

Information Technology and Innovation Foundation
700 K Street NW, Suite 600
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Comments of ITIF

Before the

National Telecommunications Information Administration

Washington, D.C. 20230

In the Matter of:

Developing a Report on Competition in the
Mobile App Ecosystem.

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Docket No. 220418-0099

May 23, 2022

CONTENTS

Introduction	2
A Competitive App Economy	4
Quantity and Quality	4
Dynamic Competition: Evolution and Innovation	7
The Emergence of a Quasi-Duopoly.....	8
The Emergence of Disrupters.....	9
Law & Economics of Antitrust Claims about App Stores’ Practices	11
Excessive Pricing and Price Discrimination	11
Excessive Pricing Is Not an Antitrust Violation	12
Claims of Excessive Pricing Do Not Apply to App Stores	14
Exclusionary Practices: Avoiding an App Market for Lemons	16
Conclusion.....	19

INTRODUCTION

The Schumpeter Project on Competition Policy of the Information Technology and Innovation Foundation welcomes the opportunity given by the National Telecommunications Information Administration (NTIA) to comment on the state of competition in the mobile app ecosystem.¹ On July 9, 2021, President Biden signed the Executive Order on Promoting Competition which, among other recommendations, requested at Section 5(r)(iii) that the Secretary of Commerce to “not later than 1 year after the date of this order, in consultation with the Attorney General and the Chair of the Federal Trade Commission, conduct a study, including by

¹ National Telecommunications and Information Administration, “Request for Comments on Competition in the Mobile App Ecosystem,” April 21, 2022, NTIA-2022-0001, <https://www.ntia.gov/federal-register-notice/2022/request-comments-competition-mobile-app-ecosystem>.

conducting an open and transparent stakeholder consultation process, of the mobile application ecosystem, and submit a report to the Chair of the White House Competition Council, regarding findings and recommendations for improving competition, reducing barriers to entry, and maximizing user benefit with respect to the ecosystem.”²

As a preliminary remark, the fact-finding goal of the Request for Comment (RFC) to understand the level of competition in the mobile app market is laudable. But it raises questions about why the Biden administration has already endorsed the S.2170 Open App Markets Act bill which is premised on the assumption that this market lacks competition.³ Consequently, it is regrettable that the Biden administration supports a bill based on the belief of a lack of competition, while simultaneously acknowledging through this RFC the lack of knowledge about the level of competition in this market.

The Biden administration should withdraw its support of S.2710 at least until the NTIA provides evidence of alleged anticompetitive conduct in a failing mobile apps market through its study.⁴ Until then, support for the S.2710 is rushed and undermines the effectiveness of the fact-finding exercise carried out by the NTIA via its RFC.

In the following sections, we first discuss the competition which exists in the mobile app market. The dynamism of competition contradicts the widespread belief that an app store duopoly (i.e., Apple App Store and Google Play Store) reveals a lack of competition. Also, we discuss the potential antitrust concerns arising out of the characteristics of the mobile app markets rather than from anticompetitive motives.

² White House, “Executive Order on Promoting Competition,” July 9, 2021, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/07/09/executive-order-on-promoting-competition-in-the-american-economy/>.

³ Leah Nysten and Adam Cancryn, “White House Backs U.S. Tech Antitrust Bills,” *Politico*, February 3, 2022, <https://subscriber.politicopro.com/article/2022/02/white-house-backs-tech-antitrust-bills-00005513> (citing a White House statement arguing that “we are supportive of bipartisan progress being made in Congress on these issues”). See S.2710, Open App Markets Act, 117th Cong. (2022).

⁴ Such caution is warranted given the prohibitive costs of the antitrust bills, estimated by NERA to be over \$300 billion. See Christian M. Dippon and Matthew D. Hoelle, “The Economic Costs of Structural Separation, Line of Business Restrictions, and Common Carrier Regulation of Online Platforms and Marketplaces,” *NERA Economic Consulting*, March 18, 2022, https://www.nera.com/content/dam/nera/publications/2022/Platform_Regulation_Quantitative_03_18_22.pdf (noting that “the \$319 billion in cost increases would directly harm customers and business users of Google, Apple, Facebook, Amazon, and Microsoft...”).

A COMPETITIVE APP ECONOMY

One of the first questions raised by the RFC is “how should we measure whether the app ecosystem is competitive?” Detailing the question, the RFC asks, “does the reported total of the number of apps available at any one time in an app store have a bearing on the state of competition among apps or particular categories of apps?” In other words, can we measure the level of competition in the app ecosystem by the number of apps in this ecosystem?

Quantity and Quality

The app economy is highly competitive and has the characteristics of a success story. Indeed, 2.1 million apps are available for download in the Apple App Store and 3.29 million apps are available for download in the Google Play Store.⁵ Also, the dramatic increase in the number of apps available over the last few years demonstrates both consumer satisfaction in the apps made available in the app stores and the emergence of a new class of app entrepreneurs. The evolution of the app ecosystem is staggering. In 2021, consumers downloaded 230 billion apps, a 63 percent increase from the 140 billion app downloads in 2016.⁶

In 2022, app companies have created more apps than ever. On average, over 97,000 new Android apps are released in the Google Play Store every month while over 32,000 new iOS apps are released in the Apple App Store every month.⁷ Consumers increasingly access the Internet using apps. U.S. consumers spend more than 4 hours per day on apps, an increase of 30 percent from just two years ago.⁸ Most users have more than 80 apps installed on their phones, thereby creating room for competition that is just “one click away” within

⁵ Statista, “Number of Apps Available in Leading App Stores as of 2022”, April 27, 2022, <https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/>.

⁶ Statista, “Number of Mobile App Downloads Worldwide from 2016 to 2021,” January 31, 2022, <https://www.statista.com/statistics/271644/worldwide-free-and-paid-mobile-app-store-downloads/>.

⁷ 42Matters, “Store Stats 2022,” May 9, 2022, <https://42matters.com/ios-apple-app-store-statistics-and-trends>.

