Research Report

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Mapping Complex Legislation

Applying the RAND U.S. Code Analysis Tool to the One Big Beautiful Bill Act

Summary

The One Big Beautiful Bill Act of 2025 (OBBBA) made 634 edits across 20 titles of the U.S. Code, making it one of the most complex pieces of legislation in recent legislative cycles. For context, other laws in this cycle made a median number of only three edits to a single title. Most of OBBBA's edits were textual refinements, such as a change in the limitation formula and threshold trigger for itemized deductions, but 53 were structural changes, such as the creation of a new deduction on qualified tips. This scale of statutory change makes manual review a costly and lengthy process.

When this type of vast and complex legislation is still in the bill stage, it poses a challenge to analysts in such organizations as the Congressional Budget Office (CBO) and the Congressional Research Service (CRS) who are tasked with scoring the bill. Such legislation also poses a challenge to lawmakers who need to decide whether to vote for or against it, often under tight deadlines. And once enacted in law, it poses similar challenges to analysts to understand its likely effects both because of the number and the breadth of changes.

Using the RAND U.S. Code Analysis Tool (CAT), we analyzed OBBBA's changes to the statutory network of the U.S. Code. CAT identifies statutory provisions that may warrant closer review based on their position within the code: whether they are highly connected, newly created, deleted, heavily edited, or substantially changed in their relationship to other provisions. For this analysis, we also linked CAT-flagged provisions to CBO estimates where available. These CBO estimates provide fiscal context, but they are not generated by CAT and are not required for CAT to identify provisions for review.

This proof-of-concept analysis shows that CAT can help analysts rapidly identify both headline provisions and less visible statutory changes that may have substantial legal, administrative, or implementation significance. The key findings are as follows:

- **CAT identified major OBBBA provisions that were already visible in public debate and showed why they matter structurally (see Table 1).** The tool flagged changes to the Child Tax Credit in 26 U.S.C. § 24, the new "qualified tips" deduction in 26 U.S.C. § 224, changes to charitable deduction rules in 26 U.S.C. § 170, senior deduction and personal exemption rules

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in 26 U.S.C. § 151, and the revised excise tax on private college and university investment income in 26 U.S.C. § 4968. These provisions were important not only because of their policy or budget effects but also because they created new statutory structures or amended highly connected parts of Title 26.

- **CAT also identified less visible changes that may have substantial implementation consequences.** For example, edits to 42 U.S.C. § 1396a, a central Medicaid state-plan provision, matter because they can affect state eligibility systems, compliance obligations, and program administration across states. Similarly, changes to 7 U.S.C. § 9081 alter

TABLE 1
Summary of Featured Provisions Flagged by CAT

Provision	OBBBA Change	CAT Signal	CBO Estimated Federal Budgetary Effect ($ millions, 2025–2034) (Net = Revenues Minus Outlays)[a]	Why It Matters
26 U.S.C. § 24	Child Tax Credit changes	Substantial change in connectedness	Change in revenues = –626,345 Change in outlays = 190,501 Net change = –816,846	Major household tax provision with large fiscal effects and broad compliance implications
26 U.S.C. § 224	New qualified tips deduction	New statutory structure	Change in revenues = –31,664 Change in outlays = 0 Net change = –31,664	Creates a new deduction framework and implementation mechanics
26 U.S.C. § 151	Personal exemptions and related deduction rules	Highly connected	Change in revenues = 1,666,911 Change in outlays = –140,163 Net change = 1,807,074	Foundational deduction provision referenced across tax law
26 U.S.C. § 170	Charitable contributions	Highly connected	Change in revenues = 5,955 Change in outlays = 0 Net change = 5,955	Affects household and business tax behavior
26 U.S.C. § 4968	Private college and university investment income excise tax	Internal restructuring; substantial change in connectedness	Change in revenues = 761 Change in outlays = 0 Net change = 761	Narrow but legally dense tax framework
26 U.S.C. § 530A	New tax-advantaged child savings account structure	New statutory structure	Change in revenues = –634 Change in outlays = 15,009 Net change = –15,643	Creates a new account framework and implementation obligations
42 U.S.C. § 1396a	Medicaid state-plan changes	Highly connected	Change in revenues = –13,194 Change in outlays = –566,828 Net change = 553,634	May affect state eligibility systems and compliance pathways
42 U.S.C. § 1436a	Assisted housing restrictions for nonresident aliens	Highly connected; substantial change in connectedness	No direct CBO estimate identified	Links housing eligibility and immigration-related statutory changes
7 U.S.C. § 9081	Supplemental Agricultural Disaster Assistance updates	Substantial change in connectedness	Change in revenues = 0 Change in outlays = 2,868 Net change = –2,868	Alters program mechanics and eligibility triggers
30 U.S.C. § 1727	Repeal (methane royalties)	Deleted statutory structure	Change in revenues = 0 Change in outlays = 30 Net change = –30	Shows that repeals can be structurally limited even when policy-significant
42 U.S.C. § 7434	Repeal (Greenhouse Gas Reduction Fund)	Deleted statutory structure	Change in revenues = 0 Change in outlays = –19 Net change = 19	Low-centrality repeal with comparatively modest scored fiscal effect

SOURCES: Contains data from RAND's CAT network measures, U.S. Code Classification Tables (Office of the Law Revision Counsel [OLRC], undated), and CBO budgetary estimates (CBO, 2025a).

[a] The net budgetary effect is calculated as the change in revenues minus the change in outlays. Negative values correspond to decreases, and positive values correspond to increases.

agricultural program mechanics in ways that may be easy to miss in a high-level summary of OBBBA.

- **Some small or targeted edits were important because they occurred in highly connected parts of the code.** Changes to such provisions as 26 U.S.C. § 151, which affects personal exemption and deduction rules, and 26 U.S.C. § 170, which governs charitable contributions, can have broader downstream effects because these two sections are widely referenced across Title 26.
- **New statutory structures can be important even if they are not highly connected.** OBBBA added 45 new provisions across the U.S. Code, including 20 in Title 26 and 16 in Title 8. Some new provisions, such as 26 U.S.C. § 224, which created a deduction for qualified tips, and 26 U.S.C. § 530A, which established tax-advantaged child savings accounts, create new implementation obligations even if their long-term role in the statutory network is still developing.
- **Not every formal structural change produced a large network effect.** OBBBA included only two deletions from the U.S. Code: 30 U.S.C. § 1727, concerning royalties on extracted methane, and 42 U.S.C. § 7434, concerning the Greenhouse Gas Reduction Fund. Both were relatively low-centrality provisions, which suggests limited effects on the overall statutory network structure despite being formal repeals.
- **CAT adds a different perspective from CBO scoring, policy-area summaries, or edit counts.** CBO estimates show expected budgetary effects, policy summaries explain substantive effects within particular domains, and edit counts show where statutory language changed most often. CAT adds a complementary perspective by identifying where edits are made and tracing the implications of those changes throughout the U.S. code.

Introduction

Federal legislation is difficult to evaluate because the universe of federal laws, collected in the U.S. Code, is complex and often interconnected. Provisions define terms used elsewhere, establish eligibility rules that other programs incorporate, and cross-reference other sections within and across titles. As a result, a change to one section can have implications beyond the immediate text being amended.

This problem is especially acute for major legislation. Federal lawmakers often have to vote on complex bills in a matter of days, not months. The entities charged with scoring these bills and synthesizing their effects, including CBO, CRS, and outside analysts, also work under intense time constraints. Existing analyses are essential but necessarily partial. CBO estimates budget effects, CRS and policy analysts explain provisions within domains, and legal experts review statutory language. None of these actions alone provides a rapid map of where a bill changes the structure of federal law or which provisions may have downstream statutory effects.

RAND's CAT was developed to address this gap. CAT parses the U.S. Code into a graph of statutory provisions and cross-references, allowing analysts to identify which provisions are highly connected, newly created, repealed, or substantially repositioned by legislation. The tool is anchored in statutory text and traceable cross-references. It is not a substitute for legal analysis, budget modeling, or program-specific expertise. Rather, it is a triage tool: It helps analysts identify where that expertise should be directed first.

We applied CAT to OBBBA, one of the most complex and high-profile federal laws in recent years. OBBBA was enacted on July 4, 2025, as Public Law 119-21. It made 634 edits across 20 titles of the U.S. Code. The largest concentration was in tax law, with 394 edits to Title 26, the Internal Revenue Code, but OBBBA also made substantial changes in Title 7, Agriculture; Title 42, The Public Health and Welfare; Title 20, Education; and Title 8, Aliens and Nationality.

CAT identifies statutory provisions that may warrant closer review based on their location and role within the U.S. Code network. In this report, we use CBO budget estimates as an additional layer to contextualize the provisions that CAT flagged after estimates were available. In a pre-vote setting, CAT can provide rapid statutory triage even before detailed budget estimates exist; after these estimates are generated, they can be linked to CAT outputs to compare statutory significance with estimated fiscal effects.

Many existing analyses of OBBBA have focused on specific components of the law. For example, studies by the Budget Lab (2025), the Tax Foundation (Watson et al., 2026), and the Penn Wharton Budget Model (2025) focused on tax provisions. Similarly, CRS covered changes to health provisions (Baumrucker et al., 2025), and CBO produced detailed estimates of budgetary effects (CBO, 2025a; CBO, 2025b). Our approach differs in two key ways: We are looking at the whole text of the legislation rather than a single title or subset of provisions, and we are using network analysis to explore the interactions across OBBBA and the U.S. Code.

