Online appendix for

COMPONENTS OF UNCERTAINTY

Vegard Høghaug Larsen

Norges Bank and BI Norwegian Business School, Norway
A Approximation of the posterior inference for LDA

The Latent Dirichlet Allocation (LDA) is estimated using the algorithm described in Griffiths and Steyvers (2004). The goal of the algorithm is to compute the posterior distribution of the hidden variables \((z, \Theta, \Phi)\) given the documents consisting of the observed words, \(w\). The corpus consists of \(M\) documents, each with \(N_m\) words and the index \(v\) will run through this vocabulary, which has a total size of \(V\). Following the notation in Section ???, we have that \(z = \{z_k\}_{k=1}^K\) is a vector of the \(K\) latent topics, \(\Theta = \{\theta_k\}_{k=1}^K\) are the word mixtures and \(\Phi = \{\varphi_m\}_{m=1}^M\) are the topic mixtures. The total probability of the model can be written as

\[
(1) \quad p(w, z, \Theta, \Phi | \alpha, \beta) = \prod_{k=1}^{K} p(\theta_k | \beta) \prod_{m=1}^{M} \left[ p(\varphi_m | \alpha) \prod_{i=1}^{N_m} p(z_{m,i} | \varphi_m) p(w_{m,i} | \theta_{w_{m,i}}) \right]
\]

The method we use here is called collapsed Gibbs sampling and the goal is to approximate the distribution \(p(z | w, \alpha, \beta)\). We start by integrating out \(\Theta\) and \(\Phi\):

\[
(2) \quad p(z, w | \alpha, \beta) = \int_{\Theta} \int_{\Phi} p(w, z, \Theta, \Phi | \alpha, \beta) d\Phi d\Theta
\]

The probability \(p(w | \alpha, \beta)\) does not depend on \(z\) and the conditional distribution \(p(z | w, \alpha, \beta)\) can be derived from \(p(z, w | \alpha, \beta)\) directly using Gibbs simulations. Heinrich (2005) shows on page 22 that the conditional distribution \(p(z | w, \alpha, \beta)\) can be simplified as:

\[
(3) \quad p(z_{(m,n)} = k | z_{-(m,n)}, w, \alpha, \beta) \propto \left( n_{m, -(m,n)}^{(k)} + \alpha \right) \frac{n_{k,-(m,n)}^{(v)} + \beta}{\sum_{i=1}^{V} n_{i,-(m,n)}^{(i)} + \beta}
\]

where \((m, n)\) represents the \(n\)th word in the \(m\)th document and \(-(m, n)\) denotes everything except \((m, n)\).

With one simulated sample of the posterior distribution for \(p(z | w, \alpha, \beta)\), the \(\theta\)’s and the \(\varphi\)’s can be estimated from:
\[ \hat{\theta}_{k,v} = \frac{n_{k}^{(v)} + \beta}{\sum_{i=1}^{V} n_{k}^{(i)} + \beta} \]

\[ \hat{\varphi}_{m,k} = \frac{n_{m}^{(k)} + \alpha}{\sum_{k=1}^{K} n_{m}^{(k)} + \alpha} \]

where \( n_{m}^{(k)} \) denotes the number of words in the \( m \)th document that is assigned to the \( k \)th topic, and \( n_{k}^{(v)} \) is the number of times the \( v \)th word in the vocabulary has been assigned to the \( k \)th topic.

