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The effect of “sunshine” on policy deliberation: The case of the Federal Open Market Committee

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ABSTRACT

How does an increase in transparency affect policy deliberation? Increased government transparency is commonly advocated as beneficial to democracy. Others argue that transparency can undermine democratic deliberation by, for example, causing poorer reasoning. We analyze the effect of increased transparency in the case of a rare natural experiment involving the Federal Open Market Committee (FOMC). In 1994 the FOMC began the delayed public release of verbatim meeting transcripts and announced it would release all transcripts of earlier, secret, meetings back into the 1970s. To assess the effect of this change in transparency on deliberation, we develop a measure of an essential aspect of deliberation, the use of reasoned arguments. Our contributions are twofold: we demonstrate a method for measuring deliberative reasoning and we assess how a particular form of transparency affected ongoing deliberation. In a regression model with a variety of controls, we find increased transparency had no independent effect on the use of deliberative reasoning in the FOMC. Of particular interest to deliberative scholars, our model also demonstrates a powerful role for leaders in facilitating deliberation. Further, both increasing participant equality and more frequent expressions of disagreement were associated with greater use of deliberative language.

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1. Introduction

On his first full day in office President Obama signed a memorandum concerning “Transparency and Open Government” committing his administration to “an unprecedented level of openness” (Obama, 2009). Later, the Administration launched the Open Government Initiative,¹ widely viewed as part of a global trend to provide more information to citizens. “[T]here are few more important

struggles in the world today than the battle over who gets to know what” (Florini, 2007, p. 7). Obama’s premise, that transparency is unambiguously positive, is one many scholars doubt. In fact, some argue, under certain conditions transparency may harm the deliberation so essential to democracy.

In this paper we examine the effect of sunshine on deliberation. We study a natural experiment involving an abrupt and substantial increase in transparency in a powerful policy-making venue, the US Federal Reserve’s Federal Open Market Committee (FOMC). The FOMC is the key policy-making institution for US monetary policy. In October 1993, members of the FOMC learned transcripts of past meetings existed. They shortly thereafter decided to continue keeping transcripts and to publish all existing

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¹ This to reverse “a culture of secrecy in Washington.” See <https://www.whitehouse.gov/open>.

transcripts with a five-year lag. This presents a remarkable opportunity to look at the effects of a sudden and unanticipated change in transparency. Monetary policy is of great intrinsic importance, but it is not our primary interest here. Rather, the shift at the FOMC provides a rare experiment allowing us to study the consequences of increased transparency in real policy-making.

To examine the effects of transparency on deliberation, we must first address another issue: How can deliberation be measured? While empirical work on deliberation has grown substantially (Black, Burkhalter, Gastil, & Stromer-Galley, 2013), little of that work has produced measures of the central feature of deliberation—reasoning occurring between persons. In the terms of Bohman and Rehg (1999), it would be fair to say that existing empirical work has focused mostly on assessing *conditions* that facilitate deliberation and whether the *goals* of deliberation have been achieved, but not on the actual deliberative *process* or action. There are few studies that systematically measure the things that make discussions “deliberative”: processes of reasoning, arguing, and persuading.

In light of this, we develop a measure of the use of language reflecting a necessary element of deliberation, reasoning. We assemble a ‘dictionary’ of words and phrases reflecting reasoned exchanges among participants in a dialog. We assessed the validity of this measure by applying our method to dozens of transcripts of dialogic exchanges with varying levels of deliberation, ranging from conversations used for English instruction to public policy debates and meetings of a federal financial regulatory agency. These tests indicate that our method succeeds in distinguishing deliberative exchanges from non-deliberative ones and show that our approach could be used to study deliberation in policy areas beyond monetary policy. We use this measure to assess the effects of transparency on FOMC deliberation. In this case, increased transparency did not harm deliberation, although it clearly did affect behavior in several ways. This finding speaks to deliberative scholars concerned with the relative values of public versus secret deliberation. Also of interest for deliberative theorists, we found that leaders powerfully shape deliberation. The role of a leader or facilitator is under-theorized and this suggests an important avenue for future work. Consistent with the views of theorists, our estimates show that both increasing equality and disagreement are drivers of reasoned deliberation.

2. The transparency debate and the FOMC

Transparency is a familiar topic for students of democratic government. Reformers have widely advocated government transparency (Roberts, 2006). Possibly the most common justifications for transparency is that it improves accountability (Hood, 2010; Kosack & Fung, 2014). It is also claimed to heighten policy legitimacy while encouraging citizen participation. Greater transparency, in short, is thought to benefit democracy. In Fung’s formulation transparency takes three forms: Freedom of information, which depends on citizens requesting specific information; open government, in which governments release pertinent information without waiting for

requests; and targeted transparency, which uses rules to compel the (usually private sector) release of information useful to consumers making marketplace decisions (Fung, 2013, pp. 187–190). In this typology, releasing FOMC transcripts is a form of open government.

In a distinct, but parallel development, deliberative theorists typically call for public deliberation by citizens or their representatives (Bohman, 1996; Bohman & Rehg, 1999; Cohen, 1989; Gutmann & Thompson, 1996). Transparency and publicity are closely related concepts.² Here, we follow Naurin in viewing transparency as promoting publicity (Naurin, 2007). Publicity encourages deliberators to give reasons acceptable to others. It turns deliberation toward collective rather than private goods and facilitates inclusion of diverse interests. Publicity may also tend to produce more “correct” or effective policy choices, by incorporating diverse arguments or considerations and subjecting them to wide public assessment (Chambers, 2004; Cohen, 1986). In one of the few studies involving direct comparison of public and non-public deliberation, Steiner, Bächtiger, Spörndli, and Steenbergen (2004) support some of these claims. Comparing public and non-public legislative debates, they found that when deliberating in public, people offered nearly 30% more justifications for their positions and up to five times more references to common goods. However, public deliberation was characterized by less inter-group respect (2004, p. 129).

In certain instances, however, sunshine may hurt deliberation. Thompson concludes that “secrecy of various kinds is sometimes justified and even desirable in a democracy” (Thompson, 1999, p. 192). Gutmann and Thompson (1996) see the FOMC as an instance of justified secrecy. Chambers (2004) argues that scholars have inadequately considered the harmful effects of public deliberation. Public deliberation, she says, risks encouraging “plebiscitary reason” that is “poorly argued, shallow, or manipulative” (p. 389). In contrast, private deliberation may be more “carefully articulated, well reasoned and fully examined” (p. 392).³ In case studies of congressional and executive branch deliberation, Bessette (1994) found evidence that sunshine can be detrimental. In a study of constitution-writing, Elster (1998) concluded that secrecy could produce higher quality deliberation. Stasavage’s (2004, 2007) modeling shows that decisions made in public may increase the risks of breakdowns in bargaining and make participants less likely to share private information. He also concluded that public deliberation could lead to greater polarization. As this scholarship highlights, there are differing views as to sunshine’s effect on deliberation. Costs may offset benefits.

All of this makes the FOMC natural experiment particularly interesting. In this case we have transcript records spanning both sides of an abrupt transition to greater transparency. Prior to late 1993 members were unaware that any transcript was retained longer than the short period

² The terms are sometimes used in similar if not identical ways (e.g., Gutmann & Thompson, 1996; Stasavage, 2004).

³ Chambers also notes the benefits of public deliberation and detrimental effects of conducting it in private.

required to prepare limited meeting minutes. Participants believed their discussions were “secret” and their precise utterances could not be known. In this period, secrecy and deliberate public obfuscation were characteristic of central banking practices (Blinder, 2004). Central bankers were not expected to be forthcoming in explaining policy to others in government, the markets, or the public.

When the existence of transcripts became known, the Fed was already under pressure from Congress to reduce its secrecy (Lindsey, 2003). The FOMC then decided to publish transcripts with a five-year lag. The decision was viewed contemporaneously inside the Fed as almost certain to damage deliberation. Chairman Greenspan made such a claim in Congressional testimony (Greenspan, 1993). In a November 1993 FOMC meeting devoted extensively to the transcripts, he remarked, “I am most concerned. . . that the openness and free exchange of views so essential to monetary policy will be unduly compromised if we are forced into a premature, detailed disclosure of our deliberations” (p. 6).⁴

For some observers, releasing transcripts after a long lag may seem to be a very modest form of transparency. However, students of monetary policymaking have called the practice “extreme transparency” (Schonhardt-Bailey, 2013, p. 99) and have opposed it as detrimental to deliberation (Blinder, 2004). The release of transcripts was seen as violating the independence protecting the FOMC from political pressures so fundamental to sound central banking. Thus, what might appear as only a weak form of transparency in other policy venues was perceived as a radical move here. The practice of publishing central bank transcripts is so rare that the largest comparative study of central bank openness does not even use transcript release as one of its fifteen measures of transparency (Dincer & Eichengreen, 2014; also see Crowe & Meade, 2008; Fry, Julius, Mahadeva, Roger, & Sterne, 2000; Geraats, 2005).⁵ As we note below, insiders reported that this change altered the character of FOMC meetings in some respects. Were these fears warranted? Is it correct to be concerned that keeping transcripts for later release inhibits deliberation?

Meade and Stasavage (2008) are of special note. They contrasted three-year periods immediately before and after FOMC sunshine. Using a variety of controls, they found that the probability of members expressing disagreement with the Chairman decreased in the sunshine period. By inference, releasing transcripts made members more cautious in what they said, fearing reputational damage if they challenged Greenspan, who was viewed with reverence by outsiders. This is a clear example of an “audience effect” in which persons alter their behavior in response to being watched.

We note some caveats about Meade and Stasavage. First, as they show, the probability of members disagreeing with Greenspan was small *before* sunshine—about 16% overall. The reported decrease to about 14% is not sub-

stantively large and does not show that fewer individuals expressed disagreement. Second, between the “before” and “after” periods a number of personnel changes occurred in the FOMC. Several departing members were replaced by members with more moderate preferences, which might reduce disagreement.⁶ Third, the Chair’s behavior may not be exogenous to Committee composition. So, a slightly reduced rate of disagreement could be explained by the Chair’s actions to seek more agreement. Finally, as Goodfriend (2007) noted, the mid-1990s was a period in which “the world” achieved a working consensus on the core principles of monetary policy, especially the importance of inflation targeting. This growing consensus could result in reduced disagreement inside the FOMC independent of any effect of sunshine.⁷ For these reasons, we think the Meade and Stasavage findings do not settle the matter of how sunshine affected the FOMC.

