



Covid-19's impact on the gaming industry: 19 takeaways

An examination of pandemic gaming behavior
and game monetization

Covid-19's impact on the gaming industry

COVID-19 has had a profound impact on every industry in the world, and gaming is no exception. As the world sheltered in place, gaming boomed as people sought ways to occupy themselves while physical movement in particular was limited.

While gaming consumption has grown, we wanted to examine the data that illustrates the trends fueling the gaming industry's success during the global pandemic and economic downturn. This special report will explore the details in depth. In particular, we will identify which game genres players are flocking to, their behaviors in these games, and how games have proven to be stable revenue generators during a global economic crisis.

Contents

| | |
|------------------------------------|----|
| How to read the data | 4 |
| About the data | 5 |
| About Unity | 6 |
| Gaming habits | 7 |
| Mobile game advertising | 12 |
| Mobile game user acquisition..... | 16 |
| Different areas of the world | 21 |
| What players are playing | 24 |
| New player behavior | 29 |
| What's next..... | 32 |

How to read the data

Unity's gaming data spans across both mobile gaming and high-definition desktop games like PCs and gaming consoles.



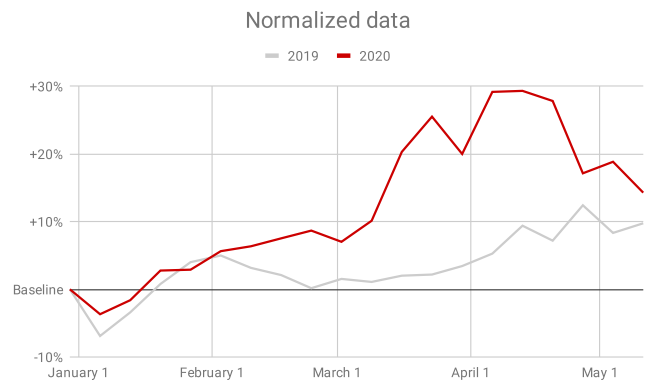
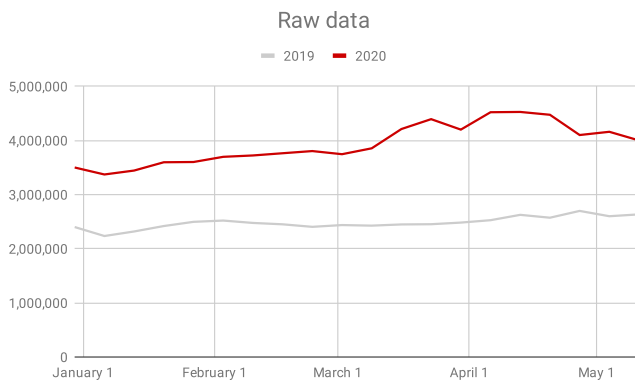
HD

"HD" refers to PC, macOS, and other desktop platforms like Linux (with graphics typically rendered in high definition).



Mobile

Mobile refers to iOS, Android, and other smartphone devices.



Since the gaming industry grows every year, comparing raw numbers year over year doesn't give you a clear picture of trends in response to events. Instead, we'll look at performance data that's been "normalized" relative to the first week of each year; that is, we're taking yearly growth out of the picture so you can compare performance, year to year, directly.

To get normalized performance, we took Unity's raw metrics for 2019 and 2020, then compared them against the first week of each year. Basically, we're using the first week of the year as our **baseline** and comparing the performance of subsequent weeks as a percentage above or below that baseline. This lets us see trends in response to new game releases, improvements to Unity's products, and other events.

About this report

About the data

The data in this report is sourced globally from mobile games using Unity's monetization platform as well as games made with Unity for PC, macOS, Android, and iOS. Anonymized, aggregated data from Unity's deltaDNA is also included in the report to support monetization metrics with engagement data. The timeframe for the data ranges from the beginning of the year to mid-May for both 2019 and 2020. We take developer data privacy very seriously, and have omitted information from this report that would individually identify any single game or developer.

For our purposes, the week beginning March 8, 2020 marks the start of the Covid-19 event, as the [World Health Organization \(WHO\) declared Covid-19 a global pandemic](#) on March 11, 2020. It's worth noting that regions of China and other Asian countries were placed under quarantine earlier, in January and February.

About Unity

Unity is the world's leading platform for creating and operating real-time 3D (RT3D) content. Creators, ranging from game developers to artists, architects, automotive designers, filmmakers and others, use Unity to make their imaginations come to life. Unity's platform provides a comprehensive set of software solutions to create, run and monetize interactive, real-time 2D and 3D content for mobile phones, tablets, PCs, consoles, and augmented and virtual reality devices. The company's 1,400+ person research and development team keeps Unity at the forefront of development by working alongside partners to ensure optimized support for the latest releases and platforms. Apps developed by Unity creators were downloaded more than three billion times per month in 2019 on more than two billion unique devices.