This report uses OBBBA as a proof of concept. We show that CAT identifies both provisions that dominated public discussion and provisions that were less visible but may have substantial fiscal, administrative, or implementation consequences. The goal is not to provide a comprehensive legal or budgetary assessment of OBBBA. Rather, it is to demonstrate how CAT can help analysts rapidly identify provisions that merit closer review when new legislation is proposed or enacted.

Abbreviations

CAT	U.S. Code Analysis Tool
CBO	Congressional Budget Office
CRS	Congressional Research Service
IRS	Internal Revenue Service
OBBBA	One Big Beautiful Bill Act of 2025
OLRC	Office of the Law Revision Counsel
U.S.C.	United States Code

Analyzing OBBBA as a Statutory Network

CAT extends the Tax Code Analysis Tool (Price et al., 2026) to graph the full U.S. Code; we built our analysis of OBBBA on this statutory network. Our analysis brings together three kinds of information. The first two can be generated directly from statutory text and therefore are available for rapid triage as soon as the proposed bill text is available.

First, we used network measures from CAT to flag important effects of legislation by focusing on edited provisions that are either highly central in a title-level legal network or that move sharply in centrality after amendment. *Centrality* in this context refers to how connected or important a provision is within the network of statutory cross-references. We used four standard graph metrics—Betweenness, Degree, Harmonic, and PageRank—to capture different dimensions of statutory connectedness. Appendix A provides more details on how to use CAT, and Appendix B provides more details on these graph metrics.

Second, we added data on the number and type of edits to sections in the U.S. Code that were due to OBBBA. We characterized the types of edits using the conventions of the Office of the Law Revision Counsel (OLRC),[1] grouping them as four types: additions, amendments, deletions, and transpositions. This taxonomy allowed us, at least partially, to distinguish between textual refinement and structural legal change.

Third, for this retrospective analysis, we linked CAT-flagged provisions to CBO estimates of net budgetary effects where available (CBO, 2025a). CBO estimates are not generated by CAT, and they may not be available in time for pre-vote analysis. They provide fiscal context for interpreting the provisions CAT identifies, but they are not required for CAT to flag provisions for review.

To identify which of OBBBA's edits are most likely to matter for policy implementation, we first flagged provisions based on CAT-generated statutory signals. These include whether a provision is highly connected, whether it is newly added or

deleted, whether it experienced a substantial change in centrality after OBBBA, and whether it was heavily edited. We then used CBO estimates, where available, as an external contextual layer.

For this report, we selected examples to illustrate three substantive patterns in OBBBA:

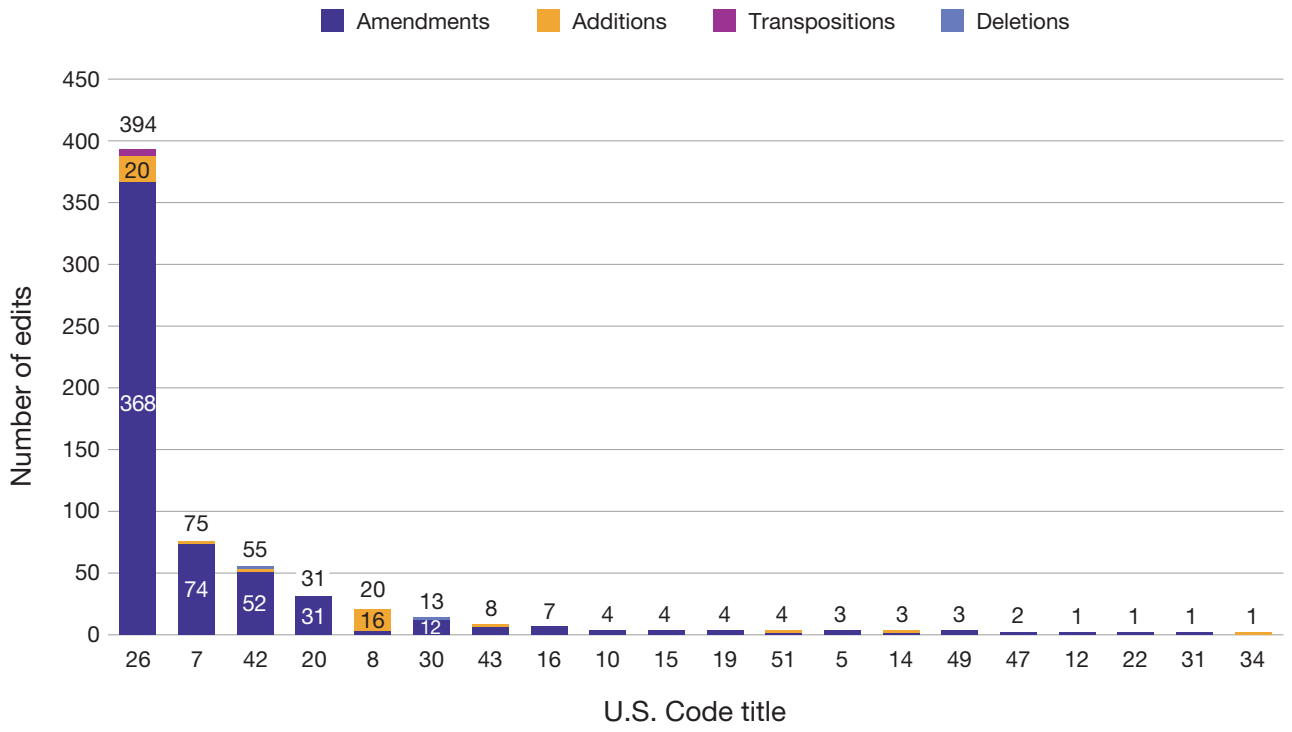
1. **Headline provisions that CAT identified and helped explain structurally.** These include provisions that dominated public discussion, such as the Child Tax Credit, the qualified tips deduction, and changes to charitable deductions.
2. **Less visible provisions that CAT flagged because of their statutory position or implementation significance.** These include Medicaid state-plan provisions, assisted housing restrictions, and agricultural program mechanics.
3. **Structural changes whose network significance varied.** These include newly created statutory frameworks and repealed provisions that were legally significant but relatively isolated in the statutory network.

As Figure 1 shows, OBBBA most heavily edited Title 26, Internal Revenue Code; Title 7, Agriculture; Title 42, The Public Health and Welfare; Title 20, Education; and Title 8, Aliens and Nationality. Using the OLRC characterizations of the 634 changes made within OBBBA, most edits were amendments (92 percent of the total edits), but there were also 45 additions (7 percent), six transpositions (1 percent), and two deletions (<1 percent).

Figure 2 is a demonstration of how CAT signals are used to flag provisions. The horizontal axis shows post-OBBBA centrality in the statutory network; the vertical axis shows change in centrality after

FIGURE 1

Titles Modified by OBBBA

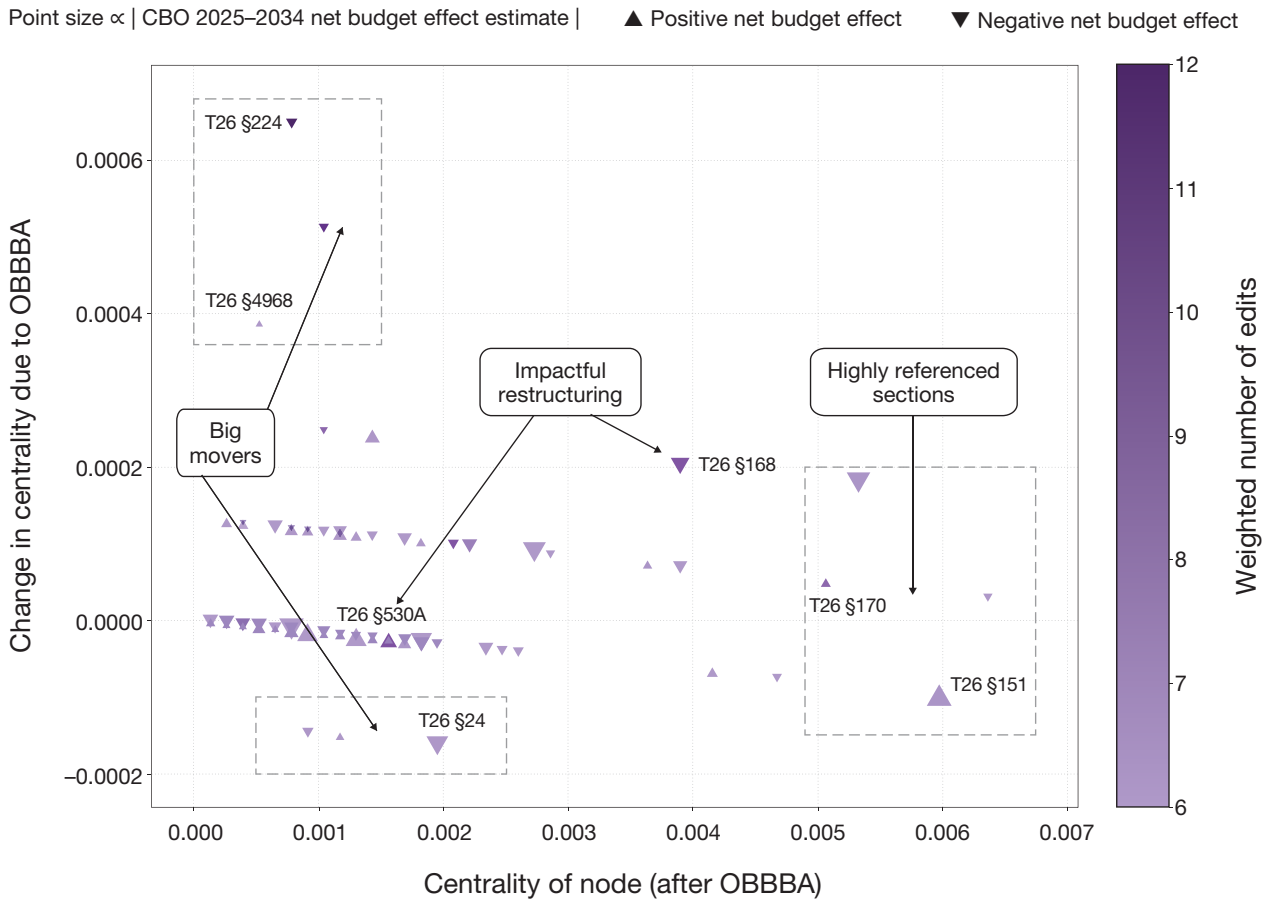


SOURCE: Contains data from OLRC, undated.