Despite those caveats, we acknowledge that the Meade and Stasavage findings, the views of FOMC participants, and the work of some deliberative scholars suggest that transparency may harm FOMC deliberation. These views, in confrontation with those of the “sunshine optimists,” leave us uncertain concerning expectations about the effect of this form of sunshine on FOMC deliberation. Releasing transcripts opens members to potential audience effects. On one hand, the five-year lag may insulate members from such an effect and preserve the independence thought vital to effective modern monetary policymaking. On the other, five years, in some views, is not a long time. Members may still consider future reputational consequences if it becomes known they were responsible for making ‘bad calls’ (Geraats, 2005). The impact of an audience effect can be ambiguous. A fear of going on record saying “the wrong thing,” could inhibit meaningful, important contributions. Participants could try to cover all their bases, going on the record on both sides of a choice. But it could also encourage participants to prepare more carefully and to do a better job in justifying their decisions, knowing that others can assess their performance.

3. What is deliberation?

It is useful to distinguish between three aspects of deliberation: conditions that promote deliberation such as freedom and equality; the act or process of deliberating; and the outcomes or goals of deliberation. Theorists often approach deliberation holistically, studying two or more of these together when focusing on public sphere citizen deliberation (Habermas, 1996; Parkinson & Mansbridge, 2012). We think it is helpful to differentiate among these more systematically. In this study, we emphasize the act of deliberating and our interest is in deliberation occurring in a formal policymaking arena among policy experts. To measure the core deliberative act we follow Mercier and Landmore in defining deliberation as the use of reason to

⁴ There are more references to deliberation in the November 1993 meeting than in any other from 1978 to 2007.

⁵ The Fed is the only major central bank releasing transcripts except Japan, which imposes a 10-year lag (Warsh, 2014).

⁶ See Eijffinger et al. (2015). Relevant replacements included: Hoskins to Jordan; Angell to Yellen; Mullins to Blinder.

⁷ Schonhardt-Bailey provides evidence for such a pattern on the FOMC (2013).

make and evaluate arguments for and against propositions (Mercier & Landemore, 2012).⁸ Many scholars emphasize reasoning in deliberation. It is central to Habermas (1996). For Bessette (1994) democratic deliberation is “reasoning on the merits of public policy.” In Cohen’s influential analysis, “[a] deliberative conception puts public reasoning at the center of political justification” (Cohen, 1996, p. 99; see also Gutman & Thompson, 1996; Mucciaroni & Quirk, 2006; Steiner et al., 2004).

Scholars studying different forms of deliberation, from mass public to legislative, offer similar and broadly consistent views about the function of reasoning. For Bessette, deliberative reasoning involves “three essential elements: [providing] information, [making] arguments, and persuasion” (Bessette, 1994, p. 49). Cohen expects that participants in deliberation “state their reasons for advancing proposals, supporting them or criticizing them” (Cohen, 1989, p. 22). For Mucciaroni and Quirk, reasoning involves the “weighing of substantive information and considerations” (Mucciaroni and Quirk, 2006, p. 4). In the formulation of Jacobs et al., deliberation involves “offering evidence, advancing claims grounded in logic and facts, and listening and responding to counterarguments” (Jacobs et al., 2009, p. 11).

Mercier and Landemore (2012) present an “argumentative theory of reasoning” in which reasoning is collective and involves a “feedback loop” between participants. Deliberative reasoning occurs within a back-and-forth dialog. It begins with someone making an argument for or against a proposal. This could involve offering a justification for a policy position by providing information or evidence, or reasons for a particular interpretation of evidence. Or it might involve the assertion or assessment of causal linkages.⁹ Next, other participants evaluate the justifications offered by the first person and may in turn offer alternative arguments or justifications. The goal is “to find and evaluate arguments so as to convince others and be convinced” (248).

In sum, a core element of deliberation is reason-based argumentation. It requires participants to *justify* their own arguments and *evaluate* those of others (Mercier & Landemore, 2012). Participants examine premises (both factual and theoretical), draw inferences, and reach conclusions. This is a robust view of deliberation and real world political talk often falls short. We note that the definition of deliberation by normative theorists (e.g., Cohen, 1989; Habermas, 1996) is very similar to that used by those studying deliberation in institutional settings such as legislatures (e.g., Bessette, 1994; Mucciaroni & Quirk, 2006; Steiner et al., 2004). We believe that deliberation, so conceived, should be expected of the FOMC. Given the favorable setting and the expertise of its members, reasoned deliberation might be more likely here than among the mass public. Schonhardt-Bailey (2013) offers an extended state-

ment as to why the FOMC should be held to such a standard.

Two elements are important to our effort to apply this concept. First, this definition is centered on *how* deliberation occurs, rather than what topics are discussed. Second, this approach can be applied to deliberation occurring over time. Importantly, justification and evaluation need not be in an immediate response to the prior speaker. Back-and-forth conversation by itself might not be very deliberative. One could still observe meaningful reasoned argument and exchange without much immediate “back and forth.”

4. Deliberation in FOMC meetings

Throughout the transcripts, FOMC members characterize their interactions as ‘deliberation’ and place considerable value on the quality of those interactions. In our time-period members referred explicitly to deliberation in 40% of meetings.¹⁰ At least two former FOMC members have publically emphasized the importance of “genuine” or “robust” deliberation in the context of discussions of FOMC transparency (Blinder, 1998; Warsh, 2014). Schonhardt-Bailey (2013) suggests a pervasive positive stance toward deliberation among FOMC members.

The FOMC meets every six to eight weeks. With all members present there are 19 participants in its regular meetings (plus staff), of whom 12 vote. Typically, meetings begin with a review of policy implementation since the last meeting. Next comes an assessment of current economic conditions and future expectations, given current policy. Finally, there is discussion of the policy to be adopted for the upcoming period, followed by a vote. Each stage begins with a presentation by the staff, after which the staff respond to member questions—which may be quite extensive.

For some, the final portion of the meeting concerning policy for the future has been the place to look for deliberation (Meade & Stasavage, 2008).¹¹ However, this view oversimplifies deliberation. In the first part of an FOMC meeting, members compare their views of current trends and available evidence. Each member “takes a turn” in the discussion. In deliberative terms, this is a process of asserting and assessing the factual premises that support conclusions about the appropriate future policy. Even in this part of the meeting, members often advance arguments about policies in light of that evidence. In the final portion of the typical meeting, each member expresses policy preferences in light of the prior discussion. That is, the entire meeting is structured in a premise-conclusion format, and within that structure, members’ reasoning is developed over the course of the meeting.

The FOMC also illustrates that deliberation can take place *across* meetings. After leaving the FOMC, Lawrence

⁸ For some, a less bounded view of deliberation might also rely on emotional appeals or personal storytelling, and a focus on reason could penalize those less adept at reasoning. See Bickford (1996); Sanders (1997); Young (2003).

⁹ Steiner et al. (2004) similarly describe reasoned argumentation.

¹⁰ Based on a search for any of the following: deliberation OR deliberative OR “to deliberate” OR “we deliberate” OR deliberates OR deliberating OR deliberated.

¹¹ Across meetings, we compared the median sentence containing reasoning terms to the median sentence for the entire meeting. If the Meade and Stasavage view is correct, the medians would be very different. For our time period they are almost identical.

Mayer (2004) observed this as a feature of the FOMC. A member may discuss issues in one meeting, advancing an analysis and arguing for policy implications. A response from others may not come until later meetings. The first member may continue to offer additional justifications. Schonhardt-Bailey endorses this view based on her study of the FOMC transcripts (2013). Deliberation does indeed involve a dialog, but that dialog is not necessarily compact in time.

The FOMC case illustrates four general points: structuring meetings into different functional phases can have an inherently deliberative quality. Deliberative exchange can occur at any point during the meeting concerning premises, forecasts, policy conclusions. A deliberative argument can be developed over the course of a meeting, and need not be articulated, as it were, all in one breath. A deliberative argument and exchange can span meetings. Therefore, a method for identifying deliberation with these qualities cannot focus solely on immediate exchange.

5. A strategy for measuring reason-based discourse

Prior empirical work has mostly examined deliberative conditions or outcomes.¹² Few studies measure an active process of deliberating (Black et al., 2013 p. 324). A notable exception is Steiner et al. (2004).¹³ To study deliberation across four national legislatures, they develop a Habermasian “discourse quality index” for an intensive content analysis of parliamentary debates. This index measures the quality and extent of justifications participants offer, whether and how justifications reference the common good, expression of respect for others’ positions, and whether speakers’ statements contribute to consensus building. This is an impressive effort to measure deliberative processes. It is difficult to imagine extending this intensive content-coding methodology to a very large dataset. It also seems to mix indicators of outcomes (consensus) with process. It emphasizes an attitude (respect) that may contribute to productive deliberation but is not the same as deliberation.¹⁴

Schonhardt-Bailey (2013) relies on some of the same transcript material we examine. Methodologically, her approach is a form of text analysis often called “topic modeling” in which algorithms identify closely associated linguistic units (or “topics”) which are then interpreted by the analyst. However, while this technique is useful in tracking shifts in *what* is talked about, it is less informative about *how* talk occurs—via reasoning as opposed to the recitation of rules and maxims or statement of positions, etc. It remains unclear how much uniquely deliberative discussion is occurring and how it varies over time. Schonhardt-Bailey’s study covers three time periods (1979–1981, 1991–1993, and 1997–1999), two before

and one after sunshine. Because these time periods do not bracket the periods immediately before and after sunshine, the immediate impacts of transparency cannot be identified.¹⁵

The literature on deliberation leads us to a strategy that can be used to study a large body of textual data. We use a familiar “dictionary” approach to studying the occurrence of concepts in texts. The first step is to develop a priori lists of terms or phrases that represent an underlying concept. Then one observes the frequency of the terms and phrases in transcripts, whether experimental or observational. This method has been used recently by Karpowitz and Mendelberg (2014) in studying variation in behavior in experimental groups. Because this approach is scalable to a dataset of virtually any size, it allows us to avoid sampling and to study a long continuous stream of policy-making.¹⁶

We developed a dictionary of words and phrases uniquely associated with the process of reasoning. We have avoided terms associated with the particular substantive topics under deliberation. We have drawn on prepared lists of words and phrases that are thought to indicate logical argument¹⁷ and have sought, from a variety of other sources including dictionaries and thesauruses, other words and phrases that might commonly be used for reasoning with others. In doing so, we have drawn on the analyses of deliberative scholars¹⁸ and examined the language used by lawyers in legal briefs.¹⁹ We looked for terms that refer to factual premises or assumptions (e.g., words like assume, premise, evidence, proposition); words that signal inference-drawing (e.g., infer, judgment, predict, prove, justify); and words announcing a statement of conclusions (e.g., thus, therefore, consequently). We also looked for words descriptive of the process itself (e.g., debate, discuss, argue, argument) or words that signal a direct reasoning exchange (e.g., “your point,” or “it seems to me,” or “suggests to,” or “the point is”). We have read many FOMC transcripts looking for additional relevant language. Our software makes it easy to examine the text surrounding target terms and we used this feature to seek additional relevant keywords in adjacent text. We have examined each candidate word or phrase individually by looking at dozens of occurrences in dozens of FOMC transcripts. We deleted words or phrases that seemed to generate as many as 20% false positives²⁰ but retained relatively rare terms that did seem to consistently indicate deliberative reasoning. We refined our searches by employing Boolean operators AND; OR; AND NOT; and NEAR. We also specify case sensitivity and punctuation to further refine our

¹⁵ Completely reasonably so, because that is not her research problem.

