Media Ownership and Concentration in the United States of America, 1984-2023

Global Media & Internet Concentration Project

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Acknowledgements

This report is an initial summary of the work carried out by Jason Buckweitz and Eli Noam as part of the Global Media and Internet Concentration Project. The project covers 38 countries and aims to assess the evolution of and concentration trends in around thirty sectors of the communication, internet and media industries. This project builds on previous work by Eli Noam between 2009 and 2016 under the banner of the International Media Concentration Project. The GMIC Project is actively supported by the Social Sciences and Humanities Research Council of Canada (SSHRC) and housed at Carleton University in Ottawa, Canada.

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Executive summary

This report presents an in-depth analysis of media concentration in the United States over a 40-year period. The study aims to provide empirical data to a debate often driven by opinions rather than facts, focusing on the evolution of media ownership and its impact on information capital and societal influence.

The report covers various media sectors, including wireline, wireless, internet service providers (ISPs), online video, broadcast television, and multichannel video distribution. It highlights the transformation from traditional media to digital platforms, the rise of over-the-top (OTT) services, and the dominance of a few key players in the search engine market.

Key findings include:

- The US has witnessed substantial growth in the media industry. In 1984, the industry was worth $194 billion. By 2022, it had grown sevenfold to reach $1.34 trillion, around 5% of the US Gross National Product for that year.
- Four of the five largest media companies in the United States are traditional media distribution companies, including Verizon, AT&T, T-Mobile, and Comcast. These companies dominate the top 25 media companies due to the significant revenue generated from distribution, which makes up 42% of all media revenue.
- Alphabet/Google is the only non-distribution company in the top 5 and is ranked as the 3rd largest media company in the US. With its dominance of the internet advertising market, which represents 18% of US media revenue, this is not surprising. Big Tech, the companies formed from the internet, is becoming an important component of the US media industry, representing 18.3% of all media

revenue in 2022, more than 3 times the amount it did 5 years ago, and more about 9 times as much as it did in 2012, when it accounted for 2.4%.

- The common perception that the United States is dealing with significant concentration and excessive power among a small group of companies doesn't completely match the data. Although some sectors, such as the search industry, show near-monopoly levels of market concentration, most other sectors are moderately concentrated or fully competitive.
- The wireline industry has seen a significant decline in revenue due to the rise of wireless and digital communication, with major players like AT&T and Verizon facing competition from new entrants offering low-cost options.
- The wireless market has experienced consolidation, with the top players providing services that cover nearly 98% of households. The average data consumption per subscriber has grown exponentially, indicating a shift towards wireless as the primary internet consumption medium.
- The ISP industry, a significant contributor to the digital economy, has seen the boundaries between wireline, wireless, and ISP industries blur, leading to a unified market of distribution.
- The search engine market has consolidated into the hands of a few major players, with Google and Microsoft controlling over 97% of the industry by 2022. The launch of smartphones and the subsequent shift to mobile search have been pivotal in this concentration.
- Broadcast television and multichannel video distribution have faced challenges from OTT services, leading to a decline in viewership and ad revenue. OTT video has surpassed linear TV in daily consumption time among US adults.
- The online video market has democratized content creation and distribution, with platforms like Atom Films providing outlets for independent filmmakers.
- The report also notes the methodological challenges in data collection due to inconsistent reporting across companies. Despite these challenges, the authors have engaged in rigorous data analysis to provide a comprehensive understanding of media concentration in the United States.

Introduction

The issue of media concentration has sparked concerns globally. Large conglomerates have drawn attention and fear due to their potential influence over public opinion, democracy, and culture. This debate is part of a wider conflict over information control, and the public is particularly concerned about media power. The economic significance and influence of media make their ownership distribution a major concern.

The issue is also a perennial one. Indeed, the history of media in the United States dates back to the founding of the country, with the importance of the newspaper press being central to the American Revolution. In fact, the first American media mogul was Benjamin Franklin, one of the country's founders[1] who owned seven newspapers, plus magazine and book publishing operations, at the same time that he also functioned for a while as the Postmaster General of his state and later the country. Indeed, the United States has generally been the vanguard of new media. While Guglielmo Marconi is credited as the father of Radio, it was Nikola Tesla who produced the first demonstration of radio in St Louis, Missouri. While France's Lumière brothers developed the camera, it was Hollywood, California that brought to prominance cinema and the movie industry. The United States also led the creation of the telephone (Alexander Graham Bell), television (Philo Farnswarth), the Internet (United States Defense Department/Robert Metcalfe/Vint Cerf/Robert Kahn), and streaming video (RealNetworks).

Given the first mover position in many media industries, it is no surprise that large firms typically developed that dominated their respective industries. Some examples include Western Union (telegraph), AT&T (telecommunications), Hearst Communications (newspapers), Munsey Company (magazines/newspapers), the Edison Trust/Motion Picture Patents Company (film), IBM (computers), and others.

With its long history of strong presence in various media industries, it is not surprising that discussions on media concentration are not a new phenomenon in the United States. In fact there is a long and contentious history, commented upon and fought over at each stage in the country's past. It is one of the fundamental issues of distribution of power and wealth that each generation needs to resolve.

The issue of media concentration involves the concern of communication media being controlled by a decreasing number of conglomerates, impacting public opinion and global culture. This debate mirrors the industrial-age struggle over the means of production. Similar to the wider inequality debate, the conflict over media concentration is part of a larger movement for control of information resources. Critics are wary of the influence of media on society, attributing societal issues to the media system and its

[1] Isaacson, Walter. *Benjamin Franklin: An American Life*. New York: Simon & Schuster, 2003, p. 126.

owners. With media revenues accounting for about 10% of the US GDP and influencing over half of individual's discretionary time, the distribution of their ownership is a significant question.

The distribution of media ownership plays a significant role in the distribution of "information capital" and wealth. Those concerned about the influence of media view mergers and expansions as affirmations of their fears. Others believe in the self-correcting nature of technology and market forces. However, the debate lacks thorough data analysis, making it frustrating. As such, there is a necessity for comprehensive social science research on this issue.

This report seeks to address this issue, by analyzing the various media sectors in the United States over a roughly 40-year period and identifying the various idiosyncrasies of the markets, along with trends in ownership. This analysis is carried out with no preconceived notion, but rather as an attempt to provide data to an area where generally opinions are strong but empirical data is weak. In the view of some media analysts, there has been a sustained perception of diminishing media quality over several decades. With others, there is a belief held that the Internet and market dynamics are dismantling conventional barriers, giving rise to a resurgence in media content. This paper therefore aims to provide and build upon the existing data while analyzing and providing context to the dynamics.

Data was culled from publicly available resources, almost always regulatory filings by the companies themselves. However, while it would be preferred that companies openly report exactly along industry lines, instead there are many vagaries and inconsistencies across companies. For instance, one telecom company may report its wireline voice consumers openly while another may comingle wireline, wireless, and over-the-top voice together with other services. To rectify this, authors had to engage in considerable detective work and some judgment calls were necessary. The underlying data workbooks that accompany this report contain detailed notes about the assumptions taken in creating this report.

This report is organized across individual industries, designed to give a historical background to the industry, how it formed up, and who the major players are along with presenting 40 years' worth of ownership data. As the report progresses it begins to amalgamate data, bringing together overlapping industries to provide a more holistic view of the situation for users, and more accurately reflecting the ownership situation. As the report concludes, it brings together the entire media landscape, showing the true influence of particular media owners.

Wireline

Wireline communication in the United States began in the 1850s with the creation of the telegraph companies. The most well-known of which was Western Union, along with American Telegraph Company.[2] These two companies dominated the emerging wireline communication business, allowing tens of millions of messages to be sent long distance, almost instantly, each year. The technology was then improved upon by Alexander Graham Bell who developed a technique for transmitting voice over long distance as well. The company which administered Bell's patents, Bell Patent Association, even offered to sell the patents to Western Union for $100,000 (equivalent to $2.8 million dollars in 2023).[3] However, Western Union declined the offer and Bell and his cohorts created a company that would eventually become known as American Telephone and Telegraph Company, shortened to AT&T.

AT&T would grow quickly and dominate the wireline business, including for a short time acquiring Western Union, the company they had initially attempted to sell themselves to.[4] In 1913, following an investigation by the United States government into antitrust violations, the government entered into an agreement with AT&T, known as the Kingsbury Commitment. Under the agreement, AT&T would sell its Western Union interest and permit access by independent telephone companies to interconnect with the AT&T long-distance network. In return, the government would forgo bringing an antitrust case. This action then led to AT&T's 70-year dominance of the wireline market. Before its 1984 divestiture, AT&T accounted for nearly 77% of local telephone revenues nationally.[5]

In 1974 the United States began again investigating AT&T for antitrust violations. At the same time private companies such as MCI, filed antitrust lawsuits against AT&T due to concerns regarding the company's ability to unfairly outcompete its rivals. Specifically, AT&T was accused of using profits from its monopolistic local services to subsidize its competing long-distance operations while also limiting its long-distance competitors'

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[2] Nonnenmacher, Tomas. "History of the U.S. Telegraph Industry." Economic History Association https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/

[3] "Bell Telephone v. Western Union (1879) Top 10 Legal battles Technology. *The Guardian* August 6, 2007.https://www.theguardian.com/technology/2007/aug/06/bellvwestern

[4] Niederkorn, William S. "AT&T Buys Dominant Stake in Western Union" *The New York Times* November 17,1909 https://archive.nytimes.com/timestraveler.blogs.nytimes.com/2009/11/17/att-buys-dominant-stake-in-western-union/

[5] Noam, Eli. "Media Concentration in the United States" *Who Owns the World's Media? Media Concentration and Ownership around the World.* Oxford University Press 2016.

access to its local customers. After facing unfavorable rulings in the lower court in 1981, AT&T opted to settle the case by entering into a consent decree. This decree, changed several times, has become known as the Modified Final Judgement and controlled the breakup of AT&T. Under the terms of the divestiture decree AT&T was separated into 22 local operating companies organized into seven independent companies, which became colloquially known as “the Baby Bells”.

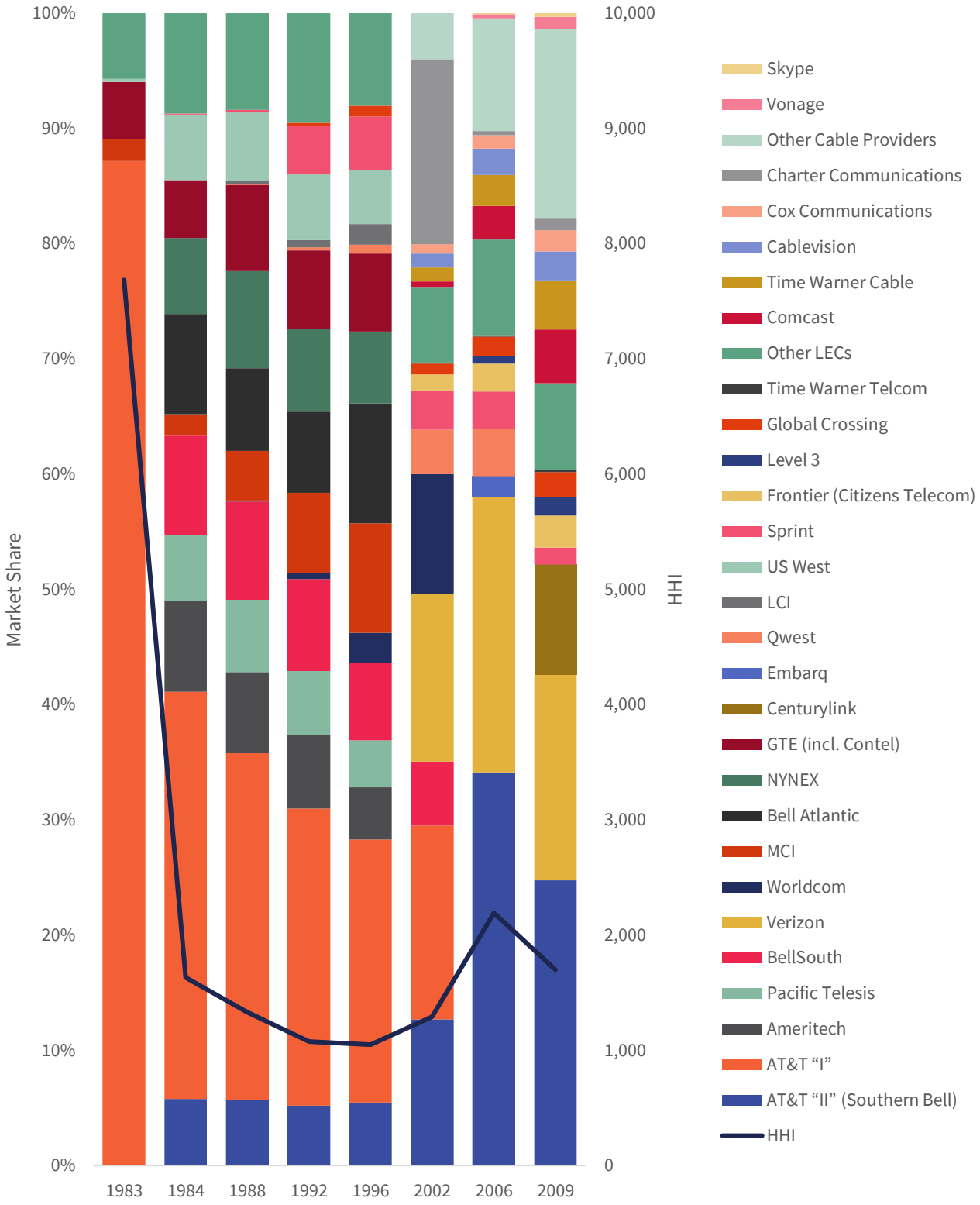
Prior to the 1984 split, the national wireline HHI was at almost 8,000. Within five years, that number had dropped dramatically to 1,331. The subsequent trend was major rush to entry, followed by a reconsolidation. Of the seven independent companies created by the divestiture, only two survived, having acquired the other five. Bell Atlantic (which covered New Jersey, Pennsylvania, Virginia, and West Virginia) and Southwestern Bell (which covered Arkansas, Kansas, Missouri, Oklahoma, and Texas) remain as the de facto duopoly in the wireline provider industry, known today as Verizon and AT&T respectively.

Competition expanded in the 2000s, as cable companies gained considerable ground in the consumer landline market with the introduction of DOCSIS (Data over Cable Service Interface Specification), and the adoption of broadband internet (replacing dial-up internet). Cable’s collective share increased steadily from 5% in 2002 to almost 20% by 2010. In addition, stand-alone VoIP providers, including Vonage, Skype and Ooma, also played a role in the wireline market, providing a low-cost alternative to telecom and cable telephony. But their total share by revenue was below 2%.

After the telecommunications industry was split up in 1984, the wireline market became highly competitive. The way the industry operated also changed dramatically during this period. As competition increased, companies began looking for ways to differentiate themselves. One popular approach was to shift from the a-la carte usage model, where users paid depending on when, where, and how long they called someone, to an "all you can eat" flat-rate concept. This allowed users to call anyone for as long as they wanted, all for one low price.

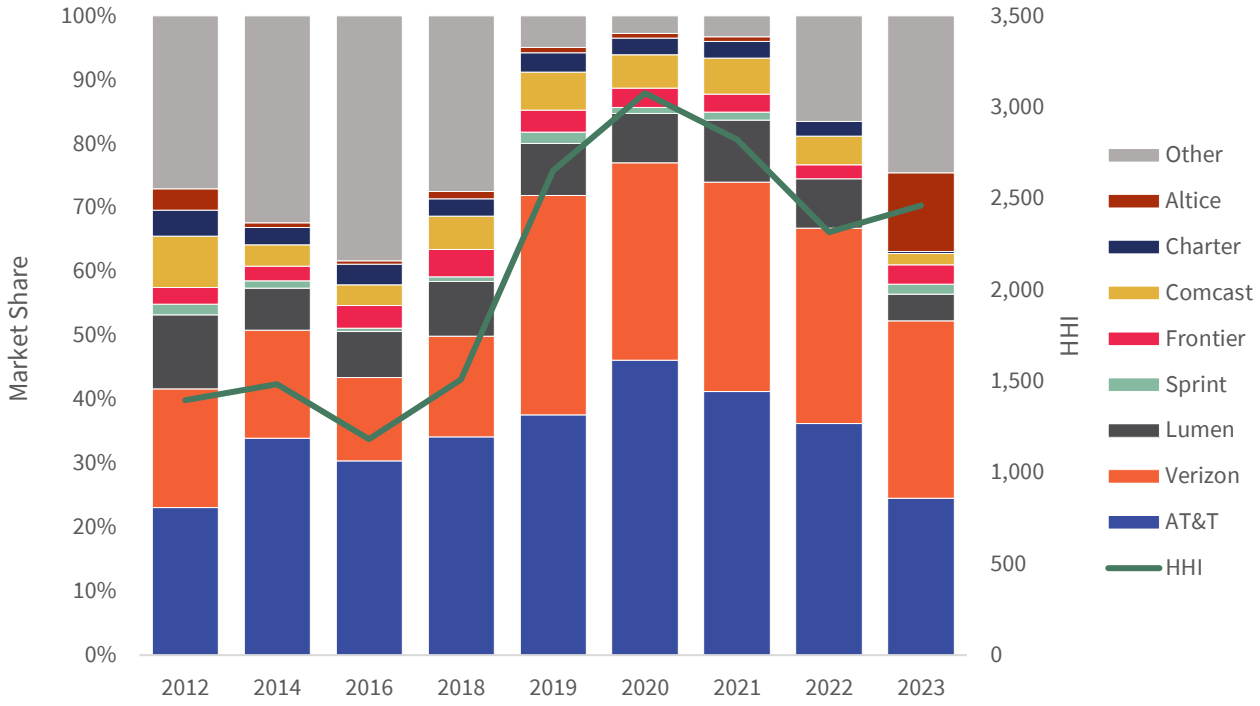
At the same time, the rise of the wireless market presented its own challenges. Customers began to question the need for both a fixed line and a mobile line, especially when the latter offered more services. Similarly, the broadband internet market began offering voice over IP, an extremely low-cost option that further competed with the traditional wireline players. As a result, the industry experienced a significant drop in revenue, plummeting from $247 billion in 2002 to a meagre $67 billion in 2022. With only one quarter of the revenue available from 20 years earlier, it's no surprise that many companies either merged or left the market altogether.

Figure 1: Wireline Telecom Market Shares, 1983-2009[6]



[6] Noam, Eli. "Who Owns the World's Media? Media Concentration and Ownership around the World" Oxford University Press 2016.

Figure 2: Market Shares of Major Wireline Companies, 2012-2023



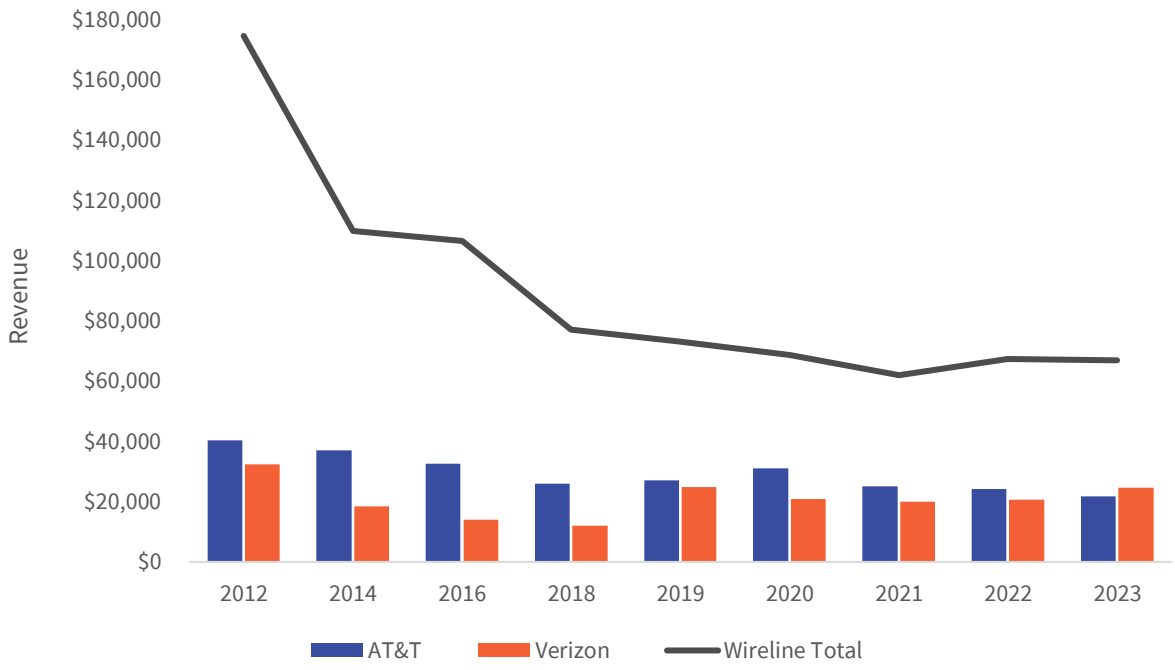
Between 1992 and 2022, there was a significant increase in the national market share concentration of the top four companies. In 1992, their combined market share was 48.1%, which rose to 66.3% by 2012, and eventually reached 78.6% in 2022. This shift in market concentration is also reflected in the industry as a whole. Prior to the divestiture, the Herfindahl-Hirschman Index (HHI) was 7,685. Within five years, it dropped to 1,331 and remained competitive until 2012. However, due to the continued rise in concentration, it has since climbed back up to the mid 2,000s, indicating that the industry is now moderately to highly concentrated.

It is evident that the telecommunications industry is now dominated by just two companies, AT&T and Verizon, which account for a substantial 66% of all industry revenue. This represents a significant increase from a decade ago when their market share was only 42%. Although mergers and acquisitions have played a role, it is worth noting that Verizon actually sold its wireline operations in California, Texas, and Florida to Frontier in 2015. [7] The continued success of these two companies can be attributed to their focus on business line operations, while their competitors have mainly

[7] "Frontier Communications to Acquire Verizon's Wireline Operations in California, Florida and Texas, Doubling Frontier's Size and Driving Shareholder Value" Frontier. February 5th, 2015. https://investor.frontier.com/news/news-details/2015/Frontier-Communications-to-Acquire-Verizons-Wireline-Operations-in-California-Florida-and-Texas-Doubling-Frontiers-Size-and-Driving-Shareholder-Value-02-05-2015/default.aspx#:~:text=(NYSE%3AVZ)%20under%20which,for%20%2410.54%20billion%20in%20cash.

concentrated on residential operations, which have been on the decline. Recent research indicates that a vast majority of adults and children live in households without a landline, a trend that is expected to continue and may lead to the rise of cord-nevers. 72% of adults and 82% of children live in a household without some form of wireline (landline).[8] Comparably, in 2006 this number was only 15.8%.[9] Additionally, the increase in hybrid offices where employees work from home more often is also expected to lead to a shift towards VoIP or "soft phone" services, resulting in a decline in traditional wireline services and further revenue loss for the industry. As a result, there may be more consolidation in the industry in the future.

Figure 3: Major Market Leader and Industry Revenue (millions $), 2012-2023



[8] Blumberg, Stephen J. and Julian V. Lake. "Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July- December 2022" National Center for Health Statistics. May 2023 https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless202305.pdf

[9] Blumberg, Stephen J. and Julian V. Lake. "Wireless Substitution: Early Release of Estimates from the National Health Interview Survey, July- December 2006" National Center for Health Statistics. May 2007 https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless200705.pdf

Wireless

During the 1960s, Bell Labs - which was owned by AT&T - played a major role in the development of cellular radio telephony. Although the technology was ready for application in the 1970s, commercial cellular service did not begin in the United States until 1983 due to the FCC's delay in settling policy over licensing.[10] Much of the delay centered around the allocation of licenses for cellular operators. Initially, the FCC planned to license only one operator per market, which would be the local phone companies. However, smaller wireless companies, known as "radio common carriers", also desired licenses to provide services to taxi cabs, trucking companies, and paging services. As a result, the FCC decided to allocate two licenses for each of the 734 territories. One license was given to the local telecom company, and the other was assigned to an independent operator not affiliated with the local telecom company. Unfortunately, appeals from losing applicants caused further delays. This had slowed the process down significantly that, by 1986, the FCC awarded licenses for the remaining 276 contested markets through a lottery system.[11]

Wireless networks started in earnest in 1983. Prior to that, there had been limited mobile communications available via car phones and short-wave radios. However, in 1983, Motorola and AT&T's Bell Labs premiered the Advanced Mobile Phone System which deployed the first nationwide cellular network. In addition, Motorola released the DynaTAC 8000x, the first commercially available mobile phone. These developments occurred right as the AT&T divestiture was taking place, and as a consequence, it was put to AT&T leadership which they wished to retain. As a consequence of the divestiture, AT&T could only retain one of the two, either Long-Distance calling or the nascent wireless technology. AT&T hired the consulting firm McKinsey to estimate the total addressable market for the newly developed mobile phone service. McKinsey reported back that by the year 2000, the entire global market would be 900,000 customers.[12] Given those low expectations, AT&T agreed to divest wireless and gave it to the newly developed "Baby Bells", retaining long distance, which they had viewed as the

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[10] Noam, Eli. "Chapter 11- Telecommunications Services and Equipment" in Media Ownership and Concentration in America Oxford University Press 2009

[11] Noam, Eli. "Chapter 11: Telecommunications Services and Equipment" in Media Ownership and Concentration in America Oxford University Press 2009.

[12] "Cutting the cord" Special Report A Survey of Telecommunications. The Economist October 7th 1999 https://www.economist.com/special-report/1999/10/07/cutting-the-cord

more profitable division. In practice, McKinsey's estimates were off by a massive amount. In 1999, when they had predicted a total global market of 900,000, instead there were 900,000 new cell phone customers every 3 days, with the United States being one of the largest markets.

Bell Atlantic (now Verizon) and Southwest Bell became two of the largest cellular companies, with Southwest Bell becoming so dominant, they eventually purchased the original AT&T in 2005 and renamed themselves after it. The other two national players in the United States market were T-Mobile and Sprint. Sprint was initially a small player in the wireless market in the 1980s. They expanded with the purchase of a Chicago-based cellular network (Centel) in the early 1990s and grew to become one of the largest cellular networks. Similarly, Germany's Deutsche Telekom decided to enter the US market in the 1990s, and purchased VoiceStream Wireless, renaming it T-Mobile in 2001. Throughout the 2000s, the four major networks began consolidating and acquiring competitors. By 2012, there remained only the four major networks, along with a small handful of regional operators. In addition, there existed a group of mobile virtual network operators, resellers who would buy access to the four major networks and then resell the service to consumers, generally at lower costs than typical plans.

As the market for wireless exploded in the 1990s, and consolidation soon followed, there was another competition going on in the background. Each generation of wireless service was defined by a change in technology, and how wireless communications operated. In the first generation, Advanced Mobile Phone System, all of the players used the same standard. However, this generation was analog and did not function well, and quickly the second generation of wireless was pushed, this time a transition to digital. While Europe mandated one standard, Global System Mobile Communication, or GSM, the United States had four different standards evolve. TDMA, or Time Division Multiple Access, was chosen by the original AT&T as their standard, while CDMA or Code Division Multiple Access was chosen by Verizon and Sprint. In addition, other companies employed either one of the popular selections, the European standard, or I-DEN which stood for Integrated Dispatch Enhanced Network. Thus, with four different, non-interoperative standards, the demand and need for wireless spectrum exploded. The so called "Broadband PCS C Block" auction, saw bidders spend $10 billion for wireless spectrum.[13] By the third generation, a successor had been selected, and CDMA had won out, becoming the standard globally. This again necessitated even more spectrum, as competitors needed to build out their CDMA networks, while continuing to maintain the older second-generation networks, that users phones would only operate on. Thus, for many years, many companies actually ran multiple cellular networks at once. The fourth generation of networks was marked by the transition to Long Term Evolution, or LTE. Once again, new spectrum was needed for this technology, and much of the spectrum would come from the television broadcasters, who were financially compensated for agreeing to free up spectrum. This drove prices even higher, seeing mobile operators spending almost $20 billion on acquiring the spectrum necessary to offer the next

[13] Noam, Eli. "Chapter 11: Telecommunications Services and Equipment" in Media Ownership and Concentration in America Oxford University Press 2009.

generations of wireless, Long Term Evolution (LTE) and 4G/5G. Of that, Verizon and the new AT&T (the rebranded SBC) accounted for 3/4ths of all spending and had won much of the licenses.

Given these extremely high costs, it is not surprising that the 2010s saw continued attempts to further consolidate the wireless market, including AT&T trying to acquire T-Mobile. But these mergers were rebuffed given the already high concentration of the market. In 2018, arguing that Verizon and AT&T had become too dominant on their own, T-Mobile and Sprint announced their intention to merge and eventually convinced regulators to allow the deal to proceed so that there would remain a viable third option for consumers. However, as a condition of the merger, the new T-Mobile would have to assist the viability of a fourth competitor, which became Dish Wireless, a subsidiary of the satellite television company Dish Network. Dish would receive access to the T-Mobile's network, ownership of T-Mobile's prepaid business Boost Mobile, and a major piece of spectrum to build out a network that covered 75% of Americans by 2023. While Dish was able to achieve this, they have not done much to build up a customer base, having only roughly 7 million subscribers by 2023.

Figure 4: Major Wireless Leaders and Industry Revenue (millions $), 2012-2023

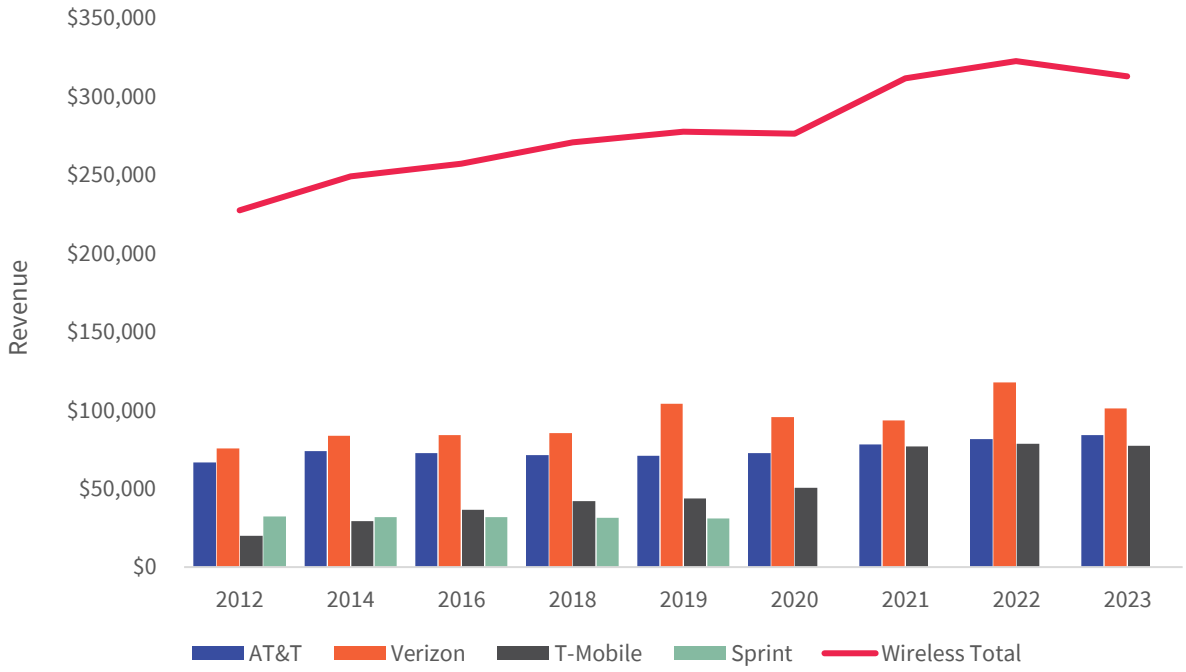
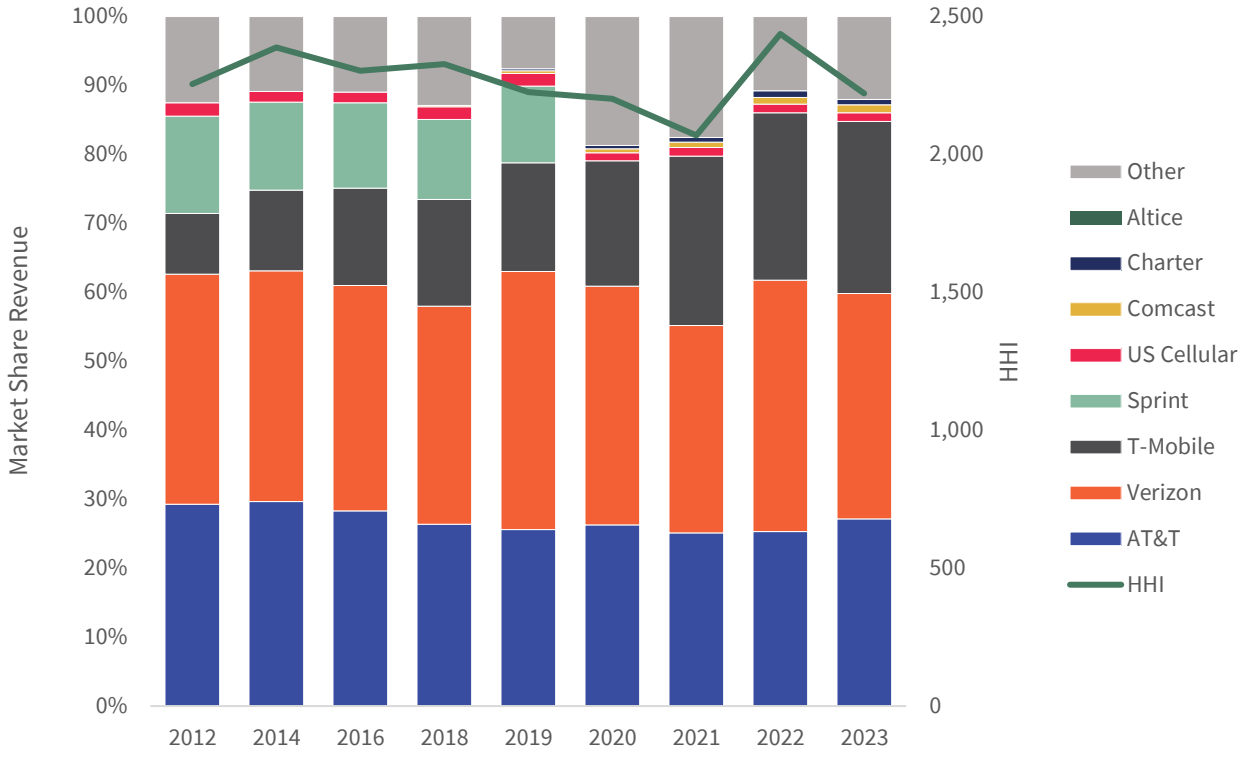


Figure 5: Market Shares of Major Wireless Companies (by Revenue), 2012-2023)



Comparatively, the historic numbers illustrate how the market has evolved over time, leading to more concentration.

Figure 6: Historical Market Shares of Major Wireless Companies (by Revenue), 1983-2009

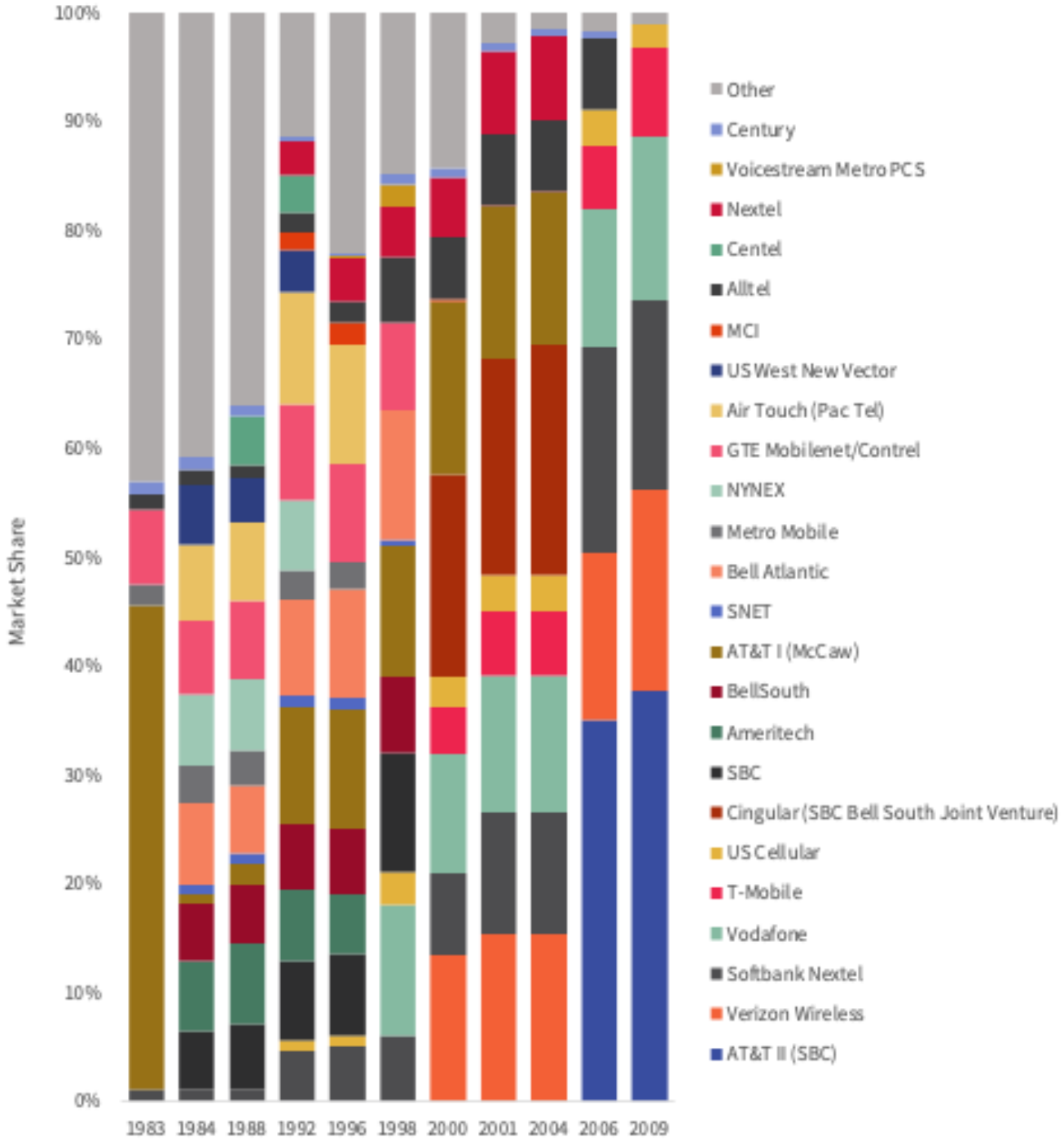
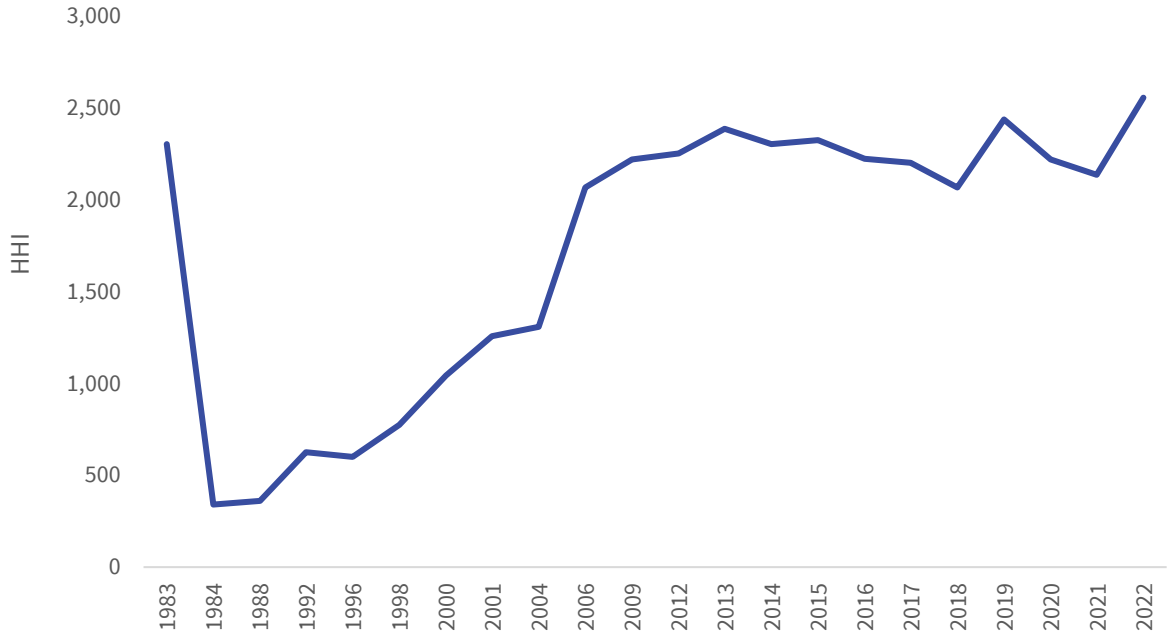


Figure 7: Historical Wireless HHI, 1983-2022



Internet Service Providers

The ISP industry in the United States closely mirrors the history of the Internet itself, as the development of the Internet was initiated by the United States Department of Defense. During the 1960s, Defense Advance Research Projects Agency (DARPA) funded the development of the first packet-switched network by BBN. The network grew rapidly and became ARPANET, which could interconnect local computer networks using TCP/IP. Telenet and Tymnet were launched in the market as competitors, but Telenet was not successful. By the 1980s, ARPANET outgrew its defense link and financing, so the National Science Foundation, an independent agency of the United States Government that oversees research and education, created and funded NFSNET for the civilian part of ARPANET. ANS managed the network and worked with commercial carriers, particularly MCI.[14]

During the time of ARPANET and its later services, the main ISPs would be the standard telecom providers (namely AT&T as it was a de facto monopoly) as access was accomplished through acoustic couplers over the copper phone line. In this period, connections were effectively peer-to-peer. The user dialed directly into the device they wanted to access and to go elsewhere, the user would have to disconnect and dial into a new service. By the 1980s this began to change and the emergence of the first ISPs began. Some examples included Prodigy (initially called Trintex) and The World. Prodigy itself also innovated the ISP market in that it also acted as an early content distribution network. Users would dial a local number to reach a regional point of presence. Once connected, Prodigy would handle connecting the regional point of presence to its data center and transferring the data to the end user, thus preventing the user from having to engage in a long-distance call. Thus, the major ISPs at this point were still the telecom networks along with a few of these dedicated ISP companies.