NOTE: Title 26 (Internal Revenue Code), Title 7 (Agriculture), and Title 42 (The Public Health and Welfare) were those most heavily edited by OBBBA. Within these titles, the vast majority of edits were amendments to text, but a scattering of new sections was added, and there were small structural changes in the form of transpositions.

FIGURE 2

CAT Signals in Title 26



SOURCES: Contains data from RAND's CAT network measures; OLRC, undated; and CBO, 2025a.

NOTE: In this figure, each point is a Title 26 section. Points farther to the right mean that the section is more central in the post-OBBBA reference network, and higher or lower placement shows how much the centrality increased or decreased due to OBBBA. Point color reflects the weighted number of edits (darker purple means more edits), point size scales with the magnitude of the CBO-estimated net budget effect, and the point shape shows the direction of that budget effect (▲ = positive, ▼ = negative, • = near zero).

OBBBA; point color shows weighted edit volume; and point size and shape add CBO fiscal context where available. There is variation across all of these signals: Sometimes a small number of edits on highly referenced sections lead to big estimated budgetary impacts, but other times they may not. Likewise, a large number of edits to a less central section may lead to big impacts on policy implementation. Flagged sections across all of these signals provide insights beyond what any single measure could provide. We used these signals to select the substantive examples discussed below.

Applying the Tool: What Network Analysis Reveals About OBBBA

CAT identifies every U.S. Code provision edited by OBBBA and allows analysts to prioritize which ones merit further legal, fiscal, or policy review. The illustrative examples below were chosen to show the range of issues that CAT can surface: highly visible provisions, less visible implementation-relevant provisions, and structural changes whose network significance varied.

Headline OBBBA Provisions Also Changed Important Statutory Structures

Major headline tax provisions have been well studied in terms of budgetary impact. Our analysis allowed us to consider the impacts on statutory structures. Changes to 26 U.S.C. § 224 and § 530A illustrate new statutory architecture with implementation obligations, while changes to 26 U.S.C. § 151, § 170, and § 4968 show how edits to highly connected or internally reweighted tax provisions can have broad downstream compliance and administration effects. Taken together, these headline provisions are important not only because of policy salience but also because CAT shows where legal structure, cross-references, and implementation pathways are being reshaped.

1. **Changes to 26 U.S.C. § 151—which governs personal exemptions and related deduction rules—matter beyond their immediate text because many other tax provisions depend on how 26 U.S.C. § 151 defines who qualifies and for what.**

   OBBBA updated 26 U.S.C. § 151 to incorporate a senior-focused deduction structure and related phaseout mechanics. Calculating centrality measures from the full Title 26 network, § 151 ranks among the most central provisions in Title 26 both before and after OBBBA. Because § 151 is a highly connected provision, relatively targeted edits to it or to the provisions it references can propagate broadly through implementation and compliance. The key implementation issue is that changes to a highly connected tax provision can affect eligibility calculations, taxpayer filing behavior, Internal Revenue Service (IRS) guidance, and interactions with other deduction rules. CBO estimates that these OBBBA edits will result in an additional $1.8 trillion in revenue over ten years (CBO, 2025a).

   Figures 3 and 4 show the immediate network around 26 U.S.C. § 151 before and after OBBBA. In both figures, the red nodes represent 26 U.S.C. § 151 and its subsections, and the orange nodes represent other provisions that either reference § 151 or are referenced by § 151. At a glance we can see that there are many orange nodes connected to § 151, indicating high centrality both before and after OBBBA.

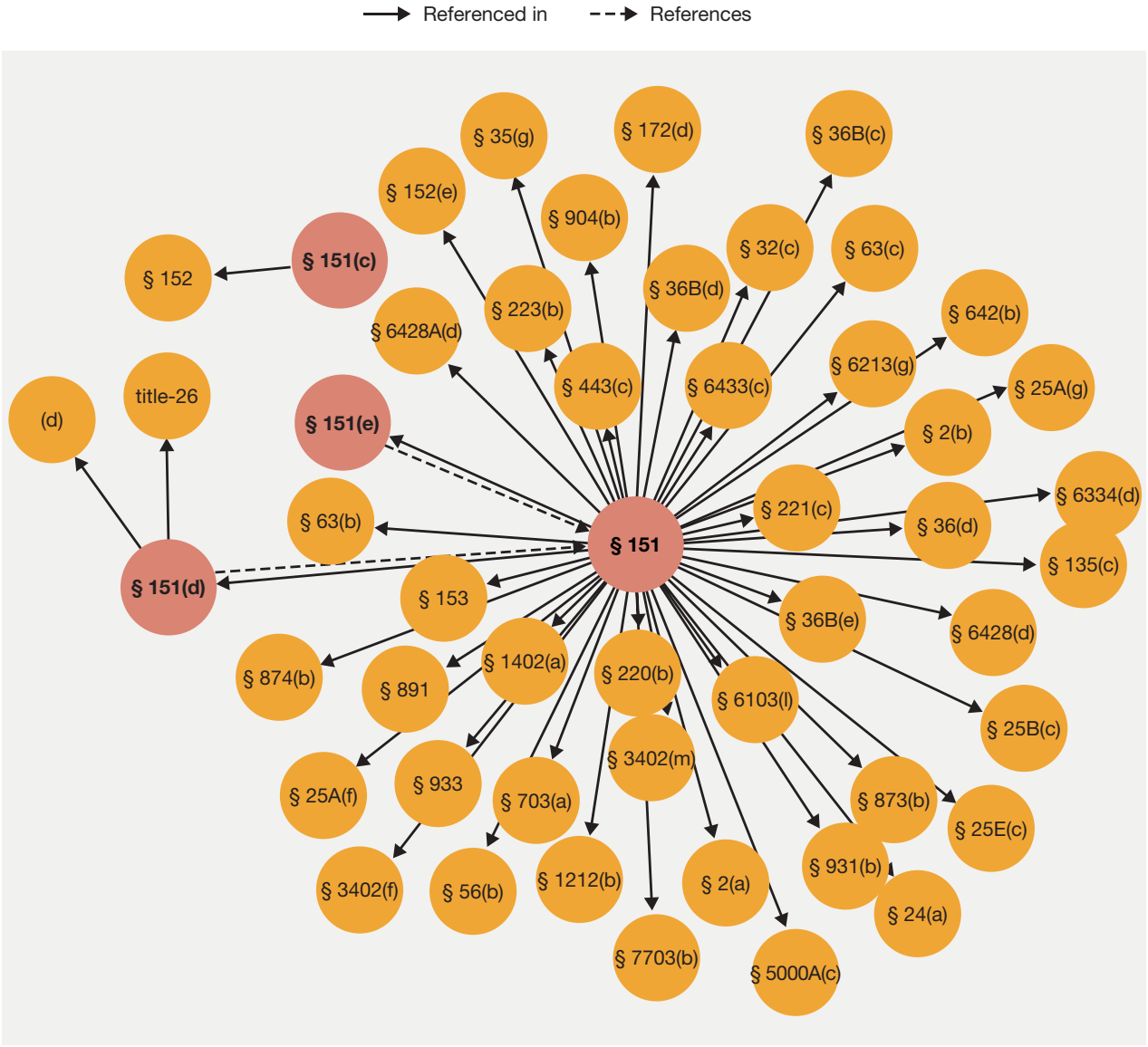
2. **Changes to 26 U.S.C. § 170—which governs charitable contribution deductions—are important because these rules affect both household and business tax behavior across filing contexts.**

   OBBBA makes multipart changes to charitable deduction rules, including revised deduction thresholds, floors, and carryforward interactions. Because these rules affect both household and business tax behavior across filing contexts, even small edits here would result in large policy implementation implications. In the case of OBBBA, the edits were substantial. Although they are expected to raise only $6 billion in revenue over ten years according to CBO, the compliance impact for those who are affected would be significant (CBO, 2025a).

Changes to a highly connected tax provision can affect eligibility calculations, taxpayer filing behavior, Internal Revenue Service guidance, and interactions with other deduction rules.