¹⁶ Grimmer and Stewart (2013) call this a “dictionary method” of text analysis. Golub, Kaya, and Reay (2014) apply a similar method to the FOMC transcripts.

¹⁷ We considered dictionaries in the General Inquirer and Diction language programs. We searched online for sources offering guidance on the structure of arguments and inference and for lists of premise and conclusion terms for writers.

¹⁸ Schonhardt-Bailey (2013); Steiner et al. (2004).

¹⁹ For example, amicus briefs for *MetLife v. FSOC*, Civil Action No. 1:15-cv-45a.

²⁰ Such terms include affirm, approve, deduce, demonstrate, establish, examine, “seeing that.”

¹² Although most of this work has focused on citizen deliberation, deliberation in political institutions has also received attention, e.g., Bessette (1994); Mucciaroni and Quirk (2006); Steiner et al. (2004).

¹³ Rosenberg (2007) and Mucciaroni and Quirk (2006) also measure aspects of the deliberative process.

¹⁴ They find that publicity interferes with respect. We do not observe change in respect in the FOMC due to sunshine.

search. In sum; this approach allows for sophisticated specification of target terms and phrases. Our search identified over 80,000 instances of the terms in our dictionary (in nearly 70,000 sentences). Based on our repeated inspection of hundreds of search results; we excluded many variants of our search terms that were not pointing to uses of reason-based argumentation.²¹ See Appendix A for search terms.

6. Data and measurement validation

Our dataset includes the near-verbatim transcripts of every regular FOMC meeting between 1978–2007.²² This corpus exceeds 10 million words. We date the “sunshine” break as occurring as of November 1993.²³ The unit of analysis is a transcript sentence; the automated search provides a count of sentences containing one or more target terms. That count is then used to calculate on a per-meeting basis the relative frequency of sentences containing the targets.

We hoped to evaluate this method using recognized examples of high-quality deliberation, but we have been unable to find any such published records. Thus, to test the validity of the claim that our dictionary of terms differentiates between contexts with more or less deliberation, we applied our method to a variety of available transcripts. Based on the kind of dialog represented in these transcripts, we predicted the relative use of deliberative reasoning. For example, we do not expect a transcript of an “ordinary” casual conversation between friends to be very deliberative. We expect more use of deliberative reasoning in more formal settings involving public consideration of important issues, especially if that consideration precedes some kind of decision.

We examined the following sets of 229 transcripts: Transcripts of 23 ordinary English conversations prepared for online instruction in conversational English.²⁴ Transcripts of 24 episodes of CNN shows (most with extensive interviews) dealing with a variety of contemporary social topics.²⁵ Transcripts of 85 Watergate Tapes.²⁶ Transcripts of 30 US Presidential Debates.²⁷ Transcripts of episodes of 43 debates conducted by “Intelligence²” which features experts debating contemporary issues at length before a generally uncommitted live audience that later

Table 1
 Use of deliberative reasoning language, various transcripts.

Transcript source	Number of transcripts	Reasoning terms sentence ratio (std. dev.)
Basic English conversation	23	0.0192 (0.015)
CNN transcripts	24	0.013 (0.0052)
Watergate transcripts	85	0.049 (0.019)
US presidential debates	30	0.077 (0.03)
Intelligence ² debates	43	0.152 (0.039)
Commodity futures trading commission meetings	24	0.152 (0.037)
FOMC	247	0.162 (0.029)

“decides”.²⁸ Finally, we have 24 meetings of the Commodity Futures Trading Commission (CFTC) drawn from the period of implementing financial regulatory reform.²⁹

The preceding listing is ordered according to our expectations from less to more deliberative. The CFTC seems most clearly analogous to the FOMC. Our findings comparing these bodies to the FOMC are presented in Table 1. The relative use of reasoning terms closely corresponds to our expectations—the rank order is almost precisely consistent with our expectations. Our search terms suggest far less use of deliberative reasoning in ordinary conversations and CNN shows than in the CFTC and FOMC. This test indicates that our method does differentiate between potentially deliberative contexts in an appropriate way.

7. Sunshine: preliminary findings

Over the full study period, the ratio for use of reasoning terms in the FOMC was 0.1627 (sd 0.028) (see Table 1). That is, on average about 16% of transcript sentences include terms or phrases we identify as indicating deliberative reasoning. For the sunshine period, the ratio was 0.186 (sd 0.0187) and the pre-sunshine ratio was 0.143 (sd 0.0199). This difference is statistically significant and suggests that sunshine strongly *increased* deliberation. However, before accepting that conclusion, consider Fig. 1, graphing our measure of deliberative reasoning over our study period. While there clearly is more deliberation in the sunshine period, it is also clear that a shift toward more use of reasoning terms long predated the discovery and release of the transcripts. In fact, the move almost precisely coincided with Greenspan’s appointment as FOMC Chair in August 1987. Leadership has often been identified as a key factor in FOMC behavior, and the Chair’s role needs to be accounted for in any model of FOMC deliberation.

Before presenting a more complex model, we examine other indicators drawn from the transcripts that might show a ‘sunshine effect’ in the FOMC. None rely on content coding on our part. We examine: the use of informal language (contractions); the frequency of speaker changes during meetings (another indicator of formality, and, some think, deliberation); direct references by name to other members; and transcript notations of moments of laughter.

²¹ No list could be exhaustive, but clusters of other potential terms produced trends similar to what we report below. Of course, subtle aspects of reasoning may not be easily detected by any particular candidate words.

²² Certain sensitive or private information is redacted by the FOMC. Among the limited political science works using these records are Schonhardt-Bailey (2013) and Bailey and Schonhardt-Bailey (2006). Also see Meade and Stasavage (2008), Meade (2005), Thornton (2006), and Chappell, McGregor, Vermilyea (2005).

²³ This meeting was the first extensive discussion of transcripts in the FOMC. The date might be put a bit later when the FOMC formally decided to release transcripts with a lag. That would not change our conclusions.

²⁴ Accessed at: <http://www.betteratenglish.com>.

²⁵ “This is Life with Lisa Ling,” “Parts Unknown,” and “Somebody’s Gotta Do It” Accessed at: www.cnn.com.

²⁶ Which of course are of secret conversations. Accessed at: <http://www.nixonlibrary.gov/virtuallibrary/tapeexcerpts/>.

²⁷ The presidential debates of 1960, 1976, 1980, 1984, 1992, 1996, 2000, 2004, 2008, 2012, accessed at the American Presidency Project. <http://www.presidency.ucsb.edu/debates.php>.

²⁸ Accessed at: <http://intelligencesquaredus.org/debates>. Debaters hope to persuade audience members.

²⁹ Accessed at: <http://www.cftc.gov/PressRoom/SpeechesTestimony/index.htm>.

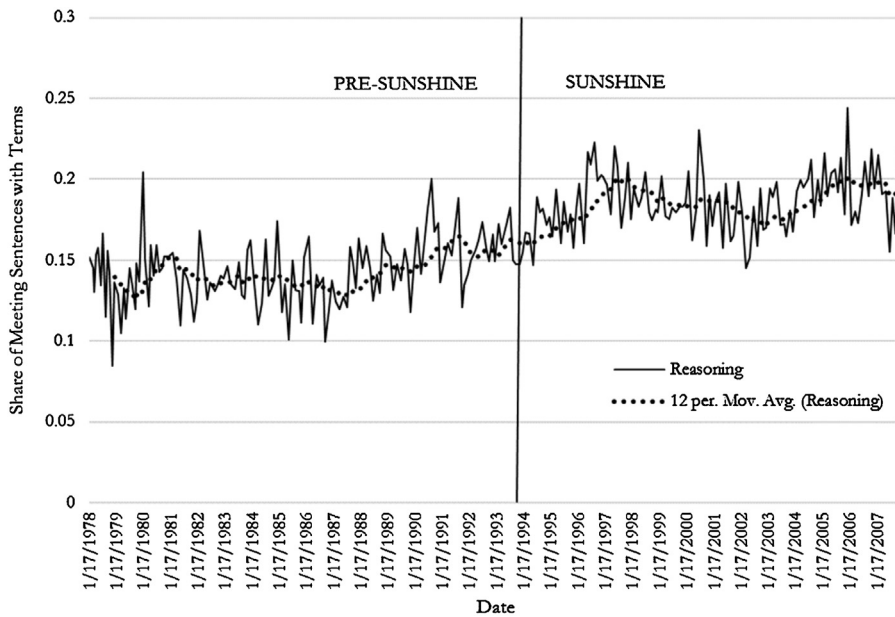


Fig. 1. Use of deliberative reasoning terms, 1978–2007. “Reasoning” is the ratio of sentences containing one or more reasoning terms to all sentences spoken in each FOMC meeting.
 Notes: Solid line: ratio per regular meeting; dotted line: twelve meeting moving average of reasoning terms; “sunshine break” is indicated by vertical line.

As noted, FOMC insiders have observed that an effect of sunshine was to reduce the “give-and-take” quality of FOMC discussions. Post-sunshine, more members used prepared statements. President Boehne noted in June 1998,

I recall participating in routine, vigorous, and free-wheeling debates in this room before we decided to release transcripts. Now, most of us read prepared remarks about our Districts and the national economy and even our comments on near-term policy sometimes are crafted in advance. Prepared statements were the rare exception rather than the rule until we started to release transcripts.³⁰

Does transcript evidence capture the change Boehne described? Boehne seems to describe a context of informal, direct give and take yielding to a rigid, formal one. However, the evidence is mixed. Consider these indicators:

Contractions: One simple indicator of informality is the use of contractions (other than possessives).³¹ Phrases shortened by contractions are common in informal talk, and students are taught to avoid them in professional writing. Based on the insider accounts, the onset of sunshine should have resulted in a decline in the use of contractions.

Speaker change: A characteristic of “freewheeling debates,” frequent back-and-forth between speakers is also sometimes taken as a marker of deliberative interchange. This can be calculated as the number of speakers (other than the chair, who mostly participates as a kind of “traf-

fic cop”) divided by the total number of sentences in the meeting (the inverse of this is the average number of sentences per speaking episode). Based on insider accounts this should have dropped as a consequence of sunshine.

