

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Abstract

The paper presents a study of how seven Danish left and right wing parties addressed *immigration* in their 2011, 2015 and 2019 manifestos and in their speeches in the Danish Parliament from 2009 to 2020. The annotated manifestos are produced by the Comparative Manifesto Project, while the parliamentary speeches annotated with policy areas (subjects) have been recently released under CLARIN-DK. In the paper, we investigate how often the seven parties addressed immigration in the manifestos and parliamentary debates, and we analyse both datasets after having applied NLP tools to them. A sentiment analysis tool was run on the manifestos and its results were compared with the manifestos' annotations, while topic modeling was applied to the parliamentary speeches in order to outline central themes in the immigration debates. Many of the resulting topic groups are related to cultural, religious and integration aspects which were heavily debated by politicians and media when discussing immigration policy during the past decade. Our analyses also show differences and similarities between parties and indicate how the 2015 immigrant crisis is reflected in the two types of data. Finally, we discuss advantages and limitations of our quantitative and tool-based analyses.

Keywords: parliamentary records, manifestos, immigration

1. Introduction

This paper investigates how immigration was addressed in the manifestos and parliamentary speeches of Danish left and right wing parties in the past decade, also taking into account eventual changes after the 2015 immigration crisis.

Immigration policy has divided parliaments as well as the public opinion in many countries, and this has certainly been the case in Denmark during the past years. Moreover, Denmark has been pointed out as one of the European countries that have adopted the most restrictive policy towards immigrants, see e.g. (Hagelund, 2021). Unfortunately, immigration is still a warm issue and has become even more actual after the recent Russian invasion of Ukraine. Recently, a special Danish law has opened the country to refugees from Ukraine, showing a change from previous attitudes towards immigrants who have moved to Denmark in order to avoid war and persecutions.

The present study accounts for how seven Danish parties have addressed immigration in a) their 2011, 2015 and 2019 manifestos, which were annotated in the Comparative Manifestos Project¹, and b) in their speeches in the Danish Parliament (*Folketinget*) from 2009 to 2020. More specifically, we analyse how often the seven parties have addressed the issue and in which way, supported by existing NLP tools. The various tools have been chosen taking into account the different size of and the various annotations available for the manifestos and the parliamentary speeches.

The seven Danish parties included in the study are the following²:

- Danish People's party (Dansk Folkeparti - DF): DF achieved popularity for its strong line against immigrants and it has supported right wing governments.
- The Red-Green Unity List (Enhedslisten - EL): EL resulted from the merge of three left wing parties and is the leftmost party in the parliament. It supports left wing governments.
- Conservative People's party (Konservative Folkeparti - KF): KF is the historical conservative party that supports and/or has been part of right wing governments.
- Danish Social Liberal party (Radikale Venstre - RV): RV is a centre right party that traditionally supported and was part of right wing governments. In the past decades, it has changed line and has supported and/or been part of governments headed by the Social Democratic party.
- Social Democratic party (Social Demokratiet SD): SD is the largest Danish party and has been leading the government in 2014-2016, and 2019- .
- Socialist People's party (Socialistik Folkeparti - SF): SF is a left wing party that supports and/or has been part of Social Democratic governments in the investigated period.
- The Liberal party (Venstre - V): V was placed to the left of the Conservative People's party in the

¹<https://manifesto-project.wzb.eu/>.

²The abbreviations used are those provided by the Com-

parative Manifestos Project. They do not always correspond to the abbreviations used by the parties in Denmark.

parliament when it was created³. It has been leading two right wing governments in the investigated time (2009-2014, 2016-2019), but it started losing its central position in politics after the 2019 elections.

This paper is organised as follows. First, in section 2, we account for projects which have collected and annotated parties' manifestos and parliamentary speeches and we delineate studies investigating how immigration has been addressed by Danish politicians. In section 3, we introduce the data we have used, and in section 4, we present our analyses of how immigration was dealt with by the seven parties in their manifestos. In section 5, we account for our investigation of the parliamentary speeches addressing immigration. Finally, section 6 contains a discussion and presents future work.

2. Background

2.1. Party Manifestos and Parliamentary Debates

The interest in the position of left and right wing parties from different countries towards specific policy issues has increased over the past decades because of the digital availability of political data of various types. For example, large collections of national and multinational parliamentary debates have been released, e.g. the EuroParl corpus (Koehn, 2005; Hajlaoui et al., 2014) and the recent ParlaMint corpora (Erjavec et al., 2021b; Erjavec et al., 2021a; Erjavec et al., 2022). Also parties' manifestos and political agendas from different meeting types and from many countries have been continuously collected and enriched with annotations about policy areas in large international projects such as the Comparative Manifesto Project⁴ and the Comparative Agendas Project⁵.