I use the average of the estimated \( \hat{\theta} \)'s and \( \hat{\varphi} \)'s from the last 10 samples of the stored Gibbs simulations to approximate the word and topic mixtures used in the analysis. Before estimation, three parameters must be set. That is \( (K = 80, \alpha = \frac{50}{K}, \beta = \frac{200}{V}) \). It is possible to treat the priors as vectors, but I keep \( \alpha \) and \( \beta \) as scalars.
## B  Additional results

Table B1: Estimated topics and labeling

<table>
<thead>
<tr>
<th>Topic</th>
<th>Label</th>
<th>First words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic 0</td>
<td>Calendar</td>
<td>january, march, october, september, november, february</td>
</tr>
<tr>
<td>Topic 1</td>
<td>Family business</td>
<td>family, foundation, name, dad, son, fortune, brothers</td>
</tr>
<tr>
<td>Topic 2</td>
<td>Institutional investing</td>
<td>fund, investments, investor, return, risk, capital</td>
</tr>
<tr>
<td>Topic 3</td>
<td>Justice</td>
<td>lawyer, judge, appeal, damages, claim, supreme court</td>
</tr>
<tr>
<td>Topic 4</td>
<td>Surroundings</td>
<td>city, water, meter, man, mountain, old, outside, nature</td>
</tr>
<tr>
<td>Topic 5</td>
<td>Housing</td>
<td>housing, property, properties, apartment, square meter</td>
</tr>
<tr>
<td>Topic 6</td>
<td>Movies/Theater</td>
<td>movie, cinema, series, game, producer, prize, audience</td>
</tr>
<tr>
<td>Topic 7</td>
<td>Argumentation</td>
<td>word, besides, interesting, i.e., in fact, sure, otherwise</td>
</tr>
<tr>
<td>Topic 8</td>
<td>Unknown</td>
<td>road, top, easy, hard, lift, faith, outside, struggle, fast</td>
</tr>
<tr>
<td>Topic 9</td>
<td>Agriculture</td>
<td>industry, support, farmers, export, production, agriculture</td>
</tr>
<tr>
<td>Topic 10</td>
<td>Automobiles</td>
<td>car, model, engine, drive, volvo, ford, meller, toyota</td>
</tr>
<tr>
<td>Topic 11</td>
<td>USA</td>
<td>new york, dollar, wall street, president, usa, obama, bush</td>
</tr>
<tr>
<td>Topic 12</td>
<td>Banking</td>
<td>dnb nor, savings bank, loss, brokerage firm, kreditkassen</td>
</tr>
<tr>
<td>Topic 13</td>
<td>Leadership</td>
<td>position, chairman, ceo, president, elected, board member</td>
</tr>
<tr>
<td>Topic 14</td>
<td>Negotiation</td>
<td>solution, negotiation, agreement, alternative, part, process</td>
</tr>
<tr>
<td>Topic 15</td>
<td>Newspapers</td>
<td>newspaper, media, schibsted, dagbladet, journalist, vg</td>
</tr>
<tr>
<td>Topic 16</td>
<td>Health care</td>
<td>hospital, doctor, health, patient, treatment, medication</td>
</tr>
<tr>
<td>Topic 17</td>
<td>IT systems</td>
<td>it, system, data, defense, siem, contract, tandberg, deliver</td>
</tr>
<tr>