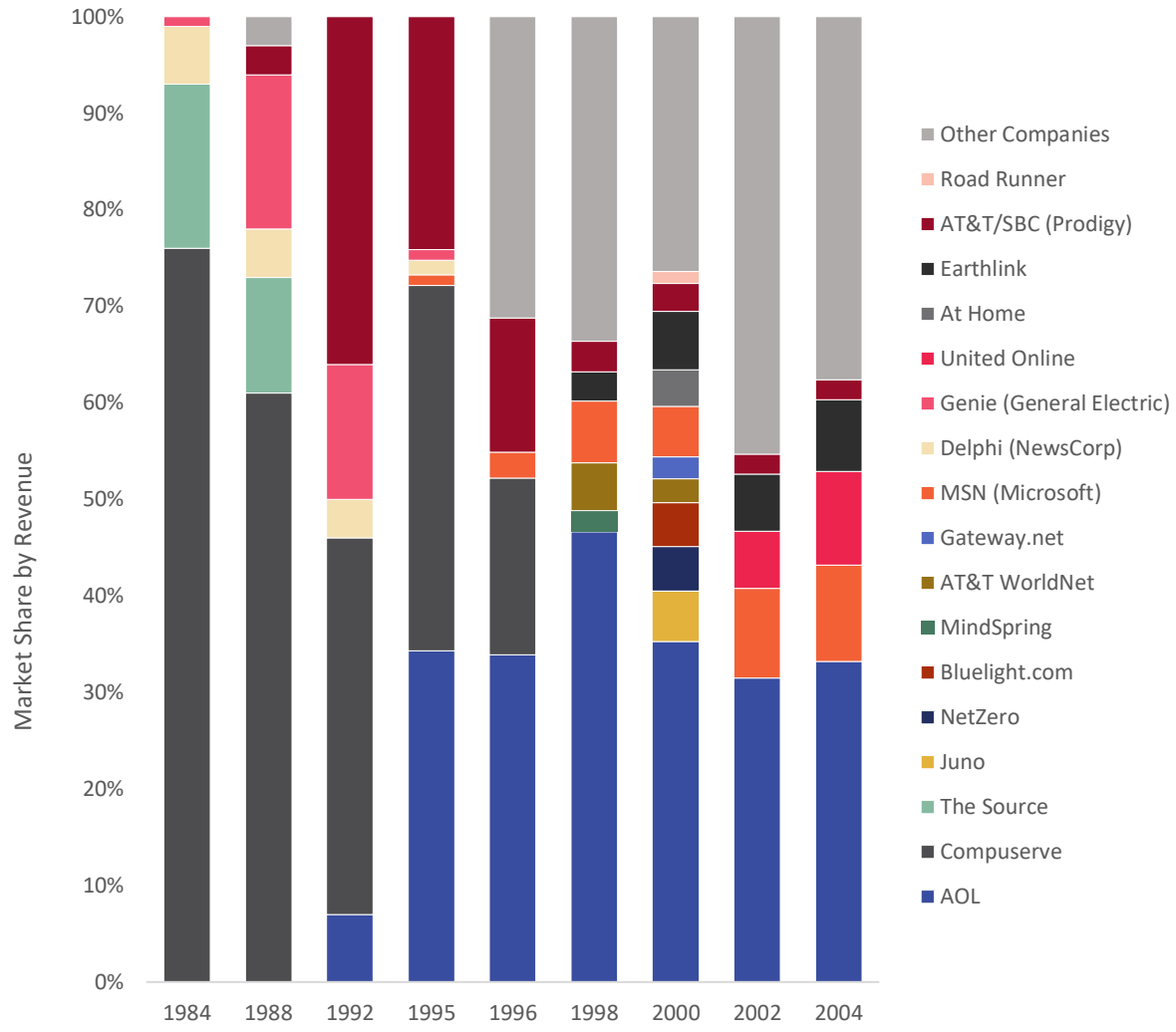
The term for these services were Computer Online Service Providers or COLS. These services were significantly easier to use and thus attracted a large user base. Across all COLS in the United States, the number of subscribers went from 51,000 in 1982 to more than 12 million in 1996.[15] The best known COL would have been America Online (AOL) which at one point had over 34 million subscribers and was worth hundreds of billions of dollars, becoming so large at one point that it accomplished the largest merger in history, acquiring Time Warner, in a deal valued at $350 billion. However, matching its quick rise, was also its swift downfall, dropping to 13 million subscribers in 2007 and continuing a quick slide down. This wasn't due necessarily to new competition, but

[14] Noam, Eli. *Media Ownership and Concentration in America* Oxford University Press 2009.

[15] Noam, Eli. *Media Ownership and Concentration in America* Oxford University Press 2009.

rather a change from narrowband service, which AOL had dominated, to the proliferation of broadband.

Figure 8: Market Shares of Major ISPs in the Dial-up Internet Era (by Revenue), 1984-2004



The late 1990s saw the Internet Service Provider (ISP) market became more competitive with the emergence of new technologies and dedicated connections. CableLabs revolutionized the industry with the introduction of Data Over Cable Service Interface Specification (DOCSIS) in the mid-1990s, which enabled the transmission of data over existing cable infrastructure. As a result, cable companies became significant players in the ISP market, challenging the established telecom operators. By 2007, broadband internet was being used by about 65 million US households, with 60% of that market held by cable companies, the remainder by the local telecom companies, who provided digital service line (DSL) service to subscribers, a dedicated connection over copper lines.

The cable companies continued to gain dominance, and by 2010, they had surpassed telecoms in the number of internet subscribers.[16] By 2022, cable more than doubled the wireline telecom providers of ISP service by subscriber count.[17] The major cable providers include Comcast, Charter, Cox, and Altice. During the 10-year period between 2012 and 2022, the cable ISP market saw major changes. Comcast attempted to acquire Time Warner Cable, the then-second largest ISP provider in 2014. The deal, had it closed, would have given roughly 40% of the ISP market to Comcast. Regulators investigated the merger and following a signal that the Department of Justice would file a formal opposition to the deal, Comcast abandoned the merger. A month after, Charter Communications announced that they would instead purchase Time Warner Cable, as well as the private cable company Bright House Networks, which operated mostly in the Midwest and Florida. This merger created a strong two company market, where Comcast and Charter now control roughly 45% of the US ISP market. Continuing changes of the ISP market in 2015, the French firm Altice acquired Cablevision from the Dolan family and merged it with their Suddenlink operations. The new company is known as Altice USA and operates under the brand name "Optimum". Revenue for cable ISP has almost tripled, from around $22 billion in 2012 to close to $60 billion in 2022. The table below represents the growth of cable ISP market from 2012-2022.

[16] Leichtman Research Group "Number of Broadband Internet Subscribers in the United States from 1st Quarter 2011 to 1st Quarter 2023, by Provider" Statista. https://www-statista-com.ezproxy.cul.columbia.edu/statistics/217351/us-broadband-internet-susbcribers-by-telco-provider/

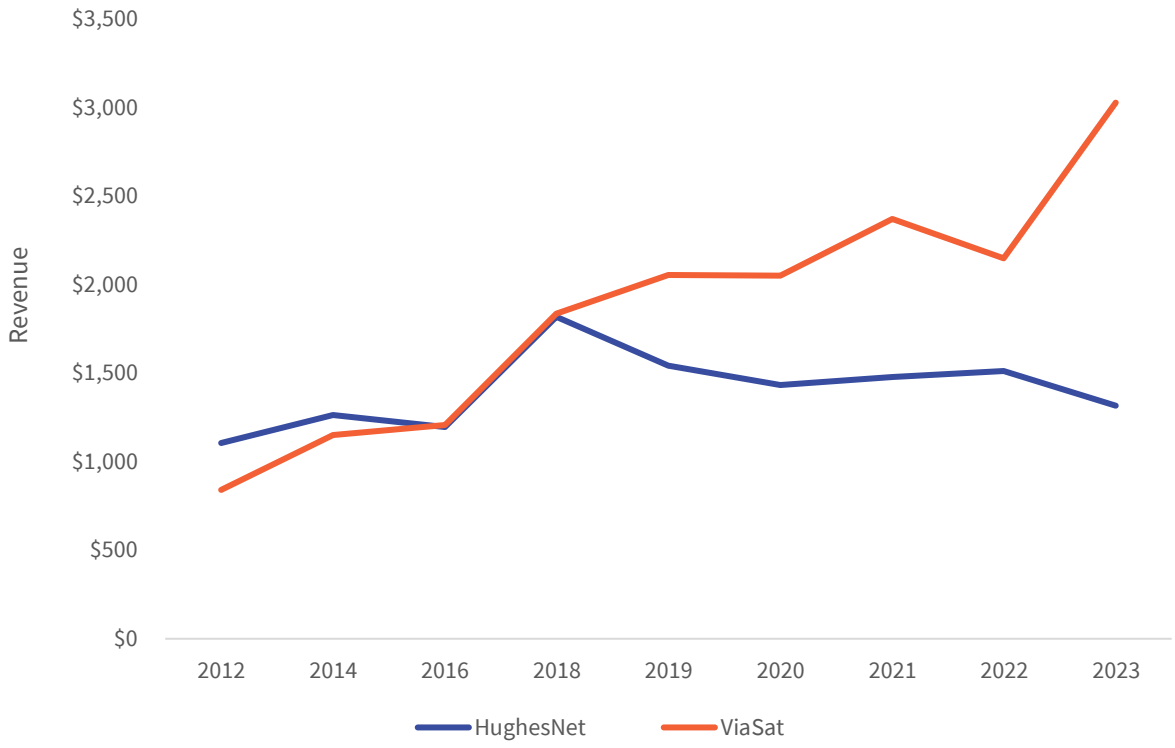
[17] Leitchman Research Group "About 960,000 Added Broadband in 1Q 2023" May 15 2023 https://leichtmanresearch.com/about-960000-added-broadband-in-1q-2023/

Figure 9: Evolution of the Cable ISP Market, 2012-2023

	2012		2014		2016		2018		2020		2021		2022		2023	
	Revenue (million)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share
Comcast	$9,544	21.4%	$11,321	22.7%	$13,532	21.9%	$17,144	21.1%	$21,599	24.9%	$22,979	24.6%	$24,469	25.9%	$25,489	26.6%
Time Warner Cable	$5,090	11.4%	$6,428	12.9%	Charter											
Charter	$1,866	4.19%	$2,576	5.16%	$9,272	14.9%	$15,181	18.1%	$18,521	22.4%	$21,094	22.6%	$22,222	23.5%	$23,032	24%
Cox	$3,060	6.88%	$3,394	6.79%	$1,996	3.2%	$3,258	4.02%	$4,666	5.6%	$5,158	5.5%	$4,382	4.6%	$4,747	4.9%
Cablevision/Altice	$1,366	3.07%	$1,416	2.84%	$1,617	2.59%	$2,887	3.56%	$3,689	4.5%	$3,925	4.2%	$4,498	4.1%	$3,824	4%
Mediacom	$187.47	0.42%	$265	0.53%	$331	0.53%	$811	1%	$1,247	1.5%	$1,078	1.2%	$1,157	1.2%	$844	0.90%
CableOne	$213	0.48%	$253	51%	$402	0.65%	$585	0.72%	$787	1%	$1,028	1.1%	$1,239	1.3%	$1,283	1.30%

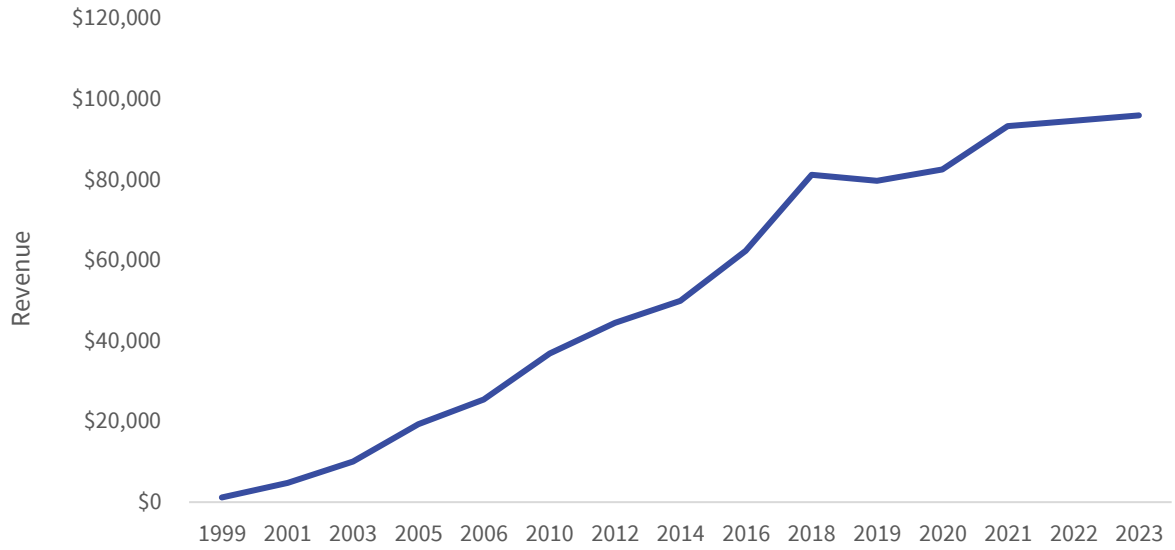
Although cable internet has become the most popular form of internet service provider, it only covers approximately 85% of households. This leaves about 50 million people without access to cable internet, forcing them to rely on dial-up or DSL. In the 1990s, satellite broadband emerged as an alternative, with several competitors in the market initially. However, the high cost of entry, which involves launching satellites into geosynchronous orbit to build a network, and the increasing availability of cable to households, reduced this market. As a result, two major competitors - ViaSat and HughesNet, a subsidiary of EchoStar, the parent company of Dish Network - emerged. In the 2020s, Starlink, a subsidiary of SpaceX, emerged as a third competitor. Nonetheless, their revenue is still growing, with only around $1.2 billion in global revenue in 2022.

Figure 10: Revenue of Satellite Broadband Companies (millions $), 2012-2023



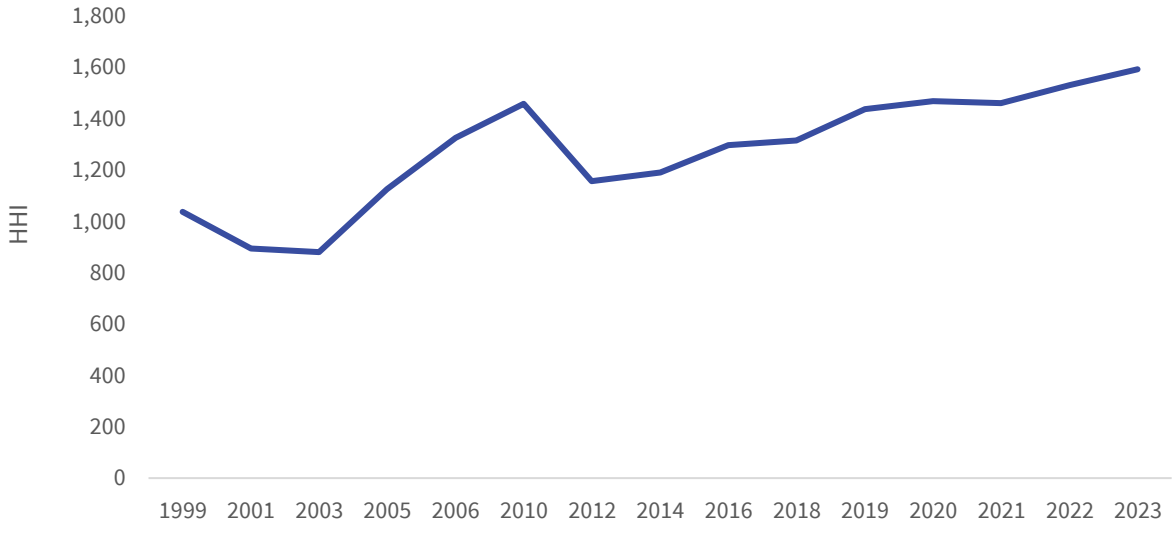
Matching the rapid growth of the internet itself, and the importance of which the digital economy has become for the United States economy, revenue growth has exploded. From 1999 until 2022, the industry saw a compound annual growth rate of 21%.

Figure 11: ISP Revenue Growth (millions $), 2012-2023



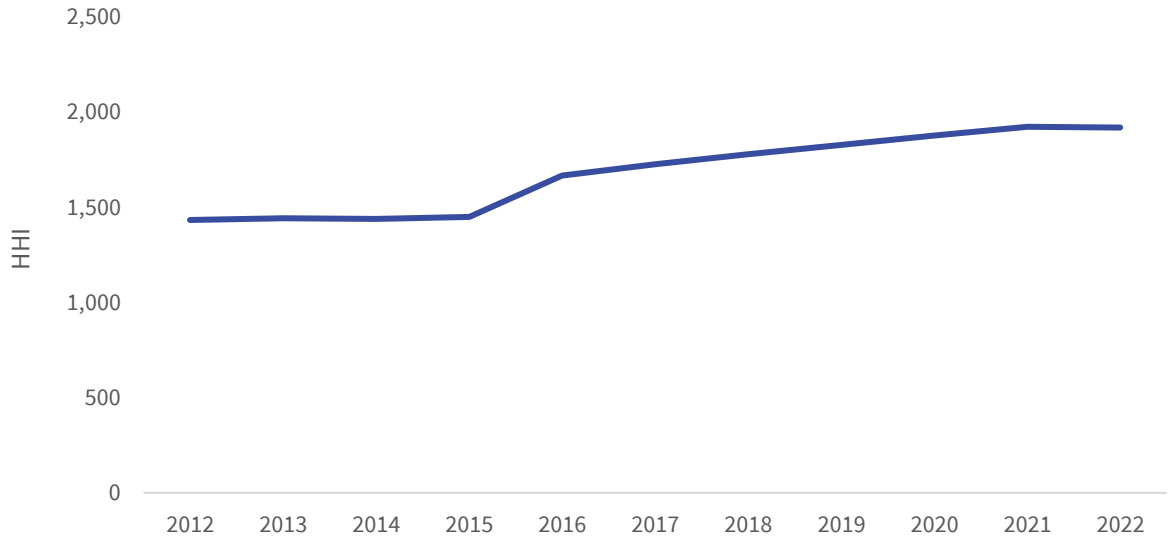
Even though the cable industry dominates the ISP market, capturing about 66% of revenue in 2023, the market is relatively unconcentrated. Part of the reason for this may have to do with the unique characteristics of the cable market. While cable is typically a monopoly in their respective franchise market, cable companies do not operate nationwide. Those living in Manhattan, New York only have the option of one cable company (Spectrum) and one phone company (Verizon), while those living in Manhattan, Kansas only have the option of one cable company (Cox) and one phone company (AT&T).

Figure 12: Market Concentration (HHI scores) for the ISP Market (By Revenue), 1999-2023



In most regions where there exist only a pair of internet service providers, customers face limited options and may have to bear higher expenses. While DSL or satellite could be alternative choices, they may not be competitive in terms of speed or could come with a steeper price tag. Moreover, some locations, such as high-rise buildings, may not be suitable for satellite installation due to the technical challenges of mounting a dish. From a subscriber count standpoint, the industry appears to be more concentrated.

Figure 13: Market Concentration (HHI scores) for the ISP market (by Subscriber), 2012-2022



Although the industry's revenue has been growing continuously, warning signals have surfaced, indicating significant changes are on the horizon. The most significant of these signals is the launch of the fifth generation of wireless service in the United States in late 2018, which has made fixed wireless service a viable competitor to traditional internet service providers. With the deployment of 5G Ultra-Wideband, wireless speeds have matched, and in some cases even surpassed, the latency and speed of traditional broadband providers while charging a lower price. Since these services operate on the wireless network, they are available anywhere wireless service is offered, which means that the networks cover roughly 98% of households. This offering is likely to put pressure on incumbent ISP offerings while lowering prices and thus industry revenue.

Distribution Networks

The wireline, wireless, and ISP industries are the backbone of the digital economy, which has become a significant contributor to the United States' gross domestic product. In fact, estimates show that the digital economy reached $2.6 trillion in 2022, accounting for 10% of the country's entire GDP. [18] As these industries continue to evolve, the boundaries between them are becoming increasingly blurred. Wireless technology has replaced wireline as the primary voice communication medium, causing a decline in industry revenue. It has also emerged as the dominant form of internet consumption.

According to a Nielsen study[19], the average wireless subscriber consumed 450 megabytes of data in a month in 2012. This number skyrocketed to 17.4 gigabytes per month by 2022[20], growing at an astonishing compound annual growth rate of 44.1%. Experts predict that this trend will continue, with Ericsson[21] forecasting an average monthly consumption of 66 gigabytes per smartphone user in 2029, growing at a slightly slower but still impressive rate of 21%. These numbers do not even include the rapidly growing Fixed Wireless Access data market, which is predicted to have around 13 million subscribers by 2025, with T-Mobile being the largest player, accounting for approximately 50% of all added Fixed Wireless subscribers.[22] The average monthly data consumption of Fixed Wireless users was found to be approximately 496 gigabytes, which is consistent with the usage patterns of most wireline-based broadband Internet Service Providers, who typically register an average monthly data consumption of around 600 gigabytes.

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[18] U.S. Bureau of Economic Analysis “Digital Economy” December 6, 2023 https://www.bea.gov/data/special-topics/digital-economy

[19] Goldstein, Phil. “Nielsen: Average U.S. Mobile Subscriber Uses 450 MB per Month”. Fierce Wireless. July 19, 2012. https://www.fiercewireless.com/wireless/nielsen-average-u-s-mobile-subscriber-uses-450-mb-per-month

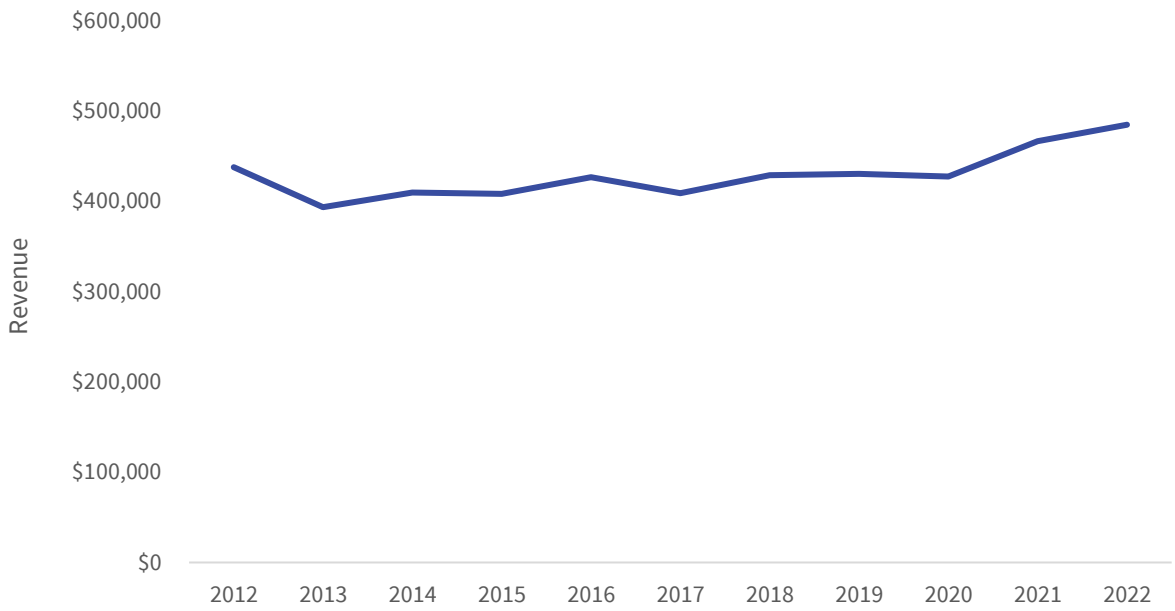
[20] GSMA “The Mobile Economy 2023” Page 16 https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/wp-content/uploads/2023/03/270223-The-Mobile-Economy-2023.pdf

[21] Ericsson. “5G to Account for 25 Percent of Mobile Data Traffic This Year” Mobile Data Traffic Outlook. https://www.ericsson.com/en/reports-and-papers/mobility-report/dataforecasts/mobile-traffic-forecast

[22] T-Mobile. The State of Fixed Wireless Access 2022. https://www.t-mobile.com/news/_admin/uploads/2022/12/2945098_CCD_State-of-Fixed-Wireless-Access_Infographic-Report_REVW_v19_RGB-2.pdf

It's important to examine the industry as a whole and combine the revenues of various segments into one, due to the "squishiness" as markets overlap and become unified into a single distribution market.

Figure 14: Distribution Network Revenue (millions $), 2012-2022



In recent years, there has been a decline in revenue within the industries as they begin to merge. For instance, between 2012 and 2013, the total revenue fell by $44 billion, and it took six more years for it to start increasing once again. This can be attributed in part to the shift from wireline to wireless services. In 2012, the average revenue per user (ARPU) for wireline was $70 per month, while for wireless, it was $58 per month. As a result, for every customer who switched from wireline to wireless, the industry lost $12 per month. During the transition from 2012 to 2013, wireline lost 4,839,000 customers, while wireless gained 9,170,000 customers.

The distribution market for wireline services is primarily controlled by the three major phone providers and the two largest cable companies. Over the past decade, there has been a gradual increase in market concentration, with the phone providers' control growing from 64.4% in 2012 to 69.4% in 2022. It will be important to observe how the growth of fixed wireless broadband continues to impact this concentration, potentially benefiting the big three cellular providers (AT&T, T-Mobile, and Verizon) who are all part of the C4, while potentially reducing customers for smaller players in the market.

Figure 15: Distribution Networks Total Company Revenue (millions, $) and Market Share (by Revenue), 2012-2022

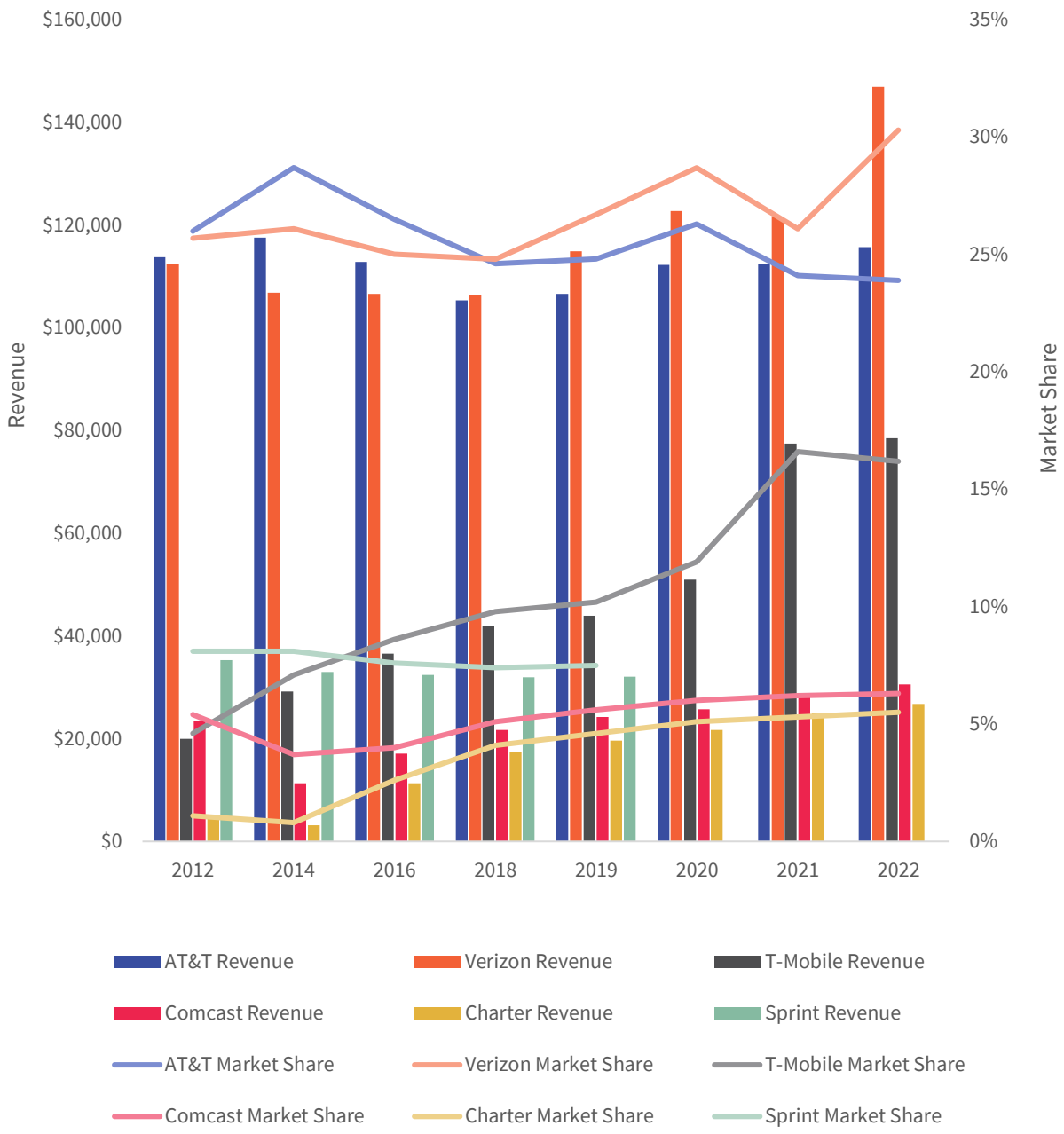


Figure 16: Total Distribution Networks Revenue (millions $), 2012-2022

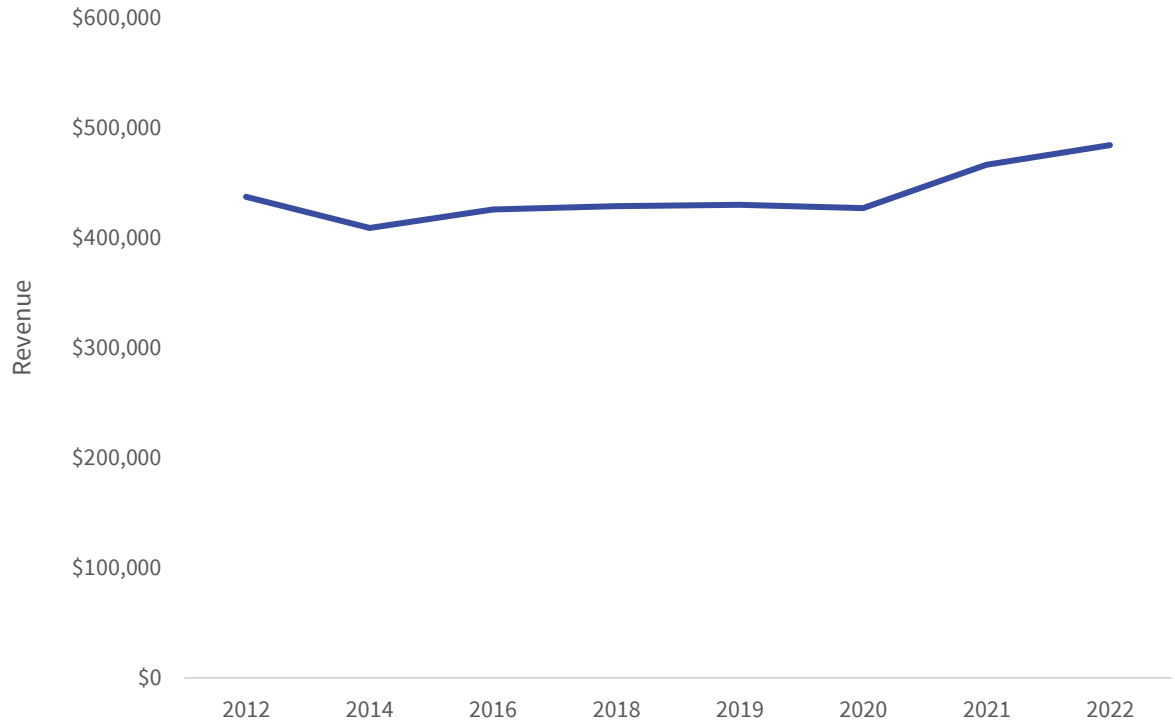


Figure 17: Distribution Networks Market Concentration, 2012-2022

	2012	2014	2016	2018	2019	2020	2021	2022
HHI	1,514.4	1,650.3	1,498.6	1,435.5	1,557.2	1,731.1	1,614.7	1,828.5
CR4	65.5%	70%	67.7%	66.6%	69.1%	72.9%	72.9%	76.7%

Online Video

As the internet quickly grew in the 1990s, new advances were made. The internet evolved from bulletin board systems to HTML-based websites. In 1993, Xerox Parc, the pioneering research and development company founded by Xerox Corporation which developed the graphical user interface (GUI), ethernet networking, laser printing, and object-oriented programming, all of which profoundly influenced the development of modern computing and technology, performed the first video stream. Xerox PARC live streamed the local band "Severe Tire Damage" performing on the company campus patio. The video was live streamed on the internet, watched by individuals as far away as Australia.[23]

The original quality of course matched the early days of the internet. It was extremely low resolution, with an anemic frame rate of 8-12 frames per second. In comparison standard video at the time was usually around 30 frames per second (and in today's day, is regularly closer to 60 frames per second or more). By 1998, the technology had advanced enough away from individual demonstrations, like Severe Tire Damage and later the Rolling Stones, performing a short live concert for the internet, to being able to accommodate video on demand.

Atom Films pioneered the distribution of short films and animations on the internet. It provided a crucial outlet for independent filmmakers to showcase their work globally, democratizing access to audiences. Directors such as Jason Reitman and David Lynch created content to be aired on Atom Films. It also made history by reviving a canceled network television show (ABC's *The Critic*) a practice later followed by the major online video platforms like Netflix and Hulu. However, much of this still took place during the time when the majority of users were still narrowband, meaning that their highest possible connection speed was 56.6 kbps. This severely limited the quality potential of the video, since most users could not enjoy high-quality video. As the internet sped up, this opened opportunities for users to enjoy online video. In February 2005, three former PayPal employees took advantage of this and created a new company called YouTube.

[23] Alfred, Randy. "June 24, 1993: Concert Goes Live on Net June 24, 2000: President Goes Live on Net" Wired.com June 24, 2009 https://www.wired.com/2009/06/dayintech-0624/

Figure 18: Online Video Services Revenue for Major Companies (millions $), 2012-2023

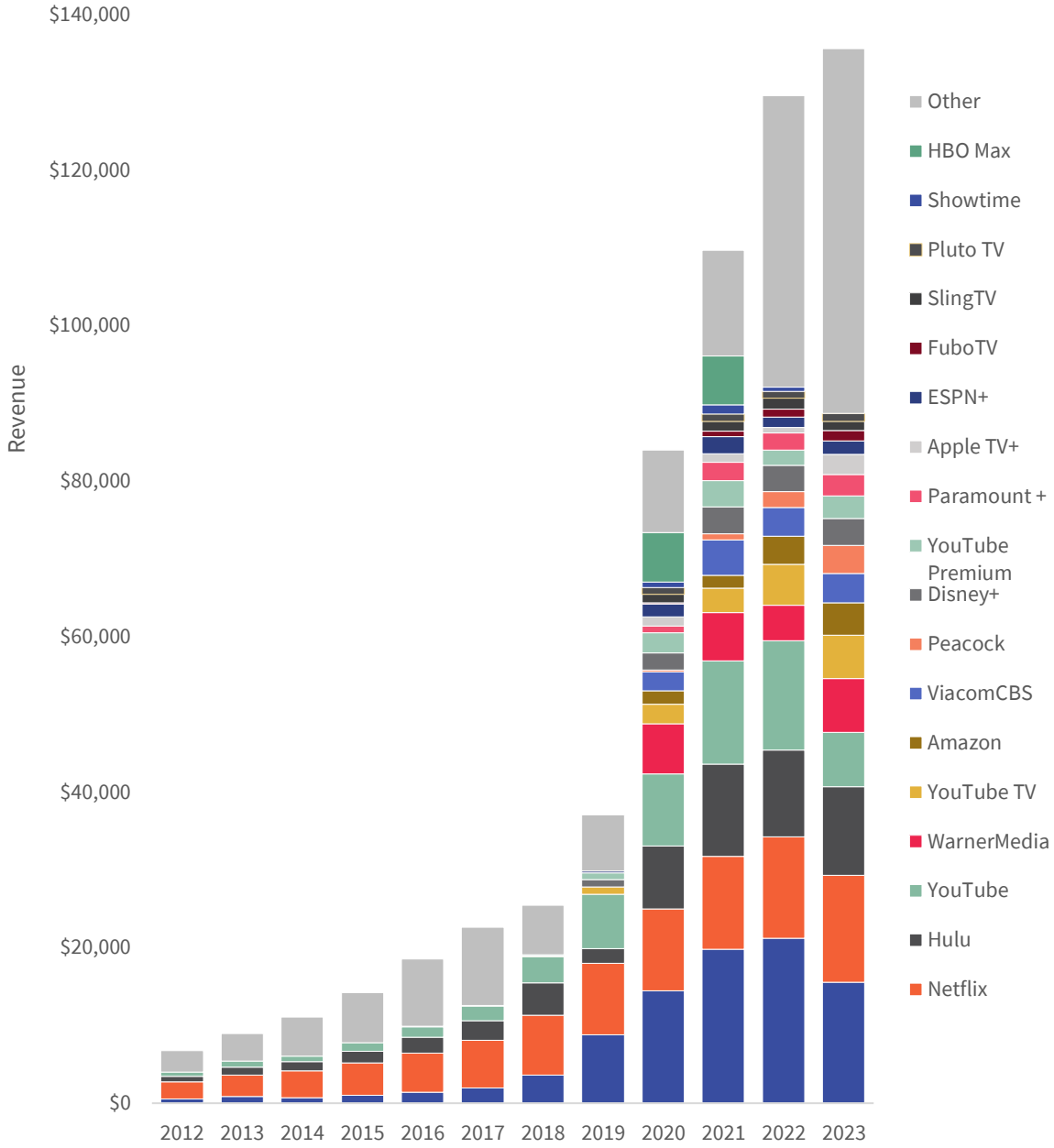


Figure 19: Online Services Market Share for Major Companies (by Revenue), 2012-2023

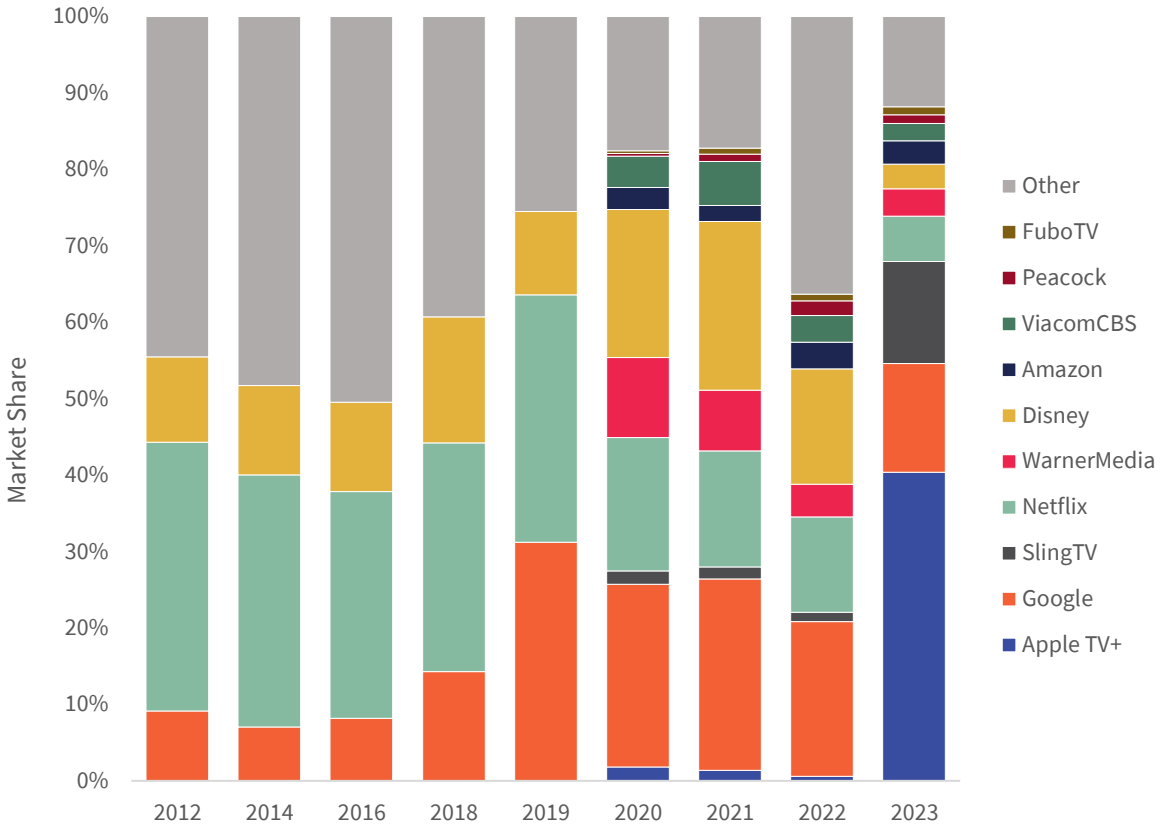


Figure 20: Online Services Concentration Based on Revenues, 2012-2022

	2012	2014	2016	2018	2019	2020	2021	2022	2023
HHI	1,443.20	1,277.29	1,082.62	1,125.65	1,745.21	1,466.20	1,449.30	1,423.39	1,240.04
CR4	55.48%	51.76%	49.51%	61.03%	78.83%	73.1%	70.2%	71.83%	64.07%

Broadcast Television

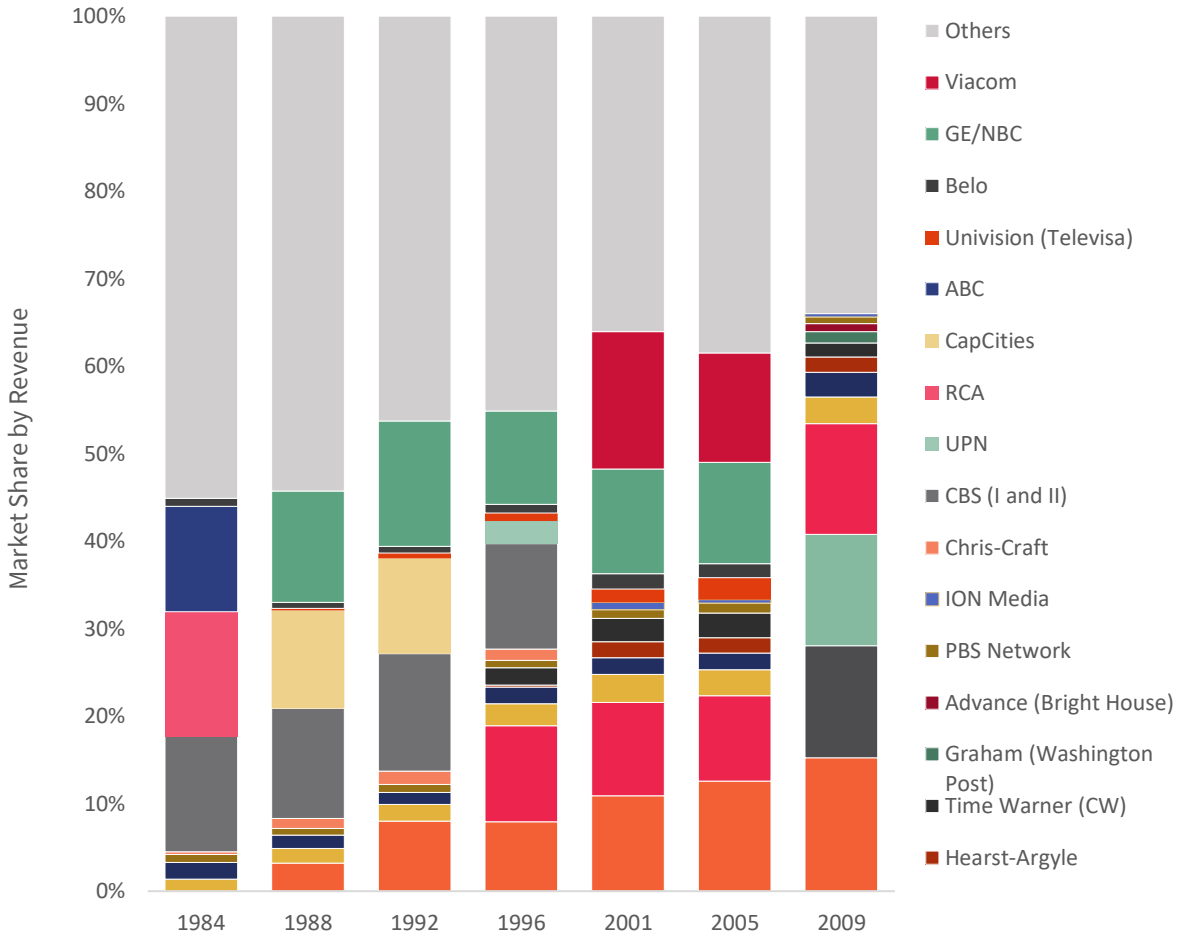
Television, a revolutionary medium that transformed communication and entertainment, has a rich history in the United States, dating back to its origins. The concept of television, transmitting visual images over a distance, dates back to the late 19th century. Many experiments were conducted with television during the 1920s and 1930s, but in 1927 Philo Farnsworth developed the first electric television. Radio Corporation of America (RCA), which had been founded by the creator of radio, Guglielmo Marconi, and made up of a consortium of various companies including General Electric, Westinghouse, AT&T, and the United Fruit Company, had also been attempting to create television throughout the 1920s as well. After a failed attempt to license Farnsworth's patent failed, RCA engaged in a near decades-long legal battle which ended in Farnsworth finally agreeing to license the television patent to RCA in 1939. That year, during the World's Fair, RCA unveiled their first commercial televisions for public sale, and began distributing television content via the National Broadcast Corporation (NBC). However, the public embrace of television was slowed as the Federal Communications Commission had not approved any standard for television content broadcasting. The FCC finally embraced a television standard in July 1941, but as the United States entered into World War 2 a few months later, the rollout of television was slow. It wasn't until the 1950s that Broadcast television really took off.

