Online platforms and marketplaces are digital services that bring consumers and producers together via the internet. They provide consumers direct and instantaneous access to an extensive array of global goods and services, and they enable producers to reach consumers largely untethered by size and geographic reach. The popularity of online platforms and marketplaces attests to the societal benefits these services offer to consumers and producers alike. However, some US lawmakers and competition authorities consider the growth of these platforms as a threat to competition. To remedy this alleged competition problem, some lawmakers in the US House of Representatives and the US Senate introduced several bills that would subject certain of these platforms to common carrier, structural separation, and line of business restrictions. Although these bills differ in several important aspects, they all seek to regulate online platforms and marketplaces that are larger than a certain threshold. However, despite raising concerns about the potential effects of certain online platforms and marketplaces on competition, the economic impact of these bills on consumers, businesses, and the overall US economy has not been addressed. Our preliminary analysis demonstrates that the immediate effect of the common carrier, structural separation, and line of business restrictions on the five companies currently covered by the bills would be approximately $300 billion. The bills’ economic ramifications are expected to be much broader than their intended targets. Our analysis also demonstrates that at least 13 other companies who operate online platforms would be economically constrained by the bills and that the bills likely would impact foreign companies doing business in the United States far less than US companies given the US-specific nature of the bills’ size thresholds. Lastly, we found that adjusting the size threshold for inflation has no impact on the economic costs of the proposed bills as the market capitalization of technology firms typically grows much faster than inflation.

**Keywords:** online platform regulation, competition analysis, international competitiveness, regulation

**JEL Classification:** L11, L12, L41, O31, J18, L86
**EXECUTIVE SUMMARY**

Online platforms and marketplaces are digital services that bring consumers and producers together via the internet. They provide consumers direct and instantaneous access to an extensive array of global goods, services, and content. Conversely, they enable producers to reach consumers largely untethered by size and geographic reach. The popularity of online platforms and marketplaces, including those operated by Google, Apple, Facebook, Amazon, and Microsoft, attests to the societal benefits these services offer to consumers and producers alike.

Some US lawmakers and competition authorities consider the growth of these platforms a threat to competition. They claim that online platforms monopolize various segments of the digital economy, including online search, online commerce, social media, mobile app stores, mobile operating systems, digital mapping, cloud computing, voice assistants, web browsers, and digital advertising. To remedy this alleged competition problem, some lawmakers in the US House of Representatives and the US Senate introduced several legislative bills that would subject certain of these platforms and marketplaces to common carrier, structural separation, and line of business restrictions. Although these bills differ in several important aspects, they all seek to regulate online platforms and marketplaces that meet a certain threshold.

Like the regulation of interstate oil pipelines in 1906 and telephone services in 1934, the bills call for common carrier regulation. This type of regulation prohibits firms designated as covered platforms from promoting their own products and companies, which is a common practice in many firms across industries. It bans the cross-subsidization that occurs when a firm extracts economic efficiencies between two different lines of business. The proposed regulation also seeks to prohibit covered platforms from participating in mergers and acquisitions.

The proposed bills and the related reports and discussions, including press reports, are largely silent as to the economic repercussions that would ensue if the bills are adopted. The motivating force for lawmakers in support of the bills is the belief that big is bad for consumers. These lawmakers offer no specifics as to how the size of a firm by itself harms consumers and how the bills remedy the alleged problem. Moreover, there is a void in the public debate as to how the proposed regulation would affect consumers and small-to-medium businesses, including startup companies. Whereas pipelines and telephone networks were once protected natural monopolies, the platforms that are the targets of the proposed bills became successful through marketplace demand brought about by innovation in a dynamically competitive environment.

This is the first of two studies that examines the economic ramifications of the proposed bills. This first study examines the reach of the proposed regulation, the economic impact, and the ultimate effects on consumers and small-to-medium businesses. Our conceptual assessment results in the following overarching findings.

First, the proposed bills create significant regulatory risks not only to the primary targets of the bills but also to no less than 13 additional US companies. The risks emanate from an overly broad definition of an online platform, the extensive regulatory framework that applies to covered platforms, the broad discretions that are granted to competition authorities tasked to determine compliance, and the extensive financial penalties that apply for noncompliance. Moreover, adjusting the size threshold for inflation based on the Consumer Price Index (CPI) provides no relief because the CPI growth rate is much smaller than the historical growth rates of...
the market caps for technology firms. At historical growth trends, it would only take 13½ years for a company with a current market cap of $75 billion to exceed the inflation-adjusted market cap threshold in the House versions of the bills. Over 100 firms currently trading on US stock markets have market caps above the $75 billion level. Limiting the economies of scale and scope for growth for more than 100 US firms would impose substantial long-run costs on the US economy.

Second, the size thresholds likely would force covered platforms to break into independent units that individually fall below the size threshold or to divest prior acquisitions until the core company falls below the size threshold. The structural separations and divestitures would either be compelled by the competition authorities or would be voluntarily undertaken by the online platforms lest they face huge fines and the risk of structural separation in the future anyway. These structural separations are the opposite of mergers. Whereas mergers often create cost synergies that benefit consumers, the forced reductions in scale would create cost inefficiencies for the five firms targeted by the proposed bills: Google, Apple, Facebook, Amazon, and Microsoft. Our preliminary analysis demonstrates that the immediate effect of the common carrier, structural separation, and line of business restrictions on these five companies would be approximately $300 billion. These cost increases would ultimately be passed through and borne by the consumers and business users of the platforms. The effect on US consumers would be higher retail prices and the loss of free and valued services. The effect on small-to-medium businesses would be higher operating costs, the loss of free and valued services, and the loss of revenue channels.