For more information, please visit www.unity.com

Unity Ads are seen by more than 114M end users every day.

Unity's deltaDNA provides sophisticated player engagement tools for game makers, powered by deep data analytics. With cross-platform and rich data capability, this end-to-end solution enables publishers and developers to better understand different player behaviors and create personalized experiences, targeting individual players in real-time.

How has the Covid-19 pandemic affected gaming habits?

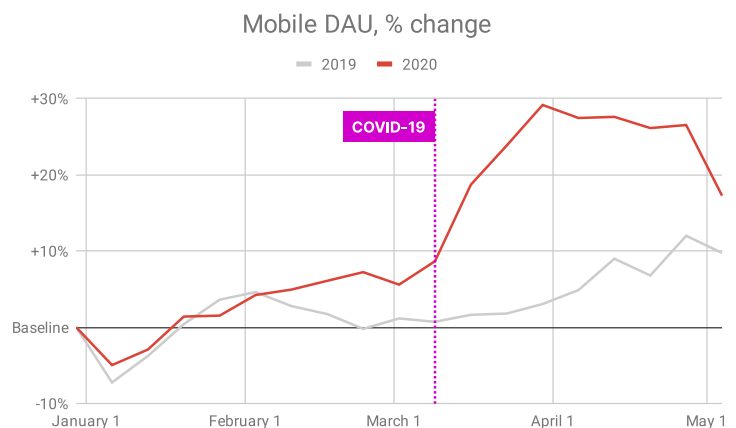
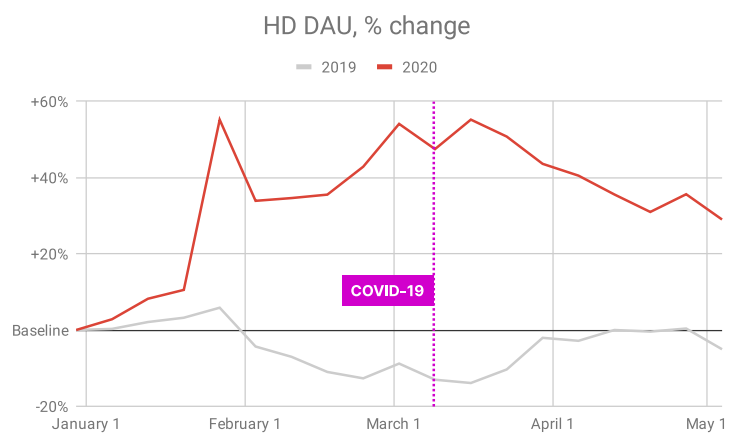
01 How has the Covid-19 pandemic affected gaming habits?

More people are playing than ever, with a **46% DAU increase in HD gaming** and **17% in mobile gaming**

During stay-at-home orders and other restrictions imposed in response to COVID-19, people allocated time to the forms of entertainment that can be enjoyed from home – primarily video streaming platforms and video games.

Spring usually shows a dip in activity for HD games, with daily active users (DAU) dropping on average 5%. With COVID-19 conditions keeping many indoors, the difference from last year is stark, with a 41% increase compared to the 2019 baseline.

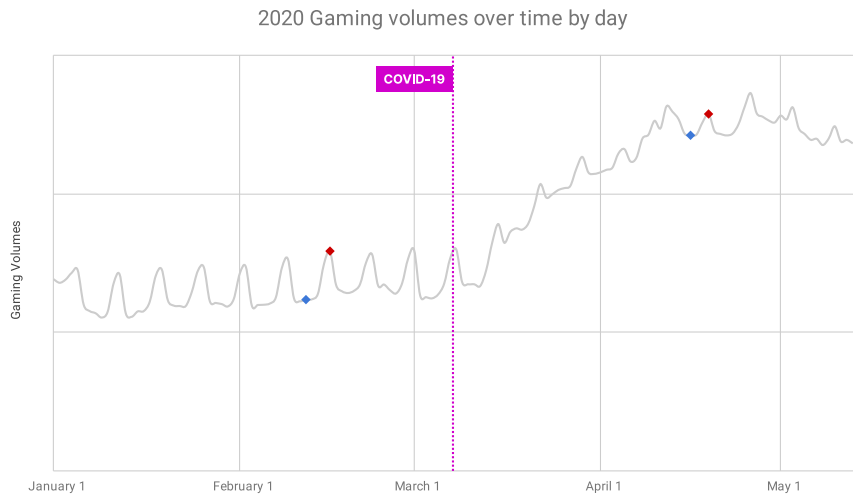
Mobile platforms also saw growth compared to 2019, as audiences who don't normally play games found themselves looking for new forms of entertainment. Almost everyone these days has a smartphone and is able to access the Apple and Google App stores, so more people than ever were turning their phone into a gaming device. While 2019 saw growth of 6% from baseline, 2020 has seen an increase of 23% thus far.