Explicit reference to other members: References to other members by name are clear instances of direct interaction characteristic of deliberation. We have searched the transcript for every instance in which a member is referred to by name. The frequency of these references should decline if sunshine reduced the direct exchanges expected in deliberation.

[Laughter]: The transcripts include a fascinating feature, the editorial insertion of “[Laughter]” at various points in the meeting record. These are easily counted. The view that sunshine repressed spontaneity and interaction would lead us to expect that the relative frequency of “[Laughter]” would decline following the awareness of the transcripts.

These four indicators are graphed as separate panels in Fig. 2. As noted above, the results are quite mixed. Panel A, plotting the use of contractions, provides striking confirmation of the insider accounts of the effects of sunshine. There was a precipitous decline in the use of contractions. Note that the lowest rate of use of contractions did not occur until fully three years after the revelation of the transcripts—behavioral adaptation took some time. Second, and possibly even more important, ten years later, well after President Boehne’s observation quoted above, members used contractions at a rate similar to that of the mid-1980s. Our readings of the transcripts show that throughout the period of study there was always a great deal of extemporaneous talk. This points to an interesting question, whether FOMC insiders have been correct in seeing informality as a condition for deliberation.

³⁰ Also see Patrikis (2015), “a vigorous, unscripted debate... became instead choreographed performance, with committee members reading from prepared scripts.” Patrikis left the Fed in 1998.

³¹ For example: I’m OR I’ll OR I’d OR I’ve OR You’re OR You’ll OR You’d OR You’ve...

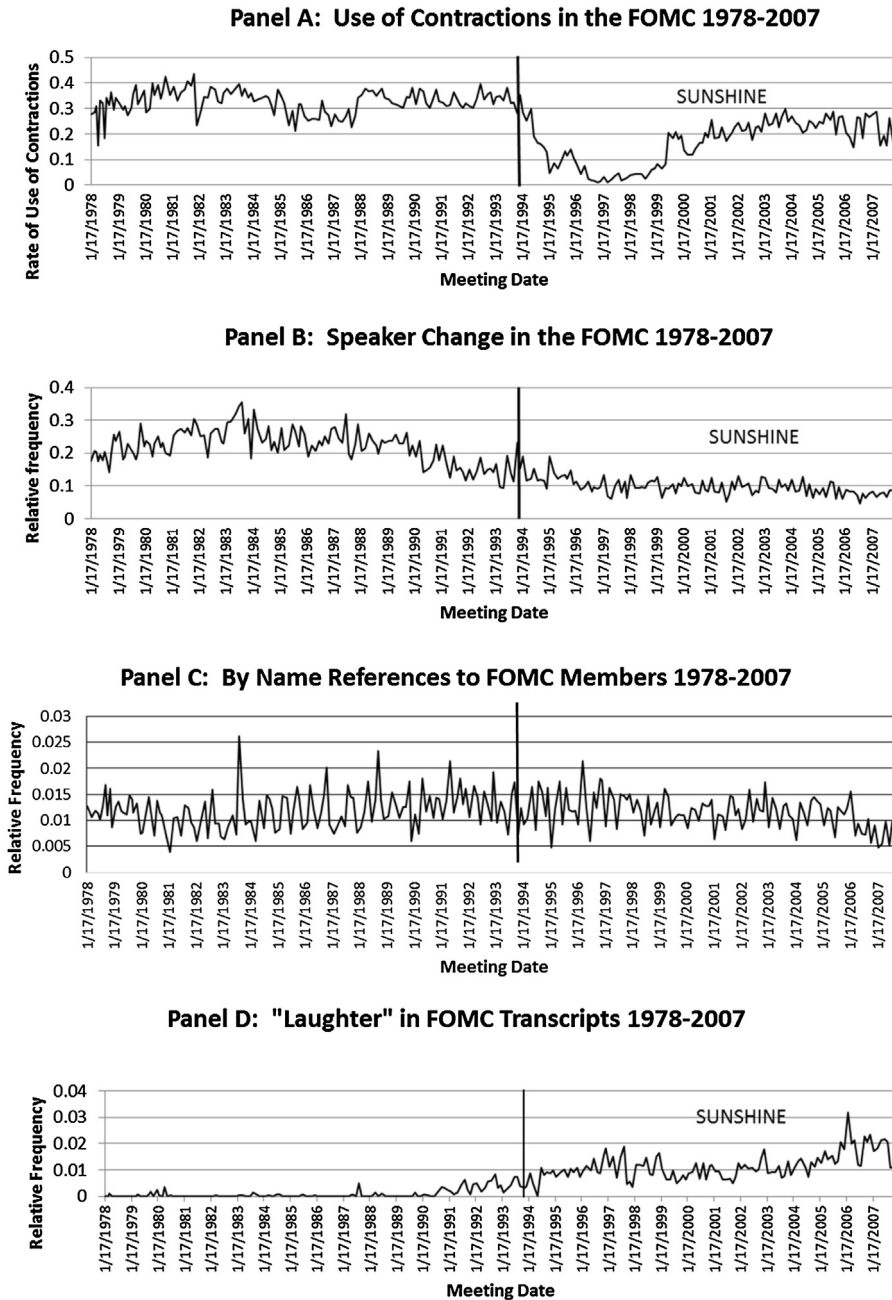


Fig. 2. Other FOMC sunshine effects.

This time-path of use of contractions may typify much organizational innovation. In the FOMC, a large initial displacement in informal language did not endure. Perhaps members of the FOMC noticed that outside observers made almost no use of the FOMC transcripts and that few important criticisms of the Fed were based in any precise way on them, much less on casual speech. The Meade and Stasavage study (2008) examined the behavior change apparent in the period 1994–1996—or precisely the period when the contractions data reveal the greatest impact.

Fig. 2, Panel B plots the data for frequency of speaker change. We do not observe an obvious large deflection of the series associated with sunshine, although on average speaker change is lower in the sunshine period than before. As with the use of reasoning language in Fig. 1, we can see that a decline begins from the start of the Greenspan era in late 1987. In this sense, FOMC meetings did become less free-flowing, but that trend long preceded transcript sunshine.

Panel C of Fig. 2 shows the trends over time in direct references to other members by name. The pre- and post-

sunshine averages are precisely identical. Sunshine did not affect the rates at which members spoke directly to each other by name. This applies as well for the subset of members whose tenure actually spanned the “sunshine moment.”

Finally, panel D of Fig. 2 for “[Laughter]” shows a nearly zero rate of laughter pre-sunshine, with a fairly clear jump in laughter during sunshine. The reporting of laughter began to trend upward in 1991, long before sunshine and well after Greenspan assumed the Chair. We speculate that in 1993 original tapes dating back to 1991 may have still existed for more careful retrospective review and revision prior to release of the transcripts.

While the growth of laughter might be an unanticipated kind of “audience effect,” our speculation is that it resulted from the practice of preparing a transcript explicitly for publication. Previously, transcripts were used for creating a meeting summary, not for publication. Pre-sunshine, the insertion of an editorial observation like “[Laughter]” was probably for the purpose of indicating a potential inaccuracy in the record. Later, it became part of providing a precise representation of what was on the tape. Another jump in laughter began in 2004. This followed a decision to contract with an outside firm to help prepare the transcript, which may have introduced different standards for noting laughter.³² An interesting question that we cannot address here is whether some other organizational change produced the reduction in laughter in 2007 or whether members were “getting serious” during the financial crisis.

8. A regression model of deliberative reasoning

In contrast to the sunshine “shock” reflected in the use of contractions, our measure of deliberative language measure shows, if anything, a slight increase following the decision to release the transcripts. There had been a long period of growing use of such language starting with Greenspan’s arrival as Chair. Is it possible nonetheless that there was an independent sunshine effect? To address that we need a more fully specified model. We examine four clusters of variables: leadership, economic conditions, meeting characteristics, and committee characteristics.³³ Often, as we note, we have specific directional hypotheses for these clusters derived from literature about deliberation or the FOMC.

8.1. Leadership

Nearly every study of the Federal Reserve notes the influential role of the Chair. It has sometimes been said that Chairman Volcker allowed more free-flowing discussion than Greenspan. We include two terms for each Chair serving during this period—a period dummy taking the value 1 when the individual is chair; and a length of service indicator, a count of the number of meetings since appoint-

ment as of each meeting.³⁴ It is reasonable, but not heavily emphasized in the deliberation literature, that leadership generally shapes the tone and conduct of deliberation. Certainly, different leaders have different ideas about what constitutes a “good meeting.” Aside from the anecdotal contrast of Volcker and Greenspan just noted, we have no basis to propose directional hypotheses in these cases.

8.2. Economic conditions

When economic conditions are extreme, less deliberation may be needed to reach agreement. Consequently, the higher inflation and unemployment are, the less need there would be for deliberation. Our measures are the change in “headline inflation” (CPI) over a year earlier, and the current unemployment rate (U).³⁵ We also include measures of recession periods as defined by the National Bureau of Economic Research (NBER). These are indicated by binary variables taking the value of 1 from peak to trough for all recessions in our period, 1980, 1981, 1990, 2001, and 2007.³⁶ These are typically periods of uncertainty and risk, and thus we would expect deliberation to increase in these periods. We previously noted Goodfriend’s (2007) observation of greatly increased professional consensus about the practice of monetary policy emerging by the mid-1990s. Such a consensus on appropriate policy suggests that more recent recessions (i.e., 2001, 2007) might not produce a substantial increase in deliberation.

8.3. Meeting characteristics

We identify meetings where one or more members dissented and meetings at which a decision was made to change the interest (Federal funds) rate. The dissents variable is simply the number of formal dissents (0–5) at a meeting. Generally, we expect that both formal dissents and policy change would provoke more deliberation. We note that these variables are not significantly correlated. That is, dissents do not tend to occur at meetings when policy is changed. Given the repeated examination of policy questions in the FOMC, one might expect that a consensus for policy change builds gradually, so that the moment of policy change is rarely a moment of surprise inducing additional deliberation or dissents. So dissents, as a token of disagreement, might be more clearly correlated with deliberation than would policy change.

8.4. Committee characteristics

We use three measures of committee characteristics, two of them computed from the transcripts. First is average length of prior service of all members (measured in meetings). As average experience on the entire committee

³² Use of outside contractors to speed transcript preparation for member review to allow quicker release of meeting minutes was announced May 4, 2004. Of course, “laughter” is not a standardized event.

³³ Descriptive statistics for all variables can be found in Appendix B.

³⁴ There is no coefficient estimated for Arthur Burns, whose effect is captured in the intercept term.

³⁵ FOMC members cite a different (but highly correlated) measure of inflation and use many “real economy” indicators. FOMC practices changed over the study period. We believe these measures suffice for present purposes.