⁸ Sarah Perez, “Consumers Now Average 4.2 Hours Per Day in Apps, Up 30% from 2019,” *TechCrunch*, April 8, 2021, <https://techcrunch.com/2021/04/08/consumers-now-average-4-2-hours-per-day-in-apps-up-30-from-2019/>.

smartphones.⁹ For example, one in five users of peer-to-peer payment apps regularly use four or more of these apps.¹⁰

In other words, given the dramatic increase in both the supply of apps (app creation through app entrepreneurship) and the demand for apps (consumers' app downloads and consumers' time dedicated to apps), the app economy appears to be strongly competitive. The success of the app economy is due in part to the competition between Apple and Google through their respective app stores. A thriving app ecosystem is a key element of competition between app stores. As one of the main booming areas of the Internet, the app economy represents both a promising area for development for digital entrepreneurs, but it also represents an increasingly challenging economy where aggressive price competition and fierce quality competition both flourish to the benefit of innovation and consumer welfare. As the House Report on digital markets noted, "Apple and Google also provide developers with software-development tools to create, test, and publish apps; technical supports and analytics tools; and tutorials."¹¹ Because the success of app ecosystems depend on the availability of high-quality apps, Google and Apple have an incentive to promote the development of valuable apps. The presence of valuable apps, and more apps, makes an app store more attractive to consumers and may give an app store a competitive advantage over its rivals.

Regarding price competition, it is remarkable that the app economy mostly remains part of the free economy. Free apps represent 96.5 percent of apps available in the Google Play Store while they represent 92.3 percent in the Apple App Store—the overwhelming majority of apps remain free to download.¹² Additionally, many apps are entirely free as they have ad-funded business models, thereby generating consumer benefits while operating in a highly competitive environment.¹³

⁹ TechJury, "55+ Jaw Dropping App Usage Statistics in 2022," April 25, 2022, <https://techjury.net/blog/app-usage-statistics/>.

¹⁰ "How Consumers Are Using P2P Payment Apps, PaymentsJournal, March 4, 2021, <https://www.paymentsjournal.com/how-consumers-are-using-p2p-payment-apps/>.

¹¹ House of Representatives, "Investigation of Competition in Digital Markets," *Majority Staff Report and Recommendations, Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary*, October 2020, https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf.

¹² Statista, "Distribution of Free and Paid Android Apps in the Google Play Store as of March 2022," March 14, 2022, <https://www.statista.com/statistics/266211/distribution-of-free-and-paid-android-apps/>.

¹³See, e.g., Catherine Han, et al., "The Price is (Not) Right: Comparing Privacy in Free and Paid Apps," *Proceedings on Privacy Enhancing Technologies* 3 (2020): 222-242, <https://par.nsf.gov/servlets/purl/10187034>.

The app economy is becoming increasingly important. In 2021, app revenue for the Google Play Store and the Apple App Store was \$47.9 billion and \$85.1 billion respectively.¹⁴ These revenues provide an incentive to app entrepreneurs to develop new apps. But because app stores are freely available to users and most apps are downloadable for free, app stores must generate revenues from other sources, such as in-app payments—i.e., those purchases made on the apps which are vetted by the app stores and subject to app store fees—commissions on app purchases, fees for app store search advertising, and fees for developer accounts.¹⁵

Regarding quality competition, it is evident that high-quality, professional software is increasingly becoming app-based, thereby demonstrating that the growing and thriving app economy is becoming increasingly assimilated with the digital economy more broadly. For example, there are dozens of highly rated project management apps available on app stores. In other words, everything that is digital is subject to becoming an app (irrespective of technological barriers).

Also, app downloads are extremely competitive. While 53 percent of website visitors will leave if a website takes longer than 3 seconds to load¹⁶, 70 percent of mobile app users will abandon an app if it takes too long to load, hence making competition to design high-quality apps even more fierce than competition to build high-quality websites.¹⁷ Efficiency in loading apps is key to accessing consumers.

Some critics of the app economy have argued that privacy is an element of product quality and that apps that collect data, such as for targeted advertising, are poor quality and therefore a sign of insufficient competition. But this critique ignores that most targeted advertising does not share personally-identifiable information with the advertiser. Moreover, the varied consumer preferences for privacy, disregards the fact that consumers can often choose and pay for more privacy protective apps, and overlooks that policymakers can address privacy concerns with data privacy regulations. Indeed, app quality is important for mobile users, so there is no

¹⁴ Business of Apps, “App Revenue Data (2022),” accessed May 20, 2022, <https://www.businessofapps.com/data/app-revenues/>.

¹⁵ Grete Ling, “Google Play Store and Apple App Store fees, (+12 other stores),” *App Radar*, February 4, 2021, <https://appradar.com/blog/google-play-apple-app-store-fees>.

¹⁶ David Kirkpatrick, “Google: 50% of mobile users abandon sites that take over 3 seconds to load”, MarketingDive, September 12, 2016, <https://www.marketingdive.com/news/google-53-of-mobile-users-abandon-sites-that-take-over-3-seconds-to-load/426070/#:~:text=New%20research%20by%20Google%20has,seconds%20on%20a%204G%20connection> ; TechJury, “55+ Jaw Dropping App Usage Statistics in 2022,” April 25, 2022, <https://techjury.net/blog/app-usage-statistics/>

¹⁷ Id.

indication that users cannot “vote with their feet” if they dislike a particular app’s privacy practices. One survey of app users found that a third of users would delete an app if they encounter a software bug, and half would delete an app if it doesn’t function as expected. Similarly, a third of users say they will not download an app with a bad app store rating. Therefore, privacy practices or data collection of apps are not appropriate proxy for app quality.¹⁸

Therefore, should the competitiveness of the app economy be measured (as suggested by the NTIA’s RFC) by the quantity and quality of apps available for download and actually downloaded by consumers, it is clear that the app economy is fiercely competitive due in part to competition between app stores who have an incentive to foster a thriving app ecosystem. The app economy epitomizes a success story for U.S. tech firms which pioneered this technology.

