Bundesbank Speeches

Data Report 2019-12

Data available from 2012 to 2017
Metadata ID: bbk_speeches_data_doc_v1.0

Deutsche Bundesbank, Research Data and Service Centre

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Matthias Gomolka
Jens Orben
Abstract

We describe the research dataset “Bundesbank Speeches” using a structured metadata schema. This document consists of three sections. In the first section, we describe the general properties of the dataset as a whole, such as its scope, coverage, and the methods of data collection and data appraisal. The second section addresses the variable level. The last section provides information on the meaning of variables and terms widely used in the context of bbk_speeches.

Keywords: speeches, text mining, board members, central bank

Metadata ID: bbk_speeches_data_doc_v1.0


1 The metadata scheme is derived from the “Data Documentation Initiative” (DDI, http://www.ddialliance.org).
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1 Dataset description

Bundesbank Speeches (bbk_speeches) is a text based dataset, entailing the speeches of current and past members of the executive board of the Deutsche Bundesbank beginning in January 2012 until December 2017. It compromises publicly available information from www.bundesbank.de/en/press/speeches, which is cleaned and enhanced by information on the respective speakers that is publicly available as well. The choice of variables is based on availability and gauged value. The latter stems from existing literature on the topic of central bank communication as in Malmendier, Nagel, & Yan (2017). The dataset is ready for a variety of analyses, including textmining. Different from other Bundesbank’s RDSC datasets only publically available information is entailed. It’s value lies in experimental use of text based datasets with economic relevance, abstracting of webscraping techniques, which often require further knowledge of htm or xml languages.

The use of machine learning techniques, artificial intelligence, or what has become known as “advanced analytics” has spread across many disciplines. Textmining, as one of the methods in this field, is also present in economic analyses. Hence, Deutsche Bundesbank’s Research Data and Service Centre (RDSC) wants to promote and foster this development and provides this text based and ready to analyse dataset.

1.1 Dataset scope and coverage

Origin

The speeches are published via the Bundesbank’s webpage. The speeches are almost exclusively written by Bundesbank staff members and edited in collaboration with the respective speaker. The spoken word at the occasion itself may differ from what the script of the speech displays. Furthermore, the individual speakers most often and most likely use gesture, mimic and intonation, possibly delivering nuanced and unanticipated insights. This dataset does not include the spoken word, but the script of the speeches.

Unit of analysis

Speeches are seperated into speech sections. Hence, speech section is the unit of analysis. Speeches were held at a specific point in time by a member of the executive board of the Deutsche Bundesbank and were published in a given language. Those speech attributes are used to identify speeches and to link the respective sections.2)

Time period covered

January 2012 until December 2017.

2 Inaccurate information on spch_datetime leads to duplicate identifiers.
Geographic coverage

World: The dataset covers all publicly held speeches of Bundesbank board members, no matter where the speech was held.

Universe

The dataset covers all publicly held speeches of Bundesbank board members, concerning a wide range of topics. It must be noted at this point, that speeches held by board members who resigned due to political pressure are not included.

The encompassed speakers in the dataset are assigned to the Deutsche Bundesbank’s executive board according to the Bundesbank Act. Naturally the speakers themselves change in the course of time, as members of Deutsche Bundesbank’s executive board are assigned for a maximum of eight years according to the Bundesbank Act.

1.2 Data collection

Data collection mode

Download from Bundesbank’s homepage and manual enrichment with speaker attributes.

Collection frequency

Speeches by Bundesbank’s executive board members are not held in a regular frequency or specific amount. The data is updated on an ad-hoc basis.

1.3 Data appraisal

Quality checks

Besides the institution’s internal quality checks before holding the speech, the following quality checks are applied in the construction of the dataset.

– Manual check whether the composition of the executive board has changed.
– Check of the whole dataset against various validation rules (see the Appendix on validation rules)

Note however, that the spoken word at the occasion itself may differ from what the script of the speech displays. Thus, the content of this dataset may differ from the spoken word at the occasion.
Data editing

The pure information on the speeches is enhanced by manually collected speaker attributes.

1.4 Data accessibility

Public use file

The dataset is freely available as a public use file (PUF) and can be downloaded from ….