There developed three major broadcast networks, RCA's NBC, Columbia Broadcasting System's CBS which was a spin-out of the Columbia Records record label, and American Broadcasting Company's ABC. All three broadcasters had their start broadcasting radio and evolved into television. But they did not operate nationally. Rather, the broadcasters owned a few select stations in key markets and then syndicated their program to affiliates. Affiliate stations pay the broadcaster an affiliate fee and receive branding and prime-time programming for airing. This allowed for a build-up across the country of the various networks, with the three major broadcasters having a near total dominance of all viewership.

This began to change in the 1980s with the emergence of multichannel television and the creation of a fourth national broadcast channel in Fox. With the addition of new television channels through multichannel distribution (as discussed in the section on pay TV) concentration dropped greatly. Total viewership has steadily declined, whether viewed over-the-air (terrestrially), over cable and satellite platforms, or digitally as multicasts. The three major broadcasters' audience shares fell from 87.7% of TV

audiences in 1984 to 48.6% in 2003, 28.1% in 2007[24], and 22.8% in 2013.[25] On top of that, the actual viewing of local TV stations by most households no longer occurs over the air but instead it's retransmitted over cable, satellite, or over-the-top streaming. The dominance of the overall TV viewer market by the original three major broadcast networks (ABC, CBS, and NBC) declined considerably, from 64% in 1984 to 21.6% in 2011.[26] But, together with the addition of Fox, they remain by far the largest providers of content.

Figure 21: Broadcast TV Stations Market Share (by Revenue), 1984-2022



[24] Dempsey, John. "Cable TV Hits Record Numbers." *Variety* (July 2007). https://variety.com/2007/scene/markets-festivals/cable-tv-hits-record-numbers-1117969516/

[25] The Nielsen methodology and classification of counting audiences changed somewhat during the period, so that the numbers are not fully comparable. Sources: Diego, Vasquez. "This Week's Broadcast Ratings." *Media Life Magazine*, May 29, 2013, http://www.medialifemagazine.com/this-weeks-broadcast-ratings/ ; and Diego, Vasquez. "This Week's Cable Ratings." *Media Life Magazine*, May 29, 2013, http://www.medialifemagazine.com/this-weeks-cable-ratings

[26] Noam, Eli. "Who Owns the World's Media?" Oxford University Press 2016.

Figure 22: Market Concentration of the Broadcast TV Market (by revenue), 1984-2009

	1984	1988	1992	1996	2001	2005	2009
HHI	530	463	577	468	654	578	753
CR4	41.4%	39.7%	46.6%	41.6%	49.3%	46.4%	54.1%

Further still, over-the-top video distribution has also eroded viewership. By 2022, over-the-top video had supplanted linear television in time spent per day by average US Adults. The average American spends 190 minutes per day consuming over-the-top video and only 189 minutes consuming linear TV. A year later, in 2023, the gulf had widened, with 203 minutes spent on over-the-top video and only 175 minutes spent on linear television.[27]

Even though the broadcast channels still represent a good amount of engagement, their revenues are dropping as advertising revenue has declined since ad budgets are focusing more on over-the-top video instead. Just 17.3% of advertising budgets are being allocated for all of TV, of which broadcast is only a potion.[28] As ad revenue has fallen over time, the broadcast networks have had to make up revenue in two ways. For the four major networks, CBS, NBC, ABC, and Fox, they have attempted to raise affiliate rates which are the funds charged to independent tv channels to become affiliates of the network, and brand themselves as such, as well as receive programming. The other major attempt at raising revenue has been to increase the retransmission fees charged to the MVPD companies, which have in recent years risen at double digit increases. In 2024, the average MVPD company is paying $22.62 per subscriber per month for the rights to retransmit the local broadcast channels.[29] Most of those costs, an estimated

[27] Lebow, Sara. "New Data: Linear TV fell below 50% viewing share in July for the first time" Emarketer. August 16, 2023. https://content-na1.emarketer.com/new-data-linear-tv-fell-below-50-viewing-share-july-first-time

[28] Lebow, Sara. "New Data: Linear TV fell below 50% viewing share in July for the first time" Emarketer. August 16, 2023. https://content-na1.emarketer.com/new-data-linear-tv-fell-below-50-viewing-share-july-first-time

[29] Rodriguez, Mau. "Broadcast TV fees burden monthly consumer bills in 2024." S&P Gloabal Market Intelligence. February 7, 2024. https://www.spglobal.com/marketintelligence/en/news-insights/research/broadcast-tv-fees-burden-monthly-consumer-bills-in-2024

$21.48[30] are being passed on to the customer, making up about 10% of the cost of the average monthly cable bill of $217.42[31]. The increased cost of MVPD services has been the major accelerator of cord cutting, discussed more in depth in the section on Pay TV. As more users exit the Pay TV market, the do not come back, leading to a further decrease in the desirability of advertising revenue on the broadcast channels, further impacting their bottom line.

As the revenue continues to be an issue for broadcasting, there has been major change in the industry over the last 10+ years. The CW, the United States' fifth largest broadcaster has twice changed hands since 2012. It was originally a joint partnership of Time Warner and Paramount, created as a merger between the two's older attempts at networks (the WB and UPN respectively) in 2006. When AT&T closed its purchase of Time Warner in 2018, leadership in the CW changed to AT&T. As AT&T decided they no longer wished to operate Time Warner and were selling off control of the assets, they sold 75% of ownership of the CW to Nexstar Media Group, while jointly retaining 25% with Viacom.

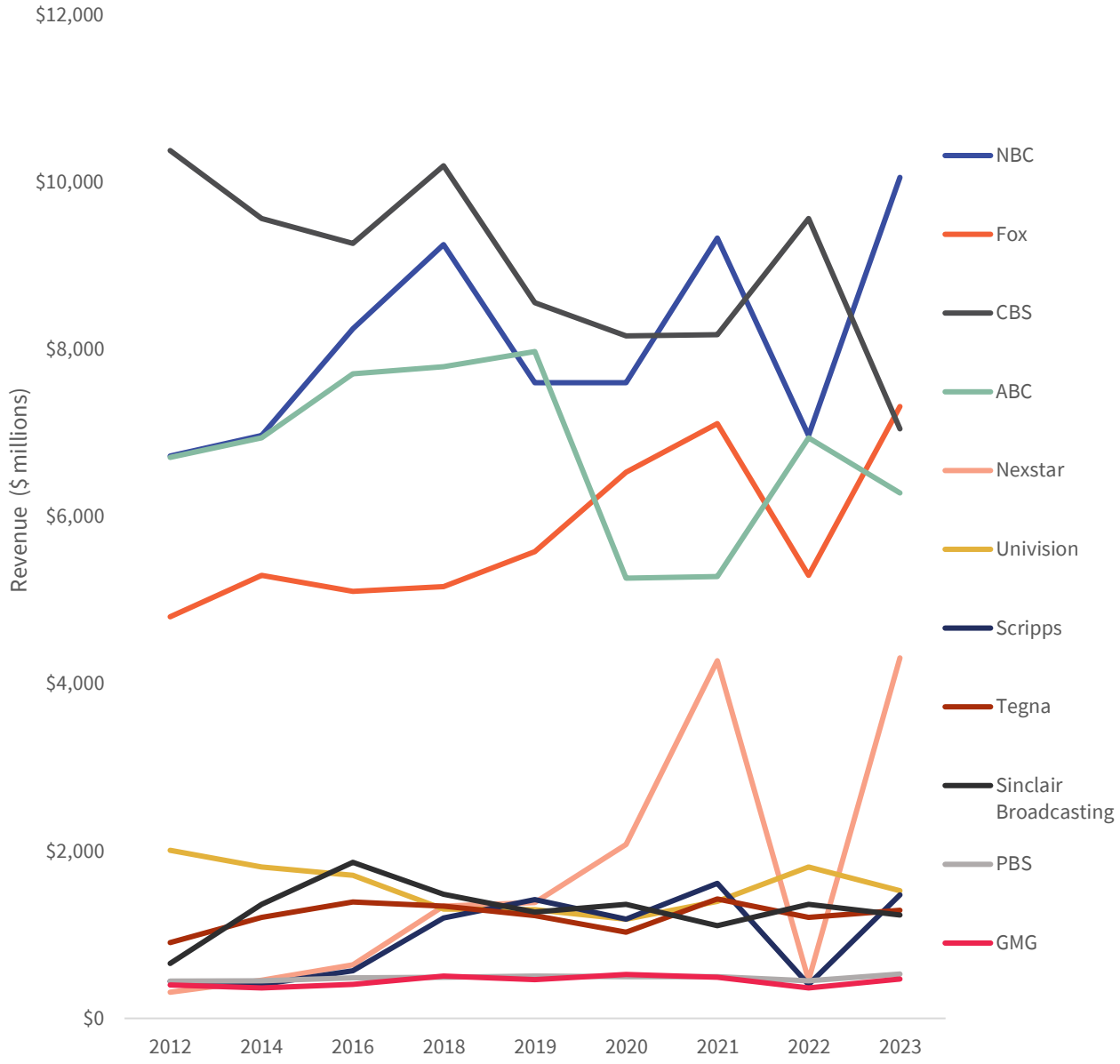
In 2015, Gannett publishing, the largest newspaper publisher in the United States and one of the largest owners of independent television stations, spun out its TV stations into a new, publicly traded company called Tegna, an anagram of Gannett (with the duplicate letters dropped). By 2022 the company had been acquired by private equity firms Standard General and Apollo Global for $8.6 billion, including debt.

In addition, Advance Publications, one of the largest magazine publishing houses in the country, sold off its TV operations to Charter. Bright House, which operated both broadcast TV channels and was a cable network, was acquired by Charter in 2015 for $10.4 billion. In all, multiple companies changed hands during the last ten years, however since many of those companies were bought by outside firms, the concentration numbers were not affected.

[30] Rodriguez, Mau. "Broadcast TV fees burden monthly consumer bills in 2024." S&P Gloabal Market Intelligence. February 7, 2024. https://www.spglobal.com/marketintelligence/en/news-insights/research/broadcast-tv-fees-burden-monthly-consumer-bills-in-2024

[31] LaPonsie, Maryalene. "How Much is Cable Per Month?" US News and World Reports. July 21, 2022. https://money.usnews.com/money/personal-finance/saving-and-budgeting/articles/how-much-is-cable-per-month

Figure 23: Broadcast TV revenue for major companies (millions $), 2012-2023



Based on the patchwork nature of the United States Broadcast TV industry, no one player will be able to emerge as the dominant player. Rather, it is more likely that the four "main" networks, CBS, NBC, ABC, and Fox will continue to roughly have equal market share with the remaining independent networks concentrating over time, as the smaller markets become less desirable. In addition, as new internet service operations like fixed wireless and K band satellite internet make inroads into rural America opening up competition from over-the-top video, advertising revenue will continue to decrease.

Figure 24: Market Share of Broadcast Television Market in the United States, 2012-2023

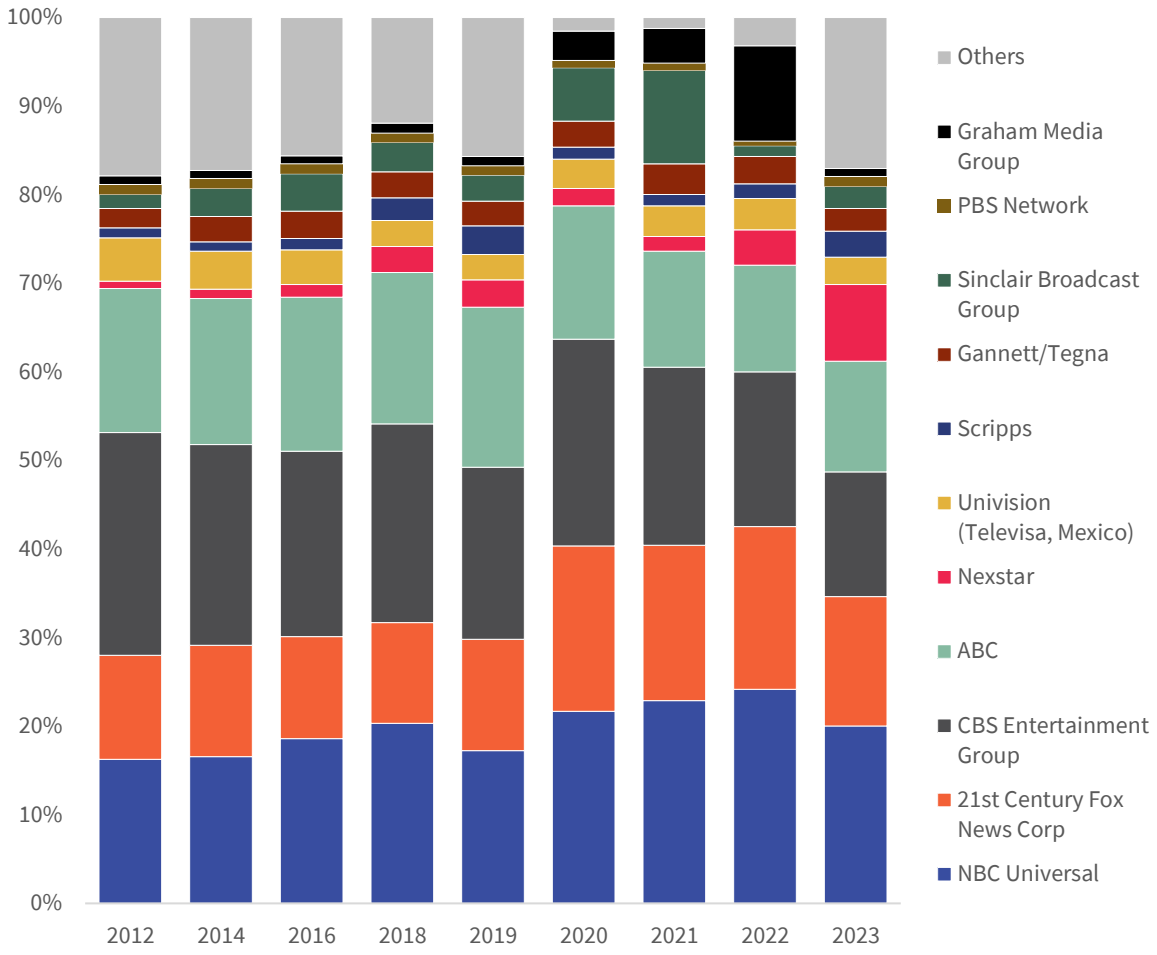


Figure 25: Broadcast TV Market Concentration (by Revenue), 2012-2023

	2012	2014	2016	2018	2019	2020	2021	2022	2023
HHI	1138.1	1262.4	1265.1	1379.3	1201.7	869.7	1,244.8	1,171	1,093
CR4	69.5%	68.4%	68.3%	71.1%	67.2%	56.6%	65.5%	62.8%	61.7

Pay Television/Multichannel Video Distribution

In the United States, pay TV emerged shortly after the deployment of broadcast TV. Its roots were known as community antennae television (CATV). Most major cities in the United States had a broadcast TV station, but the further away you lived from the broadcast tower, the more the picture quality degraded. Many users outside of the city proper (especially those in suburban and rural areas) did not have a working television signal. In 1948 Service Electric Company deployed what is believed to be the first cable television system in the United States. It did so by deploying a large antenna that was capable of picking up three separate broadcast TV channels and transmitted them over a cable to subscribers homes. Thus, users who couldn't otherwise receive tv signals were able to watch TV in their home. Very quickly this idea spread and by 1952 there were 14,000 subscribers in the United States across 70 different systems.[32] That number exploded to 4.5 million in the 1960s.[33] By 1972, after about a decade of communications satellites being in orbit, Home Box Office (HBO) became the first satellite-distributed channel, allowing for services around the country to receive the signal and thus retransmit it. In 1976, Ted Turner followed suit and created the first "superstation" making his Atlanta, Georgia based WTBS available across the entire country with a combination of satellite delivery and broadcast.

By the 1980s satellite delivery of television for commercial customers became a viable competitor to cable television, when United States Satellite Broadcasting (USSB) launched their service. However, it mostly attracted users in rural America, with most subscribers choosing Cable. By 1989, there were a total of 79 different cable companies with 53 million subscribers in the US.[34] Throughout the 1990s growth in cable continued, reaching a subscriber base of 65 million in 1999.[35]

However, during the 2000s broadband internet, which had been readily deployed in the late 1990s by the cable companies to take advantage of excess capacity on their coaxial lines, made it easy to bring high speed internet into their existing customer's homes. This also soon enabled content companies to ride "over the top". This new content, discussed more in detail in the online video section, really took off during the 2000s causing customers to rethink their relationship with pay-TV. This led to so-called "Cord Cutters" and now "Cord Nevers" (households that never had pay-TV). From dozens of players in the 1980s and 1990s, the pay-TV distribution market has since concentrated down to about nine major cable players, two satellite providers, and two IPTV providers

[32] "History of Cable TV-A Timeline" Seatup https://seatup.com/blog/history-of-cable/

[33] "History of Cable TV-A Timeline" Seatup https://seatup.com/blog/history-of-cable/

[34] "History of Cable TV-A Timeline" Seatup https://seatup.com/blog/history-of-cable/

[35] "History of Cable TV-A Timeline" Seatup https://seatup.com/blog/history-of-cable/

(the two main wireline phone companies, Verizon and AT&T). The table below shows the historical market shares from 1984 to 2009.

Subsequent to 2009, the market saw further concentration. In 2014, Comcast, the largest cable company in the United States both by subscriber count and by revenue, attempted to acquire the second-largest cable provider, Time Warner Cable, in a $45.2 billion deal, , for example. However, given their respective market shares, the Department of Justice stepped in and challenged the merger, which Comcast and Time Warner Cable quickly abandoned.

Following this, Time Warner Cable, agreed to merge with Charter Communication's Spectrum for $55 billion. This time, the deal was approved and closed in 2016. At the same time, Charter also acquired the much smaller Bright House Networks, then owned by magazine publisher Advance Publications, to create a close competitor to Comcast. Ostensibly this created a duopoly, with the two largest cable providers being Comcast and Charter, and roughly 50% of the total multichannel video distribution market. In addition, Altice, the French phone and television company acquired Cablevision, the fourth-largest cable distributor in the United States.

Around the same time, AT&T acquired the country's largest direct broadcast satellite provider, DirecTV for $67 billion including debt, but only owned the company for 7 years before selling off control of the company to private equity firm TPG which acquired a 30% stake in DirecTV for $7.8 billion, however under the deal, even though TPG only has 30% equity, they are the managing company running DirecTV, with AT&T a passive partner. While several mergers took place, Only the Charter/Time Warner Cable/Bright House merger affected the industry concentration, as the remaining sales just changed owners.

Figure 26: Major multichannel video distribution companies' market share (by Revenue), 1984-2009

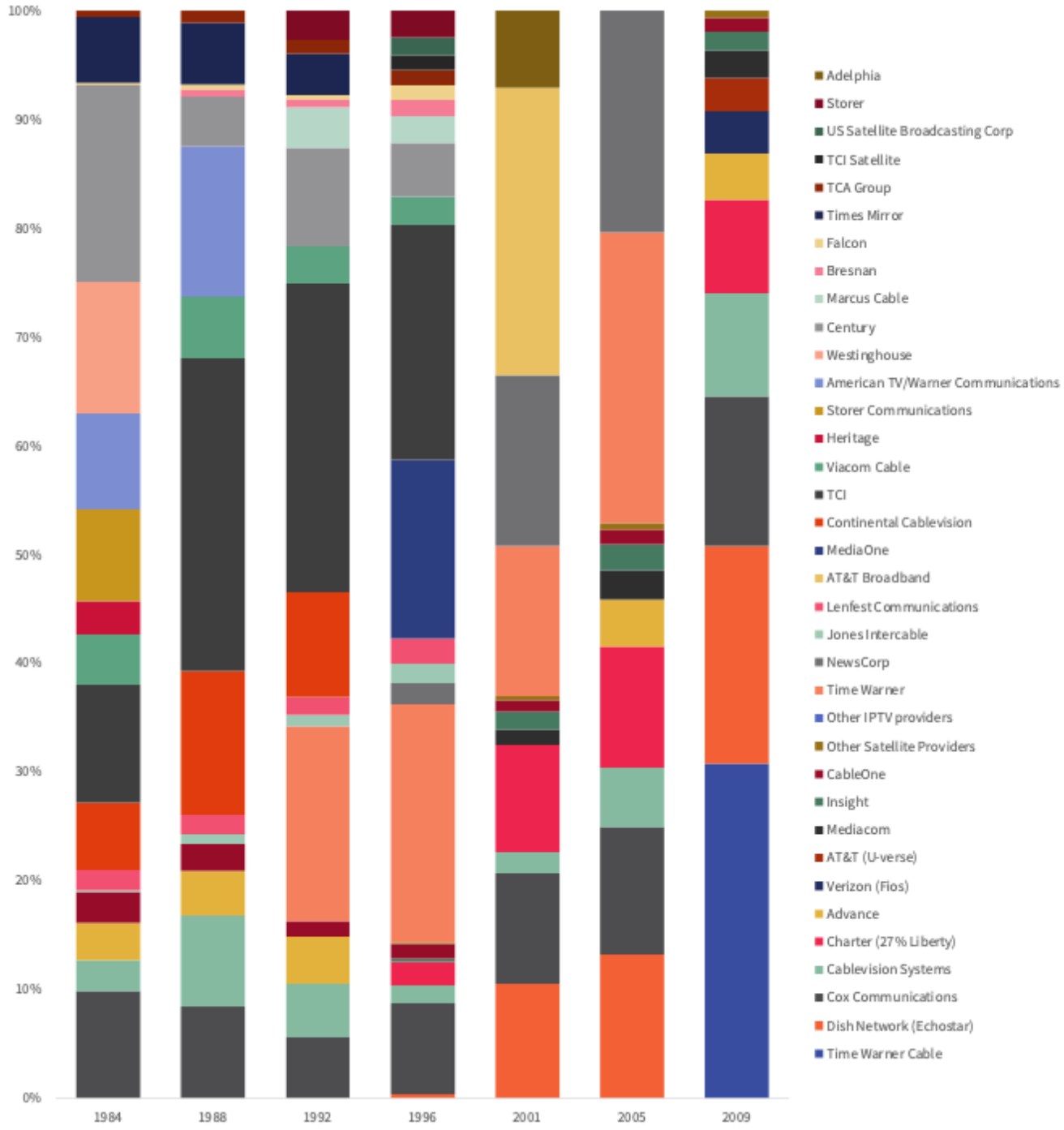


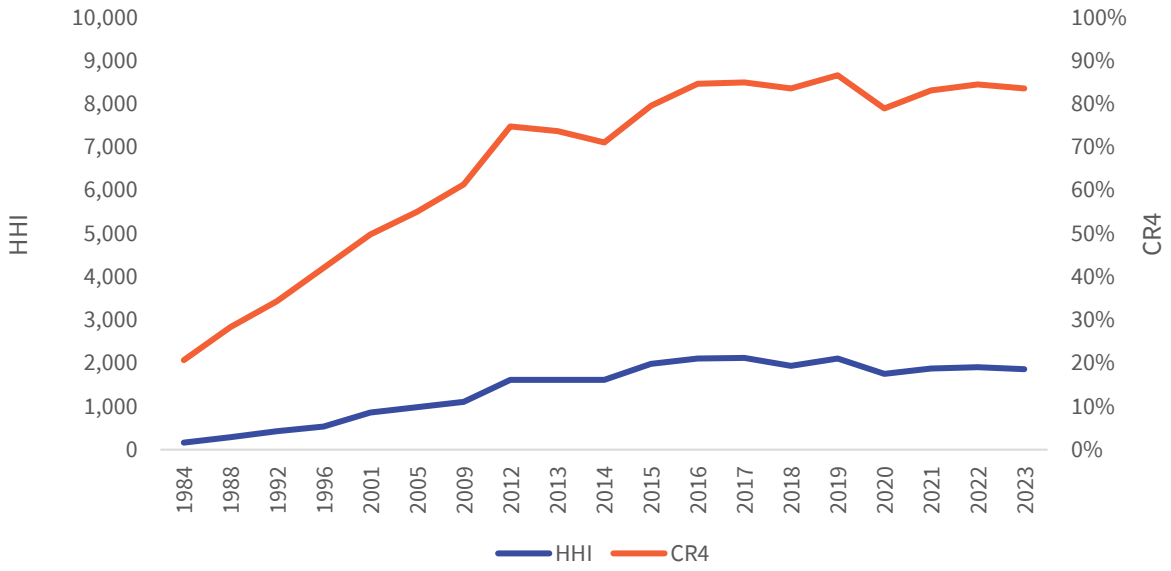
Figure 27: Pay-TV Distribution Revenue (millions $) and Market Share, 2012-2023

	2012		2014		2016		2018		2020		2021		2022		2023	
	Revenue (million)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share
Comcast	$20,112.00	22.07%	$20,783.00	21.24%	$22,357	21.07%	$22,455	23.28%	$21,937.00	21.4%	$22,079.00	26.9%	$21,314.00	24.72%	$18,625.65	23.5%
Charter Communications	$3,639.00	3.99%	$4,443.00	4.54%	$16,390	15.44%	$17,348	17.99%	$17,432.00	17%	$17,630.00	21.5%	$17,460.00	20.25%	$16,351.00	20.7%
Time Warner Cable	$11,240.00	12.33%	$10,367.00	10.6%												
Cox Communications	$6,565.23	7.2%	$6,672.57	6.82%	$4,505.79	4.25%	$4,447.01	4.61%	$4,853.00	4.7%	$4,089.56	5%	$3,882.16	4.5%	$3,490.44	4.4%
Cablevision	$3,443.27	3.78%	$3,187.25	3.26%												
Mediacom Communications Corporation	$946.68	1.04%	$923.18	0.94%	$866.62	0.82%	$859.5	0.89%	$707	0.7%	$682.35	0.8%	$649.15	0.75%	$583.9	0.7%
CableOne	$561.97	0.62%	$488.5	0.5%	$294.78	0.28%	$343.34	0.36%	$332	0.3%	$339.71	0.4%	$231.02	0.27%	$257.97	0.3%
DirecTV	$23,235.00	25.5%	$26,001.00	26.57%												
Dish Network	$13,004.61	14.27%	$14,643.05	14.97%	$14,544.85	13.71%	$13,323.12	13.81%	$12,897.00	12.6%	$12,928.71	15.8%	$12,322.27	14.29%	$11,336.26	14.3%
Verizon Communications	$4,253.62	4.67%	$5,459.66	5.58%	$5084.8	4.79%	$5,081.62	5.27%	$5,124.00	5%	$4,845.06	5.9%	$3,234.00	3.75%	$3,739.06	4.7%
AT&T Inc.(TPG 2022)	$2,995.00	3.29%	$3,755.50	3.84%	$36460	34.36%	$27,479.89	28.49%	$28,610.00	28%	$15,513.00	18.9%	$21,765.81	25.25%	$19,796.24	25%
Altice USA					$4227.22	3.98%	$4,156.43	4.31%	$3,671.00	3.6%	$3,526.20	4.3%	$3,281.31	3.81%	$3,072.01	3.9%

As can be seen from the table below, the pay-TV distribution industry has gone from an incredibly competitive marketplace in 1984, with a HHI of 162 and a C4 of 20.7 to a moderately concentrated 1,912 HHI and high C4 of 84.5. This dominance by the standards of the C4 comes from the fact that the two largest cable companies, Comcast and Charter, have taken dominant positions in the cable industry, by acquiring the major metropolitan areas in the United States. Cities bid out franchise rights for the town, giving the cable company exclusive rights. For instance, Charter's Spectrum is the only cable company available in Manhattan, New York. Of course, they can select other options, such as DBS satellite from Dish Network or DirecTV, the other two major companies that make up the high C4, but while considered "available" it's not exactly practical in Manhattan, as it might be difficult to hang a satellite receive on the side of a skyscraper. This creates de facto monopolies, where users basically have no choice but to select the available cable company.

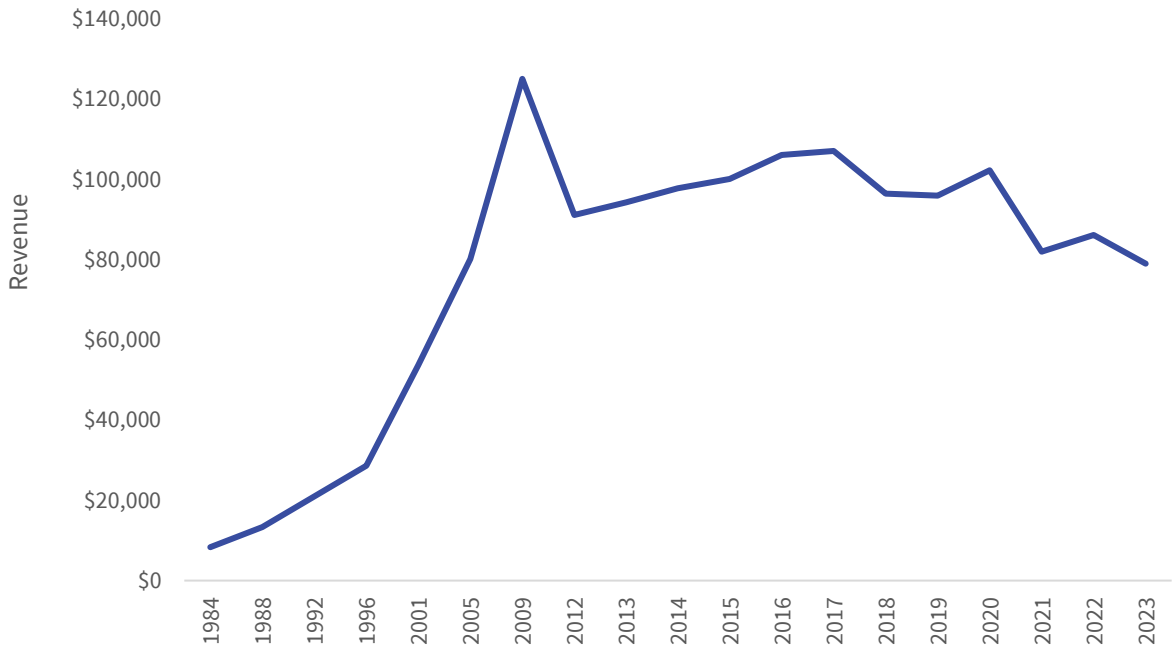
As Comcast built up its network, and Charter merged with Time Warner Cable and Bright House Networks, the concentration throughout the country increased. However, pay-TV distribution has been under intense pressure for the last decade, with the emergence of over-the-top streaming competing for subscriber attention, and with users getting rid of their subscriptions. This has caused the remaining companies to coalesce and combine, to attempt to survive. As such, there are now basically two major players in each distribution medium, with Comcast and Spectrum (Charter) as the two major cable providers, DirecTV and Dish Network as the two major direct satellite broadcasters, and Verzion and AT&T as the two major IP providers. This has caused concertation to go from an exceptionally competitive 162 in 1984, which is so unconcentrated that it could never have lasted due to companies probably being unprofitable at that level, to an almost 2,000 HHI in 2022

Figure 28: Pay-TV Market concentration (by Revenue), 1984-2023



Meanwhile, the revenue for the industry has most likely peaked, as it has been falling from 2017 high of $107 billion to $86 billion in 2022. Given that the industry continues to hemorrhage about 5 million subscribers per year, it is likely that revenue will continue to drop, as any increase in costs to make up lost revenue will only further accelerate the transition to over-the-top video. For instance, the average Cable bill is $147 per month[36] while in comparison, over-the-top streaming runs from free (for channels like Tubi and Freevee) to $22.99 a month for high end Netflix. If one put together a package of the top streaming providers, with ads, it would run $55 a month for Netflix ($9.99), Max ($9.99), Prime Video ($8.99), Disney+ ($7.99), Hulu ($6.99), Paramount+ ($5.99), and Peacock ($4.99). And this pricing does not take into account bundles and deals that are available for users (for instance Verizon Wireless subscribers can get Max and Netflix for $10 a month instead of $20).

Figure 29: Pay-TV Distribution Revenue (millions $),1984-2023



Aside from pay-TV distribution, the other half of the industry would be pay-TV channels. While the early days of cable TV and pay-TV in general were marked by retransmission of existing broadcast networks, the additional carriage and decreasing cost of satellite transmission created the environment to allow for the growth of new channels.

Home Box Office (known more generally as HBO) was the first pay-TV channel, with the popular sports network ESPN becoming one of the first channels to quickly follow. As

[36] Graveman, Stephen. "Cable TV Subscribers Pay $1,618 a Year for Channels (and Ads) They Don't Watch". MNTN Research https://research.mountain.com/insights/cable-tv-less-valuable/

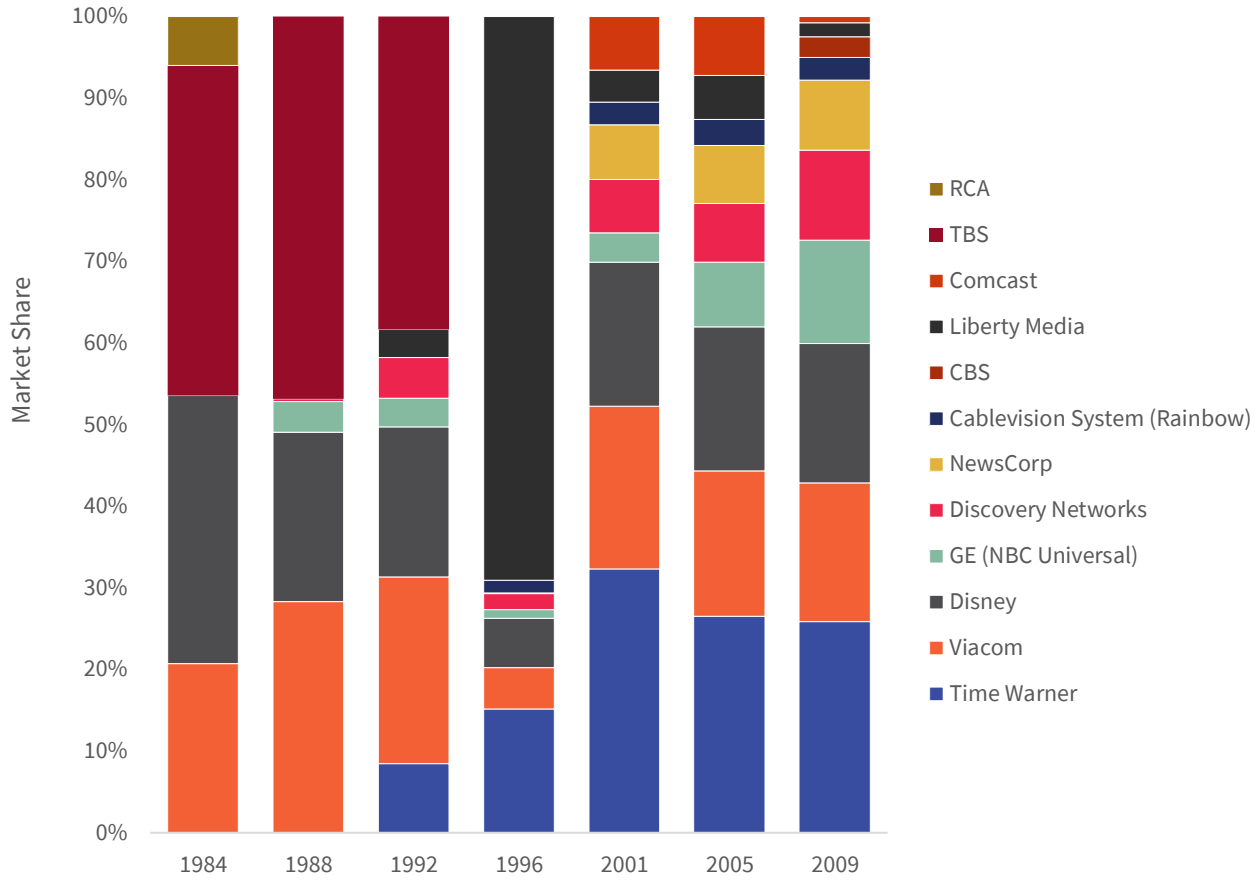
pay-TV distribution grew in popularity in the 1980s, so too did pay-TV channels, with new niche programming being aimed at consumers. Movie channels (like Showtime, Cinemax, HBO, and Starz), Sports channels (ESPN, Fox Sports, MSG), and many others. Unlike broadcast TV, where content is funded specifically by advertising, pay-TV is a dual revenue stream product, with providers being compensated by selling advertising on their channel, but also the licensing revenue for providing the channel to the pay-TV distributor. This area of revenue is extremely lucrative for the channel providers, and in 2022 for example made up 62% of all revenue for the pay-TV Programming industry. ESPN, long the most expensive channel for affiliate fees, charges $9 per month to pay-TV providers.[37]

With an average cable bill of $147 per month, that means that ESPN represents 6% of the entire pay-TV bill for the average consumer. For this reason, it is not surprising that there has been tremendous change in the industry, especially as pay-TV providers began to push more into the content side, so that they could reduce expenses to their subscribers, while also increasing revenue from non-subscribers (since they would get paid by competing pay-TV providers.

Comcast, the largest cable company in the United States acquired NBCUniversal from General Electric and Vivendi in two deals, starting in 2009 and concluding in 2013. AT&T, which owned the largest DBS provider in DirecTV and was also a player in IPTV with U-Verse acquired Time Warner. However, this did not work out well for AT&T, who faced issues with high debt loads and eventually sold off control of Time Warner to Discovery (another major pay-TV channel player) while selling off the DBS business to private equity. Cablevision, one of the big four cable companies in the United States, developed Rainbow Media, which was a series of channels provided and owned by Cablevision. They became known as AMC Networks, named after their flagship channel AMC. While the channels were spun out and made public in 2011, they were still majority controlled by the Dolan Family, the same family that was then still in charge of Cablevision. However, the Dolan Family eventually sold Cablevision, now owned by France's Altice, and maintained the channels at AMC Networks. As the revenue for the distribution side of pay-TV has been declining for years, it is not surprising that companies have exited that field while still maintaining the content side, which can still see revenue growth, especially through new forms of distribution like over-the-top video providers.

[37] Canal, Alexandra. "Disney Reveals ESPN Financials for the First Time". October 19, 2023. Yahoo Finance. https://finance.yahoo.com/news/disney-reveals-espn-financials-for-the-first-time-205114956.html#

Figure 30: Cable and DBS TV Programming Channels Market Shares (by Revenue), 1984-2009



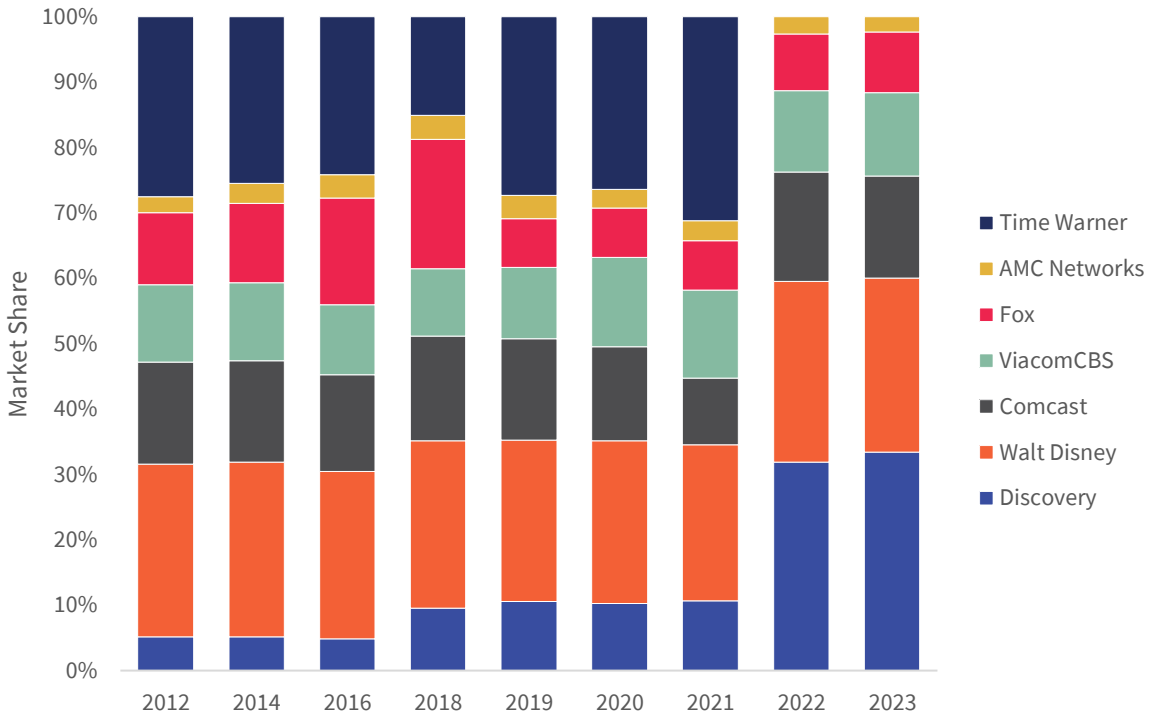
Within the content industry of pay-TV channels, the previous decade saw a lot of merger activity. Comcast, the largest Cable provider in the US finished the acquisition of NBC Universal, buying out GE and Vivendi's remaining portion so that they have been the sole owner of NBCUniversal and its litany of channels since 2011. AT&T followed in 2016 by announcing the acquisition of Time Warner. The deal, a mammoth $109 billion when debt is factored in, would not have changed market share, as AT&T did not own any pay-TV channels prior to the acquisition, but faced tremendous government opposition because of one of the assets owned by Time Warner was CNN. Incoming President Trump signaled his opposition to the deal because of what he viewed as negative coverage of his campaign and administration by CNN. As such the Department of Justice challenged the merger, and in 2018 lost in court, with the judge stating that the government had not established evidence that any merger would decrease competition.