Dynamic Competition: Evolution and Innovation

The House report on digital markets erroneously argues that “The [Apple] App Store and the [Google] Play Store do not compete against one another.”¹⁹ Such a claim ignores the fact that the two app stores do compete for consumers who can switch between smartphones using different mobile operating systems. For a significant portion of smartphone users, the switching costs between iPhones and Android-run smartphones do not represent significant obstacles.²⁰

Consequently, the Apple App Store and the Google Play Store do compete, primarily on the differences in their business models.²¹ The House report misrepresents the reality of the level of competition in app stores, distorting the fact that competition in the app stores is dynamic. While the app store market has evolved into

¹⁸ Joe Kennedy, “Data and Privacy Are Not Antitrust Concerns,” *Innovation Files*, October 15, 2019, <https://itif.org/publications/2019/10/15/data-and-privacy-are-not-antitrust-concerns>.

¹⁹ House of Representatives, “Investigation of Competition in Digital Markets,” *Majority Staff Report and Recommendations, Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary*, October 2020, https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf.

²⁰ Chris Matyszczyk, “Half of All Android Users May Soon Switch to iPhone (Says an Expert),” *ZDnet.com*, December 17, 2021, <https://www.zdnet.com/article/half-of-all-android-users-may-soon-switch-to-iphone-says-an-expert/>; Shruti Shekar, “Why Apple Doesn’t Care that a Quarter of All iPhone Users Eventually Switch to Android,” *Androidcentral*, June 2, 2021, <https://www.androidcentral.com/android-ios-switching-platforms>.

²¹ Daniel Castro, “Banning ‘Closed’ Mobile Ecosystems Would Hurt Consumer Choice and Competition,” *Innovation Files*, January 23, 2022, <https://itif.org/publications/2022/01/23/banning-closed-mobile-ecosystems-would-hurt-consumer-choice-and>.

a duopoly due the innovative efforts of both Apple and Google (and the failures of other cell phone makers), there are reasons to believe, as discussed further below, that this duopoly is unlikely to be durable and we should expect further evolution of the app store market. A dynamic approach to competition that looks beyond quantity and quality demonstrates that the high level of competition in the app economy results from strong competitive forces propelling innovation for the benefit of consumers.

Ignoring the dynamism of the app economy will inevitably lead to policy errors to force competition at the expense of innovation, harming consumers and the dynamic competition that characterizes the app market. Not only is the current duopoly the result of innovation and competition efforts, but new challengers threaten to disrupt this quasi-duopoly, thereby demonstrating that the app economy remains competitive and subject to the perennial gales of creative destruction.

The Emergence of a Quasi-Duopoly

The rise of the app economy came to the fore when Apple decided in 2007 to introduce an iPhone software development kit for app development companies. Prior to the introduction of native apps available through the App Store in 2008, third-party applications used the Safari Internet browser to operate as web-based apps. With 800 applications available in the Apple App Store (200 of them being freely downloadable), the Apple App Store pioneered the app economy by incentivizing innovators to create apps. In 2012, Google rebranded the Android market to “Google Play” to offer an alternative to the Apple App Store. This emerging duopoly came out of the competitive and innovative efforts of both companies who successfully disrupted Microsoft, Nokia, and Blackberry—the previous mobile phone incumbents, and before that, the weak app stores of the major cellular carriers.

After the first mobile phone call was made on April 3, 1973 between Martin Cooper of Motorola and Dr. Joel S. Engel of Bell Labs, it took two decades of research to create the first mobile application for smartphones with the IBM Simon.²² Operating systems such as Palm OS, Psion EPOC, Symbian, and Blackberry OS were leading operating systems in the 1990s and 2000s. The Blackberry smartphone released in 2002 was outcompeted by the iPhone in 2007 given consumer preferences for a more integrated and nimble device.

Equally, the fierce competition exerted by Apple’s iPhone led Microsoft to lose a third of its smartphone market share from 2008 to 2009.²³ Despite attempts to resurrect the Microsoft mobile OS (Windows Phone, which succeeded Windows Mobile), the eventual decline of the Microsoft mobile OS and corresponding smartphones

²² Mobile Phone Museum, “IBM Simon,” <https://www.mobilephonemuseum.com/phone-detail/ibm-simon> (“The IBM Simon is widely regarded as one of the first devices that could be termed as a ‘smartphone’...”).

²³ Brian X. Chen, “How Microsoft Blew It with Windows Mobile,” *Wired*, November 17, 2009, <https://www.wired.com/2009/11/microsoft-windows-mobile/>.

were not due to lack of size or lack of experience by Microsoft but rather to the lack of robust innovations in light of the two emerging players—mainly, the Apple App Store and the Google Play Store. While Nokia’s Symbian OS represented 63 percent of the global smartphone market in 2007, Nokia also fell—largely due to the lack of innovation compared to the iPhone’s disruption. Given the importance of the number of apps and the inevitable network effects, the trend irremediably led to consolidation in the sector for the benefit of consumers who had interoperable devices and for the benefit of app developers who had to create only a few versions of their apps.²⁴ Therefore, “fierce competition” has led to the emergence of the current duopoly.²⁵

The Emergence of Disrupters

While the Apple App Store and the Google Play Store are the dominant app stores for mobile devices, a competitive fringe of alternative app stores exists and has the potential to develop into a competitive challenge to Apple and Google.²⁶ Additionally, web-based apps constitute a significant source of competitive constraints since alternative channels allow developers to reach end-users by circumventing the app stores’ rules. In other words, competition is multi-dimensional resulting in competition across app stores but also across distribution channels for apps (e.g., app stores from OS, app stores from device manufacturers, web-based apps, website app downloads, etc.). Consequently, the Apple App Store and Google Play Store duopoly is, in fact, a quasi-duopoly—a joint dominant position which neither captures all app stores nor represents the relevant market when assessing the multiple ways developers can reach end-users.