Third, the proposed bills would jeopardize US technological development as a prohibition on acquisitions would eliminate a target audience of many US startups and thereby reduce market demand to acquire US startups. This would have implications not only for the purchase prices and the number of startups acquired today, but more importantly long-run implications for the pool of capital funds that investors have available to invest in startup technology firms. With reduced investment in startup firms, fewer startup technology firms would be established and the ones that are established would be diminished competitors in the United States and on the global stage.

Fourth, the proposed bills would jeopardize US international competitiveness by applying US-specific size thresholds that would cover US-based online platforms and marketplaces long before they cover foreign competitors with similar global sizes. The application of the extensive and costly regulatory framework and compliance requirements to US firms, with structural separation as the most likely consequence, risks leaving US online platforms and marketplaces as diminished competitors on the global stage.
I. INTRODUCTION

Online platforms and marketplaces facilitate a wide range of services by providing tools to search the internet, offer apps for mobile wireless devices, provide forums for social content, bring together buyers and sellers in virtual marketplaces, and allow communication through online texting and videoconferencing. Many of these online platforms and marketplaces have become household names, including those operated by Google, Apple, Facebook, Amazon, and Microsoft. For example, Google assists in bringing together users and content on its Google sites that include more than 270 million unique US visitors per month.\(^1\) Apple’s App store clears the demand of the more than 113 million iPhone users in the United States.\(^2\) Facebook has 2.90 billion monthly active users globally on its social network sites.\(^3\) Amazon daily fulfills approximately 1.6 million orders, many of which contain products from small and medium-sized businesses.\(^4\) Finally, Microsoft has nearly 250 million monthly active users globally on Teams and more than 180 million US members on LinkedIn.\(^5\) The popularity of these and other online platforms attests to the societal benefits their innovative services offer to society. Yet, Congressional legislation calls for these popular companies to be split apart.

A. Seven Proposed Congressional Bills Target Popular Online Platforms

Some US lawmakers in the Senate and the House allege that leading US online platforms and marketplaces monopolize certain segments of the digital economy. Specifically, in October 2020, the Subcommittee on Antitrust, Commercial and Administrative Law of the House Judiciary Committee released a report titled “Investigation of Competition in Digital Markets,” which analyzed 10 segments of the digital economy, including online search, online commerce, social networks and social media, mobile app stores, mobile operating systems, digital mapping, cloud computing, voice assistant, web browser, and digital advertising.\(^6\) The report concluded:

To put it simply, companies that once were scrappy, underdog startups that challenged the status quo have become the kinds of monopolies we last saw in the era of oil barons and railroad tycoons. Although these firms have delivered clear benefits to society, the dominance of Amazon, Apple, Facebook, and Google has come at a price. These firms typically run the marketplace while also competing in it—a position that enables them to write one set of rules for others, while they

\(^3\) See Facebook, Form 10-Q, July 28, 2021, p. 27.
play by another, or to engage in a form of their own private quasi regulation that is unaccountable to anyone but themselves.\(^7\)

Attempting to remedy this alleged competition problem, the House Judiciary Committee in June 2021 introduced the following six antitrust bills:

- H.R. 3816, the American Choice and Innovation Online Act (ACIOA);\(^8\)
- H.R. 3825, the Ending Platform Monopolies Act (EPMA);\(^9\)
- H.R. 3826, the Platform Competition and Opportunity Act (PCOA) of 2021.\(^{10}\)
- H.R. 3849, the Augmenting Compatibility and Competition by Enabling Service Switching (ACCESS) Act;\(^{11}\)
- H.R. 3843, the Merger Filing Fee Modernization Act of 2021,\(^{12}\) and
- H.R. 3460, the State Antitrust Enforcement Venue Act of 2021.\(^{13}\)

On October 14, 2021, Senators Klobuchar and Grassley introduced the “American Innovation and Choice Online Act,” framing it as “a similar version of the bill in the House.”\(^{14}\) Representative Buck, a cosponsor of the House bill, said he was “thrilled that Senators Grassley and Klobuchar have introduced the Senate companion to the House’s non-discrimination bill.” The Senate bill (AICOA) swaps the order of one word in the title and is closely modeled after its counterpart House bill (ACIOA). Upon review, the Senate AICOA would have essentially the same effects, if not worse, as the House ACIOA.\(^{15}\)

Although each of the seven proposed bills differ in several important aspects, the House ACIOA, EPMA, and PCOA and the Senate AICOA share a common definition of what constitutes an

\(^7\) House Competition Report, pp. 6–7.
online platform that is subject to the proposed regulatory measures. The four bills also propose similar regulation designed to split apart online platforms and marketplaces and prevent them from acquiring additional services or products, whereas the PCOA explicitly prohibits them from most acquisitions. As such, the present paper focuses on the economic costs caused by the adoption of one or more of the three House bills and the related Senate bill.

B. Size Is the Sole Determining Factor for Regulation

Under the three House bills and the Senate AICOA bill that are the subject of this study, a so-called covered platform is a company that (1) falls within the definition of an online platform, (2) exceeds certain size thresholds, and (3) is deemed a critical trading partner. The three House bills define an online platform as:

[W]ebsite, online or mobile application, operating system, digital assistant, or online service that (A) enables a user to generate content that can be viewed by other users on the platform or to interact with other content on the platform; (B) facilitates the offering, sale, purchase, payment, or shipping of goods or services, including software applications, between and among consumers or businesses not controlled by the platform; or (C) enables user searches or queries that access or display a large volume of information.\(^{16}\)

The bills also overlap in terms of their intended regulatory targets by proposing that the regulatory measures apply to online platforms and marketplaces that are defined exclusively in terms of their size. Specifically, the bills seek to impose regulation on online platforms that exceed a network size threshold and a company size threshold. An online platform exceeds the network size threshold if it has “at least 50 million US-based monthly active users” or “at least 100 thousand US-based monthly active business users.”\(^{17}\) Further, in the three House bills, an online platform exceeds the company size threshold if it has “net annual sales of at least $600 billion” adjusted for inflation or “a market capitalization of at least $600 billion” adjusted for inflation,\(^{18}\) whereas the Senate AICOA bill uses $550 billion as its value threshold but retains the House bills’ user thresholds.

