

**Exploring Bipartisanship in Congress Through Bill  
Content: A Novel Application of Political Typology**

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## Literature Review

Political partisanship—especially amongst government officials—has spiked in recent years and does not show any signs of slowing down (Pew Research Center, 2014; Pew Research Center, 2016). Considering the conflicting trends of increasing partisan animosity, widespread dissatisfaction with government, and growing calls for compromise, legislator behavior is influenced by a wide array of often contradictory factors and often reflects misperceptions of constituents' views (Pew Research Center, 2007; Brookman & Skovron, 2013; Pew Research Center, 2014; Pew Research Center, 2015; Pew Research Center, 2016). One important variable to consider may be legislator ideology, an abstract concept often measured through party or left-right scales based on clustered patterns of cosponsorship; this study introduces an additional measure of legislator ideology through political typology groups, or statistically significant clusters of individuals who tend to hold similar beliefs on specific social issues, as developed by the Pew Research Center in 2017. This study will identify legislator typology according to the values espoused in their legislation and use typology in conjunction with other variables of legislator behavior (legislative effectiveness, bipartisanship, left-right ideology, etc.) to determine specific issues that may be disproportionately affected by rising legislator partisanship.

Generally, partisanship refers to the influence of party on political beliefs. While there are many theories of the roots of partisanship, some argue that partisanship exists as a sort of “running tally” of the accomplishments of both parties (Fiorina, 2004). Others maintain that partisan behavior stems from the desire to define one's social identity, or that both models may be accurate, or even that there may never be a perfect definition of partisanship to suit all purposes (Converse & Pierce, 1985; Brandenburg, 2011). It has been postulated that people build their social identities out of complex networks of groups in which people perceive themselves to belong, and when overlap between groups is high, identity converges into a simplified, overarching structure to easily encompass all such traits (Roccas & Brewer, 2002). Due to changes in the political world, some may then begin to let their party shape their social identity and political views (Bartels, 2002; Glazer, 2010; Enns & McAvoy, 2012). For instance, a 2015 study found that the best model to predict campaign activity, an indicator of political involvement, was founded upon partisan identity rather than policy, ideology, or ideological identity (Huddy et al., 2015). The true nature, however, of partisanship remains largely a complex interplay between society and the individual, with tools of measuring partisanship and voter behavior models being improved constantly (Converse & Pierce, 1985; Greene, 2002; Weisberg, 2002).

Partisanship has only been increasing, with contemporary partisan animosity spiking amongst Democrats, Republicans, and even independents (Harbridge & Malhotra, 2011; Smith, 2016). According to an extensive bipartisan study, dislike for the opposing party has reached a critical point, “more negative than at any point in nearly a quarter of a century” (Pew Research Center, 2016). Political views, by party,

are becoming increasingly stratified, with stronger partisan identity being correlated to increased partisan behavior and alliance with candidates whose values more closely align with those of the party (Gerber et al., 2010; Enns & McAvoy, 2012). And, ratings for support of President Trump are “more deeply polarized along partisan lines than those of any president in more than 60 years” (Pew Research Center, 2017).

These partisan differences have brought numerous consequences. Partisanship is closely tied with the proliferation of harmful propaganda and stereotypes about the opposite party, with members of both parties tending to exaggerate the magnitude of political differences and prominence of ideological extremes of the other group (Golebiowska, 2001; Graham et al., 2012; Carpinella, 2014; Huddy et al., 2015; Faris et al., 2017). Moreover, partisanship both strengthens correlations between party and ideology—*sorting*—and leads voters to take more extreme political viewpoints—*polarization*—with such partisans caring disproportionately more about the success of their party than moderates (Gerber et al., 2010; Enns & McAvoy, 2012; Pew Research Center, 2017). Partisanship has greatly impacted government productivity, with non-cooperation in the US Congress having grown exponentially over the last 60 years (Andris et al., 2015). There is also the risk of party-lined legislative gridlock, as well as numerous other negative effects of partisanship (Howell et al., 2000). It is interesting to note that the beginning of excessive non-cooperation coincided with the decline of moderates in Congress, with both occurring in the 1970s, potentially due to the polarizing effects of partisanship (Andris et al., 2015; Enns & McAvoy, 2012). Essentially, partisan animosity is often highly detrimental to legislative cooperation.

However, parties are not entirely harmful entities. As the entire system of politics and government in America is ultimately tied with parties, they exist as outlets for political expression and encourage political participation (Enns & McAvoy, 2012). Among the benefits of political parties include the communication of voters’ priorities to the legislative forefront (Macey, 1990), increased coordination and efficiency through party committees (Crespin et al., 2011), the bestowment of a sense of duty to government officials (Howell et al., 2000), and general stimulation of political motivation. And, some even argue that America is not becoming increasingly polarized by party (Fiorina et al., 2004). For one, media coverage tends to hone in on political elites, who are not representative of the general population. Additionally, many sources appear to conflate polarization with sorting; the former emphasizes extremity of positions, while the latter emphasizes the distribution of positions within and between parties (Fiorina et al., 2008). This has numerous implications, as sorting and polarization may differ in terms of impact on the extremity of policies proposed and the number of policies enacted.

Many previous studies analyzing the legislative process aim to determine factors that influence bill success rates of members, almost all of which define bill success in terms of either the success rate of legislators or the progress of individual bills, identifying factors such as partisan control, cosponsorship,

and voting patterns to be associated with bill success (Adler & Wilkerson, 2005). Yet, aside from the effect of majority party control, little consensus has been reached on the exact “keys to legislative success”, given the numerous confounding variables and variations in the definition of bill success. Legislative effectiveness score (LES) is a rating that encompasses the degree to which legislators are successful at moving their bills forward through Congress, accounting for bill importance (Volden & Wiseman, 2014). Notably, bipartisanship is positively correlated with LES; however, this effect is qualified as bipartisanship is “more important for minority-party members who wish to advance their sponsored bills than for majority-party members... is at least as important for ideological extremists as it is for centrists, and... is a more influential strategy for lawmakers in recent Congresses than for those in previous decades” (Volden & Wiseman, 2016). As bill content, with regard to scope and urgency of the bill, has been identified as a significant factor related to bill progress, it may also influence LES in terms of the political values espoused within each bill—specifically, these values may affect the support that other legislators of specific political ideologies may offer to the bill (Adler & Wilkerson, 2005).

At a time when contemporary society has a wide array of social, political, and economic problems for government to resolve, the government appears to be underperforming. The average American is highly dissatisfied with American government, with voter apathy remaining a huge problem. In 2014, according to a Gallup poll, the top US problem for voters was ineffective government (Saad, 2015). In an extensive study by the Pew Research Center, it was revealed that only 20% of Americans would describe government programs as well-run, 55% of the public believes that “ordinary... Americans” would do a better job than politicians, and 19% of Americans say that they can trust the government most or all the time—“among the lowest levels in the past half-century” (Pew Research Center, 2015). Moreover, 64% of Americans believe that the current political system in the United States is “basically dysfunctional”, 71% believe that partisan disagreement has reached a “dangerous low point”, and 80% believe that Congress is “basically dysfunctional” (University of Maryland, 2017). Therefore, considering the many perceived shortcomings of government, cooperation between parties is all the more important to address. Most Americans indicate support for increased compromise in government; however, such support is limited when considering contentious issues that have traditionally been associated with partisan conflict (Pew Research Center, 2007). If partisanship is contributing to a decline in legislative productivity, bipartisan behavior focusing on such contentious issues may be the key to boosting beneficial cooperation between parties. According to Roccas and Brewer (2002), “when a person acknowledges, and accepts, that memberships in multiple ingroups are not fully convergent or overlapping, the associated identity structure is both more inclusive and more complex.” Might more inclusive parties, acknowledging different ideologies within each party, be associated with greater cooperation and LES without compromising legislators’ political beliefs?