Contact

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Homepage: https://www.bundesbank.de/rdsc

Citation requirements

For any study or other document which is made available to the public and contains information derived from the provided data, the researcher is obliged to properly cite the data source as:

In addition to that, the DOI for the data employed in the research has to be cited as:
2 Description of variables

2.1 Overview of variables

<table>
<thead>
<tr>
<th>Name</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>spch_id</td>
<td>Unique speech identifier</td>
</tr>
<tr>
<td>spkr_surname</td>
<td>Speaker’s surname</td>
</tr>
<tr>
<td>spkr_first_name</td>
<td>Speaker’s first name(s)</td>
</tr>
<tr>
<td>spch_datetime</td>
<td>Speech’s date, time and timezone</td>
</tr>
<tr>
<td>spch_title</td>
<td>Speech’s title</td>
</tr>
<tr>
<td>spch_occasion</td>
<td>Speech’s occasion</td>
</tr>
<tr>
<td>spch_loc</td>
<td>Speech’s venue</td>
</tr>
<tr>
<td>spch_lang</td>
<td>Speech’s language</td>
</tr>
<tr>
<td>spch_sec_num</td>
<td>Speech’s section number</td>
</tr>
<tr>
<td>spch_sec_title</td>
<td>Speech’s section title</td>
</tr>
<tr>
<td>spch_sec_body</td>
<td>Speech’s section body</td>
</tr>
<tr>
<td>spkr_titles</td>
<td>Speaker’s title(s)</td>
</tr>
<tr>
<td>spkr_gender</td>
<td>Speaker’s gender</td>
</tr>
<tr>
<td>spkr_bbk_role</td>
<td>Speaker’s role in Deutsche Bundesbank’s executive board.</td>
</tr>
<tr>
<td>spkr_phd</td>
<td>Indication whether the speaker has a PhD or a Dr</td>
</tr>
<tr>
<td>spkr_major</td>
<td>Field of the speaker’s studies</td>
</tr>
<tr>
<td>spkr_apprenticeship</td>
<td>Indication whether the speaker completed an apprenticeship successfully, and field of apprenticeship</td>
</tr>
<tr>
<td>spkr_phd_univ</td>
<td>City of the university</td>
</tr>
<tr>
<td>spkr_nom_pol_body</td>
<td>Nominating political body</td>
</tr>
<tr>
<td>spkr_nom_pol_geo</td>
<td>Nominating federal state</td>
</tr>
<tr>
<td>spkr_nom_pol_party</td>
<td>Nominating political party</td>
</tr>
<tr>
<td>spkr_pers_party</td>
<td>Speaker’s personal party affiliation</td>
</tr>
<tr>
<td>spkr_birthplace</td>
<td>Speaker’s place of birth</td>
</tr>
<tr>
<td>spkr_birth_year</td>
<td>Speaker’s year of birth</td>
</tr>
<tr>
<td>spkr_birth_month</td>
<td>Speaker’s month of birth</td>
</tr>
<tr>
<td>spkr_bbk_start</td>
<td>Date of speaker’s first day in office as a member of the executive board</td>
</tr>
<tr>
<td>spkr_bbk_end</td>
<td>Date of speaker’s last day in office as a member of the executive board</td>
</tr>
<tr>
<td>spkr_bbk_dismissed</td>
<td>Indication whether the term as a member of the executive board was ended under special circumstances</td>
</tr>
</tbody>
</table>

2.2 Details of variables

**spch_id**: Unique speech identifier

Notes: The **speech_id** is a unique identifier for each speech. Its structure is: date, time, speaker, language. Inaccurate information on **spch_datetime** leads to duplicate identifiers in few cases.
Available from – to 2012 – 2017
Variable type string

**spkr_surname:** Speaker’s surname

Notes Speaker’s sur- / last / family name
Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type string

**spkr_first_name:** Speaker’s first name(s)

Notes Speaker’s first / given name. Possibly more than one.
Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type string