The Comparative Manifesto Project (CMP) is classifying the policy areas in party election programs (manifestos) from many countries, applying 560 categories. The data is freely downloadable and also comprises Danish manifestos (Burst et al., 2020).

The Comparative Agendas Project (CAP) aimed to extend the USA's Policy Agendas Project⁶ (Baumgartner et al., 2011) and thus covers the policy areas in political agendas of more countries than the USA. The agendas are annotated using 21 main classes and 192 subclasses.

Researchers from political science at the University of Aarhus have annotated Danish political data from 1953 to 2007 in the Danish Policy Agendas Project⁷. They

have classified their data, legislative hearings, parliamentary debates, debates in the city councils, manifestos, and speeches by the Danish prime ministers, applying a slightly modified version of the Policy Agendas codebook and of the CAP codebook.

2.2. Immigration Studies

Scholars from various countries have analysed immigration policies in right and left wing parties, since immigration is a subject that often divides electors and politicians. The opinions of both groups are influenced by numerous factors comprising socio-economical issues and party competition, e.g. (Grande et al., 2019; Natter et al., 2020). In this section, we focus on recent studies that have addressed immigration policy in Denmark.

Green-Pedersen and Krogstrup (2008) analyse various parties' positions towards immigration in Denmark and Sweden in the 1980s and 1990s looking at the role of party competition that makes parties concentrate on specific issues. The focus on immigration is measured by counting the number of relevant text segments (quasi-sentences) in the parties' manifestos annotated by the Comparative Manifesto Project, and the number of questions on immigration issues posed to the immigration minister in the parliament. This study shows that immigration got low attention in the 1980s, while the situation changed in the 1990s after the Social Liberals (RV) and other centre-right parties left the right wing coalition. To stay in power, the right wing parties sought support from the Progress Party (Fremskridtspartiet) and, after this party's demise, from the Danish People's Party. Both parties had critical positions against refugees and immigration as one of their central themes. According to Green-Pedersen and Krogstrup (2008), also the Social Democratic Party changed its position and rhetoric towards immigration during the analysed period in order to avoid losing votes to the Danish People's Party.

Alonso and da Fonseca (2012) compare the immigration policy positions of left and right wing parties in 18 West European countries, one of these being Denmark. They also use data from the Comparative Manifesto Project and investigate immigration policies from 1975 to 2005. Alonso and da Fonseca (2012) aim to prove that all mainstream parties make use of anti-immigrant sentiments in the population, and that also left wing parties have continuously used a more negative tone about immigration in this period.

Alonso and da Fonseca (2012) look at the effect of emerging right wing parties on parties' positions and what they call *the salience theory*. This theory refers to the phenomenon of parties competing with each other in taking the ownership of specific issues and positions towards them (Petrocik, 1996). Alonso and da Fonseca (2012) measure the salience of immigration in the same way as Green-Pedersen and Krogstrup (2008), that is counting the number of references to immigration re-

³The name of the party in Danish is therefore *Left*.

⁴<https://manifesto-project.wzb.eu/>

⁵<https://www.comparativeagendas.net/>

⁶<https://liberalarts.utexas.edu/government/news/feature-archive/the-policy-agendas-project.php>

⁷<http://www.agendasetting.dk/>.

lated issues in the manifestos. The authors find that the salience of immigration increases in the agenda of all parties in the 18 considered countries during the investigated period independently from the emerging of anti-immigrant right wing parties. They explain this by e.g. the influence of immigration policy in other countries and in the EU.

Hagelund (2021) investigates immigration policy changes in Denmark, Norway and Sweden following the refugee crisis in 2015. The author concludes that the strategies adopted in the three countries are different, and that the main focus for Danish politicians has been to create political support for a range of measures that restrict immigration and to reduce the impact of different cultures on the Danish society.

3. The Data

In our work, we use two different datasets. The first dataset consists of three Danish manifestos from each of the seven parties in relation to the political elections in 2011, 2015 and 2019. The second dataset is a corpus of Danish parliamentary speeches from the period 2009-2020, annotated with subject information.

The manifestos were downloaded from the Comparative Manifesto Project’s website⁸. The project provides the manifestos in PDF format, and CSV files containing the text of the manifestos divided into minimal units, which are called *quasi-sentences*. A quasi-sentence is defined as a single statement or message, and often corresponds to a sentence⁹. A quasi-sentence can also coincide with other linguistic categories, such as clauses, clause segments, or name entities, e.g. a film or book title.