Both Amazon and Microsoft represent real threats to this quasi-duopoly. While the Amazon and Microsoft app stores do not retail apps for smartphones, they do provide a competitive constraint to Apple and Google as consumers can access the same app across multiple types of devices (e.g., game consoles, PCs, etc.). At least for some apps, if app developers view Apple’s and Google’s fees to be excessive, they can choose to offer their apps on these alternative devices instead. The Amazon App Store offers more than 460,000 apps worldwide and competes with Apple and Google for developers by offering lower app store fees.²⁷ Amazon’s App Store

²⁴ Knowledge at Wharton Staff, “As Smartphones Proliferate, Will One Company Emerge as the Clear Market Winner?” Knowledge at Wharton, May 27, 2009, <https://knowledge.wharton.upenn.edu/article/as-smartphones-proliferate-will-one-company-emerge-as-the-clear-market-winner/>.

²⁵ Id.

²⁶ Mobileappdaily, “A Descriptive List of the Best Alternative App Stores for 2022,” *Mobileappdaily*, May 4, 2022, <https://www.mobileappdaily.com/app-stores-list>.

²⁷ Samuel Axon, “Amazon Joins Apple, Google by Reducing Its App Store Cut,” *ArsTechnica*, June 17, 2021, <https://arstechnica.com/gadgets/2021/06/amazon-joins-apple-google-by-reducing-its-app-store-cut/> (“Amazon’s new indie-friendly rate is 20 percent, in contrast to Apple’s and Google’s 15 percent.”).

represents the third fastest growing app store in 2020.²⁸ With more than 650,000 apps, the Windows Store can leverage the market power of Microsoft on hardware to offer web-based apps. Indeed, the Microsoft Windows store has opened to third-party app stores, thereby creating a considerable venue for app stores to compete with the Apple App Store and the Google Play Store to attract app developers.²⁹ Additionally, powerful players such as Epic Games opened their own app stores, circumventing the rules of the Apple App Store that the company unsuccessfully challenged in court.³⁰

Besides American tech companies challenging the quasi-duopoly, Chinese app stores represent an important challenge to Apple's and Google's app stores. It is widely accepted that "China's app stores are growing fast, hosting more apps, and capturing a larger share of new app creation."³¹ New entrants capture considerable value in the app economy at a rapid pace. Indeed, the "top three app stores on the planet by new apps last year are probably ones you've never heard of: Apkgk, Apkpureco, and Androidappsapk." Also, app stores such as the Tencent App Store, the Alibaba App Store, and others are thriving and have millions of users. While these app stores primarily serve the Chinese market currently, app stores operated by Chinese OEMs (e.g., Xiaomi)

²⁸ James Anthony, "Number of Apps in Leading App Stores in 2022/2022: Demographics, Facts, and Predictions," FinancesOnline, <https://financesonline.com/number-of-apps-in-leading-app-stores/#:~:text=As%20of%20the%20last%20quarter,Appstore%20with%20459%2C167%20mobile%20applications>.

²⁹ Jon Fingas, "Microsoft's Windows Store Is Now Open to Third-Party App Stores," September 18, 2021, <https://techcrunch.com/2021/09/28/microsofts-windows-store-is-now-open-to-third-party-app-stores/>.

³⁰ *Epic Games, Inc. v Apple Inc.*, 493 F. Supp. 3d 817 (N.D. Cal. 2020). See also Jay Peters, "Epic Largely Lost to Apple, But 35 States Are Now Backing Its Fight in Higher Court," *The Verge*, January 28, 2022, <https://www.theverge.com/2022/1/28/22907106/epic-games-v-apple-amicus-briefs-states-eff-microsoft-appeal>; Ashley Gold, "Apple Won Against Epic Games, But It's Still Appealing," *Axios*, March 24, 2022, <https://www.axios.com/2022/03/24/apple-epic-games-appeal-app-store>.

³¹ John Koetsier, "There Are Now 8.9 Million Mobile Apps, And China is 40% of Mobil App Spending," *Forbes*, February 28, 2020, <https://www.forbes.com/sites/johnkoetsier/2020/02/28/there-are-now-89-million-mobile-apps-and-china-is-40-of-mobile-app-spending/?sh=a82086c21dd5>.

have the potentially to become a competitive threat to Apple and Google as the Chinese OEMs expand outside of China.³²

While U.S. consumers do not use Chinese app stores or Amazon and Microsoft app stores to download apps to their smartphones, these alternative app stores provide a competitive constraint on Apple and Google through their impact on app developers. The Apple App Store and the Google Play Store are two-sided markets. This means that consumers get more value from an app store when there are more apps and app developers get more value from an app store when there are more consumers using it. If Apple and Google offer app developers terms that are less attractive than those offered by Chinese app stores or by Amazon and Microsoft, they may attract fewer app developers and the quality and quantity of apps available in their apps stores may suffer. Because an app store with fewer apps or with lower quality apps is less attractive to consumers, these alternative app stores constrain the terms Apple and Google offer developers.

Despite these competitive constraints, Apple and Google have outcompeted incumbents through innovative efforts and continue to compete with both American tech firms and foreign rivals. Consequently, given these competitive constraints, their incentives to engage in anticompetitive conduct remain limited. Be that as it may, several antitrust concerns have emerged regarding app stores' rules and practices.

LAW & ECONOMICS OF ANTITRUST CLAIMS ABOUT APP STORES' PRACTICES

Despite the reality that the app economy is competitive and generates considerable innovations for consumers and benefits for developers, many antitrust concerns have recently emerged. They materialized through lawsuits, antitrust bills, and anticipated regulations. The main antitrust concerns revolve around two sets of criticisms against the Apple App Store and the Google Play Store. First, app store commission fees are deemed to be excessive and discriminatory. Second, app store rules are viewed as exclusionary and allegedly undermine competition. These two claims are discussed successively.