AT&T completed the merger in 2018 but soon realized that they did not want to remain in the industry, and decided to sell off their TV assets, transferring control of Time Warner to Discovery. The two companies merged their assets, creating a new company called Warner Brothers Discovery, with AT&T retaining 70% equity stake and Discovery having 30%, however Discovery remains in control of the company, with AT&T

completely passive. While the company has become the largest player in the market, they are struggling financially, mostly because of the debt the company acquired to afford the deal with AT&T, which cost $43 billion for the 30% stake.

At the same time as AT&T was navigating the acquisition of Time Warner, Disney also announced the acquisition of the assets of 21st Century Fox. Rupert Murdoch had decided to split up his company, selling off his cable assets, film and tv production, while maintaining broadcast television and Fox News and Business. Disney offered to pay $71.3 billion for the assets but received pushback over acquiring Fox's regional sports networks as Disney's ESPN is the market leader in sports and regulators thought this would be an ever-increasing control of one of the most profitable types of content. To appease regulators and close the deal, Disney struck a deal with Sinclair Broadcasting to sell Fox's Regional Sports networks for $9.6 billion. Disney closed the acquisition in 2019, though this did not see much change in Disney's market share, as FX, the main pay-TV the company acquired, was not a huge revenue generator. Much of the value in the deal was for Disney to acquire their film and television production, back catalog of films and television, and most importantly, Fox's share of the over-the-top streaming service Hulu.

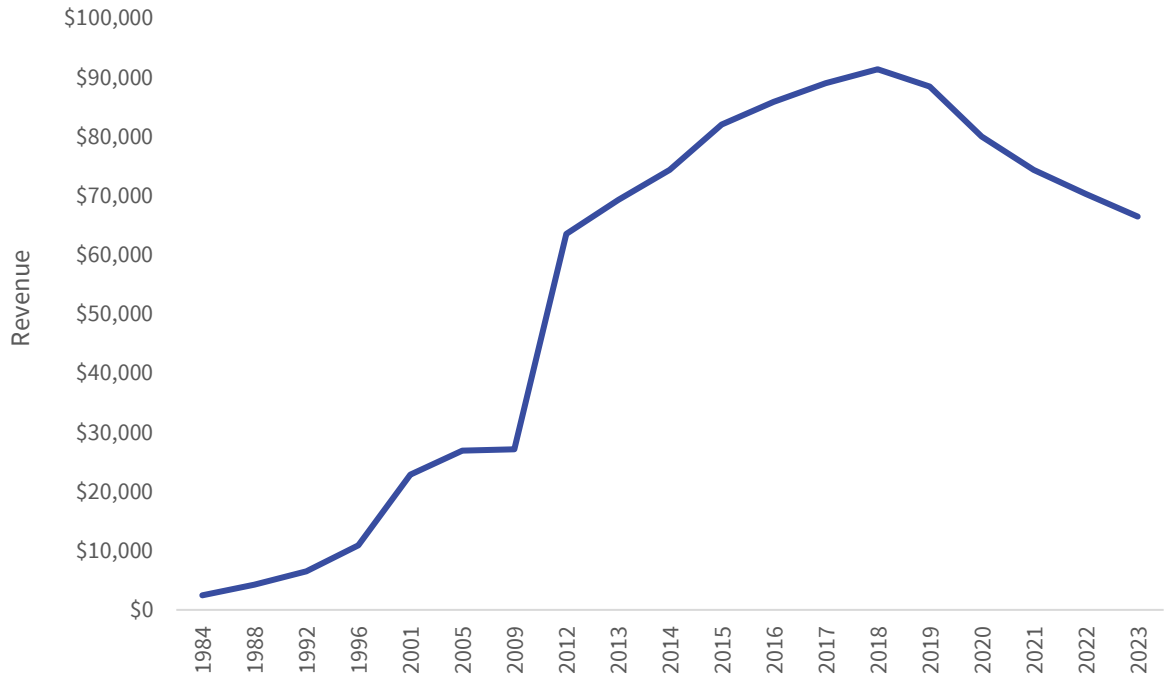
Figure 31: Pay-TV Programming Channels Market Shares (by Revenue), 2012-2023



Revenue for the industry seems to have peaked in 2018 with $91 billion and has dropped to $70 billion in 2022. This is not surprising, as roughly 60% of the industry's revenue came from affiliate fees from pay-TV distribution. As the distribution side has

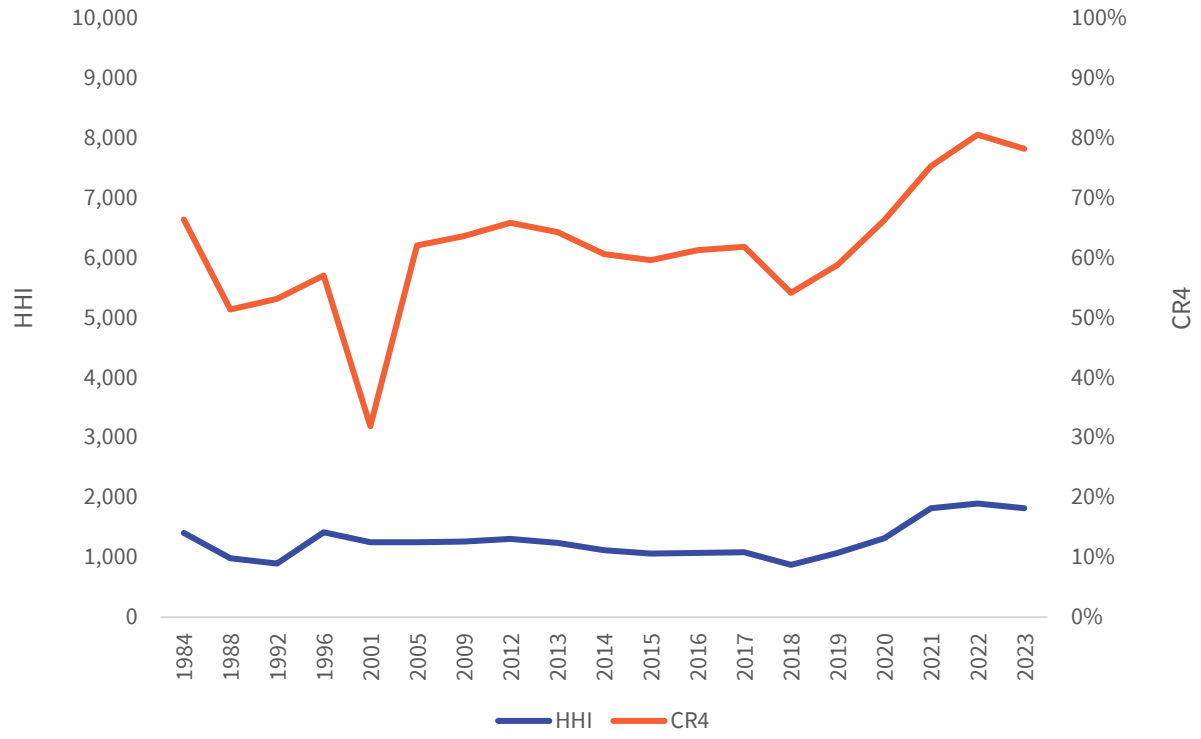
been losing roughly 5 million subscribers per year as over-the-top video continues to increase its hold on users, even losing just ESPN's affiliate fee of $9 a month represents over half a billion dollars of lost industry revenue each year. As subscribers continue cutting the cord and transitioning away from traditional pay-TV distribution to over-the-top video, it is likely that the industry will continue to see decreased revenue.

Figure 32: Pay-TV Programming Revenue (millions $), 1984-2023



Historically, the pay-TV programming industry has been highly competitive, but recently became more concentrated (though only moderately) following the Disney acquisition of 21st Century Fox and Discovery acquiring Time Warner. As more subscribers leave pay-TV, and the remaining revenue becomes more reliant on live sports programming as being the most attractive to advertisers (thus meaning that Disney's ESPN and Warner Brother's Discovery's TNT would likely remain the two largest recipients of affiliate fees and ad revenue) concentration is likely to rise. Indeed, reflecting such drivers there has been a major jump in the concentration of the four largest industry members (C4) since the mergers, going from 66.3 to 80.6% between 2020 and 2022 alone.

Figure 33: Pay-TV Programming Concentration (by Revenue), 1984-2023



Film Production

While the motion picture system and photography was developed in France by Auguste and Louis Lumière, film production has become synonymous with the United States, and with “Hollywood” in particular. The early history of film began with vaudeville, a genre of theater that features a mix of comedy, performance, and singing. This early period, soon after the invention of motion picture camera in 1895, was known as the silent era, as films did not yet have the capacity for recorded sound.

Many of the studios, including Edison Manufacturing Company, owned by renowned American inventor Thomas Edison, were based in New York City, where much of the theater industry was already established. However, within a decade, most of the industry had migrated west to California, where land was aplenty, landscapes were picturesque, and weather conditions were ideal for filming. Another major reason for the move to California was to escape the “Edison Cartel”. In 1908 Thomas Edison, backed by his friend and financier J.P. Morgan, put together a pool of major film patent holders like Eastman Kodak to control the film industry. They created a system of censorship as to what could be included in films and what theaters could show the work (basically theaters that were willing to charge high prices and pay high royalties).

Many of the established corporate entities were glad to work with the Edison Cartel, but they did not understand public taste. So, the independent film production studios, that were not affiliated with the Edison Cartel, moved to California, where they were as far away as possible from the Edison Cartel’s lawyers. These early film entrepreneurs included Marcus Loew (MGM Studios), Mack Sennett (Keystone Studios), Harry Cohn (Columbia Pictures), Adolph Zukor (Paramount Pictures) and William Fox (Fox Film). These producers all had their early connections to vaudeville and understood popular tastes. Not surprisingly, due to a better understanding of the populace’s appetite and cheaper prices, their films dominated the early days of the industry.

The film industry evolved in 1927 with the release of Warner Brothers’ “The Jazz Singer” the first film to feature prerecorded sound. Studios invested heavily into the new technology, in a race to keep up, and it caused a changeover in stars. Many of the silent era stars had voices that were deemed unsuitable for the new films, as audiences did not connect with the actors voices. The studios took advantage of this, being able to cast new actors and create new stars. And since these actors were unknowns, unlike the silent era stars many of whom had gotten their start in theater and vaudeville, the studios were able to control every aspect of the 1930s and 1940s, where they controlled, the scriptwriting, distribution and marketing of the films. Even the stars were “owned” by the studios, as they had contracts that only allowed them to star in films from that studio. This period of the film industry became known as the Golden Age of

Hollywood, as stars like Charlie Chaplin, Greta Garbo, Humphrey Bogart, and James Cagney became household names and celebrities.

As Hollywood grew to define more and more consumption of people's attention, there were calls for regulation. The Hays Code, a self-imposed set of moral guidelines established in 1930, aimed to regulate the content of films and stave off further calls for regulation, which the studios opposed. While it limited depictions of violence, sex, and profanity, it also fostered creativity as filmmakers found ways to subvert the code's restrictions.

While the Hays Code helped to alleviate concerns about content, the studios still faced massive calls against their vertical integration, with the US Justice Department beginning investigations into the studio system as early as 1921. By the 1930s it seemed that the Justice Department was ripe for breaking up the studios, but the Great Depression gave President Roosevelt, who worried that breaking up the movie studios would exacerbate employment issues and also hurt the morale of citizens not having films to distract them from the suffering, the ability to use the National Industrial Recovery Act to justify a delay of the action. But by 1940, the studios could no longer sustain this defense, and fearing another Justice Department case, they entered into a consent decree where the studios agreed to allow theater owners to view movies before they decided which they bought to show, and the process of block booking, where theaters agree to take a series of films, and can't just pick and choose which they want, became regulated.

But even this consent decree was not enough and by 1948 the United States Supreme Court ruled that studio system violated the anti-trust act and began the process of breaking up the studios. No longer could they own theaters, and block booking also became prohibited. This all took place at roughly the same time as a new major competitor was emerging, broadcast television. Within 10 years of the Supreme Court decision, the film industry saw the industry begin to dramatically fall off, with regular film goers dropping from 1948's 90 million average regular moviegoers to about half, at 46 million in 1958.[38] Due to this, the studios had been weakened significantly, and many eventually were bought out by non-media companies who knew nothing about the film business. The manufacturing company Gulf and Western, for instance, purchased Paramount studios. In another example, Kinney, known for its parking lots and funeral parlors, purchased Warner Brothers. The insurance company Transamerica purchased United Artists. Coca-Cola, the well-known soda company, purchased Columbia Pictures.

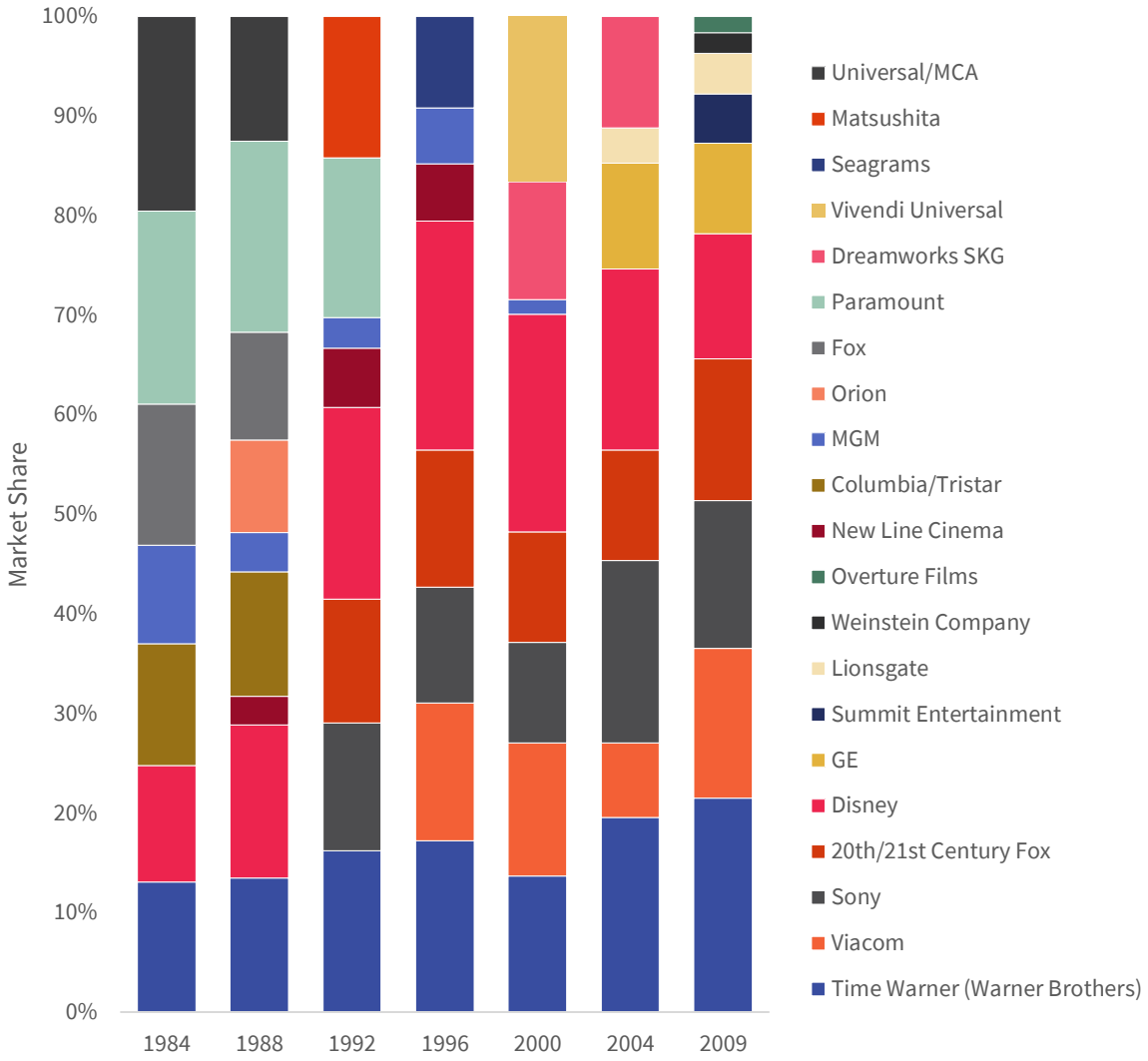
Following a renaissance in the 1970s, where new young auteur directors and filmmakers like George Lucas, Steven Spielberg, Francis Ford Coppola and Martin Scorsese reinvigorated the public's interest in films, another round of changeovers took place. Sony, the Japanese tech conglomerate purchased Columbia Pictures and United Artists. Universal was involved in several acquisitions, first by Matsushita, another Japanese conglomerate, then to Seagram's the Canadian drink company, then to Vivendi

[38] Bomboy, Scott. "The Day the Supreme Court Killed Hollywood's Studio System". National Constitution Center May 4, 2023. https://constitutioncenter.org/blog/the-day-the-supreme-court-killed-hollywoods-studio-system#:~:text=In%20the%20end%2C%20the%20Court,the%20Sherman%20Anti%2DTrust%20Act.

the French media company, who ultimately sold it off to General Electric. At the same time, a major change in regulation also changed the market, with the Federal Communication Commission ending the Financial Interest and Syndication Rules (Fin-Syn) in 1992, allowing for vertical integration in the broadcast TV industry and the film players rushed in. Rupert Mudoch, the owner of 20th Century Fox, started the Fox TV network, Disney Studios purchased the ABC network, Warner Brothers started The WB Network, and Paramount purchased CBS. Now, four of the largest five broadcast TV networks were owned by the film companies that they had originally been disrupted by.

The most recent disruption to the film industry has been the COVID-19 pandemic, which has reworked the way in which consumers have changed their viewership habits. Since theaters were closed during the pandemic, and also because of social distancing restrictions when they finally did reopen, people did not want to go see films in theaters. The studios thus changed to over-the-top video distribution. Instead of being shown in theaters, films premiered on Netflix, Peacock, or Disney+. This also accelerated the timeline between when films left theaters and came to streaming, and many viewers no longer feel the need to see films right away, happy to wait a few months to see them on streaming. As such, it took four years before the box office recovered to its pre-pandemic levels. New concerns like user-generated content and streaming also continue to erode interest in the industry, leading to continued changes. Studios have had to put more and more reliance on “blockbuster” films to be successful, which puts more pressure on them not being successful.

Figure 34: Film Production and Distribution Market Share (by Box Office Revenue), 1984-2009



Since 2012 there have been several mergers and sales of companies in the film industry. By 2009, MGM, one of America's oldest studios, had significant debt, and entered bankruptcy protection. It emerged in 2011 but more or less ceased operations, entering into a deal with Sony for Sony to be the exclusive distributor of MGM assets, mostly their James Bond franchise films. In 2020, following the effects of the pandemic, MGM agreed to sell to Amazon, as the company was looking to expand its film studio holdings. The deal closed in 2022 with Amazon paying $8.45 billion for the company. Following the arrest and conviction of Harvey Weinstein, the Weinstein company, one of the larger independent film companies was sold off and split up. The back catalog library was sold to Lionsgate and the film production arm was transferred to Spyglass media group, which is a coalition of Lantern Entertainment (a private equity firm) Lionsgate studios and Warner Brothers Pictures.

As was mentioned in other sections, Time Warner also changed ownership several times, once to AT&T and then again to Warner Brothers Discovery. However, these transfers would not have any real effect on the market concentration of the industry, as they were not previously participants in the film production and distribution industry. The only merger to have real implications for the market concentration was Disney acquiring 20th/21st Century Fox in 2019. This transaction caused industry concentration jump from 1,667 in 2018 to 2,161 after the deal closed.

Today, there are basically five major film studios that dominate the U.S. film industry: Comcast's Universal, Disney, Paramount, Sony, and Warmer Brothers Discovery. However, unlike other media companies that have stickiness and see customers remaining loyal to specific brands, the film industry shuffles the rankings of its major players each year, depending on how the release schedule works, and what type of movies are popular at the moment. Typically, though, the big five command about 90% of total box office revenue, and just rotate who is the largest in any given year based on which of the big five has the biggest blockbuster film(s) in that year. For instance, Disney was the largest in 2022, second largest in 2021 and fourth largest in 2020.

It is likely that as people continue to stop going to see movies in theaters, and revenues decline, the amount the big five players command of the box office will continue to rise and subsequently continue to elevate the concentration levels. The only major issue is the possibility of a merger. Paramount has indicated that it intends to be sold, following the death of its majority owner Sumner Redstone. Sony has offered the largest offer, of $26 billion, with the film studio Skydance another contender, at a significantly less $8 billion. If Sony emerges as the eventual winner, it would further consolidate the film industry.

Figure 35: Film Production and Distribution Market Share (by Box Office Percent), 2012-2023

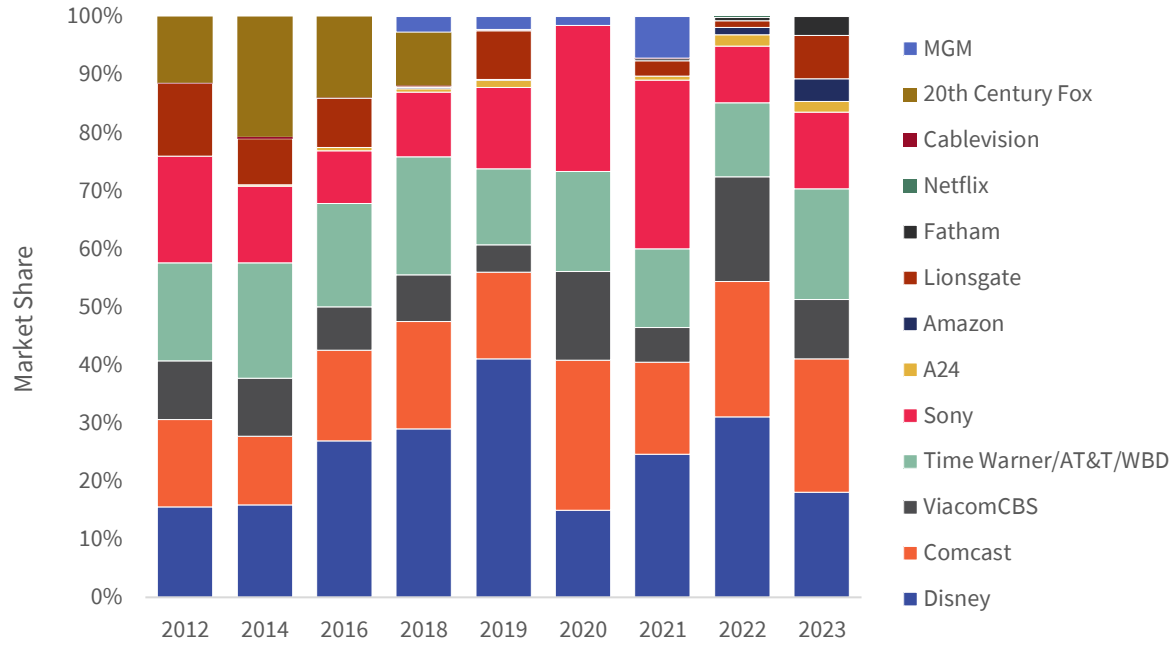


Figure 36: Media Concentration of the Film Industry based on box office revenue, 1984-2023

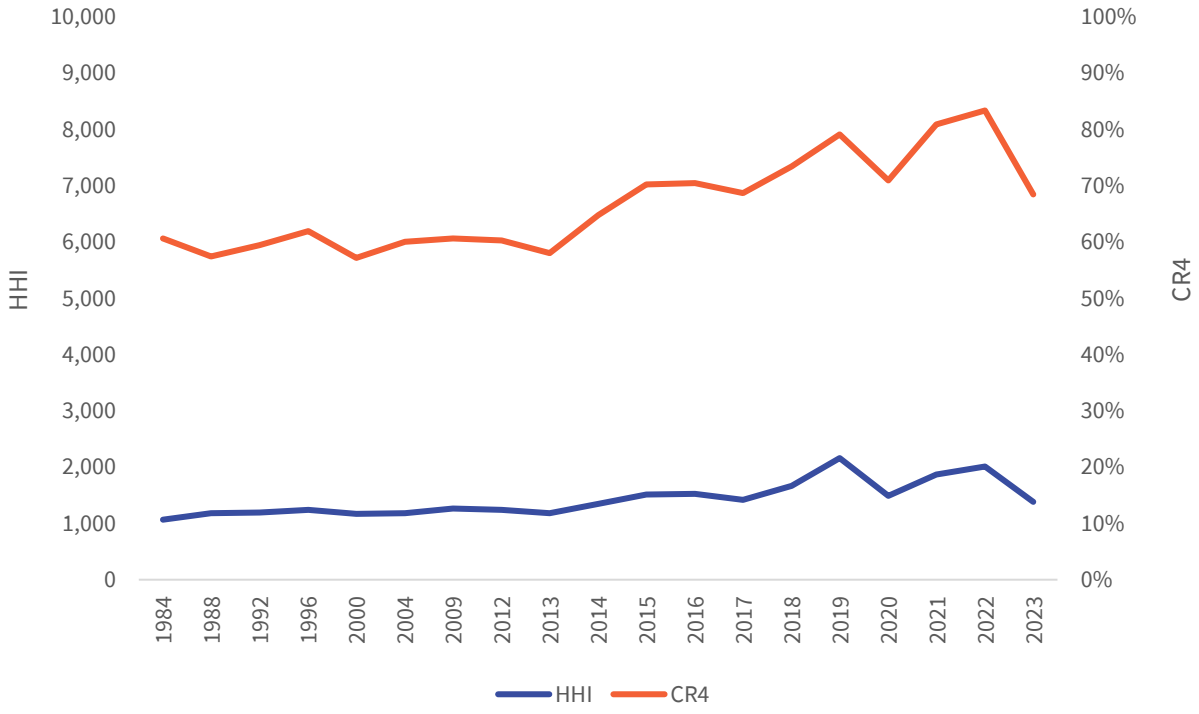
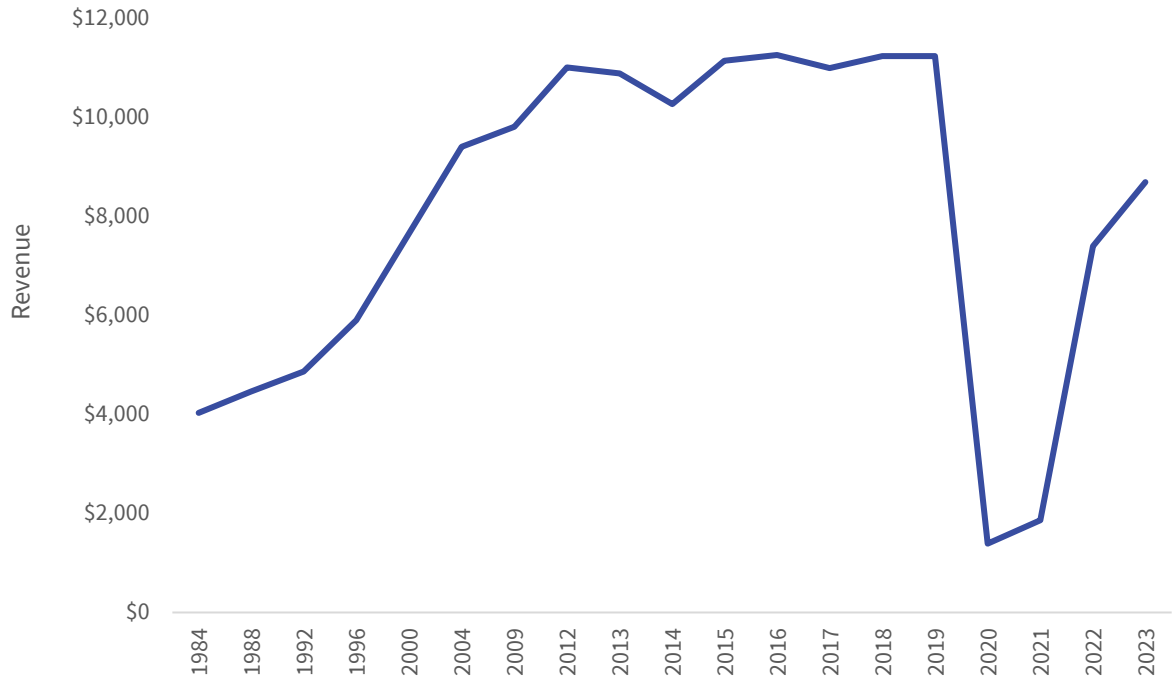


Figure 37: Film Industry Revenue (millions $), 1984-2023



Film Theaters

The early days of the film industry in the United States were mostly defined by the exhibition phase, where the early pioneers would exhibit films at fairs, roadshows, or other, or some other temporary setups. Makeshift theaters would be set up at music halls, like Koster and Bials in New York City, for example.[39] The first permeant, dedicated movie theater was established in New Orleans, Louisiana in 1896, named Vitascope Hall. For 10 cents (roughly $3.75 in 2024 purchasing power) the public would be admitted to the 400-seat theater and view the films of the day.[40]

The Film Theater industry had a major revolution in 1905 when the first nickelodeon opened in Pittsburgh Pennsylvania. The term Nickelodeon was a portmanteau of nickel, the price charged for admission, and odeon, the Greek word for theater. These niceklodeons were often small, seating roughly 50 to 200 people, had simple setups and very basic decorations (if any), and often had a multitude of programs combining short films with live music and narration.

Within three years there were nearly 8,000 nickelodeon's spread across the United States. The widespread access and low price of entry helped to attract an audience, mostly attracting immigrants and the poor, who otherwise could not afford other types of entertainment.[41] In addition, since the films did not have sound, and generally told what simple story they may have had through exaggerated gestures it was simple for immigrants who may have understood limited or no English to still comprehend the films, and thus participate with others. The theaters became a melting pot of all kinds coming together to watch the films.

These early days were marked by rapid growth, innovation, and experimentation. By 1910 an additional 2,000 nickelodeons had opened, further attracting the public to see films. The increase in public interest and viewership caught the attention of filmmakers,

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[39] Pickford, Mary. "Early Movie Audiences" American Experience PBS. https://www.pbs.org/wgbh/americanexperience/features/pickford-early-movie-audiences/#:~:text=The%20first%20film%20screening%20in,many%20entrepreneurs%20into%20the%20business.&text=Makeshift%20theaters%20sprung%20up%20all,or%20restaurants%20into%20exhibition%20halls.

[40] "The Historic Vitascope Hall" https://neworleansentertainment.org/vitascopehall/

[41] Pickford, Mary. "Early Movie Audiences" American Experience PBS. https://www.pbs.org/wgbh/americanexperience/features/pickford-early-movie-audiences/#:~:text=The%20first%20film%20screening%20in,many%20entrepreneurs%20into%20the%20business.&text=Makeshift%20theaters%20sprung%20up%20all,or%20restaurants%20into%20exhibition%20halls.

who continued to evolve their story telling, and the growth of film production as discussed in that section. As the film studios grew in prominence, they began to engage in vertical integration. Studio's sought to control both the creation of the films and their distribution to the public while also retaining a larger share of the box office revenue, as they did not need to split the revenue with the theater house. Throughout the 1910's major studios such as Paramount, Warner Brothers, and Loews had begun buying up theaters. By the 1920's Paramount was the leading theater owner in the country and the "Big Five" studios (then Paramount, Warner Brothers, RKO, Loews, and Columbia, different from today's Big Five of Disney, Paramount, Comcast Universal, Sony, and Warner Brothers Discovery) dominated theater ownership. This was one of the many reasons that the Justice Department began investigating and going after the film industry for antitrust violations, as discussed more in depth in the film industry.

Following the Paramount Decision in 1948, and the divestiture of the film theater business from the film studios, the industry saw even more innovation and change. As the automobile became a fixture of the American landscape, theaters had to evolve to deal with changes. Theaters moved from indoors to outdoors, with drive-ins becoming the venue for capturing the attention of the movie going public.

In addition to new locations, the theater industry added all new types of technology to continue to attract viewers and differentiate from other forms of entertainment (like television). Some of these developments included ultra-widescreen video like Cinerama and Panavision. Another was three-dimension technology, allowing viewers to see the effects coming off the screen. Finally, the addition of stereophonic sound created unmatched sound quality for film. These effects could not be recreated in the home, or even most theaters, and required individuals to seek out specific viewing locations, helping to differentiate theaters. However, some of these technologies, like 3D, were not embraced for long, seen as gimmicky and repetitive, mostly because filmmakers did not innovate but just shoehorned the techniques in and the novelty wore off.

The 1970s reinvigoration of the film industry by the auteur filmmaker coincided with the emergence of new players in the movie theater industry, most importantly AMC Theaters, which pioneered the concept of the multiplex. Earlier theater houses generally had one screen which meant that they could only show one film at a time. Multiplex's were theaters with multiple screens, anywhere from 2 to 20 or more. This allowed theaters to offer multiple films and stagger viewing times, thus increasing options for visitors. It also increased the availability of films to the viewing public, as it was easier to give smaller films and independent movies showings as the theaters no longer had to choose one or the other.

The efficiency of megaplex's saw the major companies, AMC, Cinemark, and Regal Cinemas, grow their market share and put many of the independent theaters out of business. This led to issues such as homogenization, where all theaters seemed the same, and lost much of their allure. It also increased the number of screens throughout the country which led to over-saturation and loss of quality.

To deal with declining ticket sales, movie theaters continued to evolve in the 1990s and 2000s. Theaters introduced new luxury formats like IMAX and Dolby Cinema. They also

tried to reintroduce 3D and premiered a new immersive format called 4D, which added elements like water, vibration, and wind. Theaters also expanded their offerings, going from simple popcorn, candy, and soda, to full course dinners and alcohol. They also upgraded the seats to full size recliners and pods, allowing people to reach a new level of comfort in film going.

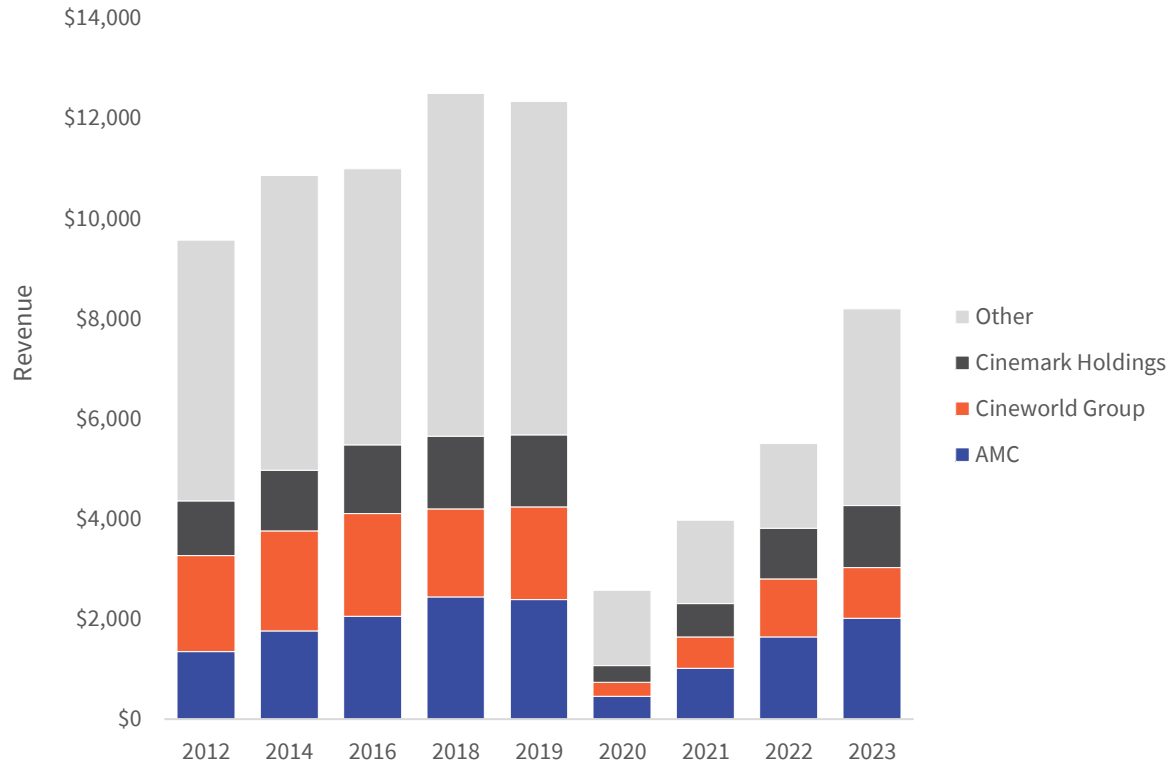
Figure 38: Tickets Sold and Total Box Office in the United States, 1996-2022[42]

	1996	2000	2004	2008	2012	2016	2022
Tickets Sold (millions)	1,305.28	1,395.25	1,494.56	1,358.07	1,382.84	1,302.29	702.14
Total Box Office (millions)	$5,769.35	$7,520.4	$9,281.20	$9,750.95	$11,007.37	$11,264.77	$7,393.53
Average Ticket Price	$4.42	$5.39	$6.21	$7.18	$7.96	$8.65	$10.53
Average Ticket Price Inflation Adjusted to 2022	$8.27	$9.19	$9.69	$10.14	$10.29	$10.63	$10.53

Theaters derive their revenue from a few different revenue sources. The predominate source, typically representing about 2/3rds of all revenue is admissions. However, admissions revenue is split with the film production studios, in a rental agreement for the films which will fluctuate from film to film (a major blockbuster like a Marvel film or Star Wars film may see a 60-40% split with the majority going to the studio, whereas smaller, art-house films may even see a split more beneficial to the theaters as an incentive for them to carry them. Concessions sales are the second largest market segment. The remainder comes from advertising and other.

[42] Domestic Movie Theatrical Market Summary 1995 to 2024. The Numbers https://www.the-numbers.com/market/

Figure 39: Revenues in the Film Theater Industry (millions $), 2012-2023



The largest owners of movie theaters in the United States are Cineworld Group, which owns Regal Cinemas, AMC Theaters (which has no relation to the Dolan Family's AMC Network, they just have the same abbreviation), and Cinemark Holdings which owns Cinemark theaters. Together these three companies control about half of all theater revenue in the United States. In addition, they also represent a significant control of "screens", the number of rooms available to show films in. Of the roughly 30,000 screens in the United States, AMC owns 7,369[43], Cineworld Group has 5,774[44], and Cinemark Holdings has 4,324.[45] Thus, almost 60% of all screens are controlled by these three companies.

In addition to the three major companies, there are also a handful of smaller chains that exist. Alamo Drafthouse is one of the more well-known groups of theaters. Started in 1997 in Austin, Texas, they became famous for bringing together filmgoing and dinner and drinks. Their differentiation helped popularize the concept and saw Alamo expand

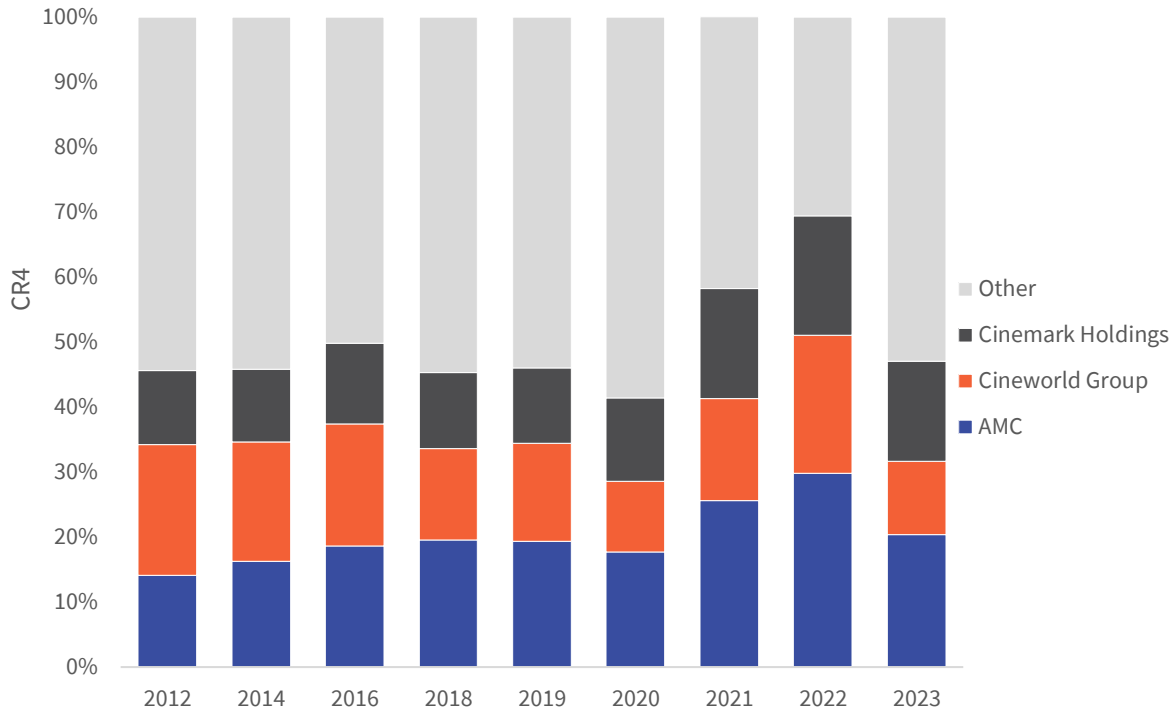
[43] AMC Annual report 2023 available at https://investor.amctheatres.com/sec-filings/all-sec-filings/content/0001411579-24-000021/amc-20231231x10k.htm Page 7

[44] ,About Regal https://www.regmovies.com/about#

[45] Cinemark Holdings 2023 annual report available at https://ir.cinemark.com/sec-filings/annual-reports/content/0000950170-24-016143/0000950170-24-016143.pdf Page 2.

to 41 locations across the United States. Its major competitors began to seize on the concept and also expanded their offerings, to now feature full food delivered to seats and offering alcoholic drinks.

