



# Estimates of Harm to Small Business Retailers from Antitrust Legislation Directed at Large Digital Platforms

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## Executive Summary

As Congress considers “Big Tech” antitrust legislation (particularly S. 2992, the American Innovation and Choice Online Act, or AICOA and its House equivalent, H.R. 3816) that essentially targets just four firms (Amazon, Apple, Meta (Facebook/Instagram/WhatsApp), and Alphabet (Google)), several months of research and economic modeling has produced a conservative estimate that the bills’ impacts will cause small and medium-sized retail businesses (“SMB Sellers”) to lose roughly \$500 billion in sales in just the first five years after the legislation becomes law. Put differently, AICOA (if passed) would informally amount to a “regulatory tax” on SMB Sellers of 5.2% of their sales, or an average of \$1,712 per SMB Seller per month. These losses would be secondary effects of the legislative proposals’ direct impacts on, primarily, Amazon, Alphabet (Google) and Meta (Facebook, Instagram), as these firms provide fundamental advertising, marketing, and commerce services to several million SMB Sellers. Because of its importance to ongoing congressional debate, publication of these initial findings has been expedited, with an extended report to be published in the coming weeks.

## Discussion and Conclusions

SMB Sellers, even those that have physical stores or wholesale their products, increasingly sell through digital channels. Roughly 70% of SMB Sellers use either a web-based store or an online marketplace, with some using both and also selling through other digital technologies such as social media platforms and delivery apps. Web stores and online marketplaces drive about 35% of SMB Seller revenue nationally. If antitrust legislation directed at large digital platforms (particularly S. 2992, the American Innovation and Choice Online Act, or AICOA and its House equivalent, H.R. 3816) becomes law as written today, there would be myriad unintended consequences for smaller businesses that use these platforms and the tools they provide, and also for consumers who shop at these SMBs.

A DCI companion paper by Cameron Miller and Richard Wang identifies several ways that the proposed legislation would negatively impact digital platforms and SMBs, including SMB Sellers. Miller and Wang describe how SMB Sellers and their customers would lose access to high-value and low-cost platform services, and their only options would be to forgo these services or use more costly and less effective substitutes. As a result, SMB Sellers would have more difficulty and expense reaching prospective customers, and consumers would find it more difficult and expensive to access SMB Sellers’ products. Sales would decrease as a result.

The research presented here estimates five years of SMB Sellers’ lost sales due to the legislation’s negative impacts. To develop the estimate, the paper first estimates the amount in 2019 that SMB Sellers’ sales increased due to information and communications technology (ICT), and then estimates the portion of ICT contribution to 2019 sales that would have been lost if the proposed legislation had then been law. Finally, assuming a January 1, 2023 legislative effective date, the research conservatively uses the 2019 estimated loss as the estimate of the lost sales in 2023, and then, again conservatively, assumes that the losses would continue for only an additional four years. (The AICOA itself designates a seven-year enforcement period for its inefficiency-creating restrictions of online platform providers that are designated as “covered platforms” under the Act.) [1]

The results are devastating: The model, which uses conservative assumptions in an effort to avoid apocryphal results, estimates that SMBs would lose about half a trillion dollars in sales in the first five years after the new laws take effect (see Research Approach, Methodology, and Data Table for more details). The \$500 billion in estimated lost SMB sales reflects the aggregate effects of higher costs for digital platform services and lost access to some of those services. For each SMB Seller, we calculate the average monthly revenue loss – or some may consider this the monthly “tax” created by these legislative proposals – to be an estimated \$1,712. This figure reflects that average 2019 monthly sales in the retail and food/beverage sectors are \$32,917 (the “tax” is 5.2% of their sales).[2]

The most important reason that the paper’s estimates are conservative is that it only estimates lost sales of SMB Sellers in the retail sector (NAICS 44-45) and the food services and drinking places industry (NAICS 722).[3] The loss in all SMB sales economy-wide (which would include sales of SMBs in all sectors of the economy) would be much greater than the amount estimated for retail and food services SMB Sellers, which constitute only about one-fifth of the over 31 million SMBs nationwide.[4] The estimate is also conservative because the estimate of annual harm is for 2019, while SMB use of e-commerce and digital marketing has increased since then, and because the disruption caused for digital platform services would most likely last for more than five years. If the proposed legislation passes and disrupts access to digital platforms and tools for SMB Sellers, our conservative estimates of the likely harm document that the proposed legislation creates a substantial risk for SMB Sellers.