Excessive Pricing and Price Discrimination

The alleged lack of competition in the app economy leads critics to articulate a claim that app stores excessively charge developers, thereby harming innovation and consumers. This claim of excessive pricing hardly represents a convincing claim of antitrust liability, but most importantly, this claim has failed to materialize. The current pricing strategies of app stores reflect different priorities and business models and cannot be considered evidence of anticompetitive practices.

³² Elad Natanson, "The 'Other' Android App Stores—A New Frontier for App Discovery," *Forbes*, September 3, 2019, <https://www.forbes.com/sites/eladnatanson/2019/09/03/the-other-android-app-stores-a-new-frontier-for-app-discovery/?sh=59e319d76774>.

Excessive Pricing Is Not an Antitrust Violation

Antitrust jurisprudence often rejects claims of excessive prices on the basis that excessiveness can hardly be convincingly demonstrated, and that price regulation by regulators or judges has repeatedly proven worse than price regulation through market forces. The reluctance of U.S. courts to prohibit excessive prices remains one of the main features which distinguishes American antitrust enforcement from European competition enforcement.³³ This distinctive feature is fortunate and should be preserved.

Indeed, in the famous *Kodak* case, the judge considered that a “pristine monopolist...may charge as high a rate as the market will bear.”³⁴ Perhaps the most untarnished defense of market prices over price regulation by dominant firms who competed on the merits came from the U.S. Court of Appeals for the Seventh Circuit which stated, in the *Blue Cross* case, that,

[a] natural monopolist that acquired and maintained its monopoly without excluding competitors by improper means is not guilty of “monopolizing” in violation of the Sherman Act...and can therefore charge any price that it wants... for the antitrust laws are not a price-control statute or a public utility or common-carrier rate-regulation statute.³⁵

The Supreme Court reiterated this reluctance to strike down excessive prices in the *Trinko* case stating,

The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts “business acumen” in the first place; it induces risk taking that produces innovation and economic growth. To

³³ Article 102 of the Treaty of the Functioning of the European Union prohibits a dominant firm from “directly or indirectly imposing unfair purchase or selling prices.” See, e.g., Case 26/75, *General Motors Continental v. Commission* [1975] ECR 1367, at para. 12 (considering that “that a dominant firm’s price is unfair if it is “excessive in relation to the economic value of the service provided.”); Case 27/76, *United Brands v. Commission* [1978] ECR 207, at para. 249–250 (considering that “charging a price which is excessive because it has no reasonable relation to the economic value of the product supplied would be... an abuse.”).

³⁴ *Berkey Photo, Inc. v Eastman Kodak Co.*, 603 F.2d 263, 297 (2d Cir. 1979).

³⁵ *Blue Cross and Blue Shield United of Wisconsin v. Marshfield Clinic*, 65 F.3d 1406, 1413 (7th Cir. 1995), citing *National Reporting Co. v. Alderson Reporting Co.*, 763 F.2d 1020, 1023-24 (8th Cir. 1985); *U.S. v. Aluminum Co. of America*, 148 F.2d 416, 430 (2d Cir. 1945); *Ball Memorial Hospital, Inc. v. Mutual Hospital Ins., Inc.*, 784 F.2d at 1325, 1339 (7th Cir. 1986); *Berkey Photo*, 603 F.2d at 296-98.).

safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.³⁶

U.S. antitrust authorities refrain from directly intervening to reduce excessive prices. Instead, they assess the level of competition in a sector and prevent practices (such as mergers or collusive practices) which may “lead to...higher prices” without however assessing to what extent current prices are excessive.³⁷ In other words, the agencies act against anticompetitive practices that may lead to higher prices, not actual price levels. It is a more dynamic approach to assess prices over time rather than a static analysis where prices are critically assessed in absolute terms without a time dimension.³⁸ Such a dynamic approach, although not optimal as it overly focuses on prices as an indicator for competition, nevertheless represents a better approach than the static approach that European competition agencies too often adopt.³⁹ As the Organization of Economic Cooperation and Development notes,

competition authorities are often extremely reluctant to take enforcement action in case of exploitative conduct by dominant firms in general and excessive price abuses in particular. Instead, competition authorities prefer to focus on exclusionary abuses, that is, anticompetitive

³⁶ *Verizon Communications, Inc v Law Offices of Curtis V. Trinko*, 124 S. Ct. 872, 875, 879 (2004).

³⁷ See, e.g., *United States v. Trans-Missouri Freight Ass*, 166 U.S. 290 (1897); *United States v. Trenton Potteries Co*, 273 U.S. 392 (1927); *United States v. Aluminum Co. of America*, 148 F.2d 416 (2d Cir. 1945).

³⁸ See, e.g., Michal Gal, “Monopoly Pricing as an Antitrust Offense in the U.S. and the EC: Two Systems of Belief About Monopoly?” *The Antitrust Bulletin* 49 (2004): 343-384, <https://journals.sagepub.com/doi/10.1177/0003603X0404900109> (“The problem with the above analysis is that it is a static one: it analyzes a situation at a given point in time and disregards the dynamics that led to that situation or that are created by it. Dynamic models recognize that efforts to become a monopoly and enjoy high prices are the fuel of the competitive process of innovation, of the wish to get ahead of rivals, although such efforts might sometimes be wasteful.”).