The bills nominally exempt online platforms from regulation that do not satisfy the critical trading partner clause: “The term ‘critical trading partner’ means a trading partner that has the ability to restrict or impede (A) the access of a business user to its users or customers; or (B) the access of a business user to a tool or service that it needs to effectively serve its users or customers.”\(^{19}\) This final component of the covered platform definition is the only instance in which the proposed rules apply to firms based on conduct not size. However, the inclusion of this clause is inconsequential because the definition of a critical trading partner would be satisfied by any firm operating a two-sided market with business users. A two-sided market with business users automatically satisfies the “ability to restrict or impede” clause in the critical trading

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\(^{16}\) H.R.3816, Sec. 2(g)(10); H.R.3825, Sec. 5(10); H.R.3826, Sec. 3(h); and H.R.3849, Sec. 5(12).

\(^{17}\) H.R.3816, Sec. 2(g)(4)(B)(i); H.R.3825, Sec. 5(5)(B)(i); H.R.3826, Sec. 3(d)(2)(A); and H.R.3849, Sec. 5(6)(B)(i).

\(^{18}\) H.R.3816, Sec. 2(g)(4)(B)(ii); H.R.3825, Sec. 5(5)(B)(ii); H.R.3826, Sec. 3(d)(2)(B); and H.R.3849, Sec. 5(6)(B)(ii).

\(^{19}\) H.R.3816, Sec. 2(g)(6); H.R.3825, Sec. 5(7); H.R.3826, Sec. 3(f); and H.R.3849, Sec. 5(8).
partner definition. It is rare among two-sided platforms and two-sided marketplaces to facilitate interactions among only individual users and no business users.

C. Stringent Regulatory Measures Apply to Covered Platforms

The three House bills also agree in terms of the regulatory measures that must apply to covered platforms. Specifically, the three bills establish terms that may require online platforms that exceed predetermined size thresholds to (1) structurally separate, (2) restrict their lines of business, (3) be subject to common carrier regulation, and (4) forgo acquisition opportunities. Further, the proposed financial penalties for noncompliance equal 15 percent of total US revenue and 30 percent of the US revenue attributable to the lines of business charged. The Senate AICOA bill is similar but uses a single penalty cap at 15 percent of US revenue.

To meet the regulatory requirements and to avoid liability, covered platforms may be forced to divest certain assets or lines of business and/or split into smaller independent companies. They also may be prohibited from selling their own products and services on their platforms to avoid a purported conflict of interest. The common carrier obligation mandates that all parties on a platform be treated equally and that the platform owner does not extend preferential treatment to its own products and companies.

The concept of common carrier obligation is a tool that has been used by regulators since at least the turn of the century. The Hepburn Act of 1906 required the owners of interstate oil pipelines to treat all shippers equally and prohibited preferential treatment of their own loads. Similarly, the Communications Act of 1934, which combined and organized the regulation of telephone, telegraph, and radio communications, virtually regulates all aspects of the communications and broadcasting industry including rates and fees, standards, competition, and so on.

Due to the broad definitions, stringent requirements, and strong financial penalties and other economic incentives included in the bills, there is no practical difference, as a matter of economics, between common carrier regulations, line of business restrictions, and structural separation requirements. The common carrier regulations proposed would likely make it uneconomical to continue operating regulated online platforms and marketplaces within a single operating entity and would most likely result in some combination of structural separation along a company’s lines of business, structural separation to produce business units below the bills’ size thresholds, and a restructuring of services offered to users with the discontinuation of many currently offered.

For example, common carrier requirements would effectively prohibit covered platforms from offering both in-house products and services as well as third-party business users’ products and services. Under common carrier requirements, any differences in product or service placement or appearance between in-house and third-party offerings, even those based solely on consumer demand, could result in significant financial penalties. Other common practices such as

integrating services and optimizing for user experience across related services would be effectively prohibited. As an example, search engines would not be able to show their internal maps results at the top of search results but instead would have to add a required extra step whereby a user would have to first click on a hyperlink before being navigated to a particular map. A marketplace that shows a consumer product from multiple sellers would be prohibited from recommending the offer from a seller with the best combination of price, shipping speed, and history of customer service. Instead, it would have to ask customers to sift through multiple offers themselves. As fines for each violation are substantial, the most likely outcome of common carrier regulation of covered platform operators is structural separation with some services being shut down.

Finally, the bills require that covered platforms and many of their spun-off entities be subject to the proposed legislation for 10 years (House bills) or 7 years (Senate bill) even if an entity remains below the size thresholds. During these 7 to 10 years, the companies, even if structurally separated, are prohibited from new acquisitions, must remain structurally separated, may face line of business restrictions, and are prohibited from promoting their own products.