## Research Approach, Methodology, and Data Table

Harm to SMB Sellers was estimated for each of the 12 NAICS subsectors of the U.S. retail sector and for the NAICS 3-digit industry category for food services and drinking places, an industry category often considered together with the retail sector’s three-digit industry categories when SMBs are discussed (see Table 1). Together, this grouping is an important representation of what we term “SMB Sellers” - SMBs that sell physical goods as all or part of their business, and in this case, the SMBs are retailers of those products. The estimate of the “Harm to SMBs” that would be caused by the proposed legislation was derived in a five-step process, as follows.

**Economic modeling of industry retail sales:** First, following NAICS categories, a model of each industry’s retail sales was generated. This model estimates how retail sales are affected by two kinds of forces: those that affect demand (e.g., consumers’ purchasing power as indicated by their disposable income), and those that affect sellers’ costs (e.g., costs to manufacture products; worker pay). The model also estimates the effect on the growth rate of retail sales provided by information and communications technology (ICT) above and beyond the sales that would be predicted by exogenous cost and demand shifters evolving over time. The availability of ICT infrastructure technology to both the retailers and their customers would be expected to affect the retailers’ costs—lowering those costs per unit of retail services provided because the retailers can be more productive (i.e., provide a greater amount of retail goods for a given amount of the costs they incur, hence lowering costs per unit of retail output)—and to affect the customers’ demand—increasing that demand (the quantity of the retail goods that the customers would



want to purchase in a given period of time) given the customers' resources of purchasing power from income and time spent searching for and purchasing products.

**Estimating "Sales at Risk" from loss of digital technologies:** Second, the estimated model is used to determine "Sales at Risk" - retail sales above and beyond what would be predicted by demand and cost shifters in the absence of the evolution of the availability of digital tools for retail as the ICT revolution took hold. The estimated Sales at Risk for each industry category is the estimate of the impact of the ICT revolution on each industry category's sales, calculated as the difference between (a) the actual retail sales for each industry category and (b) the model's prediction of those sales in the counterfactual scenario in which the ICT revolution had not improved retailers' sales via digital technologies. The result of multiplying the SMB employment share of each industry category (from Table 1) with the estimated Sales at Risk (which includes larger businesses) for each of the industry categories provides the SMB Seller Sales at Risk.[10]

The availability of the digital tools has enabled SMBs in specialized subsectors (including "nonstore" retailers) of the total retail sector to gain not only sales above and beyond the sales that would have been expected by the demand and cost conditions absent the digital tools, but also to gain sales at the expense of four subsectors where sales (well indicated by the employment shares that are available at the requisite levels of disaggregation) [11] are overwhelmingly from very large retailers: general merchandise stores (e.g., Walmart, Target) where SMBs had only 1.4% of the employment in 2015, electronics and appliance stores (e.g., Best Buy, Lowe's) where SMBs had 35.4% of the employment in 2015, building material and garden equipment dealers (e.g., The Home Depot, Lowe's) where SMBs had 36.8% of the employment in 2015, and health and personal care stores (e.g., Walgreens, CVS) where SMBs had 31.2% of the employment in 2015. In the specialized sub sectors of the retail sector, SMBs using the digital tools provided by the ICT revolution gain sales for some of the products sold by large retailers in the industry categories where sales are lost.

**Estimating the "lost proportion" of "sales at risk" due to legislation:** Third, if the proposed new antitrust legislation became law and disrupted digital platforms and tools, it would disrupt some SMB retail sales made possible by these platforms and tools, but (of course) not all of them. Therefore, we developed an estimate of the proportion of the Sales at Risk that would be lost (between 0% and 100%), which we term the "Lost Proportion." This figure was estimated by analyzing the effect of two congressional actions - namely, (a) the U.S. Senate Judiciary Committee approving with bipartisan support and sending to the floor of the Senate the American Innovation and Choice Online Act (AICOA), and (b) the U.S. House of Representatives Judiciary Committee in a bipartisan vote favorably reporting out and sending six antitrust bills to the floor of the U.S. House of Representatives - on the companies targeted by the legislation, Google, Apple, Facebook, Amazon, and Microsoft ("GAFAM"). Amazon's stock price was used as the least "diluted" metric because its main business segments are likely to see effects of the legislation relative to other companies in the group, and thus changes in the firm's stock price better reflect the potential legislative effect as seen by equities traders.[12] For Amazon, we expect to be able to observe the effect of an event that increases the probability that the proposed antitrust legislation will become law, and the Lost Proportion was estimated to be 0.1645 (16.45%).[13]