<td>Topic 18</td>
<td>Stock market</td>
<td>stock exchange, fell, increased, quote, stock market</td>
</tr>
<tr>
<td>Topic 19</td>
<td>Macroeconomics</td>
<td>economy, budget, low, unemployment, high, increase</td>
</tr>
<tr>
<td>Topic 20</td>
<td>Oil production</td>
<td>statoil, oil, field, gas, oil company, hydro, shelf, stavanger</td>
</tr>
<tr>
<td>Topic 21</td>
<td>Wage payments</td>
<td>income, circa, cost, earn, yearly, cover, paid, salary</td>
</tr>
<tr>
<td>Topic 22</td>
<td>Regions</td>
<td>trondheim, lic, north, stavanger, tromso, local, municipality</td>
</tr>
<tr>
<td>Topic 23</td>
<td>Family</td>
<td>woman, child, people, young, man, parents, home, family</td>
</tr>
<tr>
<td>Topic 24</td>
<td>Taxation</td>
<td>tax, charge, revenue, proposal, remove, wealth tax, scheme</td>
</tr>
<tr>
<td>Topic 25</td>
<td>EU</td>
<td>eu, eea, commission, european, brussel, membership, no</td>
</tr>
<tr>
<td>Topic 26</td>
<td>Industry</td>
<td>hydro, forest, factory, production, elke, industry, produce</td>
</tr>
<tr>
<td>Topic 27</td>
<td>Unknown</td>
<td>man, he, friend, smile, clock, evening, head, never, office</td>
</tr>
<tr>
<td>Topic 28</td>
<td>Mergers and acquisitions</td>
<td>orkla, storebrand, merger, bid, shareholder, acquisitions</td>
</tr>
<tr>
<td>Topic 29</td>
<td>UK</td>
<td>british, london, great britain, the, of, pound, england</td>
</tr>
<tr>
<td>Topic 30</td>
<td>Narrative</td>
<td>took, did, later, never, gave, stand, happened, him, began</td>
</tr>
<tr>
<td>Topic 31</td>
<td>Shipping</td>
<td>ship, shipping, dollar, shipowner, wilhelmsen, fleet, proud</td>
</tr>
<tr>
<td>Topic 32</td>
<td>Projects</td>
<td>project, nse, development, fornebu, entrepreneurship</td>
</tr>
<tr>
<td>Topic 33</td>
<td>Oil price</td>
<td>dollar, oil price, barrel, oil, demand, level, opec, high</td>
</tr>
<tr>
<td>Topic 34</td>
<td>Sports</td>
<td>olympics, club, football, match, play, lillehammer, sponsor</td>
</tr>
<tr>
<td>Topic 35</td>
<td>Organizations</td>
<td>leader, create, organization, challenge, contribute, expertise</td>
</tr>
<tr>
<td>Topic 36</td>
<td>Drinks</td>
<td>wine, italy, taste, drinks, italian, fresh, fruit, beer, bottle</td>
</tr>
<tr>
<td>Topic 37</td>
<td>Nordic countries</td>
<td>swedish, sweden, danish, denmark, nordic, stockholm</td>
</tr>
<tr>
<td>Topic 38</td>
<td>Airline industry</td>
<td>sas, fly, airline, norwegian, braathens, airport, travel</td>
</tr>
<tr>
<td>Topic 39</td>
<td>Entitlements</td>
<td>municipality, public, private, sector, pension, scheme</td>
</tr>
<tr>
<td>Topic 40</td>
<td>Employment</td>
<td>cut, workplace, measures, salary, labor, working, employ</td>
</tr>
</tbody>
</table>

