Committing to Fiscal Policy: 
The Influence of the U.S. President on Consumer Confidence and Output

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Committing to Fiscal Policy: The Influence of the U.S. President on Consumer Confidence and Output

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Abstract

This paper examines whether the U.S. president’s fiscal commitment raises confidence and ultimately output. We analyze 80,545 U.S. presidential speeches by using a probabilistic topic model to construct a continuous measure on the president’s commitment to fiscal policy. Impulse responses from a SVAR model confirm that a stronger commitment temporarily boosts consumer confidence which then stimulates output.

Keywords: topic model, fiscal policy, SVAR, confidence

JEL: C32, C82, D72, D83, E62

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1. Introduction

At least since the seminal thoughts of John Maynard Keynes, economists have examined the ways in which sentiment and confidence (“animal spirits”) influence the real economy [Ludvigson 2004]. It is widely believed today that consumer confidence is a crucial transmission channel for policy shocks [Bachmann and Sims 2012]. Hence, verifying such a transmission channel and determining the impact factors on confidence is an important subject for economic research.

Findings from political science imply that politics – in particular the U.S. president – has influence on consumer’s confidence (e.g., Cohen and Hamman 2003; De Boef and Kellstedt 2004). This impact stems from the formal and informal powers granted to the president. For example, presidents can strategically influence the content, timing and publication of news to promote their political agenda. One announcement often suffices to attract and redirect attention by the media and the public (e.g., Zeidenstein 1984; Miles 2014). Eshbaugh-Soha (2013) show that the president’s press conferences are frequently cited by the media which consequently directs public opinion. The president also steers the political agenda of the congress with respect to macroeconomic topics [Rutledge and Larsen Price 2014].

Based on this strand of literature we hypothesize that the president can raise consumer confidence by signaling a commitment to fiscal policy issues. Such a commitment increases beliefs in fiscal sustainability and hence raises confidence (e.g., Barsky and Sims 2011). Increased confidence in turn stimulates output. To reveal the president’s fiscal policy commitment, we apply the Latent Dirichlet Allocation (LDA) algorithm to the Public Papers of the Presidents. To the best of our knowledge, this is the first attempt using LDA to combine the literature of (political) impact factors on confidence and the transmission channel of confidence to output.

2. Data and Methodology

2.1. Data

We analyze 80,545 presidential speeches between 1960 and 2015 collected from The American Presidency Project [Woolley and Peters 2015]. Quarterly data on tax revenues and GDP are taken from the BEA’s NIPA tables. Quarterly data on the Consumer Confidence Index is obtained from Thomson Reuters Datastream. Macroeconomic variables are in logarithms of real per capita terms.

2.2. Topic Models

Probabilistic topic models are algorithms that can discover topics within a large corpus of documents without the need of classifying information [Blei 2012]. To identify topics within the presidential speeches, we use the LDA algorithm proposed by [Blei et al. 2003]. LDA is a hierarchical Bayesian model that assumes documents to exhibit multiple topics, where documents
are distributions over topics and topics distributions over words. We follow Dybowski and Dybowski (2016) to reveal the 100 most prevalent topics by performing 5000 iterations on our corpus.

LDA analyzes all documents by grouping related words of the corpus together to form coherent topics. Within these topics words are ordered according to their probability of occurrence. Table 1 depicts four revealed topics from the presidential speeches. For illustration, we only show the 20 most probable words of topics 42, 9, 52 and 94. Descriptive titles have to be inferred by the researcher since the algorithm only assigns consecutive numbers to topics. Based on visual inspection, we label topic 42 as fiscal commitment since words like budget, tax, spending and deficit are given the highest probability of occurrence. We label the other three topics environment, foreign affairs and U.S. armed forces according to the ordering of words.

<table>
<thead>
<tr>
<th>Fiscal commitment</th>
<th>Environment</th>
<th>Foreign affairs</th>
<th>U.S. armed forces</th>
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<tbody>
<tr>
<td>[topic 42]</td>
<td>[topic 9]</td>
<td>[topic 52]</td>
<td>[topic 94]</td>
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<td>prob. words</td>
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<td>republic</td>
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<td>parties</td>
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<td>president</td>
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<td>vietnam</td>
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<td>river</td>
<td>norther</td>
<td>navy</td>
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<td>ireland</td>
<td>force</td>
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<td>pollution</td>
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<td>balanced</td>
<td>forest</td>
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</table>

Table 1: Selected topics, revealed by LDA

The table presents four selected topics from the 100 topics discovered by LDA. For each topic we show the 20 most probable words. Topic labels are assigned from visual inspection of the words contained in each topic.

Having identified topic 42 as the fiscal commitment topic, we follow Griffiths and Steyvers (2004) and Dybowski and Dybowski (2016) to construct a monthly time series. Each observation is the highest monthly probability for topic 42 and corresponds to one presidential speech. Figure 1 depicts the respective plot, in which grey-shaded areas mark U.S. tax reforms as documented in Yang (2007). An inspection of speeches that cause the probability spikes in Figure 1 confirms our topic interpretation (see titles of selected speeches). Numerous spikes occur during documented tax reforms, underlining the tax policy aspect of the president’s fiscal commitment. Probability spikes outside the shaded areas can be pinned to fiscal policy issues such as the budget or the deficit/surplus.