**Calculating “Harm to SMBs” by industry:** Fourth, the product of SMB “Sales at Risk” and the “Lost Proportion” is the estimate of the harm that the proposed legislation would cause (“Harm to SMBs”), calculated as dollars of sales that would be lost in one year. Table 1 indicates negative values, by enclosing the values in parentheses, for the Harm to SMBs in the four sub sectors (see discussion above about estimating “sales at risk”) where the disruption of digital platforms would to an extent reverse the loss in sales to SMBs in other categories.

**Calculating “Harm to SMBs” across all SMB Sellers:** Finally, for the year 2019 (the most recent year for which appropriate data are available prior to the economic disruptions caused by the Covid-19 pandemic), Harm to SMBs as annual sales lost is estimated to be \$118.3 billion for the NAICS industries for retail plus food services and drinking places. This \$118.3 billion is a conservative estimate of current and future annual harm potentially caused by legislation, because the reliance of SMB Sellers on digital platforms and tools has grown since 2019 (particularly during the COVID-19 pandemic). Also, the estimate is in dollars of 2019, and so going forward the estimate for each year in the dollars of that future year would be higher because of inflation. Thus, if one conservatively assumes that disruption due to the legislation would last for only five years after the passage of the legislation, for retail plus food services and drinking places the total estimated Harm to SMBs is \$499.1 billion. The amount is what the present discounted value would be in 2019 dollars, at the time the legislation became law, for five successive years of annual Harm to SMBs at the estimated level for 2019.

To put the estimated harm into its context, first observe that the \$499.1 billion is the present value of five years of annual harm at the level estimated for 2019 for the SMBs in retail and food services. That estimated harm for 2019 is \$118.3 billion, which is 5.2% of the SMB sales in retail and food services and 1.9% of the total sales in retail and food services for 2019.[14] Since the employment in SMBs in retail and food services is 21.6% of employment of SMBs in the entire economy [15], the aggregate harm that the legislation would cause for SMBs throughout the entire economy could be between four and five times what we have estimated for the SMBs in retail and food services.

## References

[1] An alternative approach would be to estimate the dollar value of the lost sales associated with each of the nine negative impacts identified in the Miller and Wang (2022) companion paper. In theory this granular approach would be more useful, but although such an approach would in principle allow quantifying the costs of digital platform services' lost effectiveness for each of the several individual negative impacts, developing the lost sales data for the harm in dollars for each individual negative impact would at best be difficult, and at worst impossible, because there are many variables for each, and so much new information would have to be developed. As explained in Miller and Wang (2022), the firms targeted by the proposed legislation provide multiple digital platforms that serve different sets of SMB users. Developing the necessary data to quantify lost sales in dollars because of the harm for each of the individual impacts would require interviews with appropriate points of contact among each of the various sets of SMB users and the providers of the platform services they use, and then the development and administration of appropriate survey instruments for each of those sets of users and providers. Thus, developing and analyzing the data would not be possible to complete in time to inform decisions about the legislation. Instead, the approach used in this paper starts with the legislation's negative impacts on SMBs and SMB Sellers as those effects are identified in the companion paper by Miller and Wang (2022). Because of those identified negative effects, the SMBs and SMB Sellers will lose sales if the proposed legislation passes. This paper, using available data, estimates those lost sales.

[2] First, recall that the \$500 billion is the present value of five years of harm in the annual amount estimated for 2019. The estimated harm for 2019 is \$118.3 billion in lost SMB sales for the SMBs in the retail sector and the food services industry. Thus, the monthly harm measured as the lost sales each month, in constant dollars of 2019, whether for each month of 2019 or for each month of the five years of lost sales at the rate estimated for 2019, is  $\$118.3 \text{ billion}/12 = (5 \times \$118.3 \text{ billion})/(5 \times 12) = \$9.86 \text{ billion}$  for all of the SMBs in the retail sector and the food services industry. Sales by SMBs for retail and food services in 2019 were approximately \$2,291 billion ( $0.333 \times \$5,411 \text{ billion} + 0.632 \times \$773.5 \text{ billion}$ , where the proportions are the SMB employment proportions from Table 1, total 2019 sales for retail (NAICS 44-45) services are \$5,411 billion, and total 2019 sales for food services (NAICS 722) are \$773.5 billion), or about  $\$2,291 \text{ billion}/12 = \$190.9 \text{ billion}$  per month. Thus, for the SMBs in the retail sector and food services industry, the lost sales are 5.2% of sales (using either the annual ( $\$118.3 \text{ billion}/\$2,291 \text{ billion}$ ) or monthly ( $\$9.86 \text{ billion}/\$190.9 \text{ billion}$ ) lost sales divided by total sales). Second, if we think of the \$500 billion calculated "Harm to SMBs" as a tax taken from their monthly sales, what would be the amount of the monthly tax for the SMB with monthly sales equal to the average for the SMBs in the retail sector and food services? From the notes to Table 1, the total number of SMBs in the retail sector and food services industry is about 5.8 million. Thus, monthly sales for the SMB with average annual sales is then  $(\$2,291,000 \text{ million})/(5.8 \text{ million})/12$  or about \$32,917. The monthly lost sales would be 5.2% of that amount or \$1,712.