³⁶ Accessed at: <http://www.nber.org/cycles.html>.

increases, we expect greater understanding of one another and greater clarity about policy mechanisms; thus less need for deliberation. We expect that as the length of service increases, deliberation will decrease.

Second, we include a measure of *expressions of disagreement* within the meeting. This is derived from a dictionary of our creation of words or phrases used to express disagreement.³⁷ Consistent with a great deal of literature, we expect that as disagreement increases, deliberation will increase.

Third, we include a measure of *inequality among speakers*. Using the count of sentences spoken by each participant, we calculate for each meeting the coefficient of variation (CV). This is the ratio of the standard deviation of sentences spoken by all members to the average (mean) number of sentences spoken by meeting participants. A higher CV for a particular meeting indicates greater *inequality* among speakers. Our view, consistent with literature on deliberation, is that inequality among members harms deliberation. On that ground, we expect a negative coefficient: the greater the CV, the lower the use of the language of deliberative reasoning.

The variable of interest is *sunshine*, a binary variable taking the value 1 for the period after the announcement of the existence of the transcripts. We ask whether, given these controls, sunshine has any additional independent effect on the conduct of FOMC deliberation. Given differing theoretical arguments, empirical findings, and views of FOMC participants, we hold no clear expectation as to sunshine's effect on deliberation.

We estimated a model using OLS. Our results are presented in [Table 2](#). The overall fit is good and the diagnostic tests do not suggest problems with residuals. The reported statistical tests on coefficients are two-tailed tests, but given our directional hypotheses as noted above, one-tailed tests are sometimes appropriate. We begin by discussing the results for our control variables.

8.5. Leadership

The leadership indicators confirm that Volcker and Greenspan had substantial—and opposite—impacts on deliberation. As our descriptive data show ([Figs. 1 and 2](#)), under Greenspan, meetings came to involve much more deliberative language and less immediate back-and-forth between members.³⁸ This change was very gradual. Volcker's 66-meeting tenure began with a slight increase in use of deliberative language, but declined steadily relative to the (implicit) Chairman Burns level to be -0.042 below that level by the end of Volcker's tenure. That is, other things equal, during Volcker's tenure the proportion of meeting sentences including reasoning terms fell well over 4 percentage points (recall that the all-meeting average was slightly over 16%). While the average Greenspan effect

on deliberative terms was negative relative to the implicit Burns value, that value (-0.023) is smaller than the negative ending value for Volcker (-0.042) after 66 meetings. That is, use of deliberative language immediately shifted in a positive direction under Greenspan relative to Volcker. By the end of Greenspan's 149 meetings, the Volcker decline was completely reversed, and use of deliberative language increased by about 3.5 percentage points.³⁹ The strong effects of these two leaders (but not Miller or Bernanke) underscores the importance of leaders in facilitating high-quality deliberation.

8.6. Economic conditions

As expected, the effect on deliberation was negative when unemployment and inflation increased, when presumably policy choices were clear. For both unemployment and inflation, the coefficients are marginally significantly different from zero in one-tailed tests, but the substantive effect is not great. The 1980 and 1990 recessions were associated with substantial increases in deliberative reasoning ($+2$ percentage points or about a 15% increase over the sample average). But there was no significant response in the recessions of 1981, 2001, and 2007. The finding for 2001 and 2007 is consistent with Goodfriend's description of increasing expert consensus on the conduct of monetary policy, which would reduce the need for deliberation. The 1981 recession is interesting on many grounds, but especially because 1980 and 1981 are the only recessions in consecutive years recorded in NBER data.

8.7. Decision meetings

As expected, an increasing number of dissents was positively associated with more deliberative reasoning, and the finding is marginally significant in one-tailed tests. However, estimates show that in meetings producing an interest rate change, there was a marginally significant *reduction* in use of deliberative language. As noted, this may indicate that changes in the federal funds rate reflect a consensus from deliberation in prior meetings.

8.8. Committee characteristics

All of these effects were statistically significant at normal levels in two-tailed tests. As anticipated, the longer the average length of prior committee service (in meetings) at any given meeting, the less use of deliberative terms. The potential substantive impact of this across the observed range of prior service values in this study is -2.4 percentage points (compared to the study mean of 16.3% of sentences with deliberative terms). Also as expected, an increase in explicit disagreement is associated with a statistically significant increase in deliberative language. Across the entire measured range of disagreement this is an increase of about 2.5 percentage points. Finally, as inequality in participation increased, the use of deliberative language decreased.

³⁷ The measure of disagreement and the measure of inequality mentioned next are both presented in more detail in [redacted]. Tests of human/computer coding accuracy are consistent with an error rate of less than 5%.

³⁸ Our data also show an increase in equality in the Greenspan era, but no separate effect of sunshine.

³⁹ There is no additional effect of sunshine when interacted with Greenspan's service length.

Table 2
 Conditional effect of sunshine on deliberation (OLS estimation).

Variable group	Variable	Coefficient	(Std. error)	One tailed?
Leadership	Constant	0.22231***	(0.032)	
	Miller	-0.0008	(0.015)	
	Miller service length	-0.0013	(0.001)	
	Volcker	0.0062	(0.016)	
	Volcker service length	-0.00072**	(0.00025)	
	Greenspan	-0.0234*	(0.0138)	
	Greenspan service length	0.00039**	(0.00007)	
	Bernanke	0.0222	(0.017)	
Economic conditions	Bernanke service length	-0.0007	(0.001)	
	Inflation (CPI)	-0.0023+	(0.0015)	×
	Unemployment (U)	-0.0024+	(0.0017)	×
	1980 recession NBER	0.0189*	(0.009)	×
	1981 recession NBER	-0.0037	(0.007)	×
	1990 recession NBER	0.0198**	(0.007)	×
	2001 recession NBER	-0.0015	(0.008)	×
Decision meetings	2007 recession NBER	-0.0160	(0.0195)	×
	Dissents (0–5)	0.00179	(0.001)	×
Committee characteristics	Change of federal funds rate (0–1)	-0.00341*	(0.0025)	×
	Average length of prior service	-0.00076**	(0.00029)	
	Expressions of disagreement	1.1567***	(0.300)	
	Inequality in speaking (CV)	-0.0216*	(0.009)	
	SUNSHINE	0.0034	(0.0066)	
R-squared	0.683	Mean dependent var		0.163
Adjusted R-squared	0.653	S.D. dependent var		0.029
S.E. of regression	0.017	Akaike info criterion		-5.240
Sum squared resid	0.064	Schwarz criterion		-4.928
Log likelihood	669.185	Hannan–Quinn criter.		-5.11
F-statistic	23.085	Durbin–Watson stat		2.039
Prob (F-statistic)	0.0000	N		247

White heteroskedasticity-consistent standard errors and covariance.

- * Sig at 0.1.
- * Sig at 0.05.
- ** Sig at 0.01.
- *** Sig at 0.001 (two-tailed tests).

Across the range of values in this study, at lowest inequality, there was essentially no effect on deliberation. At the greatest inequality, the rate of use of deliberative language dropped by 2.4 percentage points.⁴⁰

8.9. Sunshine

These estimates indicate the decision to release verbatim transcripts had no effect on FOMC deliberation independent of these controls. The coefficient on sunshine remains positive as was indicated by our comparison of means before and after November 1993. However, the effect on our measure of deliberative language is far from

significant at normal levels. Despite widely held concerns that the release of transcripts would harm the Committee's internal deliberations, these results indicate that it had no effect, and it certainly did not reduce the engagement of FOMC members in deliberative reasoning.

9. Conclusion

By analyzing a sharp break in practices of the Federal Reserve's Federal Open Market Committee, we have been able to assess the effect of sunshine on deliberation. To make this assessment, we developed a measurement of a core element of deliberation, use of reasoning language. This method addresses a significant gap in existing empirical research on deliberation. It is straightforward in application and interpretation, easy for others to adapt, and it can be used to examine change across time and context. Our initial validation of the measure relies on comparison across contexts in which we would expect considerable variation in deliberation. Those results were consistent with our expectations and suggest that our approach can

⁴⁰ Inequality and disagreement might be affected by sunshine. Models excluding each variable and both together had no change in the main findings. We put each variable on the LHS, leaving the other RHS variables the same. The coefficients on sunshine were not significant in either case. Results available on request. The speaking rates of the specific subset of members spanning the "sunshine moment" were unchanged by that event.

be used to evaluate deliberation in a variety of contexts. In developing our dictionary of reasoning terms we tried to avoid terms unique to the monetary policy domain. We believe this makes it more likely that the same, or similar, dictionaries would be useful in measuring deliberative reasoning elsewhere, and modifications that might be appropriate in other contexts are straightforward.

As for the question that motivated this research—the effects of sunshine—our results show that the publication of verbatim transcripts had no systematic effect on FOMC deliberation. Instead, we document increasing use of deliberative language from the start of Alan Greenspan's chairmanship and continuing through most of the 1990s. Indeed, one of our most striking findings is the substantial impact of leadership on the practice of deliberation. This suggests that deliberative scholars might consider focusing more on the importance of leadership, moderators, or facilitators in generating deliberation. It would be useful to consider the consequences of a powerful leader for the normative goals of deliberation, as well as how leaders might facilitate more free, equal, and respectful participation.

These findings also suggest that concerns expressed by FOMC members about sunshine were largely unwarranted. Other central banks might take note; some increases in transparency do not require sacrificing deliberation. In the context of the ongoing transparency debate, this may indicate that delayed release of transcripts can be employed without causing the harms some scholars warn of. Chambers' (2004) concern regarding plebiscitary reasoning remains valid but at least sometimes is moderated by the particular form transparency takes.

Our regression model controlled for a wide variety of plausible factors and yielded results that were mostly consistent with our expectations. Of particular interest to deliberative scholars, our results indicate that both greater disagreement and increased participant equality are associated with the increased use of reasoning language. The first finding is wholly consistent with the view that disagreement drives deliberation (Gutmann & Thompson, 1996). The second finding supports the claims that equality is a condition necessary for deliberation (Cohen, 1989; Knight & Johnson, 1999). More specifically, it suggests that inequality inhibits reasoned deliberation.

As we also demonstrated, sunshine did change both individual behavior and organizational practices. For a time, member statements became more formal, as reflected in the dramatic elimination of the use of contractions—evidence of a powerful sunshine effect. A plausible interpretation is that the abrupt move to sunshine had the effect of changing how members prepared for meetings, resulting in more formal, structured, and possibly more thoughtful contributions. This raises an important question for theorists regarding the implications more formal participation and meeting structure have for the quality of deliberation. Can persons meaningfully “deliberate” when that participation partly takes the form of reading prepared statements? Is extemporaneous participation preferred? Why? Independent of sunshine, FOMC meetings continued a trend toward a more rigid structure with fewer changes of speaker in a given meeting length. By implication, speakers tended to make longer,

uninterrupted statements. FOMC sunshine did change how members behaved in meetings, but by our measures, this did not diminish reasoned deliberation.