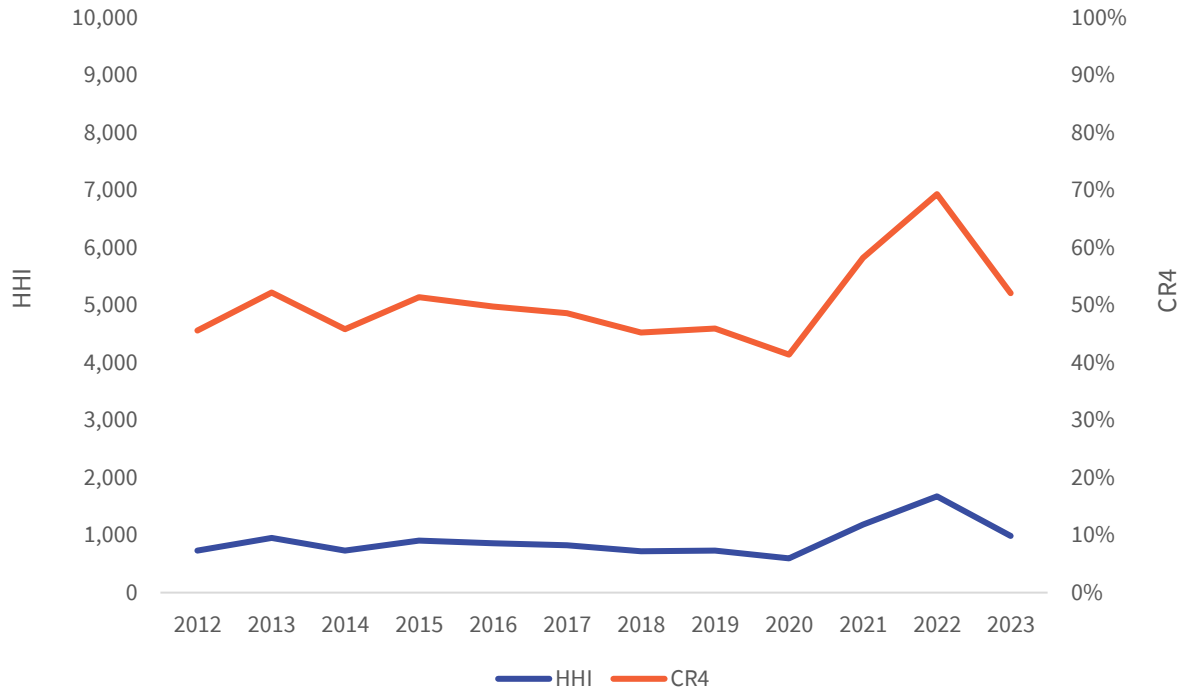
Figure 40: Market Share in the Film Theater Industry (millions $), 2012-2023



Another player in the industry is National Amusements. The company originally started in the 1930s as Northeast Theater Corporation, founded by Michael Redstone. It owned a series of theaters in the Northeast of the United States. Eventually the company transferred to the founder's son Sumner Redstone who greatly expanded it, becoming a national powerhouse in media, acquiring CBS Television and Paramount Studios. It is of interest that following the Supreme Court decision that prohibited movie studios from owning theaters, the reverse happened, with a theater chain owning a movie studio. In 2024, National Amusement, which still owns Paramount continues to hold about 18 theaters in the United States, mostly in the northeast, with one in Ohio.

The vast majority of theater ownership in the United States is held by independent theaters, or very small groups who own a handful of theaters, usually in the same geographic region. In the United States, in 2024, there are about 5,300 movie theaters throughout the United States, many of which are these small, local theaters. For this reason, concentration in the United States exhibition market has always remained very low. The only major jump in concentration occurred during the Covid-19 pandemic, when many theaters closed or severely limited operations, and AMC dominated the much lower industry revenues (in 2022, revenue was less than half of 2019).

Figure 41: Market Concentration of the Film Theater Industry, 2012-2023



The main question that the theater industry has to address is how it will adjust as the COVID-19 pandemic subsides. The studios have shortened their release windows and premiered movies on streaming much sooner than prior to COVID. This has cut into interest by the moviegoing pubic to go out to theaters. Facing these concerns, it is not surprising that there have been changes in the industry. Alamo Drafthouse was acquired by Sony Pictures in 2024, following Alamo's entrance into bankruptcy protection during the COVID epidemic. Sony, a film studio, was able to acquire theater chains again after the United States Justice Department determined in 2019 that it no longer needed to enforce the Paramount Consent Decree that prevented ownership by studios.[46]

[46] Kaye, Danielle. "Sony Pictures Acquires Alamo Drafthouse in Lifeline to Cinema Chain" New York Times. June 12, 2024. https://www.nytimes.com/2024/06/12/business/alamo-drafthouse-sony-pictures.html

Video Game Industry in the US

The advent of television introduced a controllable screen into consumers' homes, allowing new industries to flourish alongside it. Not only did this lead to the rise of home box office services through Betamax and VHS, but it also paved the way for the growth of the video game industry.

The Experimental Years (1950s-1970s)

While video games today are primarily viewed as sources of entertainment, the earliest examples were developed by computer scientists and engineers for research and educational purposes.

One of the first video games ever created was designed as a demonstration at Brookhaven National Laboratory in New York. The game, "Tennis for Two," was developed in 1958 and simulates a tennis match, allowing players to volley a ball back and forth over a net. It was displayed on an oscilloscope, a specialized instrument used to visualize signals, typically voltage changes over time. Players used two specialized controllers: one for each player. They pressed a button to simulate hitting the ball and turned a knob to control the angle of the shot. The computer calculated the shot's trajectory and displayed it on the oscilloscope. "Tennis for Two" was showcased during Brookhaven's annual public exhibition, aimed at highlighting their research, and quickly became a popular attraction—so much so that attendees waited in long lines to play. Despite its success and the decision to display it again the following year, the game was dismantled by 1960, with its parts repurposed for other projects, leading to a gradual fading of public memory of the concept until later developments emerged.

A few years later, in 1962, a significant advancement in video games occurred at the Massachusetts Institute of Technology (MIT). Following the installation of a PDP-1 Microcomputer from Digital Equipment Corporation, a group of students and professors aimed to demonstrate the capabilities of this new technology. They created a program known as "Spacewar!" which featured two ships battling each other in space. This game was revolutionary for several reasons: it was the first video game played on a proper screen and one of the first to be compatible with various hardware types. The developers made the game's code freely available, allowing others to adapt it to their own computers. This move greatly influenced the early landscape of game development and served as a foundation for several well-known video games that emerged in the 1970s.

While early computer users were developing games to showcase the potential of this new technology, electromechanical arcade games were gaining popularity in the 1960s, offering a fun simulation experience for players. These games were often housed in arcade cabinets (wooden boxes designed to contain all the components) and operated

on a coin system, allowing players to pay to play. However, these early arcade games were distinct from modern video games; they employed mechanical devices that interacted with physical components to determine scores and responses. For example, the popular game "Speedway" from Chicago Coin was a racing simulator. Players turned a steering wheel to control a car attached to a stick, which moved over a track displaying randomly appearing cars. Players had to maneuver to avoid collisions; failing to do so would register as an “accident,” halting the game and preventing score accumulation. Although these games were not "video games" as we define them today—since they did not use screens to display graphics—they laid the groundwork for the video game industry.

In the late 1960s, a pivotal meeting between two individuals led to the establishment of the modern video game industry. Nolan Bushnell, a college student with a background in amusement parks filled with electromechanical games like "Speedway," had a life-changing experience when he played "Spacewar!" at the University of Utah while studying computer science. After graduating, Bushnell relocated to California, where he met his future collaborator, Ted Dabney. Bushnell demonstrated "Spacewar!" to Dabney at Stanford, discussing the potential for creating games based on it. In 1969, the two founded a company called Syzygy, aiming to design and sell a coin-operated cabinet version of "Spacewar!" They succeeded in 1971 with the release of "Computer Space," a fully video-based arcade game.

The release of Computer Space later proved to be revolutionary, though it was not an immediate success. However, it was successful enough for the company to undergo a rebranding and continue developing new games under the name Atari. Atari's second release, Pong, became a much more well-known hit. This game likely needs no introduction, as it is one of the most recognized and widely played video games of all time. Pong simulates a ping pong match, with players bouncing the “ball” back and forth until one fails to return it. The game's explosive popularity propelled Atari to success.

However, just as quickly as success was found, it could have all come to a halt. Bushnell’s partners were unaware that his inspiration for the ping pong-themed game was not Tennis for Two, but rather a demonstration of the Magnavox Odyssey that he had attended. The Odyssey was one of the first home video game consoles, though it operated quite differently from the more popular home consoles that followed. The system used replaceable circuit boards to switch between games but was capable of generating very limited graphics. To enhance visuals, plastic overlays were placed on top of the television screen.

Despite its innovative nature, the Odyssey struggled in the market for several reasons. One significant factor was its high price of $100 in 1972, equivalent to about $750 in 2024. Additionally, the fact that the system was released by Magnavox and sold exclusively through their stores led many consumers to believe it would only work with a Magnavox television, even though it was compatible with any TV. Nevertheless, the Odyssey achieved some level of success thanks to Ralph Baer, the head of its development team, who decided to patent the console and many of its games. This

move resulted in Magnavox collecting over $100 million in lawsuit settlements and verdicts.

The popularity of Pong eventually benefited the Odyssey in two ways. First, consumers mistakenly believed that Table Tennis, a game featured on the Odyssey, was simply a home version of Pong, which encouraged some to purchase it. Second, the success of Pong prompted Magnavox to sue Atari in 1974 over Baer's patents. Bushnell chose to settle with Magnavox for $1.5 million, equivalent to nearly $10 million in 2024. As part of the settlement agreement, Atari became a licensee of Magnavox's patents, allowing them to continue making games.

This licensing agreement was crucial as it enabled Atari to shift its focus away from arcades and toward the home market, which ultimately led to the explosion of the video game industry.

The Golden Age of Video Games (1970s-1980s)

The late 1970s and early 1980s are often referred to as the "Golden Age" of video games. During this period, there was an explosion in the popularity of video games, coinciding with the release of several iconic arcade games such as "Space Invaders" (1978), "Asteroids" (1979), and "Pac-Man" (1980). Among these, Pac-Man became a cultural phenomenon. The industry was dominated by companies like Atari, Midway, and Namco during this time.

Midway started in the 1950s as a producer of amusement games and equipment. The company chose its name based on the concept of a carnival's midway, the area where food, games, and rides were located. Within a few years, Midway became successful enough to be purchased by Bally, one of the largest manufacturers of slot machines in the United States. Midway then expanded into manufacturing arcade games after their involvement in the electromechanical game market. The company formed an alliance with the Japanese company Taito to import and localize Japanese arcade games for the US market. One of their first major successes was the 1978 game Space Invaders, which was loosely based on Atari's hit game Breakout. Instead of bouncing a ball to destroy individual bricks, players controlled a military tank that shot individual invading alien ships, known as "Space Invaders." Midway continued to dominate the arcade marketplace by partnering with another Japanese company, Namco, to release the game Pac-Man. Pac-Man became one of the biggest video games of all time, spawning a wide range of spin-off media, including game sequels (notably the popular Ms. Pac-Man), lunch boxes, drinkware, clothing, a Pac-Man telephone, and even a television show. This strategy of localizing Japanese games allowed Midway to become one of the leading game manufacturers throughout the 1980s.

By 1981, the video game industry had exploded, with coin-operated arcade games generating $4.8 billion in revenue alone. While Atari had pioneered the industry with games like Computer Space and Pong, it was losing ground to its competitors. Following

a lawsuit with Magnavox, Atari's co-founder Nolan Bushnell sought to expand into a new market through licensing agreements. The Magnavox Odyssey had previously attempted to break into the home game market but had limited success, moving only about 350,000 units during its three-year lifespan. To mitigate their issues, Atari decided to expand into the home console market and began development of a new product. Unfortunately, the combination of developing a new system and paying the settlement award to Magnavox placed a severe strain on Atari's resources.

To address these challenges, Bushnell considered selling the company, which he did in late 1976. Warner Communications, the parent company of Warner Brothers Pictures, Warner Cable, and other entertainment assets, purchased Atari for $28 million, providing the financial backing needed to bring the console to market. Under Warner Communications, Atari released the Atari Video Computer System (VCS) in late 1977 and found success. While not the first system to allow game cartridges, the VCS enabled players to switch games easily. The system launched at $199 (roughly $1,000 in 2024), including one game, with eight additional games available at launch. Most of these initial games were adaptations of Atari’s arcade hits brought into the home. Within the first few months, Atari sold as many consoles as Magnavox had in its several years of release. By the end of the decade, Atari had sold over 1.3 million units, four times the amount Magnavox sold in the same period.

Atari's success continued as they licensed popular Japanese games for the VCS. They worked with Taito to license Space Invaders, which became the home video game market's first blockbuster, selling 1.25 million copies in its first year and doubling Atari's console sales to over 1 million units that same year. Atari also adapted Midway’s other successful arcade game, Pac-Man, by securing a license from Namco and bringing it to the console. This adaptation led to an explosion of popularity for Atari's console, and by the end of 1982, they had sold a total of 10 million units, with Pac-Man becoming their greatest-selling game, boasting over 8 million copies sold. While it seemed the video game industry could do no wrong at this point, fortunes would soon shift dramatically.

The Crash and Rebirth (1980s-1990s)

The video game industry experienced rapid growth, but it also faced a swift decline, leading to its near collapse. Several factors contributed to the video game crash of 1983, with the primary cause being the over-saturation of low-quality games in the market. During the early 1980s, companies were eager to capitalize on the booming profits in the industry. This resulted in a rush to release games, often developed in extremely short time frames driven by a fear of missing out. Consequently, a flood of new games emerged, many of which had poor gameplay, subpar graphics, and numerous bugs.

One notable example is Atari's attempt to capitalize on the popularity of the 1982 film E.T. the Extra-Terrestrial, which grossed nearly $800 million at the box office. Atari paid $20 million for the rights to create the game, equivalent to around $70 million in 2024. In a bid to take advantage of the holiday season, the game was developed in just five

weeks, which was apparent in its heavy shortcomings. Despite producing 4.5 million copies with hopes of great popularity, the game sold only half that amount. Atari ultimately incurred a $100 million loss and had to dispose of the unsold copies by burying them in a landfill.

Consumers, feeling burned after spending roughly $40 on games that did not meet expectations, lost their willingness to purchase video games. This decline in demand led parents to refrain from buying games for their children, creating a significant lull in the market and fostering the belief that the video game industry might end up being a fleeting trend by 1984. Fortunately, another arcade game company emerged to rejuvenate the industry and elevate it to unprecedented heights.

Many Americans were unaware that Midway, a popular arcade game company, was actually importing games from Japan. Unlike Namco and Taito, which licensed their games to American companies, another Japanese company, Nintendo, decided to release its games directly in the United States. Nintendo introduced one of its popular games, Donkey Kong, which quickly became one of the top arcade games in the early 1980s.

Having found success in Japan, Nintendo followed in Atari's footsteps and released its own console in Japan in 1983 called the Famicom (short for Family Computer). The console proved to be very popular, prompting Nintendo to use a modified version to revive the American market. The American division of Nintendo took careful steps to differentiate the Famicom from previous consoles that contributed to the industry's decline in 1983. They decided to rebrand the console as the Nintendo Entertainment System (NES) instead of using the Family Computer name, distancing it from the negative connotations associated with video computers. Additionally, they redesigned the console to resemble VHS players, which were immensely popular at the time, rather than using a top-loading design like the Atari VCS. These strategic changes paid off, and by 1986, the NES became the top-selling video game console, following a limited release in select markets in 1985.

In addition to rebranding the console to rectify the mistakes of the previous generation, Nintendo sought to address the issue of poor-quality games that had plagued the market. They established a "Quality Seal" that all manufacturers needed to obtain to sell games for the NES. To qualify as an official publisher and receive the seal of quality, publishers were limited in the number of games they could release per calendar year. As a result, publishers had to be more selective about their releases, ensuring they put out only their best-developed games. Some publishers attempted to circumvent this restriction by setting up shell companies that could release additional games under different names. For instance, Konami, a well-known Japanese publisher, created a company called Ultra to release more titles. While this led to a proliferation of publishers, it often meant that a single company would control two or three shell companies, limiting the diversity of game voices.

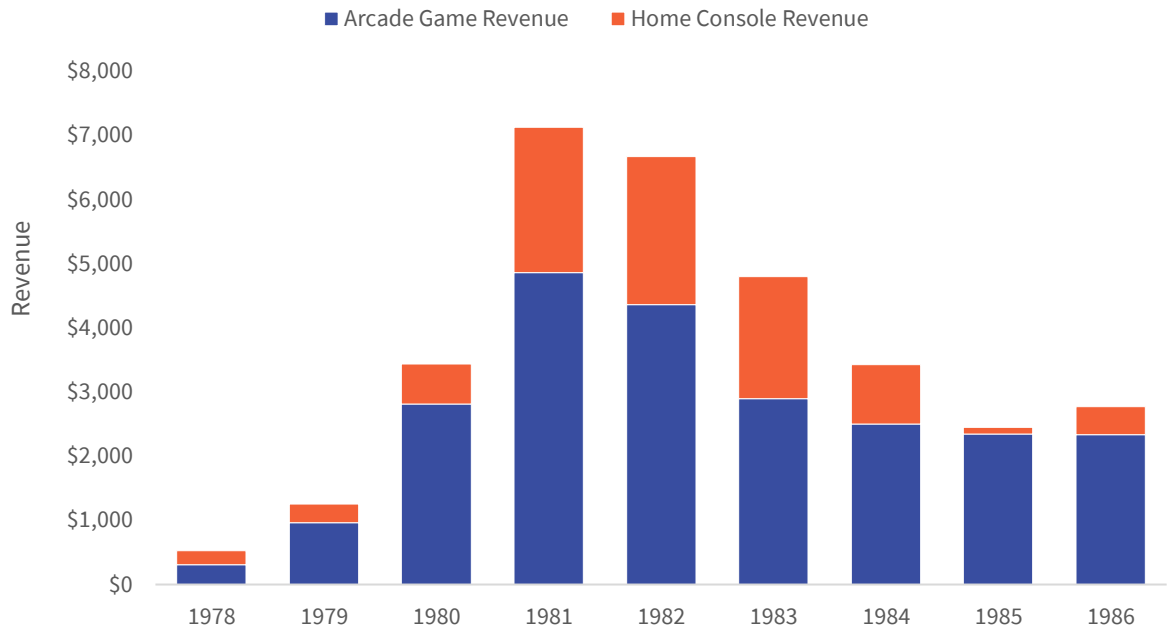
These strict regulations allowed the video game industry to recover and flourish. By 1988, the industry's revenue reached nearly $10 billion, with two-thirds coming from arcades and the remaining third from home consoles, predominantly from Nintendo.

Seizing the opportunity, another prominent Japanese arcade maker, Sega, decided to introduce its console to the U.S. market. The Sega Master System, released shortly after the NES, made some inroads but captured only a small portion of the market. It wasn't until 1989 that Sega launched a significant challenge to Nintendo's dominance.

The 3D Revolution and Online Gaming (1990s-2000s)

Throughout the 1980s revenue from Arcade games outstripped home console revenue.

Figure 42: Arcade vs. home console revenue, 1978-1986



Arcade games continued to be a major draw throughout the 80s, even as Nintendo's home dominance grew. New games in the early 1990s like Street Fighter, Mortal Kombat, and NBA Jam were exceptionally popular along with licensed games representing known properties, like The Simpsons, Teenage Mutant Ninja Turtles, and The X-Men all of which came from the popular Japanese developer Konami.

However, by 1991, Nintendo had released their competitor to the Sega Genesis, the Super Nintendo another 16-bit system. These two consoles brought home processing power more or less equivalent to that in arcades and made it possible to bring home high-quality equivalents to arcade games. While previous arcade games had been released on home consoles, they were usually not of the same quality and a clear step down. Now, Super Nintendo and Sega Genesis had arcade level graphics and consumers were happy to buy games they could play as much as they want from the

comfort of their basement rather than at restaurants or arcades. In addition to the increase of home versions of the game, another cause of the decrease of interest in arcade games was the fact that home consoles were moving away from 2D games and into 3D graphics, which did not translate well to arcade games.

Unlike Nintendo, which left its hardware mostly untouched when it released the NES and later the SNES in between hardware releases, its competitor Sega released hardware attachments to upgrade the Genesis's ability. For instance, in 1991, about two years after the Genesis release, Sega released the Sega CD, a device that could be attached to the Genesis that played games on CD-ROMs. The CD's allowed for significantly more storage than the cartridges, meaning that games could have more instructions and better graphics. It also freed independent publishers from having to pre-buy cartridges and rom chips, instead able to order CD-ROMs as needed for pressing games, and releasing them at a much faster rate, speeding up availability to the market.

While Nintendo never released a CD-based add-on, that doesn't mean it never investigated developing such a device. Indeed, in the late 1980s, Nintendo reached out to Sony, the major Japanese consumer electronics company that had helped develop CD technology, to provide a CD add-on. The device would be called the Nintendo Playstation, and similar to the Sega CD, would connect to the Super Nintendo and allow users to play CD based games. However, as the time to announce the add-on approached, Nintendo became nervous, as the terms of the contract provided that Sony would receive profit from every CD game sold, something that was uncomfortable for Nintendo, especially because the terms of the contract also allowed Sony to eventually build their own standalone console.

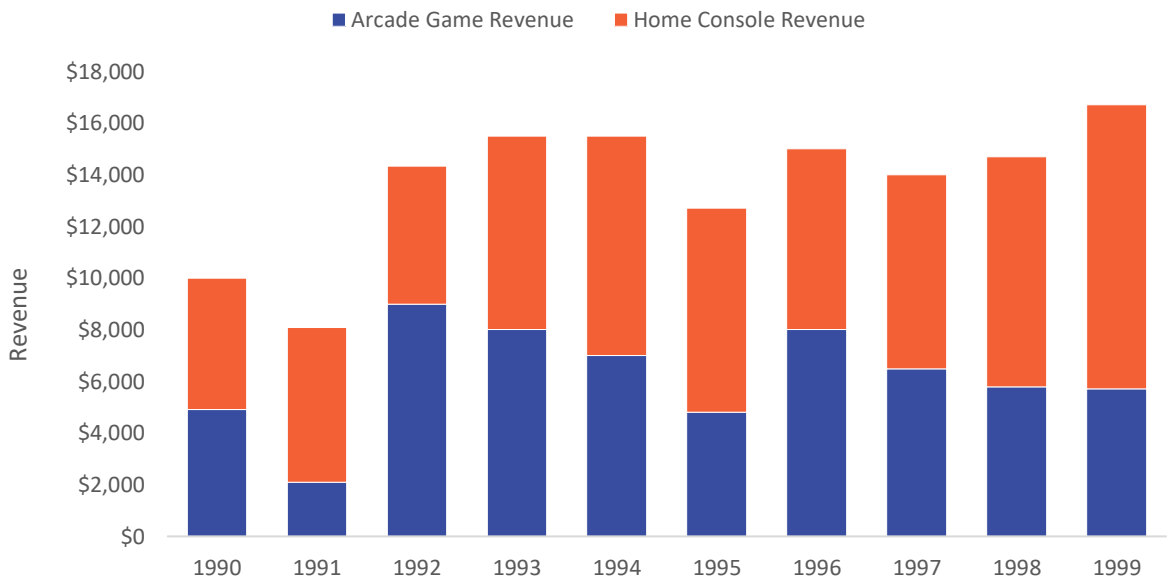
In 1991, a day before Sony was supposed to present their Nintendo Playstation to the press at an industry event, Nintendo surprised everyone by announcing that they were working on a CD-based add-on for their console, but one that would be developed by Sony's competitor Philips. Nintendo had secretly negotiated a different contract with Philips, one that was more beneficial to Nintendo. Spurned by this, Sony continued their development and eventually released a CD-Based console in 1995, called the Sony PlayStation (differentiated from the previous version that was spelled with a lowercase s). Very quickly, the PlayStation became a huge success for Sony, dominating the American market. Much of the reason for this was that the PlayStation readily embraced and made it easy for third-party publishers to release games on their system. This was aided by the fact that Nintendo had used a Sony sound chip in the SNES, so developers were familiar with working with Sony's development systems. Thus, Sony saw large support from third party developers, including luring away the Japanese developer Square to continue their beloved Final Fantasy franchise, which had seen 6 games released on the Nintendo platform, come over to Sony. With a large gaming library available, and high-quality graphics and gameplay, Sony became the dominant player by the end of the millennium.

The introduction of 3D graphics and new game types transformed the video game industry in the 1990s and saw a demise of the once popular arcade cabinet. While

arcades dominated the 1970s and 1980s, home consoles reached parity in the 1990s, and consumers started preferring owning games and playing at home, rather than going to arcades or other locations to play cabinets. Home consoles had come to dominate during this era, while some computer games had started to gain exposure. Thus, by the end of the 1990s, revenue was mostly focused on home video game consoles, with the remainder coming from personal computers (PCs).

While PCs had always been present in the early home video game market of the 1970s and early 80s, the video game collapse, and the following rebirth of the console market saw PCs move into a very niche market, with games being limited in what was available. However, the 90s saw a resurgence in PC gaming, with new games being developed and a new genre being pioneered on PC. A 3D remake of a 1980s game, Castle Wolfenstein helped to premier the genre of first-person shooters. This game, Wolfenstein 3D, let to a series of games that followed a similar formula, a single player running around a setting shooting enemies, with the player viewing the game from the characters perspective. Follow up titles from Wolfenstein's developer id included Doom and Quake. In addition to these games, the studios behind two other major 90s PC games, Unreal Tournament (Epic Games) and Half-Life (Valve Corporation). would all have major roles in the future of video games. Epic would go on to develop the popular Unreal Engine, a software system used in most video games to power their graphics, while Valve would develop the distribution platform Steam, one of the most popular distribution platforms for PC games, controlling over half of the PC digital sales and seeing over $8 billion in sales in 2023. While these two companies have a major presence in the video game industry today, there was another computer company waiting in the wings at the end of the millennium who would help transform the video game industry.

Figure 43: Arcade vs. home console revenue, 1990-1999



The Online Era (2000s-2010s)

By the conclusion of the millennium, Bill Gates and Steve Ballmer, the heads of Microsoft, the computer software giant responsible for the operating system Windows, had taken notice of the major growth of the video game industry, seeing the explosion of the entire industry from around 500 million when Microsoft was getting started, to an 11 billion a year home console industry in 1999. Having felt that they had missed the development of the internet, and being a step behind, Microsoft came up with the idea to develop a device that would meld popular platforms together, uniting video games, computing, and the internet into one device. Microsoft had seen the opportunity to leverage its software expertise to enter the video game hardware department. Microsoft assembled a team of developers to work on what would become the Microsoft Xbox, a machine that not only played games, but integrated with other Microsoft products and services, such as Windows and MSN.

Two years after assembling a team, Microsoft launched the Xbox in 2001. This entrance was very important because 8 months earlier, Sega, the third hardware company competing with Sony and Nintendo had announced that they had planned to exit the hardware business and focus only on being a third-party software developer. This would have led to a duopoly of platforms, but Microsoft's entrance ensured additional competition. The console was launched with a lukewarm reception, with critics excited about its online gaming capabilities, but lamenting the very limited game library, as developers found it hard to make games for.

Within a few months of launching, Microsoft launched Xbox Live, an online service that allowed players to interact with each other online, while paying Microsoft a subscription for this access. While not the first online service, for instance both Sega and Nintendo offered dial-up internet services mostly in Japan, where users could by a peripheral to add on to the device and call into a service to play games remotely. However, Xbox Live was one of the first to gain wide support and adoption. The unified online community created by Xbox Live also created a devoted group of supporters who adopted the device. By the middle of the decade, Microsoft had entrenched itself as a strong third platform, even briefly becoming the second largest seller of hardware in the US (by volume).

Figure 44: US Video Game Hardware Sales by Provider, 2006-2016[47]

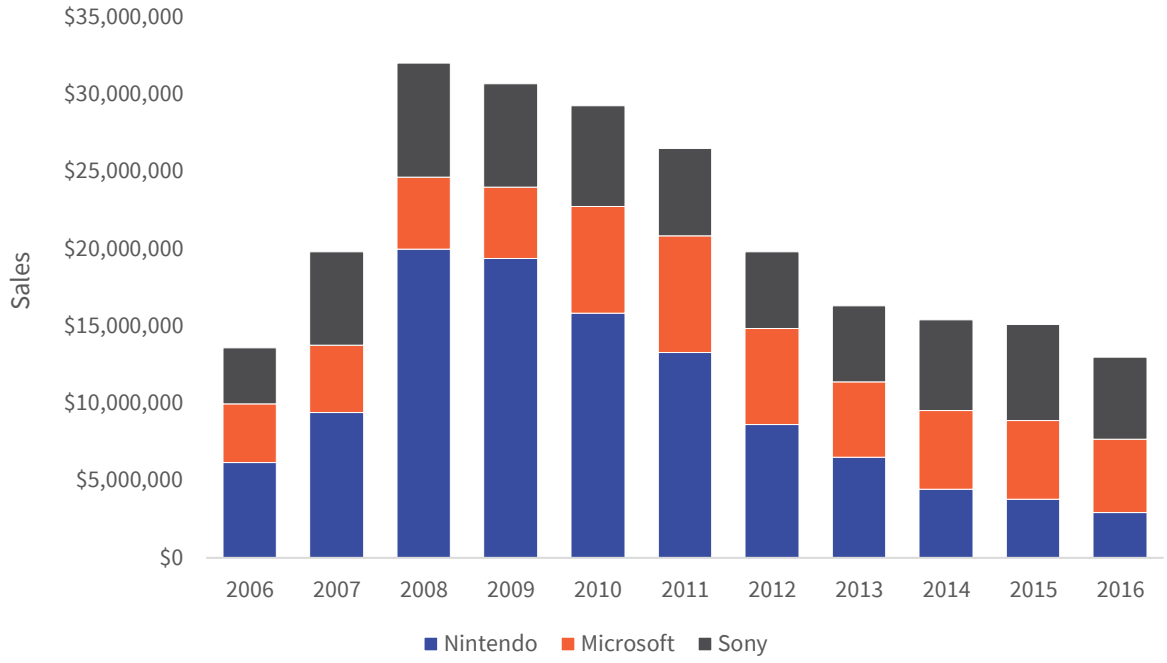
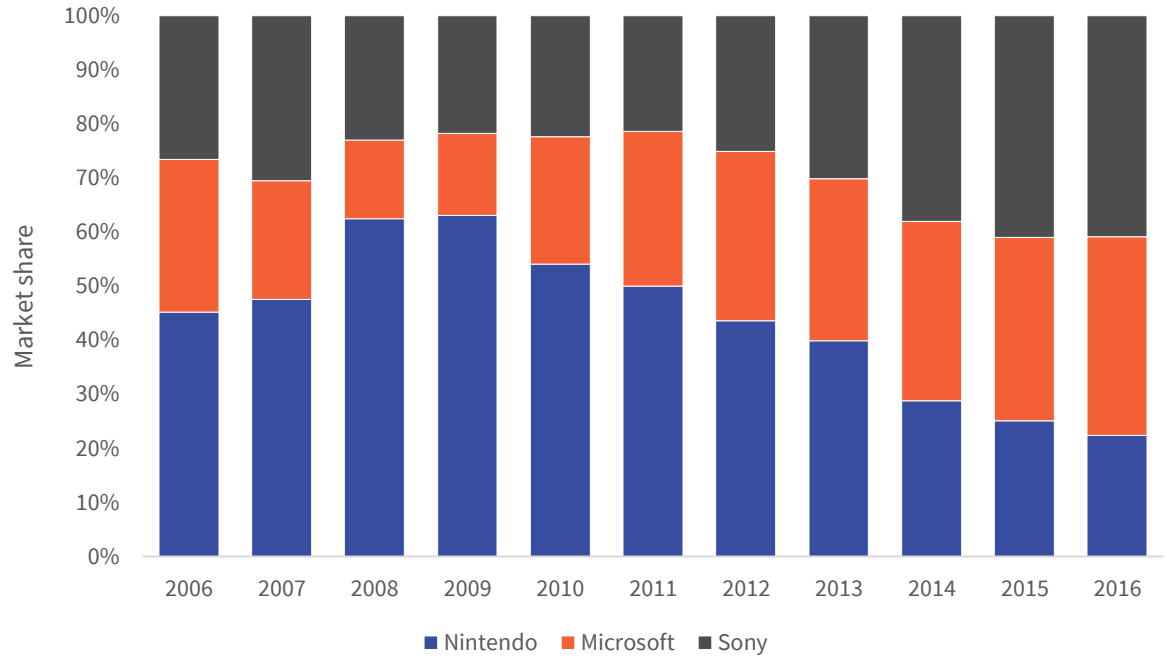


Figure 45: Market Share of Companies based on US Hardware Sales, 2006-2016



[47] https://www.vgchartz.com/tools/hw_date.php?reg=USA&ending=Yearly

During the 2000s, many of the same third-party publishers which were popular on previous consoles continued their sales. However, the release of Xbox Live, and then eventual digital service offerings from Nintendo and Sony, along with computer platforms such as Steam, GOG, and the Epic Games Store transformed the way games are purchased and distributed. Previously developers had to create games, have them manufactured physically, and then get shelf space in store. This heavily favored the existing publishers, as they had the contacts and track record to get retailers to purchase and stock their games. These platforms, which started as a means for online gaming, but evolved into full platforms allowing for the sale and distribution of games and demos enabled small, start-up developers to self-publish their games, reducing the grip of traditional publishers. This helped to expand the video game industry, seeing tremendous growth in sales. However, a major change to the video game industry was coming at the end of the decade.

The Smartphone Era (2010s-Present)

Handheld and portable video games have always been a part of the video game industry. In the 1970s there were small devices designed around a single game. Nintendo released its Game Boy in the 1980s allowing users to play multiple different games on the go. All of these devices were popular and gained mainstream acceptance but were traditionally controlled by the existing platforms (Nintendo's Game Boy and later DS systems, Sega's Nomad and Game Gear, Sony's PlayStation Portable and PlayStation Vita). But it was a non-traditional video game company that really shook up the video game industry. In 2007, the computer company Apple released the iPhone, the first widely purchased "smartphone". This innovation allowed users to load their own applications onto the device. Earlier phones might come bundled with a game or two (one of the most popular was "Snake", released in 1997 on Nokia devices) but it was the introduction of the iPhone and its later App Store that allowed anyone to make and distribute new games.

Mobile games such as *Angry Birds*, *Candy Crush* and *Pokémon Go* have become cultural phenomena, generating billions of dollars in revenue. More importantly, they have expanded the reach of the video game industry. Mobile games expanded the clientele, to so called "casual gamers" who did not want to invest into the hardware needed to play video games, and instead just wanted to play games in short bursts, usually when trying to distract themselves from other things. As smartphones quickly took off and exploded in popularity, sales of mobile games also exploded, and created a new revenue stream, since mobile games could use advertising as means of providing games for free or cheap and still generate revenue for the developer, with the mobile video game market expected to bring in almost $20 billion in revenue alone in 2024.[48]

[48] Mobile Games – United States Statista https://www.statista.com/outlook/dmo/digital-media/video-games/mobile-games/united-states

Most Americans appear to interact with video games through mobile then from any other device. According to the ESA, the Entertainment Software Association, a trade association of the US video game industry, estimates that 67% of US households play games on a mobile device, while only 36% of households play games on a console device (like the Xbox or PlayStation).[49]

In addition to the growth created by mobile devices, the smartphone (which made high quality cameras and streaming easily accessible to the masses) also helped expand the concept of "esports" where individuals watch competitive video game playing. Companies like Twitch, later bought by Amazon, and Major League Gaming, eventually acquired by Microsoft through Activision Blizzard, helped to popularize the concept of watching individuals play video games. This content helped to popularize games with the general public, expanding the reach of the video game industry.

Major Video Game Publishers

Aside from being the three major hardware providers, Microsoft, Nintendo, and Sony also are three of the largest video game software publishers in the United States, having either started or acquired publishers to create blockbuster games. Nintendo in particular relies heavily on its own published titles, specifically the well-known franchises *Super Mario Brothers, The Legend of Zelda,* and *Pokemon* to generate sales. Outside of these three companies, other major video game publishing studios include:

Activision Blizzard

Activision Blizzard formed in the late 1970s as a group of former developers who worked for Atari. After leaving Atari and forming the company as Activision, they developed games specifically for the Atari, but eventually expanded to other consoles. The company saw success especially with the release of its *Call of Duty* franchise eventually making the company so successful it was acquired by the French company Vivendi in 2008. This acquisition expanded Vivendi's other major video game holding, the PC game developer Blizzard Entertainment, known for its popular computer games *StarCraft, WarCraft, and Diablo.* Vivendi merged the two together into Activision Blizzard and then spun them out in 2013. In 2022 Microsoft announced that it planned to acquire Activision Blizzard for $69 billion. The deal faced major regulatory push back, including Microsoft having to win a court case against the Federal Trade Commission. Following that victory in late 2023, Microsoft closed the deal and began integrating Activision Blizzard into its holdings in 2024.

[49] "2024 Essential Facets About the U.S. Video Game Industry" ESA https://www.theesa.com/resources/essential-facts-about-the-us-video-game-industry/2024-data/

Capcom

Capcom was founded in Japan in 1979 with the intent to focus on developing and selling electronic game machines in Japan. During the mid 1980s, owing to the explosion of arcade and home consoles, Capcom pivoted to developing arcade and home console games. While the company saw some success, it wasn't until the late 80s that Capcom really started to see major success, helping to reinvigorate the arcade business with the release of the *Street Fighter* franchise and the home console game *Mega Man* on the NES. Over time Capcom continued to expand and still has a major presence today, mostly with fighting games.

Electronic Arts

Electronic Arts was founded in 1982 by a former Apple Computers executive. His goal was to create a company that treated its developers as artists rather than just as programmers. While finding early success in the home computer market, it was the release in the late 80s of the console game John Madden Football that really pushed the success of Electronic Arts. The game, which became a seasonal release, pushed the company to new heights and made the company synonymous with sports games, eventually expanding into other sports like hockey with *NHL Hockey*, basketball with *NBA Live*, baseball with *Triple Play*. Eventually Electronic Arts expanded out to other areas and acquired other studios to diversify to other types of games, like the popular role-playing game series *Mass Effect.*

Roblox

Roblox, the popular online gaming platform, was founded in 2004 as DynaBlocks but renamed a year later to Roblox. The initial concept was to create a platform that allowed users to create and play a wide variety of games in a virtual world. The platform's early success was fueled by its unique approach to user-generated content, which allowed users to create and share their own games using a drag-and-drop game development tool called "Roblox Studio." Coupled with the rising popularity of user generated video, Roblox was targeted to young children and teenagers. The platform was able to quickly expand to a user base of millions of users, and generating revenue from the sale of in-game currency used to acquire new tools and items. While a relatively new player in the video game industry, Roblox has quickly become a major player in the US video game industry, with over 200 million monthly active users and a valuation of over $40 billion.

Square Enix

Square Enix began in Japan as two separate companies, Square Software and Enix. Square Software was founded in 1983 and began developing video games in the 1980s

for Nintendo. Its first major success was the role-playing game Final Fantasy which went on to become a highly successful franchise globally, with 16 main line titles and dozens of spin offs and remakes. Square released six Final Fantasy titles exclusively for Nintendo, but then moved over to releasing titles exclusively for Sony, eventually opening up to making them timed-release exclusives with the titles starting exclusively on Sony platforms and eventually being brought over to other competing consoles. At the same time, Enix was also developing role-playing games, having a major hit in Japan with the Dragon Quest franchise. In fact, Square's Final Fantasy was inspired by the success of Dragon Quest However, unlike Square, Enix's success did not translate overseas and eventually, in 2003, Square and Enix decided to merge together as a single powerhouse provider of role-playing games. Following the merger, the new company Square Enix, continued its expansion, acquiring the Japanese publisher Taito, known for originating the game Space Invaders as well as popular home console games like Bubble Bobble. In 2009, Square Enix acquired the British game developer Eidos, known for popular franchises like Tomb Raider, Hitman, and Deus Ex. While Square Enix heavily expanded, they ran into financial difficulties, and sold off some of their studios in 2022 to Embracer, the Nordic video game company, for $300 million. Square Enix continues to function mostly in the role-playing niche.

Take-Two Interactive

Take-Two Interactive formed in the United States in 1993. The company initially focused on computer games which featured full motion videos featuring well-known actors. Their success saw the company quickly making profit and looking to expand. In 1998 they identified a studio to acquire which had created the popular game *Lemmings* and had just released a new title called *Grand Theft Auto.* Take-Two acquired the company for $15 million and renamed the studio Rockstar, helping to release the game *Grand Theft Auto* in the US. The game launched to mixed reviews, but a sequel was released that also sold ok. However, it was the third release, *Grand Theft Auto III* for the Sony PlayStation 2 that really exploded, selling over 6 million copies and pushing the title into blockbuster status, eventually leading the franchise to become one of the biggest selling games in history, *Grand Theft Auto V.*

The series' open-world design, non-linear gameplay, and mature themes resonated with gamers and helped establish Take-Two as a major player in the gaming industry. Throughout the 2000s, Take-Two continued to expand its portfolio of games and studios, acquiring several prominent developers, including 2K Games, and Irrational Games.

Today, Take-Two Interactive is one of the largest and most successful video game publishers in the world. It has established a successful and diverse portfolio of games that are both critically acclaimed and best-selling including *Grand Theft Auto, Red Dead, BioShock, and NBA 2K* (having competed with Electronic Art's NBA Live, eventually putting them out of business). Through strong support from players continuing to make purchases in Grand Theft Auto V, the company continues to be one of the strongest third-party publishers by revenue.

Tencent

While Tencent Holdings, one of China's largest tech companies, is not a company that typically jumps to mind when thinking about the United States video game industry, they have been very influential. Founded in 1998 in China, Tencent initially focused on developing and publishing video games in the Chinese market. However, in 2011 Tencent decided to expand into the US market by acquiring the publisher of the popular computer game *League of Legends* Riot Games for $400 million. It quickly expanded its efforts in the PC market by investing in the company Epic Games, which develops the extremely popular Unreal Engine, which powers most video games and is responsible for the popular game *Fortnite* along with the distribution platform *Epic Games Store*. Tencent acquired 40% of Epic Games for roughly $330 million in 2012. Tencent furthered its expansion by acquiring an ownership stake in the Finish company Supercell in 2016 for roughly $8.6 billion. Supercell was the developer of several extremely popular, and profitable, mobile games most notably *Clash of Clans*. Finally, Tencent acquired a minority stake in the French publisher Ubisoft, a storied video game company known best for its *Assassins Creed* series. By late 2024 Tencent, and its partners the Guillemot Brothers Limited, were exploring for Tencent to take majority ownership of Ubisoft. Tencent continues to be a major player, though not necessarily in brand name.