FIGURE 3

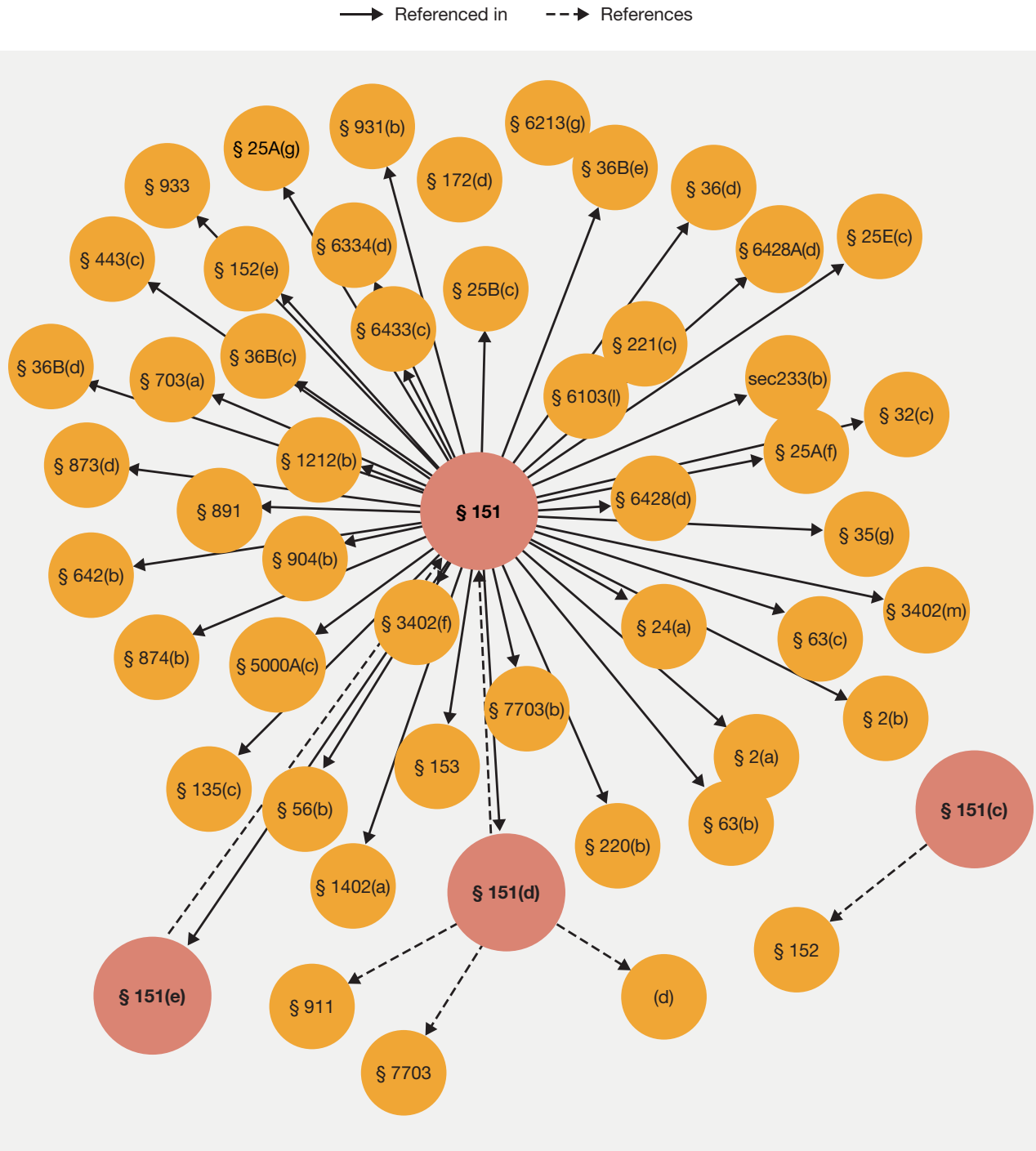
26 U.S.C. § 151 Pre-OBBBA



NOTE: This figure shows the local network around 26 U.S.C. § 151 before OBBBA. The red nodes are 26 U.S.C. § 151 and its subsections. Orange nodes are provisions directly connected to § 151—that is, provisions that reference § 151 or are referenced by § 151. Arrows show the direction of citation: The arrow begins at the referencing provision and points to the referenced provision. We can see that 26 U.S.C. § 151 was quite central before OBBBA.

FIGURE 4

26 U.S.C. § 151 Post-OBBBA



NOTE: This figure shows the local network around 26 U.S.C. § 151 after OBBBA. The red nodes are 26 U.S.C. § 151 and its subsections. Orange nodes are provisions directly connected to § 151—that is, provisions that reference § 151 or are referenced by § 151. Arrows show the direction of citation: The arrow begins at the referencing provision and points to the referenced provision. We can see that 26 U.S.C. § 151 remains quite central after OBBBA.

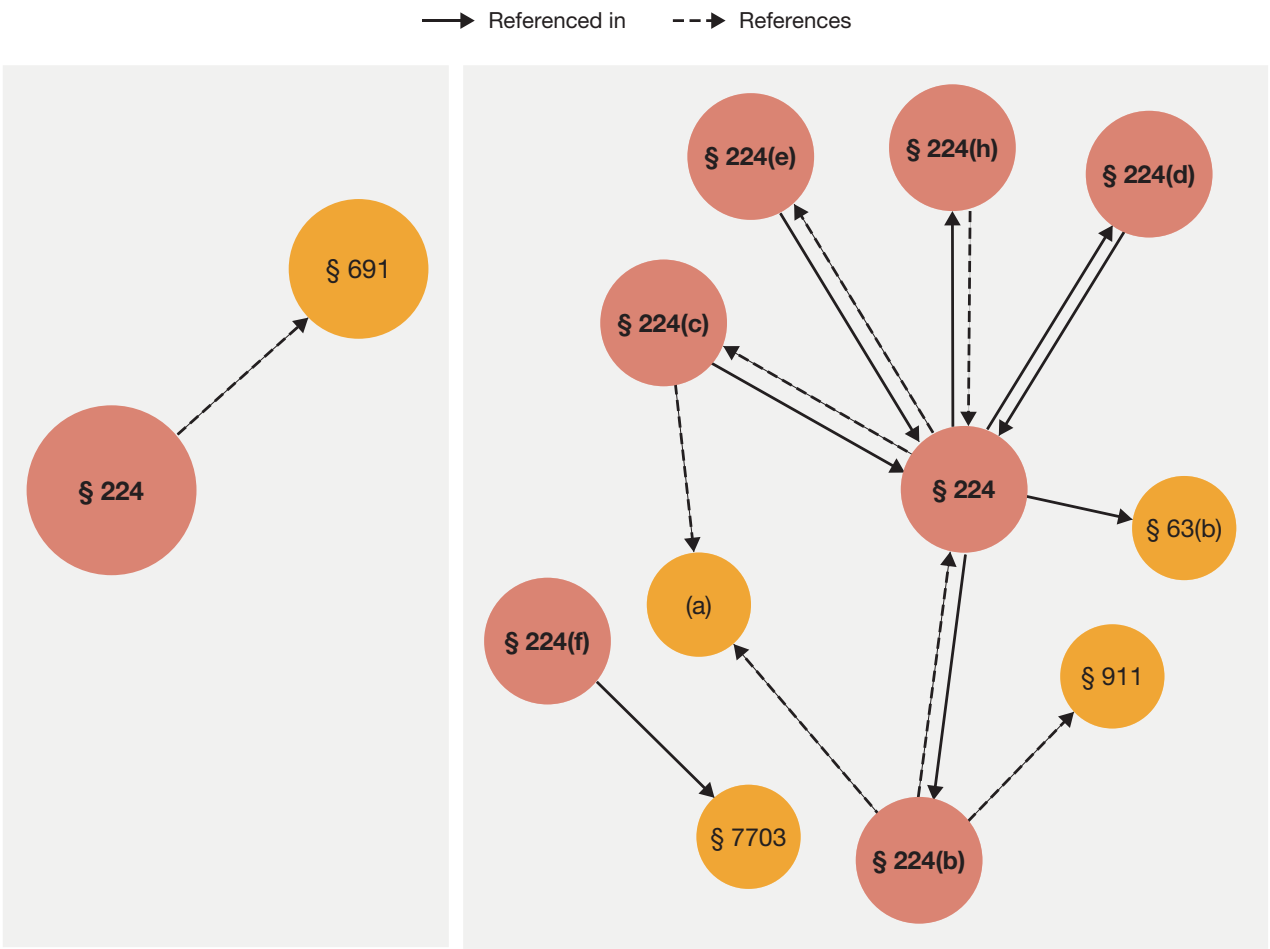
3. **Changes to 26 U.S.C. § 24—the Child Tax Credit—are important because OBBBA substantially modifies a major household tax provision while also changing its role in the statutory network.**

   OBBBA § 70104 extends and enhances the credit framework, increases the statutory amount from $2,000 to $2,200, adds Social Security number requirements, and applies inflation adjustments to the refundable amount. CBO scores these changes at about $190.5 billion in higher outlays and $626.3 billion less in revenues over 2025–2034 (CBO, 2025a).

4. **New 26 U.S.C. § 224 creates a deduction for qualified tips, commonly referred to as the "No Tax on Tips" provision, and the tool flags it as a newly created statutory structure with links to other tax rules.**

   Figure 5 shows the network around this section before and after OBBBA. We can see that this section had multifaceted structural change, adding many new subsections that now reference many other sections and amending the text of the section. These

FIGURE 5
26 U.S.C. § 224 Pre- and Post-OBBBA



NOTE: The left panel shows 26 U.S.C. § 224 (including its subsections) and all sections that reference it or are referenced by it before OBBBA, while the right panel shows the same after OBBBA. In each panel, the red nodes are 26 U.S.C. § 224 and its subsections. Orange nodes are provisions directly connected to § 224—that is, provisions that reference § 224 or are referenced by § 224. Arrows show the direction of citation: The arrow begins at the referencing provision and points to the referenced provision. We can see that 26 U.S.C. § 224 experienced multifaceted edits, adding new subsections that connect to other sections.

additions relate to "qualified tips," allow the deduction for non-itemizers, impose a statutory cap, and include a phaseout of modified adjusted gross income and Social Security Number–based enforcement mechanics. CBO scores this provision as having a net budgetary effect of roughly $31.7 billion in reduced revenue over 2025–2034 (CBO, 2025a).