[3] As observed below in discussion of the research approach, the firms in the retail sector and the firms in the food services and drinking places industry are often discussed together, and data about their sales are often presented together. See [https://www.census.gov/retail/mrts/historic\\_releases.html](https://www.census.gov/retail/mrts/historic_releases.html), Monthly Retail Trade Survey Historical Data, Retail and Food Service Sales: Excel (1992-present): <https://www.census.gov/retail/mrts/www/mrtssales92-present.xls>, accessed and downloaded January 22, 2022.

[4] Data from a recent March-April 2022 DCI survey show that 22% of all U.S. SMBs sell only physical products, 41% sell a mix of physical products and services, and 37% sell only services. See <https://datacatalyst.org/wp-content/uploads/2022/05/National-SMB-Leader-Survey-Select-Toplines-May-2022-FINAL.pdf>.

[5] Source for employment statistics: 2015 SUSB (Statistics of U.S. Businesses) Annual Data Tables by Enterprise Industry, January 2018, <https://www.census.gov/data/tables/2015/econ/susb/2015-susb-enterprise.html>, Selected Statistics by Enterprise Industry Classification, Enterprise Employment Size, and Enterprise Industry Specialization: 2015, us\_payroll\_2015.xlsx, accessed and downloaded January 23, 2022.

[6] In addition to the retail sector's and food services industry's roughly 1.1 million SMBs with paid employees, there are another roughly 4.7 million SMBs in those industries that do not have paid employees at some time during the year. The Census data for firms' and their establishments' employment and payroll consider an establishment with 0 employment to be an establishment with no paid employees in the mid-March pay period but with paid employees at some time during the year (<https://www.census.gov/data/tables/2019/econ/susb/2019-susb-annual.html>, accessed June 4, 2022). Thus, not counted among the number of SMB enterprises in the payroll and employment statistics for firms are SMBs among the 81% of small businesses in the U.S. that have no employees. Of the 31.7 million small businesses in the U.S. in 2022, only 19% or about 6 million have paid employees (<https://www.simplyinsurance.com/how-many-small-businesses-are-there-in-america/>, accessed June 4, 2022). Thus, the 1.1 million SMBs in the Census employment and payroll statistics for NAICS 44-45 and 722 (646,163 for NAICS 44-45, plus 461,482 for NAICS 722 = 1,107,645 or about 1.1 million) constitute roughly 19% of the total SMBs in those industries. Hence, the total number of SMBs in the retail sector and food services industry is about 5.8 million (0.19 of the total equals 1.1 million, so the total is  $1.1/0.19 = 5.8$  million).

[7] Observe that the proportions are essentially the same—over 99%—even when the retail sector’s and food services’ additional 4.7 million SMBs that do not have paid employees are used to obtain the proportions. For example, using the Census payroll and employment data for the retail sector and food services, the proportion of enterprises taken by SBMs in NAICS 44-45 & 722 is  $(646163 + 461482)/(647454 + 462914) = 0.9975$ . Adding in the “missing” SMBs, and the proportion is  $(646163 + 461482 + 4700000)/(647454 + 462914 + 4700000) = 0.9995$ .

[8] These proportions are the same whether or not the “missing” 4.7 million SMBs are considered, because when they are considered, because they do not have any paid employees, 0 is added to both the numerator and the denominator of the proportion.