Figure 46: Revenue of the Major Video Game Companies in the United States, 2012-2023 (in USD, Millions)

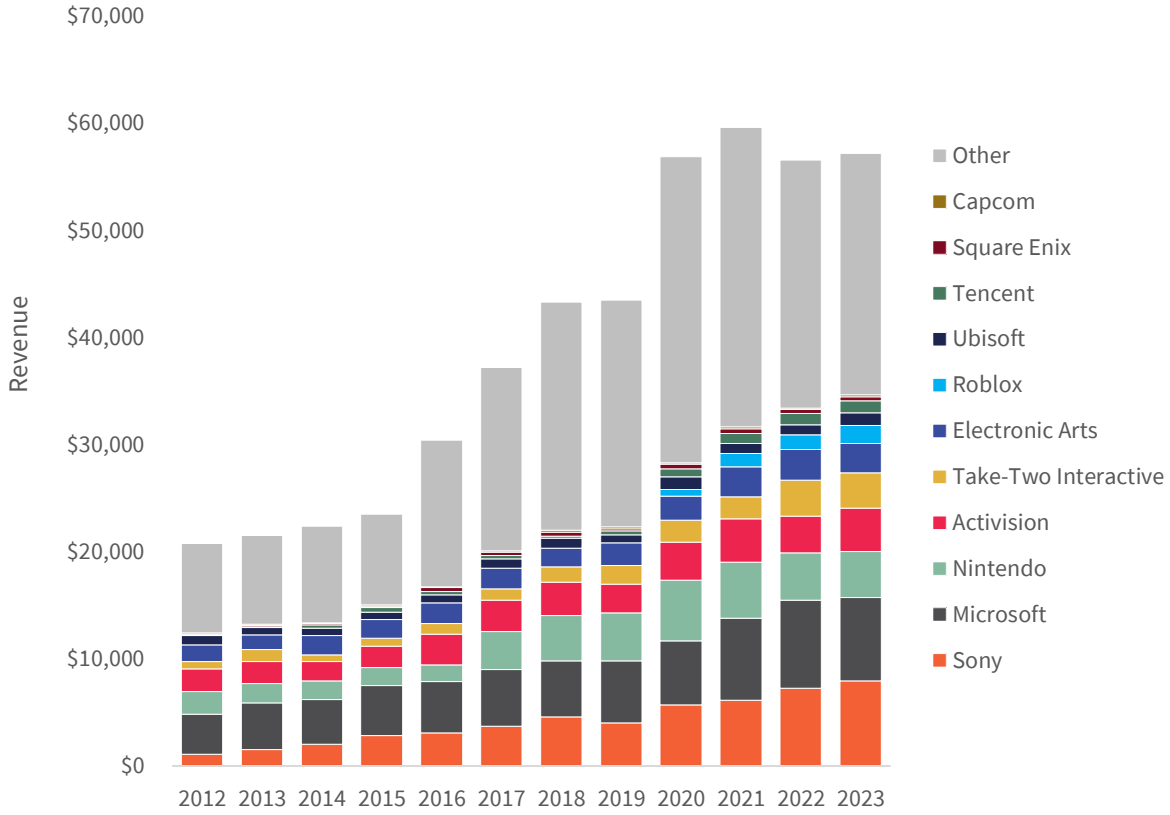


Figure 47: Total Revenue of the US Video Game Industry (including Hardware, Software and Accessories) (USD, in Millions)

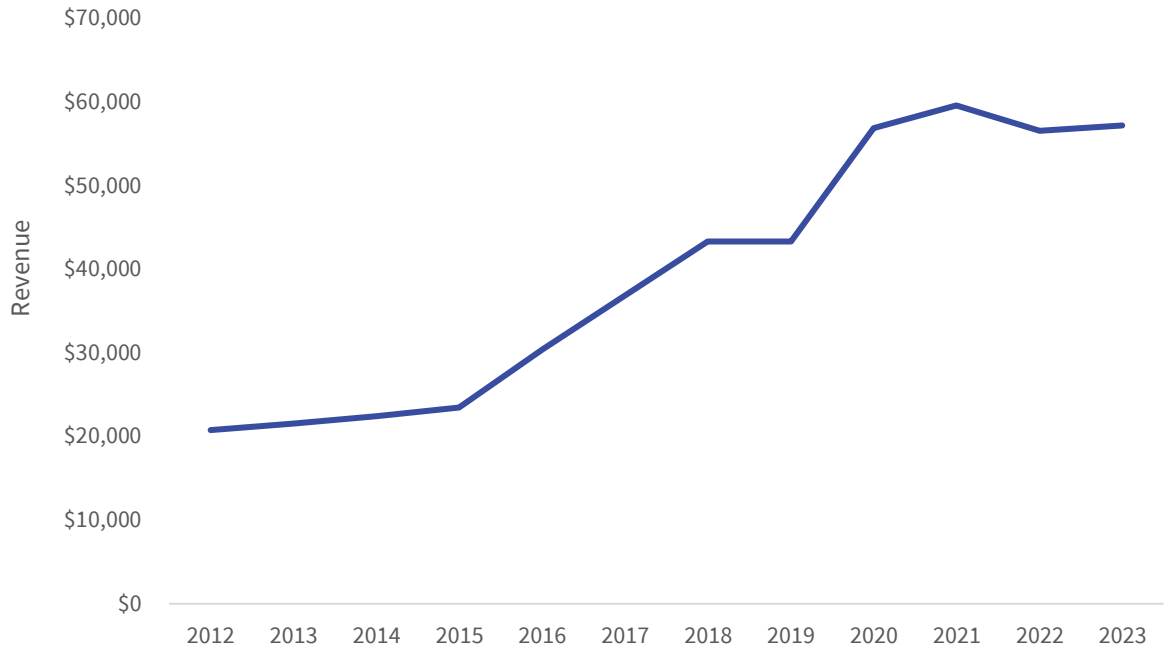


Figure 48: Total Revenue of the US Video Game Industry, 1978-2023 (USD$, in Millions)

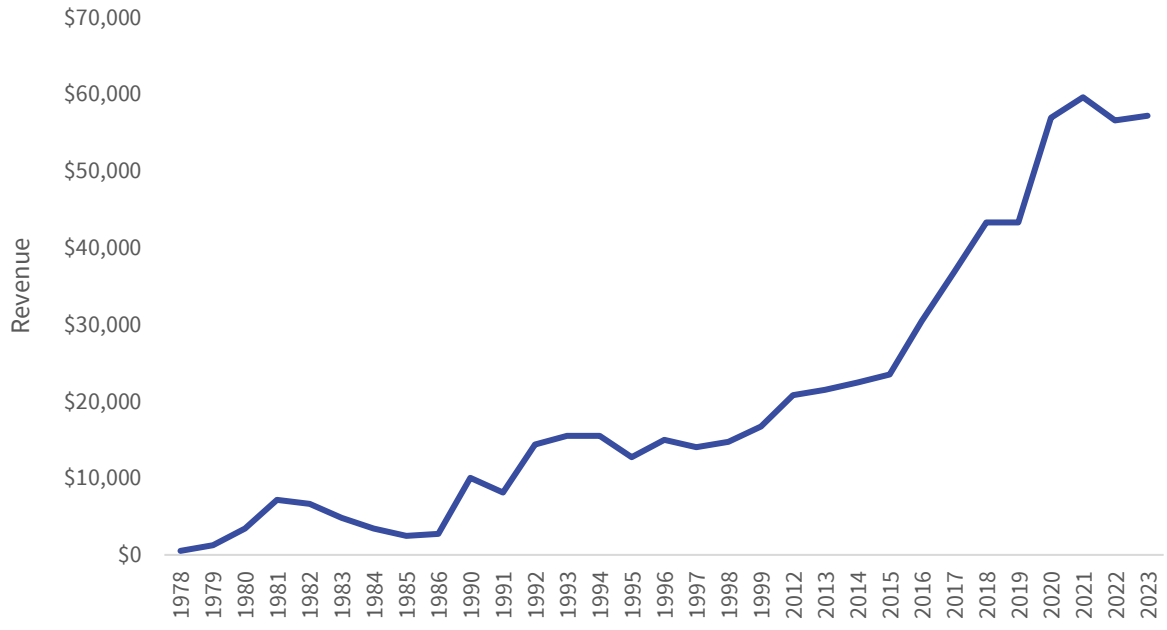


Figure 49: Market Shares of the Top US Video Game Companies, 2012-2023 (by Revenue)

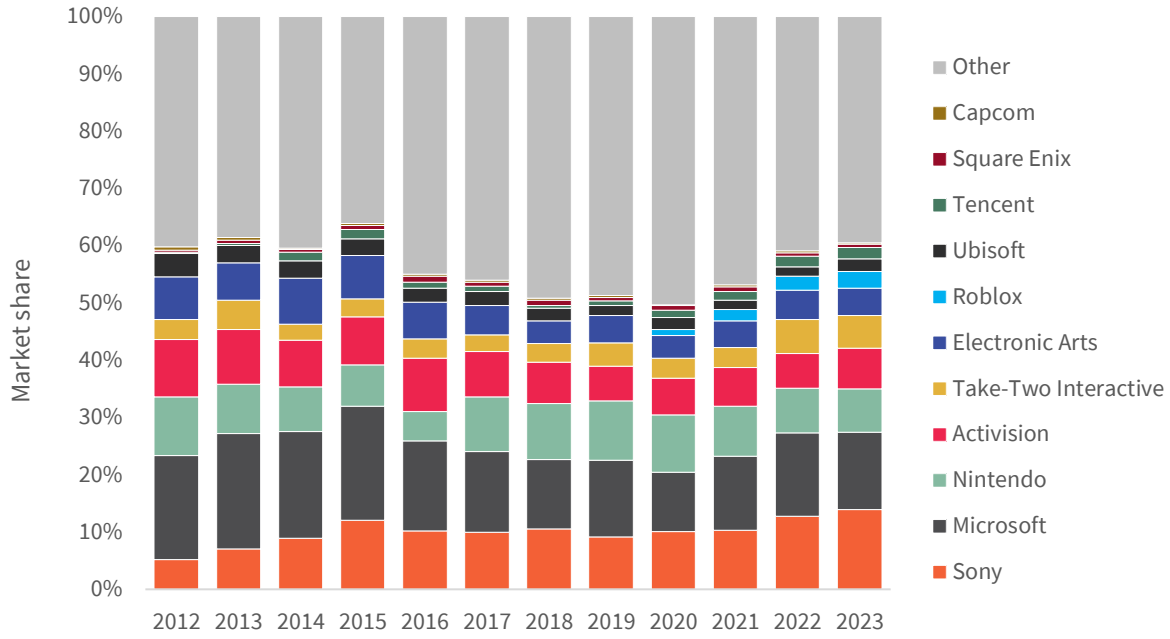
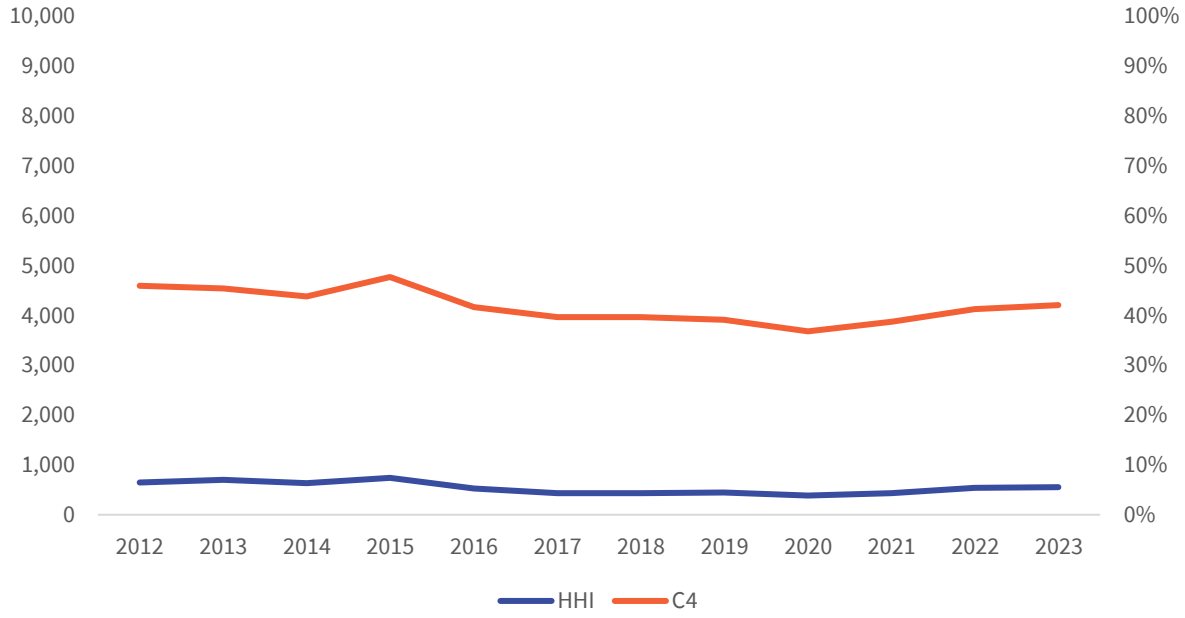


Figure 50: Market Concentration Metrics of the US Video Game Industry, 2012-2023 (by Revenue)



Market Analysis and Forward Looking

Much like the film industry, the video game industry is highly fluid and sees market leaders ebb and flow depending on blockbuster releases for the year. For instance, from 2012-2016 Nintendo struggled financially because their hardware (the Wii U) was not finding high adoption and sales were low, but in 2017 the release of the Nintendo Switch saw explosive growth as the market readily adopted it and annual revenue more than doubled between 2016 and 2017. Microsoft on the other hand saw strong growth during the last decade not through strong releases, but rather through acquisitions, purchasing Mojang Studios, the studio behind the popular PC game Minecraft in 2014 for $2.5 billion, then ZeniMax Media, the large parent company of several game studios including Bethesda and id Software for $7.5 billion in 2021 and finally, closing the Activision Blizzard deal at the close of 2023 (however, since the deal did not close until the end of the year, for analysis purposes the two companies have been kept separate, since the first year of their combined ownership will be 2024.)

Due to the major changes to the industry brought on by the internet, with digital distribution making independent publishers more adversarial and easier to reach the general public along with smartphones and tablets bringing in more casual gamers buying game apps that have helped explode the video game industry total revenue from $20 billion in 2012 to more than $57 billion in 2023. With this increase of revenue, and all different publishers competing for attention, it has been hard for any publisher to gain much more than 10% of the market, leading to very low concentration levels, and a C4 level that is consistently less than 50.

There are still more transformations coming that will affect the future of the video game industry. Most aggressive will be the movement to cloud gaming. The concept of cloud-based video gaming is not new, in fact the company OnLive debuted it more than 15 years ago, allowing users to pay a monthly subscription to gain access to OnLive's library of games and hardware, that allowed them to emulate the game in a high-end experience, and then stream the video to their device, playing the game remotely. The service hit several issues though, mostly being that consumers home internet speeds could not keep up with the needs for most games, and the "ping" (time that it takes for the signal to be sent and received), was too slow in many game situations to make the game enjoyable. Ultimately the company shut down, but the technology and concept have lived on. OnLive, and its major competitor Gaikai were acquired by Sony, and their technologies were integrated into Sony's PlayStation offering, allowing subscribers to pay an annual subscription for the ability to play a library of older PlayStation games on the cloud via their PlayStation. More aggressive however has been Microsoft's offering. Microsoft allows subscribers to pay a monthly fee to subscribe to a library of hundreds of games that can be streamed to a variety of devices including smartphones and even Amazon Firesticks, allowing almost any device to become an Xbox. Microsoft has also been making its first party software available day and date on release available on this service, meaning that subscribers get access to brand new games as part of their monthly subscription, turning game ownership more into a subscription service. This stands to rewrite much of how the industry has functioned, as consumers are

conditioned to “rent” games through subscription services rather than purchase them, publishers may see a change in revenue. While Microsoft still pays publishers for featuring their games on their service, it is significantly less than what the publisher would receive for the sale, coupled with the fact that Microsoft will gain a piece of every sale of the subscription, even when it is the attraction of a specific game being available that is driving the sale. While the cloud gaming market is still very small, it is a growing area that looks to change much of how the ecosystem functions.

Search Engines

The burgeoning World Wide Web in the early 1990s presented a challenge: navigating the vast and ever-growing ocean of information. Search engines emerged as a solution, born from the need to efficiently locate specific resources on the internet. Similar to the telephone operator and White/Yellow Pages, they functioned as a resource for users to discover information and learn how to connect to necessary resources.

Prior to the advent of the World Wide Web, during the BBS/Internet era, Archie, in 1990, marked the first well-documented search engine. It indexed FTP (File Transfer Protocol) archives, allowing users to find downloadable files. However, the content of the Internet itself was initially curated through human-maintained lists, a method quickly overwhelmed by exponential growth. 1993 was also a pivotal year on account of the release of the World Wide Web, what today most people consider the Internet, and the advent of web crawlers. These automated programs, like the World Wide Web Wanderer, systematically scoured the web, indexing content and making it searchable. This shift towards automated indexing paved the way for more advanced search engines like Excite and Lycos, which were able to provide resources to users and answer simple questions.

Competition fueled innovation. Search engines like AltaVista introduced features like keyword searching and relevancy ranking, while AskJeeves, launched in 1998, attempted a natural language approach where users could ask questions in a conversational format.

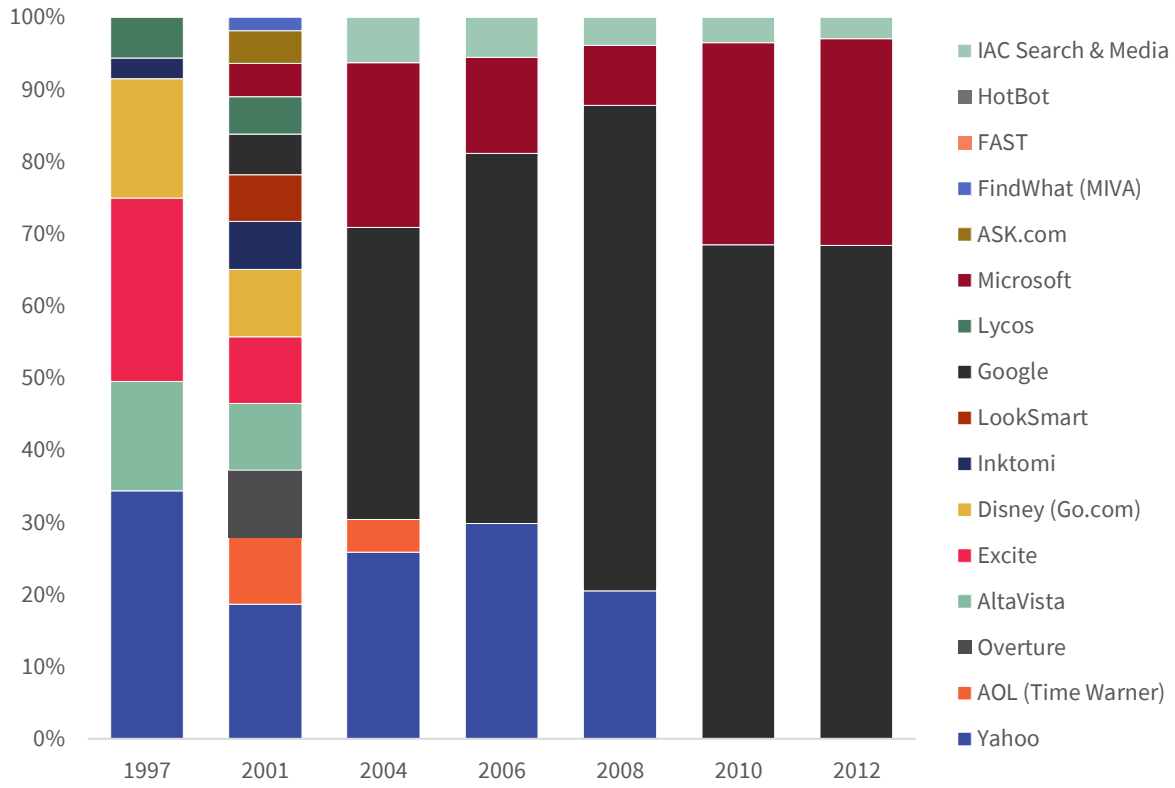
The late 1990’s saw the arrival of Google, forever transforming search. Google's innovation lay in its PageRank algorithm, which analyzed the link structure of the web to determine the authority and relevance of webpages. This approach yielded more accurate and user-centric search results, solidifying Google's dominance in the years to come. Google also simplified their landing page. In the late 1990’s and early 2000’s most users were still on dial-up internet, or even rudimentary broadband which took a while to load sites (dial-up Internet maxed out at 56 kilobytes per second). Search engines like Yahoo and AskJeeves were littered with advertisements, as that was their methodology for monetizing search and seeking to become profitable. By having a home screen that

was white (the fastest loading color on web browsers) and with just a simple logo and search box, Google was able to achieve significantly faster website loading speeds then their competitors, which won over users. That, combined with their algorithm, were major reasons how Google was able to secure dominance in the field for decades to come.

An industry that was initially controlled by Yahoo, Excite, AltaVista, and InfoSeek saw quick change. By 2001 InfoSeek and Excite had exited the market entirely. In 2003 Yahoo acquired AltaVista. Microsoft entered the market in 1998 with MSN Search, then rebranded the product several times before finally settling on the name Bing. They have since remained as Google's largest competitor. In 2008, Microsoft attempted to buy Yahoo for $44.6 billion, but the deal was rejected by Yahoo, thinking it was worth more. Google then attempted to secure a deal with Yahoo to power their search in exchange for a cut of advertising revenue, but that deal was challenged. Ultimately, the same deal was worked out with Microsoft, where Bing now powers Yahoo's search function

Given the relatively high entry barriers, as well as the high cost of operation, it is unsurprising that the search engine industry has seen massive consolidation into only a handful of companies. Where there were 13 active companies in the US search engine market in 2001, more than 97% of the industry was controlled by only Google and Microsoft in 2022.

Figure 51: Internet Search Engines Market Share (by Search Volume), 1997-2012



The most significant development in the search engine industry occurred with the launch of the smartphone. Prior to that, almost all search took place on desktop and laptop personal computers. However, with the prominence of the smartphone, in particular the iPhone, search migrated to mobile devices. The competition over mobile search is so important in fact that Google has been paying Apple to be the exclusive search engine within the Apple ecosystem. Per reports, Google pays Apple roughly $19 billion a year for this privilege.[50]

While it took a few years, by 2016, the two types of search, mobile and desktop reached parity, with Desktop responsible for 50.8% of search revenue, and Mobile responsible for the remaining 49.2%. In the next year mobile overtook desktop and has not looked back, reaching its height of 61.5% in 2022. It is expected to only continue to rise as the use of desktop and laptops continues to drop and people spend more of their time on mobile devices like smartphones and tablets. Thus, there are two separate industries, the mobile and desktop industries, which are dominated almost entirely by Google and Microsoft in both cases.

The remaining players include DuckDuckGo Inc, which is a company which focuses on privacy and does not track its user's traffic. Another player is InterActiveCorp (IAC)'s Ask.com which is owned by media mogul Barry Diller. The other player is Baidu, which is China's Google, and is mainly used by ex-pats from Asia. While Yahoo operates as a search portal, it is actually handled by Microsoft and so the data is presented as separate, showing what traffic comes from Yahoo and what from Microsoft, but for purposes of industry concentration metrics, they are treated as one company, just Microsoft.

[50] Lewsing, Kif. "Apple Exec Eddy Cue Set to Testify in Google Trial About $19 Billion Search Deal" CNBC September 26, 2023. https://www.cnbc.com/2023/09/26/apple-exec-eddy-cue-testify-google-trial-about-19-billion-search-deal.html

Figure 52: Mobile Internet Search Engine Market Share (by Unique User), 2012-2023

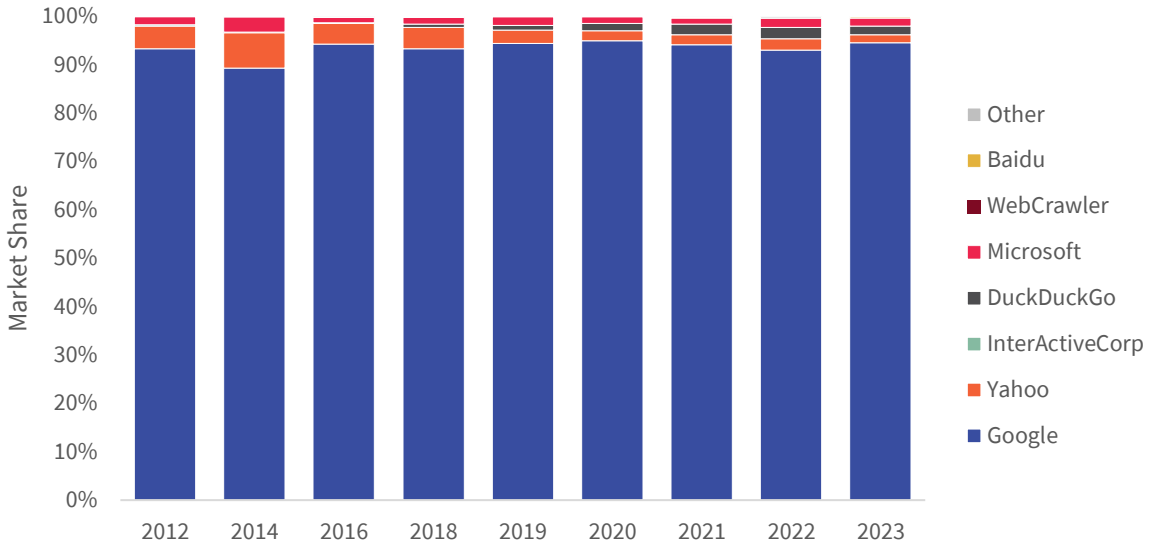
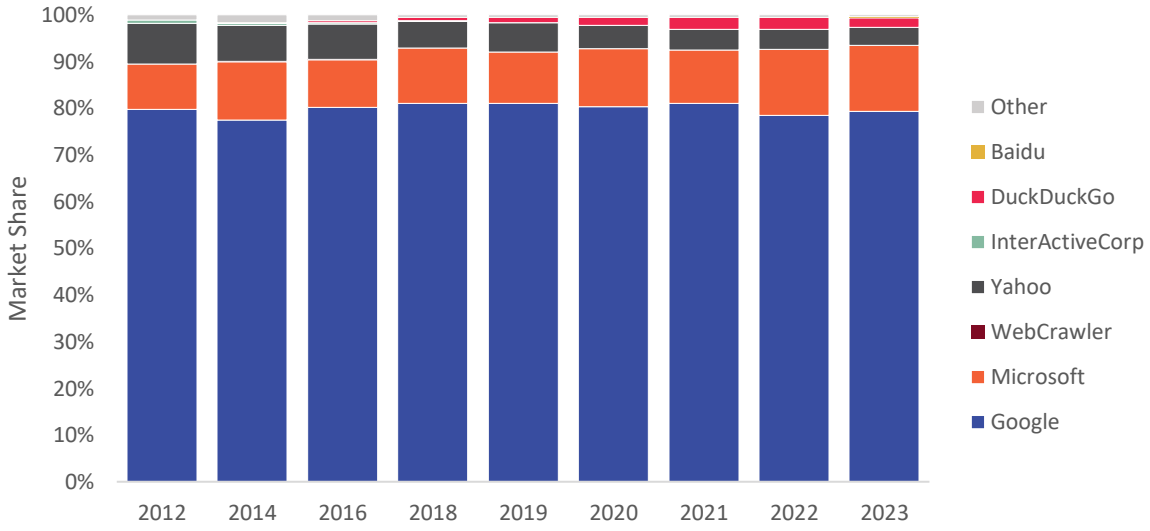


Figure 53: Desktop/Laptop Internet Search Engine Market Share (by Unique User), 2012-2023



To unify the two industries, the authors weighted the mobile and desktop markets based off their respective revenues. The below table shows the respective industry revenues based on device. The table that follows lays out the combined market shares after weighted.

Figure 54: Search Engine Market Revenue (by Device), 2012-2022

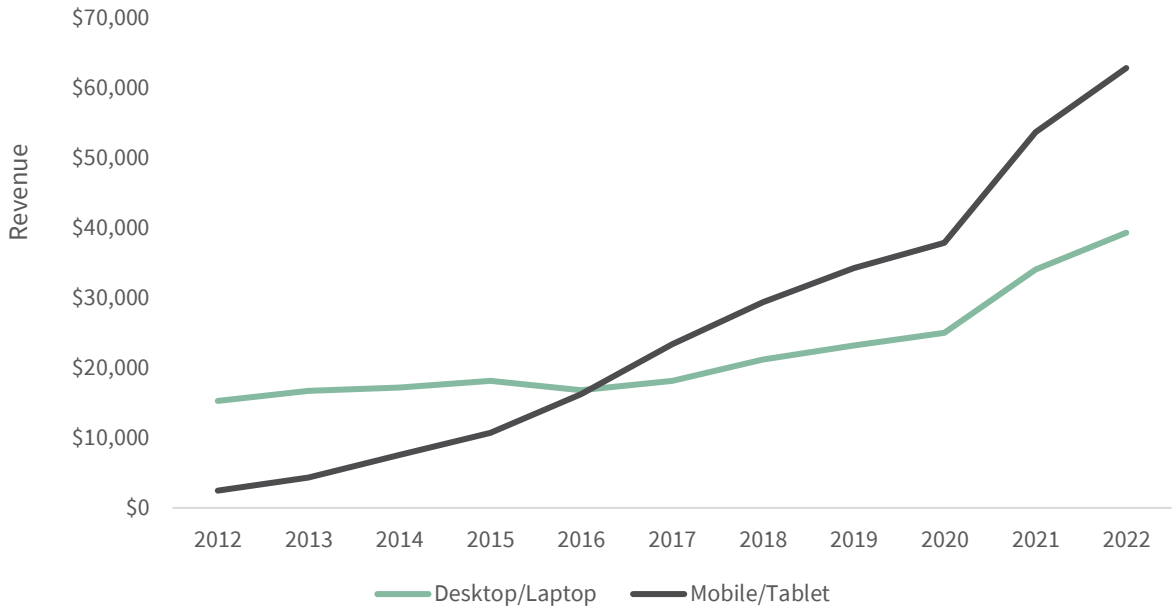
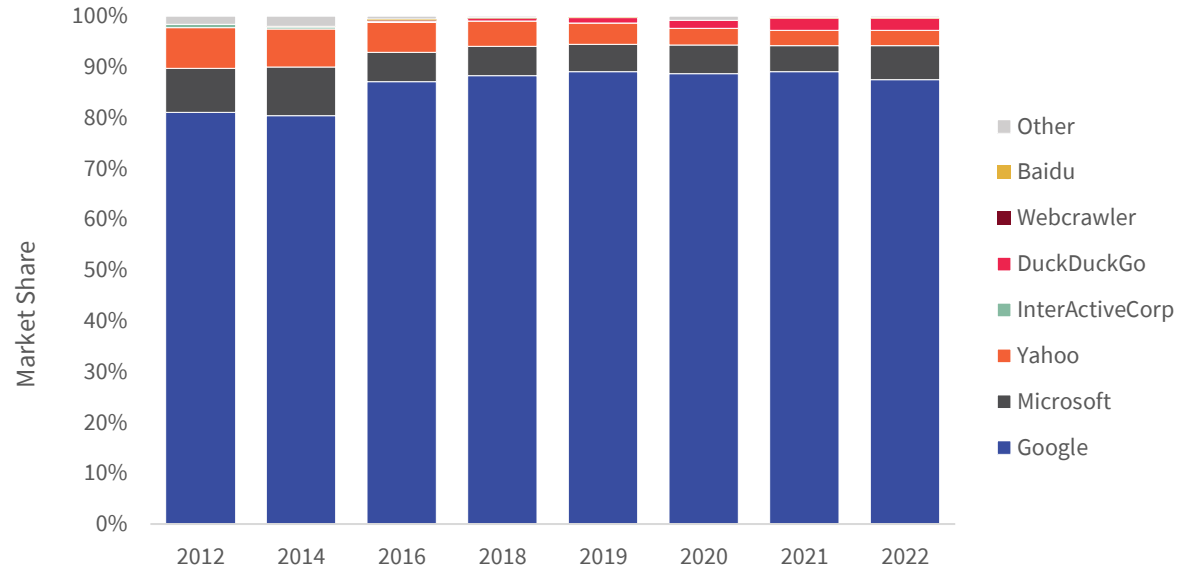


Figure 55: Combined Search Engine Industry Market Shares based on Unique Monthly Users (Weighted by Revenue) 2012-2022



Part of the reason to combine the markets is to better reflect the nature and scope of market concentration. In short, the individual markets show a higher concentration score, than the combined markets, although the combined market is still defined by markedly high concentration. This is largely due to Google's dominance across all sub-sectors of the search market, with roughly 80% share of each market.

Figure 56: Market Concentration of Mobile and Desktop Search Engine Industries Separate, 2012-2023

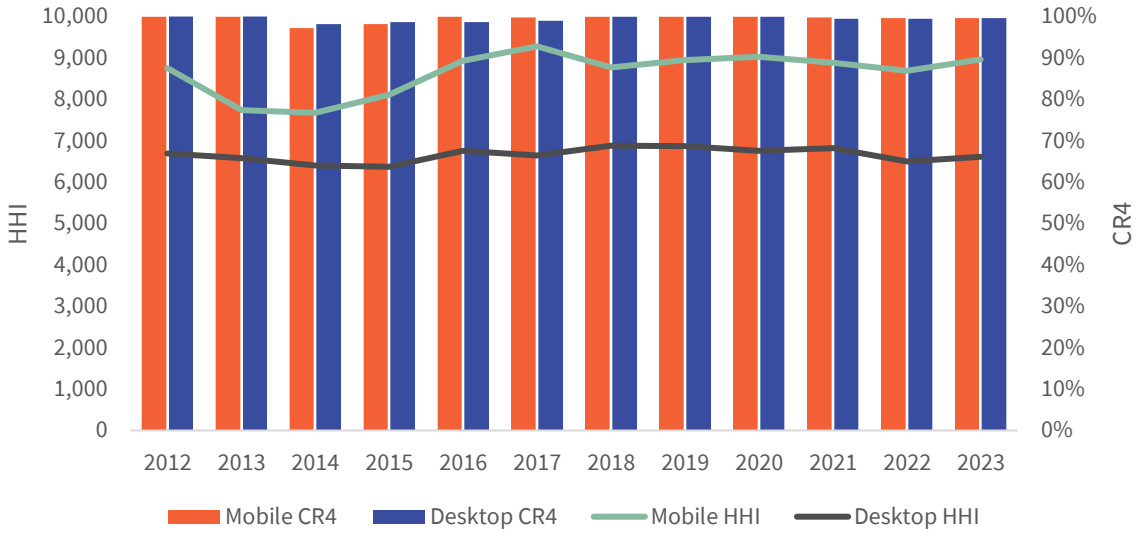
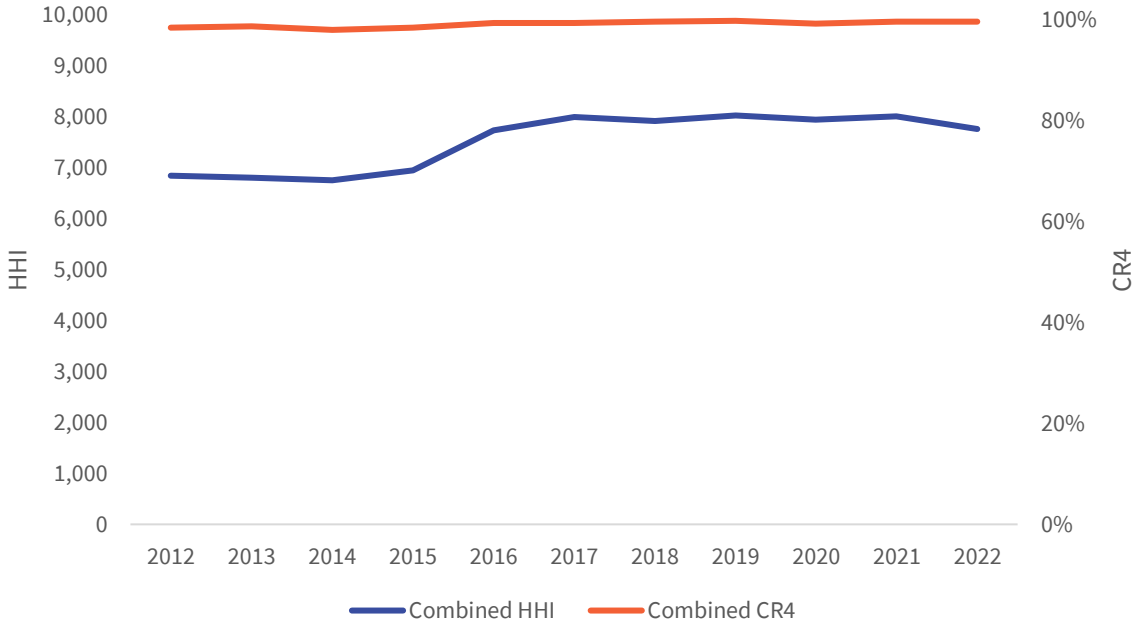


Figure 57: Revenues of Mobile and Desktop Search Engine Industries Combined (millions $), 2012-2022



While it is likely that the search industry will remain highly concentrated, given the fact that Google greatly dominates both the mobile and desktop search engine industries, there is a major threat emerging through Artificial Intelligence. AI companies pose a risk to the search engine industry, as users ask questions to the AI instead of asking a search engine. Both Microsoft and Google have emerged as major players in the AI industry for

exactly that reason. Microsoft, through its investment in OpenAI, has made a major jump on Google, as OpenAI's ChatGPT is seen as the industry leader, and more accurate than Google's Gemini, which has suffered several setbacks since its announcement and introduction. AI's continued evolution will only continue to make impacts on the future search engine industry.

Internet Advertising

The original Internet started as an academic endeavor and as such did not have advertising. Instead, it was a closed system aimed at academics and the government. It wasn't until the 1980s when the Internet was commercialized and opened to the general public. Internet advertising started in its infancy in the 1980s on Prodigy, one of the early Internet Service Providers.

Prodigy offered a spot at the bottom of its service that could be used to advertise. The ad was static (did not change) and was not clickable (meaning it did not take users anywhere). Thus, it was akin to the traditional billboard ads in the "real world". This became a major revenue source for Prodigy, though it did not have a great user response, with users designing the world's first ad blocker, a small piece of plastic that could be placed on the screen to cover up the area where Prodigy displayed its ads.[51]

Much of the evolution of the Internet Advertising industry took place in the 1990s, which dovetails with the introduction of the world wide web. This new concept, which brought more attention to the Internet and more useability for the average person, helped increase areas for advertising.

One of the first major Internet advertising campaigns was organized in 1994 by AT&T. AT&T designed an ad campaign that was aimed at getting users to see the value of AT&T's Internet access and how it could transport them around the world. AT&T paid the sum of $30,000 to run a three-month ad on the Hotwired web service. The ad read "Have you ever clicked your mouse right HERE? You Will" with an arrow pointing to a place on the advertisement. When users clicked, it would redirect them to a virtual tour of one of the top museums of the world. The ad was a major success, having a 44% click-through rate. This meant that almost every other person who was shown the ad clicked on it.[52]

Most ad campaigns at this time were based off flat rates, charging for ad space at a specific rate for a period of time. In 1995, Netscape and Infoseek changed that by moving away from a flat rate model to instead charge a CPM or Cost per Mille (Latin for thousand). Under this model, advertisers were charged a rate based on the number of users who saw the ad. The more users shown the ad, the more the advertiser had to pay. This created an incentive for the company to attract more viewers, and gave a

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[51] Oberoi, Ankit. "The History of Online Advertising" Adpushup. July 3 2013. https://www.adpushup.com/blog/the-history-of-online-advertising/

[52] Oberoi, Ankit. "The History of Online Advertising" Adpushup. July 3 2013. https://www.adpushup.com/blog/the-history-of-online-advertising/

downside guarantee to the advertiser, meaning they would pay less money if the ad wasn't seen by many users.

That same year, building off of Netscape and Infoseek's changes to the industry, the early online advertising agency, WebConnect, developed a tool to track various websites cost of advertising. The tool was designed to show the cost, and later with other tools, the effectiveness of various ad campaigns. This work helped grow the viability of online ads, and help raise costs, as websites could now use metrics to show why they could justify charging more than competitors. This helped to grow the Internet advertising market to a reported $37 million by the end of 1995.[53]

The final major milestone for the 1990s was the creation of the company DoubleClick. Formed in 1996, DoubleClick was a major Internet advertising agency that brought new innovations to the field. In addition to tracking ads in the similar vein as WebConnect they also developed the concept of Dynamic Advertising Reporting and Targeting, or DART, which allowed companies to track the effectiveness of their campaigns and modify them in real time. If an ad was not working to expectations, they could remove it and replace it with another one. They could also move ads around, switching from a website that was not producing results to one that would. DART helped to make DoubleClick stand out from its competitors and helped it to survive the Dot Com bubble burst of the early 2000s.

The 2000s saw major changes in the evolution of the Internet advertising ecosystem. Google, founded two years earlier in 1998, introduced AdWords in 2000. AdWords was a revolutionary way to place advertising on the Google Search engine, allowing advertisers to pay to have search terms return a result to them, for example AT&T could pay to have "phone" return a search result to AT&T.com. Originally Google operated under a CPM model like other advertising platforms, but in 2002 they transitioned to a pay-per-click model. This meant that instead of paying for the number of views for the ad, advertisers are charged based on the number of users who actually click on the ad. This allowed Google to charge significantly higher fees, as it meant that they were charging advertisers for better leads, since the user actually clicked on the ad and went to the desired site, rather than just getting an impression of the ad. This model came to dominate much of the Internet advertising market, with most providers operating under a bid-based model. Under this model they would auction off a particular keyword, instead of charging a specific rate, they would let the market decide exactly what it was willing to pay.

The mid-2000s saw the rise of social media, with sites like Facebook, Twitter, and YouTube increasing the need for Internet advertising, as a means to generate revenue for these popular sites. The massive amount of data posted to these sites also helped to create more detailed user profiles, increasing the accuracy of advertising, and making their users more attractive to advertisers. Advertisers could now hyper-target a desired

[53] Oberoi, Ankit. "The History of Online Advertising" Adpushup. July 3 2013. https://www.adpushup.com/blog/the-history-of-online-advertising/

demographic, for instance wanting to target males, ages 18-34, living in the northeast of the United States, who have an interest in adventure sports to receive the ad. Facebook could target the ad reach to show up on the profile of only those users. This advertising revenue became Facebook's major revenue source, leading it to become one of the most powerful suppliers of advertising in the world.

Google, in a bid to assert its own dominance, decided to acquire DoubleClick in 2007 and integrate it into their AdWords platform. While Google had a strong presence in search and key word ads, it did not have much of a presence in display ads, which was an area of dominance for DoubleClick. Google paid $3.1 billion to acquire DoubleClick. In comparison, they paid $1.65 billion for YouTube a year earlier, which demonstrated how much Google valued the ability to acquire DoubleClick.[54]

By the end of the 2000s, the introduction of smartphones like the iPhone and Android devices saw another explosion of Internet advertising, Apps could be easily developed and then monetized with advertising, usually served by the platform owner (like Apple and Google) and the revenue split with the app developer, at a mostly standardized 70/30 split. These devices also gave the ad platforms a new source of data to collect and thus further improve their customer profiles, making ads better targeted and thus more effective.

Mobile devices also saw the rise of mobile social media, like Instagram and TikTok. These services helped to popularize a new form of advertising, influencer-sponsorship. Instead of running advertisements, companies could directly target popular influencers, such as Kim Kardashian, and pay them to create custom content that features the companies' product. For instance, a garment manufacturer could hire a popular influencer to talk about how much they like the company's clothing, and how it is the only thing they wear, while wearing those clothes in their videos.

The Federal Trade Commission, which is responsible for protecting consumers in the United States, did not take kindly to this kind of advertising. So as a means of protecting consumers and informing them when an influencer is being compensated for endorsing a particular product, they created the "SponCon" rules. Influencers who are compensated for endorsing a product must place a noticeable disclaimer on their content that they are being compensated for their endorsement. The suggestion was to use the hashtag #SponCon, short for Sponsored Content in such videos so that users were on notice about it. While this helped users determine that content is sponsored, it did not dissuade advertisers from engaging in this method, and in 2022, sponsored content became one of the top 5 advertising platforms for internet advertising.

All of these transformations have helped to see Internet advertising rise from a $37 million industry in 1995 to a $243 billion industry in 2022.