5. **New 26 U.S.C. § 530A establishes tax-advantaged child savings accounts, commonly referred to as Trump Accounts, and creates a new account framework that will require implementation.**

   26 U.S.C. § 530A Tax-Advantaged Child Savings Accounts (sometimes referred to as Trump Accounts) are another example of additions to the code, combining new account architecture, tax treatment, and appropriated implementation resources. OBBBA § 70204 creates a new statutory account framework, sets eligibility and contribution rules, includes employer and pilot-program components, and provides implementation funding (including a Treasury appropriation through 2034). CBO scores this addition as a net budgetary effect of $15 billion in reduced federal revenue over 2025–2034 (CBO, 2025a).

6. **Changes to 26 U.S.C. § 4968—the excise tax on private college and university investment income—matter because OBBBA shifts legal weight within the statutory framework.**

   Subsection 4968(c) became much more central, while Subsections 4968(b) and (d) move in the opposite direction, indicating that the amendment shifts where legal weight sits inside the same statutory framework. The private-college endowment provision is narrow in scope but dense in legal mechanics. OBBBA § 70415 rewrites 26 U.S.C. § 4968 with a tiered excise-tax framework (1.4-percent, 4-percent, and 8-percent brackets based on student-adjusted endowment thresholds), refines "applicable educational institution" definitions, and adds return-reporting requirements through § 6033. CBO estimates an increase of roughly $761 million in revenues over 2025–2034 (CBO, 2025a).

Less Visible OBBBA Changes May Have Substantial Implementation Consequences

CAT also identifies less visible provisions whose implementation significance comes from statutory position. For example, sections that define specific concepts within the code tend to be highly central, meaning that they are referenced by many other sections. Small edits to these sections can create broad downstream consequences because central definitions affect policy eligibility, compliance, and implementation pathways. However, these changes are rarely highlighted in headlines. Our analysis flagged several particularly interesting definitional changes in OBBBA.

7. **Changes to 42 U.S.C. § 1396a—a core Medicaid state-plan provision—are important because they can affect how states determine eligibility, administer benefits, and comply with federal Medicaid requirements.**

   OBBBA-linked edits to 42 U.S.C. § 1396a are distributed across multiple subparagraphs that govern eligibility and administration. CBO associates these linked changes with outlays that are roughly $554 billion lower in net over ten years (CBO, 2025a).

8. **Changes to 42 U.S.C. § 1436a—which governs restrictions on assisted housing for nonresident aliens—matter because the provision is highly central in Title 42 and connected to broader immigration-related statutory changes.**

   42 U.S.C. § 1436a is one of the most central provisions in Title 42 and a notable mover in our analysis, illustrating how CAT can surface sections whose policy impact is tied to legal position and cross-title linkage rather than raw edit counts. The provision concerns restrictions on the use of assisted housing by nonresident aliens and is linked to broader immigration-related statutory changes, including additions in Title 8 and OBBBA § 100001 (applicability of immigration laws). This is the kind of provision that graph tools can help draw attention to because changes to high-centrality housing and eligibility

provisions can have secondary effects when connected with immigration-related changes in other portions of the code. CBO does not provide estimates of the budgetary impacts of this specific provision.

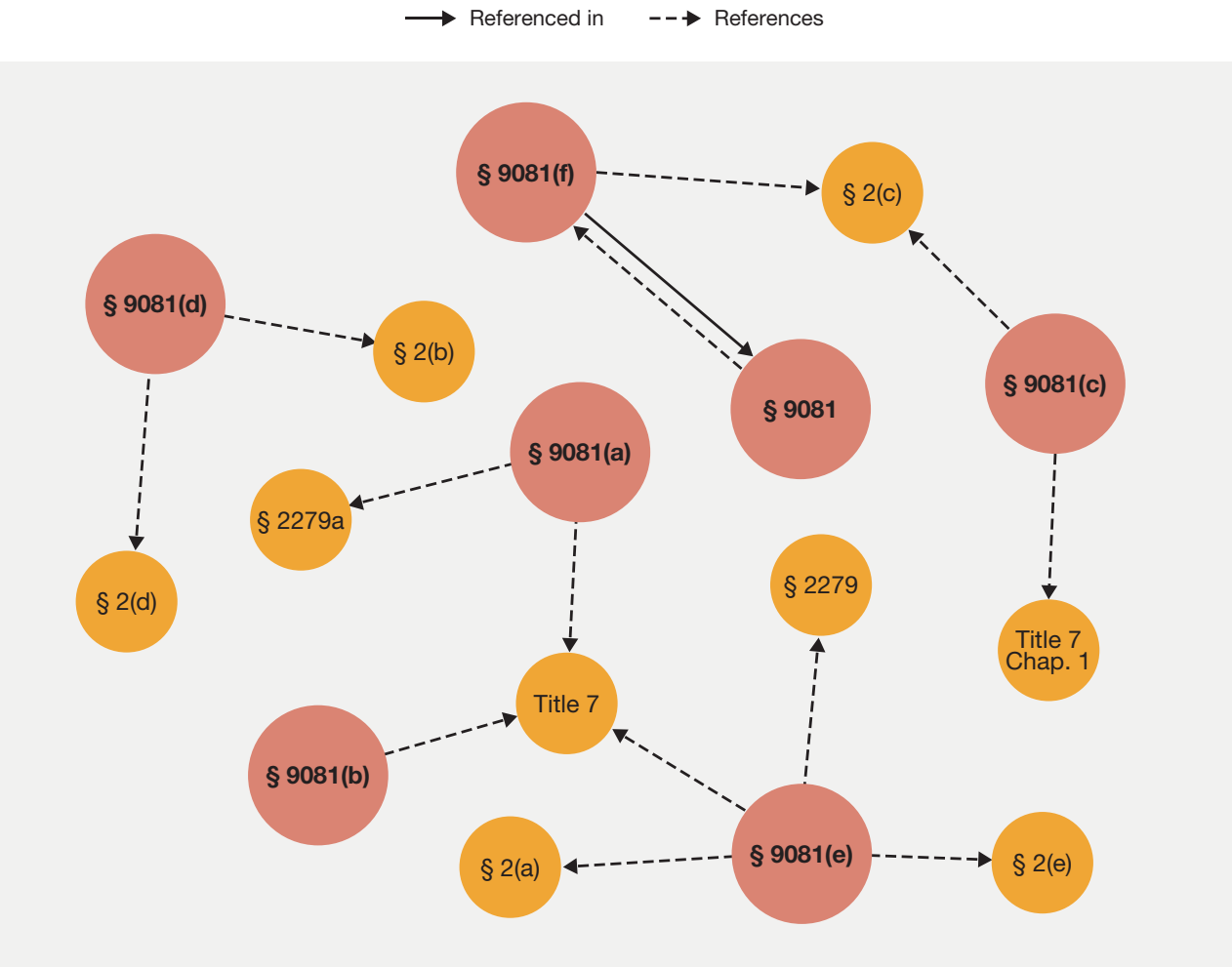
9. **Changes to 7 U.S.C. § 9081 show how targeted agricultural amendments can become implementation-relevant when they alter program mechanics and statutory linkages.**

   § 9081 (Supplemental Agricultural Disaster Assistance) is flagged as becoming more central through amendments to the content. That pattern is consistent with what the statutory language does: It updates payment mechanics, eligibility triggers, and operational rules rather than creating a fully new architecture.

   OBBBA § 10401 (Supplemental Agricultural Disaster Assistance) updates 7 U.S.C. § 9081 livestock indemnity formulas, adds unborn-livestock payments, and modifies forage-disaster payment triggers. CBO scores these as resulting in $2.868 billion in additional spending over 2025–2034 (CBO, 2025a). Although the pre- and post-OBBBA networks in Figures 6 and 7 look similar, the key change is the addition of a single new cross-reference

