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More Effective Than We Thought: Accounting for Legislative Hitchhikers Reveals a More Inclusive and Productive Lawmaking Process

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Abstract: *For more than half a century, scholars have been studying legislative effectiveness using a single metric—whether the bills a member sponsors progress through the legislative process. We investigate a less orthodox form of effectiveness—bill proposals that become law as provisions of other bills. Counting these "hitchhiker" bills as additional cases of bill sponsorship success reveals a more productive, less hierarchical, and less partisan lawmaking process. We argue that agenda and procedural constraints are central to understanding why lawmakers pursue hitchhiker strategies. We also investigate the legislative vehicles that attract hitchhikers and find, among other things, that more Senate bills are enacted as hitchhikers on House laws than become law on their own.*

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In 2014, a *Washington Post* article described the legislative record of retiring Representative Robert Andrews (D-NJ) as the worst in Congress: "Andrews proposed 646 bills, passed 0: worst record of past 20 years (Farenthold 2014)." In response, Andrews objected that journalists were using the wrong metric: "*I'm just a bill* is not the way it works."

Legislative scholars have also challenged this orthodox view of lawmaking: "The Schoolhouse Rock! cartoon version of the conventional legislative process is dead, if it was ever an accurate description in the first place" (Gluck, O'Connell, and Po 2015). Increasingly, a process of considering bills on an individual basis has been replaced by a leader-centered process of constructing larger omnibus bills that combine multiple policy proposals into one (Curry and Lee 2016; Krutz 2005; Sinclair 2016).

Andrews's advice was to also count policy proposals that "germinate in a larger bill." In this article, we develop an approach for doing that—identifying bills that are enacted into law as provisions of other bills. We then consider the implications of accounting for these "hitchhiker" successes for legislative effectiveness research. The next section reviews the long-standing legislative effectiveness literature and its limitations. We then propose and implement a new text-based methodology for accurately identifying hitchhiker bills. Applying this methodology to two decades of lawmaking (1993–2014), we find that as many bills become law as hitchhikers as become law on their own.

We argue that agenda and procedural constraints are central to understanding why lawmakers pursue hitchhiker strategies. Legislators who sponsor bills that become law on their own are more likely to hold agenda-setting positions that allow them to claim credit for bills that succeed for reasons other than their sponsorship (e.g., legislative reauthorizations). Aside from these agenda-setting

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advantages, the sponsors of successful laws and successful hitchhikers have very similar attributes. We also find that procedural constraints lead the Senate to employ hitchhiker strategies more frequently than the House and that more hitchhikers are adopted under unified governments because those governments are more likely to engage in omnibus lawmaking.

Effectiveness Research and Its Limits

Studies of legislative effectiveness fit into a broader literature examining legislative influence (e.g., see Arnold, Deen, and Patterson 2000; Crisp, Kanthak, and Leijonhufvud 2004; Desmarais et al. 2015; Fowler 2006; Hall 1992; Kessler and Krehbiel 1996; Kirkland 2011; Meyer 1980; Miquel and Snyder 2006; Sulkin 2011; Thomas and Grofman 1992). They include some of the earliest quantitative analyses of legislative behavior. From then until now, scholars have focused on bill sponsorship success as the central indicator of effectiveness. In *U.S. Senators and Their World*, Donald Matthews observed: "To the extent that the concept as used on Capitol Hill has any distinct meaning, *effectiveness* seems to mean the ability to get one's bills passed" (Matthews 1960, p.115). Matthews found that senators who adhered to chamber "folkways," such as specializing and spending less time giving floor speeches, were more likely to sponsor successful bills. More than a decade later, Olson and Nonidez (1972) asked whether members of the House who adhered to similar norms were also more legislatively successful (they were not). Subsequent research has continued to investigate bill sponsorship success patterns to better understand norms and coalition building (e.g., see Baughman 2006; Hasecke and Mycoff 2007; Koger and Fowler 2007; Krutz 2005). An equally important body of research seeks to discover (in the words of Anderson, Box-Steffensmeier, and Sinclair-Chapman 2003) the "remarkable skills" of the lawmakers who are more successful in advancing their bills (Anderson, Box-Steffensmeier, and Sinclair-Chapman 2003; Bratton and Haynie 1999; Cox and Terry 2008; Frantzich 1979; Jeydel and Taylor 2003; Volden and Wiseman 2014).

The methods employed in these studies have become considerably more sophisticated over time, but the central measure has changed very little. Effectiveness continues to be defined in terms of how far a sponsor's bill progresses through the legislative process. Some define progress by whether a bill receives any committee consideration (Krutz 2005), whereas others define it by whether a bill passes the chamber. Some focus on "hit rates"—the percentage of a legislator's bills that succeed (Anderson, Box-Steffensmeier, and Sinclair-Chapman 2003)—whereas others focus on the progress of individual bills. The most recent research also offers the most thoughtful and sophisticated measure. Volden and Wiseman (2014) compute Legislative Effectiveness Scores (LES) by summing the number of bills a member introduces, weighted by their progress and importance.

Bill success has also recently attracted the interest of scholars in other disciplines and even entrepreneurs. Rather than trying to understand why some lawmakers are more effective, the objective is to predict bill success as one might predict the winner of a sporting event or election (Nay 2017; Yano, Smith, and Wilkerson 2012). Several commercial ventures are currently or soon will be offering bill success prediction services.[1]

We contend that an important limitation of these efforts is that bills are vehicles, not policies. The progress of a bill and a policy can be one and the same, but this is not always the case. The Affordable Care Act (ACA; H.R. 3590) started off as a seven-page bill proposing a first-time home buyer credit for service personnel. It became the Affordable Care Act when the Senate stripped that language and replaced it with a 900-page health care amendment.[2] Current approaches give the original bill's sponsor (Rep. Charles Rangel, D-NY) full credit for the Affordable Care Act, despite the fact that the final law was completely unrelated to the bill he introduced. As we will show, many other lawmakers deserved (but do not receive) credit for what is in the ACA.

Equally important, policies proposed in bills can progress when the bills themselves do not. The lawmaking process has fundamentally changed since Matthews (1960) equated bill passage and effectiveness. A process that used to be driven by largely autonomous committees recommending bills on an individual basis has been replaced, to an increasing extent, by leadership-driven negotiations. These negotiations often produce large "omnibus" bills that combine proposals originating in other bills (Curry and Lee 2016; Krutz 2001; Sinclair 2016). Recent research also finds that lawmakers view "must pass" legislation such as reauthorizations of expiring programs as exceptional opportunities to advance substantively related policy initiatives (Adler and Wilkerson 2012; Walker 1977).

We propose an approach to studying effectiveness that gets closer to what scholars (and citizens) ultimately care about—legislators' ability to get their *policy*

[1] See, for example, Skopos Labs, and GovTrack, Statehill.