As utilized in this study, political typology groups are periodically developed by the Pew Research Center via cluster analysis and latent class analysis (LCA) to address divisions and similarities within and between political parties (Pew Research Center, 2017). Based on thousands of survey responses of US adults' political beliefs, "extensive testing" was conducted "to find the model that fit the data best and produced groups that were substantively meaningful". As of 2017, these are Core Conservatives, who support smaller government, lower corporate taxes, and U.S. global involvement; Country First Conservatives, who strongly oppose immigration, U.S. global involvement, and homosexuality; Market Skeptic Republicans, who support higher corporate taxes; New Era Enterprisers, who support business and immigration; Bystanders,<sup>1</sup> who are unengaged in politics; Devout and Diverse, who oppose U.S. global involvement, homosexuality, immigrants, and business regulations; Disaffected Democrats, who believe government is "wasteful and inefficient"; Opportunity Democrats, who support business and believe that most people can get ahead if they work hard; and Solid Liberals, who support the social safety net and more business regulation. The former 4 are right-leaning typologies and the latter 4 are left-leaning typologies. These groups were designed to provide a more in-depth snapshot of political ideology within the general public; this study will use these groups to categorize ideology within Congress. While most previous methods of ideological categorization in Congress utilize only analyses of sponsorship and cosponsorship patterns, this study uses bill content to determine bill value and therefore legislators' values, operating under the assumption that legislators' bills are an accurate reflection of their values. Sponsorship, cosponsorship, and roll call votes were used to indicate support or opposition to these bills and their values. These results were then comparable between three measures of ideology: party, left-right scale, and typology. In addition, information was gathered on salient social issues that are absent from the typology criteria, such as views on gun control, which have becoming increasingly polarized amongst partisan elites and may thus demonstrate significant differences across typologies (Lindaman & Haider-Markel, 2002).

It is important to note that partisanship affects everyday citizens differently than elected officials. On one hand, constituent beliefs and legislator beliefs are intrinsically tied, with constituent partisanship influencing legislator partisanship (Harbridge & Malhotra, 2011). On the other hand, studies have demonstrated widespread misperceptions by legislators of the views of their constituency (Broockman & Skovron, 2013). Those who are more politically active are the most politically sorted (Pew Research Center, 2014; Pew Research Center, 2017), and some sources indicate that Congress has become even more polarized than the general American public (Harbridge & Malhotra, 2011). In fact, even those who argue against the theory of increased polarization in the general American public still concede that elected

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<sup>1</sup> As the Bystander category is assigned only to individuals unengaged in politics, it was omitted from this study. See Pew Research Center (2017) for more in-depth profiles of these typologies.

officials and political elites have indeed become more polarized (Fiorina et al., 2004). Thus, it is all the more likely that partisanship has great influence on legislators' sponsorship, cosponsorship, and roll call voting patterns. This may also call into question the applicability of political typology, as calibrated for the general American public, to legislators; however, this allows for specific comparisons between the ideology of the public and that of legislators, providing greater insight into the degree to which legislators' work may stray from the values of their constituents.

Ultimately, considering the overall polarization of Congress, I hypothesize that the distribution of typologies of partisan legislators will disproportionately lean towards the extremities of Core Conservatives and Solid Liberals, given the positive correlations between political involvement, partisanship, and polarized ideologies (Pew Research Center, 2017). However, the distribution of typologies of bipartisan legislators may be less intuitive—legislators tend to have more extreme typologies than the general public, but decreased partisanship may lead to somewhat less polarized ideologies. In addition, as bipartisanship has been demonstrated to be beneficial for LES no matter the extremity of ideology (Volden & Wiseman, 2016), bipartisanship should also be positively associated with LES no matter the typology. Significant differences in LES across typologies would indicate differences in the degree to which bipartisanship is beneficial to legislator success. Finally, the patterns of sponsorship and cosponsorship between different political typologies may be significant. For instance, it may be more difficult for moderate legislators to cooperate with more extreme legislators of the opposite party. Alternatively, it may be equally difficult for moderate legislators to cooperate with all members of the opposite party, or there may be unique patterns of cooperation between specific typologies.

## **Research Methods**

This study uses data of the 114th Congress (2015-2017) gathered from the Library of Congress and GovTrack to retrieve information pertaining to legislators' bipartisanship, political views, and habits of cosponsorship and sponsorship. These databases serve as a wealth of data pertaining to bills and legislators, whose patterns of cosponsorship and sponsorship reveal underlying political phenomena. These datasets have been used to study issues such as the "connectedness" of legislative social networks (Fowler, 2006a; Fowler, 2006b), trends in cosponsorship over time, bill success, and many more.<sup>2</sup> For instance, ratings of ideology and leadership have been developed for each member of Congress based on the types of bills that they tend to cosponsor and how often other members of Congress cosponsor their bills (Tauberer, 2012). In addition, bipartisan indices have been developed for each member of Congress based on how often those of the opposite party cosponsor the members' sponsored bills and how often the

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<sup>2</sup> See <http://www.congressionalbills.org/trends.html> for more studies conducted with bill topic codes and datasets.

member cosponsors bills sponsored by those of the opposite party; these ratings have been positively associated with LES (Volden & Wiseman, 2016; Branegan et al., 2017). In this study, ideology, leadership, bipartisanship, and LES were included to allow for the most accurate and thorough analyses.

Two of the most common approaches to legislative research involve either the success rates of individual legislators or the progress of individual bills; this study takes the former approach, using LES in conjunction with other variables (Adler & Wilkerson, 2005; Volden & Wiseman, 2014). Specifically, this study assigns an additional variable to each legislator: their political typology, based on the political typology groups developed by the Pew Research Center in 2017. Political ideology has been shown to have nuances that simple left-right ratings cannot capture, instead necessitating a more complex typology, which does not capture extremity in political ideology, but rather differences in key issues that reflect divisions that exist between and within the left and right (Pew Research Center, 2017). For the purposes of this study, this is ideal, considering the relative ease of measuring the existence of beliefs espoused in a bill as opposed to the extremity of beliefs. To determine bill stance, general keywords and annotated bill topics from the Policy Agendas Project were used to identify bills that might be relevant to these issues before each bill was independently reviewed for stance through the goals of the bill as described in its summary authored by the CRS, a nonpartisan legislative branch agency of the Library of Congress.<sup>3</sup> This generated scores for each legislator's stance on these social issues. For instance, cosponsorship, sponsorship, or roll call votes in favor of pro-immigration bills were tallied up and weighted to determine whether a legislator was pro-immigration overall. Opposition to pro-immigration bills or support for anti-immigration bills influenced this score in the opposite direction. Together, these scores were then used to find the typology whose associated beliefs were the best possible fit for the legislator.<sup>4</sup>

Due to the nature of the legislative process, certain social issues were excluded from the identification of legislator typologies. Some views, such as those on hard work, were excluded due to lack of available data on bills endorsing such views and ambiguity regarding whether such a view can be espoused in a bill. Other views, such as those on race, were excluded due to blatant violation of the assumption that legislators' bills represented their values, as bills explicitly against such politically sensitive issues were exceedingly rare.

Ultimately, given legislators' political typologies, we can then qualify our understanding of legislators' sponsorship and cosponsorship patterns—specifically, whether certain political typologies have more difficulty cooperating with each other, and whether these findings would differ if ideology were instead measured on a left-right scale. To determine whether political typology has an effect on

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<sup>3</sup> See Appendix A for a list of bills and stances assumed.

<sup>4</sup> See Pew Research Center (2017) for percentages of each typology that held certain beliefs, used to determine the typology to which each legislator had the highest chance of belonging.

sponsorship patterns, indices of cooperation were developed for each typology based on the percentage of a legislator's cosponsored bills that were sponsored by a particular typology, subtracted by the percentage of total bills in Congress sponsored by that typology.

Note that many legislative studies focus on patterns of sponsorship and cosponsorship—not only due to the objectivity of these measures, but also due to the fact that these are “carefully considered decisions that stake out long-term positions” (Fowler, 2006a; Fowler, 2006b; Branegan et al., 2017). Other measures, such as voting patterns, may be more influenced by “short-term” context. In this study, voting patterns, sponsorship, and cosponsorship were all used to indicate support or opposition, especially considering that previous measures of bipartisanship, leadership, and ideology all use sponsorship and cosponsorship in a similar fashion.

Importantly, this study design would not be able to measure causality because it would be unable to determine the direction of influence and whether a spurious relationship exists. For example, it is possible that high levels of cooperation cause legislators to adopt more centrist typologies, or that centrist legislators tend to cooperate more, or even that another variable, such as agreeability, causes legislators to both cooperate more and adopt centrist typologies. Still, by using political typology and building off of previously identified trends of the detriments of partisan behavior, this study added a layer of specificity regarding the issues that may be most impacted by legislator partisanship.