FIGURE 6

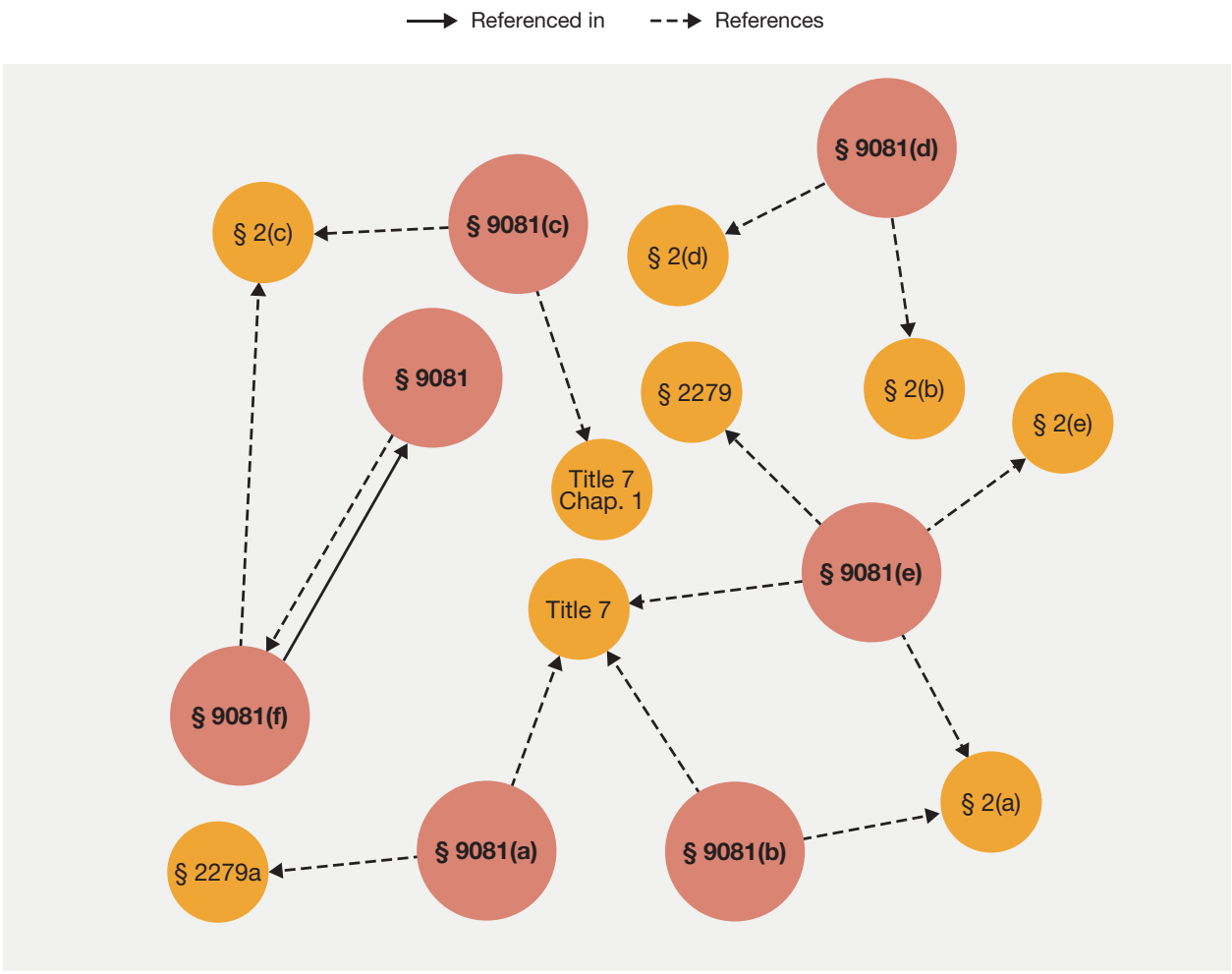
7 U.S.C. § 9081 Pre-OBBBA



NOTE: This figure shows 7 U.S.C. § 9081 (including its subsections) and all sections that reference it or are referenced by it before OBBBA. The red nodes are 7 U.S.C. § 9081 and its subsections. Orange nodes are provisions directly connected to § 9081—that is, provisions that reference § 9081 or are referenced by § 9081. Arrows show the direction of citation: The arrow begins at the referencing provision and points to the referenced provision.

FIGURE 7

7 U.S.C. § 9081 Post-OBBBA



NOTE: This figure shows 7 U.S.C. § 9081 (including its subsections) and all sections that reference it or are referenced by it after OBBBA. The red nodes are 7 U.S.C. § 9081 and its subsections. Orange nodes are provisions directly connected to § 9081—that is, provisions that reference § 9081 or are referenced by § 9081. Arrows show the direction of citation: The arrow begins at the referencing provision and points to the referenced provision. The primary post-OBBBA change is a single added cross-reference (bottom right) that creates a reference loop, increasing the network centrality of 7 U.S.C. § 9081.

that creates a reference loop among these provisions. This reciprocal connection makes the affected sections more tightly linked in the statutory network and increases the measured centrality of 7 U.S.C. § 9081, even though the visual structure of the local network changes only modestly.

Structural Changes Varied: Some Created New Implementation Obligations, While Some Repeals Were Relatively Isolated

Additions and deletions represent the creation of entirely new legal frameworks or the removal of existing ones, while transpositions represent movement of provisions within the legal framework. Because these are structural changes to the code's architecture rather than refinements to existing text, they can introduce new implementation obligations,

eliminate existing ones, or shift how adjacent provisions operate. Deletions in particular may attract attention precisely because they remove something entirely, but network analysis can quickly assess whether a deleted provision was structurally central or relatively isolated—a distinction that conventional analysis may not make explicit.

10. **OBBBA's two deletions removed provisions in energy and environmental policy, but the tool showed that both repealed sections were relatively isolated in the statutory network.**

    OBBBA includes only two deletions across the U.S. Code: OBBBA § 50103 repeals 30 U.S.C. § 1727 (royalties on extracted methane), and OBBBA § 60002 repeals 42 U.S.C. § 7434 (Greenhouse Gas Reduction Fund) and rescinds unobligated balances. In our graph framework, both deleted nodes were low-centrality, so removal had a limited effect on overall network complexity. CBO scores these deletion-related provisions as comparatively small in budget terms: OBBBA § 50103 is associated with about $30 million in outlays over 2025–2034, while OBBBA § 60002 is associated with about $19 million less in outlays over the same period (CBO, 2025a).

11. **Additions and deletions do not all have the same structural significance. Some additions created substantial new implementation obligations, but some formal repeals were comparatively isolated in the network.**

    For example, such new provisions as 26 U.S.C. § 224 and § 530A established new statutory frameworks with concrete implementation mechanics. By contrast, OBBBA's two repeals—30 U.S.C. § 1727 and 42 U.S.C. § 7434—were formal structural changes but low-centrality nodes in this network framework. This contrast helps explain why structural change type alone is not enough: CAT is useful because it distinguishes between legal form (addition versus deletion) and network position (central versus isolated).

Conclusion

OBBBA's effects are not fully captured by counting statutory edits, reviewing CBO scores, or examining policy areas one at a time. Those approaches are valuable, but they answer different questions. Edit counts show where statutory language changed most often, CBO estimates show expected budgetary effects, and policy-specific analyses explain substantive effects within particular domains. The graph-network approach adds another perspective: It shows where edits sit within the broader structure of the U.S. Code and whether those edits affect provisions that are central to statutory interpretation, program administration, or downstream implementation.

This proof-of-concept analysis demonstrates three ways in which CAT can help evaluate major legislation, such as OBBBA.

Our graph-network approach shows where edits sit within the broader structure of the U.S. Code and whether those edits affect provisions that are central to statutory interpretation, program administration, or downstream implementation.

CAT can quickly distinguish between areas with high edit volume and areas with potentially high implementation significance.

First, **CAT can quickly distinguish between areas with high edit volume and areas with potentially high implementation significance**. OBBBA's edits were concentrated in Title 26, Internal Revenue Code, which had 394 edits—far more than any other title. This confirms the common understanding of OBBBA as primarily a tax bill. However, the whole-code analysis also showed substantial statutory activity in Title 7, Agriculture; Title 42, The Public Health and Welfare; Title 20, Education; and Title 8, Aliens and Nationality. This broader view is important because some of OBBBA's most consequential implementation effects occurred outside the tax code. For example, edits to 42 U.S.C. § 1396a, a central Medicaid state-plan provision, may require changes to state eligibility systems, compliance processes, and program administration. These effects are visible not simply because the provision has a large budget score, but because it occupies a central position in the Medicaid statutory framework.

Second, **CAT can identify headline changes while also explaining their statutory structure**. Several of the provisions flagged by the network analysis correspond to well-known OBBBA policy changes. These include the addition of 26 U.S.C. § 224, creating the "qualified tips" deduction; changes to 26 U.S.C. § 24, the Child Tax Credit; revisions to 26 U.S.C. § 170, charitable contributions; changes related to senior deductions in 26 U.S.C. § 151; and revisions to 26 U.S.C. § 4968, the excise tax on investment income of private colleges and universities. In these cases, the tool does more than identify provisions with large budgetary effects. It also shows whether the provision is newly created, heavily amended, highly referenced, or moving within the network. For example, the new "qualified tips" provision is important not only because CBO estimates a substantial revenue effect, but also because it creates a new statutory structure with links to other tax rules, eligibility requirements, and enforcement mechanics.

Third, **the graph approach can flag provisions that might receive less attention in conventional analyses**. Some sections matter because they are highly connected, even if the statutory edits to them are relatively targeted. For example, 26 U.S.C. § 151 and 26 U.S.C. § 170 are central provisions in Title 26. Changes to these sections can propagate through other parts of the tax code because other provisions depend on their definitions, thresholds, or eligibility rules. Similarly, 42 U.S.C. § 1436a, concerning restrictions on assisted housing for nonresident aliens, was flagged as both central and a notable mover in Title 42. This type of result is useful because it directs attention to provisions whose importance may come from their role in the statutory network rather than from edit volume alone.

The analysis also shows that **not every structural change has the same network significance**. OBBBA included only two deletions from the U.S. Code: repeal of 30 U.S.C. § 1727, concerning royalties on extracted methane, and repeal of 42 U.S.C. § 7434, concerning the Greenhouse Gas Reduction Fund. Deletions may appear especially significant because they remove statutory provisions entirely. However, both deleted provisions were relatively low-centrality nodes in our graph analysis. This suggests that, although the repeals may be substantively important within their policy areas, they did not substantially

alter the overall structure of the U.S. Code network. This distinction—between a legally significant action and a structurally central one—is precisely the kind of insight that a graph-based tool can provide.

OBBBA also illustrates why a whole-code perspective matters. Energy-related provisions, for example, were not limited to Title 26 tax provisions. OBBBA also affected Title 30, Mineral Lands and Mining, and Title 42, The Public Health and Welfare. Similarly, provisions related to immigration and eligibility appeared across Title 8, Aliens and Nationality, and Title 42, The Public Health and Welfare. A title-by-title or policy-siloed review might miss these cross-title patterns. CAT helps identify where edits cluster, where they connect to central statutory provisions, and where changes in one policy area may interact with implementation rules in another.