D. Cross-Subsidization Is the Key Competitive Concern

All the bills attempt to prohibit cross-subsidization by companies that operate two-sided platforms and exceed certain size thresholds. Specifically, they assume that the common business practice of cross-subsidization is a primary cause of competitive harm. The economic concept of cross-subsidization refers to a firm’s ability to extract economic efficiencies between two lines of business within the same firm or between two lines of business between an acquiring and an acquired firm. To address the assumed competitive harm, the proposed legislation renders such cross-subsidization business practices challengeable in internal administrative adjudicative processes and in court. For instance, the House ACIOA proposes:

It shall be unlawful for a person operating a covered platform, in or affecting commerce, to engage in any conduct in connection with the operation of the covered platform that – (1) advantages the covered platform operator’s own products, services, or lines of business over those of another business user; (2) excludes or disadvantages the products, services, or lines of business of another business user relative to the covered platform operator’s own products, services, or lines of business; or (3) discriminates among similarly situated business users.23

The Senate AICOA proposes a similar prohibition.

With its expansive definition of the conduct at issue, of which the text from the House ACIOA above is just one example, standard business practices that subsidize across lines of business are not only at issue but also standard business practices that subsidize within a line of business. For instance, second-degree price discrimination (i.e., quantity discounts) and third-degree price discrimination (i.e., charging different prices for business vs. commercial air travelers, different prices for lunch vs. dinner meals at restaurants, and applying student discounts at the movie

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23 H.R.3816, Sec. 2(a).
theater) would all be challengeable practices under the expansive definitions of *discrimination* in the proposed bills.

The bills offer no specifics on how the regulatory requirements would be implemented. There is also no information as to how regulators would assess compliance. More important, despite raising concerns about certain conduct and the potential effects of such conduct, the proposed legislation does not explain the purported competition problems or how the proposed bills address such problems. In fact, the policy discussion, including the House Competition Report that precipitated the proposed bills, does not define the economic markets where the purported competition problems are occurring, does not evaluate the firm conduct that supposedly generates the competition problems in such markets, does not evaluate theories of harm under the consumer welfare standard in such markets, and does not provide evidence or quantify the consumer harm in those markets. Rather, the bills simply *assume* that big as defined by the bills must always be bad for consumers and that a *regulatory mandate* for more and smaller firms would increase competition and benefit consumers.

**E. Understanding the Scope and Economic Costs Is Essential in Evaluating the Public Interest**

Although there is extensive media coverage and public debate with respect to these bills, their scope and economic impact have received little attention. We are unaware of any theoretical or empirical studies that examine the practical ramifications and the economic costs imposed on society from the proposed legislation, let alone a study that contrasts these costs to the purported benefits of the bills. To ensure that the proposed legislation is in the public interest, it is critical that the benefits outweigh the costs. Such a cost-benefit analysis is particularly important for online platforms and marketplaces because societal demand and innovation have allowed these platforms and marketplaces to grow to their present sizes, which is markedly different from situations where public policy afforded companies regional or national monopolies that in turn warranted regulatory oversight. However, online companies are victims of their own success—they grew to their present sizes because of their focus on research and development, cost minimization through vertical diversification, and value propositions that resonate with society.

The objective of this paper is to start filling the obvious void in the public debate. As a first installment, we offer a *conceptual assessment* of the economic costs that likely would result from the proposed legislation. The forthcoming second installment will quantify the costs and purported benefits of the proposed legislation.

The remainder of this paper is structured as follows. Section II examines the scope of the House’s ACIOA, EPMA, and PCOA and the Senate’s AICOA. Section III discusses the practical implications of the regulatory measures proposed by these bills and how they impact consumers and small-to-medium sized businesses. Section IV reviews the bills’ impact on startup firms. Section V presents our conclusions.

**II. The Proposed Bills Are Far-Reaching**

Although the bills intend to remedy the purported competition problems described by the House Competition Report, their economic ramifications are expected to be much broader than their
intended targets. First, in addition to including Google, Apple, Facebook and Amazon, the bills’ thresholds would designate Microsoft as a covered platform. Second, the bills would also impact the behavior of at least 13 other companies. Third, the bills likely would impact foreign companies doing business in the United States far less than US companies. Fourth, adjusting the size threshold for inflation has no impact on the economic costs of the proposed bills. We discuss each of these findings in turn.

A. Five Companies Already Exceed the Thresholds Today

The relevant competition authority would designate five companies as covered platforms if one or more of the four bills were to be enacted. As shown in Table 1, Google, Apple, Facebook, Amazon, and Microsoft already exceed the size thresholds that are common across the four bills.

<table>
<thead>
<tr>
<th>Company</th>
<th>Network Size</th>
<th>Company Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google</td>
<td>270 million</td>
<td>$1.658 trillion</td>
</tr>
<tr>
<td>Apple</td>
<td>113 million</td>
<td>$2.339 trillion</td>
</tr>
<tr>
<td>Facebook</td>
<td>2.90 billion</td>
<td>$809 billion</td>
</tr>
<tr>
<td>Amazon</td>
<td>147 million</td>
<td>$1.664 trillion</td>
</tr>
<tr>
<td>Microsoft</td>
<td>250 million</td>
<td>$2.119 trillion</td>
</tr>
</tbody>
</table>

Notes: Market cap valuations based on closing prices on September 30, 2021. Facebook and Microsoft network sizes are reported as global figures.

The addition of Microsoft among the potentially regulated entities is noteworthy as the House Competition Report did not investigate purported harms with respect to Microsoft’s online platforms LinkedIn and Teams.