Continued on next page
<table>
<thead>
<tr>
<th>Topic</th>
<th>Label</th>
<th>First words</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Politics</td>
<td>conservatives, party, ap, labor party, stoltenberg, frp</td>
</tr>
<tr>
<td>42</td>
<td>Funding</td>
<td>loan, competition, creditor, loss, bankruptcy, leverage</td>
</tr>
<tr>
<td>43</td>
<td>Literature</td>
<td>book, books, read, publisher, read, author, novel, wrote</td>
</tr>
<tr>
<td>44</td>
<td>Statistics</td>
<td>count, increase, investigate, share, average, decrease</td>
</tr>
<tr>
<td>45</td>
<td>Watercraft</td>
<td>ship, boat, harbor, strait, shipowner, on board, color</td>
</tr>
<tr>
<td>46</td>
<td>Results</td>
<td>quarter, surplus, deficit, tax, group, operating profit, third</td>
</tr>
<tr>
<td>47</td>
<td>TV</td>
<td>tv, nrk, channel, radio, digital, program, media</td>
</tr>
<tr>
<td>48</td>
<td>International conflicts</td>
<td>war, africa, irak, south, un, army, conflict, troops, attack</td>
</tr>
<tr>
<td>49</td>
<td>Elections</td>
<td>election, party, power, politics, vote, politician, support</td>
</tr>
<tr>
<td>50</td>
<td>Music</td>
<td>the, music, record, of, in, artist, and, play, cd, band, song</td>
</tr>
<tr>
<td>51</td>
<td>Oil service</td>
<td>rig, dollar, contract, option, offshore, drilling, seadrill</td>
</tr>
<tr>
<td>52</td>
<td>Tourism</td>
<td>hotel, room, travel, visit, stordalen, tourist, guest A</td>
</tr>
<tr>
<td>53</td>
<td>Unknown</td>
<td>no, thing, think, good, always, pretty, actually, never</td>
</tr>
<tr>
<td>54</td>
<td>Engineering</td>
<td>aker, kværner, rekke, contract, shipyard, maritime</td>
</tr>
<tr>
<td>55</td>
<td>Fishery</td>
<td>fish, salmon, seafood, norway, tons, nourishment, marine</td>
</tr>
<tr>
<td>56</td>
<td>Europe</td>
<td>german, russia, germany, russian, west, east, french, france</td>
</tr>
<tr>
<td>57</td>
<td>Law and order</td>
<td>police, finance guards, aiming, illegal, investigation</td>
</tr>
<tr>
<td>58</td>
<td>Weekdays</td>
<td>week, financial, previous, friday, wednesday, tdn, monday</td>
</tr>
<tr>
<td>59</td>
<td>Supervision</td>
<td>report, information, financial supervision, enlightenment</td>
</tr>
<tr>
<td>60</td>
<td>Retail</td>
<td>shop, brand, steen, rema, reitan, as, group, ica, coop</td>
</tr>
<tr>
<td>61</td>
<td>Startups</td>
<td>bet, cooperation, establish, product, party, group</td>
</tr>
<tr>
<td>62</td>
<td>Food</td>
<td>food, restaurant, salt, nok, pepper, eat, table, waiter</td>
</tr>
<tr>
<td>63</td>
<td>Stock listings</td>
<td>shareholder, issue, investor, holding, stock exchange listing</td>
</tr>
<tr>
<td>64</td>
<td>Asia</td>
<td>china, asia, chinese, india, hong kong, south, authorities</td>
</tr>
<tr>
<td>65</td>
<td>Art</td>
<td>picture, art, exhibition, gallery, artist, museum, munch</td>
</tr>
<tr>
<td>66</td>
<td>Disagreement</td>
<td>criticism, express, asserting, fault, react, should, alleging</td>
</tr>
<tr>
<td>67</td>
<td>Debate</td>
<td>degree, debate, context, unequal, actually, analysis</td>
</tr>
<tr>
<td>68</td>
<td>Life</td>
<td>man, history, dead, him, one, live, church, words, strokes</td>
</tr>
<tr>
<td>69</td>
<td>Goods and services</td>
<td>customer, post, product, offers, service, industry, firm</td>
</tr>
<tr>
<td>70</td>
<td>Telecommunication</td>
<td>telenor, mobile, netcom, hermansen, telia, nokia, ericsson</td>
</tr>
<tr>
<td>71</td>
<td>IT technology</td>
<td>internet, net, pc, microsoft, technology, services, apple</td>
</tr>
<tr>
<td>72</td>
<td>Monetary policy</td>
<td>interest rate, central bank, euro, german, inflation, point</td>
</tr>
<tr>
<td>73</td>
<td>Education</td>
<td>school, university, student, research, professor, education</td>
</tr>
<tr>
<td>74</td>
<td>Regulations</td>
<td>rules, authorities, competition, regulations, bans</td>
</tr>
<tr>
<td>75</td>
<td>Trade organizations</td>
<td>lo, uho, members, forbund, strike, organization, payroll</td>
</tr>
<tr>
<td>76</td>
<td>Fear</td>
<td>fear, emergency, hit, severe, financial crisis, scared</td>
</tr>
<tr>
<td>77</td>
<td>Fiscal policy</td>
<td>suggestions, parliamentary, ministry, selection, minister</td>
</tr>
<tr>
<td>78</td>
<td>Energy</td>
<td>energy, emissions, statkraft, industry, environment</td>
</tr>
<tr>
<td>79</td>
<td>Foreign</td>
<td>foreign, abroad, japan, japanese, immigration, games</td>
</tr>
</tbody>
</table>