[2] See, https://www.congress.gov/bill/111th-congress/house-bill/3590/text/ih?format=txt.

proposals enacted into law. One implication of more recent developments is that the legislative opportunity structure increasingly favors "hitchhiker" strategies. This suggests that legislative effectiveness research will benefit by crediting lawmakers not only for bills that become law on their own, but also for bills enacted into law as provisions of other bills. We find, for example, that the Affordable Care Act includes almost 50 "complete" hitchhiker bills (cases where the complete substance of a bill was enacted as a hitchhiker).

Accounting for hitchhiker bills constitutes an improvement over current approaches to measuring legislative effectiveness. In this article, we do not attempt to identify cases where only part of a bill became law as an insertion into another bill.[3] We also do not examine policy proposals that originate as amendments, and we continue to inappropriately credit some sponsors for a bill's progress (e.g., Rep. Charles Rangel in the case of the ACA). Despite these limitations, accounting for hitchhiker successes offers important opportunities to explore how laws are made, and to better understand the distribution and components of effectiveness in Congress.

Why Hitchhikers?

Why would a sponsor advance a bill as a hitchhiker when authoring a stand-alone law would seem to offer more visible credit-claiming opportunities? The main reason is that legislators' opportunities to advance stand-alone bills are limited. For the chamber, hitchhiker strategies can be procedurally efficient and, in some cases, procedurally necessary. In this section, we propose three hypotheses about why lawmakers pursue hitchhiker strategies.

Before considering these hypotheses, it is also worth noting that legislators do claim credit for hitchhiker successes. Rep. Carolyn Maloney's (D-NY) official website includes a "Laws Enacted" page.[4] The majority of the enactments listed (40 out of 74) are either sponsored bills that were "included" in other laws or laws (sponsored by others) that were "versions" of bills she had sponsored. Maloney also highlights hitchhikers in her direct communications with constituents. Her Spring 2010 *Report to Manhattan* newsletter specifically mentions provisions of the recently passed Affordable Care Act that are "based on" bills she sponsored.

We expect that many of the covariates reported to predict bill sponsorship success in prior effectiveness studies will also predict hitchhiker bill successes. However, we also expect two other political considerations—agenda control and procedural constraints—to explain why some lawmakers are more likely to sponsor successful laws, and why some are more likely to sponsor successful hitchhikers.

Agenda Control

Congressional agenda space is a scarce commodity. It has always been the case that only a small percentage of bills make it beyond introduction. Party polarization and legislators' increased willingness to engage in obstruction seem to have made passing bills through the regular order increasingly difficult (Curry and Lee 2016; Sinclair 2016). As a result, the number of laws enacted by Congress has declined significantly since the 1970s (Taylor 2013, 145, Figure 7.1). The policies that do become law also typically endure a lengthy incubation process (Burstein, Bauldry, and Froese 2005).

Members of the majority party use their control over the agenda to monopolize these limited credit-claiming opportunities (Cox and McCubbins 2005). In the 113th Congress (the most recent of the congresses we analyze in this study), about 30% of all non-minor laws were sponsored by just 63 House and Senate committee and subcommittee leaders (12% of all lawmakers). Majority party members (constituting 50–60% of the chamber) sponsored about 82% of all non-minor laws. Many of these successes have little to do with effectiveness. Agenda control provides majority party lawmakers with exceptional opportunities to put their names on bills that progress for other reasons. Majority party leaders also have limited incentives to share the most visible credit-claiming opportunities with members of the minority party, especially in the House. We expect to find that these partisan calculations are less applicable to (less visible) hitchhikers. Majority party leaders should be more willing to accept minority party hitchhikers that advance good public policy or increase support for other legislation (Curry and Lee 2016; Fenno 1973).

Hypothesis 1 (Agenda Control): Agenda control (serving as a committee or subcommittee chair or member of the majority party) will be a more important predictor of law success than hitchhiker success.

[3] Prior research suggests that the attributes of successful sponsors of partial insertions will be similar to those reported here (Wilkerson, Smith, and Stramp 2015).

[4] See, https://maloney.house.gov/my-work-in-congress/accomplishments/laws-enacted.

Procedural Constraints

The agenda control hypothesis above suggests that hitchhiker successes may be better indicators of true legislative effectiveness because many bills progress for reasons that have little to do with who sponsors them. In this section, we hypothesize that procedural constraints also help to explain why some bills are more likely to advance as hitchhikers.

Revenue Bills. The clearest example of a procedural constraint that incentivizes hitchhiking is the "origination" clause of Article I of the Constitution—all laws raising revenue must originate in the House (Rybicki 2015). The House of Representatives vigorously guards this constitutional prerogative by "blue slipping" (rejecting) Senate bills with revenue implications. The practical result is that Senate proposals with revenue-related provisions can only advance as hitchhikers on House-originating laws.[5] We treat all bills originally referred to the Senate Finance and House Ways and Means committees as revenue related (because all tax bills must be referred to these committees).

Hypothesis 2 (Revenue Bills): Revenue-related Senate bills are less likely to become law on their own than House revenue-related bills, but they are not less likely to be enacted as hitchhikers.

Amendments between Chambers. In both chambers of Congress, bills passed over from the other chamber are considered under different procedures than the chamber's own bills (Rybicki 2015). In the Senate, it can be easier to take up a House-passed bill than a bill reported by a Senate committee. This is because House-passed bills are typically placed on the Senate's Calendar of Business, bypassing the committee referral process. To bring up a Senate bill, the majority leader must negotiate a motion to proceed (which is subject to filibuster). In contrast, a referred House bill is already on the calendar, making it an attractive vehicle for Senate hitchhikers (Davis 2017). This is why Senator Majority Leader (at the time) Harry Reid (D-NV) used H.R. 3590 as the vehicle for the Affordable Care Act (Cannan 2013).

Another reason to expect amendments between chambers to be important entry points for hitchhikers is the fact that the president can sign only one bill into law when the House and Senate pass separate bills on a policy. Rybicki notes that a common practice in such cases is for one chamber to take up the other chamber's bill, "strike all after the enacting clause," and insert its own proposal (2015, 3). We should therefore expect the process of resolving differences to lead to many cross-chamber hitchhikers.

Hypothesis 3 (Amendments between Chambers): Cross-chamber hitchhikers will be the most common type of hitchhiker. Senate bills are more likely to be enacted as hitchhikers than House bills.

[5]In practice, this requirement also extends to appropriations bills, which we exclude from our analysis (Rybicki 2015, 2).