Thus, if enacted, these five companies may be forced to divest certain assets or lines of business and/or split into smaller independent companies. Moreover, these companies and their spun-off entities would be subject to the proposed legislation for 7 to 10 years even if they remain below the size thresholds. During these 7 to 10 years, the companies, even if structurally separated, are prohibited from new acquisitions, must remain structurally separated, may face line of business restrictions, and are prohibited from promoting their own products. As a covered platform, they also face significant legal risk as noncompliance comes with stiff financial penalties.
B. The Four Bills Would Constrain at Least 13 Additional Companies

The bills would also impact online platforms that currently do not exceed the proposed thresholds. The broad definitions and wide-ranging prohibitions imply that platforms that are currently below the size thresholds would take measures to avoid the significant legal risk incumbent upon exceeding the thresholds. The dynamic effects of the proposed legislation would thus potentially affect dozens of additional companies. Risk mitigation measures could include forgoing otherwise efficiency-enhancing acquisitions and even preemptively splitting into smaller independent companies lest the affected companies be broken up anyway and be potentially liable for financial penalties now and for the next 7 to 10 years.

Specifically, the proposed legislation likely would also constrain future investments and business decisions of at least 13 additional firms.

- Berkshire Hathaway
- Visa
- JPMorgan Chase
- Walmart
- Mastercard
- PayPal
- Home Depot
- Walt Disney
- Bank of America
- Comcast
- Netflix
- Cisco
- AT&T

Our analysis demonstrates that all these firms operate online platforms and would exceed the inflation-adjusted market cap threshold of $550 billion or $600 billion from the bills in the next 5 to 10 years. Even those that may not exceed the threshold through normal growth would be discouraged from pursuing opportunities for expansion through acquisition due to the threat of exceeding the threshold. Firms would additionally need to monitor their market caps and could be forced to engage in hasty divestitures lest their market caps exceed the market cap threshold at any instant during any trading day, as the bills allow for designation if the size thresholds were exceeded in the past even if they are not all exceeded in the present.

In addition, several companies exceed the market cap threshold but do not yet operate an online platform. One example is Tesla with stated plans to introduce an online platform for its network of self-driving cars. If Tesla’s introduction of self-driving cars to US consumers rendered it liable to the regulations in the four bills, this would impact its future business plans.

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C. US Companies Would Bear Most of the Economic Costs

The bills theoretically apply to companies globally irrespective of their domicile. In practice, they would only impact companies that were established in the United States, headquartered in the United States, and traded in US stock markets. This is not surprising because the network size thresholds are specific to US-based users. Given consumer preferences, market shares and user counts are skewed to the geographic markets in which companies were established. Thus, even if Amazon (a US company) and Alibaba (a non-US company) had identical numbers of global users, Amazon would exceed the network size threshold and be subject to the proposed legislation, whereas Alibaba would not. This fact has broader implications for global competition. If Amazon is a diminished competitor in its home country, then it would be a diminished competitor on the global stage. If Alibaba faces no comparable restrictions in the US market and presumably no such restrictions in its home markets in Asia, then it becomes an enhanced competitor on the global stage. Likely, this would mean that Amazon would lose share to Alibaba in both the United States and all global markets in which the two compete.

D. The Inflation Adjustment Would Not Mitigate the Economic Costs

Adjusting the size threshold for inflation based on the Consumer Price Index (CPI) provides no relief because the CPI growth rate is much smaller than the historical growth rates of the market caps for technology firms.25 For example, over the past five years the CPI has grown at an annual rate of 2.6 percent per year.26 We examined the market cap growth rates for the 18 affected firms and found that the median growth rate was 19.3 percent over the past five years.27 This growth rate represents a growth disparity of 16.7 percent relative to the CPI growth rate (19.3% – 2.6% = 16.7%). With this growth disparity, it would only take 4½ years for the gap between the market cap and the CPI-adjusted threshold to double. By extension, at the observed growth disparity of 16.7 percent, firms with a current market cap of only $75 billion would exceed the inflation-adjusted threshold in only 13½ years. Over 100 firms currently trading in US stock markets have market caps above that $75 billion level. Limiting the economies of scale and scope for growth for more than 100 US firms would impose substantial long-run costs on the US economy.

III. The Bills Reverse the Burden of Proof and Create Significant Economic Costs

The proposed bills are an effort to use prescriptive regulation to achieve ends that are normally achieved via antitrust litigation. As such, they depart from both regulatory best practices as well as antitrust principles like the consumer welfare standard. This, in turn, creates significant

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25 See H.R.3816, Sec. 2(g)(4)(B)(ii); H.R.3825, Sec. 5(5)(B)(ii); H.R.3826, Sec. 3(d)(2)(B); and H.R.3849, Sec. 5(6)(B)(ii).
27 The compound annual growth rate for each company is calculated based on the average of the company’s market cap valuations for 2016:Q3 and the average of the company’s market cap valuations for 2021:Q3 (a 5-year window). The median compound annual growth rate across the 18 companies equals 19.3 percent.
economic costs that flow through to consumers and small-to-medium enterprises in the form of higher retail and operating costs.

A. The Bills Penalize Firms Based on Size Not Conduct

The proposed legislation appears to address the competitive concerns raised in the House Competition Report:

By using market power in one area to advantage a separate line of business, dominant firms undermine competition on the merits. By functioning as critical intermediaries that are also integrated across lines of business, the dominant platforms face a core conflict of interest. …

To address this underlying conflict of interest, Subcommittee staff recommends that Congress consider legislation that draws on two mainstay tools of the antimonopoly toolkit: structural separation and line of business restrictions. Structural separations prohibit a dominant intermediary from operating in markets that place the intermediary in competition with the firms dependent on its infrastructure. Line of business restrictions, meanwhile, generally limit the markets in which a dominant firm can engage. 28

Although raising concerns about conflicts of interest, the House Competition Report only outlines potential anticompetitive concerns. Further, it does not conduct an economic analysis that evaluates the costs and benefits of the proposed policy under the consumer welfare standard. However, the proposed legislation takes the alleged conduct cited in the House Competition Report and relies on it as proof of consumer harm and establishes a set of rules aimed at resolving the alleged, yet unproven, consumer harm.