Appendix A. : Search terms

Deliberative reasoning terms

(“the case” OR “a case” OR “good case” OR “strong case” OR convinc OR “ cause ” OR “ logic” OR “illogic” OR “as a result” OR “consistent with” OR “due to” OR “given that” OR “implies that” OR “it seems to me” OR “it would seem to me” OR “relationship between” OR “shows that” OR “suggests to” OR “the point is” OR “your point” OR “your view” OR accordingly OR analog OR analy OR argu OR arbitrary OR assert OR assess OR assum OR causa OR confirm OR consequen OR consider OR contradict OR criter OR data OR debate OR discuss OR effective OR “efficient” OR evidence OR explain OR fact OR factor OR “and hence” OR “and, hence” OR “hence,” OR hypotheses OR impact OR infer OR information OR interpretation OR judgment OR justify OR persuade OR plausible OR predicate OR predict OR premise OR probable OR probability OR proposition OR “ prove ” OR rational OR reason OR scenario OR sensible OR standards OR theor OR therefore OR “thus, ” OR understanding OR valid OR variable OR verify OR “what matters to” OR “your conclusion” OR “fallacy” OR induces OR “inquire” OR metaphor OR precondition OR refute OR supposition OR disprove OR substantiate OR sway OR “ thesis ” OR whence OR “as indicated by” OR “inasmuch as” OR “it follows that” OR “it must be that” OR “may conclude” OR “necessary condition” OR “owing to” OR “piece of information” OR “to document ” OR corollary) **AND NOT** (improve OR approved OR “to approve” OR considerable OR “cause for optimism” OR “effective Federal funds” OR reasonably OR factual OR factories OR factory OR satisfact OR manufactur OR Manufactur OR artifact OR “confirmed by the Senate” OR “confirmed by the US Senate” OR “he hasn’t been confirmed” OR “confirm the transactions” OR “confirmed by the committee” OR “he was confirmed” OR “confirmation of the date” OR “confirm the [date” OR “confirm the date” OR “confirmation of [the” OR “ratified, and confirmed” OR “confirm that our next” OR “confirm our meeting” OR “confirm that we are” OR “confirm that the dates” OR “confirm that the next meeting” OR “confirm that lunch” OR considerable OR considerably OR “debated in the Congress” OR “de facto” OR “budget debate” OR “effective money supply” OR “effective funds rate” OR “effective fed funds rate” OR “effective zero rate” OR “effective production capacity” OR “effective rate” OR “effective federal funds” OR “effective labor” OR “cost effective” OR “effective team” OR “effective immediately” OR “effective date” OR “effective cost of capital” OR “in effect” OR “effective yesterday” OR effectively OR “years hence” OR “information technology” OR operational OR Operational OR “rational expectations” OR enthuse OR “thus far” OR Enthuse OR “thus and so” OR “have an understanding” OR (debate NEAR Congress) OR (information NEAR (release OR disclosure)))

Contractions

I'm OR I'll OR I'd OR I've OR You're OR You'll OR You'd OR You've OR He's OR He'll OR He'd OR She's OR She'll OR She'd OR It's OR It'll OR It'd OR We're OR We'll OR We'd OR We've OR They're OR They'll OR They'd OR They've OR There's OR There'll OR There'd OR That's OR That'll OR That'd OR aren't OR can't OR couldn't OR didn't OR doesn't OR don't OR hadn't OR hasn't OR isn't OR mustn't OR needn't OR shouldn't OR wasn't OR weren't OR won't OR wouldn't

Explicit disagreement

"respectfully" OR "a degree of concern" OR "alternatives seem unsatisfactory" OR "am I wrong" OR "an unsatisfactory one" OR "another dissent" OR "be a minority" OR "canceling dissents" OR "compromise" OR "concern I have" OR "concern that I have" OR "concerns I have" OR "concerns that I have" OR "confused me" OR "considerable dissent" OR "contrary to" OR "couple of dissents" OR "didn't show that" OR "disassociate myself" OR "dissent from your recommendation" OR "dissenters" OR "doesn't seem right" OR "doesn't seem to be the right response" OR "don't think you have responded" OR "don't agree" OR "don't have any basis" OR "don't quite follow" OR "don't think it [is] relevant" OR "don't think it does us any good" OR "don't think it is a good idea" OR "don't think it is a good principle" OR "don't think it is a good time" OR "don't think it is a particularly good" OR "don't think it is appropriate" OR "don't think it is desirable" OR "don't think it is necessary" OR "don't think it is wise" OR "don't think it would be a good idea" OR "don't think it would be desirable" OR "don't think it would be good" OR "don't think it would be wise" OR "don't think it's a good idea" OR "don't think it's a very good practical argument" OR "don't think it's acceptable" OR "don't think it's an especially good idea" OR "don't think it's appropriate" OR "don't think it's desirable" OR "don't think it's good for us" OR "don't think it's necessary" OR "don't think it's quite" OR "don't think it's quite as good" OR "don't think it's the appropriate" OR "don't think that is necessary" OR "don't think that represents" OR "don't think that will be possible" OR "don't think that would be a good idea" OR "don't think that would be a very wise" OR "don't think that would be a viable posture" OR "don't think that would be an appropriate" OR "don't think that would be appropriate" OR "don't think that would be desirable" OR "don't think that would be good" OR "don't think that would be the result" OR "don't think that would be the result" OR "don't think that would be very helpful" OR "don't think that would be very wise" OR "don't think that's necessary" OR "don't think that's possible" OR "don't think that's really necessary" OR "don't think the evidence" OR "don't think the historical evidence" OR "don't think this is the sort of policy" OR "don't think this sort of policy" OR "don't think we can seriously say" OR "don't think you can" OR "don't think you know" OR "don't think you or anybody" OR "don't think you ought" OR "don't think you people know" OR "don't think you should" OR "don't think you touched upon" OR "don't think you would then reason" OR "don't think your outcome is very likely" OR "don't think you're going to get agreement" OR "don't think you're going to get one now, either" OR

"dubious" OR "entirely mistaken" OR "express a different judgment" OR "express a different view" OR "express an opposing view" OR "far from correct" OR "going the wrong way" OR "going to be dissenting" OR "groups of dissenting votes" OR "he compromised" OR "his dissent" OR "I admit to being confused" OR "I also am opposed" OR "I am a little concerned" OR "I am concerned about" OR "I am just not convinced" OR "I am not comfortable with" OR "I am not sure everybody is on the same page" OR "I am not sure how credible it is" OR "I am not sure how much that captures what we are talking about" OR "I am not sure I am convinced" OR "I am not sure I believe the models" OR "I am not sure I come to a conclusion" OR "I am not sure I followed you entirely" OR "I am not sure I fully grasp the point" OR "I am not sure I get the gist" OR "I am not sure I quite follow that" OR "I am not sure I see that distinction" OR "I am not sure I understand" OR "I am not sure I would characterize" OR "I am not sure I'm following you" OR "I am not sure is right" OR "I am not sure of that" OR "I am not sure one can make a forecast that is as stable as the one" OR "I am not sure one can say that about M1 in the very long run" OR "I am not sure that conclusion is clear-cut" OR "I am not sure that everyone around the table had anticipated" OR "I am not sure that I can quite buy into" OR "I am not sure that I do" OR "I am not sure that I would put in" OR "I am not sure that is consistent" OR "I am not sure that is going to make a lot of difference" OR "I am not sure that is quite right" OR "I am not sure that is right" OR "I am not sure that is the right way to go" OR "I am not sure that is true" OR "I am not sure that it is as much a departure from past experience as you suggest" OR "I am not sure that it is perfect" OR "I am not sure that it is quite right" OR "I am not sure that M2 is rapid when it's right in the middle" OR "I am not sure that swap lines are the most efficient means of effecting" OR "I am not sure that that makes a lot of sense" OR "I am not sure that the Committee has accepted that" OR "I am not sure that the risks are really skewed to the downside" OR "I am not sure that there is evidence of that" OR "I am not sure that was a wise adjustment" OR "I am not sure that we'll satisfy the monetarists" OR "I am not sure that's a correct assessment" OR "I am not sure that's right" OR "I am not sure the research supports anything" OR "I am not sure this issue is ready for prime time" OR "I am not sure we are ever going to find the absolute truth here" OR "I am not sure we have fully factored in" OR "I am not sure we know what the rate of inflation is currently" OR "I am not sure we want to do it right now" OR "I am not sure what alternative A means" OR "I am not sure what if anything in those data would significantly change our minds" OR "I am not sure what the Committee feels" OR "I am not sure what the other decision is" OR "I am not sure what the question is" OR "I am not sure what the staff" OR "I am not sure what your answer is" OR "I am not sure what your formula translates into" OR "I am not sure what your objection is" OR "I am not sure whether you are or you aren't" OR "I am not sure you are agreeing with him" OR "I am not sure you can back that up" OR "I am not sure" OR "I am questioning" OR "I am quite frankly opposed" OR "I am really confused" OR "I am seriously questioning" OR "I am simply not comfortable with" OR "I am still opposed" OR "I can dissent" OR "I cannot agree" OR "I cannot support" OR "I can't accept"