Note: The topics are labeled based on the meaning of the most important words, see the text for details.

The “# of articles” column reports the number of articles, in the full sample that, according to the model, belong to that specific topic. The words are translated from Norwegian to English using Google Translate.

For some words the translation from Norwegian to English creates phrases or bigrams, e.g., central bank in Norwegian is sentralbank.
# Table B2: Historical events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1990s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GW1</td>
<td>1990-08-02</td>
<td>Gulf War 1 (2 August 1990 – 28 February 1991)</td>
</tr>
<tr>
<td>Fixed rate (ECU)</td>
<td>1990-10-01</td>
<td>MPR: Fixed exchange rate pegged to ECU</td>
</tr>
<tr>
<td>Bank bailout</td>
<td>1991-12-20</td>
<td>The nationalization of several Norwegian banks</td>
</tr>
<tr>
<td>Talk of bank mergers</td>
<td>1992Q1</td>
<td>Talk of bank mergers related to banking crisis</td>
</tr>
<tr>
<td>Free float</td>
<td>1992-12-01</td>
<td>MPR: Free float exchange rate (leaving the ECU)</td>
</tr>
<tr>
<td>Moland</td>
<td>1994-01-01</td>
<td>New central bank governor: Moland</td>
</tr>
<tr>
<td>Stability t.w. EU</td>
<td>1994-05-01</td>
<td>MPR: Stability t.w. EU currencies</td>
</tr>
<tr>
<td>EU vote</td>
<td>1994-11-28</td>
<td>Norwegian referendum for EU membership</td>
</tr>
<tr>
<td>Storvik</td>
<td>1996-01-01</td>
<td>New central bank governor: Storvik</td>
</tr>
<tr>
<td>Failed bank merger</td>
<td>1997-06-26</td>
<td>Failed merger between Storebrand and Kreditkassen</td>
</tr>
<tr>
<td>Asian crisis</td>
<td>1997-11-01</td>
<td>The Asian financial crisis</td>
</tr>
<tr>
<td>LTCM Default</td>
<td>1998-09-23</td>
<td>Collapse of Long-Term Capital Management</td>
</tr>
<tr>
<td>Gjedrem</td>
<td>1999-01-01</td>
<td>New central bank governor: Gjedrem</td>
</tr>
<tr>
<td><strong>2000s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation tgt.</td>
<td>2001-03-01</td>
<td>MPR: Inflation target and floating FX</td>
</tr>
<tr>
<td>Nordic Coop merger</td>
<td>2001-04-05</td>
<td>3 Scandinavian retail cooperatives merged into Coop Norden</td>
</tr>
<tr>
<td>9/11</td>
<td>2001-09-11</td>
<td>The Al-Qaeda attack on 9/11</td>
</tr>
<tr>
<td>War in Afghanistan</td>
<td>2001-10-07</td>
<td>War in Afghanistan (7 October 2001 – 28 December 2014)</td>
</tr>
<tr>
<td>GW2</td>
<td>2003-03-20</td>
<td>Gulf War 2 (20 March 2003 – 01 May 2003)</td>
</tr>
<tr>
<td>Statoil-Hydro merger</td>
<td>2006-12-18</td>
<td>Norway’s two national oil companies are to merge to create the world’s biggest offshore operator.</td>
</tr>
<tr>
<td>Credit crunch</td>
<td>2007-08-01</td>
<td>Start of the Global Financial Crisis</td>
</tr>
<tr>
<td>Lehman</td>
<td>2008-09-15</td>
<td>The collapse of Lehman Brothers</td>
</tr>
<tr>
<td><strong>2010s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Libyan civil war</td>
<td>2011-02-15</td>
<td>15 February 2011 – 23 October 2011</td>
</tr>
<tr>
<td>Olsen</td>
<td>2011-01-01</td>
<td>New central bank governor: Olsen</td>
</tr>
<tr>
<td>Stock market crash</td>
<td>2011-08-01</td>
<td>Stock market crash</td>
</tr>
<tr>
<td>Greek prop. refer.</td>
<td>2011-10-31</td>
<td>Greek proposed economy referendum</td>
</tr>
<tr>
<td>Egyptian coup</td>
<td>2013-07-03</td>
<td>Egyptian coup d’état</td>
</tr>
<tr>
<td>OPEC meeting</td>
<td>2014-11-28</td>
<td>OPEC chose not to reduce production</td>
</tr>
<tr>
<td>Brexit</td>
<td>2016-06-26</td>
<td>UK voted to leave the EU</td>
</tr>
<tr>
<td>Aleppo recaptured</td>
<td>2016-12-01</td>
<td>Syrian Civil War: Russian/Iranian/Turkish-backed ceasefire</td>
</tr>
</tbody>
</table>