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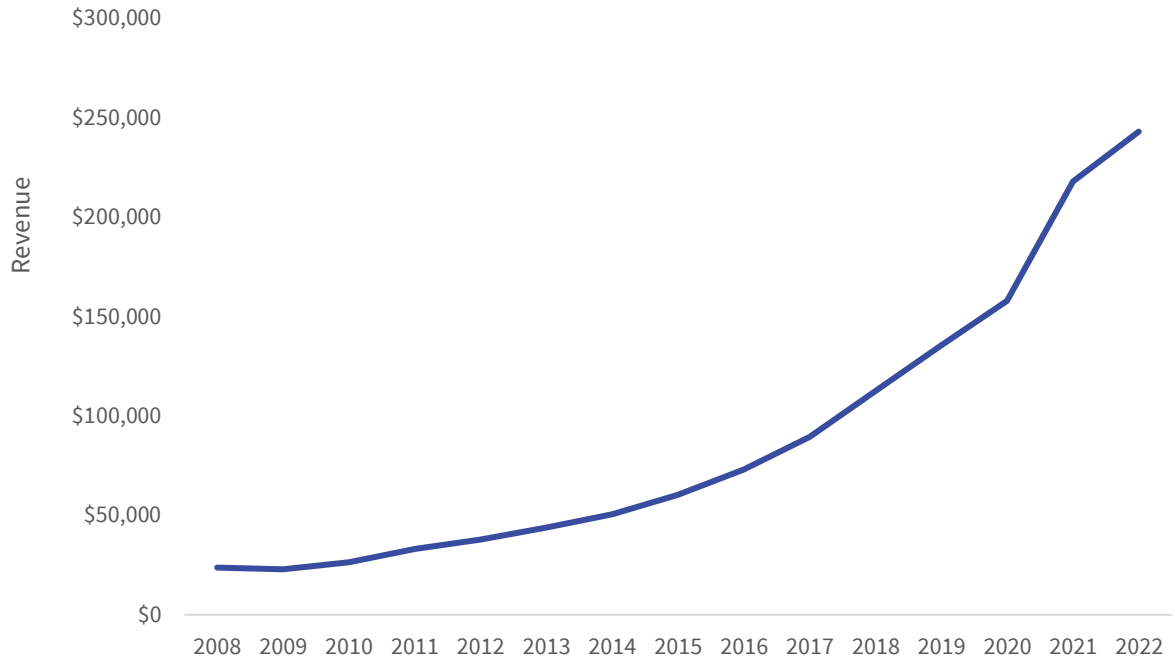
[54] Story, Louise and Miguel Helft. Google Buys DoubleClick for $3.1 Billion. The New York Times. April 14, 2007 https://www.nytimes.com/2007/04/14/technology/14DoubleClick.html

Figure 58: Internet Advertising Total Revenue in the United States (millions $), 2008-2022



Since 2008, Google has dominated the Internet advertising market. Subsequently Facebook became its main rival and combined the two have generally held at least 50% of the market. While there are many small players in the field, Amazon and Microsoft have recently emerged as the most likely rivals. Together, these four players account for roughly 70% of the market.

Figure 59: Revenue and Market Share of Internet Advertising Providers in the United States (millions $), 2008-2023

	2008		2010		2014		2016		2018		2020		2021		2022		2023	
	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (million)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share	Revenue (millions)	Market Share
Amazon	90	0.4%	160	0.6%	660	1.3%	1,160	1.6%	6,860	6.1%	15,030	9.50%	23,250	10.7%	27,600	11.4%	33,640	12.5%
Alphabet	6,973	29.5%	9,300	35.4%	18,190	35.9%	27,700	38%	39,000	34.6%	48,590	30.8%	68,350	31.4%	76,370	31.4%	79,560	29.6%
Microsoft	30	0.1%	2,020	7.7%	2,490	4.9%	4,110	5.6%	5,730	5.1%	7,640	4.8%	10,920	5.0%	12,620	5.2%	13,740	5.1%
Meta	22	0.1%	930	3.5%	4,830	9.5%	12,470	17.1%	24,520	21.7%	38,090	24.1%	50,570	23.2%	49,920	20.5%	56,780	21.1%
Hulu			200	0.8%	640	1.3%	870	1.2%	1,460	1.3%	2,550	1.6%	3,520	1.6%	3,790	1.6%	4,620	1.7%
Twitter			10	0%	790	1.6%	1,280	1.8%	1,320	1.2%	1,710	1.1%	2,430	1.1%	2,360	1.0%	1,130	0.4%
Yelp			50	0.2%	350	0.7%	630	0.9%	890	0.8%	830	0.5%	970	0.4%	1,120	0.5%	1,260	0.5%
Pandora					730	1.4%	1,070	1.5%	1,090	1.0%	1,180	0.7%	1,540	0.7%	1,580	0.6%	1,590	0.6%
Pinterest					20	0%	290	0.4%	720	0.6%	1,430	0.9%	2,000	0.9%	2,140	0.9%	2,270	0.8%
Walmart					150	0.3%	220	0.3%	330	0.3%	1,010	0.6%	1,590	0.7%	2,270	0.9%	2,940	1.1%
Conde Nast							20	0%	70	0.1%	160	0.1%	370	0.2%	490	0.2%	580	0.2%
Snapchat							290	0.4%	670	0.6%	1,250	0.8%	1,940	0.9%	2,130	0.9%	1,920	0.7%
Spotify							200	0.3%	360	0.3%	520	0.3%	770	0.4%	920	0.4%	1,060	0.4%
Roku							60	0.1%	290	0.3%	830	0.5%	1,630	0.7%	2,040	0.8%	2,160	0.8%
eBay									200	0.2%	370	0.2%	400	0.2%	430	0.2%	530	0.2%
Etsy									50	0%	140	0.1%	190	0.1%	220	0.1%	260	0.1%
Apple									1,330	1.2%	2,200	1.4%	3,050	1.4%	4,320	1.8%	5,420	2.0%
iHeartMedia									180	0.2%	300	0.2%	530	0.2%	650	0.3%	680	0.3%
ViacomCBS											440	0.3%	1,160	0.5%	1,240	0.5%	1,370	0.5%
Target											770	0.5%	1,010	0.5%	1,250	0.5%	1,500	0.6%
TikTok											780	0.5%	2,100	1.0%	5,030	2.1%	7,550	2.8%
Instacart											300	0.2%	550	0.3%	740	0.3%	870	0.3%
Comcast											80	0.1%	350	0.2%	940	0.4%	1,180	0.4%
Fox Corporation											250	0.2%	530	0.2%	700	0.3%	850	0.3%
Other	16,525	69.9%	13,620	51.8%	21,840	43.1%	22,570	30.9%	27,720	24.6%	31,420	19.9%	38,160	17.5%	42,220	17.4%	45,450	16.9%

In 2021, Apple sent shockwaves into the Internet advertising industry when they introduced App Tracking Transparency, which required users to opt in to allow tracking of their habits and information being shared across other companies apps and websites. By requiring users to opt-in to tracking, Apple's policy shift has led to a substantial decline in the availability of user-level data, making it increasingly challenging for advertisers to target and measure the effectiveness of their campaigns. This change has disproportionately affected companies that rely heavily on targeted advertising, such as Facebook and Snapchat, which had seen declines in advertising revenue.

Google similarly had announced that it planned to eliminate cookies in their Chrome Internet browser by 2024, which would have further increased the difficulty in tracking individuals online. However, in July 2024, Google walked that back and decided it would instead introduce a new way to allow users to make informed decisions online. As cookies are seen as the backbone of tracking online behavior and advertising effectiveness, this decision is a major change, and is still to be seen what its long term effects will be.

Internet Search Engines

[Forthcoming]

Social Media Platforms

Social media platforms trace their history back to the initial launch of the internet. Some of the first social media platforms would be the initial Bulletin Board Systems (BBS) that developed in the early days of the internet. These systems, akin to a public bulletin board, allowed users to use a modem to dial in and connect to the system, and then post anything they wished to do, usually moderated by the owner of the particular BBS. Users could post messages, share files, and many communities developed around popular topics and ideas. However, because much of the internet in the 1970s and 1980s was only used in a small number of households—most of which were connected to academia in one way or another—there was not much development in social media at the time.

The early 1990s, in contrast, saw the massive proliferation of the internet with America Online and the development of the world wide web, and the rise of social media platforms right alongside that process. In 1994, two undergraduate students at Cornell, in a scene that would become familiar within the industry, saw the interest around an early communication system that enabled members of the university to interact with one another. Seizing the idea, the two students, Stephan Paternot and Todd Krizelman, founded theGlobe.com, one of the first social networking services to gain mainstream attention. Breaking away from the campus, theGlobe.com was aimed at allowing users to post information on their own personal page, and connect with friends, family, and strangers. It would attempt to connect people with similar interests and offer a global reach, with an emphasis on interactivity. Within three years, the company had become so popular that they went public, reaching a market capitalization of $840 million in 1998[55], with each of the founders now worth over $100 million apiece.[56] While it was early, the company did not benefit from first-mover advantage and for a variety of reasons, had closed down by the 2000s.

Another early player in the social media platform industry was SixDegrees, which operated the social network sixdegrees.com. The site, launched in 1997, was named after the concept of social connection known as “Six Degrees of Separation”, which states that any two people could be connected by six or fewer individuals. While the concept was invented in the 1920s, it became exceptionally popular and well known in the 1990s, after a play and film were created of the same name. Based off this, SixDegrees designed a system that allowed users to create a profile, and then supply

[55] Kawamoto, Dawn. “TheGlobe.com’s IPO one for the books” CNET November 13, 1998, updated June 2, 2002. https://www.cnet.com/tech/services-and-software/theglobe-coms-ipo-one-for-the-books/

[56] Johnson, Robert. “Dot-Com Star, Indie Filmmaker” New York Times November 14, 2004. https://www.nytimes.com/2004/11/14/business/yourmoney/dotcom-star-indie-filmmaker.html

information about friends and family members. Those individuals would then be contacted to join the service and asked to do the same. From there, the service could recommend friends of varying closeness to connect (i.e. a friend of a friend of a friend) who may share similar interests. Then, users could post information and control who could see what (i.e. only show to first degree friends, or first and second degree etc.). These were features that later were used in many other popular social networking platforms, most notably Facebook. By 1999, Six Degrees had become quite popular, having amassed over 3 million users. While this may not sound like much today, at that point, there were only about 150 million total users online, with half of that in the United States.[57] Given its popularity, it is not surprising that they were quickly targeted for acquisition, and the company was acquired at the end of 1999 for $125 million.[58] However, the new company, which had hoped to attract a strong youth cohort, could not survive the popping of the dotcom bubble in 2001. Eventually the assets were acquired for about $7 million.[59]

The Dot-Com bubble bursting between 2000 and 2002 saw the demise and slowing of new social media platforms. However, as the churn slowed, and a second internet renaissance emerged, a very strong push into social media occurred, with the emergence of the most well-known social media platforms being formed. In 2002, for instance, Friendster emerged in what soon became one of the biggest cautionary stories in Silicon Valley. Friendster gained a huge user base almost immediately upon launch, amassing over 3 million users in just a few months. By 2003, the company had attracted major attention and received an offer from another young internet startup, named Google, which had offered them $30 million to acquire the company. Friendster rebuffed the offer and instead decided to raise capital and expand. Unfortunately, the company was unable to handle their sudden attention and had issues with growth. Meanwhile, several competitors entered the field and caused disruption.[60]

In 2003 several users who had accounts on the Friendster service saw the opportunity of creating a competitor to the service. These users, who also happened to work together at an internet marketing company, decided to adopt some of the more popular features of Friendster, and implement its own changes. The service launched in August of 2003 and was named MySpace. It quickly became the most popular social networking service in the United States. This was aided by the fact that the internet

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[57] Imagining the Internet's Quick Look at the Early History of the Internet. Imagining the Internet. Elon University. https://www.elon.edu/u/imagining/time-capsule/early-90s/internet-history/#:~:text=By%201999%2C%20the%20number%20of,246%20countries%20in%20the%20world.

[58] Dow Jones. "Company News; Youthstream to Acquire Sixdegrees for $125 Million" December 16, 1999 https://www.nytimes.com/1999/12/16/business/company-news-youthstream-to-acquire-sixdegrees-for-125-million.html

[59] Chief Marketer Staff. "Alloy Buys Youthstream Media Networks for $7 million" August 6, 2002. https://www.chiefmarketer.com/alloy-buys-youthstream-media-networks-for-7-million/

[60] Arrington, Michael. "The Friendster Tell-All Story". TechCrunch. October 15, 2006. https://techcrunch.com/2006/10/15/the-friendster-tell-all-story/

marketing company that owned MySpace, eUniverse, had a list of over 20 million individuals that it could market to. Using this list, they were able to contact users to sign up for the MySpace service. MySpace became exceptionally popular due to its ability for customization and development. It was very easy for users to make their pages unique and stand out, whereas Friendster had limitations. By 2005, MySpace had become a phenomena and become the target of acquisition by many of the traditional media companies, due to its popularity with young people in particular, a demographic that was increasingly moving away from traditional media like newspapers and television. Both Viacom and News Corp made attempts to acquire MySpace, with News Corp ultimately winning the battle with a $580 million offer.[61] This was actually News Corp's second attempt at social media platforms, as they had initially been an investor in sixdegrees when it was acquired by YouthStream Media Networks.[62]

Following News Corp's acquisition of MySpace, it continued its expansion around the world, launching variations for Canada and Mexico with goals to go into Asia.[63] Not only was MySpace becoming the most used social media platform, with 320,000 new users added daily in 2006, and reaching 100 million accounts that same year, it had become the most visited website in the United States.[64] By 2007, with a user base of over 300 million, News Corp began exploring a deal to merge MySpace with Yahoo in exchange for 25% of the combined company, putting the value of MySpace at $12 billion, roughly 24 times more than what News Corp paid for it 2 years earlier.[65] Part of what had made MySpace so successful was the fact that they had secured an exclusive deal with the search engine Google, that Google would be the sole ad provider for MySpace and search provider. In exchange, Google was required to provide News Corp a guaranteed $300 million a year for three years in ad revenue.[66] While the deal seemed very beneficial to News Corp and MySpace, it did have metrics required by MySpace, which made them uneasy to experiment and innovate, for fear of losing users and not hitting those metrics. This gave the opening to their competitors, who readily exploited it. This

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[61] Siklos, Richard. "News Corp. to Acquire Owner of MySpace.com" New York Times. July 18, 2005. https://www.nytimes.com/2005/07/18/business/news-corp-to-acquire-owner-of-myspacecom.html

[62] Dow Jones. "Company News; Youthstream to Acquire Sixdegrees for $125 Million" December 16, 1999 https://www.nytimes.com/1999/12/16/business/company-news-youthstream-to-acquire-sixdegrees-for-125-million.html

[63] Garrahan, Matthew. "MySpace clicks to Canada and Mexico". Financial Times. Jnauary 28, 2007. https://www.ft.com/content/c95d9e72-aef0-11db-a446-0000779e2340

[64] Garrahan, Matthew. "MySpace clicks to Canada and Mexico". Financial Times. Jnauary 28, 2007. https://www.ft.com/content/c95d9e72-aef0-11db-a446-0000779e2340

[65] Szalai, Georg. "Wall Street Likes MySpace-for-Yahoo Stake Deal". The Hollywood Reporter. June 21, 2007. https://www.hollywoodreporter.com/business/business-news/wall-street-likes-myspace-yahoo-139794/

[66] Schiffman, Betsy. "How Google Has Screwed Up the MySpace Deal". Wired April 18, 2008 https://www.wired.com/2008/04/how-google-scre/

competition saw massive user defection, and by 2011 News Corp was looking to sell the company. In 2011, Specific Media bought the company for $35 million.[67]

While MySpace continued to operate, it was never able to recapture its former glory. The company was eventually sold again to Time Inc, then to Merideth Corporation, and finally to Viant Technology Holding. The website still exists in 2024, mostly aimed around music, but still struggles to gain market share.

2004 saw a major development to the social media industry when Mark Zuckerberg, then an undergrad at Harvard University, founded TheFacebook. TheFacebook was originally created as a simple directory of Harvard students and was only accessible to those who were current students at Harvard. Zuckerberg's original vision for Facebook was to create a digital version of the Harvard campus directory. The platform's early success was largely due to its ability to capitalize on the social dynamics of college life. By providing a convenient way for students to connect and share information, Facebook quickly gained traction within the Harvard community.

Recognizing the platform's potential, Zuckerberg and his co-founders, Eduardo Saverin, Dustin Moskovitz, and Andrew McCollum, decided to expand TheFacebook to other Ivy League universities and eventually to all colleges and universities in the United States. While exceptionally popular with college communities, it was still a niche market compared to MySpace due to the limitations that TheFacebook applied to its users. TheFacebook originally only allowed you to join if you were a registered college student, and if it was available to your college. Once joined, you could only connect with and see profiles of people who you went to school with. So, a student at Columbia could not connect with or see profiles of people who went to NYU. Seizing the chance to exploit the popularity of his niche, Zuckerberg tried to merge TheFacebook with MySpace, negotiating a deal that would sell the company for $75 million. Ultimately, MySpace declined, believing that the valuation was too high.[68]

Following the failed attempt to sell to MySpace, the now Facebook, having dropped the “The”, continued to expand and innovate, attracting new users, mostly across college campuses. In 2006, Facebook dropped the college requirement and became a full competitor to MySpace when it allowed anyone with an email address over the age of 13 to sign up. This change saw a massive increase in users, with registered users going from 12 million in 2006 to 50 million in 2007 and reaching 100 million by the end of 2008.[69]

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[67] Rushe, Dominic. “MySpace Sold for $35 million in Spectacular Fall from $12 billion heyday”. The Guardian. June 30, 2011. https://www.theguardian.com/technology/2011/jun/30/myspace-sold-35-million-news

[68] Thielman, Sam. “MySpace: Site that Once Could Have Bought Facebook Acquired by Time Inc.” The Guardian. February, 11, 2016. https://www.theguardian.com/technology/2016/feb/11/myspace-time-inc-facebook-acquisition-ownership

[69] Ali, Marium. “Facebook turns 20: How the social media giant grew to 3 billion users” Al Jazeera. February 4, 2024. https://www.aljazeera.com/news/2024/2/4/facebook-turns-20-how-the-social-media-giant-grew-to-3-billion-users#:~:text=Within%20its%20first%20year%2C%20the,by%20the%20end%20of%202008.

While MySpace was focusing on hitting user metrics and growing its revenue, Facebook was innovating its offerings. In 2007, Facebook introduced Facebook Platform, which was an open Application Programming Interface (API) that allowed third-party developers to create applications that would run withing the Facebook ecosystem.[70] Developers were able to create new applications that attracted users to sign up for Facebook in order to access them.

While Facebook had a simplified ad service called Facebook Flyers that allowed local businesses to target the college campuses with ads for services like moving and storage since its inception, it wasn't until 2006 when Facebook started making real ad money, Much like MySpace signing a deal with Google, Facebook signed a 3 year deal with Microsoft to be the exclusive provider and seller of sponsored links and banner ads.[71] Facebook launched a more aggressive advertising business in 2007, launching Facebook Ads which was also capable of tracking Facebook users who visited one of Facebook's partner sites, meaning that Facebook could track user behavior outside of their network,[72] This helped Facebook increase its revenue and continue to increase its popularity.

By 2012, Facebook's popularity and revenue had reached high enough points that the company went public, launching an initial public offer in May of 2012. The stock was so popular that by the end of the day the company reached a market capitalization of $104 billion. That same year, Facebook made its largest acquisition to date, spending $1 billion to acquire the company Instagram. The two-year old service was a popular mobile application for sharing photos and had about 30 million users, almost all of which were on Apple's iPhone platform.[73] This acquisition not only strengthened Facebook's position in the social media market but also introduced new user demographics and revenue streams, who were more focused to the growing mobile handset market. By integrating Instagram's features into the Facebook platform, the company was able to cater to a more visually oriented audience.

Another strategic move was the acquisition of WhatsApp in 2014. WhatsApp, a messaging app with a global user base, started in 2009 and was acquired for $19 billion.[74] The acquisition provided Facebook with a powerful tool to expand its reach into emerging markets and offer a more private and secure communication platform. The

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[70] "The History of Facebook: Timeline of the Network" Metricool. October 17, 2023 https://metricool.com/history-of-facebook/

[71] Flanagan, Jennifer. "Ad Evolution: The History of Facebook". Ad Taxi March 08 2018 https://www.adtaxi.com/blog/ad-evolution-history-facebook/

[72] Flanagan, Jennifer. "Ad Evolution: The History of Facebook". Ad Taxi March 08 2018 https://www.adtaxi.com/blog/ad-evolution-history-facebook/

[73] Rusli, Evelyn M. "Facebook Buys Instagram for $1 Billion" NY Times. April 9, 2012. https://archive.nytimes.com/dealbook.nytimes.com/2012/04/09/facebook-buys-instagram-for-1-billion/

[74] Olson, Parmy. "Facebook Closes $19 Billion WhatsApp Deal" Frobes. October 6, 2014. https://www.forbes.com/sites/parmyolson/2014/10/06/facebook-closes-19-billion-whatsapp-deal/

integration of WhatsApp into Facebook's ecosystem further solidified the company's dominance in the social media landscape.

The same year Facebook acquired WhatsApp they also acquired the virtual reality headset manufacturer Oculus for $2 billion.[75] This area became a major interest to founder Mark Zuckerberg who has repositioned the company into the world of virtual reality, with a push into the "metaverse" an all-virtual world. So enthralled with the concept, Zuckerberg rebranded the company Meta, which now operates Facebook and Instagram.

With their continued dominance of the social media platform, Meta's market share has come under considerable scrutiny, with numerous calls to break up the company for being too dominant. Currently, a major lawsuit is pending between the United States Federal Trade Commission and Meta, charging Facebook of having violated antitrust laws.[76]

Facebook's acquisition of Instagram mainly rested on the idea of wanting to improve in the area of mobile. While mobile devices were just growing when Instagram started, they were not the first service to focus primarily on mobile devices. In 2006, Jack Dorsey, Evan Williams, Biz Stone, and Noah Glass founded a company that eventually created Twitter. The team was interested in the idea of being able to send real-time status to friends and other short messages. The service would leverage mobile phone systems short messaging service (SMS) to allow users to text the Twitter service and then have it blast out and make available their information to their followers.

The concept quickly took off and moved away from the SMS format (allowing users to use dedicated applications instead to post messages) but retained SMS's 140-character limitation. While the initial reason for limiting messages to that length was because that is the natural limit to an SMS message, the team decided to keep it to foster short messages, and to get users to crystalize their message more succinctly.

In 2007, with the introduction of hashtags and the @ symbol, Twitter began to take off. The introduction of the hashtag created topics and ideas that would then allow Twitter to group seemingly random tweets together into a stream, attracting more attention and getting people to engage with each other based on topic rather than who you knew. Similarly, the @ symbol allowed users to tag one another and alert them to a post, causing them to reply. This interaction helped the company grow its user base and was also aided by the proliferation of smartphones in the years that followed. By 2011, Twitter had over 200 million users.

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[75] Facebook to Acquire Oculus. March 25, 2014. https://about.fb.com/news/2014/03/facebook-to-acquire-oculus/

[76] Spangler, Todd. "Meta Seeks Dismissal of FTC's Antitrust Lawsuit Over Instagram, WhatsApp Deals, Claiming it 'Faces Fierce Competition from a Range of Platforms'". Variety April 5th, 2024. https://variety.com/2024/digital/news/meta-ftc-antitrust-lawsuit-instagram-whatsapp-1235962008/

While the company continued to expand and grow its user base, including going public in 2013 and receiving a valuation of $24.4 billion the day it went public[77], it never hit its stride like its main competitor Facebook. Whereas Facebook figured out the advertising concept early in its life and was successful in monetizing, Twitter on the other hand struggled. While it saw billions of dollars in revenue each year from selling ads, the expenses of running the company generally outstripped that amount, and the company failed to see profitability.

By the late 2010s Twitter had become a niche player, receiving a lot of attention about what was said and done with the platform, but not much user interaction or revenue, compared to its major competitors. Elon Musk, the billionaire owner of Tesla Motors, as well as a heavy Twitter user himself, wanted to join the board and improve the company. However, his membership was rejected by the board. To get around this, Musk decided to buy the company and take it private, which he did in 2022, at a cost of $44 billion.[78] Musk made many changes to the company, adding a subscription service to try to increase revenue, and making changes to the terms of use. However, the company has not increased its revenue, actually losing significant revenue from prior to Musk's acquisition, and the company is now valued at roughly $13 billion, about 72% less than what he paid for it.[79]

One of Mr. Musk's major changes to Twitter (aside from renaming it X) has been to focus more on video, including incentivizing creatives for making Twitter video, through sharing ad revenue.[80] However, this is not Twitter's first foray into video. In 2012, Twitter acquired a small startup named Vine for a reported $30 million.[81] The company had designed a video sharing platform that allowed users to upload videos up to 6 seconds in length, that could be looped to play repeatedly. While not the first video sharing platform, it quickly became the most popular video-sharing app, with 200 million users.[82] The concept was very popular and quickly copied by its competitors, such as Instagram allowing users to upload 15-second videos to their account. Vine's early platform allowed creators to take advantage of the popularity and become stars. Vine

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[77] Pepitone, Julianne. "#Wow! Twitter Soars 73% in IPO" CNN Business. November 7, 2013. https://money.cnn.com/2013/11/07/technology/social/twitter-ipo-stock/

[78] Clayton, James and Peter Hoskins. "Elon Musk Takes Control of Twitter in $44bn deal". BBC. October 28, 2022. https://www.bbc.com/news/technology-63402338

[79] Mondler, C. "Elon Musk's X worth 71.5% less than it was when he bought the platform in 2022, Fidelity says." CBS News. January 2, 2024. https://www.cbsnews.com/news/elon-musks-x-twitter-worth-drops-71-5-percent-fidelity-filing-2023/

[80] "Monetize your content" https://create.twitter.com/en/goals/monetization

[81] Newton, Casey. "Why Vine Died" The Verge. October 26, 2016 https://www.theverge.com/2016/10/28/13456208/why-vine-died-twitter-shutdown

[82] Dew, Alexys. "The Rise and Fall of Vine" Medium. January 14, 2024. https://medium.com/@alexys.dew/the-rise-and-fall-of-vine-0dead475573a#:~:text=Upon%20its%20release%20on%20January,users%20(Rowell%2C%202020).&text=These%20six%2Dsecond%20videos%20turned,for%20fun%20and%20comedic%20videos.

was responsible for creating such notable creators as Jake and Logan Paul, and the musician Shawn Mendes among others. However, as new platforms emerged, with greater earning potential, they and other users, along with advertising partners, fled Vine and Twitter shut it down in 2016.[83]

While many platforms are about reaching as many users as possible and creating a historical collection of data to be made available in perpetuity, a group of Stanford University students designed a platform that was completely different. Evan Spiegel, Bobby Murphy, and Reggie Brown created an iPhone app called Picaboo which was designed for users to share photos that would disappear forever after a predetermined time interval. Picaboo would eventually change its name and evolve into what is today known as Snapchat.

The app's early success was fueled by its unique value proposition: ephemeral content that alleviated the pressure of maintaining a curated online persona. In 2012, Snapchat introduced its signature feature, Stories, allowing users to post a series of photos and videos that could be viewed by friends for up to 24 hours. This innovation cemented Snapchat's position as a leading social media platform. The app expanded to Android devices in 2012 and introduced video sharing in 2013. Over time, Snapchat's user base has continued to grow, and has become especially popular among younger generations. Introductions of other features like Discover (which highlights outside user stories) and Memories (which saves snaps that users want to keep) helped to grow popularity enough that in 2017 the company went public, seeing a market cap of $33 billion at launch, and making the creators billionaires in the process.[84] However, while the company's growth started out strong, it has largely stagnated under competition from newer players who emerged later.

One of the most recent social media platforms, and one that has become one of the more popular is TikTok. Originally founded in China in 2016 as Douyin, the company behind it, ByteDance, decided to expand internationally and to do so rebranded the company, outside of China, as TikTok. Launched in 2018, the company took a strong hold with American teenagers. The app features short-form video that appeals to a broad audience.

TikTok's algorithm, which prioritizes content discovery and user engagement, played a crucial role in the app's rapid growth. By showcasing a curated feed of videos, often set to music or other audio, TikTok encouraged users to create and share their own content. This led to the emergence of viral challenges, dance crazes, and creative trends that further propelled the app's popularity. With the rise in popularity, collaborations with major brands and organizations were quick to occur, helping to expand TikTok's reach and popularity. One of the major areas of influence has been with music, where

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[83] Newton, Casey. "Why Vine Died" The Verge. October 26, 2016 https://www.theverge.com/2016/10/28/13456208/why-vine-died-twitter-shutdown

[84] Balakrishnan, Anita. "Snap Closes up 44% after Rollicking IPO" CNBC March 2, 2017. https://www.cnbc.com/2017/03/02/snapchat-snap-open-trading-price-stock-ipo-first-day.html

songs featured in popular TikTok videos quickly jump up the charts, gaining so much popularity that the popular Billboard magazine, which tracks music popularity, started the TikTok Billboard Top 50, which tracks the weeks 50 most popular songs featured on TikTok.

While the app is incredibly popular with the user base, TikTok's ownership and ties to the Chinese government have led to regulators on both side of the aisle calling for divestiture. Then-President Trump called for the company to be banned and divest ownership to a United States company. Talks took place with several suitors, with Microsoft appearing to be the leading contender, however a sale did not take place, with the threat of lawsuits, and the looming US election of 2020 slowing down the process. However, after President Trump left office, the Biden Administration continued the policies of the Trump Administration towards TikTok. As a consequence, TikTok signed a $1 billion deal with Oracle to handle the traffic of US customers.[85] However, this still did not satisfy the calls from regulators, who in 2024 introduced legislation that seeks to shut down the company's US operations. TikTok continues to fight the bill in court.[86] Despite this harsh, bipartisan political opposition, the popularity of TikTok still continues to grow.

In addition to the major players already discussed, there are several other social media platforms that operate in the United States. They include Microsoft's LinkedIn, which mostly caters to professional networking and pushes towards career development, Pinterest, a picture hosting site used for planning and discovering items mostly related to lifestyle, fashion, and home décor. Another popular social media platform that has been around since 2005 is Reddit. The platform was started as a content aggregation and sharing system that became popular and allowed users to create communities around popular topics (known as subreddits). Users on this service can share content, post opinions, and interact with one another. In 2024, Reddit had 45 million users[87] regularly using their service, making them a small but long-lasting social media platform.

Social media platforms present a unique difficulty in attempting to measure market share and market concentration. The traditional means to measure this is based on revenue, but not all social media platforms prioritize or receive revenue commensurate with their interaction from users. Facebook for instance is able to charge a very high CPM, an average of $6.99 in 2024, versus its competitors TikTok ($3.59) and Twitter/X

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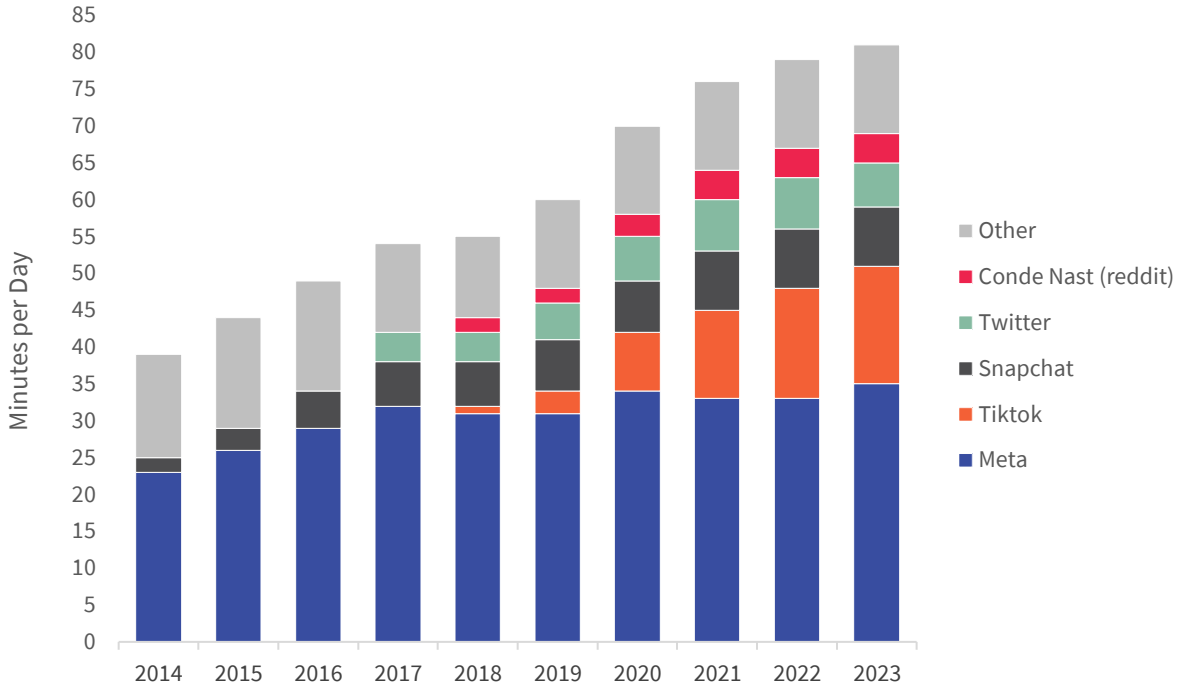
[85] Goba, Kadia and Joseph Zeballos-Rpog. "Tech Giant Oracle Stands Aside as TikTok Flounders" Semafor. March 13, 2024. https://www.semafor.com/article/03/13/2024/tech-giant-oracle-stands-aside-as-tiktok-flounders

[86] Allyn, Bobby. "TikTok Fights for Survival in Latest Filing as Ban Approaches". NPR. August 15, 2024. https://www.npr.org/2024/08/15/nx-s1-5077782/tiktok-survival-filing-ban-approaches

[87] "10Q" Reddit Investor Relations https://s203.q4cdn.com/380862485/files/doc_financials/2024/q2/04d62450-250b-47c1-9af2-5f7aac9f4d40.pdf

($3.11).[88] So, revenue is distorted. Another measurement would be users, but since social media platforms are generally free to use, many users may have multiple services. In fact, the average American is registered on 6.7 platforms.[89] A more realistic view then would be to look at interaction and time spent with the platform. This reflects user engagement, which is a more accurate measure of a platform's success than revenue. It also reflects the importance of attention and information. Since attention is a scarce resource, time spent on a platform indicates how much attention users allocate to it, with greater attention representing a higher importance to the platform. It also allows for more accurate comparisons between platforms, as revenue models differ significantly.

Figure 60: Minutes Per Day Spent by Platform, 2014-2023



Meta sees the most use by far, split mostly evenly between its two platforms Facebook and Instagram, however, TikTok has been growing tremendously since 2020. Consequently, its introduction has caused market concentration in the industry to drop significantly.

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[88] Gupta Media. "The True Cost of Social Media Ads in 2024" https://www.guptamedia.com/social-media-ads-cost

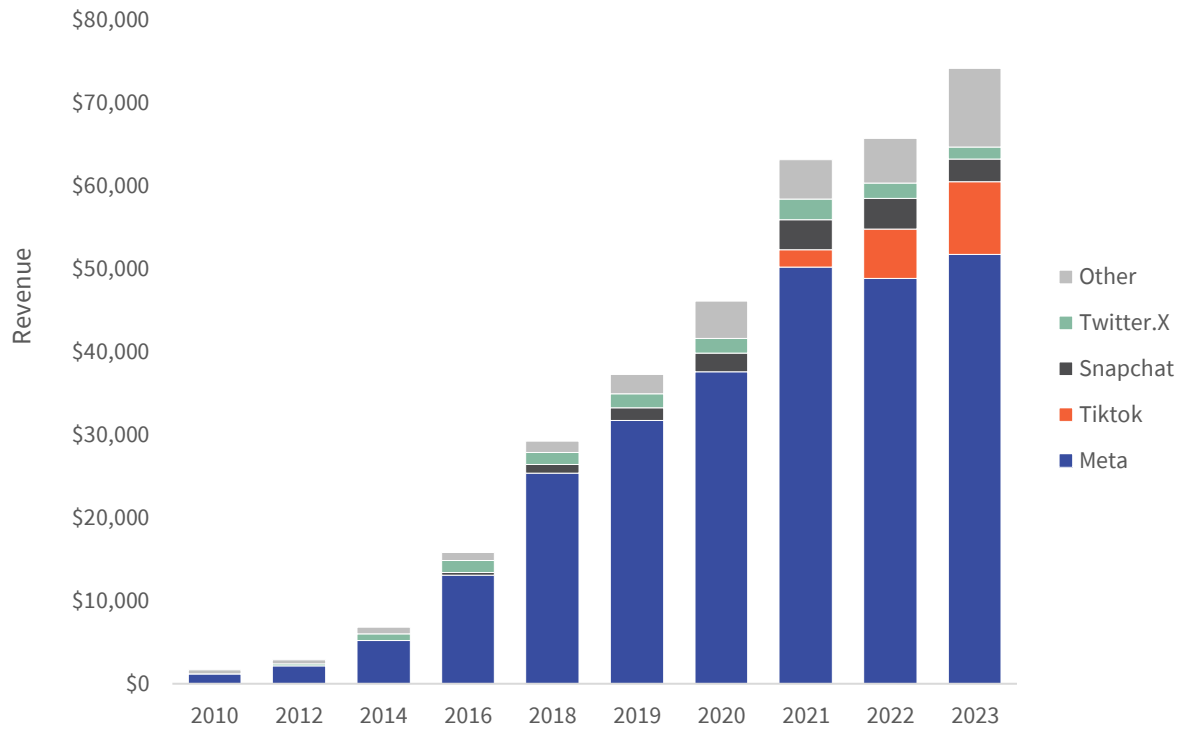
[89] Dean, Brian. "Social Media Usage and Growth Statistics" BackLinko July 29, 2024. https://backlinko.com/social-media-users#

Figure 61: Market Concentration of Social Media Networks (by Minutes Spent on Platform per day), 2014-2023

	2014	2016	2018	2019	2020	2021	2022	2023
HHI	3,507	3,608.7	3,369.3	2,914.6	2,684.4	2,356.2	2,315.5	2,435.1
CR4	64.1%	69.4%	78.2%	76.7%	78.6%	78.9%	79.8%	80.3%

If we instead look at revenue verses time spent with social media, we see that most of the revenue flows to Meta, which prioritizes advertising and charges exceptionally high CPMs because of its dependence on online advertising.

Figure 62: Revenue of Social Media Networks (millions $), 2010-2023



With the significantly higher revenues from Meta, this leads to even higher concentration of the market, taking a highly concentrated market to near monopoly levels. However, in both cases the introduction of Tiktok, which has taken hold of the social media world by storm, has cut concentration regardless of how it's measured.

Figure 63: Market Concentration of Social Media Platforms (by Revenue), 2014-2023

	2014	2016	2018	2019	2020	2021	2022	2023
HHI	5,975.5	6,938.6	7,570.2	7,296.1	6,696.8	6,394.4	5,550.8	4,942.8
CR4	88.7%	93.9%	95.3%	93.8%	90.3%	92.5%	91%	86.5%

Operating Systems

[Forthcoming]

Internet Browsers

[Forthcoming]

Online News

[Forthcoming]

Online Content

[Forthcoming]

Newspapers

The existence of what today would be recognized as the newspaper industry actually predates the existence of the United States itself. The first newspaper to be published in the then British Colonies was known as *Publick Occurrences Both Forreign and Domestick*. Prior to that, single page papers, called broadsides, would be printed and distributed throughout the country.

Publick Occurrences Both Forreign and Domestick was published in 1690, with the intention of it being a monthly newspaper, though it could be published more often if there was a significant amount of news to publish. While the editor had intended multiple issues to be run, there occurred only one publication, as one of the stories, a discussion of the treatment of French prisoners of war during the French and Indian Wars, upset the local government. They issued an order quickly jailing the editor and destroying all existing copies of the paper. That order also required any future papers to be under license from the government, thus there was no concept of a free press in the colonies.[90]

It was another fourteen years until any newspaper was printed in what would become the United States: *The Boston Newsletter* in 1704. This paper, licensed by the local government, was mostly a summation of papers from England, usually months behind the date of publication. There was a small section of the paper devoted to more local news, but this was almost exclusively used as administration, like publishing ship schedules and judicial appointments.[91] The requirement for governmental approval kept the nascent newspaper industry extremely small and limited for many years, with even the largest cities like Philadelphia and New York not having newspapers until the 1720s.

One of the most widely read, successful, and influential newspapers of the colony period was *The Pennsylvania Gazette*. The Gazette was started in 1728 by Samuel Keimer which also published one of the first encyclopedias to be published in English and distributed with the paper. However, Keimer's other businesses had left him heavily in debt and he sold the paper to Benjamin Franklin, one of the major founding fathers of the American Revolution. When Franklin and his partner, Hugh Meredith purchased the paper, they shortened the name to *The Pennsylvania Gazette* and made other changes to it. Most importantly was including a section for including essays and letters from

[90] Collections Online. "The Boston Newsletter, number 1" Massachusetts Historical Society. https://www.masshist.org/database/186

[91] Collections Online. "The Boston Newsletter, number 1" Massachusetts Historical Society. https://www.masshist.org/database/186

readers, marking the first "Opinions" section of a newspaper in the United States. Many of those letters were written by Franklin himself under pseudonyms.[92]

Even though Franklin was a major force in the American Revolution, he largely kept politics out of the paper for many years, prior to the start of the war. Instead, his contributions were more of the nature of his scientific experiments, for instance publishing his famous lighting and key on a kite experience in the paper.[93] Interestingly, Franklin and the *Pennsylvania Gazette* published the first political cartoon in America. The cartoon, a dissected snake labeled with each of the colonies and titled with the heading "Join or Die" was used to accompany an editorial in which Franklin explained the need for the colonies to join with England against the French in the Seven Years War. Ironically, the symbol would later be used by the colonies against the English during the American Revolution.[94]

Following the American Revolution, and the adoption of the United States Constitution, which enshrined the right of a free press to the country, the newspaper industry saw massive expansion. The 19th century saw the rise of penny presses, making newspapers more affordable and accessible to the masses. The New York Sun and the New York Herald pioneered this model, leading to increased competition and circulation wars. In 1848 the Associated Press (AP) was founded enabling newspapers to share news and resources and creating the wire service, allowing for national news to be shared.

While the AP enabled the sharing of news around the country and for papers to run national news, it wasn't until relatively recently, around the 1980s, that the United States had national newspapers, like offerings to reach a nationwide audience the USA Today. Papers like the New York Times and the Wall Street Journal also expanded their. Given the lack of a strong central paper, instead seeing numerous small regional and local papers who may be owned by a conglomerate, like McClatchy or Knight Ridder, it is not surprising that market shares were small and concentration low.

Newspapers reached their peak popularity in the early 20th century. However, the rise of radio and later television caused a decline in newspaper circulation after World War II. From 1920 to 2011, the number of daily newspapers dropped from 2,042 to 1,382. Despite a population increase, circulation decreased from 62.8 million in 1985 to 41.7 million in 2011.

High fixed costs in editorial and advertising sales led to local monopolies and regional chain ownership, with 77% of daily newspapers owned by chains by 2000. The top 10

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[92] "Pennsylvania Gazette" Benjamin Franklin Historical Society http://www.benjamin-franklin-history.org/pennsylvania-gazette/

[93] Pennsylvania Gazette" Benjamin Franklin Historical Society http://www.benjamin-franklin-history.org/pennsylvania-gazette/

[94] Pennsylvania Gazette" Benjamin Franklin Historical Society http://www.benjamin-franklin-history.org/pennsylvania-gazette/

chains owned 18% of newspaper titles and about 40% of the market by circulation in 2000.