**spch_datetime:** Speech’s date, time and timezone

Notes Date and time when speech was held in the ISO format. The date and time show German local time, no matter where the speech was held. In most cases, where 00:00 is stated, the exact time is unknown.
Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type datetime in ISO 8601 format (YYYY-MM-DDThh:mm:ssz)

**spch_title:** Speech’s title

Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type string

**spch_occasion:** Speech’s occasion

Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type string

**spch_loc:** Speech’s venue

Notes Location where speech was held.
Available from – to 2012 – 2017
Source Bundesbank homepage
Variable type string
### spch_lang: Speech’s language

<table>
<thead>
<tr>
<th>Notes</th>
<th>Language of the speech’s textbody, possibly generated by the translation service, provided as ISO 639-1 code.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Bundesbank homepage</td>
</tr>
<tr>
<td>Variable type</td>
<td>categorical</td>
</tr>
</tbody>
</table>

### spch_sec_num: Speech’s section number

<table>
<thead>
<tr>
<th>Notes</th>
<th>Generally the speeches of members of the executive board of the Deutsche Bundesbank are structured in various sections. According to that structure, there are section numbers (spch_sec_num), section titles (spch_sec_title), and the according textbodys (spch_sec_body). Note: This means that a single speech is spread across as many rows as there are sections in the respective speech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Bundesbank homepage</td>
</tr>
<tr>
<td>Variable type</td>
<td>integer</td>
</tr>
</tbody>
</table>

### spch_sec_title: Speech’s section title

<table>
<thead>
<tr>
<th>Notes</th>
<th>Generally the speeches of members of the executive board of the Deutsche Bundesbank are structured in various sections. According to that structure, there are section numbers (spch_sec_num), section titles (spch_sec_title), and the according textbodys (spch_sec_body). Note: This means that a single speech is spread across as many rows as there are sections in the respective speech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Bundesbank homepage</td>
</tr>
<tr>
<td>Variable type</td>
<td>string</td>
</tr>
</tbody>
</table>

### spch_sec_body: Speech’s section body

<table>
<thead>
<tr>
<th>Notes</th>
<th>Generally the speeches of members of the executive board of the Deutsche Bundesbank are structured in various sections. According to that structure, there are section numbers (spch_sec_num), section titles (spch_sec_title), and the according textbodys (spch_sec_body). Note: This means that a single speech is spread across as many rows as there are sections in the respective speech.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Bundesbank homepage</td>
</tr>
<tr>
<td>Variable type</td>
<td>string</td>
</tr>
</tbody>
</table>
**spkr_titles:** Speaker’s title(s)

<table>
<thead>
<tr>
<th>Notes</th>
<th>Speaker’s title(s) accompanying the name, including Prof., Dr., Dr. h.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>string</td>
</tr>
</tbody>
</table>

**spkr_gender:** Speaker’s gender

<table>
<thead>
<tr>
<th>Notes</th>
<th>Female or male.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>categorical</td>
</tr>
</tbody>
</table>

**spkr_bbk_role:** Speaker’s role in Deutsche Bundesbank’s executive board.

| Notes | President, vice-president or member or combinations of those.  
*Note:* Speakers may have worked in different functions in the Bundesbank’s board. Then, `spkr_bbk_role` lists all functions separated by commas. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>categorical</td>
</tr>
</tbody>
</table>

**spkr_phd:** Indication wheather the speaker has a PhD or a Dr

<table>
<thead>
<tr>
<th>Notes</th>
<th>Dummy variable; TRUE if the speaker has a PhD or doctorate, FALSE otherwise.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>boolean</td>
</tr>
</tbody>
</table>

**spkr_major:** Field of the speaker’s studies

<table>
<thead>
<tr>
<th>Notes</th>
<th>Categorical variable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>categorical</td>
</tr>
</tbody>
</table>

**spkr_apprenticeship:** Indication wheather the speaker completed an apprenticeship successfully, and field of apprenticeship