The Danish parliamentary speeches are a version of *The Danish Parliament Corpus (2009-2017) v.2* released under the CLARIN-DK repository in 2021¹⁰ and extended with speeches from 2018-2020. The data consists of the transcripts of parliamentary speeches of the Danish Parliament enriched with information about the speakers, the timing of the speeches and subject areas. The transcripts were downloaded from the Danish Parliament’s website¹¹. The subject area annotations were semi-automatically added to the speeches, using the manual annotation of the agenda titles (Navarretta and Hansen, 2022).

The subject annotation distinguishes 19 main classes, which are a subset of the CAP classification scheme corresponding to the responsibility areas of the Danish parliament’s committees after a strategy proposed by Zirn (2014). The annotated subject classes are the following: *Agriculture, Business, Culture, Defence, Economy, Education, Energy, Environment, European In-*

⁸<https://manifesto-project.wzb.eu/>

⁹https://manifesto-project.wzb.eu/download/papers/handbook_2021_version_5.pdf.

¹⁰<https://repository.clarin.dk/repository/xmlui/handle/20.500.12115/44>

¹¹<ftp://oda.ft.dk>

tegration, Foreign Affairs, Health Care, Housing, Infrastructure, Immigration, Justice, Labour, Local and Regional Affairs, Social Affairs and Territories (Navarretta and Hansen, 2022).

A small part of the annotations were manually checked by humans taking into account the speeches’ content. The consistency of the annotations of the main subject areas in part of the corpus was assessed training classifiers on the lemmatised titles of the agendas and the speeches (Hansen et al., 2019). Similarly, the consistency of the annotations of two co-occurring subjects in the corpus was tested by running multi-label classifiers on BOW and TF*IDF values of the titles of the agendas and the lemmatised speeches. The contribution of information about the speakers to classification was also tested. The best results running the classifiers on the BOW of the agenda titles and speech information gave an F1-score= 0.997 while an F1-score near 0.7 was achieved by classifiers trained on the BOW of the lemmatised speech (Navarretta and Hansen, 2022). Navarretta and Hansen (2020) analysed the content of the party programs and the parliamentary debates of two left- and two right wing Danish parties based on frequent and specific lemmas occurring in the data. The analyses confirmed previous research that successfully use word-based scores from party programs in order to distinguish the party’s positions towards specific subject areas, e.g. (Laver et al., 2003; Slapin and Proksch, 2008). Experiments act to identify the party membership of speakers from their speeches in the parliament gave an F1-score of 0.57.

4. Immigration in the Danish Manifestos

The length of the three manifestos of the seven parties is shown in Table 1. The length of the manifestos of

Party	2011	2015	2019
The People’s Party	5,581	546	1,742
Red-Green Unity List	8,367	1,576	4,787
Conservat. People’s P.	1,754	587	14,690
Danish Social Liberal P.	1,939	438	10,089
Socialist People’s P.	7,789	3,003	10,927
Social Democratic P.	2,061	6,088	37,076
Liberal Party	3,066	1,379	2,001

Table 1: Words in the 2011, 2015 and 2019 manifestos

each party changes during the years and varies from party to party. The shortest manifesto comes from the People’s Party and consists of 546 words (the party’s 2015 manifesto), while the longest one comes from the Social Democratic Party and contains 37,076 words (the party’s 2019 manifesto).

In Table 2, the number of quasi-sentences in the manifestos are given. Also in this case the number of quasi-sentences varies from party to party and there is also a large variance between the manifestos of the same party in different years.

Party	2011	2015	2019
The Danish People's Party	392	39	112
Red-Green Unity List	693	122	373
Conservative People's P.	151	47	1,131
Danish Social Liberal P.	149	35	707
Social Democratic P.	175	584	2,841
Socialist People's P.	621	216	719
Liberal Party	253	116	177

Table 2: Quasi-sentences in manifestos

Following the strategy proposed by Green-Pedersen and Krogstrup (2008) and then adopted by Alonso and da Fonseca (2012), we extracted the quasi-sentences annotated with the codes 601.2 (Immigration - negative), 602.2 (Immigration - positive), 607.2 (Integration - positive), and 608.2 (Assimilation - negative) in the 2011, 2015 and 2019 manifestos.