Finding Hitchhikers: A Supervised, Active Learning Approach

In this section, we describe how we use text reuse methods to identify hitchhiker bills. The general goal is to compare the text of every version of every bill that did not become law to the text of every law enacted in that congress. If any version of a failed bill aligns with a law, we consider that bill to be a hitchhiker. We started with a corpus of 92,677 bills for the 103rd–113th Congresses (1993–2014) collected by Handler et al. (2016). This corpus includes 4,176 bills and joint resolutions that became law and 111,758 versions of bills and resolutions that failed to become law. We excluded non-joint resolutions (because they cannot become law), appropriations bills (because they are quasi-compulsory; Adler and Wilkerson 2012), and very minor private and duty suspension bills. After these exclusions, our primary analysis considers 84,913 bill versions. In much of our analysis, we also exclude minor legislation as defined by the Congressional Bills Project (examples include bills naming federal buildings or creating commemorative coins).

The standard supervised learning approach to matching bill content and law content is to manually label a large, random sample of bill–law pairings for whether the law contains the substance of the bill, train a classifier on part of this sample, and test its performance on a held-out set of labeled cases. Prediction accuracy is then assessed, and if it is high enough, the trained classifier is used to predict (label) bill–law pairs in the broader corpus.

The first problem with this standard approach for the current study is that hitchhikers are probably rare. If they are as rare as laws (about 3% of bills become law), we would have to visually examine and label about 10,000 bill–law pairs to obtain a sizable sample of true hitchhiker cases (3–400). One alternative solution from the machine learning literature is to use "active learning" to iteratively assemble a training sample of sufficient size (Olsson 2009). In the first iteration, a small number of likely hitchhiker cases is identified and labeled.

This initial sample is then used to train a classifier to predict additional likely cases. These cases are then labeled and added to the training corpus and the process is repeated. Using this method, we were able to identify, substantial number of true hitchhikers after labeling less than than 1,000 bill–law pairings (for a detailed explanation of the active learning method, see Supporting Information C).

A second challenge, discovered during the labeling process, is that, even for true hitchhiker cases, the bill and law texts can be quite different. One common reason was that a bill often contains nonsubstantive front matter (e.g., the title and date of introduction) and even sections (e.g., "Findings and Definitions") that are removed when its substance is incorporated into another law. To address this concern, we developed a preprocessing protocol that removed common nonsubstantive language from both the bill and law texts (see Supporting Information A for a full description of the preprocessing steps).

Even after this preprocessing, however, the substantive language of the law and hitchhiker bill could still differ due to relatively minor edits in the law language. We initially trained and tested several algorithms widely used in computational linguistics and information retrieval.[6] All of them predicted the cleaner bill–law comparisons quite well, but none did a good job of predicting the somewhat messier cases that included reordered, deleted, or inserted text or sentences. This common shortcoming inspired us to develop an entirely new approach. Below, we describe the basic intuition. A detailed description of the methodology can be found in Supporting Information B.

A New Sequence-Based Algorithm for Characterizing Document Similarity

Hitchhikers are similar to cases of plagiarism. They are characterized by lengthy sequences of matching text (between the bill and law), sometimes interspersed with shorter sequences of mismatched text. "Bag-of-words" approaches (e.g., cosine similarity, Dice coefficients) do not value word sequence or proximity. Alignment algorithms do (e.g., Smith-Waterman), but they require that the researcher specify, in advance, the penalties for mismatches in scoring the similarity of two documents. These *ex ante* decisions can have important consequences.

[6]These include `diff`, `wdiff`, Dice coefficients (Dice 1945), cosine similarity, and the Smith-Waterman algorithm (Waterman, Smith, and Beyer 1976).

Our approach accounts for word proximity without committing to a single parameterization (as Smith-Waterman requires). We propose a "sequence-based" algorithm that (like other alignment algorithms) uses only information about patterns of matching and nonmatching text. It does not consider (for example) the frequency of co-occurring words as do many bag-of-words approaches. However, it differs from other alignment algorithms in important ways. To illustrate, below are two versions of the same section of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The first (version A) is from the bill as introduced in the House:

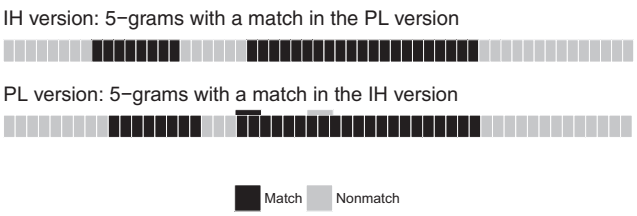
```
SEC. 1008. OVERSIGHT BY GAO.
    (a) Authority to Audit.--The Comptroller
General of the United States may audit the
activities and financial transactions of--
          (1) the Council; and
          (2) any person or entity acting
        on behalf of or under the authority
        of the Council, to the extent such
        activities and financial transactions
        relate to such person's or entity's
        work for the Council.
```

The second (version B) is from the version signed into law by President Barack Obama:

```
SEC. 122. GAO AUDIT OF COUNCIL.
    (a) Authority To Audit.--The Comptroller
General of the United States may audit the
activities of--
           (1) the Council; and
           (2) any person or entity acting
        on behalf of or under the authority
        of the Council, to the extent that
        such activities relate to work for
        the Council by such person or entity.
```

These two versions clearly have the same intent, but they are not identical (e.g., the section titles are different). We first characterize each text as a set of overlapping or "shingled" n-grams. An n-gram is a contiguous sequence of n words. Overlap means that adjacent n-grams share words. Here, we use 5-grams that overlap by n-1 words. In version A, two 5-grams that overlap by n-1 are "to work for the Council" and "work for the Council by." We then compare each n-gram in version A to each of those in version B, recording whether there is a match as a vector entry. Figure 1 displays the results for this example comparison. Black rectangles indicate the version A 5-grams that have a match in version B, whereas gray rectangles indicate version A 5-grams that do not match any n-grams in version B. Thus, a sequence of black

FIGURE 1 A Comparison of Two Versions of a Section of the Dodd-Frank Wall Street Reform and Consumer Protection Act



Note: Black rectangles indicate where a 5-gram in the section of the introduced version of the bill exactly matches a 5-gram in the version that became law, and *vice versa* in the bottom plot.

rectangles indicates a longer block of shared text, and so on.

The key benefit of this approach is that this match/nonmatch information can be used to construct many sequence-based similarity statistics (e.g., longest matching sequence, average matching sequence length, number of unique matching blocks). These statistics can then be introduced as features of supervised learning models. These models can be trained to predict known hitchhiker cases, and the best of them can be selected and used to predict hitchhikers in the broader corpus.