<table>
<thead>
<tr>
<th>Notes</th>
<th>Dummy variable; TRUE if the speaker has completed an apprenticeship successfully, FALSE otherwise.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>spkr_phd_univ</td>
<td>City of the university</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>spkr_nom_pol_body</td>
<td>Nominating political body</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>spkr_nom_pol_geo</td>
<td>Nominating federal state</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>spkr_nom_pol_party</td>
<td>Nominating political party</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
- spkr_phd_univ: City of the university, where the speaker has done her/his PhD, if any.
- spkr_nom_pol_body: The nominating political body is either the German federal government (Bundesregierung) – indicated as Government – or the German federal council (Bundesrat) – indicated as Council. Presidents, Vice-Presidents and one member (two members before 2007) are generally nominated by the federal government, whereas the remaining half is nominated by the federal council.
- spkr_nom_pol_geo: If the nominating political body (spkr_nom_pol_body) is the German federal council (Council), then the nomination rotates between groups of federal states.
- spkr_nom_pol_party: Political party/parties in charge for nominating the respective speaker for the job at the Executive Board of the Bundesbank at the federal state our country level.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
</table>
| spkr_pers_party | Speaker’s personal party affiliation  
Notes: Categorical variable with speaker’s personal party affiliation, if known. Else NA.  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: categorical |
| spkr_birthplace | Speaker’s place of birth  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: string |
| spkr_birth_year | Speaker’s year of birth  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: integer (YYYY) |
| spkr_birth_month | Speaker’s month of birth  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: integer (MM) |
| spkr_bbk_start | Date of speaker’s first day in office as a member of the executive board  
Notes: Date of speaker’s first day in office as a member of the executive board of the Deutsche Bundesbank.  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: date in ISO 8601 format (YYYY-MM-DD) |
| spkr_bbk_end | Date of speaker’s last day in office as a member of the executive board  
Notes: Date of speaker’s last day in office as a member of the executive board of the Deutsche Bundesbank.  
Available from – to 2012 – 2017  
Source: various, internet, publicly available  
Variable type: date in ISO 8601 format (YYYY-MM-DD) |
**spkr_bbk_dismissed**: Indication whether the term as a member of the executive board was ended under special circumstances

<table>
<thead>
<tr>
<th>Notes</th>
<th>Dummy variable; TRUE if speaker was dishonourably discharged from the executive board of the Deutsche Bundesbank, FALSE otherwise.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available from – to</td>
<td>2012 – 2017</td>
</tr>
<tr>
<td>Source</td>
<td>various, internet, publicly available</td>
</tr>
<tr>
<td>Variable type</td>
<td>boolean</td>
</tr>
</tbody>
</table>
References


## A Codelists

### A.1 spch_lang

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>de</td>
<td>German</td>
</tr>
<tr>
<td>en</td>
<td>Englisch</td>
</tr>
<tr>
<td>fr</td>
<td>French</td>
</tr>
<tr>
<td>it</td>
<td>Italian</td>
</tr>
</tbody>
</table>

### A.2 spkr_bbk_role

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>member</td>
<td>Speaker is member of the Bundesbank’s board of executives</td>
</tr>
<tr>
<td>vice-president</td>
<td>Speaker is vice-president of the Bundesbank’s board of executives</td>
</tr>
<tr>
<td>president, vice-president</td>
<td>Speaker is either president or vice-president of the Bundesbank’s board of executives</td>
</tr>
<tr>
<td>president</td>
<td>Speaker is president of the Bundesbank’s board of executives</td>
</tr>
</tbody>
</table>

### A.3 spkr_nom_pol_body

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Council</td>
<td>Speaker was nominated by the German Federal Council</td>
</tr>
<tr>
<td>Government</td>
<td>Speaker was nominated by the German Federal Government</td>
</tr>
</tbody>
</table>
B Validation rules

The validation rules were formulated such that they can be applied using R (R Core Team, 2018) and the validate package (van der Loo & de Jonge, 2018).