OR “I can’t agree” OR “I can’t buy” OR “I can’t say I much agree” OR “I can’t support” OR “I certainly am opposed” OR “I certainly disagree” OR “I compromised” OR “I could not accept” OR “I didn’t say” OR “I disagree” OR “I dissent” OR “I do not believe” OR “I do not share” OR “I do not think” OR “I don’t see any answer” OR “I don’t see any reason” OR “I don’t believe” OR “I don’t have a voice” OR “I don’t see any basic reason” OR “I don’t see any evidence” OR “I don’t see any great advantage” OR “I don’t see any particular reason” OR “I don’t see any value” OR “I don’t see any very convincing reason” OR “I don’t see anything dishonest” OR “I don’t see anything that suggests” OR “I don’t see anything wrong” OR “I don’t see evidence” OR “I don’t see how it’s relevant” OR “I don’t see how we can move forward” OR “I don’t see how you can say that” OR “I don’t see how you” OR “I don’t see it that way” OR “I don’t see much point” OR “I don’t see that there is any case” OR “I don’t see the argument” OR “I don’t see the benefits” OR “I don’t see the dangers” OR “I don’t see the desirability” OR “I don’t see the evidence” OR “I don’t see the reason” OR “I don’t see why” OR “I don’t share” OR “I don’t tend to agree” OR “I don’t think that’s right” OR “I don’t think we should do that” OR “I don’t think we’re ready” OR “I don’t understand” OR “I feel I have to quarrel” OR “I got a little confused” OR “I happen to disagree” OR “I have a bit more concern” OR “I have a concern” OR “I have a considerable concern” OR “I have a fair amount of concern” OR “I have a further concern” OR “I have a growing concern” OR “I have a little bit of concern” OR “I have a little concern” OR “I have a number of concerns” OR “I have a problem” OR “I have a real concern” OR “I have a slight concern” OR “I have a somewhat greater concern” OR “I have a special concern” OR “I have a very considerable concern” OR “I have also been concerned” OR “I have basically the same concern” OR “I have become concerned” OR “I have become increasingly concerned” OR “I have become more concerned” OR “I have been a little concerned” OR “I have been concerned” OR “I have been especially concerned” OR “I have been very concerned” OR “I have great concern” OR “I have had concerns” OR “I have heightened concern” OR “I have my greatest concern” OR “I have one concern” OR “I have questions and concerns” OR “I have real concern” OR “I have really very serious concerns” OR “I have reservations” OR “I have serious concerns” OR “I have some concern” OR “I have some grave concerns” OR “I have some of the same concerns” OR “I have some skepticism” OR “I have somewhat more concern” OR “I have special concerns” OR “I have the concern” OR “I have the exact concern” OR “I have the same concern” OR “I have to disagree” OR “I have to quarrel” OR “I have trouble” OR “I have two concerns” OR “I have two overriding concerns” OR “I have two real concerns” OR “I have two related concerns” OR “I have very considerable concerns” OR “I just am not convinced” OR “I just can’t accept” OR “I just can’t agree” OR “I just do not agree” OR “I just do not believe” OR “I just don’t believe” OR “I just don’t think” OR “I just have to disagree” OR “I may be a little confused” OR “I may be mistaken” OR “I may be wrong” OR “I may disagree” OR “I must dissent” OR “I object” OR “I oppose” OR “I personally have some skepticism” OR “I question ” OR ‘I question’ OR “I really am concerned” OR “I really disagree” OR “I really question” OR “I simply can’t see” OR “I simply don’t feel” OR “I simply don’t think” OR

“I think you’re wrong” OR “I very much dislike” OR “I was somewhat confused by” OR “I will dissent” OR “I would be opposed” OR “I would certainly be opposed” OR “I would in fact be opposed” OR “I would like to believe” OR “I would not advocate” OR “I would not aim” OR “I would not at all suggest” OR “I would not at any point” OR “I would not at this point” OR “I would not be comfortable” OR “I would not be for changing” OR “I would not be for that” OR “I would not be happy” OR “I would not be in favor” OR “I would not be inclined” OR “I would not be likely to support” OR “I would not be overly optimistic” OR “I would not be prepared to” OR “I would not be slavish” OR “I would not be so imprudent” OR “I would not be strongly inclined” OR “I would not be that comfortable” OR “I would not be terribly comfortable” OR “I would not be too much for” OR “I would not be very receptive” OR “I would not be very satisfied” OR “I would not be willing to go ” OR “I would not change” OR “I would not choose” OR “I would not consider” OR “I would not do that” OR “I would not drop” OR “I would not enjoy” OR “I would not establish a ” OR “I would not favor” OR “I would not feel comfortable” OR “I would not get too firmly ensconced” OR “I would not give a great deal of weight” OR “I would not go” OR “I would not have a comfortable feeling” OR “I would not have thought” OR “I would not in any way really want to” OR “I would not in any way want to” OR “I would not indulge” OR “I would not interpret this in that way” OR “I would not invest a great deal” OR “I would not leave it” OR “I would not like to” OR “I would not like us ” OR “I would not make” OR “I would not move ” OR “I would not opt’ OR “I would not prefer” OR “I would not propose” OR “I would not publish” OR “I would not push” OR “I would not put” OR “I would not raise” OR “I would not rebase” OR “I would not recommend ” OR “I would not regard” OR “I would not relax” OR “I would not rely only” OR “I would not say” OR “I would not see nearly” OR “I would not set” OR “I would not be in favor” OR “I would not be prepared” OR “I would not be strongly inclined” OR “I would not be tightening” OR “I would not be willing” OR “I would not suggest” OR “I would not think” OR “I would not tinker” OR “I would not try for” OR “I would not turn the tape off” OR “I would not want” OR “I would not want us to” OR “I would object” OR “I would oppose” OR “I would strongly oppose” OR “I wouldn’t do it” OR “I wouldn’t like” OR “I’d be opposed” OR “if I’m not mistaken” OR “if I’m wrong” OR “I’m a bit confused” OR “I’m a little confused” OR “I’m against” OR “I’m concerned about” OR “I’m confused” OR “I’m equally confused” OR “I’m getting a little confused” OR “I’m getting confused” OR “I’m going to disagree” OR “I’m just confused” OR “I’m just in general opposed” OR “I’m just not convinced” OR “I’m not convinced” OR “I’m not quite as optimistic” OR “I’m not sure about that” OR “I’m not sure I agree” OR “I’m not sure I follow that” OR “I’m not sure I fully understand” OR “I’m not sure I said that” OR “I’m not sure I share” OR “I’m not sure I totally agree” OR “I’m not sure I understand” OR “I’m not sure I want that” OR “I’m not sure I would do” OR “I’m not sure I would go” OR “I’m not sure I’m prepared” OR “I’m not sure it makes sense” OR “I’m not sure it’s the best definition” OR “I’m not sure that I can share” OR “I’m not sure that I can share” OR “I’m not sure that I totally agree” OR “I’m not sure that I understand” OR “I’m not sure that I understand” OR “I’m not sure that I would go” OR “I’m

not sure that I'm for" OR "I'm not sure that I'm in favor" OR "I'm not sure that I'm in favor" OR "I'm not sure that's quite right" OR "I'm not sure that's right" OR "I'm not sure there is a consensus" OR "I'm not sure we should" OR "I'm not sure we want" OR "I'm not sure we're right" OR "I'm opposed" OR "I'm pretty much opposed" OR "I'm questioning" OR "I'm really concerned" OR "I'm seriously questioning" OR "I'm so confused" OR "I'm somewhat confused" OR "I'm still a little confused" OR "I'm thoroughly confused" OR "I'm totally confused" OR "I'm very confused" OR "I'm violently opposed" OR "Implausible" OR "in a minority" OR "in the minority" OR "increasingly concerned" OR "it would be a mistake" OR "like to dissent" OR "meaningless" OR "Might disagree with you" OR "minority view" OR "my dissent" OR "my reservations" OR "no it isn't" OR "no, because" OR "no, I don't" OR "not comfortable with" OR "not correct" OR "not go along with" OR "not in favor" OR "not persuaded" OR "not persuasive" OR "not true" OR "oh no" OR "respectfully disagree" OR "ridiculous" OR "ridiculous" OR "semantic distinction" OR "simply can't" OR "simply wrong" OR "some dissent" OR "some dissenters" OR "strongly against" OR "strongly opposed" OR "tend to disagree" OR "that is the wrong way to signal" OR "that would be mistaken" OR "that's a little strong" OR "that's different from" OR "that's mistaken" OR "that's naive" OR "that's not fair" OR "that's not really" OR "that's the wrong way" OR "the dissenters" OR "the dissents" OR "the opposite" OR "think that's wrong" OR "think you're mistaken" OR "two dissents" OR "unalterably opposed" OR "uncomfortable with" OR "unless I am mistaken" OR "utterly opposed" OR "very much opposed" OR "very opposed" OR "wait a minute" OR "want to dissent" OR "we cannot afford" OR "we can't afford" OR "we can't afford" OR "we compromised" OR "we just cannot afford" OR "we just can't afford" OR "we really cannot afford" OR "we really can't afford" OR "we should stop" OR "we simply cannot afford" OR "we simply can't afford" OR "we'll have dissents" OR "what makes you so confident" OR "why not say so" OR "would disagree" OR "would not support" OR "would oppose" OR "wouldn't start" OR "wrong tone" OR "wrong way for us to go" OR "wrong way to conduct monetary policy" OR "wrong way to go" OR "wrong way to think" OR "Yes but" OR "yes, but" OR "Yes, but" OR "you leave me totally confused" OR "you might want to rethink that" OR "you take it the wrong way" OR "I just cannot agree" OR "I just do not believe" OR "I just do not think" OR "I would quarrel" OR "I would really dissent" OR "oppose" OR "simply cannot be" OR "with all due respect" OR illogical OR Improbable OR incorrect OR "a certain amount of disagreement exists around the table" OR "a weak disagreement" OR "also disagree with the suggestion" OR "disagrees a bit with yours" OR "disagrees with me" OR "Don may disagree" OR "four who expressed disagreement" OR "great disagreement as a matter of fact" OR "have a disagreement with the staff forecast" OR "I actually disagree with you" OR "I also disagree about how perceptions would be" OR "I also disagree with" OR "I am inclined to disagree" OR "I do slightly

disagree with her" OR "I do want to disagree" OR "I guess I would have one disagreement" OR "I have a slight disagreement with" OR "I have one disagreement" OR "I hesitate to disagree with you, but I will anyway" OR "I honestly have to disagree with you" OR "I just couldn't disagree more" OR "I just flatly disagree" OR "I just want to register my disagreement]" OR "I might disagree in that second case" OR "I might disagree with you a bit" OR "I personally disagree" OR "I really do disagree strongly with you" OR "I sort of disagree" OR "I strongly disagree" OR "I think we may have a bit of a disagreement" OR "I think you have some disagreement" OR "I vehemently disagree" OR "I would have to disagree" OR "I would just have to disagree totally" OR "If there is one area of disagreement," OR "in disagreement on the analytics" OR "may disagree" OR "maybe disagreement in some cases" OR "my disagreement" OR "my key disagreement" OR "my second disagreement" OR "obviously a disagreement" OR "Obviously there's disagreement about" OR "one thing I do disagree with" OR "only disagreeing about how much" OR "our chief disagreement" OR "perhaps a little disagreement" OR "some disagreement on" OR "some substantial disagreement" OR "somewhat in disagreement those" OR "stating my disagreement" OR "that's the disagreement here" OR "That's the disagreement" OR "That's where the disagreement lies" OR "The band of disagreement" OR "the fundamental disagreement we have had" OR "the only place where we do disagree" OR "the third disagreement" OR "There is disagreement above that point" OR "there is disagreement" OR "there is one who disagreed" OR "there is some disagreement" OR "There is some disagreement" OR "there may be some disagreement" OR "There was some disagreement" OR "there's another disagreement" OR "There's some disagreement" OR "this is the fundamental disagreement" OR "three members disagreed" OR "vehemently disagree with any notion" OR "very cogent disagreement" OR "we disagree" OR "we even have disagreement about how quickly" OR "We have disagreement around this table" OR "we have someone who disagrees with it" OR "we might disagree" OR "we might have a slight disagreement with the Greenbook" OR "we might have some slight disagreement with the staff" OR "We seem to have disagreements" OR "we seem to have some disagreement" OR "we would have somewhat of a disagreement" OR "Where we disagree is" OR "Why do we have a disagreement?" OR "we're in fundamental disagreement" OR "END OF MEETING" OR "END OF SESSION") **AND NOT** ("made a reasonable compromise" OR "budget compromise" OR "compromise monetary policy independence" OR "compromise our" OR "compromise the nature" OR "compromise the position of this institution" OR "compromise the" OR "compromise their" OR "good compromise" OR "grand compromise" OR "I opposed" OR "legislation was merely a compromise" OR "no, I don't either" OR "no, I don't have" OR "not uncomfortable with" OR "right compromise" OR eyes OR questioned)

Appendix B.