We tested over 1,500 models using different combinations of 21 different statistics calculated on these sequences of matching and nonmatching n-grams. We started with a small number of previously labeled examples (that included about 80 true hitchhikers) and used them to identify an initial set of high-performing models. We then applied these models to the broader corpus (bill–law pairings of the 111th Congress) to predict additional hitchhiker cases. After manually labeling these newly identified cases and adding them to the training set, we repeated the process (until the best-performing models stopped predicting new hitchhikers). We then used the majority vote of an ensemble of 22 high-performing models to predict hitchhikers across 20 years of lawmaking. This approach proved to be much more accurate than earlier experiments with other algorithms.[7]

[7]Specifically, the majority vote of this ensemble had 95% precision (5% false positive rate) and 92% recall (8% false negative rate) based on 300-fold cross-validation. The off the-shelf-algorithms had higher recall on average (99%), but much lower precision (75%). In this respect, our approach is more likely to underestimate than overestimate the true number of hitchhikers.

Findings

We begin by examining hitchhiker patterns across 11 recent congresses. We then test the hypotheses proposed earlier by comparing multivariate regression models predicting whether a bill becomes law on its own, and whether a bill is enacted as a hitchhiker. These models include indicators of standard explanations of legislative effectiveness as well as indicators of the agenda control and procedural constraints hypotheses presented earlier. We then explore how accounting for hitchhikers alters conclusions about legislative effectiveness in Congress. Finally, we shift our attention from effectiveness to exploring hitchhiker strategies more generally. What types of bills are particularly attractive vehicles for hitchhikers? Where in the lawmaking process do hitchhikers tend to be incorporated? Do broader political conditions help to explain more frequent use of hitchhikers?

Hitchhiker Bills in Congress, 1993–2014

Figure 2 confirms the importance of this type of unorthodox lawmaking. The figure compares the number of non-minor (left) and minor (right) bills that became law on their own and that became law as hitchhikers for each congress.[8] For the 1993–2014 time period, our method indicates that more non-minor bills became law as hitchhikers (2,997) than became law on their own (2,905).[9] Thus, focusing only on bills that become law on their own misses about half of all legislative enactments.

Interestingly, minor bills are much more likely to be enacted as stand-alone laws than as hitchhikers. We view this as consistent with the agenda control argument proposed earlier. Minor bills (e.g., naming federal buildings in the district) do not consume limited agenda space. They do not go through the markup process and typically pass under expedited procedures (suspension of the rules in the house and unanimous consent in the Senate). They are unrelated to the majority's agenda. For all of these reasons, there is probably less need to pursue hitchhiker strategies in these cases.

[8]As discussed earlier, we use the "Important Bill" filter of the Congressional Bills Project to distinguish minor bills.

[9]A list of all hitchhiker bills and their target laws will be made available with the replication materials for this article. Two example target laws and their hitchhikers can be found in Supporting Information E. As noted earlier, appropriations bills, private bills, and duty suspension/tariff bills are not included in these counts (see Supporting Information A).

FIGURE 2 Counts of Laws versus Hitchhiker Bills (103rd–113th Congresses)

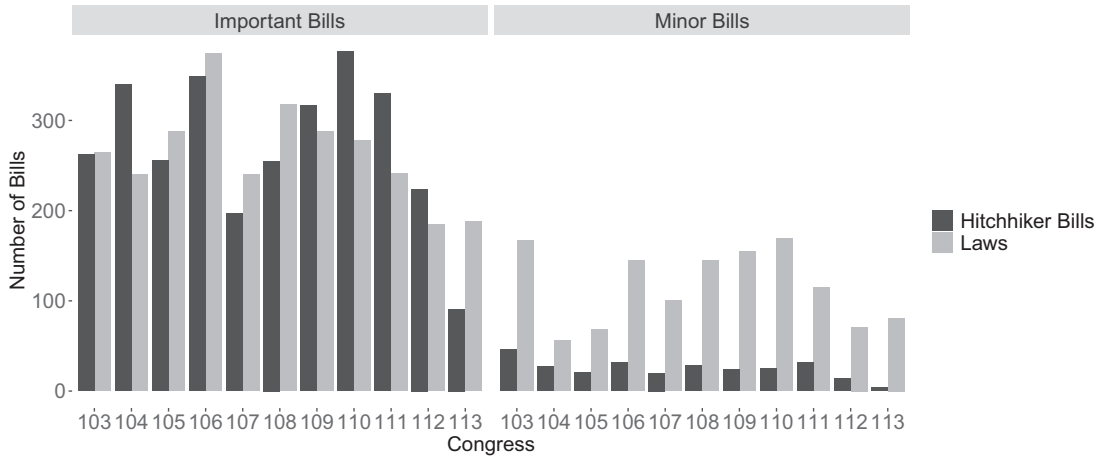
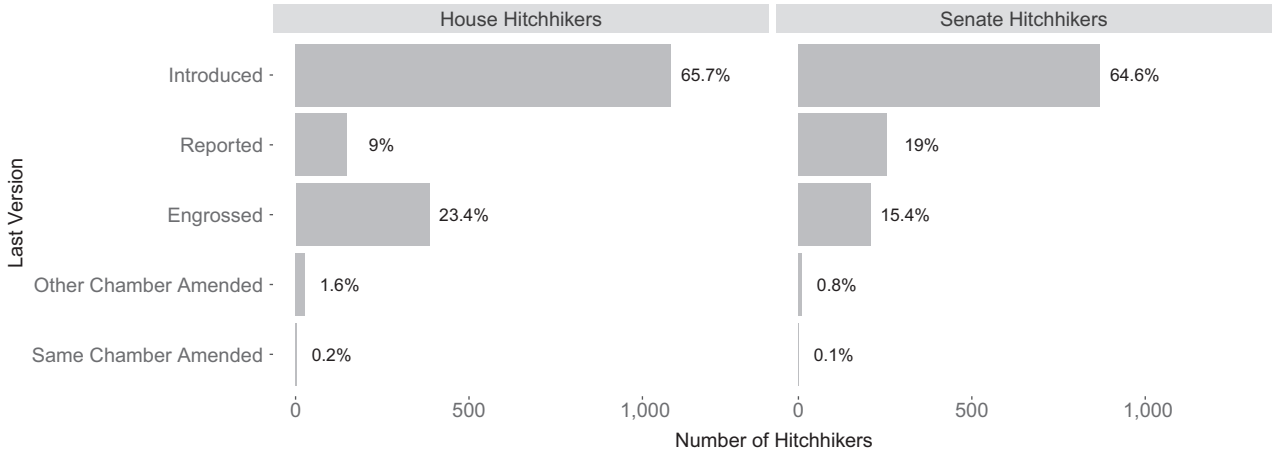


FIGURE 3 How Far Do Hitchhiker Bills Advance on Their Own?



Sponsor and Procedural Predictors of Bill Success

Does accounting for hitchhikers alter current understandings of who is effective in Congress? Prior studies measure effectiveness using either a single threshold of success (e.g., whether the bill was taken up in committee or passed by the chamber? Frantzich 1979; Krutz 2005), or by weighting bills by how far they advance in the process (e.g., the LES scores of Volden and Wiseman 2014). We would not expect much difference if the bills that become law as hitchhikers also tend to advance most of the way through the process on their own. However, Figure 3 indicates that this is not usually the case. Most non-minor hitchhiker bills do not even make it out of committee on their own. This gives us reason to think that accounting for hitchhikers may lead to different conclusions about who is effective in Congress.