Moreover, the bills bestow enforcement of the new rules to the relevant competition authorities (the Federal Trade Commission or the Department of Justice) and the federal courts through their adjudication of agency suits and, in some of the bills, private-party suits. However, by specifying the rules (i.e., the size thresholds) and the regulatory measures that apply to covered platforms, the bills absolve enforcement agencies and courts from having to conduct any economic analysis or of applying the consumer welfare standard that has been the established antitrust doctrine for the last 50 years. With the burden of proof reversed, competition authorities do not need to establish rigorous economic proof but only decide how to evaluate compliance and implement the remedies. All the bills also allow the enforcement agencies to levy fines through their own internal adjudicative process, reversing the current practice in antitrust of agencies having to make their case before a court. Further limiting due process for companies is the fact that their judicial review is deliberately limited—both the Senate and House bills state, “[T]he findings of the Commission or the Assistant Attorney General as to the facts, if supported by evidence, shall be conclusive.” 29 Thus, covered platforms face an agency that can issue a fine of 15 percent of revenue with limited opportunities to seek judicial review. Therefore, we evaluate the effects of

28 House Competition Report, p. 379 (emphasis added).
the bills based on our understanding of how the proposed legislation shifts the burden of proof from the consumer welfare standard to regulation based merely on size and our understanding of the possible remedies available to the competition authorities and the courts.

**B. Complying with the Bills Would Create Significant Cost Inefficiencies**

The set of legal remedies available to the competition authorities and the courts is determined by the possible courses of action that a covered platform could take when charged with a violation of the proposed legislation. These possible courses of action include:

1. **Minimum units model (MUM):** The firm could split into “N” independent companies where the number “N” is large enough so that the market cap of each independent company is below the $600 billion company size threshold from the House bills.

2. **Undo past acquisitions model (UPAM):** The firm could divest each significant acquisition it has made in the past 10 years.

3. Combination of MUM and UPAM: The firm could implement a structural change anywhere in the range between the two above.

4. The firm challenges the charges in court with the potential for financial penalties equal to 15 percent of total US revenue or 30 percent of the US revenue attributable to the lines of business charged.

To illustrate the structural remedy under UPAM, Table 2 reports the summary statistics and the top 10 acquisitions (by purchase price) for acquisitions made by Google, Apple, Facebook, and Amazon in the past 10 years. The source of the data is the House Competition Report, which does not provide information on acquisitions made by Microsoft. Nonetheless, because Microsoft would likely be designated as a covered platform along with the four targets of the House Competition Report, the cost effects would additionally include a model for the Microsoft structural remedy.
Table 2: Acquisitions Identified in House Competition Report  
2011–October 2020

<table>
<thead>
<tr>
<th>Lines</th>
<th>Google Acquisition</th>
<th>Values</th>
<th>Apple Acquisition</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average yearly count</td>
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<td>8.5</td>
<td></td>
<td></td>
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<tr>
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</table>

Note: All reported dollar values are in billions USD. 

1. **MUM is the likely settlement model**

Under the proposed legislation, the remedies available to competition authorities include injunction and financial penalties of 15 percent of a firm’s total US revenue (and 30 percent of US revenue for the lines of business at issue), whereas the remedies available to private parties include treble damages.

To predict the likely outcome for each covered platform under the proposed legislation, we implement a game theoretic model to predict the behavior of the two central parties in antitrust enforcement: the covered platforms and the plaintiff challengers (e.g., competition authority and private parties claiming injury). Our game theoretic model recognizes the dynamic nature of enforcement under the proposed legislation, namely that the legal challenges could continue for 7 to 10 years or longer. Even if a covered platform lost one legal battle and was required to divest to the point that it was below the size thresholds, it would still carry the covered platform designation for 7 to 10 years and could continue to be sued by the competition authority and alleged injured parties.

Based on the parties involved, the nature of strategic interaction between the parties, the choices available to the parties, and the incentives of the parties, our game theoretic model predicts that the covered platform and the competition authority would agree to a settlement under the following terms:
• the competition authority would remove the covered platform designation; and

• the covered platform would implement structural change under the MUM.

The settlement would only be acceptable to the covered platform if the new units of the parent company would be immune from further legal challenges, provided they remained below the size thresholds. By removing the covered platform designation, the competition authority would ensure that the new units would not be subject to further legal challenges, provided they remained below the size thresholds.

2. Implementing the MUM

The MUM can be implemented in different ways. One possibility is that each new unit of the covered platform, including the parent company, need only be small enough to fall below the $600 billion market cap threshold in the House bills. However, this separation constrains the future growth of each new unit, including the parent company, lest such growth triggers a covered platform designation for a new unit in its own right. A second and more practical possibility is for the MUM to specify a separation such that each new unit, including the parent company, is small enough to fall below $300 billion, or one-half of the market cap threshold from the House bills. At this level, given the market cap growth patterns analyzed in the prior section, the new firm would have a buffer for four and a half years of growth at the prevailing technology growth rate without exceeding the CPI-adjusted threshold.\(^{30}\)

Table 3 illustrates both described implementations of the MUM for the five firms likely to be designated as covered platforms. For instance, for the half-threshold implementation, Apple would have to be split into eight independent companies, the parent company and seven spin-off companies.