## Results

Political typologies were generated through the aforementioned procedure.<sup>5</sup> As expected, the distribution of legislator typology skewed towards the traditional extremes of Core Conservatives and Solid Liberals. Within the public, 20% of the politically engaged are Core Conservatives and 25% are Solid Liberals (Pew Research Center, 2017); within legislators, 37.8% were identified as Core Conservatives and 36.2% were identified as Solid Liberals. There were also disproportionately high frequencies of Country First Conservatives, as 16.1% of legislators were identified as Country First Conservatives as opposed to 6% of the politically engaged public. The second best fit typology for 76.1% of these Country First Conservatives would have been Core Conservative.

Bipartisanship was captured with the bipartisan index  $b$ ;  $b < -1$  indicated extreme partisanship,  $b < 0$  indicated partisanship,  $b > 0$  indicated bipartisanship, and  $b > 1$  indicated extreme bipartisanship. Legislators' political typology and their level of bipartisanship were significantly associated with a moderately strong effect,  $X^2(21, N = 525) = 158.724$ ,  $p < 0.001$ ,  $\phi_c = 0.317$ . Only Solid Liberal typology was significantly associated with increased partisanship: while 60% of Congress is partisan and 11% of

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<sup>5</sup> See Appendices B and C for a list of legislators and typologies.



Congress is extremely partisan, 62.8% of Solid Liberals is partisan and 15.2% of Solid Liberals is extremely partisan,  $X^2(3, N = 525) = 38.276, p < 0.001, \phi_c = 0.270$ . Furthermore, the typologies significantly associated with increased bipartisan behavior were Disaffected Democrat [ $X^2(3, N = 525) = 25.833, p < 0.001, \phi_c = 0.222$ ], Devout and Diverse [ $X^2(3, N = 525) = 51.657, p < 0.001, \phi_c = 0.314$ ], and Market Skeptic Republican [ $X^2(3, N = 525) = 37.132, p < 0.001, \phi_c = 0.266$ ].

The Senate appears to embody greater diversity of typologies than the House of Representatives,  $X^2(7, N = 547) = 57.394, p < 0.001, \phi_c = 0.324$ . While Core Conservatives and Solid Liberals comprised 41.4% and 38.5% of the House of Representatives respectively, they only comprised 22% and 26% of the Senate. And, while Country First Conservatives and Disaffected Democrats comprised only 13.4% and 3.8% of the House of Representatives respectively, they comprised 28% and 19% of the Senate. Despite this, however, senators were only slightly more bipartisan than representatives,  $X^2(1, N = 547) = 4.287, p = 0.038, \phi_c = 0.089$ .

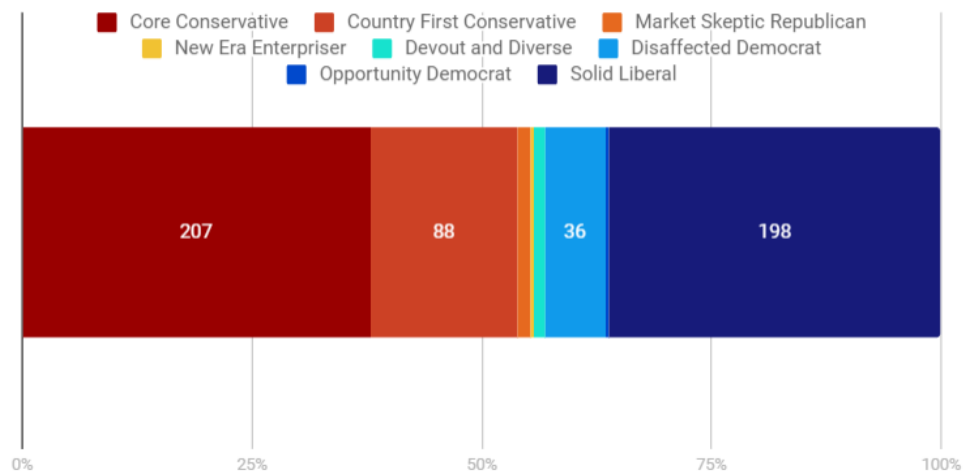


Figure 1. Political typology distribution of legislators as number of legislators.

It is reasonable that partisan legislators may be more likely to hold typologies whose beliefs may more closely align with mainstream Democratic or Republican beliefs. According to a one-way ANOVA test and Tukey post-hoc tests, there were significant differences between bipartisan indices for different typologies,  $F(6, 516) = 19.055, p < 0.001$ . Solid Liberals were determined to be significantly more partisan than nearly any other typology, followed by Core Conservatives and Country First Conservatives,  $p = 0.002$ . Similarly, Devout and Diverse and Market Skeptic Republicans were determined to be significantly more bipartisan than nearly any other typology,  $p = 0.021$ . A general pattern arises wherein legislators tend to become more partisan with “traditional” Democratic or Republican typologies. The direction of influence of this effect may be important; on one hand,

partisanship causes polarization of ideologies, but on the other hand, the prominence of such ideologies may also fuel partisanship itself.

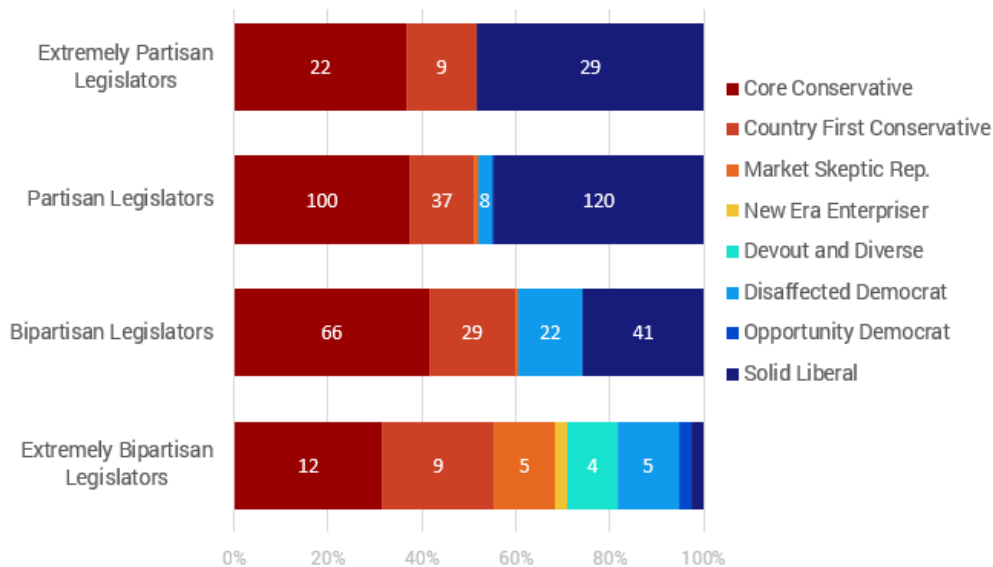


Figure 2. Political typology distribution of legislators by partisanship as number of legislators.