Since the manifestos have different length, we calculated the relative frequency of quasi-sentences on immigration, that is their number divided by the total of quasi sentences in each manifesto for the seven parties. The relative frequency is shown in Figure 1. No party addressed immigration in their manifestos in 2011, therefore the data from 2011 is not included in the figure. All parties, except the Conservative Peo-

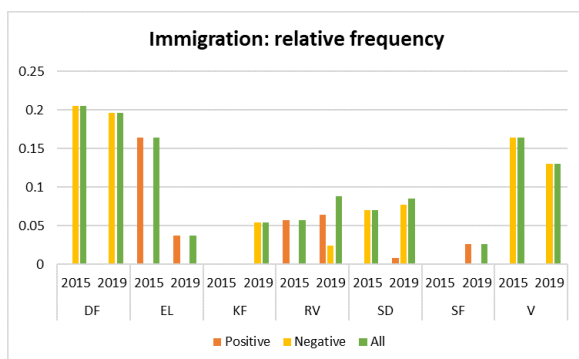


Figure 1: The relative frequency of quasi-sentences about immigration in the manifestos of the seven parties

ple's party (KF) and the Socialist People's party (SF), write about immigration in their 2015 manifestos, and all parties, without exception, address immigration in their 2019 manifesto. This is a clear indication that immigration has become a more actual theme in all manifestos after the 2015 immigrant crisis.

The party with the highest relative frequency of quasi-sentences about immigration is the Danish People's Party (DF), and all their quasi-sentences are marked with negative codes by the Comparative Manifesto Project. Similarly, the Liberal party (V)'s manifestos contain relatively many negative quasi-sentences about immigration. Also the 2019 manifesto of the Conser-

vative people's party (KF) addresses immigration exclusively with negatively marked quasi-sentences.

The left wing Red-Green Unity list (EL) addresses immigration relatively often in the 2015 manifesto, while the number of quasi-sentences related to immigration decreases in its 2019 manifesto. The quasi-sentences in both manifestos are annotated as being positive by the Comparative Manifesto Project. The 2019 manifesto of the Socialist People's party (SF) only contains positive quasi-sentences. Also the Social Liberals (RV)' 2015 manifesto only contains positive quasi-sentences, while the party's 2019 manifesto also contains few negatively marked quasi-sentences. Opposite to this, the 2015 and 2019 manifestos of the Social Democratic party (SD) contain relatively many negative quasi-sentence. However, the party's 2019 manifesto also contains few positively marked quasi-sentences.

We also counted the number of quasi-sentences annotated by the Comparative Manifesto Project with the codes 601 and 601.1, which indicate nationalism. Nationalism is often opposed to openness towards immigrants (Alonso and da Fonseca, 2012). The relative frequency of nationalism marked quasi-sentences in the manifestos of the seven parties is in Figure 2, in which only the manifestos where nationalism was addressed are included. The Danish People's party (DF) is the

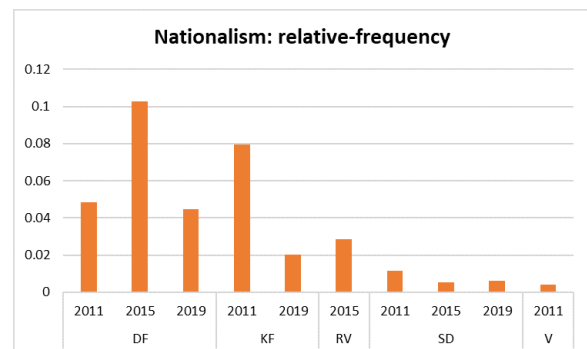


Figure 2: The relative frequency of nationalism quasi-sentences

only party that has many nationalist quasi-sentences in all three manifestos, while the Conservative People's party (KF) has many nationalist quasi-sentences in the 2011 and 2019 manifestos. The manifestos of the Socialist People's party and the Red-Green Unity List do not contain nationalist quasi-sentences.

4.1. Applying Sentiment Analysis to the Manifestos

Inspired by the work by Zirn et al. (2016), who applied sentiment analysis to German manifestos, we run a sentiment analysis tool, AFINN¹², on the immigration quasi-sentences. AFINN uses a sentiment lexicon and assigns weights to sentences based on the

¹²<https://github.com/fnielsen/afinn>

weights of the lemmas in the lexicon (Nielsen, 2011). We merged the AFINN lexicon with another larger lexicon, the Danish sentiment lexicon¹³.

Before applying the modified AFINN lexicon on the manifestos' quasi-sentences, these were tokenised and lemmatised using the CLARIN-DK's workflow *Text Tonsorium*¹⁴ (Jongejan, 2016). The AFINN tool assigns positive, negative or neutral (0.0) scores to each sentence (quasi-sentence in our case). The neutral scores are also given to a sentence if its words are not found in the lexicon.