*Note: Details on the historical events that are indicated in the plots of the uncertainty indexes. MPR is an abbreviation for Monetary Policy Regime. Statoil-Hydro merger: [https://www.ft.com/content/836f18c8-8e75-11db-a7b2-0000779e2340](https://www.ft.com/content/836f18c8-8e75-11db-a7b2-0000779e2340).*
Figure B1: Correlation between the topic-based measures

Note: The correlations are computed at a quarterly frequency. See Table B1 for the corresponding topic labels. Blue represents a positive correlation while red represents a negative one.
C Alternative models

Figure C2: Impulse responses from a shock to *Macroeconomic* uncertainty

*Note:* The shaded areas represent the 68 percent (point-wise) HPD credible sets for the IRFs and the dashed lines are the median IRFs. The results in red is from the baseline model and results in blue are from a model where there is no narrative sign restrictions.
Figure C3: Impulse responses from a shock to M&A uncertainty

Note: See note in Figure C2.
Figure C4: Impulse responses from a shock to *Macroeconomic* uncertainty

![Graphs showing impulse responses for Macro uncertainty, M&A uncertainty, Asset prices, Interest rate, Investment, and Output.](image)

**Note:** The shaded areas represent the 68 percent (point-wise) HPD credible sets for the IRFs and the dashed lines are the median IRFs. The results in red are from the baseline model and results in blue are from a model where only the narrative restrictions 1 and 3 are imposed.

Figure C5: Impulse responses from a shock to *Macroeconomic* uncertainty

![Graphs showing impulse responses for Macro uncertainty, M&A uncertainty, Asset prices, Interest rate, Investment, and Output.](image)

**Note:** The shaded areas represent the 68 percent (point-wise) HPD credible sets for the IRFs and the dashed lines are the median IRFs. The results in red are from the baseline model and results in blue are from a model where only the narrative restrictions 2 and 3 are imposed.
Figure C6: Impulse responses from a shock to *Macroeconomic* uncertainty

Note: The shaded areas represents the 68 percent (point-wise) HPD credible sets for the IRFs and the dashed lines are the median IRFs. The results in red is from the baseline model and results in blue are from a model where there is no restriction on the persistence of the uncertainty shock.