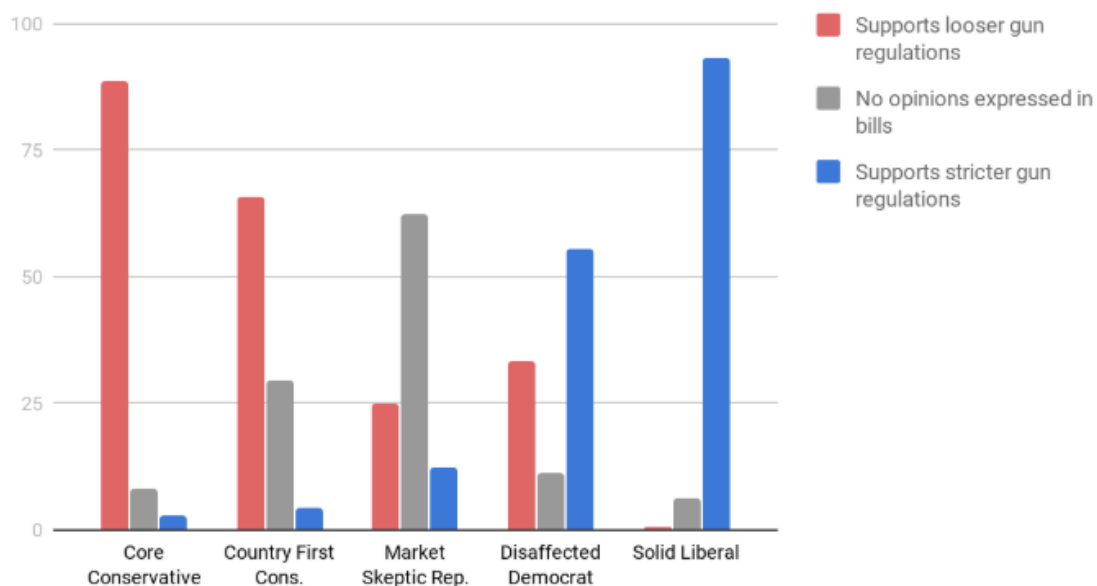
The LES indicates the degree to which legislators have advanced their proposed bills into law and is compared to a “benchmark” of an expected LES for a legislator in the 114th Congress of the same party, experience in Congress, and chair status (Volden & Wiseman, 2014). This LES-benchmark ratio categorizes legislators as “above expectations”, “meets expectations”, or “below expectations”. As discovered by Volden and Wiseman (2016), bipartisanship was associated with increased LES,  $r = 0.171$ ,  $p < 0.001$ . However, contrary to Volden and Wiseman’s (2016) conclusion that bipartisanship is “more important for minority-party members... than for majority-party members”, bipartisanship was only significantly associated with increased LES for Republicans, not Democrats,  $X^2(6, N = 536) = 25.068$ ,  $p < 0.001$ ,  $\phi_c = 0.153$ . In fact, according to a model consisting of the combined effect between legislators’ bipartisan index and their typology, bipartisanship was only significantly associated with increased LES for Core Conservatives and Country First Conservatives,  $F(8) = 3.502$ ,  $p = 0.001$ .<sup>6</sup> However, there was high variability in the model, with R Squared being a low value of 0.051. Typology and party alone were not significantly associated with LES.

The legislator ideology and leadership scores, as developed by GovTrack, use Principal Component Analysis (PCA) to find networks of cosponsorship and identify members who sponsor similar sets of bills and who sponsors whom, assigning a left-right ideology score—with 0 being as far left as

<sup>6</sup> Dummy variables for each typology were included in this model—whether legislator was a Core Conservative, whether legislator was a Country First Conservative, etc.

possible and 1 being as far right as possible—and a leadership score—with 0 being low levels of leadership and 1 being high levels of leadership (Tauberer, 2012). In this study, while the typologies assigned to legislators were based on the content of bills supported rather than clustered patterns of support, the findings agree with the left-right ideology score. A model consisting of political typologies significantly predicted legislators' ideology score,  $F(7, 539) = 317.705$ ,  $p < 0.001$ . As expected, those with more extreme left-leaning typologies had lower ideology scores and those with more extreme right-leaning typologies had higher ideology scores.

Yet, typology captures certain details that are not easily visible through ideology. This study, providing a general sense of legislators' stances on certain contentious issues, qualifies patterns regarding these stances. For example, a significant association was found between legislator typology and stance on gun control,  $X^2(14, N = 547) = 468.536$ ,  $p < 0.001$ ,  $\phi_c = 0.654$ . However, while Republicans have traditionally stood for looser gun control and Democrats for stricter gun control, political typology addresses important divisions within the parties: in their sponsorships, cosponsorships, and roll call votes, only 25% of Market Skeptic Republican legislators actively supported looser gun regulations and 55.6% of Disaffected Democrat legislators actively supported stricter gun regulations. The same analysis can be applied for other social issues that are not addressed in the political typology specifications, having not been deemed significant through the LCA process that formed these groups. Other measures of ideology would not capture these divisions as effectively.



*Figure 3.* Legislators' opinions on gun regulations as percentage of each typology.<sup>7</sup>

<sup>7</sup> Typologies whose associations with gun control views were insignificant were excluded.

Contrary to expectations, moderate typologies and higher levels of bipartisanship were correlated with increased leadership. A model consisting of political typologies and bipartisanship significantly predicted legislators' leadership score,  $F(8, 516) = 4.768, p < 0.001$ . Specifically, holding bipartisanship constant, Devout and Diverse had the lowest leadership scores ( $p < 0.001$ ), followed by Solid Liberals ( $p = 0.029$ ). Overall, leadership and bipartisanship were significantly correlated,  $r = 0.165, p < 0.001$ . Moreover, according to a model consisting of the combined effect between legislators' bipartisan index and their typology, extremity of ideology *was* significantly associated with increased LES for more bipartisan legislators,  $F(8) = 4.938, p = 0.021$ .<sup>8</sup> This suggests increased recognition of ideological divisions among more bipartisan legislators, manifested in ideologically extreme bipartisan legislators' dramatically increased levels of leadership.

Finally, legislators' cooperation with other typologies was determined by finding the percentage of cosponsored bills that were sponsored by specific typologies. This was then subtracted by the percentage of all bills in Congress sponsored by those typologies, allowing for a scaled representation of the degree to which legislators tend to support bills of each typology. According to one-way ANOVA tests and Tukey post-hoc tests, there were significant differences between numerous typology groups and their bill cosponsorship patterns.

ANOVA Test Comparing Support Between 8 Different Typology Groups For Bills Sponsored By...	F-Statistics
Core Conservatives	$F(5, 537) = 358.347, p < 0.001$
Country First Conservatives	$F(5, 537) = 218.022, p < 0.001$
Market Skeptic Republicans	$F(5, 537) = 67.724, p < 0.001$
New Era Enterprisers	$F(5, 537) = 4.065, p = 0.001$
Devout and Diverse	$F(5, 537) = 43.218, p < 0.001$
Disaffected Democrat	$F(5, 537) = 45.654, p < 0.001$
Opportunity Democrat	$F(5, 537) = 16.038, p < 0.001$
Solid Liberal	$F(5, 537) = 1071.689, p < 0.001$

*Table 1.* F-statistics for ANOVA tests comparing support for bills sponsored by various typologies between different typologies.

<sup>8</sup> Dummy variables for the combined effect of bipartisanship and each typology were generated through multiplication of the bipartisan index and whether the legislator was of a particular typology.

In most cases, legislators supported bills by those of the same party more than those of the opposite party, regardless of typological divisions. For instance, New Era Enterprisers (moderate, pro-business, pro-immigration conservatives) were 35.3% more likely to support bills by Core Conservatives than Disaffected Democrats and 39.6% more likely than Solid Liberals,  $p < 0.001$ .

However, contrary to expected, Disaffected Democrats were 1.7% *more* likely than Core Conservatives to support bills by Market Skeptic Republicans,  $p = 0.003$ . And, there were divisions within parties regarding support for bills of the opposite party: Devout and Diverse and Disaffected Democrats were 9.9% and 5.2% respectively *more* likely than Solid Liberals to support bills by Country First Conservatives,  $p = 0.001$ . Moreover, there were divisions within parties regarding support for bills of the same party: in contrast to Devout and Diverse, Disaffected Democrats were 18.5% more likely to support bills by Solid Liberals,  $p < 0.001$ . Notably, legislators almost always had highest cooperation ratings for bills sponsored by those of the same typology. For example, Solid Liberals were 42.1% more likely than Devout and Diverse to support bills by Solid Liberals, and Core Conservatives were 25.1% more likely than Market Skeptic Republicans to support bills by Core Conservatives,  $p < 0.001$ .

As hypothesized, according to GLM Univariate ANOVA tests and Tukey post-hoc tests, holding typology constant, party was significantly associated with legislators' cooperation ratings for any typology, save for Devout and Diverse. However, there were no consistent patterns with regard to whether party or typology was more *strongly* associated with the cooperation ratings of any typology, save for the tendency of those of any typology to have far higher cooperation ratings for their own typology.