Not surprisingly, the positive and negative scores provided by the tool do not always correspond to the positive and negative annotations of the Comparative Manifesto Project. The latter were assigned taking into account the context of quasi-sentences with respect to the addressed policy area, while the scope of the sentiment analysis tool is a (quasi-)sentence. It must also be noted that the AFINN tool was built to deal with social media texts and even if it is run with a larger lexicon, it does not cover many of the words contained in the manifestos. Finally, the tool does not take into account phenomena such as the scope of negation. Therefore, many quasi-sentences are marked as neutral (score 0.0), even when humans (the authors) judge them to be negative or positive. However, some interesting observations can be made based on the discrepancies and similarities between the annotations provided by the Comparative Manifesto Project and the scores marked by sentiment analysis tool.

Some parties present negatively marked quasi-sentences on immigration in a linguistically positive way. This is e.g. the case for the Danish People's Party (DF)'s manifestos, that uses a positive argument when proposing to help immigrants in their neighbouring areas instead of in Denmark.

From DF's 2015 manifesto:

1. *Flygtninge skal hjælpes i deres nærområder.*
(Immigrants must be helped in their neighbouring areas.)
(601.2 negative, Sent. analysis positive score)
2. *På den måde kan vi hjælpe langt flere.*
(This way, we can help many more.)
(601.2 negative, Sent. analysis positive score)

There are other cases in which two successive quasi-sentences are marked as positive by the Comparative Manifesto Project, while the sentiment analysis tools gives a negative score to the first quasi-sentence and a positive score to the second one. The reason for this difference is often that a negative argument precedes a statement about the necessity of helping refugees, as in the following example from the Red-Green Unity List (EL)'s 2015 manifesto:

¹³<https://github.com/dsldk/danish-sentiment-lexicon>.

¹⁴<https://clarin.dk/clarindk/tools-texton.jsp>

3. *Danmark kan ikke tage imod alle flygtninge.*
(Denmark cannot accept all immigrants)
(602.2 positive, Sent. analysis negative score)
4. *Men vi kan og vi skal tage vores del af ansvaret.*
(But we can and we must take our share of the responsibility.)
(602.2 positive, Sent. analysis neutral score)

In other cases, the sentiment analysis's scores and the Comparative Manifesto Project's codes are similar, that is they are both positive or negative. An example of the latter is sentence 6 from DF's 2019 manifesto:

5. *Danmark har taget imod rigeligt med udlændinge igennem årene.*
(Denmark has received an abundance of foreigners over the years.)
(601.2 negative, Sent. analysis neutral score)
6. *Så vi skal have færre ind og flere ud!*
(Therefore we must have fewer in and more out!)
(601.2 negative, Sent. analysis negative score)

Concluding, comparing the two annotation types can help discovering various communicative strategies adopted by the parties in their manifestos.

5. Immigration in the Parliamentary Speeches

44,459 out of the 517,503 speeches from 2009-2020 (9%) address the policy subject *Immigration*. This is quite a large portion since the speeches are classified in 19 main policy subjects. The number of words in the speeches related to immigration is 4,308,165. The frequency of the subjects that were discussed together with immigration are shown in Figure 3. The subject

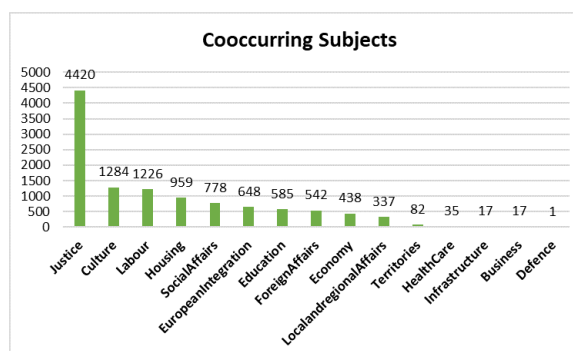


Figure 3: The policy subjects discussed with *Immigration*

that is discussed most frequently together with *Immigration* is *Justice*, which is not surprising. The other frequently co-occurring subjects in order of their frequency are *Culture*, *Labour*, *Housing*, *Social Affairs*, *European Integration* and *Education*. *Economy* is discussed together with *Immigration* only in 1% of the

speeches, and this is less expected since *Economy* is an important factor in most policy subjects (Navarretta and Hansen, 2022). However, the low impact of economy on the immigration debate indicates that other factors play a more important role when parties and media address this subject.