Figure 64: Daily Newspaper Market Shares by Circulation, 1984-2009[95]

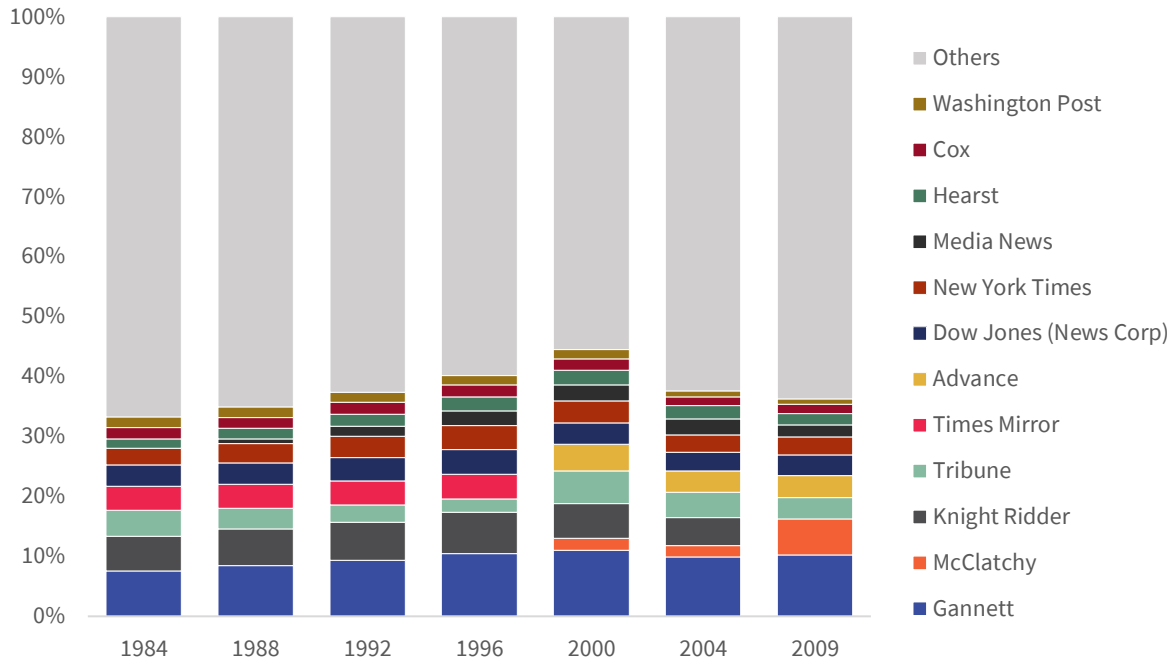


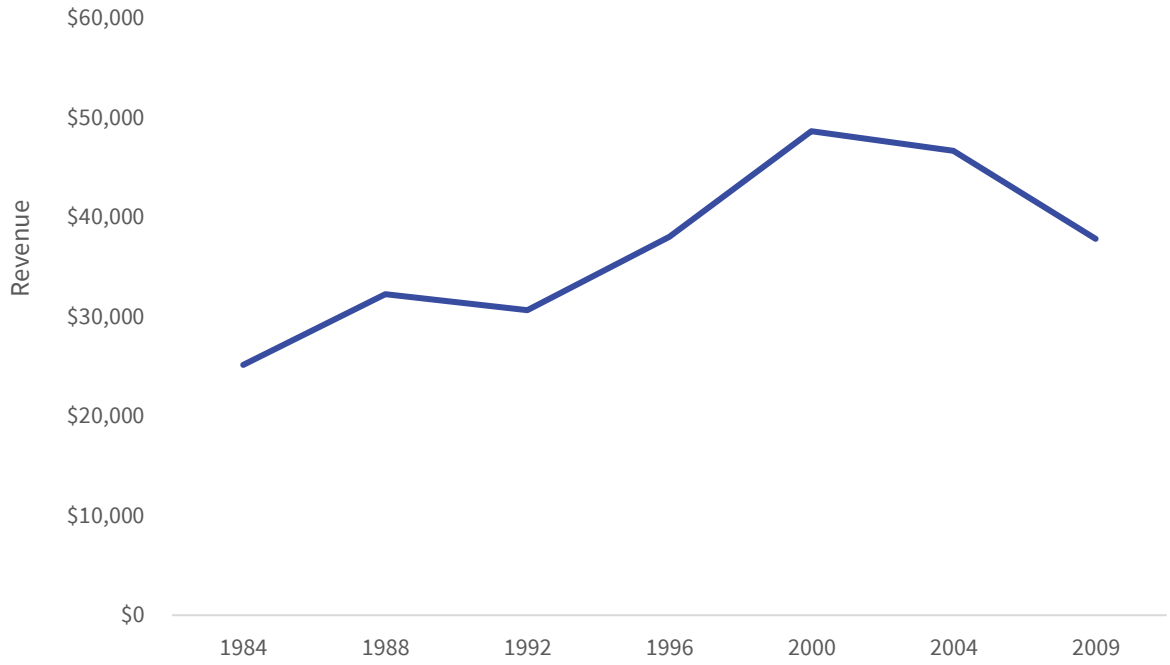
Figure 65: Newspaper Market Concentration by Circulation, 1984-2009[96]

	1984	1988	1992	1996	2000	2004	2009
HHI	155	176	200	230	254	188	202
CR4	21.7%	22.4%	24%	25.6%	26.7%	22.3%	23.3%

[95] Noam, Eli. Who Owns the World's Media? Oxford University Press, New York, 2016.

[96] Noam, Eli. Who Owns the World's Media? Oxford University Press, New York, 2016.

Figure 66: Newspaper Industry Revenue (millions $, unadjusted for inflation), 1984-2009



'While the newspaper industry saw an increase in the total revenue in the late 1990s and early 2000s, it also saw a massive influx of new competition and disruption. The rise of the internet brought with it new competitors to the various aspects that the newspaper industry once dominated.

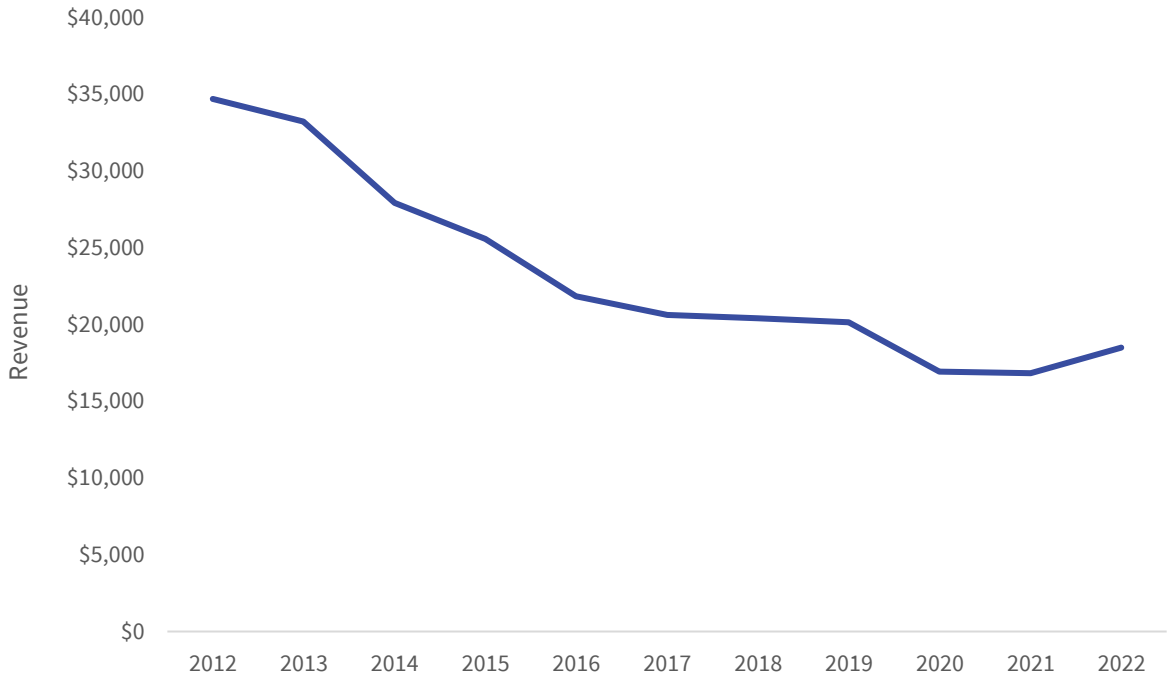
Newspaper revenue comes from two major sources, subscription revenue from sales of papers and advertising revenue, from ads placed in the paper. Advertising typically represented around 80% of all revenue during the latter half of the 20th century. Within that, the largest share belongs to local retail advertising, followed closely by classified advertising, and finally national advertising. In 2002 for instance, local retail advertising represented 47.6% of all advertising revenue, with classified advertising representing 36.1% and national advertising representing 16.4%.[97]

As discussed in significantly more detail earlier, the internet advertising industry began making inroads in the mid 1990s, with companies like WebConnect and DoubleClick attracting advertisers to the nascent internet. Since advertisers did not have unlimited budgets, funds shifted from traditional print advertising like newspapers to the internet. Craigslist, for instance, launched in 1995 as a local bulletin of San Francisco events, became a global provider of classified ad space. This, along with websites like eBay and

[97] March 2004 Newspaper Publishing report. IBISWorld

match.com began to attract the content usually solicited in classifieds, such as the sale of used goods and love connections. This loss in revenue was also compounded by the proliferation of cable television which similarly attracted advertising away from newspapers. Thus, industry revenue peaked in 2000 and has been declining nearly every year since.

Figure 67: Newspaper Industry Revenue (millions $, unadjusted for inflation), 2012-2022



The mid-2000s saw the development and widespread adoption of social media, discussed more in depth in the section on social media platforms. Social media transformed the way in which people consumed their news as well as its dissemination. The algorithms used for personalized news feeds worked to curate content and created filter bubbles, which made sure individuals were largely exposed to news that fit their notions. It also created a means for access to different sources, and lead to the rise of citizen journalists. Most important, sites like Twitter (now called X) made it possible to receive real-time news. On-the-spot individuals could tweet what they saw, meaning that breaking news would be covered by witnesses in real time. Newspapers, already stale compared to television and radio which could report same day, were now falling even further behind as the witnesses themselves could report the story immediately, rather than waiting for the story to be filtered by journalists later that day, or the next.

Newspapers attempted to mitigate this change and began making their content available online. Slowly but surely subscribers migrated from print subscriptions to

online subscriptions, which now far outnumber print subscribers. More on this is covered in the section online news.

As the revenue for print newspapers declined, mergers and acquisitions began to rise in order to survive. *The Washington Post*, long owned and run by the Graham family, and a publicly traded company since 1971, was sold in 2013 to the founder of Amazon, Jeff Bezos. Bezos purchased the company for $250 million, taking it private and keeping it separate from Amazon. While the paper ran well for a few years under Bezos, in recent years it has struggled, reportedly losing $100 million in 2023 and drawing the attention of Bezos to sell off the property.[98]

Jeff Bezos wasn't the only billionaire to enter into the newspaper industry in the mid-2010s. Patrick Soon-Shiong purchased the Los Angeles Times and two other California newspapers from Tribune Publishing for $500 million in 2018, for example. While Tribune sold the troubled papers off to Soon-Shiong, it was still not in the best financial shape, and in 2020 was sold for $633 million to Alden Global Capital, the New York based investment firm. While Soon-Shiong had told Tribune he was interested in all three papers he acquired, his true interest appeared to be the LA Times, and he sold the other two papers back to Alden Global Capital in 2023 for an undisclosed amount. Alden now holds over 70 daily newspapers across the United States, mostly in California.[99]

Gannett, one of the largest newspaper companies in the country, and parent to the most widely read newspaper the *USA Today,* was acquired by another large newspaper conglomerate, New Media Investment Group, the owner of GateHouse Media. Gatehouse, after emerging from bankruptcy in 2013, started acquiring small papers around the country building up into a conglomerate holding over 140 daily newspapers. In 2019, New Media Investment Group acquired Gannett for $1.2 billion. The new company continued to operate under the Gannett name and merged together the two companies into running over 260 daily newspapers, roughly 1/5th of all daily newspapers in the United States.[100]

Alden Global Capital isn't the only private equity firm involved in the newspaper industry. In 2020 Chatham Asset Management acquired McClatchy and its roughly 30 newspapers in a bankruptcy proceeding. McClatchy, the owner of the Sacramento Bee and the Miami Herald, two of the largest newspapers in California and Florida respectively, had been struggling for years as advertising and subscription revenue

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[98] Mullin, Benjamin and Katie Robertson. "A Decade Ago, Jeff Bezos Bought a Newspaper. Now He's Paying Attention to it Again." New York Times July 22, 2023. https://www.nytimes.com/2023/07/22/business/media/jeff-bezos-washington-post.html

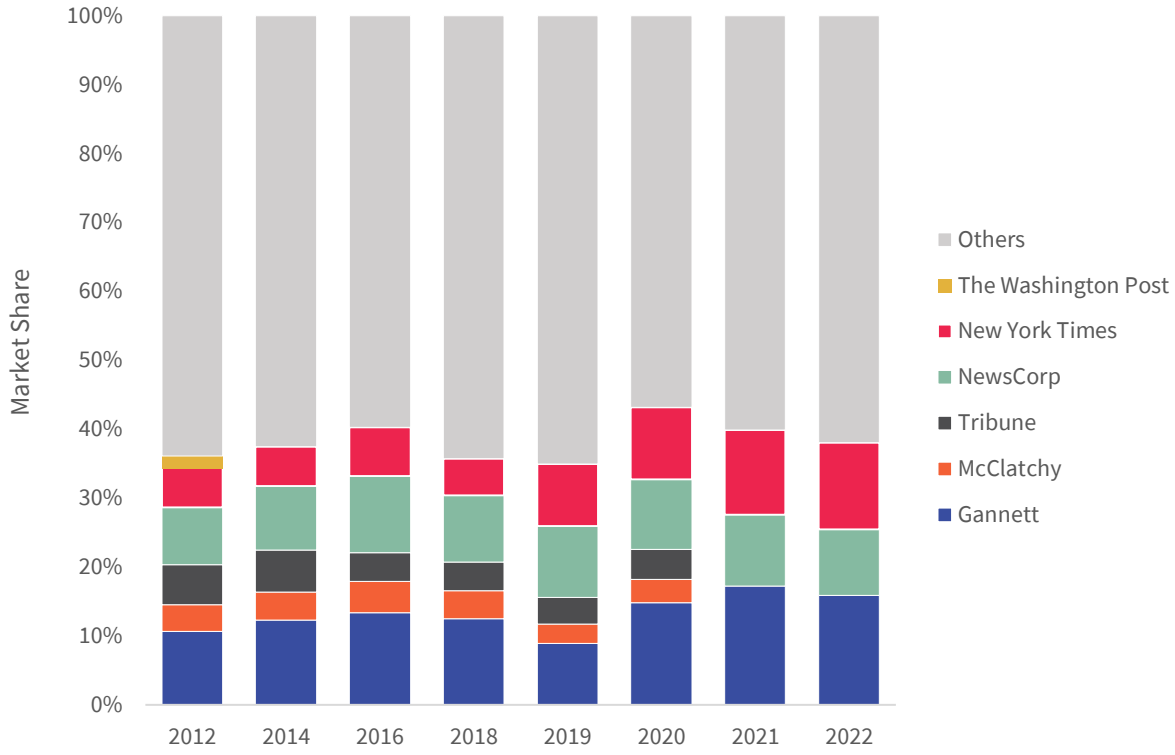
[99] James, Meg. "Soon-Shiong family sells San Diego Union-Tribune" Los Angeles Times July 10, 2023. https://www.latimes.com/entertainment-arts/business/story/2023-07-10/soon-shiong-family-sells-san-diego-union-tribune

[100] Tracy, Marc. "Gannett, Now Largest I.S. Newspaper Chain, Targets 'Inefficiencies'" New York Times November 19, 2019. https://www.nytimes.com/2019/11/19/business/media/gannett-gatehouse-merger.html

went into a tailspin. It entered bankruptcy right before the Covid-19 pandemic hit, causing further harm to the newspaper industry.[101]

These changes to the newspaper industry greatly increased concentration, causing the industry to more than double from and HHI of 202 in 2009 to 501 in 2022. However, because of how many independent and small companies continue to exist in the industry, it's no surprise that, overall, concentration continues to be low, and the industry highly competitive.

Figure 68: Market Shares of Major US Newspaper Owners (by Revenue), 2012-2022



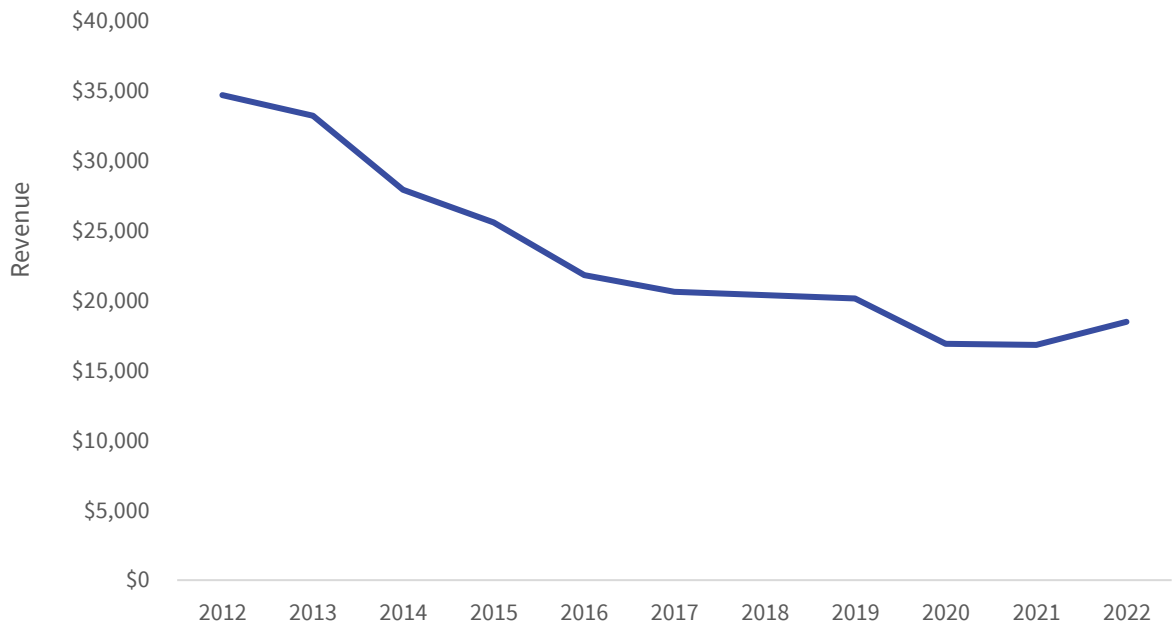
[101] Tracy, Marc. "McClatchy, Family-Run News Chain, Goes to Hedge Fund in Bankruptcy Sale." New York Times, August 4, 2020. https://www.nytimes.com/2020/08/04/business/media/mcclatchy-newspapers-bankrutpcy-chatham.html

Figure 69: Newspaper Market Concentration (by Revenue), 2012-2022

	2012	2014	2016	2018	2019	2020	2021	2022
HHI	268.51	324.29	391.07	312.07	291.42	462.22	555.29	501.22
CR4	30.6%	33.4%	36.1%	31.7%	32.2%	39.7%	39.9%	38%

While many industries were hit hard and affected by Covid-19, it does not appear that the pandemic harmed the newspaper industry to the same degree as other media sectors, with total revenue in 2020 dropping at a rate on par with steady losses since revenue began to take for the newspaper sector in the mid-2000s. In all, from 2012 to 2022 the industry has seen a reduction of revenue by about half, going from $34.7 billion in 2012 to $18.5 billion in 2022. Over the period, the industry saw a compound annual growth rate of -6.1%.

Figure 70: United States Newspaper Total Industry Revenue (millions $), 2012-2022



It is most likely that the industry will continue to contract, as advertisers continue to seek alternatives like the internet and television. Also, as circulation continues to transition from print to online, it will further harm the print newspaper industry. It is important to note though that in the United States, there is one main thing that currently will protect the print newspaper industry. Most states have laws in place that require certain notices be advertised in two newspapers (one national, one local) for things like public meetings and bankruptcy filings, to show proof of knowledge. For that reason, newspapers will continue to receive some advertising revenue, until those laws are changed.

Broadcast Radio

[Forthcoming]

Books

[Forthcoming]

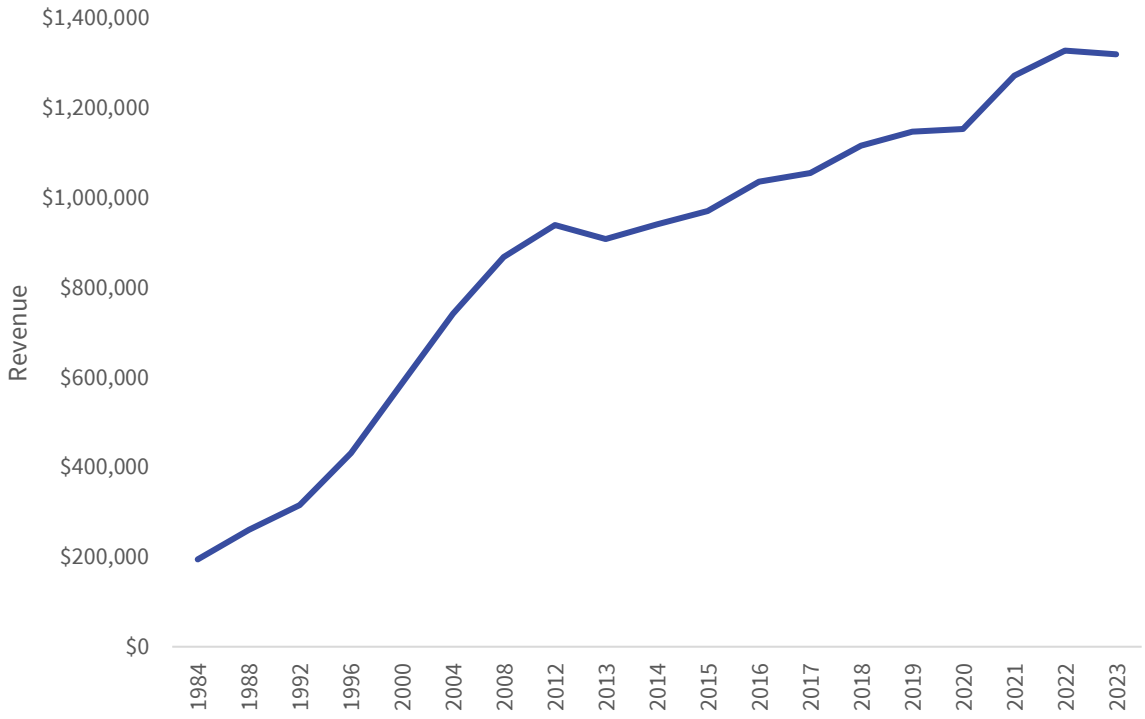
Traditional Media

[Forthcoming]

Largest Companies in the United States

Having investigated nearly forty years of media ownership in the United States, it has provided a sizeable amount of data in individual sectors. It also allows data to be pulled together to make observations about the entire United States media sector. Most important is the fact that the United States has seen tremendous growth, which tracks with the explosion of media industries in the United States, and the fact that many new forms of media have originated in the US, most importantly the Internet. In 1984, in unadjusted amounts, the total Media Industry was $194 billion. By 2023, it had roughly increased 10-fold, reaching a revenue of $1.32 Trillion, roughly 5% of the United States Gross National Product that year.

Figure 71: Total US Media Industry Revenue (millions $), 1984-2023



It is important to note that other estimates exist as to the size of the US Media industry. The number here represent only the industries part of this study, and do not include other industries that are not observed. For instance, sports leagues, which many consider to be a form of "Media" are not included here.

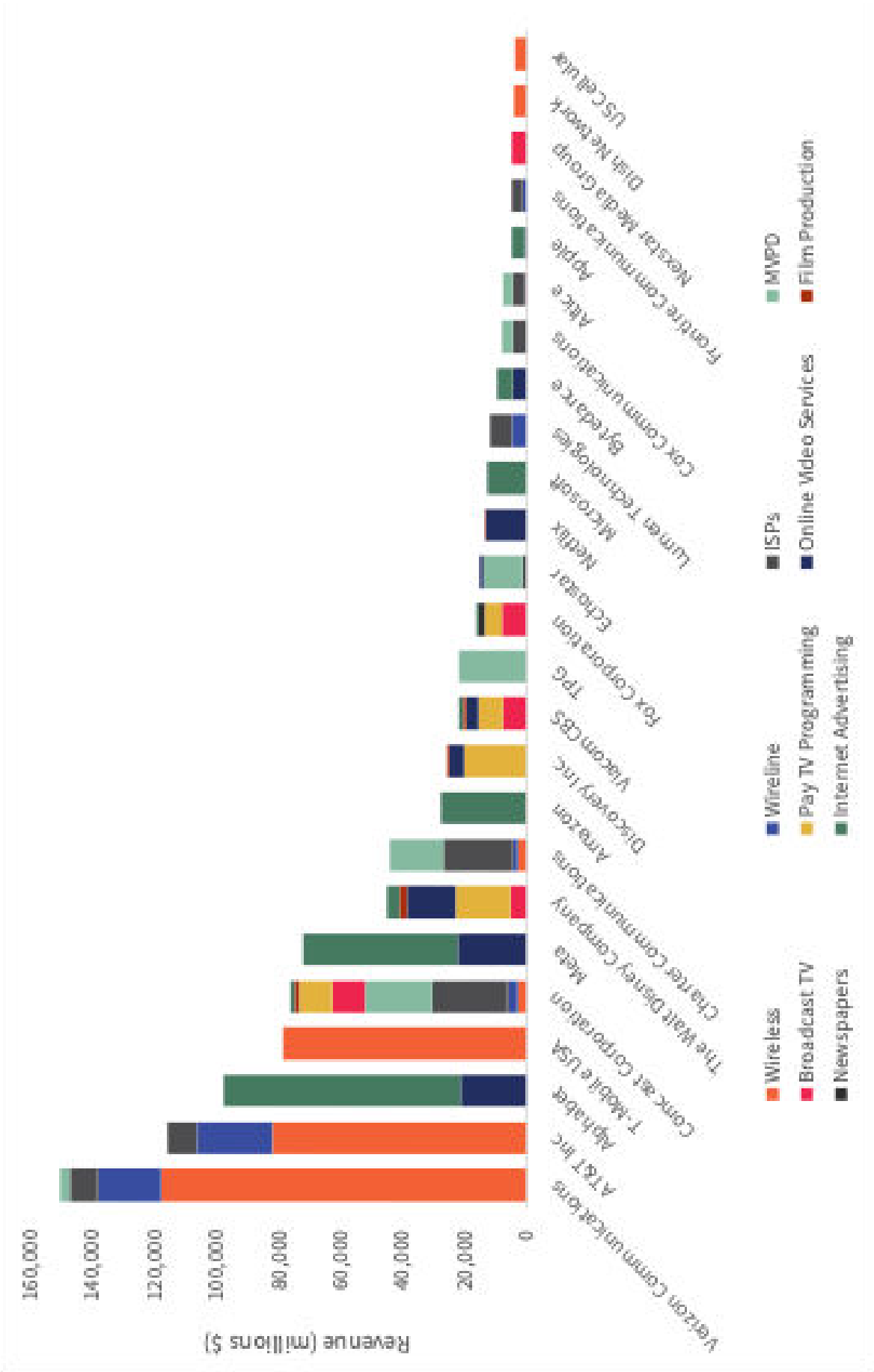


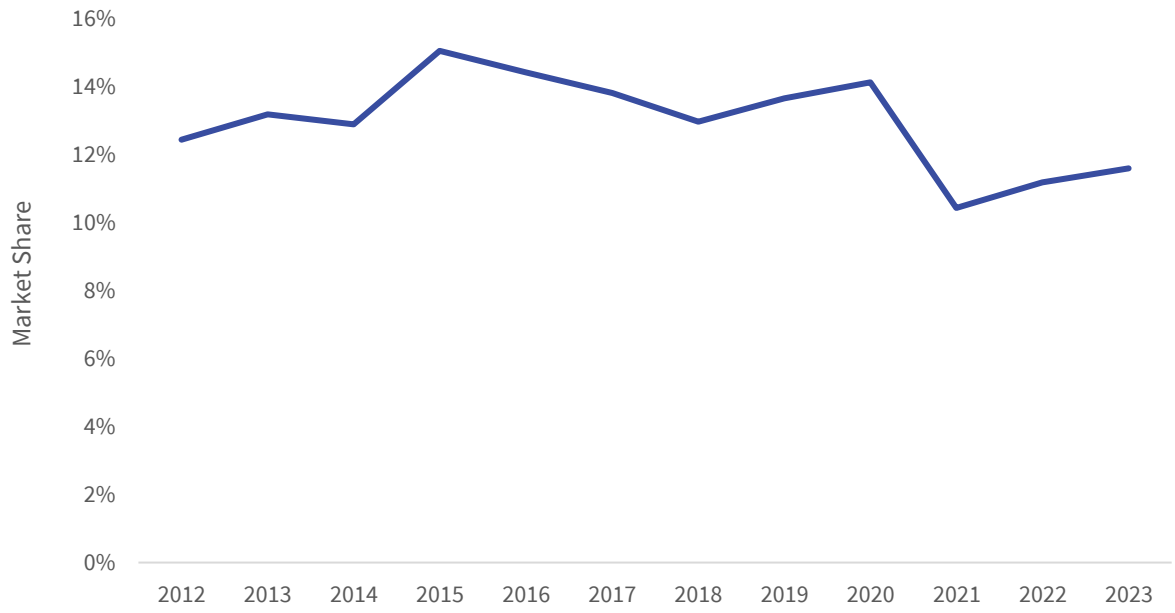
Figure 72: Top 25 US Media Companies (by Revenue), 2023

Given the importance of distribution for media, it is not surprising that 4 of the 5 largest media companies in the United States are traditional media distribution companies, the two largest wireline companies Verizon and AT&T, along with the third largest wireless company T-Mobile, and the largest cable company Comcast. The four industries that make up distribution (Wireline, ISP, Wireless, and Pay TV Distribution/MVPD) contribute 42% of all of media revenue, helping to explain why those companies also dominate in the top 25.

The search giant Alphabet/Google enters as number 3, given its dominance of the Internet advertising market, which has quickly become a large portion of the media landscape, representing 18% of all revenue. However, being number 3 may be slightly exaggerated as its revenue for Online Video Services potentially double counts some of its revenue from Internet Advertising, as a large amount of online video services revenue comes from YouTube, which is supported by advertising.

Most importantly, across all media it can be observed that there is a large amount of competition across all of media. The largest company generally only has about 10% of all media revenue.

Figure 73: Market Share of the Largest US Media Company, 2012-2023



Even looking at the four largest media companies, their total market share only makes up about 1/3rd of the total market.

Figure 74: Market Share of the Four Largest US Media Companies, 2012-2023

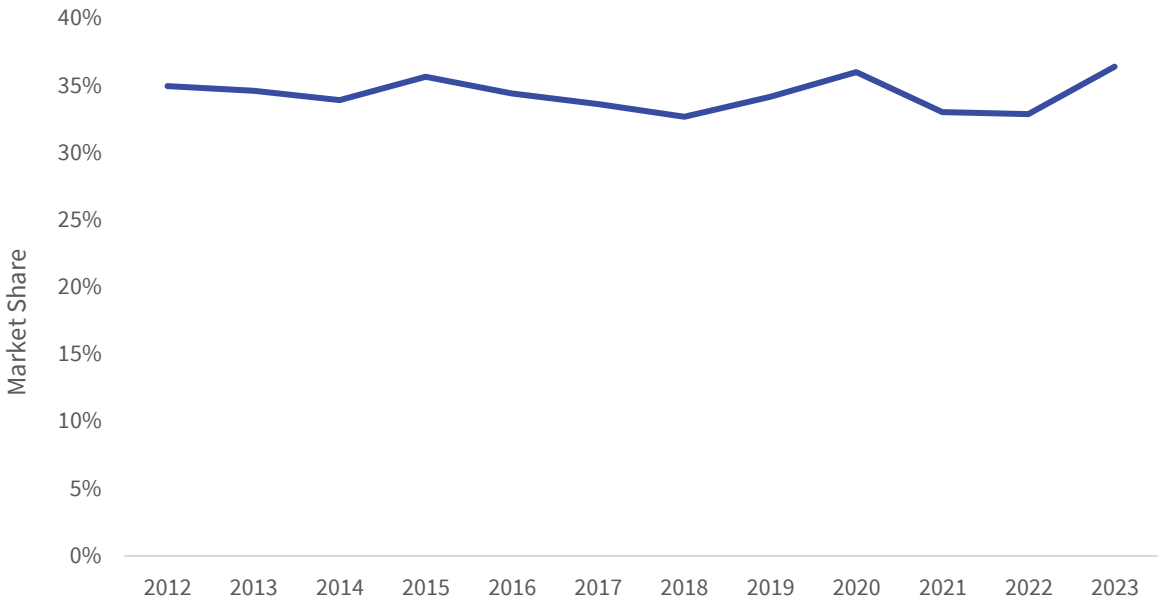
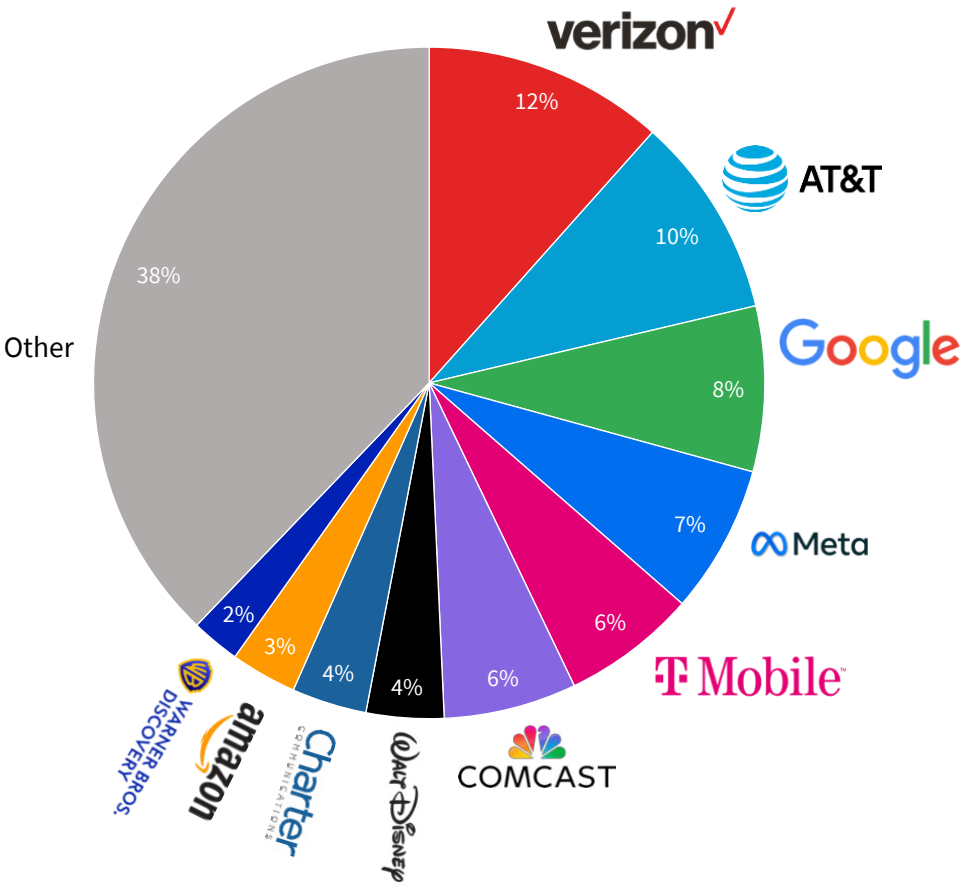
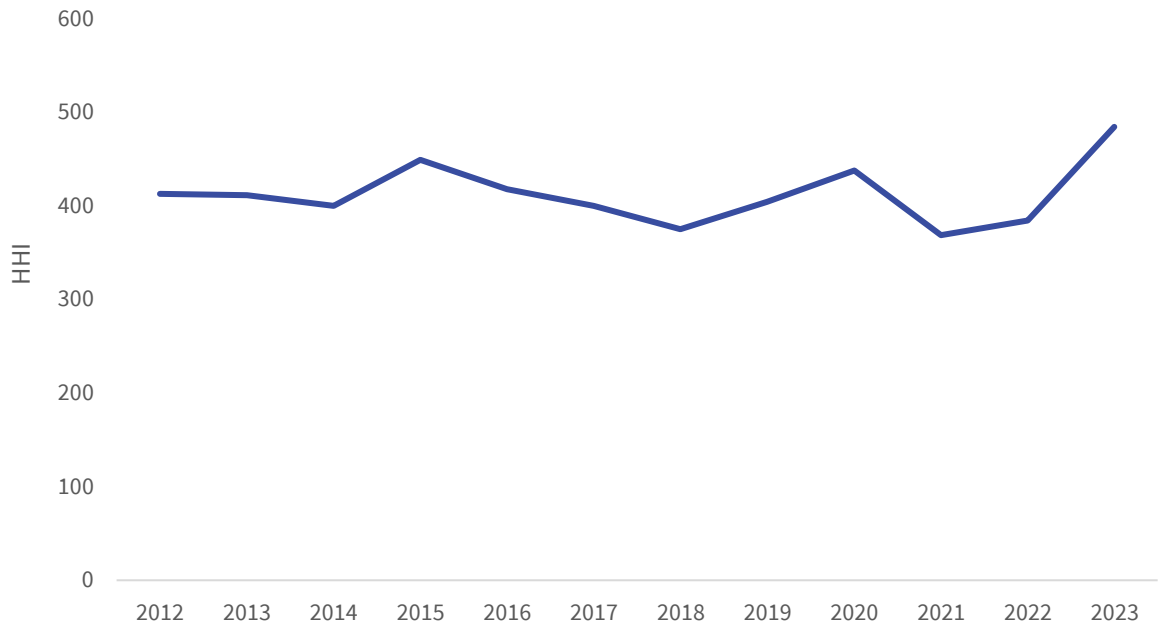


Figure 75: Market Shares of the Top 10 Media Companies in the United States, 2023



As such, it's not surprising that market concentration as a whole is very low, hovering between 350 and 480 for the last decade.

Figure 76: Industry Concentration (HHI) of the US Media Industry, 2012-2023

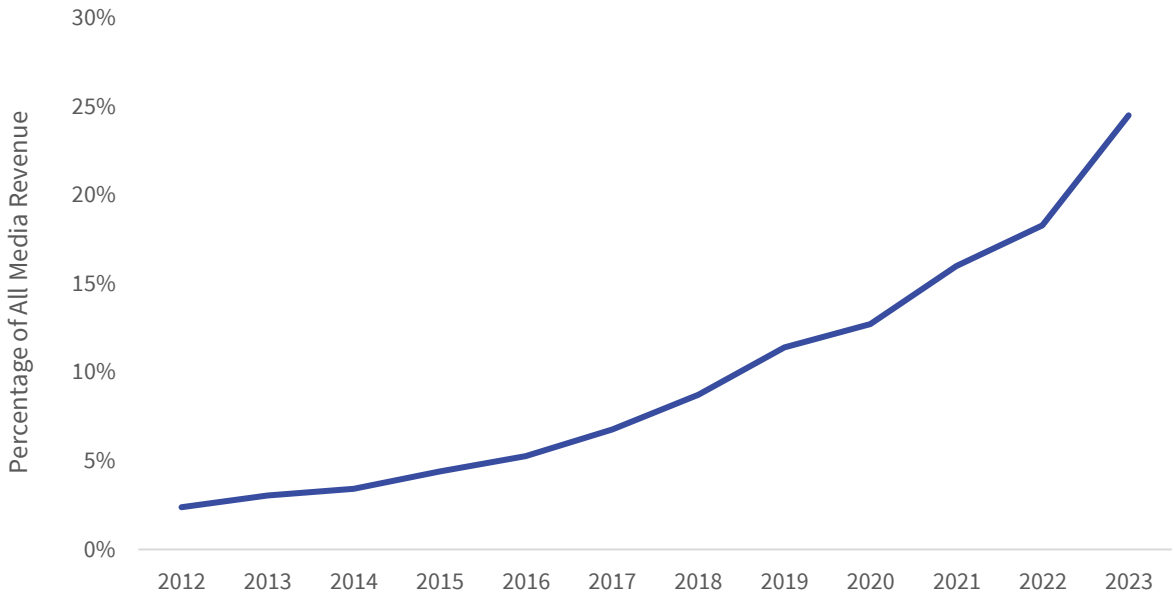


Conclusion

The prevailing belief that the United States is grappling with high concentration and excessive power among a small number of companies does not entirely align with the data. While certain sectors, like the search industry, exhibit near-monopoly levels of market concentration, the majority of other sectors fall into the moderately concentrated category.

Big Tech in particular has gained a large amount of revenue in the past decade. Big Tech, made up of the FANGAM companies like Facebook (Meta), Alphabet, Netflix, Google, Apple, and Microsoft, along with smaller tech companies like Roku, Snapchat, and the newly growing TikTok, have seen a CAGR growth rate of 22% over the period, rising from 2.4% to 18.3% of all media revenue.

Figure 77: Revenue of "Big Tech" Companies as Percent of All Media Revenue, 2012-2023



Turning to the media industry as a whole, AT&T was the single largest company by market share during the period, until 2022 when it sold off much of its media activities, Time Warner and DirecTV, and instead focused primarily on distribution, making Verizon the new largest media company. The CR1 has remained mostly static over the decade, while HHI has slightly declined.

Figure 78: Concentration Metrics for the US Media Industry, 2012-2023

	2012	2014	2016	2018	2019	2020	2021	2022	2023
CR1	12.43%	12.89%	14.42%	12.97%	13.66%	14.12%	10.43	11.18	11.59
CR4	34.99%	33.92%	34.43%	32.69%	34.17%	36%	33.04%	32.89%	36.42%
CR10	49.05%	48.37%	49.55%	49.67%	52.11%	53.22%	52.87%	54.52%	62.17%
HHI	412.59	400.11	417.92	374.93	404.41	438.19	368.79	384.48	484.5
Big Tech	2.39%	3.42%	5.27%	8.73%	11.40%	12.72%	16.01%	18.30%	24.5%

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Looking at the industries themselves, for the 10-year period spanning 2012-2022, the unweighted average industry concentration stood at 384.48, with a median concentration of 1,510. These figures are calculated by giving equal weight to all industries, despite the fact that some industries, such as Wireless, significantly outshine others in terms of revenue. When taking into account industry Herfindahl-Hirschman Index (HHI) scores weighted by the percentage of revenue they contribute to the total revenue, the average for the 10-year period remains 2,027, while the median increases to 2,079. Both of these figures position the industries within the moderately concentrated category.

Putting the 2023 numbers into an international perspective shows that the United States is even more competitive. It should be noted that the comparative numbers from other countries are not an exact comparison, as it represents each country's latest data. For the United States, it is 2023 while other countries are from 2022 or earlier.

Figure 79: International Comparison of CR4 and HHI Figures

	United States	South Korea	China	Italy	France	Switzerland	Canada	Australia	Brazil
CR1	11.59%	15.4%	17.9%	19.6%	21.1%	26.1%	23.7%	25.0%	32.0%
CR4	36.42%	40.9%	42%	42.7%	54.2%	56.2%	60.7%	58.0%	82.6%
CR10	62.17%	56.0%	65.4%	67.3%	77.6%	74.7%	79.6%	84.0%	99.4%
HHI	484.5	542.2	648	689	935.3	1076.7	1137.4	1167.0	2165.9
Big Tech	24.50%	-	29.6%	10.2%	12%	21.2%	18.0%	19%	13.1%