³⁹ See, e.g., *Sierna v. Eda* [1971] ECR 69; Case 26/75 *General Motors v. Commission* [1975] ECR 1367; Case 27/76 *United Brands v. Commission* [1978] ECR 207; Case 30/87 *Corinne Bodson v. Pompes Funebres* [1998] ECR 2479; Case 110/99 *Lucazeau v. SACEM* [1989] ECR 2811. However, even the European Commission itself acknowledged the need to depart from the sheer prohibition of “excessive” pricing. See European Commission, “XXVIIth Commission Report on Competition Policy” (1997), para. 77 (“The Commission in its decisionmaking practice does not normally control or condemn the high level of prices as such. Rather it examines the behaviour of the dominant company designed to preserve its dominance, usually directly against competitors or new entrants who would normally bring about effective competition and the price level associated with it.”).

conduct by dominant firms aiming at excluding or driving competitors out of the market and thus allowing the dominant firm to maintain or strengthen its market position.⁴⁰

Such reluctance is warranted. U.S. antitrust agencies should maintain their tradition of scrutinizing potential exclusionary practices rather than dubious exploitative practices. Claims that app stores charge excessive commission fees amount to claims of excessive pricing. Because claims of excessive prices are legitimately rejected by antitrust authorities in general and by U.S. antitrust agencies in particular, it appears that the antitrust concerns regarding anticompetitive prices by app stores are overblown. The forthcoming report of the NTIA should take into consideration the legitimate unwillingness of U.S. antitrust authorities to strike down alleged excessive prices. Therefore, the NTIA report should focus on the competitive dynamics of the app economy rather than on the less relevant notion of actual prices.

Claims of Excessive Pricing Do Not Apply to App Stores

But should the NTIA nevertheless decide to investigate claims of excessive pricing by app stores, it is clear that such claims cannot be supported by the evidence. Indeed, historically, Apple and Google have charged 30 percent for in-app purchases. This 30 percent fee is consistent with standard industry practice. Indeed, many other app stores, including Samsung Galaxy, Amazon, Microsoft Xbox, Sony PlayStation, and Steam, also charge commission fees of 30 percent. The only outlier is the Epic Games store which applies a 12 percent commission fee. Therefore, the commission fees charged by Apple and Google cannot be viewed as excessive.

Despite charging commission fees consistent with industry practice, Apple and Google have introduced price discrimination in order to differentiate between successful, high revenue developers and low revenue developers and startups. Price discrimination fosters efficiency in app markets by enabling the participation of smaller developers who might otherwise not find it profitable to develop apps under uniform pricing. Price discrimination maximizes creation and innovation by ensuring that developers of all sizes have access to the app ecosystem.

Apple has reduced its commission fees for developers earning less than \$1 million annually. The majority of app developers are thus subject to a 15 percent fee rather than a 30 percent fee.⁴¹ Google also announced a fee

⁴⁰ OECD, “Excessive Prices”, (2011), <https://www.oecd.org/competition/abuse/49604207.pdf>, 9 (also noting at 12 that “Competition authorities are reluctant to engage in price regulation, which is frequently viewed as the most obvious and straightforward remedy in excessive price cases.”).

⁴¹ Samuel Axon, “Apple Drops Its Cut of App Store Revenues from 30% to 15% for Some Developers,” *ArsTechnica*, November 18, 2020, <https://arstechnica.com/gadgets/2020/11/apple-lowers-its-cut-of-app-store-revenues-for-some-developers/>.

cut to 15 percent but which applies to the developer's first \$1 million of revenue regardless of total revenue.⁴² Finally, Amazon has announced a fee cut to 20 percent for developers earning less than \$1 million annually.⁴³ Given Amazon's lack of market power in the app store market, its decision not to match Google's and Apple's fee reductions does not demonstrate anticompetitive conduct. And despite Google's and Apple's alleged app store market power, they now offer the lowest app store commission fees, albeit with different pricing structures.

It is also worth noting that this discrimination in commission fees is solely based on developer size and not based on the type of app or whether the app competes with an Apple or a Google app. For example, the commission fee for Spotify, a music app for which both Apple and Google have competing apps, is the same as the commission fee for Tinder, a dating app for which Apple and Google do not have competing apps. A price discrimination scheme that depends on the extent of competition with Apple and Google could be viewed as anticompetitive if it was designed to give Apple or Google an advantage over competing apps. Given that the same fee level applies regardless of app type, this fee structure does not run afoul of the antitrust laws.

Furthermore, the commission fee structure itself is a form of implicit price discrimination that encourages app entrepreneurship. App developers pay low fixed fees, and in some cases no fees at all, to access the development tools necessary to create apps.⁴⁴ The use of commission fees on in-app purchases results in higher prices for successful, high revenue apps and lower prices for less successful apps or recently launched apps. This business model reduces the startup costs for app development allowing developers to take more risks. If app stores were required to significantly reduce or eliminate commission fees, the app stores might be forced to charge higher fees to access their development tools thereby reducing innovation, entrepreneurship, and the vibrancy of the app ecosystem. Powerful developers now challenge the innovation-enhancing business model that enabled their success. Indeed, powerful players such as Epic Games and Spotify have brought lawsuits and have advocated for regulations that would benefit them at the expense of the price discrimination scheme which fosters app entrepreneurship with lower total fees for small developers. The case of *Epic Games v Apple* is illustrative of the

⁴² Samuel Axon, "Google Undercuts Apple with New 15% Revenue Share for Play Apps," *ArsTechnica*, March 16, 2021, <https://arstechnica.com/gadgets/2021/03/google-undercuts-apple-with-new-15-revenue-share-for-certain-play-apps/>.

⁴³ Samuel Axon, "Amazon Joins Apple, Google by Reducing Its App Store Cut," *ArsTechnica*, June 17, 2021, <https://arstechnica.com/gadgets/2021/06/amazon-joins-apple-google-by-reducing-its-app-store-cut/>.

⁴⁴ Apple Developer Support website, accessed May 18, 2022, <https://developer.apple.com/support/compare-memberships/>.

need for antitrust to prevent judicial rent-seeking activities at the expense of the dynamism of the app economy.⁴⁵

Additionally, it is important to note that Apple’s and Google’s fees of 30 percent are relatively cheap compared to the fees charged by Chinese competitors. “Chinese Android stores frequently take cuts of about 50%.”⁴⁶ For example, both Huawei and Xiaomi apply a 50 percent commission fee in their app stores.⁴⁷ In that regard, contrary to claims that the U.S.-based app stores abuse their monopoly power, Chinese commentators remind us that in reality the 30 percent fee appears quite competitive in light of the pricier Chinese app stores. The fees charged by Google and Apple can hardly be viewed as anticompetitive when in a large economy such as China where alternative app stores exist, the app store commission fees are at 50 percent. In other words, there cannot be an excessive pricing claim when the prices in other similarly competitive markets are even higher.⁴⁸ It is clear that app stores face price competition, with a level of fees that is in line with industry practices. Consequently, not only is antitrust jurisprudence legitimately skeptical about claims of excessive pricing but such a claim cannot be sustained in relation to app store fees.