To test this expectation, we estimate two logistic regression models predicting whether a bill becomes law on its own and whether it becomes law as a hitchhiker.[10] We test the same sponsor characteristics commonly found to be important in prior effectiveness research (e.g., seniority, ideology, gender). However, our committee-related variables differ from prior research. Whereas prior studies only ask whether the sponsor leads *any* committee, we ask whether he or she leads the committee responsible for the bill (or a subcommittee of that committee).[11]

[10]Only non-minor bills are examined. The second regression considers only bills that did not become law on their own, following a sequential logit logic. The results of a multinomial logistic regression model predicting a three-class outcome (a bill does not become law, becomes law as a hitchhiker, or becomes law on its own) show very similar results.

[11]For bills referred to multiple committees, this variable indicates whether the sponsor led at least one of them.

We view these measures as better indicators of the effectiveness benefits of agenda control than more general committee leadership measures.

We also include several bill type and institution-related predictors. The first is whether a bill enjoys bicameral support. We measure this by whether the bill has an identical or nearly identical "companion" bill in the other chamber (Kirkland and Kroeger 2018; Oleszek 2017).[12] We also expect certain types of bills to be more likely to advance regardless of sponsor. The first type is administration-initiated bills introduced "by request."[13] The second is legislative reauthorizations that reflect impending or past program expirations or "sunsets" (Adler and Wilkerson 2012).[14]

Finally, we test two indicators of political conditions that may encourage hitchhiker strategies. The first is partisan gridlock. Lawmakers may turn to hitchhiker strategies as it becomes more difficult to pass laws in general. We use the gridlock interval ("the ideological space between the members who represent the cloture and veto-override pivots, respectively"; Gray and Jenkins 2017) to control for this possibility. However, it should be noted that prior empirical research does not generally find that larger gridlock intervals predict lower legislative productivity (Gray and Jenkins 2017; Woon and Cook 2015). The second political condition is unified government. Whereas the partisan gridlock hypothesis is that legislators turn to hitchhiker strategies when the lawmaking process is not working, the expectation here is that actors in unified governments are better able to coordinate their lawmaking activities. More specifically, we expect to find that hitchhikers are more common under unified government because unified governments are more likely to engage in omnibus lawmaking.

Figure 4 presents the effects of the different independent variables as marginal probabilities of a bill becoming law on its own (LAWS) or as a hitchhiker (HITCHHIKER).[15] Each set of results includes two scales because the marginal effects for two variables at the bottom (administration bills and companion bills) are much larger than those of other variables. For the upper variables, the black line indicates a null effect (on the x0–5 scale). For the bottom two variables, the dashed vertical line indicates a null effect (on the x0–20 scale).

Overall, the models indicate that sponsors of successful hitchhikers possess characteristics that are very similar to successful law sponsors. As expected, however, committee leaders and majority party members are much more likely to sponsor the bills that become law on their own. In addition, legislative reauthorizations are about 2.5 times more likely to be enacted into law than other bills, and administration bills about 15 times more likely.[16] Bills that have companions in the other chamber (an indicator of bicameral support) are about 5 times more likely to become law. As expected, revenue-related bills that originate in the Senate have virtually no chance of becoming law on their own. However, they are as likely as other bills to become law as hitchhikers.[17]

The models also offer some evidence that the broader political context contributes to more hitchhiker lawmaking. As has been reported in prior research, we do not find that larger gridlock intervals predict lower overall productivity (Gray and Jenkins 2017; Krehbiel 1998; Woon and Cook 2015) or more hitchhiking activity.[18] However, unified governments are both more productive and more likely to enact laws that include more hitchhikers. An important reason for this (not shown) is that unified governments are more likely to engage in omnibus lawmaking.[19]

[12]This is defined by whether the text of an introduced bill in the other chamber is at least 95% similar (after preprocessing) to the bill in question.

[13]Clause 7 of House Rule XXII prohibits the requesting party from being named, but House rules specify the types of bills that must be initiated by request. Most are trade, or international agreements. Annual defense authorizations are also frequently introduced by request. We therefore designate, as administration bills, any "by request" bill that is primarily about defense, trade, or international affairs.

[14]We search for bills that have "reauth" in their titles. This approach overlooks many cases (e.g., the reauthorization of the Elementary and Secondary Education Act in 2001 [No Child Left Behind Act of 2001]. These omissions have the effect of making committee and subcommittee chairs (who typically sponsor them) appear more effective.

[15]The full results are presented in Supporting Information D. The estimates are based on min-max values because many of the independent variables are dummies where a one standard deviation change is meaningless.