## Discussion

The high frequency of Core Conservatives and Solid Liberals supports the notion that legislators, being more politically engaged and more influenced by partisanship than the general public (Fiorina et al., 2004), trend towards ideological extremes. However, there was also an unprecedentedly high frequency of Country First Conservatives. Given that a majority of these Country First Conservatives had the Core Conservative typology as their 2nd best fit and that the main differences between Country First Conservative and Core Conservative values are Country First Conservatives' highly negative opinions on immigrants and U.S. global involvement, it is likely that either a) mainstream conservative opinion is shifting towards increasingly anti-immigrant and isolationist views, b) Republican legislators tend to be more anti-immigrant and isolationist than Republicans of the general public, or c) bills proposed in Congress by Republicans tend to be anti-immigrant or isolationist in a manner that does not truly reflect Republican legislators' or their constituents' views. The first two possibilities are supported by recent

trends, including the the tendency of legislators to misperceive or exaggerate the extremity of constituents' beliefs and the perceived proliferation of illiberal populist ideology as represented by the America First platform of the Trump presidency (Broockman & Skovron, 2013; Pew Research Center, 2016; Chambers, 2017); the latter possibility is a limitation of bill content as an assumed indicator of legislators' values. Considering that past studies have indicated a strong correlation between partisan identity and support for candidates whose values more closely align with those of the party, this indicates a fundamental shift within the Republican party (Enns & McAvoy, 2012). All possibilities, however, are worth exploring. If mainstream conservatism in Congress is truly becoming increasingly hostile to immigrants and U.S. global involvement, then further research should look into the reasons behind this shift, whether they include biased media portrayal of these issues, nationalistic political rhetoric, or some combination of these phenomena. Additionally, if this study were to be replicated at the conclusion of the 115th Congress, it is likely that Country First Conservatives would be increasingly prevalent.

The Democratic side displayed more conventional results. As expected, Solid Liberals comprised a disproportionately greater portion of Congress than the general public. Considering the polarization caused by partisanship, the apparent extremity of Solid Liberal typology is further corroborated by the relationship between Solid Liberal typology and partisanship, as Solid Liberals were significantly more partisan than any other typology.

Ultimately, this distribution with high numbers of Core Conservatives, Country First Conservatives, and Solid Liberals, along with the increase in frequency of other typologies among more bipartisan legislators, supports the notion that the sorting *and* polarizing effects of partisanship are highly prominent in contemporary Congress. Not only were legislators' beliefs largely homogeneous within the left and right, but this homogeneity trended towards the ideological extremes of both parties. Still, the fact that significant differences were found between levels of cooperation for different typologies within the same party indicates that party divisions continue to exist and have a prominent effect on legislator behavior despite the low frequency of moderate legislators.

It is interesting that no typology alone was significantly associated with higher or lower LES. Considering the overall polarization of Congress, it is possible that, to the average legislator, minute ideological divisions played little role in determining legislator success, or that typology criteria, being calibrated to identify political divisions within the *public*, were too narrow to encompass divisions within legislators that would have otherwise influenced legislator success. However, as the combined effect of bipartisanship and either Core Conservative or Country First Conservative typology was associated with increased LES, this indicates that the benefits of bipartisanship on LES are not equal between typologies. This suggests that a key factor to greater legislative success involves willingness to cooperate with the opposite party, *especially* so for legislators part of the majority party or ideology in Congress. After all,

the majority party is not bound to cooperate with the minority party to pass parts of its agenda, and may thus reap even greater benefits from bipartisan behavior.

Similarly, typology qualified the interplay between bipartisanship, ideology, and leadership: while Tauberer (2012) demonstrated that ideological extremity and leadership were positively correlated, this study demonstrated that this ideology-leadership correlation was even stronger among bipartisan legislators. Notably, as Solid Liberals had the second-lowest significant leadership scores yet the second-strongest correlation between bipartisanship and leadership, Solid Liberals would benefit the most, in terms of leadership, from increased bipartisan behavior. This is especially impactful, given that Solid Liberals were the most partisan typology in Congress. Parallels can be drawn between this effect and the increased benefits of bipartisanship on LES for ideologically extreme Republicans; considering the Republican-dominated Congress, it would have been more difficult for left-leaning typologies to pass bills, potentially resulting in a decreased focus on sponsoring bills and a greater focus on analyzing and considering bills sponsored by the right. Thus, if leadership—functionally, the ability to amass cosponsors—were used as an acceptable alternative measure of legislator success, then bipartisanship would be greatly beneficial to ideologically extreme Republicans *and* Democrats.

This has numerous political and systemic implications, given that partisanship continues to block cooperation in Congress and induce unwarranted legislative gridlock (Andris et al., 2015; Howell et al., 2000). As previously demonstrated, partisan identity is one of the strongest predictors of political involvement; therefore, in terms of cosponsorship, partisan identity may also be a disproportionately strong factor as legislators decide which bills to cosponsor (Huddy et al., 2015). However, assuming that the primary goal of legislators is to get re-elected by passing bills that align with the beliefs of their constituents, this may not always be ideal. As demonstrated in this study, not only were legislators far more ideologically polarized than the general public, but bipartisan legislators tended to have far greater success at forwarding their agenda items through the legislative process than their partisan counterparts—especially so for ideologically extreme legislators, who tend to be the most partisan.

There remains, however, the crucial question of whether bipartisan behavior necessarily entails a compromise between legislators' values and the values of their opposition. If so, then the increased success that come with bipartisan behavior can be discounted with the argument that they come at the cost of compromising one's political beliefs. However, this study suggests not a model of compromise, but rather a model of cooperation. Political typology groups demonstrate that while parties are, to an extent, cohesive, there are divisions both within those of the same party and similarities between those of different parties, and that increased bipartisan behavior may be *most* beneficial to extreme legislators, all without compromising the beliefs of their typology. Indeed, it is unclear whether bipartisanship may have entailed a shift of beliefs towards the center, given that causality was not established in this study; it is

possible that the increased levels of bipartisanship in centrist typologies are a result of centrist legislators compromising their beliefs, or that they were more moderate to begin with. However, this study does support the idea that using partisan identity as a main factor of consideration for cosponsorship is not conducive to legislative effectiveness and that certain issues—immigration, U.S. global involvement, government regulation of business, and government efficiency—have support and opposition within both parties in Congress.

Despite the sorting and polarizing effects of partisanship, typology analyses highlight the continued existence of deep divisions within the Democratic and Republican parties. As demonstrated by ideological differences captured within social issues like gun control, it would be beneficial to employ political typology when trying to gather insight on legislators' stances on specific social issues, thus allowing legislators to use this information to inform policy agendas and target legislators for particular causes. For instance, advocates for gun control may find and utilize support in Market Skeptic Republican cohorts, especially considering the high frequency of legislators in this group who do not actively take a stance for or against the issue. Similar analyses could be applied for advocates of other policies, with an added level of specificity available through political typology and not a left-right scale.

The 2017 political typology groups were developed with LCA, running models of specific sets of beliefs thousands of times to determine “cohesive groups that were sufficiently distinct from one another, large enough in size to be analytically practical and substantively meaningful”. In this study, legislator typology was identified based on cosponsorship, sponsorship, and roll call votes pertaining to bills that espoused certain beliefs. In contrast, the left-right ideology, as developed by GovTrack, utilized PCA to “spread (members of Congress) out along a spectrum in a way that explains their record of cosponsorship”, with “no guarantee that these numbers even have anything to do with liberal- and conservative-ness”. Importantly, while typology is tied to the clustering of select social issues in a statistically significant manner, left-right ideology is not necessarily tied to political beliefs whatsoever, despite being an accurate indicator of such. In other words, typology and left-right scale, as used in this study, are both designed to measure legislator ideology, but only the former explicitly incorporates political beliefs in its calculation. Therefore, not only do ideology and typology differ in the level of detail that they provide, but also in the relevant time horizon. If the political atmosphere should happen to change, typology groups would need to be recalculated and recalibrated to be statistically meaningful, whereas ideology scales would not. Thus, in correlations involving variables that fluctuate easily over time, ideology may be more appropriate and paint a more accurate, albeit less detailed, picture. The average legislator was found to have 12.68 years of experience in Congress, with a standard deviation of 9.60 years—so, assuming that political belief groups have shifted over the last 12 years, political typology cannot be used in longitudinal studies for the majority of Congress. Rather, political typology is



appropriate only for detailed snapshots of political groups during a specific time period, unless universal, statistically meaningful typology groups are identified for a longer time horizon.

A similar interplay arises in the use of the bipartisan index with political typology. Since “behavior related to sponsoring and co-sponsoring bills differs greatly depending on whether a member is in the majority or minority”, the bipartisan index was constructed with a “20-year baseline of data” to provide greater historical value (Branegan et al., 2017). In this study, the bipartisan index was utilized in conjunction with political typology, giving more objective meaning to the results found—in other words, the correlations found between typology and partisanship *are* comparable between Congresses. As partisanship continues to rise, these correlations will likely become stronger in future Congresses.