Figure 4 gives the total time in hours during which immigration was debated in the parliament in 2009-2020. The figure shows that immigration is addressed

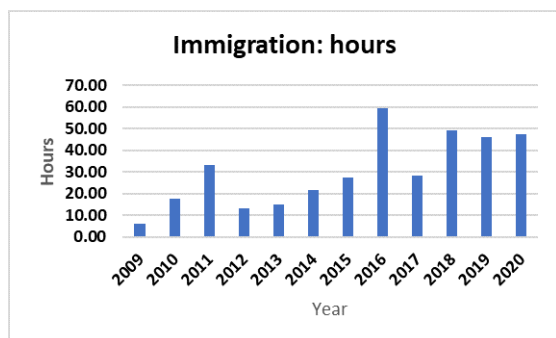


Figure 4: The hours during which *Immigration* is discussed every year

quite often in 2011, 2015, 2016 and then in 2018-20. In 2011, family reunion was a big issue, and that year the parliament voted strong restrictions towards it. These restrictions have also had consequences for Danish citizens married with citizens from non-EU countries or/and who have lived abroad for many years. After 2011, many mixed families moved to other European countries with less restrictive laws.

The increasing number of speeches about immigration from 2015 to 2020 is not surprising because of the immigration crisis, but they are probably also a consequence of what Green-Pedersen and Krogstrup (2008) call *party competition*. The Social Democrats and the Liberals have adopted some of the views of the Danish People’s Party. Moreover, a new right party, The New Right (Nye Borgelige), has entered the parliament after the 2019 election presenting an even more restrictive line against immigrants than all other parties.

Figure 5 shows how many hours the seven parties spoke about the subject *Immigration* and the percentage of each party’s total speaking time devoted to it. Politicians from the Danish People’s Party (DF) use 11.57% of their speaking time addressing immigration, and this is in line with the focus on the subject in the party’s manifestos. The Liberals (V) also devoted a lot of time to the subject (8.30% of their speaking time), which is not surprising since some of the most restrictive immigration laws were introduced under a liberal prime minister in this period. The Social Democrats (SD) used approx. 7% of their speaking time debating immigration. Also the politicians from The Red-Green Unity List (EL) discussed relatively often immigration (7.4% of their speaking time), and this is also in line

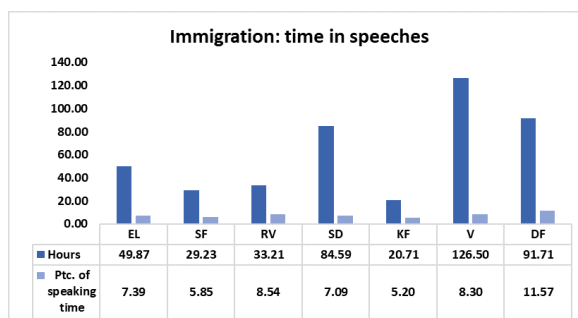


Figure 5: The time spent by the parties debating on immigration

with what they did in their manifestos. Surprisingly, the Social Liberals (RV) speak relatively much about immigration in the parliament (8.54% of their speaking time), even though their manifestos do not address the subject much. This might indicate that the party did not want to lose voters by underlying their positive line towards immigrants in the manifestos, On the opposite side, the Conservative People’s party (KF) writes relatively much about immigration in the party’s manifestos, but the conservative politicians contribute relatively little to the parliamentary debates on the subject (only 5.2% of their speaking time). The politicians from the Socialist People’s party (SF) speak also less frequently about immigration than other parties, but this behaviour is in line with the content of its manifestos.

Figure 6 shows the speaking time devoted to immigration by the seven parties in their parliamentary speeches in the three years covered by the manifestos, that is 2011, 2015 and 2019. The figure confirms that there is not a one to one correspondence between the space given to immigration by the parties in their manifestos and the time they address on the same subject in their speeches even in the same year.

5.1. Extracting Immigration Topics from the Parliamentary Speeches

We used topic modeling to identify the main topics in the parliamentary speeches marked with the subject *Immigration*. Topic modeling has often been used to extract subtopics in text corpora, among many (Jelodar et al., 2019) and in political texts, e.g. (Greene and Cross, 2017).

The python 3 module scikit-learn was used in the experiments. First, we tokenised PoS-tagged and lemmatised the speeches with the Text Tonsorium tools available in CLARIN-DK. We used two datasets, one consisting of all lemmas, the second only comprising noun lemmas. Using noun lemmas for extracting topics in political texts has been proposed by e.g. (Martin and Johnson, 2015).