Exclusionary Practices: Avoiding an App Market for Lemons

The allegation that the two main app stores—Apple App Store and Google Play Store—engage in anticompetitive conduct by excluding app developers from their platforms remain the most forcefully articulated claim supporting the idea of an app economy lacking competition. The main legal actions undertaken so far include the case *Epic Games v Apple*, the lawsuit launched by 37 attorneys general against Google Play Store, and the European Commission’s charges against the Apple App Store following Spotify’s complaint.⁴⁹ Each of these

⁴⁵ Adi Robertson and Sean Hollister, “Microsoft Announces App Store Rules to Prove Its Okay with New Laws,” *The Verge*, February 9, 2022, <https://www.theverge.com/2022/2/9/22925544/microsoft-open-app-store-principles-windows-xbox>.

⁴⁶ Zheping Huang, “China’s App Store Fees Make Apple’s Look Cheap,” *Bloomberg*, October 8, 2020, <https://www.bloomberg.com/news/newsletters/2020-10-08/china-s-app-store-fees-make-apple-s-look-cheap> (noting that “in China, a 30% cut of app sales sounds pretty good.”).

⁴⁷ *Id.*

⁴⁸ See, e.g., David Gilo and Yossi Spiegel, “The Antitrust Prohibition of Excessive Pricing,” *International Journal of Industrial Organization* 61 (2018): 503-541, <https://doi.org/10.1016/j.ijindorg.2018.05.003> (“to assess whether it is excessive, the dominant’s price is often compared with price benchmarks.”).

⁴⁹ *Epic Games, Inc. v Apple Inc.*, 493 F. Supp. 3d 817 (N.D. Cal. 2020). *State of Utah et al. v Google LLC et al.*, Case No 3:21-cv-05227, (N.D. Cal. 2021), <https://attorneygeneral.utah.gov/wp-content/uploads/2021/07/Utah-v-Google.1.Complaint-Redacted.pdf>. European Commission, “Antitrust: Commission Sends Statement of Objections to

three lawsuits results from complaints expressed by large app companies dissatisfied with the app stores' fees and internal rules.

The exclusion of spam, scams, and fraudulent apps cannot be considered to be an anticompetitive exclusionary practice. Exclusionary practices for the benefits of consumer safety, device integrity, and overall cybersecurity objectives do not harm the competitive process. This is competition on the merits and not an unfair method of competition.⁵⁰ This necessary exclusion of fraudulent apps requires a vetting process for which both Apple and Google have gained considerable experience and are widely recognized. One commentator noted that “what Apple and Google are really good at is ensuring the apps on their platforms are high quality and safe. Especially Apple which has always locked down the App Store tightly, and increasingly Google as well, which recently banned multiple apps from Google Play due to allegedly fraudulent ad practices.”⁵¹

Apple has the most stringent policies and rules with respect to its vetting process. Often described as a “walled garden,” Apple’s commitment to the highest level of security may sometimes lead to the exclusion of a large number of apps. However, Google’s allegedly open ecosystem appears to be increasingly subject to quality controls given the increase of scams and malware. Consequently, the blunt juxtaposition between an open ecosystem (i.e., Google) and a closed ecosystem (i.e., Apple) may be an overly simplistic portrayal of reality. The truth is that both app stores have rules and policies which include a vetting process with different levels of requirements. Apple may be more demanding than Google, but it does not suggest that the latter is fully open, let alone striving to lower its quality.

More specifically, the prohibition of sideloading by the Apple App Store enables Apple to offer consumers an ecosystem with different values, priorities, and strategies relative to those of the Google Play Store. In that

Apple on App Store Rules for Music Streaming Providers,” April 30, 2021, https://ec.europa.eu/commission/presscorner/detail/en/ip_21_2061 . See also, Natasha Lomas, “Europe Charges Apple with Antitrust Breach, Citing Spotify App Store Complaint,” *TechCrunch*, April 30, 2021, <https://techcrunch.com/2021/04/30/europe-charges-apple-with-antitrust-breach-citing-spotify-app-store-complaint/>.

⁵⁰Dan Goodin, “Scammers Have 2 Clever New Ways to Install Malicious Apps on iOS Devices,” *ArsTechnica*, March 16, 2022, <https://arstechnica.com/information-technology/2022/03/scammers-have-2-clever-new-ways-to-install-malicious-apps-on-ios-devices/>.

⁵¹ John Koetsier, “There Are Now 8.9 Million Mobile Apps, And China is 40% of Mobil App Spending,” *Forbes*, February 28, 2020, <https://www.forbes.com/sites/johnkoetsier/2020/02/28/there-are-now-89-million-mobile-apps-and-china-is-40-of-mobile-app-spending/?sh=a82086c21dd5>.

regard, competition not only takes place within app stores, but between app stores.⁵² Apple prohibits sideloading and third-party app stores on its devices whereas Google allows these possibilities. Consequently, Google incentivizes more app creation but Android devices have 15 to 47 times more malware infections than iPhones.⁵³ With more than 230,000 new malware infections per day, smartphone devices are prone to scams and are ideal prey for cybersecurity threats.⁵⁴ In light of these cybersecurity risks, which are also national security risks since the malware often originates from rival foreign powers, the need to have thorough vetting processes whereby operating systems ensure data privacy, security, and integrity of the smartphones is increasingly important.⁵⁵ Consumers view Apple devices to be of higher quality due to its demanding vetting process and are willing to paying higher prices for this increased quality and security. To erase such differences in app store rules would erase quality and price competition between app stores and, ultimately, between devices—hence harming and distorting the competitive process rather than preserving it.