Importantly, the data may have been skewed towards a more homogeneous typology distribution due to a key shortcoming of the study design: legislators may not demonstrate their ideology based solely on their bills supported and rejected. For instance, Opportunity Democrats differ from Solid Liberals mainly in their opinions of corporate profit and whether most people can get ahead if they are willing to work hard; Opportunity Democrats believe, more so than Solid Liberals, that most corporations make a “fair and reasonable amount of profit” and that “most people can get ahead if they are willing to work hard” (Pew Research Center, 2017). However, bills that explicitly protected corporate profit may have been politically unpopular, and opinions on hard work are difficult to accurately gauge through bill content, potentially resulting in fewer Opportunity Democrats identified than in reality. This same disparity between legislators’ beliefs and their work is present for other issues such as race, LGBT rights, and support for the poor, all of which are issues with stances that legislators may more readily express in their rhetoric or everyday actions than their bills. This may have skewed the data towards a more homogeneous typology distribution. Still, that significant associations could be drawn despite this increased homogeneity reveals a great deal about the influence of bipartisanship in Congress.

This study identified that legislators’ cosponsorship of bills by certain typologies was associated with both party and typology approximately equally. However, it is possible that the influence of typology is weakened by design. A vast portion of proposed bills in Congress do not relate to any of the criteria established by the Pew Research Center’s political typology groups; the bills used to find typology only amounted to approximately 2% of the thousands of bills proposed in the 114th Congress. Therefore, it is possible that the influence of political typology is negligible in many cases due to sheer irrelevance to the bill subject. Moreover, party is more conspicuous than typology; when deciding whether to cosponsor a bill, legislators may not be considering the overall ideology of the sponsor. This further weakens the relative strength of typology as a predictor of cosponsorship patterns.

Again, however, typology provides a deeper analysis than a left-right scale. Those of moderate typologies—Devout and Diverse, Disaffected Democrats—often appear to find potential cosponsors and

cosponsor-worthy bills from those of the opposite party more easily than those of the mainstream ideology of their party. Despite the disproportionately low frequency of these moderate typologies, this would suggest that an effective way for both parties to gather support in Congress would be for legislators to acknowledge and support a wider array of political opinions within their party.

Finally, the significantly greater diversity in political typologies of the Senate as opposed to the House of Representatives may have numerous ramifications. This pattern aligns with the effects of gerrymandering on the House of Representatives, whose district lines have often been drawn to favor candidates of the party in control of the state legislature (Hebert & Jenkins, 2011). Additionally, representatives represent smaller constituencies, potentially resulting in decreased incentive to represent a wider range of political beliefs. These representatives may then align more closely with the mainstream values of their party. On the other hand, senators, having to represent larger constituencies, may be more inclined to represent those whose beliefs are more moderate. Some sources find little evidence for such a causal link between gerrymandering and polarization of legislators, citing historical inconsistencies in this pattern and potential misinterpretations of within-district divergence between Democratic and Republican legislators' behavior (McCarty et al., 2009). However, political typology analysis demonstrates an evident rift between the House and Senate with regard to members' consideration of non-traditional Democratic or Republican beliefs in their work, as well as the specific political beliefs involved: namely, Republican senators' increased anti-immigrant and anti-global-involvement sentiment and Democratic senators' increased emphasis on addressing government inefficiency. The source of this rift may be open to future research regarding gerrymandering.

Policy implementations would ideally address (a) the negative impact of partisan behavior on congressional productivity, (b) the view of bipartisanship as cooperation rather than compromise, and (c) the disparity between the distributions of legislator typology and constituent typology. Given that bipartisanship was associated with higher legislative effectiveness and leadership—especially for ideologically extreme legislators, who happen to be the most partisan—it may be in stakeholders' best interests to encourage bipartisan behavior. This supports the work of bipartisan advocacy groups like the Bipartisan Policy Center, which aims to counteract the effects of partisanship by supporting objectively successful policies from both parties. In particular, if bipartisan behavior is viewed with a lens of cooperation rather than compromise, then it may become more appealing to constituents who would otherwise reject it due to the notion that working with the opposite party necessarily entails compromising one's beliefs; this would make up at least 21% of the American public who prefer leaders that are unwilling to compromise (Pew Research Center, 2007). Party elites may also use this as incentive to strengthen party cohesion and intra-party cosponsorship by actively expanding the definition of

mainstream liberal and conservative ideology, ultimately providing more support for moderate typologies such that there is less incentive to seek support from the opposite party.

Additionally, recognition and analysis of typological distributions of voters and legislators within districts would allow prospective candidates and elected officials to gain a better sense of the views and priorities of their constituents. In general, it may be beneficial to the American public to recognize the details of political typology as a means of counteracting the oversimplification of political beliefs that has come with rising partisanship. This would allow the American public to have more well-informed and unbiased views of their legislators and of themselves.

Ultimately, political typology is one of many tools available to encompass ideology, which is far too complex for any one measurement to be ideal for every situation. While political typology, as identified through bill content, does not provide a fair picture of political beliefs over long periods of time and makes crucial assumptions regarding the applicability of bill content to legislator ideology, it provides greater insight and detail into political beliefs within a short time horizon, allowing for comparisons between Congress and the general public. When used in conjunction with other measures of ideology and legislator behavior, political typology demonstrates the polarizing and sorting effects of partisanship in Congress, as well as the varying effects of bipartisanship on legislator success for different ideologies. Ultimately, typology highlights that cooperation is possible for those of any ideology and that the beliefs of legislators, quite often, do not align with the beliefs of their constituencies. In order for American society to reap the benefits of a truly representative government and reverse the harrowing trend of plummeting faith in government, encouraging bipartisan behavior may be the key.

#### Appendix A: Bill Stances Assumed

Stance	Bills
The government should do more to help needy Americans, even if it means going deeper into debt.	H.R.2, H.R.251, H.R.546, H.R.578, H.R.775, H.R.842, H.R.1342, H.R.1516, H.R.2050, H.R.2654, H.R.3308, H.R.3381, H.R.3742, S.31, S.141, S.167, S.298, S.313, S.314, S.522, S.539, S.804, S.857, S.1012, S.1512, S.1532, S.2148
The government today can't afford to do much more to help the needy.	H.R.24, H.R.30, H.R.33, H.R.132, H.R.143, H.R.928, H.R.1624, H.R.2400, H.R.3762, S.12, S.30, S.38, S.123, S.183, S.203, S.264, S.336, S.339, S.1016, S.1099
Government is almost always wasteful and inefficient.	H.R.27, H.R.50, H.R.185, H.R.427, H.R.598, H.R.712, H.R.1155, H.R.1732, H.R.3438, H.R.4730, H.R.4885, H.R.4890, H.R.4956, H.R.5053, H.R.5063, H.R.5226, H.R.5499, S.168, S.226, S.280, S.1150, S.1378, S.1944
Government often does a better job	H.R.304, H.R.2775, H.R.3635, H.R.4585, S.2035

than people give it credit for.	
The best way to ensure peace is through military strength.	H.R.3460, H.R.4534, S.1188, S.1265
Good diplomacy is the best way to ensure peace.	H.R.1534, H.R.3461, S.28, S.1789
Government regulation of business is necessary to protect the public interest.	H.R.766, H.R.2289, S.214, S.2760
Government regulation of business usually does more harm than good.	H.R.37, H.R.650, H.R.685, H.R.766, H.R.1210, H.R.1675, H.R.2357, H.R.2745, H.R.2896, H.R.3192, H.R.3791, H.R.4498, H.R.4854, H.R.5424, H.R.6100, H.R.6392, S.812, S.1491, S.1711
Homosexuality should be accepted by society.	H.R.1706, H.R.4475, H.R.5373, S.302, S.2765, S.3134, S.3360, H.Res.549, H.Res.561, S.Res.511, H.Con.Res.38
Business corporations make too much profit.	H.R.415, H.R.494, H.R.1098, H.R.5125, S.198, S.2102
Most corporations make a fair and reasonable amount of profit.	H.R.2745, H.R.4016
Stricter environmental laws and regulations cost too many jobs and hurt the economy.	H.R.348, H.R.594, H.R.1029, H.R.1030, H.R.1388, H.R.1732, H.R.1901, H.R.2042, H.R.2406, H.R.3797, H.R.3880, H.R.4557, H.R.4715, H.R.4775, S.405, S.751, S.1140, S.1500, S.2659
Stricter environmental laws and regulations are worth the cost.	H.R.239, H.R.746, H.R.1284, H.R.1482, H.R.1548, H.R.2016, H.R.2494, H.R.2920, H.R.3546, S.330, S.2821, H.Res.540
Immigrants today strengthen our country because of their hard work and talents.	H.R.213, H.R.1019, H.R.2033, H.R.2922, H.R.4798, H.R.5207, S.153, S.1300, S.2337
Immigrants today are a burden on our country because they take our jobs, housing and health care.	H.R.191, H.R.1147, H.R.1148, H.R.1153, H.R.2942, H.R.3009, H.R.3011, H.R.3314, H.R.3573, H.R.3999, H.R.4032, H.R.4038, H.R.4197, H.R.4537, H.R.5224, H.R.5654, H.R.5816, S.534, S.686, S.1032, S.1842, S.2146, S.2193, S.3124
The economic system in this country unfairly favors powerful interests.	H.R.188, H.R.1260, H.R.1655, H.R.2103, H.R.2150, H.R.3071, H.R.3164, H.R.3222, H.R.3514, H.R.3862, H.R.5719, H.R.5894, S.161, S.1127, S.1150, S.1772, S.1874, S.2042, S.2697
The economic system in this country is generally fair to most Americans.	H.R.612, H.R.1893, H.R.4773, S.391, S.1105, S.1785
Gun restrictions should be tightened.	H.R.224, H.R.4269, H.R.5671, S.1473, H.Res.467, H.Res.694, S.Res.478