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2. We use the Matlab Topic Modeling Toolbox by Griffiths and Steyvers (2004).
3. We also follow Dybowski and Dybowski (2016) to construct quarterly data for our empirical analysis.
2.3. SVAR model

We apply the fiscal commitment variable within a structural VAR framework. Estimation of the reduced form VAR\( (p) \) with \( p = 4 \) lags is standard \cite{Lutkepohl2005}. The reduced form errors \( (u_t) \) are linked to the structural innovations \( (\varepsilon_t) \) according to \( u_t = B \varepsilon_t \):

\[
\begin{align*}
    u_t^T &= a_C u_t^C + a_Y u_t^Y + a_F u_t^F + \varepsilon_t^T \\
    u_t^C &= b_T u_t^T + b_Y u_t^Y + b_F u_t^F + \varepsilon_t^C \\
    u_t^Y &= c_T u_t^T + c_C u_t^C + c_F u_t^F + \varepsilon_t^Y \\
    u_t^F &= d_T u_t^T + d_C u_t^C + d_Y u_t^Y + \varepsilon_t^F .
\end{align*}
\]

\( T, C, Y \) and \( F \) denote tax revenues, consumer confidence, GDP and fiscal policy commitment, respectively. We identify our SVAR model under considerations of \cite{BlanchardPerotti2002} and \cite{BachmannSims2012}. Specifically, we order confidence after taxes and use the output elasticity of tax revenues estimated by \cite{PereiraLopes2014} for the contemporaneous effect \( a_Y \).

The remaining identification is achieved by a recursive scheme with two exceptions: Due to a recognition lag in the presidents awareness of the Consumer Confidence Index, we postulate that the president’s commitment to fiscal policy is not immediately influenced by changes in consumer’s confidence. In contrast, president’s statements regarding fiscal policy have an immediate effect on consumer’s confidence. We thus set \( d_C = 0 \) and estimate \( b_F \) within the VAR.

To avoid problems associated with correlation of variables, we follow \cite{BlanchardPerotti2002} by estimating the coefficients of the output \( (u_t^Y) \) and the fiscal commitment \( (u_t^F) \) equation via 2SLS. We include a constant and dummies for NBER recessions and the financial crisis as exogenous variables.
Due to the availability of the Consumer Confidence Index and the estimated output elasticity of tax revenues by Pereira and Lopes (2014), our sample stretches from 1967:II to 2009:II.

3. Results

Figure 2 shows impulse response functions of our SVAR model. Impulse responses represent unit shocks of the respective variables. The shaded areas correspond to one standard deviation confidence intervals.

Figure 2: Estimated responses of (a) confidence to fiscal commitment, (b) GDP to confidence and (c) GDP to fiscal commitment. The dashed line is the isolated confidence channel of fiscal commitment to output. The shaded areas correspond to one-standard deviation bands, computed by Monte Carlo simulations with 500 replications.

From left to right, Figure 2 depicts the transmission channel of the president’s fiscal commitment via confidence on economic activity. Panel (a) shows the response of consumer confidence to a positive fiscal commitment shock. It is visible that a stronger fiscal commitment by the president boosts consumer confidence during the first four quarters. The peak effect is reached around 2 quarters after which it declines and quickly fades out. Panel (b) shows that output rises in response to a positive confidence shock. The impact reaches its maximum around 5 quarters. Panel (c) shows the direct effect of output to an increased fiscal commitment shock (solid line). This effect is positive and significant during the first six quarters, before it gradually fades out. In addition, panel (c) depicts the indirect effect of fiscal commitment to output via the “confidence channel” (dashed line). Following Bachmann and Sims (2012), this channel is given by $\partial Y / \partial F = \partial Y / \partial C \times \partial C / \partial F$, which is equivalent to $c_C \times b_F$ for the immediate effect. The dynamic confidence channel is revealed by multiplying the corresponding impulse responses over the forecast horizon $h = 1, \ldots, 12$. This indirect channel exhibits a positive effect on out-

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4Our identification is further supported by the negative response of output to a tax revenue shock. To conserve space, this is not shown but available upon request.
put and underlines that confidence is important for the transmission of the president’s fiscal
commitment into economic activity.

In sum, all findings support our hypotheses: The president raises confidence by committing
to fiscal policy. Increased confidence then raises output.

4. Conclusion

Consumer Confidence is an important source for politicians and economists to obtain insight
into the state of the economy. In addition, it is considered an important transmission channel of
policy shocks. We use a probabilistic topic model to obtain a continuous time series that contains
information about the president’s commitment to fiscal policy issues. We use this variable within
a SVAR model and show that an increase of the president’s commitment to fiscal policy raises
consumer confidence which then stimulates output. The impact of political and presidential
announcements on confidence is an important subject to be further investigated. The methods
and results in this letter serve as a starting point.
References