Figure C7: Impulse responses from a shock to *M&A* uncertainty

Note: See note in Figure C6.
Figure C8: Impulse responses from a shock to M&A uncertainty

Note: Controlling for the amount of coverage of M&A news in the newspaper. The shock is a one standard deviation increase in the uncertainty measure. To control for the media coverage of M&A news I have added the frequency of this type of news in the newspaper. The model is identified using the narrative sign restrictions as explained in Section 5 in the paper. The 68 percent confidence bands are plotted. The asset pricing response is not shown to conserve space.
Figure C9: Impulse responses from a shock to Startups uncertainty

Note: The shock is a one standard deviation increase in the uncertainty measure. The model is identified using a recursive ordering and the ordering is as follows: asset prices, Macroeconomic uncertainty, Startups uncertainty, interest rates, investment, and output. The 68 percent confidence bands are plotted.
Figure C10: Impulse responses from a shock to Stock listings uncertainty

Note: The shock is a one standard deviation increase in the uncertainty measure. The model is identified using a recursive ordering and the ordering is as follows: asset prices, Macroeconomic uncertainty, Stock listings uncertainty, interest rates, investment, and output. The 68 percent confidence bands are plotted.
Figure C11: Impulse responses from a shock to *Macroeconomic* uncertainty

Note: The shock is a one standard deviation increase in the uncertainty measure. The model is identified using a recursive ordering. The ordering is as follows: asset prices, *Macroeconomic* uncertainty, *Mergers & acquisitions* uncertainty, interest rates, investment, and output. The 68 percent confidence bands are plotted.
Figure C12: Impulse responses from a shock to M&A uncertainty

Note: See note in Figure C11.
D Norwegian Economic Policy Uncertainty

Baker et al. (2016) create an economic policy uncertainty (EPU) index for 11 countries. These indices have proven to be popular and are available through commercial data resources such as Bloomberg, FRED, and Reuters. This index is not available for Norway, and this section will follow Baker et al. (2016) and create this index based on the Norwegian newspaper DN. The series is plotted in Figure D13.

The index is created by counting the articles that contain words from three categories of words: *uncertainty* or *uncertain*; *economic* or *economy*; and Baker et al. (2016) use the following policy terms: *congress*, *deficit*, *Federal reserve*, *legislation*, *regulation* or *white house*. These three categories are named: uncertainty, economy, and policy. The counted articles contain words from all of them. Each day the final count is divided by the total number of articles that day to control for changes in total news coverage over time. The words need to be translated into their Norwegian counterparts to suit a Norwegian setting, the translations used are given in Table D3.

Figure D13: Economic Policy Uncertainty Index for Norway

Note: The index is calculated by counting articles that contain words from the *uncertainty* terms, the *economy* terms, and the *policy* terms.
Table D3: Term Sets for the Norwegian EPU index

<table>
<thead>
<tr>
<th>Category</th>
<th>English</th>
<th>Norwegian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty</td>
<td><em>uncertainty</em> or <em>uncertain</em></td>
<td><em>usikker</em> or <em>usikkerhet</em></td>
</tr>
<tr>
<td>Economy</td>
<td><em>economic</em> or <em>economy</em></td>
<td><em>økonomisk</em> or <em>økonomi</em></td>
</tr>
<tr>
<td>Policy</td>
<td><em>government</em></td>
<td><em>regjering</em></td>
</tr>
<tr>
<td></td>
<td><em>parliament</em></td>
<td><em>storting</em></td>
</tr>
<tr>
<td></td>
<td><em>authorities</em></td>
<td><em>myndigheter</em></td>
</tr>
<tr>
<td></td>
<td><em>tax</em></td>
<td><em>skatt</em></td>
</tr>
<tr>
<td></td>
<td><em>regulation</em></td>
<td><em>regulering</em></td>
</tr>
<tr>
<td></td>
<td><em>budget</em></td>
<td><em>budsjet</em></td>
</tr>
<tr>
<td></td>
<td><em>deficit</em></td>
<td><em>underskudd</em></td>
</tr>
<tr>
<td></td>
<td><em>ministry of finance</em></td>
<td><em>Finansdepartementet</em></td>
</tr>
<tr>
<td></td>
<td><em>central bank</em></td>
<td><em>sentralbank</em></td>
</tr>
</tbody>
</table>

*Note:* I also include variations of the words given in this table such as *taxation* and *regulations.*
References