Gun restrictions should be loosened.	H.R.2406, S.405
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## Appendix B: Typologies of House of Representatives

In the interest of space, unlisted Republican representatives were identified as Core Conservatives and unlisted Democratic representatives were identified as Solid Liberals.

Representative (by ideology and typology)					
#	Name	State	Party	Ideology Score	Typology
Legislators 1 to 185 were identified as Core Conservatives.					
186	Jeff Duncan	SC	R	1.0	Country First Conservative
187	Marsha Blackburn	TN	R	0.988000645829	Country First Conservative
188	David P. Roe	TN	R	0.968908099782	Country First Conservative
189	Paul A. Gosar	AZ	R	0.945332553519	Country First Conservative
190	Todd Rokita	IN	R	0.935459842116	Country First Conservative
191	Diane Black	TN	R	0.916972667314	Country First Conservative
192	Andy Harris	MD	R	0.904952832862	Country First Conservative
193	Scott DesJarlais	TN	R	0.898571458004	Country First Conservative
194	Mo Brooks	AL	R	0.897295433141	Country First Conservative
195	Kevin Cramer	ND	R	0.89317390385	Country First Conservative
196	Mike Pompeo	KS	R	0.890228592251	Country First Conservative
197	John Fleming	LA	R	0.88710110996	Country First Conservative
198	Lynn Jenkins	KS	R	0.885591494216	Country First Conservative
199	John J. Duncan	TN	R	0.87206382468	Country First Conservative
200	Marlin A. Stutzman	IN	R	0.854115013694	Country First Conservative
201	Stephen Lee Fincher	TN	R	0.852457421334	Country First Conservative
202	Lamar Smith	TX	R	0.849530576327	Country First Conservative

203	Dan Benishek	MI	R	0.848246648823	Country First Conservative
204	Richard B. Nugent	FL	R	0.837139024581	Country First Conservative
205	Ted S. Yoho	FL	R	0.835789638985	Country First Conservative
206	Steve Stivers	OH	R	0.835529308411	Country First Conservative
207	Sam Graves	MO	R	0.815887870398	Country First Conservative
208	Robert J. Wittman	VA	R	0.815040502355	Country First Conservative
209	Brian Babin	TX	R	0.814712741862	Country First Conservative
210	Jason Chaffetz	UT	R	0.812268157436	Country First Conservative
211	Steve Scalise	LA	R	0.806689747451	Country First Conservative
212	Tom Price	GA	R	0.804527243299	Country First Conservative
213	Glenn Thompson	PA	R	0.798491863348	Country First Conservative
214	Markwayne Mullin	OK	R	0.786933938053	Country First Conservative
215	F. James Sensenbrenner	WI	R	0.77536460432	Country First Conservative
216	H. Morgan Griffith	VA	R	0.773058988516	Country First Conservative
217	Tim Murphy	PA	R	0.755360354814	Country First Conservative
218	Ryan K. Zinke	MT	R	0.752366869265	Country First Conservative
219	Michael K. Simpson	ID	R	0.751607694598	Country First Conservative
220	Joseph J. Heck	NV	R	0.7500240372	Country First Conservative
221	Greg Walden	OR	R	0.730108765479	Country First Conservative
222	Don Young	AK	R	0.720473011883	Country First Conservative
223	Mike Bishop	MI	R	0.718950490677	Country First Conservative
224	David G. Valadao	CA	R	0.70085512423	Country First Conservative
225	Patrick Meehan	PA	R	0.684056287183	Country First Conservative
226	Ken Buck	CO	R	0.673087954488	Country First Conservative
227	Mia B. Love	UT	R	0.672903366943	Country First Conservative
228	Paul D. Ryan	WI	R	0.658050954271	Country First Conservative
229	Ryan A. Costello	PA	R	0.635991864928	Country First Conservative

230	Peter T. King	NY	R	0.612547811776	Country First Conservative
231	Daniel M. Donovan	NY	R	0.571627424122	Country First Conservative
232	Austin Scott	GA	R	0.470484718537	Country First Conservative
233	Cynthia M. Lummis	WY	R	0.900832915199	Country First Conservative
234	Renee L. Ellmers	NC	R	0.856450962305	Country First Conservative
235	Walter B. Jones	NC	R	0.808567482448	Country First Conservative
236	Raul R. Labrador	ID	R	0.78547223998	Country First Conservative
237	David P. Joyce	OH	R	0.734195567347	Country First Conservative
238	E. Scott Rigell	VA	R	0.729696477627	Country First Conservative
239	Tom Reed	NY	R	0.723256081565	Country First Conservative
240	Michael G. Fitzpatrick	PA	R	0.671137877691	Country First Conservative
241	Christopher H. Smith	NJ	R	0.667786216528	Country First Conservative
242	David A. Trott	MI	R	0.660941846706	Country First Conservative
243	Christopher P. Gibson	NY	R	0.660635694949	Country First Conservative
244	Frank A. LoBiondo	NJ	R	0.632219457276	Country First Conservative
245	Warren Davidson	OH	R	0.562533761195	Country First Conservative
246	Ralph Lee Abraham	LA	R	0.750119957003	Market Skeptic Republican
247	David G. Reichert	WA	R	0.645097027285	Market Skeptic Republican
248	Jaime Herrera Beutler	WA	R	0.672085	Market Skeptic Republican
249	Aumua Amata Coleman Radewagen	AS	R	0.539976	Market Skeptic Republican
250	Alan Nunnelee	MS	R	0.849289136705	New Era Enterpriser
251	Robert J. Dold	IL	R	0.605676212778	New Era Enterpriser
252	Collin C. Peterson	MN	D	0.636293568668	Devout and Diverse
253	Henry Cuellar	TX	D	0.576758823383	Devout and Diverse
254	Brad Ashford	NE	D	0.560204320341	Devout and Diverse
255	John A. Boehner	OH	R	0.533728622785	Devout and Diverse

256	Kyrsten Sinema	AZ	D	0.505590958255	Devout and Diverse
257	Kurt Schrader	OR	D	0.55247333219	Disaffected Democrat
258	Jim Cooper	TN	D	0.522772035705	Disaffected Democrat
259	Gwen Graham	FL	D	0.506595315582	Disaffected Democrat
260	Jim Costa	CA	D	0.491979422255	Disaffected Democrat
261	C. A. Dutch Ruppersberger	MD	D	0.471207124058	Disaffected Democrat
262	David Scott	GA	D	0.470484718537	Disaffected Democrat
263	John C. Carney	DE	D	0.470469397721	Disaffected Democrat
264	Sanford D. Bishop	GA	D	0.453892418695	Disaffected Democrat
265	John K. Delaney	MD	D	0.416741251102	Disaffected Democrat
266	Patrick Murphy	FL	D	0.41498497781	Disaffected Democrat
267	Kathleen M. Rice	NY	D	0.404887561326	Disaffected Democrat
268	Terri A. Sewell	AL	D	0.398108360732	Disaffected Democrat
269	Bill Foster	IL	D	0.390914450668	Disaffected Democrat
270	Joyce Beatty	OH	D	0.35519982215	Disaffected Democrat
271	Gerald E. Connolly	VA	D	0.329774294638	Disaffected Democrat
272	Mike Quigley	IL	D	0.319897758082	Disaffected Democrat
273	Jared Polis	CO	D	0.297763942004	Disaffected Democrat
274	Ron Kind	WI	D	0.51548087524	Opportunity Democrat
275	Scott H. Peters	CA	D	0.378525820017	Opportunity Democrat
Legislators 276 to 447 were identified as Solid Liberals.					