No missing values

<table>
<thead>
<tr>
<th>Description</th>
<th>Formal definition</th>
<th>Applicable variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>The applicable variables must not contain missing values.</td>
<td>!is.na(variable)</td>
<td>spch_id, spch_sec_body, spkr_surname, spkr_first_name, spch_datetime, spch_title, spkr_bbk_start, spkr_bbk_role, spch_loc, spch_occasion, spkr_phd, spkr_apprenticeship, spkr_nom_pol_body, spkr_pers_party, spkr_birthplace, spkr_birth_year, spkr_birth_month</td>
</tr>
</tbody>
</table>

No missing section title

<table>
<thead>
<tr>
<th>Description</th>
<th>Formal definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the section number is greater than one, there must be a section title.</td>
<td>if (spch_sec_num != 1) !is.na(spch_sec_title)</td>
</tr>
</tbody>
</table>

Start prior to end

<table>
<thead>
<tr>
<th>Description</th>
<th>Formal definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership at the Bundesbank's executive board must start before it ends.</td>
<td>if (!is.na(spkr_bbk_end)) spkr_bbk_end &gt; spkr_bbk_start</td>
</tr>
</tbody>
</table>

No missing values if speaker holds a PhD

<table>
<thead>
<tr>
<th>Description</th>
<th>Formal definition</th>
<th>Applicable variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the speaker holds a PhD, the applicable variables must not contain missing values.</td>
<td>if (spkr_phd == TRUE) !is.na(variable)</td>
<td>spkr_major, spkr_phd_univ, spkr_titles</td>
</tr>
</tbody>
</table>

No missing values on state who nominated speaker in council

<table>
<thead>
<tr>
<th>Description</th>
<th>Formal definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the speaker was nominated by the Federal Council, the information on the respective federal state must not contain missing values.</td>
<td>if(sprkr_nom_pol_body == &quot;Council&quot;) !is.na(sprkr_nom_pol_geo)</td>
</tr>
</tbody>
</table>

BBk start date must be prior to date of speech

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The speech must be held after the speaker became a member of the Bundesbank's executive board.</td>
<td></td>
</tr>
<tr>
<td>Rule Description</td>
<td>Formal Definition</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------</td>
</tr>
<tr>
<td><strong>Speech date must be prior to BBk end date</strong>&lt;br&gt;The speech should be held before the speaker left the Bundesbank’s executive board. This is a weak rule since farewell speeches are included in the data.</td>
<td>if (!is.na(spkr_bbk_end)) spch_datetime &lt; spkr_bbk_end</td>
</tr>
<tr>
<td><strong>Section numbers ascending</strong>&lt;br&gt;Section numbers must be ascending within spch_id.</td>
<td>if(spch_id == lag(spch_id, 1)) (spch_sec_num == lag(spch_sec_num, 1) + 1)</td>
</tr>
<tr>
<td><strong>First section number one</strong>&lt;br&gt;Section numbering has to start with one.</td>
<td>if(spch_id != lag(spch_id, 1)) spch_sec_num == 1</td>
</tr>
<tr>
<td><strong>Section body not allowed to start with number or [EMBEDDED]</strong>&lt;br&gt;This rules out some artefacts in the source data.</td>
<td>!grepl(&quot;^\d</td>
</tr>
<tr>
<td><strong>No variation within spch_id</strong>&lt;br&gt;The applicable variables must be constant within a given speech id.</td>
<td>spch_id variable</td>
</tr>
<tr>
<td>Applicable variables</td>
<td>spkr_surname, spkr_first_name, spch_datetime, spch_title, spch_occasion, spch_loc, spkr_titles, spkr_gender, spkr_bbk_role, spkr_phd, spkr_major, spkr_phd_univ, spkr_apprenticeship, spkr_nom_pol_body, spkr_nom_pol_geo, spkr_nom_pol_party, spkr_pers_party, spkr_birthplace, spkr_birth_year, spkr_birth_month, spkr_bbk_start, spkr_bbk_end, spkr_bbk_dismissed, spch_lang</td>
</tr>
<tr>
<td><strong>Allowed languages</strong>&lt;br&gt;No other languages than German, English, French, and Italian are allowed.</td>
<td>spch_lang %in% c(&quot;de&quot;, &quot;en&quot;, &quot;fr&quot;, &quot;it&quot;)</td>
</tr>
<tr>
<td>Description</td>
<td>Until now, speakers in the data must be either male or female.</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Formal definition</td>
<td><code>spkr_gender %in% c(&quot;male&quot;, &quot;female&quot;)</code></td>
</tr>
</tbody>
</table>