<table>
<thead>
<tr>
<th>Company</th>
<th>Market Cap (9/30/2021)</th>
<th>Minimum Number of Units</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>At Threshold</td>
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<td>$ 1,658.3</td>
<td>3</td>
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<tr>
<td>Apple</td>
<td>$ 2,339.0</td>
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<tr>
<td>Facebook</td>
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<tr>
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</tr>
<tr>
<td>Microsoft</td>
<td>$ 2,118.6</td>
<td>4</td>
</tr>
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</table>

Note: All reported dollar values are in billions USD.
Source: NERA.

3. Consumer ramifications

Breaking up Apple, Amazon, Google, Facebook, and Microsoft under the MUM (or any model for that matter) creates cost inefficiencies as each new and artificially small entity incurs separate

\(^{30}\) The threshold for this second implementation can be addressed by precedent, present market conditions, and risk-reward behavior of the firm.
fixed costs that were previously shared across all units. Thus, the proposed legislation would lead to higher costs for firms designated as covered platforms. However, these firms would not simply absorb the cost increases but would pass them through to their consumer and small-to-medium enterprise customers in the form of higher prices and/or the discontinuation of free and valued services.

To analyze the economic effect of breaking up big firms, certain economic facts must be established. First, how did these firms grow so large? Was it through a regulated natural monopoly or the sheer force of innovation and competition? If the latter, economists universally recognize that such high-growth firms are creating products and services valued by consumers. Second, why did these firms grow so large? There are hundreds of examples of very successful corporations in the United States that do not have nearly the scale of these large firms.

A firm’s organic growth and growth through acquisitions contributes to spreading fixed costs across business lines, thereby creating cost synergies that increase the firm’s profits. In any industry, the phrase *at scale* typically refers to the optimal scale at which a firm can operate most efficiently. The underlying economic meaning is that this scale is an inflection point beyond which the firm would experience decreasing returns to scale. With these firms, the main distribution channel involves connecting people on the internet. For such firms, even at the scale that they currently operate, the inflection point of optimal scale has still not been reached. Simply put, growth continues to generate returns and efficiencies.

With an understanding of the history of the institutional environment, the economic trigger of the proposed legislation is clear: large firms are forced to decrease their scale, which increases their costs. Cost increases are conceptually of two different types: (1) increases in costs analogous to merger cost efficiencies and (2) decreases in revenue analogous to merger revenue efficiencies (e.g., pull-through revenues). To quantify the total effect on the same basis, we project the revenue effects onto costs. These shadow cost effects are the increases in costs that would be required to achieve without the benefit of pull-through revenues the same revenue level before the structural split.

Conceptually, consider a combined lemonade and brownie stand forced to structurally separate into a two separate stands, one for only lemonade and one for only brownies at opposite ends of town. Both products use sugar as a material input, so if the total cost for sugar between the split companies exceeds the cost of sugar for the combined company, then this is a cost increase. Both products also have the possibility to generate pull-through revenue, meaning that some customers come for the lemonade and then decide to purchase a brownie and other customers come for the brownie and then decide to purchase lemonade. These pull-through revenues vanish with the split. The shadow cost increases are captured as follows. How many hours must the brownie stand owner stay at the stand without the pull-through revenue to sell the same number of brownies as sold at the combined company in four hours with pull-through revenue? If the answer is five hours, then the shadow cost of the loss of revenue is one hour of labor for the brownie stand. A similar shadow cost calculation would be required for the lemonade stand.

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31 Formally speaking, each firm has a distinct business model and all judgments need to be applied on a case-by-case basis. However, most firms broadly follow a dynamic of continuously increasing efficiency with size and scope even at large scale.
To quantify the total cost effects, both from increases in costs and the loss of revenues, we return to the narrative of how and why these firms grew so big and propose to adopt the empirical strategies of reverse merger analysis to predict the effects of their forced reduction in scale. Specifically, a historical database of the acquisitions of large firms and the time series of their various financial cost variables can be mined to extract a statistical inverse relation between changes in firm scale and change in firm cost (i.e., large scale implies lower cost). This statistical inverse relation is applied to our various models (MUM, UPAM) of the structural changes to predict the amount by which costs would increase. Our preliminary analysis demonstrates that the cost effects would be significant. Specifically, Google, Apple, Facebook, Amazon, and Microsoft stand to incur additional costs of approximately $300 billion from structural separation under the MUM.

The final piece of the economic analysis is to quantify the consumer impact of the increased costs. Conceptually, consumer welfare reductions can be generated from two sources: higher prices and reduced consumption. Empirical data on consumer demand for the products and services offered by large firms can be applied to forecast the equilibrium market responses (i.e., prices and consumption) by both firms and consumers for example in the retail space. This includes estimates of (1) the increase in prices charged by firms and the number of customers that choose to consume at the higher prices and (2) the number of customers that are unwilling to pay the higher prices and the harm they suffer by the loss of consumption.  

This standard demand analysis embeds the consumer welfare effects for services that were previously free to consumers but that would no longer be offered at all under the proposed legislation. As previously described, consumer harm occurs when consumers pay higher prices than they otherwise would have and when consumers are unable or unwilling to consume services that they had previously been able to consume at no charge. If a service that was previously included at no extra charge as part of a packaged subscription service is no longer offered under the proposed legislation, it is analogous to the loss of a free service that a covered platform would be unable to operate at profit under the proposed legislation. Consumer harm is measured as the economic value that all consumers of the free service previously received in the absence of the proposed legislation.