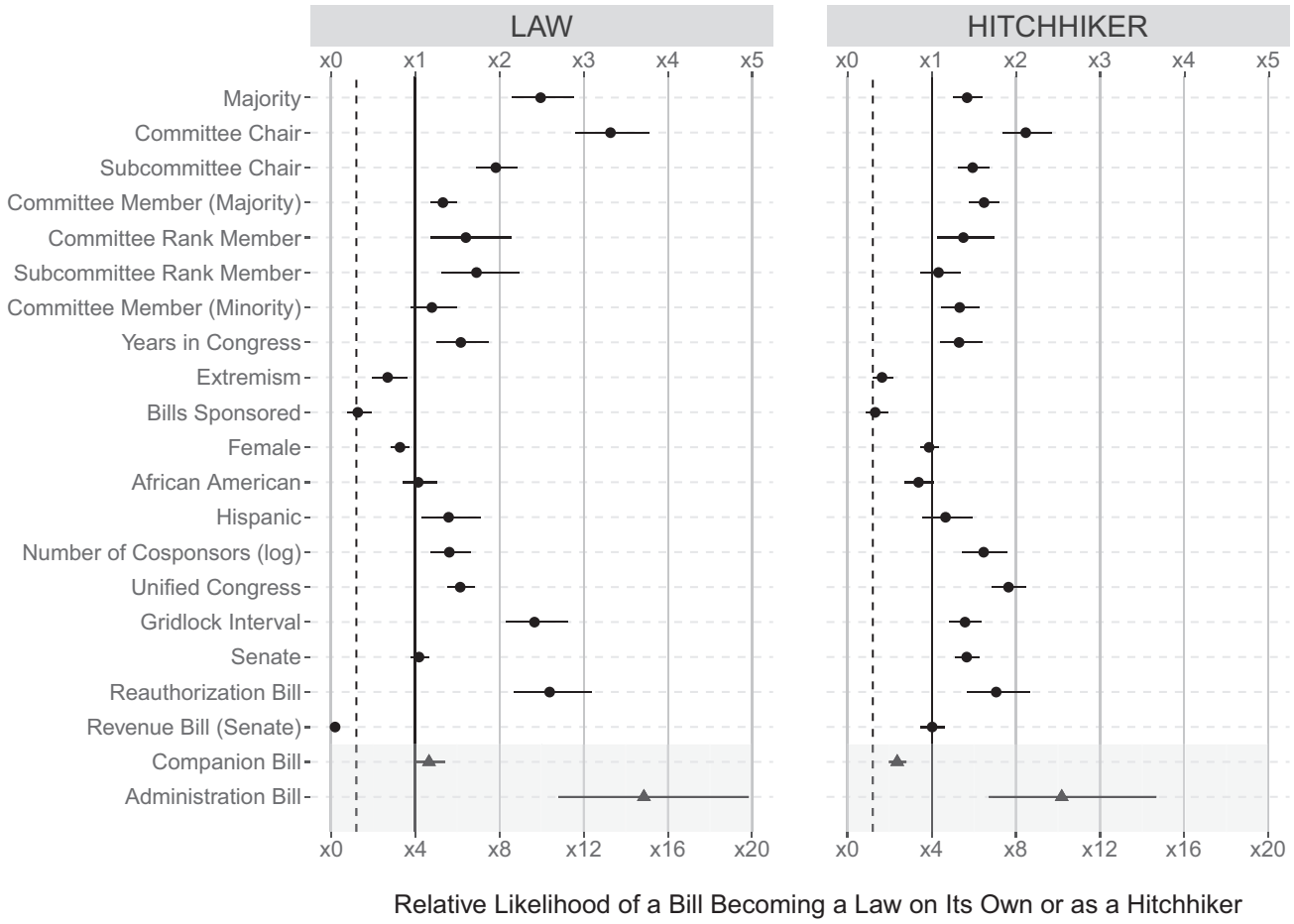
[16]When these compulsory bill indicators are omitted from the law success model, the marginal effects of the agenda control variables (committee leader and majority party) are about 15% larger. This confirms that the effectiveness of lawmakers in these positions is overstated in studies that do not control for compulsory legislation. The limitations of efforts to identify compulsory legislation further suggest that even our models exaggerate the relative effectiveness of these lawmakers.

[17]We consider bills referred to the Senate Finance Committee. The regression models themselves include House and Senate revenue-related bills and an interaction with chamber. House revenue bills are somewhat less likely than other bills to become law on their own.

[18]Here, we use the *Gridlock Interval* from Gray and Jenkins (2017). The results were the same for Binder's (2015) measure.

[19]By using bill length to detect omnibus legislation, and by considering bills at the 99th length percentile as omnibus, we found that, on average, unified congresses pass about 12 omnibus bill, whereas nonunified congresses only pass half as many.

FIGURE 4 Marginal Effects of Sponsor and Bill Characteristics on Law versus Hitchhiker Success



Note: Each dot/triangle represents the average marginal effect of going from minimum to maximum value (for binary variables: the average marginal effect of being a majority party member, committee chair, etc.). The lines represent 95% confidence intervals. The top and bottom x-axes indicate by how much the likelihood of a bill's being enrolled increases (two times, three times, etc.). All but the two bottom reported effects are on the top x-axis scale. The triangles and shaded area indicate that the two last effects are on the bottom x-axis scale.

Consequences for Effectiveness

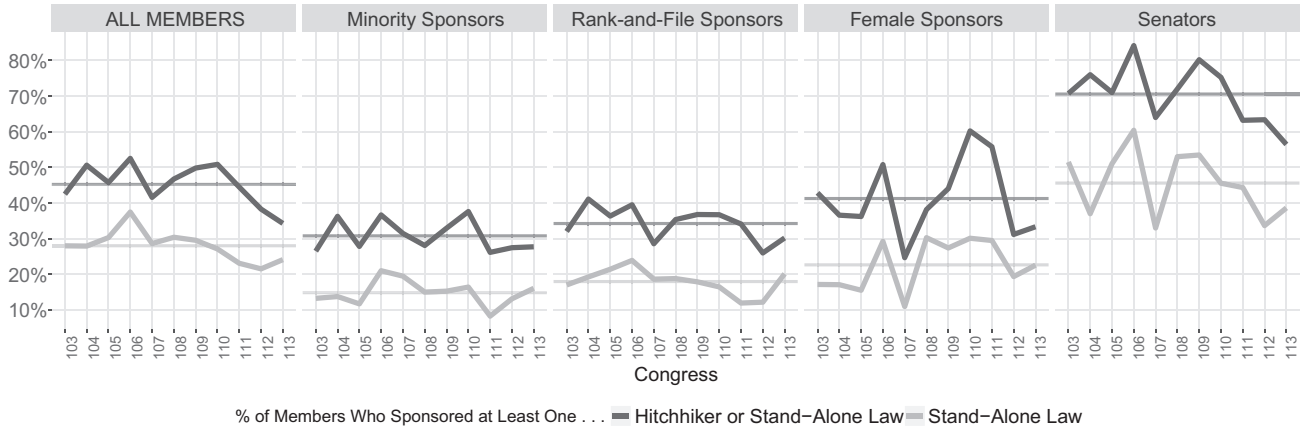
Figure 5 examines how accounting for hitchhikers alters the proportion of lawmakers in each congress who can claim at least one legislative success. In every category and in every congress, hitchhikers add a substantial number of new legislators to the list of effective members. In proportional terms, the largest difference is for members of the minority party. Their list of effective lawmakers doubles from 16% to 32% over the time period.

Another perspective is to compare individual legislators using a measure of effectiveness that incorporates hitchhikers and one that does not. To do this, we standardize representatives' legislative effectiveness scores (Volden and Wiseman 2014) for the 111th Congress and compare them to a standardized effectiveness score that is based on enactments (laws plus hitchhikers).[20] We then examine differences between members' scores on these two measures.

Figure 6 provides two views of the same results. The figure in the upper right shows the overall distribution of differences. A value of 0.0 indicates that a member was equally effective by both measures, whereas a positive (negative) value indicates that the standardized LES score rates a member as more (less) effective than our enactment measure. The leftmost figure restricts attention to the cases of more extreme difference. Triangles indicate committee leaders, and dots indicate rank-and-file members. The number on the left indicates the adjusted LES

[20]We divide each member's LES by the maximum LES, and each member's enactments by the maximum number of enactments.

FIGURE 5 Percentage of Legislators Sponsoring at Least One Law, or at Least One Law or Hitchhiker



for that member, whereas the numbers on the right indicate the number of laws and hitchhikers (in parentheses) sponsored by that member.