The ability for app stores to have a strong and reliable vetting process whereby scams, malware, fraudulent apps, and other products can be excluded from the platform speaks to the ability of app stores to create a market populated with valuable apps. Given the informational asymmetries between ignorant consumers and fraudulent apps, it is necessary that exclusion from app stores remains a credible threat for app developers, else the entire market for apps may degrade into a market for “lemons.”⁵⁶ Should the vetting process of app stores

⁵² Daniel Castro, “Banning ‘Closed’ Mobile Ecosystems Would Hurt Consumer Choice and Competition”, *Innovation Files*, January 23, 2022, <https://itif.org/publications/2022/01/23/banning-closed-mobile-ecosystems-would-hurt-consumer-choice-and>.

⁵³ Apple, “Building a Trusted Ecosystem for Millions of Apps. A Threat Analysis of Sideloading,” October 2021, https://www.apple.com/privacy/docs/Building_a_Trusted_Ecosystem_for_Millions_of_Apps_A_Threat_Analysis_of_Sideloading.pdf. See also Apple, “Building a Trusted Ecosystem for Millions of Apps. The Important Role of App Store Protections”, June 2021, https://www.apple.com/privacy/docs/Building_a_Trusted_Ecosystem_for_Millions_of_Apps.pdf.

⁵⁴ See National Cyber Security Center, “Threat Report on Application Stores”, May 4, 2022, <https://www.ncsc.gov.uk/files/Threat-report-on-application-stores-web-v2.pdf> (“While all app stores share the same threat profile, mobile app stores are the most commonly targeted due to the sheer number of smartphone users, and the wealth of data stored on modern smartphones.”).

⁵⁵ Julie Carlson, “Open Letter to Speaker Pelosi and Minority Leader McCarthy Regarding National Security Concerns With Antitrust Bills,” February 1, 2022, https://www2.itif.org/2022-national-security-antitrust-letter.pdf?_ga=2.177515685.1222927579.1652105562-2009863986.1651164248.

⁵⁶ George Akerlof, “The Market for ‘Lemons’: Quality Uncertainty and the Market Mechanism,” *The Quarterly Journal of Economics* 84 (1970): 488-500, <https://doi.org/10.2307/1879431>. See also Jonathan Levin, “Information and the Market

be loosened in the name of fairer competition, consumers will have a harder time telling apart the bad apps from the good apps since the vetting processes of app stores will become less effective, or nonexistent, given the risks of antitrust liability. Consequently, the market for apps may decline or even implode. Consumers will download fewer apps, small app developers without brand loyalty will be most hurt, thereby leading to a stagnant, non-innovative market for apps at the expense of consumers and innovation.

Competition reforms must not create a market for app “lemons.” Quality certification through the vetting process of app store rules is necessary (not contradictory with) a thriving market for apps which fosters innovation and generates consumer benefits.

CONCLUSION

The NTIA’s request for comment in anticipation of the report on competition in the app economy proves necessary given the complexity of the app economy but also given the misunderstanding of the antitrust implications of some current practices by app stores. We have demonstrated that not only is the app economy overwhelmingly competitive but also that antitrust concerns are overblown. The main criticisms fail to represent anticompetitive practices. App stores fees are not excessive when compared to relevant benchmarks, and exclusionary policies prove necessary for quality assurance of apps and security guarantees for devices. Consequently, it is of particular importance that the NTIA focuses on its forthcoming report on how to preserve innovation in the app economy without undermining current innovative efforts and stifling current consumer benefits derived from a vibrant app economy.

It is noteworthy that some app stores have recently issued some industry principles that they intend to abide by. One important example is Microsoft. The company has issued a set of principles applicable to its app stores.⁵⁷ These principles depart from the policies adopted by Apple and Google for their respective app stores.

for Lemons,” *The RAND Journal of Economics* 32 (2001): 657-666, <https://www.jstor.org/stable/2696386>; Eric W. Bond, “A Direct Test of the ‘Lemons’ Model: The Market for Used Pickup Trucks,” *The American Economic Review* 72 (1982): 836-840, <https://www.jstor.org/stable/1810022>; Jae-Cheol Kim, “The Market for ‘Lemons’ Reconsidered A Model of the Used Car Market with Asymmetric Information,” *American Economic Review* 75 (1985): 836-843, <https://www.jstor.org/stable/1821360>; Dennis E. Smallwood and John Conlisk, “Product Quality in Markets Where Consumers are Imperfectly Informed,” *The Quarterly Journal of Economics* 93 (1979): 1-23, <http://www.jstor.com/stable/1882595>.

⁵⁷ Brad Smith, “Adapting Ahead of Regulation: A Principled Approach to App Stores,” *Microsoft Blog*, February 9, 2022, <https://blogs.microsoft.com/on-the-issues/2022/02/09/open-app-store-principles-activision-blizzard/>; Adi Robertson and Sean Hollister, “Microsoft Announces Open App Store Rules to Prove It’s Okay with New Laws,” *The Verge*, February 9, 2022, <https://www.theverge.com/2022/2/9/22925544/microsoft-open-app-store-principles-windows-xbox>.

Microsoft’s app store principles illustrate the point we made above but is worth emphasizing by way of conclusion. Competition takes place not only within app stores but between app stores with respect to applicable rules, policies, and pricing. Indeed, app developers may “vote with their feet” and choose a particular app store over others depending on these features. Such quality and rule-based competition between app stores is an essential part of the competitive process. The creation of uniform rules for all app store rules would deprive consumers and developers of the competition arising from differentiated ecosystem thereby harming innovation and app entrepreneurship.

The current antitrust bill (i.e., S.2710) fails to grasp the dynamics of the innovative app economy, and ongoing lawsuits are aimed at rent-seeking through the judicial process rather than promoting consumer welfare. Instead of these ill-suited approaches to competition in the app economy, it is advisable that the NTIA report recognizes and preserves this type of competition—namely, competition through differentiation.

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