We extracted bag of words (BOW) and term frequency * inverse of document frequency (TF*IDF) values from

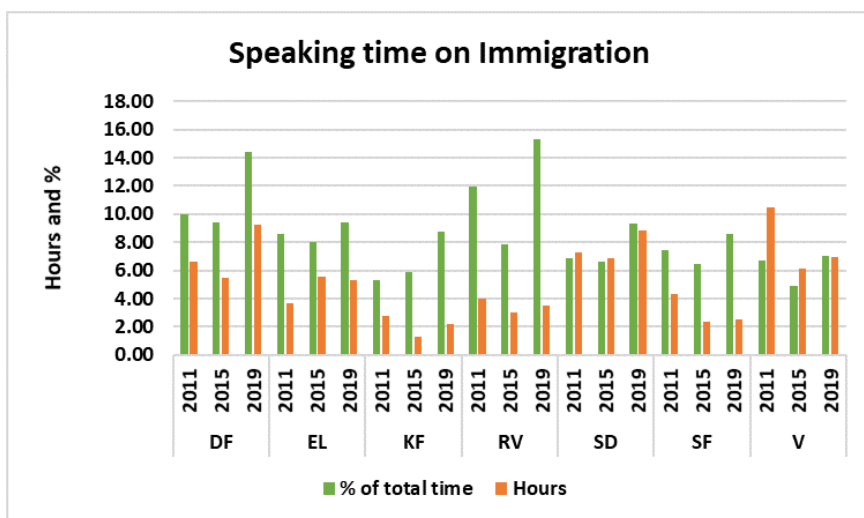


Figure 6: The time spent by the parties debating on immigration in the election years

the two datasets. Two topic modeling algorithms were trained on these two models: a) Latent Dirichlet Allocation (LDA) and b) Non-Negative Matrix Factorization (NMF). LDA is a probabilistic model (Blei, 2012) which has been extensively used for topic modeling in different domains while NMF is a matrix factorization and multivariate analysis technique, which can be used for topic modeling (Gillis and Vavasis, 2014). We tested LDA and NMF on BOW and TF*IDF values calculated from the two datasets setting the number of topics to 10, 15 and 20. The most significant topic groups were obtained by the LDA algorithm run on BOW values of lemmas or noun lemmas when the number of topics was 15. The second best topic groups were obtained by NMF on TF*IDF values of noun lemmas.

Approximately one third of the topic groups returned by LDA identify grammatical categories, such as politicians' surnames, countries, party names or parts of party names. Three topic groups contained nearly the same lemmas, but in different order. The remaining topic groups are, however, interesting and help individuate some of the themes that were discussed not only in the parliament, but also in the news and media in the investigated period. The relevant topic groups suggested by LDA are listed below with titles suggested by the authors:

1. *Immigrants and naturalization*: handshake, ceremony, constitution ceremony, nationality, Grundtvig¹⁵, the naturalization committee, naturalization office, naturalization, naturalization law, inequality, state pension, anti-democrat, Langballe¹⁶, Denmark

¹⁵Grundtvig (1783-1872) was a Danish writer, politician and priest. He was the spiritual father of the folk high school tradition.

¹⁶One of the politicians of the Danish People's party

2. *Immigration and local affairs*: municipality, crowns, working capacity, immigration, money, company, effort, job, solution, labour market, possibility, requirement, expense, work, millions
3. *Immigration and work*: municipality, immigrant, yield, labour market, money, work, housing, government, integration, expense, housing place, contribution, employment, million, welfare benefits
4. *Immigrant, culture differences, crime*: woman, man, constitution, person, law, security, crime, right, violence, prison, legislation, burka, security, minister of justice, person, people
5. *Refugees and legislation*: law case, rule, authority, limit, borders, border control, residence permit, police, law, usual practice, condition, verdict, government, legislation
6. *Religion*: Islam, Denmark, society, value, problem, religion, democracy, religious community, association, mosque, Muslim, opinion, country, religion freedom, Turkey, culture
7. *Integration*: camp, high school, parent, 10-years rule, Greenlander, quote system, lodging, room, bath, estimate of integration, number of refugees, burden, child-bride, Århus, Faeroese
8. *Family and conventions*: child, convention, parents, family, UN, Denmark, accommodation center, school, legislation, year, situation, re-education travel, responsibility, situation, interest
9. *Radicalization*: association, violence, mosque, courage, opinion, PET¹⁷ supervision, police, environment, terrorist, radicalization, extremism, threat, encouragement, terror

¹⁷Police intelligence service.