Descriptive statistics for variables used

	CPI-(headline)	Unemployment	Explicit disagreement	Inequality among speakers (CV)	Sunshine	Dissents	Greenspan	Greenspan count	Bernanke	Bernanke count	Volcker	Volcker count	Miller	Miller Count
Mean	4.374	6.088	0.0119	0.543	0.462	0.814	0.603	45.243	0.061	0.486	0.267	8.951	0.061	0.486
Median	3.400	5.800	0.0114	0.532	0.000	0.000	1.000	26.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	13.600	10.800	0.0240	1.130	1.000	5.000	1.000	149.000	1.000	15.000	1.000	66.000	1.000	15.000
Minimum	1.100	3.900	0.0022	0.254	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Dev.	2.790	1.409	0.0046	0.148	0.500	1.058	0.490	49.722	0.239	2.192	0.443	17.833	0.239	2.192
Obs.	247	247	247	247	247	247	247	247	247	247	247	247	247	247
	NBER 1980	NBER 1981	NBER 1990	NBER 2000	NBER 2001	NBER 2007	Interest rate change	Avg. number of prior meetings						
Mean	0.024	0.049	0.028	0.024	0.004	0.381	50.87							
Median	0	0	0	0	0	0	50.06							
Maximum	1	1	1	1	1	1	68.88							
Minimum	0	0	0	0	0	0	37.22							
Std. Dev.	0.154	0.215	0.166	0.154	0.064	0.487	6.93							
Obs.	247	247	247	47	247	247	247							

References

- Bessette, J. (1994). *The mild voice of reason: Deliberative democracy and American national government*. Chicago, IL: University of Chicago Press.
- Bickford, S. (1996). Beyond friendship: Aristotle conflict, deliberation, and attention. *Journal of Politics*, 58, 398–421.
- Black, L., Burkhalter, S., Gastil, J., & Stromer-Galley, J. (2013). Methods for analyzing and measuring group deliberation. In E. Bucy, & L. Holbert (Eds.), *The sourcebook for political communication research*. New York, NY: Routledge.
- Blinder, A. (1998). *Central banking in theory and practice*. Cambridge, MA: MIT Press.
- Blinder, A. (2004). *The quiet revolution: Central banking goes modern*. New Haven, CT: Yale University Press.
- Bohman, J. (1996). *Public deliberation: Pluralism, complexity, and democracy*. Cambridge, MA: The MIT Press.
- Bohman, J., & Rehg, W. (Eds.). (1999). *Deliberative democracy: Essays on reason and politics*. Cambridge, MA: The MIT Press.
- Chambers, S. (2004). Behind closed doors: Publicity, secrecy, and the quality of deliberation. *The Journal of Political Philosophy*, 12, 389–410.
- Chappell, H., McGregor, R., & Vermilyea, T. (2005). *Committee decisions on monetary policy: Evidence from historical records of the Federal Open Market Committee*. Cambridge, MA: MIT Press.
- Cohen, J. (1986). An epistemic conception of democracy. *Ethics*, 97, 26–38.
- Cohen, J. (1989). Deliberation and democratic legitimacy. In A. Hamlin, & P. Pettit (Eds.), *The good polity: Normative analysis of the state*. Oxford: Basil Blackwell.
- Cohen, J. (1996). Procedure and substance in deliberative democracy. In S. Benhabib (Ed.), *Democracy and difference: Contesting the boundaries of the political*. Princeton, NJ: Princeton University Press.
- Crowe, C., & Meade, E. (2008). *Central bank independence and transparency: Evolution and effectiveness*. International Monetary Fund working paper.
- Dincer, N., & Eichengreen, B. (2014). Central bank transparency and independence: Updates and new measures. *International Journal of Central Banking*, 10(1), 189–253.
- Eijffinger, S., Mahieu, R., & Raes, L. (2015). *Hawks and doves at the FOMC*. European Banking Center., 2015-003
- Elster, J. (Ed.). (1998). *Deliberative democracy*. Cambridge: Cambridge University Press.
- Florini, A. (Ed.). (2007). *The right to know: Transparency for an open world*. New York, NY: Columbia University Press.
- Fung, A. (2013). Infotopia: Unleashing the democratic power of transparency. *Politics & Society*, 41, 183–212.
- Fry, M., Julius, D., Mahadeva, L., Roger, S., & Sterne, G. (2000). Key issues in the choice of monetary policy framework. In L. Mahadeva, & G. Sterne (Eds.), *Monetary policy frameworks in a global context*. New York, NY: Routledge.
- Geraats, P. (2005). Transparency and reputation: The publication of central bank forecasts. *Topics in Macroeconomics*, 5(1), 1–26.
- Golub, S., Kaya, A., & Reay, M. (2014). What were they thinking? The Federal Reserve in the run-up to the 2008 financial crisis. *Review of International Political Economy*, <http://dx.doi.org/10.1080/09692290.2014.932829>
- Goodfriend, M. (2007). *How the world achieved consensus on monetary policy*. NBER Working Paper 13580.
- Greenspan, A. (1993). Statement to the congress, October 19, 1993. *Federal Reserve Bulletin*, 79(12), 1107–1110.
- Grimmer, J., & Stewart, B. (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. *Political Analysis*, 21, 267–297.
- Gutmann, A., & Thompson, D. (1996). *Democracy and disagreement*. Cambridge, MA: The Belknap Press of Harvard University Press.
- Habermas, J. (1996). Three normative models of democracy. In S. Benhabib (Ed.), *Democracy and difference: Contesting the boundaries of the political*. Princeton, NJ: Princeton University Press.
- Hood, C. (2010). Accountability and transparency: Siamese twins, matching parts, awkward couple? *West European Politics*, 33, 989–1009.
- Jacobs, L., Cook, F., & Delli Carpini, M. (2009). *Talking together: Public deliberation and political participation in America*. Chicago, IL: University of Chicago Press.
- Kosack, S., & Fung, A. (2014). Does transparency improve governance? *Annual Review of Political Science*, 17, 65–87.
- Karpowitz, C., & Mendelberg, T. (2014). *The silent sex: Gender, deliberation, and institutions*. Princeton, NJ: Princeton University Press.
- Knight, J., & Johnson, J. (1999). What sort of equality does deliberative democracy require? In J. Bohman, & W. Rehg (Eds.), *Deliberative democracy*. Cambridge, MA: The MIT Press.

- Lindsey, D. (2003). *A modern history of FOMC communication: 1975–2002*. Board of Governors of the Federal Reserve System. Retrieved from www.fraser.stlouisfed.org/docs/publications/books/20030624_lindsey_modhistfomc.pdf.
- Meade Ellen, E. (2005). The FOMC: Preferences, voting, and consensus. *Federal Reserve Bank of St. Louis Review*, 87(March/April part 1), 93–101.
- Meade, E., & Stasavage, D. (2008). The dangers of increased transparency in monetary policymaking. *Economic Journal*, 695–717.
- Mercier, H., & Landemore, H. (2012). Reasoning is for arguing: Understanding the successes and failures of deliberation. *Political Psychology*, 33(2), 243–258.
- Mayer, L. (2004). *A Term at the Fed: An insider's view*. New York, NY: Harper Business.
- Mucciaroni, G., & Quirk, P. (2006). *Deliberative choices*. Chicago, IL: University of Chicago Press.
- Naurin, D. (2007). *Deliberation behind closed doors*. Colchester, UK: ECPR Press.
- Obama, B. (2009). Memorandum on transparency and open government, January 21. Peters, G. & Woolley, J. T. The American Presidency Project. <http://www.presidency.ucsb.edu/ws/?pid=85677>.
- Parkinson, J., & Mansbridge, J. (Eds.). (2012). *Deliberative systems*. New York, NY: Cambridge University Press.
- Patrikis, E. (2015). No don't 'audit the fed'. *Wall Street Journal*, online at http://www.wsj.com/article_email/ernie-patrikis-no-dont-audit-the-fed-1426633745-1MyQjAxMTA1NTExODAxMjgwWj
- Roberts, A. (2006). *Blacked out: Government secrecy in the information age*. New York, NY: Cambridge University Press.
- Rosenberg, S. (2007). Types of discourse and the democracy of deliberation. In S. Rosenberg (Ed.), *Deliberation, participation and democracy*. New York, NY: Palgrave Macmillan.
- Sanders, L. (1997). Against deliberation. *Political Theory*, 25, 347–376.
- Schonhardt-Bailey, C. (2013). *Deliberating American monetary policy: A textual analysis*. Cambridge, MA: MIT Press.
- Stasavage, D. (2004). Open-door or closed-door? Transparency in domestic and international bargaining. *International Organization*, 58(4), 667–703.
- Stasavage, D. (2007). Polarization and publicity: Rethinking the benefits of deliberative democracy. *The Journal of Politics*, 69, 59–72.
- Steiner, J., Bächtiger, A., Spörndli, M., & Steenbergen, M. (2004). *Deliberative politics in action: Analyzing parliamentary discourse*. New York, NY: Cambridge University Press.
- Thompson, D. (1999). Democratic secrecy. *Political Science Quarterly*, 114(2), 181–193.
- Thornton, D. (2006). When did the FOMC begin targeting the federal funds rate? What the verbatim transcripts tell us. *Journal of Money, Credit and Banking*, 38, 2039–2071.
- Warsh, K. (2014). *Transparency and the Bank of England's Monetary Policy Committee*. Retrieved from <http://www.bankofengland.co.uk/publications/Documents/news/2014/warsh.pdf>
- Young, I. (2003). Activist challenges to deliberative democracy. In J. Fishkin, & P. Laslett (Eds.), *Debating deliberative democracy. Philosophy, politics and society* (Vol. 7). Malden, MA: Blackwell.