### Appendix C: Typologies of Senate

Senator (by ideology and typology)					
#	Name	State	Party	Ideology Score	Typology
1	Jeff Sessions	AL	R	0.934764305905	Core Conservative



2	John Barrasso	WY	R	0.914433794081	Core Conservative
3	David Vitter	LA	R	0.889644160801	Core Conservative
4	John Thune	SD	R	0.875596837321	Core Conservative
5	Ted Cruz	TX	R	0.86420168097	Core Conservative
6	Tim Scott	SC	R	0.855301137177	Core Conservative
7	Roy Blunt	MO	R	0.813519555941	Core Conservative
8	John Hoeven	ND	R	0.80837597898	Core Conservative
9	Jeff Flake	AZ	R	0.801134884303	Core Conservative
10	Tom Cotton	AR	R	0.79806945438	Core Conservative
11	Pat Toomey	PA	R	0.795457555482	Core Conservative
12	Steve Daines	MT	R	0.788102378272	Core Conservative
13	Jerry Moran	KS	R	0.777574755734	Core Conservative
14	Bill Cassidy	LA	R	0.74781602745	Core Conservative
15	Kelly Ayotte	NH	R	0.731077340754	Core Conservative
16	Richard Burr	NC	R	0.730394836352	Core Conservative
17	Joni Ernst	IA	R	0.720488252634	Core Conservative
18	Thom Tillis	NC	R	0.717068661023	Core Conservative
19	Dean Heller	NV	R	0.676666248992	Core Conservative
20	Rob Portman	OH	R	0.667124870325	Core Conservative
21	Lisa Murkowski	AK	R	0.585532484131	Core Conservative
22	Lindsey Graham	SC	R	0.506595315582	Core Conservative
23	James M. Inhofe	OK	R	1.0	Country First Conservative
24	James E. Risch	ID	R	0.951740087	Country First Conservative
25	Pat Roberts	KS	R	0.92635812283	Country First Conservative
26	Michael B. Enzi	WY	R	0.924277375425	Country First Conservative
27	Ron Johnson	WI	R	0.879212310353	Country First Conservative
28	John Boozman	AR	R	0.87520476608	Country First Conservative

29	Deb Fischer	NE	R	0.851631546392	Country First Conservative
30	Mike Crapo	ID	R	0.83814226845	Country First Conservative
31	Rand Paul	KY	R	0.830341285313	Country First Conservative
32	James Lankford	OK	R	0.807086295371	Country First Conservative
33	Johnny Isakson	GA	R	0.801592785318	Country First Conservative
34	Marco Rubio	FL	R	0.801148975932	Country First Conservative
35	David Perdue	GA	R	0.794321768898	Country First Conservative
36	John McCain	AZ	R	0.791120554502	Country First Conservative
37	Mike Rounds	SD	R	0.764001068272	Country First Conservative
38	Chuck Grassley	IA	R	0.740473650317	Country First Conservative
39	Ben Sasse	NE	R	0.711910765868	Country First Conservative
40	Dan Sullivan	AK	R	0.698355102088	Country First Conservative
41	Bob Corker	TN	R	0.689928124792	Country First Conservative
42	Mike Lee	UT	R	0.003121629488	Country First Conservative
43	John Cornyn	TX	R	0.895194334873	Country First Conservative
44	Roger F. Wicker	MS	R	0.850755349628	Country First Conservative
45	Mitch McConnell	KY	R	0.8230583917	Country First Conservative
46	Cory Gardner	CO	R	0.767343700514	Country First Conservative
47	Thad Cochran	MS	R	0.735338056339	Country First Conservative
48	Richard C. Shelby	AL	R	0.728562585363	Country First Conservative
49	Shelley Moore Capito	WV	R	0.718632409947	Country First Conservative
50	Lamar Alexander	TN	R	0.679822209564	Country First Conservative
51	Daniel Coats	IN	R	0.904301338802	Market Skeptic Republican
52	Orrin G. Hatch	UT	R	0.800075811123	Market Skeptic Republican
53	Mark Kirk	IL	R	0.596270731329	Market Skeptic Republican
54	Susan M. Collins	ME	R	0.42094483626	Market Skeptic Republican
55	Joe Manchin	WV	D	0.584433	Devout and Diverse

56	Jack Reed	RI	D	0.723256081565	Disaffected Democrat
57	Joe Donnelly	IN	D	0.535564567568	Disaffected Democrat
58	Heidi Heitkamp	ND	D	0.529531176576	Disaffected Democrat
59	Mark R. Warner	VA	D	0.406174939052	Disaffected Democrat
60	Bill Nelson	FL	D	0.396400509638	Disaffected Democrat
61	Claire McCaskill	MO	D	0.377979711803	Disaffected Democrat
62	Thomas R. Carper	DE	D	0.370152557066	Disaffected Democrat
63	Jon Tester	MT	D	0.366200992788	Disaffected Democrat
64	Tim Kaine	VA	D	0.351456322407	Disaffected Democrat
65	Michael F. Bennet	CO	D	0.345225568142	Disaffected Democrat
66	Tom Udall	NM	D	0.299313270647	Disaffected Democrat
67	Martin Heinrich	NM	D	0.281102255376	Disaffected Democrat
68	Sherrod Brown	OH	D	0.264673885613	Disaffected Democrat
69	Jeanne Shaheen	NH	D	0.219756372547	Disaffected Democrat
70	Christopher A. Coons	DE	D	0.212625816217	Disaffected Democrat
71	Amy Klobuchar	MN	D	0.201129149365	Disaffected Democrat
72	Charles E. Schumer	NY	D	0.091839812083	Disaffected Democrat
73	Angus S. King Jr.	ME	I	0.44123	Disaffected Democrat
74	Robert P. Casey Jr.	PA	D	0.251731	Disaffected Democrat
75	Gary C. Peters	MI	D	0.378525820017	Solid Liberal
76	Cory A. Booker	NJ	D	0.286479783671	Solid Liberal
77	Harry Reid	NV	D	0.266540793299	Solid Liberal
78	Maria Cantwell	WA	D	0.246168333228	Solid Liberal
79	Tammy Baldwin	WI	D	0.22391550417	Solid Liberal
80	Christopher Murphy	CT	D	0.219633400808	Solid Liberal
81	Mazie Hirono	HI	D	0.204065897957	Solid Liberal
82	Ron Wyden	OR	D	0.200873348881	Solid Liberal

83	Debbie Stabenow	MI	D	0.180744872799	Solid Liberal
84	Brian Schatz	HI	D	0.17686987628	Solid Liberal
85	Benjamin L. Cardin	MD	D	0.166496572533	Solid Liberal
86	Dianne Feinstein	CA	D	0.156918978145	Solid Liberal
87	Patrick J. Leahy	VT	D	0.154770790679	Solid Liberal
88	Robert Menendez	NJ	D	0.146825	Solid Liberal
89	Patty Murray	WA	D	0.141629220864	Solid Liberal
90	Edward J. Markey	MA	D	0.138635586166	Solid Liberal
91	Barbara A. Mikulski	MD	D	0.132332946814	Solid Liberal
92	Elizabeth Warren	MA	D	0.088443226528	Solid Liberal
93	Richard J. Durbin	IL	D	0.077802623336	Solid Liberal
94	Barbara Boxer	CA	D	0.072355069216	Solid Liberal
95	Al Franken	MN	D	0.067309650538	Solid Liberal
96	Sheldon Whitehouse	RI	D	0.050902003644	Solid Liberal
97	Jeff Merkley	OR	D	0.039511806994	Solid Liberal
98	Kirsten E. Gillibrand	NY	D	0.032887979492	Solid Liberal
99	Richard Blumenthal	CT	D	0.030826768399	Solid Liberal
100	Bernard Sanders	VT	I	0.0	Solid Liberal

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