Consistent with earlier findings, the LES tends to rate rank-and file lawmakers as less effective (those in the upper left of the figure are all rank-and-file members). For example, none of the bills Rep. John Salazar (D-CO) sponsored became law on their own during the 111th Congress, but five of his laws were enacted as hitchhikers. One of these bills (H.R. 71) established the Sangre de Cristo National Heritage Area in Colorado as a provision of H.R. 146. Another (H.R. 346) provided grants for physicians in rural areas to improve their professional training and was enacted as a provision of the Affordable Care Act.

In contrast, the legislators rated as more effective by LES (lower right) are disproportionately committee leaders. The most extreme case is David Obey (at the time, chair of the House Committee on Appropriations). All of Obey's successful bills were appropriations bills. We exclude appropriations from our analysis because they are the clearest examples of the kind of compulsory legislation that conflates effectiveness with agenda control. The second- most extreme case is Sander Levin (D-MI), who took over as chair of the House Ways and Means Committee in 2010.

Where Are Hitchhikers Added?

Two final hypotheses to be tested are whether hitchhikers are frequently inserted while one chamber is considering a bill passed by the other, and whether Senate bills are more likely to become law as hitchhikers on House bills. These expectations are based on the fact that the Origination Clause requires that bills with revenue-related provisions originate in the House, and the fact that it can be easier to take up a House-passed bill in the Senate than a Senate bill recently reported from committee. Figure 7 indicates although hitchhikers get added at every stage of the lawmaking process, the most common stage is when one chamber is amending a bill passed over by the other chamber.[21] Perhaps most striking is that, in the vast majority of cases, the vehicle for Senate as well as House hitchhikers is a House bill (upper figures). In fact, more Senate bills became law as hitchhikers on House laws (1,118) than were enacted on their own (1,037). The largest proportion are revenue bills. In terms of topic, about half of these hitchhikers address the same major topic as the primary topic of the law (black shading), whereas about half address other topics (gray shading).[22]

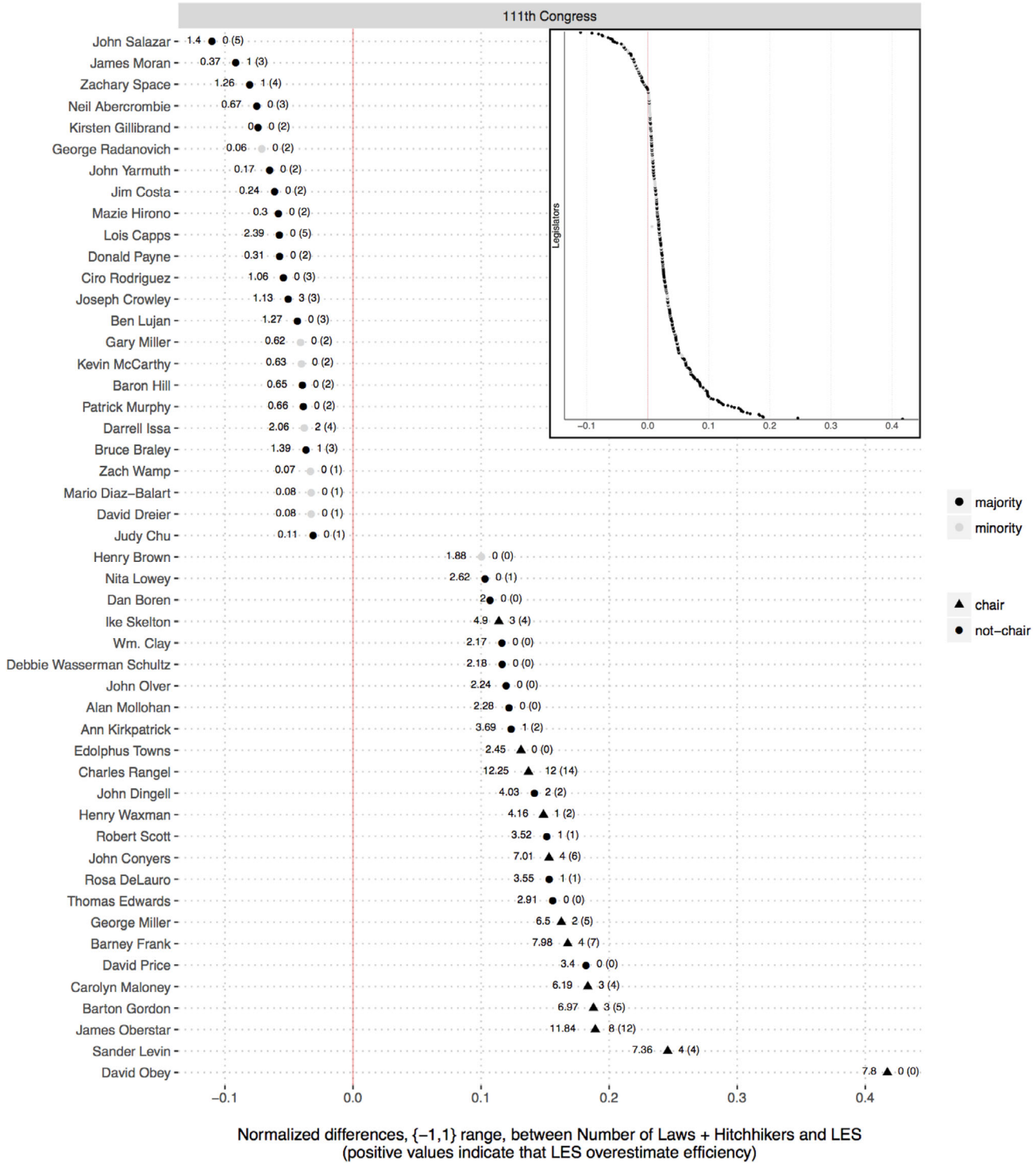
Discussion

In this article, we reexamine a long-standing subject of legislative studies. In 1960, Donald Matthews observed that "t]o the extent that the concept as used on Capitol Hill has any distinct meaning, *effectiveness* seems to mean the ability to get one's bills passed." For more than 50 years, scholars have defined legislator effectiveness by whether the bills they sponsor advance through the formal stages of the legislative process. We redefine getting "one's bills passed" to include bills enacted into law as

[21]To produce this figure, we compared the hitchhiker to each successive version of the bill that became law. We assume that it was inserted at the first match.