The first topic group is connected to one of the themes that were most debated in the considered period, the procedure for obtaining the Danish nationality. This also included the requirement that immigrants had to shake the hand of the official giving them the naturalization document during the naturalization ceremony. By shaking hands the immigrants were supposed to show that they followed the Danish culture. This requirement posed some problems under the COVID-19 pandemic when people could not meet in person and shake hands. Topic groups 2, 3 and 7 contain words related to the integration of immigrants, another theme that was often debated in the parliament and in the media in the past decade. Topic groups 4 and 9 indicate that immigration has been discussed together with crime and terrorism, while topic group 6 relates to religion and clothes¹⁸. Topic groups 5 and 8 indicate the connection between immigration policy, justice and international conventions. The topic modeling results confirm that Danish politicians have been mostly preoccupied with keeping the Danish society as it is, without being influenced by other cultures (Hagelund, 2021), and indicate the harshness of some of the immigration policy debates.

The NMF run on TF*IDF values also returns some other interesting topic groups, but more groups than those returned by LDA do not address semantically related words, but words that are related in different ways, e.g. being proper names, or abbreviations.

In order to extract interesting topics, both algorithms are useful and their results could be combined.

6. Discussion and Future Work

In this paper, we have investigated how immigration was dealt by seven Danish right and left wing parties in their manifestos and parliamentary speeches during the past twelve years (2009-2020).

We have first followed the strategy of counting relevant quasi-sentences in the manifestos as proposed by researchers in political sciences (Green-Pedersen and Krogstrup, 2008; Alonso and da Fonseca, 2012) and we have extended the strategy to the parliamentary speeches. These quantitative analyses show that immigration has become even more a hot theme in the political scene over the past decade than it was in the preceding period studied in (Green-Pedersen and Krogstrup, 2008; Alonso and da Fonseca, 2012). Our work also confirms that some parties' positions towards immigration cannot only be explained by the fact that they belong to the right or left wing and that party competition and the world situation also play important roles (Green-Pedersen and Krogstrup, 2008; Alonso and da Fonseca, 2012; Hagelund, 2021).

We also found that the relative frequency of quasi-sentences on immigration in the manifestos indicates how the subject has been addressed as an important

election theme by especially some parties. For example, right wing parties (DF, KF, and V) present restrictive views against immigration in their manifestos, while left wing parties (SF and EL) argue for helping immigrants. More complex is the situation for the center-left Social Democratic Party, which has got a position similar to that of the right wing parties with respect to immigration, and the center-right Social Liberal Party, which has kept its humanitarian and positive position towards immigrants even after the 2015 crisis. Differing from other Danish studies on immigration policy, we also looked at the frequency of all parliamentary speeches addressing immigration in 2009-2020. Also in this case, the growing importance given to immigration especially after the 2015 crisis is evident from the data. Moreover, we found that some parties (The Danish People's Party and The Red-Green Unity List) follow the same line in their election manifestos and in their contributions to the parliamentary debates, while the Social Liberal Party does not write much about immigration in its manifestos, while the party's politicians are more active in defending immigrants in the parliament.

After the qualitative analyses, we looked at the differences between the annotations of positive and negative immigration policies in the manifestos provided by the Comparative Manifesto Project and the scores of a lexicon-based sentiment analysis tool run on the lemmatised manifestos' immigration quasi-sentences. This work showed not only differences between the tool's annotation scores and the annotations by the Comparative Manifesto Project, but it also pointed out some of the communication strategies followed by the parties to promote their policy in favour or against immigration.

Topic modeling applied to the BOW and TF*IDF values of the noun lemmas extracted from the parliamentary speeches addressing the subject *Immigration* also provided interesting results. In fact, some of the topic groups returned by the LDA algorithm reflect themes that were debated not only in the parliament, but also in the media in the considered period. The interpretation of the topic modeling's results require human intervention. However, topic modeling could be easily run on parliamentary speeches from more countries and its results could be compared.

More sophisticated NLP methods could be applied on these data. However, it is important to stress that both data and tools that we used are freely available, and that they can support researchers from the humanities and social sciences in their analysis of political data of different type and size.

Finally, it must be noted that applying different strategies for analysing the Danish parliamentary speeches is particularly important, since the Danish parliament members must follow specific rules of conduit and language use when they debate in the Parliament. Therefore, it can be difficult to base the analysis of their political positions only on quantitative studies.

¹⁸Wearing burka has been forbidden in Denmark since 2018.

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