Overall, this proof-of-concept analysis shows that CAT can provide a rapid, replicable first pass at future, complex legislation. As soon as the text of either proposed or passed legislation and any supporting data from CBO are available, reproducing a figure like Figure 2 would be a fully automated approach. CAT is not a substitute for legal analysis, budget modeling, or program-specific expertise. Rather, the tool helps prioritize where that expertise should be directed. By combining statutory edit data, network centrality measures, and CBO budget estimates, CAT can identify provisions that are likely to matter because they are heavily edited, fiscally important, highly connected, newly created, deleted, or unusually changed in their network position.

Future work could extend this approach by linking statutory provisions to affected populations, administrative agencies, program rules, and distributional outcomes. That would allow analysts to not only identify which parts of the code changed but also better understand who is likely to be affected by those changes and how statutory edits may translate into real-world implementation effects.

CAT helps identify where edits cluster, where they connect to central statutory provisions, and where changes in one policy area may interact with implementation rules in another.

APPENDIX A

RAND U.S. Code Analysis Tool

RAND's CAT is a suite of interactive web-based tools designed to help researchers, policy analysts, legal professionals, and tax practitioners explore the structure, content, and interconnections of the U.S. Code and related tax law documents. Using graph database technology and machine learning, CAT maps relationships between sections of the law, legal concepts, entities, and IRS forms—making it easier to understand how different parts of the U.S. Code relate to one another. Within this suite of tools, the OBBBA Network Explorer is built for exploring the changes to the U.S. Code made by OBBBA (Public Law 119-21). This tool allows users to see exactly which sections of the U.S. Code were added, modified, or affected by OBBBA and to compare the text before and after the changes.

Starting with the full graph for a title within the U.S. Code (see Figure A.1), the OBBBA Network Explorer allows the user to filter only to central provisions, or only to amended provisions, in order to flag interesting changes (see Figure A.2). Once a provision is identified, the OBBBA Network Explorer also allows a deeper dive into the provision to see exactly what changed (see Figure A.3 and Figure A.4).

FIGURE A.1

Displaying the Full Network of Title 26 of the U.S. Code

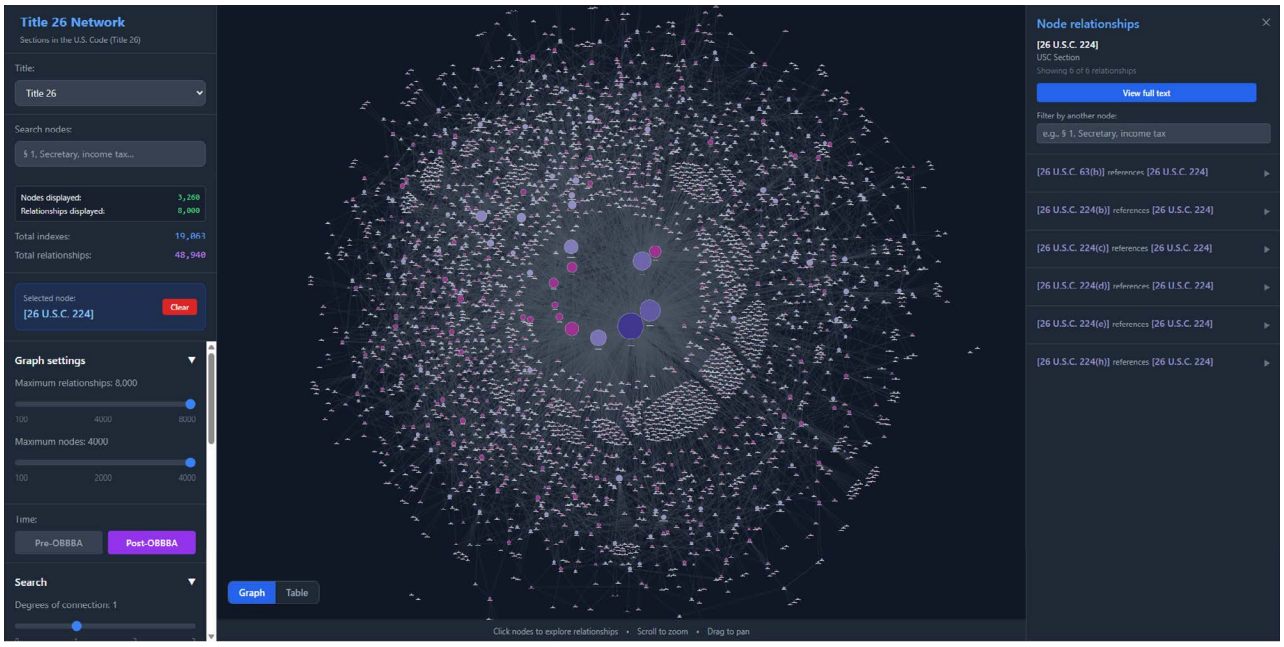


FIGURE A.2

Filtering to Sections with Different Kinds of Edits: All New Additions to Title 26 from OBBBA

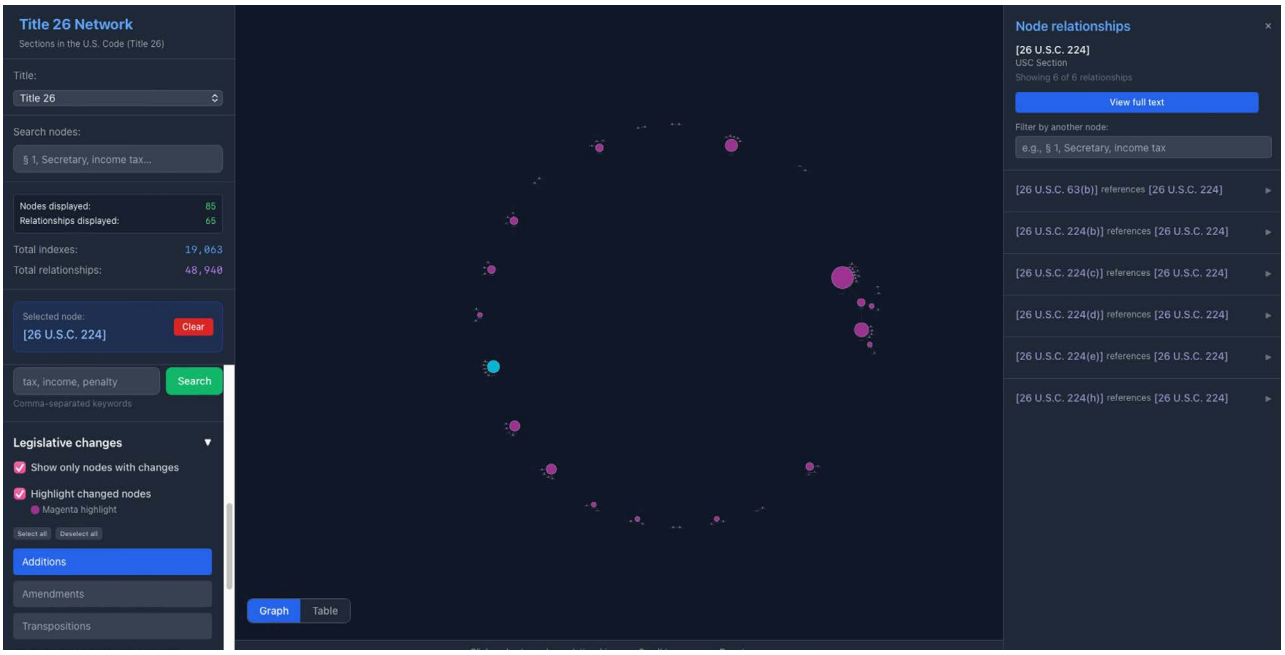


FIGURE A.3

Zooming in on the Structure of a Single Section: Title 26 U.S.C. § 224

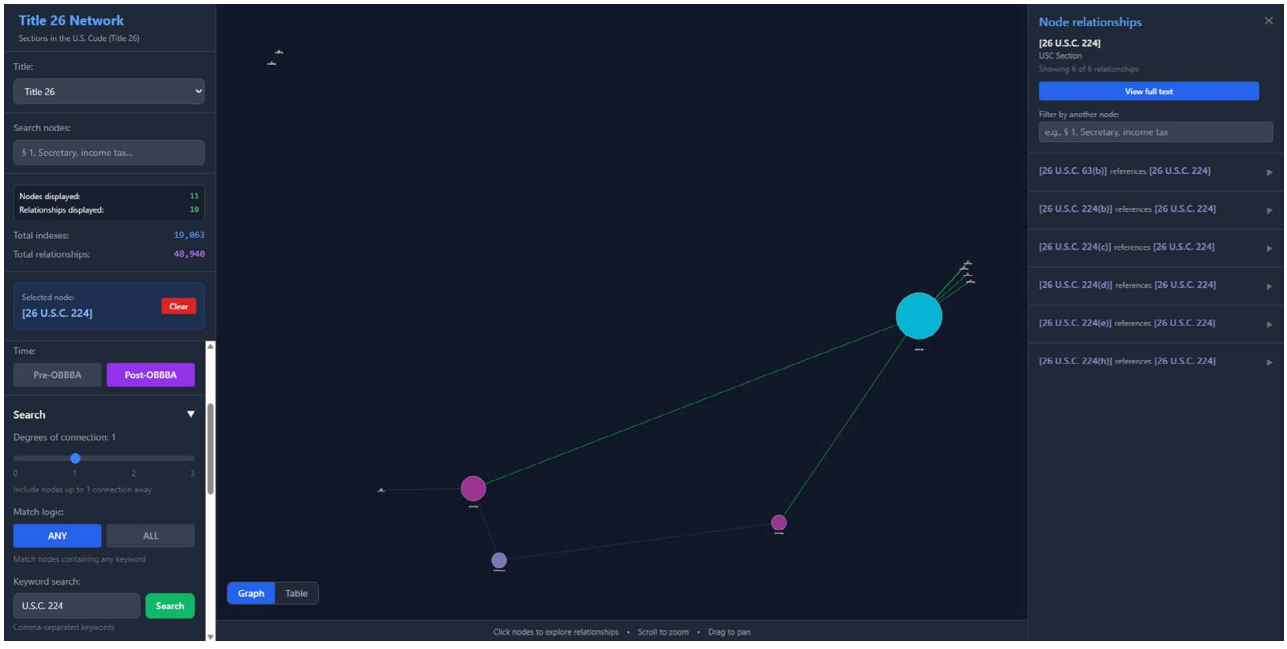


FIGURE A.4

Tracking OBBBA-Related Changes to the Text of a Section: Title 26 U.S.C. § 224



APPENDIX B

Graph Network Analysis

We constructed graph networks for each title of the U.S. Code by first parsing the HTML versions of the text and converting them into a structured JavaScript Object Notation (JSON) format. This format breaks down the text into subtitles, chapters, and so on, all the way down to the subsection level. We then used regular expressions in Python to extract every instance in which one part of the U.S. Code text references another part (for example, when section X references section Y). Using these data, we built the graph with the following schema:

- Nodes, called "Index," represent each level of the code (e.g., title-5, title-5-subtitle-A, etc.).
- Relationships: "References" and "Referenced In" are used when one Index references (or is referenced in) another Index; and "Part Of"/"Includes" map the hierarchy of the indexes, indicating when an Index is under or includes another Index (e.g., Chapter 1 being part of Subtitle A).

For the purposes of this analysis, we only used the "References"/"Referenced In" relationships (and not hierarchy-related ones).

Finally, we incorporated a table published by OLRC that lists every change (and its type) made to the U.S. Code from OBBBA (OLRC, undated); we added a property to the Index nodes to mark the affected sections. We defined centrality using four well-documented measures of graph networks (see Table B.1): Betweenness, Degree, Harmonic, and PageRank centrality. We used Python's *networkx* package to create graphs and calculate the normalized version of each centrality metric on the directed graph networks of each title of the U.S. Code (Price et al., 2026).

TABLE B.1
Centrality Measures

Centrality Measure	Description	Definition in Undirected Graph $G(V, E)$
Betweenness centrality[a]	How often a node lies on the shortest path between other pairs of nodes. High betweenness means that the node is a bridge in the network.	Let σ_{st} be the number of shortest paths between s and t and $\sigma_{st}(v)$ be the number of paths that pass through node v, where $C(v) = \sum_{s \neq t \neq v} \frac{\sigma_{st}(v)}{\sigma_{st}}$. $C^{norm}(v) = \frac{2C(v)}{(\lvert V\rvert - 1)(\lvert V\rvert - 2)}$.
Degree centrality[b]	The number of connections a node has	For a node v, $C^{norm}(v) = \frac{\lvert\{u \in V : \{v, u\} \in E\}\rvert}{\lvert V\rvert - 1}$.
Harmonic centrality[c]	Similar to closeness centrality but instead sums the reciprocals of distances to all other nodes	Let $d(v, u)$ be the shortest path distance between node v and node u, then $C^{norm}(v) = \frac{1}{\lvert V\rvert - 1} \sum_{u \in V \setminus \{v\}} \frac{1}{d(v, u)}$, where $\frac{1}{d(v, u)} = 0$ if u is unreachable from v.
PageRank[d]	How important a node is based on the importance of nodes linking to it based on the stationary distribution of a random walk process. Damping factor α was set to 0.7, which mitigates bias toward high-degree nodes and models probabilistic flow. This is a version of eigenvector centrality.	For node v: $Pagerank(v) = \frac{1 - \alpha}{\lvert V\rvert} + \alpha \sum_{u \in N_{in}(v)} \frac{PR(u)}{\deg_{out}(u)}$, where α is the damping factor, $N_{in}(v)$ are nodes linking to v, and $\deg_{out}(u)$ is the number of outgoing links from node u.

[a] Brandes, 2008.

[b] Freeman, 1979.

[c] Boldi and Vigna, 2014.

[d] Munagala, 2017.

APPENDIX C

OBBBA Edits to the U.S. Code

Using data from OLRC, we can characterize the edits to the U.S. Code made by OBBBA (Table C.1).

TABLE C.1

OBBBA Edits to the U.S. Code

U.S. Code Title	Total Edits	Additions	Deletions	Transpositions	Amendments
Title 26, Internal Revenue Code	394	20	0	6	368
Title 7, Agriculture	75	1	0	0	74
Title 42, The Public Health and Welfare	55	2	1	0	52
Title 20, Education	31	0	0	0	31
Title 8, Aliens and Nationality	20	16	0	0	4
Title 30, Mineral Lands and Mining	13	0	1	0	12
Title 43, Public Lands	8	2	0	0	6
Title 16, Conservation	7	0	0	0	7
Title 15, Commerce and Trade	4	0	0	0	4
Title 19, Customs Duties	4	0	0	0	4
Title 51, National and Commercial Space Programs	4	2	0	0	2
Title 10, Armed Forces	4	0	0	0	4
Title 14, Coast Guard	3	1	0	0	2
Title 49, Transportation	3	0	0	0	3
Title 5, Government Organization and Employees	3	0	0	0	3
Title 47, Telecommunications	2	0	0	0	2
Title 12, Banks and Banking	1	0	0	0	1
Title 22, Foreign Relations and Intercourse	1	0	0	0	1
Title 31, Money and Finance	1	0	0	0	1
Title 34, Crime Control and Law Enforcement	1	1	0	0	0

SOURCE: Contains data from OLRC, undated.

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Public Law 119-21, An Act to Provide for Reconciliation Pursuant to Title II of H. Con. Res. 14. (One Big Beautiful Bill Act), July 4, 2025.

U.S.C.—*See* U.S. Code.

U.S. Code, Title 7, Agriculture; Chapter 115, Agricultural Commodity Policy and Programs; Subchapter IV, Supplemental Agricultural Disaster Assistance Programs; Section 9081, Supplemental Agricultural Disaster Assistance.

U.S. Code, Title 8, Aliens and Nationality.

U.S. Code, Title 20, Education.

U.S. Code, Title 26, Internal Revenue Code; Subtitle A, Income Taxes; Chapter 1, Normal Taxes and Surtaxes; Subchapter A, Determination of Tax Liability; Part IV, Credits Against Tax; Subpart A, Nonrefundable Personal Credits; Section 24, Child Tax Credit.

U.S. Code, Title 26, Internal Revenue Code; Subtitle A, Income Taxes; Chapter 1, Normal Taxes and Surtaxes; Subchapter B, Computation of Taxable Income; Part V, Deductions for Personal Exemptions; Section 151, Allowance of Deductions for Personal Exemptions.

U.S. Code, Title 26, Internal Revenue Code; Subtitle A, Income Taxes; Chapter 1, Normal Taxes and Surtaxes; Subchapter B, Computation of Taxable Income; Part VI, Itemized Deductions for Individuals and Corporations; Section 170, Charitable, Etc., Contributions and Gifts.

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U.S. Code, Title 26, Internal Revenue Code; Subtitle D, Miscellaneous Excise Taxes; Chapter 42, Private Foundations; and Certain Other Tax-Exempt Organizations; Subchapter H, Excise Tax Based on Investment Income of Private Colleges and Universities; Section 4968, Excise Tax Based on Investment Income of Private Colleges and Universities.

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U.S. Code, Title 42, The Public Health and Welfare; Chapter 7, Social Security; Subchapter XIX, Grants to States for Medical Assistance Programs; Section 1396a, State Plans for Medical Assistance.

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Notes

[1] Additions are any new sections added to the code, and deletions are removals. Transpositions are sections that are moved from one part of the code to another part of the code. Amendments are sections that have had changes to the wording. We categorize "fr" and "to" as a transposition, or a transfer of a subsection from one section to another section. We categorize "new" as an addition to the code and "omitted" and "repealed" as a deletion from the code. We categorize everything else as an amendment (OLRC, undated).

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About This Report

Federal legislation is difficult to evaluate quickly because the U.S. Code is highly interconnected. A change to one provision can affect definitions, eligibility rules, cross-references, and implementation requirements elsewhere in federal law. In this short report, we applied RAND's U.S. Code Analysis Tool (CAT) to the One Big Beautiful Bill Act of 2025 (OBBBA), which made 634 edits across 20 titles of the U.S. Code. CAT mapped these edits onto a graph of statutory provisions and cross-references to identify provisions that are highly connected, newly created, deleted, heavily edited, or substantially changed in their relationship to other parts of the code.

We use OBBBA as a proof of concept to show how CAT can support rapid statutory triage. CAT does not generate budget estimates or replace subject-matter analysis; rather, it helps identify which statutory changes may warrant closer review. For this retrospective analysis, we linked CAT-flagged provisions to Congressional Budget Office estimates (where available) for fiscal context. The analysis shows that CAT identified both headline OBBBA provisions (such as the Child Tax Credit and the new deduction for qualified tips) and less visible changes with potential implementation significance (including changes to Medicaid state-plan requirements, assisted housing restrictions, and agricultural program rules).

RAND von Furstenberg Family Budget Model Initiative

This work was conducted as part of the RAND von Furstenberg Family Budget Model Initiative, which developed tools for analysis of the U.S. tax code and federal spending and for forecasting the effects of proposed legislation. The RAND von Furstenberg Family Budget Model Initiative operates within RAND Education, Employment, and Infrastructure, a division of RAND that aims to improve educational opportunity, economic prosperity, and civic life for all. For more information, visit www.rand.org/budget-model or email EEI@rand.org.

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