4. Small-to-medium enterprise ramifications

The proposed legislation would increase the costs of the five targeted firms with deleterious effects for small-to-medium businesses that are third-party business users of the services provided by the targeted firms. Small businesses, which are the asserted beneficiaries of the proposed legislation, thrive in an ecosystem in which the targeted firms offer an umbrella of free and valued services that allow small-to-medium businesses to reach millions of customers at minimal cost.

Most important, small-to-medium businesses would face additional costs from the loss of marketplaces that allow them to generate revenue without incurring higher sales, marketing, and advertising costs that would otherwise be required to connect to consumers. For example, many

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32 In one possible firm response, the firm would choose to stop offering the service entirely, which is equivalent to setting a price increase at such a level that no consumer is willing to purchase with all harm accruing to the loss of consumption component of consumer utility.
small-to-medium businesses selling on Amazon’s marketplace benefit from services like Fulfillment by Amazon (FBA) where Amazon stores, packs, and ships orders to customers.

Small-to-medium businesses would face increased costs due to the loss of free and valued services currently available to them. These services are either provided directly by firms likely to be designated as covered platforms (Apple, Amazon, Google, Facebook, and Microsoft) or by other third-party firms for which one of these five firms is a supplier. An example is cloud-based data storage provided to startup firms at reduced cost by cloud-based storage providers, including AWS (Amazon), Microsoft Azure (Microsoft), Google Cloud Platform (Google), and additionally third-party value-added resellers that purchase their cloud services from one of these three companies.

IV. The Bills Jeopardize US Technological Development

The proposed bills would distort the dynamic incentives and cost structure of firms. Further, the proposed bills would affect not just the five firms that currently satisfy the covered market definition but at least 13 other firms would be constrained by the new regulations. Therefore, given the combined size and investment reach of the affected firms, investment in startups and technological development would be dampened.

Venture capital investment is essential to startup technology firms because these firms typically require capital investment for 5–10 years before they even start selling a product or service. The available supply of venture capital is based on the returns that venture capitalists can provide to their investors. The proposed legislation would reduce venture capitalist returns and therefore the supply of available capital that can be invested in startup technology firms in two ways.

First, the value for the most successful startup technology firms, specifically those that exit the financing stage through an IPO, would necessarily be capped because the long-run potential values of such startups is capped at the inflation-adjusted $550 billion or $600 billion threshold, lest severe financial penalties and value-destroying structural remedies be imposed. For example, Google, Facebook, and Amazon issued IPOs in the past 25 years, which means that they transitioned from startup firms to successful companies with market caps exceeding the threshold in a period no greater than 30–35 years. Although venture capitalists cannot predict which startups today will be the next Google, Facebook, or Amazon in 30–35 years, the ability to generate super high returns on a very small share of IPOs drives the pool of available capital funds.

Second, startup firms would have fewer exit opportunities because the proposed legislation forbids the five targeted firms from making new acquisitions and severely discourages new acquisitions by at least 13 additional constrained firms. Startup firms that exit the venture capital financing stage through an acquisition are valuable firms with the potential for future profitability but without cash or the ability to generate profit independently in the near term. Such firms are not good candidates for an IPO. The proposed legislation by its forced reduction in the demand to acquire startups reduces the average purchase price and the likelihood that an otherwise valuable startup would be acquired. For a certain market, consider an example with five bidder firms with the necessary capital to acquire a startup firm. The proposed legislation would eliminate a significant fraction of the possible acquiring firms, which is represented as the
loss of one out of the five potential acquiring firms. Previously, five promising but not yet profitable startups could have been acquired with the most promising receiving the highest price and the least promising receiving the lowest price. With only four potential acquiring firms in the market, the most promising startup would still be acquired, but the competition among acquiring companies is diminished (with only four competitors instead of five) and the resulting acquisition price would be lower. A similar effect occurs for the second, third, and fourth most promising startups. The fifth most promising startup would not be acquired at all, meaning that it would not generate any returns for its venture capitalist investor.

Both effects of the proposed legislation, the cap on the return for IPO startups and the forced reduction in the demand to acquire startups, would skew the distribution of expected venture capital returns to lower returns, which reduces the average expected return and therefore the incentive for and ability of venture capitalists to raise capital. Venture capitalists would therefore have a smaller pool of funds available to invest in startup technology firms.

Startup technology firms would additionally face increased operating costs due to the loss of free and valuable services, as previously described, that are currently available to startups. Finally, startup technology firms would face additional costs from the loss of two-sided marketplaces that allows them to generate revenue and grow a customer base before having established the demand and brand recognition required for revenue and growth in a one-sided marketplace.

Thus, the proposed legislation would impose three substantial costs on startup technology firms: funding costs increase due to the decreased incentive of venture capitalists to invest, operating costs increase due to the loss of free and valued services, and marketing and advertising cost increases due to the loss of access to two-sided markets. As a result of all three types of cost increases, fewer startup technology firms would be established, and the ones that are established would be diminished competitors in the United States and on the global stage. This serves to reduce technological growth and innovation in the United States and to shrink the potential size of the US economy in the future.

V. CONCLUSION

This conceptual report describes the economics of the proposed legislation, including the likely remedies, and then it describes a methodology to estimate the increased costs caused by the new rules. Our ongoing research will next implement these proposed empirical methodologies and will compare the results to the stated objectives of the proposed legislation. Given the economic mechanisms and principles activated by the requirements of the proposed legislation, it is not likely as a matter of economics that the bills would achieve the procompetitive benefits that the framers claim. Instead, the bills would unambiguously impose substantial costs on US technology firms and the small-to-medium US businesses that use their products and services, and these costs would ultimately be passed on to US consumers in the form of higher prices and loss of services.