[9] These estimates of lost sales include all SMB sales lost—including the sales lost by SMBs that do not have paid employees—because the estimates are derived from all of the sales for each of the subsectors, including the sales of SMBs without employees ([https://www.census.gov/retail/mrts/how\\_surveys\\_are\\_collected.html](https://www.census.gov/retail/mrts/how_surveys_are_collected.html)).

[10] The employment proportions are good predictors of the sales proportions that we want for the analysis. Employment and sales proportions for SMBs in NAICS 44-45 are available from the 2012 Census (<https://data.census.gov/cedsci/table?q=EC1244&tid=ECNLINES2012.EC1244SLLS1>, Economic Census, 2012: ECN Core Statistics Economic Census US Lines Data, EC1244SLLS1 Retail Trade: Subject Series - Product Lines: Product Lines Statistics by Industry for the U.S. and States: 2012, accessed April 29, 2022). For NAICS 44-45, in 2012, the proportion that SMBs take in the number of enterprises is 0.9982, the proportion that SMBs take in employment is 0.3692, and the proportion that SMBs take in sales is 0.4106. Using just SMBs that operated for the entire year, the numbers are 0.9979 for the proportion of enterprises, 0.3615 for the proportion of employment, and 0.4044 for the proportion of sales. Thus, the employment proportions that we use to get the SMB part of the sales at risk are good estimates of the sales proportions (which are not available at the level of disaggregation needed and provided by the employment proportions), and in fact the evidence suggests they underestimate them—a good thing since it makes our estimates of harm more conservative.

[11] See the preceding note. The employment statistics are for the enterprises in each subsector.

[12] To estimate the percentage of SMB Sales at Risk that would be lost if the legislation passes, we estimated the percentage change in Amazon’s stock value when investors receive information that increases their expected probability of the legislation passing. From that percentage change, we then estimated the percentage change in the part of Amazon’s stock value coming from third-party users of Amazon’s services (i.e., businesses other than Amazon itself that use either or both the Amazon marketplace and Amazon Web Services, where customers of Amazon and customers of the third-party businesses can, because of Amazon’s digital platform services, access the goods and services of the sellers). Thus, we estimated the percentage change in the part of Amazon’s stock value derived from the services it provides to third-party businesses, and the percentage change occurred because of an event that changed investors’ beliefs about the probability that the proposed legislation will become law. The part of the stock value that is because of Amazon’s business with the third parties is the present value of the expected stream of profits for Amazon because of the third-party business services it provides. The third-party businesses use the Amazon services, creating profits for Amazon, because Amazon’s services create sales and associated profits for the third-party businesses. The legislation would reduce Amazon’s ability to provide those services that provide the third-party businesses with sales and profits, and they in turn would reduce their use of Amazon’s services and the stream of profits for Amazon from the third-party business users would fall, and hence, Amazon’s stock price would fall.

[13] The 16.45% estimate of the “Lost Proportion” is a conservative estimate because (1) the estimate is for all of Amazon’s third-party sellers and we expect that disrupting digital platform services will harm SMB sellers more than the larger third-party sellers, (2) investors will to some extent have anticipated the events precipitating the stock price changes and then to some extent the change will not be completely observed during the “event window”, (3) the estimated effect is the effect after control for the percentage changes in the NASDAQ composite index, and in part those changes reflect effects of the legislation on the big platform companies and on other tech companies listed on NASDAQ, and (4) the drop in Amazon’s stock price that we have observed in the event analysis would be an understatement of the drop induced because of an anticipated decrease in third-party use of the services and consequent reduction in Amazon’s profit stream (because the anticipated drop in profits would be offset to some extent by anticipation that Amazon’s profits from its own use of its digital platform services to support its own retail sales would be expected to increase as third-party sellers face higher prices and restricted access to digital platform services and their retail sales fall).

[14] To estimate the SMB sales in retail and food services, the employment proportions in Table 1 were used with the sales data from [https://www.census.gov/retail/mrts/historic\\_releases.html](https://www.census.gov/retail/mrts/historic_releases.html), Monthly Retail Trade Survey Historical Data, Retail and Food Service Sales: Excel (1992-present): <https://www.census.gov/retail/mrts/www/mrtssales92-present.xls>, accessed and downloaded January 22, 2022.

[15] <https://www.census.gov/data/tables/2015/econ/susb/2015-susb-enterprise.html>, Selected Statistics by Enterprise Industry Classification, Enterprise Employment Size, and Enterprise Industry Specialization: 2015, us\_payroll\_2015.xlsx, accessed and downloaded January 23, 2022.