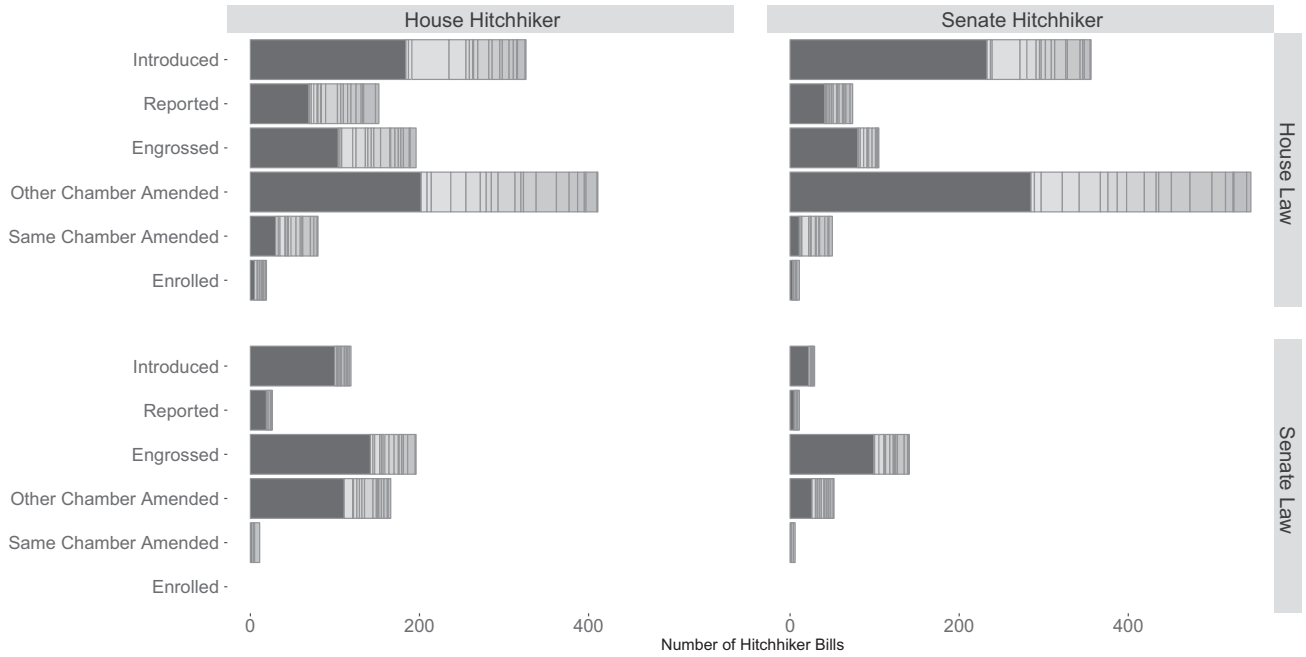
[22]These are determined using the 20 major topic codes of the Policy Agendas Project.

FIGURE 6 Comparison between the Sponsor's Enactments and the Legislative Effectiveness Scores (LES) of Volden and Wiseman (2014)



Note: We normalize LES and our enactment-based measure by dividing them by their maximum value. Then we take the difference between them, creating a normalized {–1,1} index communicating how LESs underestimate (negative values) or overestimate (positive values) effectiveness relative to our measure. The numbers on the left indicate the adjusted LES for these members, whereas the numbers of the right indicate the number of laws, and the number of laws plus hitchhikers (in parentheses) sponsored by that member.

FIGURE 7 Where Hitchhikers Bills Get Picked Up during the Legislative Process



Note: Dark gray indicates hitchhikers that address the same major topic as the law. Light gray indicates the distribution of other topics.

provisions of other bills. Hitchhiker bills are just one way that lawmakers are able to exercise policy influence. They are closer to the "ground truth" of effectiveness than approaches that focus on how far bills progress in the legislative process on their own. We have not examined partial bill hitchhikers or successful amendments.[23] We have also excluded a number of issue areas from our analysis where hitchhikers are known to be common, including appropriations (earmarks) and miscellaneous tariff legislation (Jones and Linardi 2012; Lazarus and Steigerwalt 2009). Nevertheless, accounting for these hitchhiker successes provides new insights into effectiveness and into the lawmaking process more generally. We find that the congressional opportunity structure is less hierarchical and less partisan. We also observe differences in bill and hitchhiker success across chambers that reflect important procedural differences.

We have also tried to highlight limitations of bill success as a measure of effectiveness. Many bills progress for reasons that have little to do with who sponsors them. This leads to overestimates of the effectiveness of legislators in agenda-setting positions (especially committee leaders), although the precise effects are difficult to estimate. But perhaps the best reason to be concerned about bill success as a measure of effectiveness is the fact that most of the bills senators sponsor that become law do so as hitchhikers on laws that originate in the House. Clearly, current approaches overlook many Senate successes and may even lead to misleading conclusions about relative chamber influence.

There is much more about hitchhikers to explore. We have not examined the policy areas that attract the most hitchhikers, or the most off-topic hitchhikers. Hitchhikers also offer opportunities to study bicameral negotiations more systematically. Whereas current research examines just one or a very small number of cases (see Monroe 2012 for a summary), the text-based methods introduced here provide opportunities to assess the relative influence of the House and Senate in these negotiations across many bills, issues, and partisan circumstances (e.g., unified versus divided government).

Another intriguing question yet to be examined is the extent to which House bills enacted as hitchhikers are added in the Senate and vice versa. The 900-page Senate amendment to H.R. 3590 that was the Affordable Care Act demonstrates that this occurs. It includes a number of hitchhikers that align with House bills that did not become law on their own. Furthermore, which legislators are most effective at advancing their proposal in this nonconventional way and why?

[23] Wilkerson, Smith, and Stramp (2015) conduct a cursory examination of section insertions for the 111th Congress and find minority party success rates similar to those reported here.

Research on legislative productivity currently measures it in two ways—counts of laws and counts of "major laws" (e.g., see Jones and Baumgartner 2005). Counting hitchhikers as enactments has a dramatic impact on the former: Congress is about twice as productive. But hitchhikers also offer new opportunities for systematically categorizing laws and examining legislative productivity by defining omnibus laws in terms of the number of hitchhikers they include, and the diversity of their topics, as well as the amount of text attention each receives.

More broadly, the algorithm introduced in this article can be used to investigate how the substance of thousands of individual bills evolves as they move through the lawmaking process. One basic, yet-to-be-examined question is—how much do the bills that become law change from one stage of the lawmaking process to the next? Statistical features derived from the algorithm can also be used to study more specific questions, such as the following: Are bill edits mostly additions of new text or deletions? Do they tend to be granular (indicating focused wordsmithing) or coarse (indicating the introduction or deletion of new provisions)? Are new additions typically on-topic or off-topic? Do editing patterns differ depending on the stage of the process (committee versus floor), chamber, topic, or political context? Can editing patterns predict cosponsorship or whether a bill will progress?

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.

Supporting Information A: Pre-processing

Supporting Information B: Constructing Statistical Features

Supporting Information C: Active Learning with a Massive Ensemble

Supporting Information D: Logistic Regression Models

Supporting Information E: Hitchhikers Bills for Two Target Law Examples