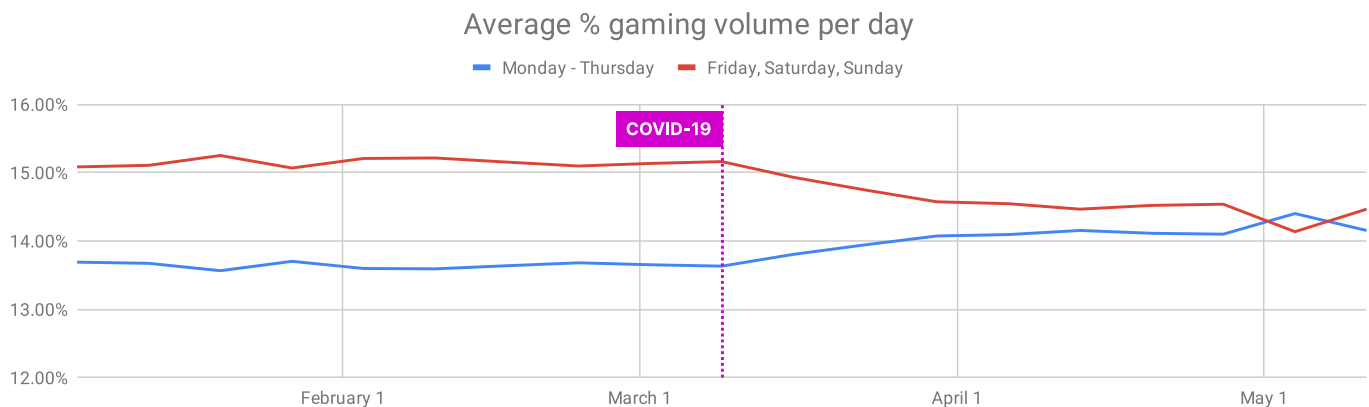
02 How has the Covid-19 pandemic affected gaming habits?

Weekend and weekday differences in gaming behavior narrowed by 63%

Gaming usually experiences spikes of activity on the weekend, which then decline during the work week, usually hitting a low on Wednesday or Thursday. However, one effect of the COVID-19 restrictions was that many people were staying home the entire week, meaning that gaming habits of weekdays vs weekends have homogenized.



However, this behavior narrowed once the world implemented shutdowns and other restrictions. The average percentage difference between weekdays and weekends pre-Covid-19 was 1.5%, but after the pandemic was declared, it narrowed to 0.56%. For one week in May, weekdays and weekends actually briefly flipped – weekdays drove higher daily activity than weekend days.

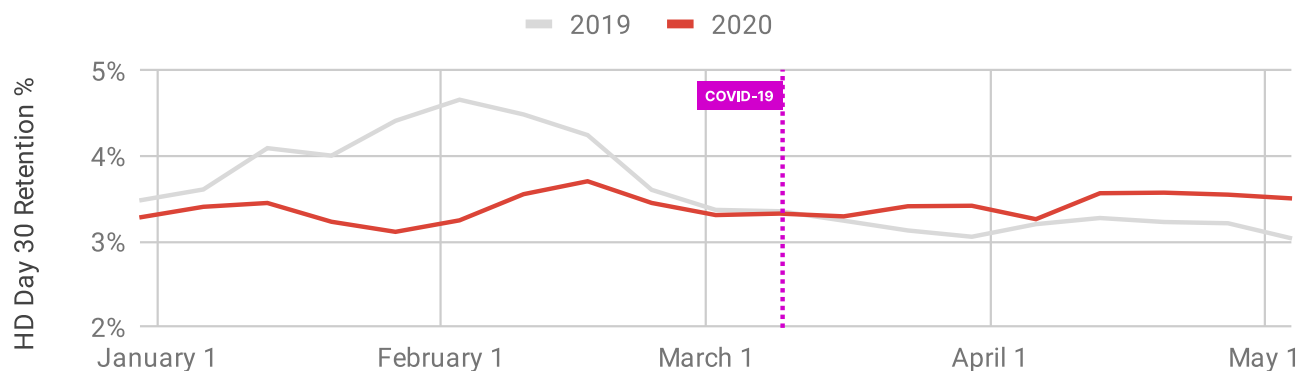
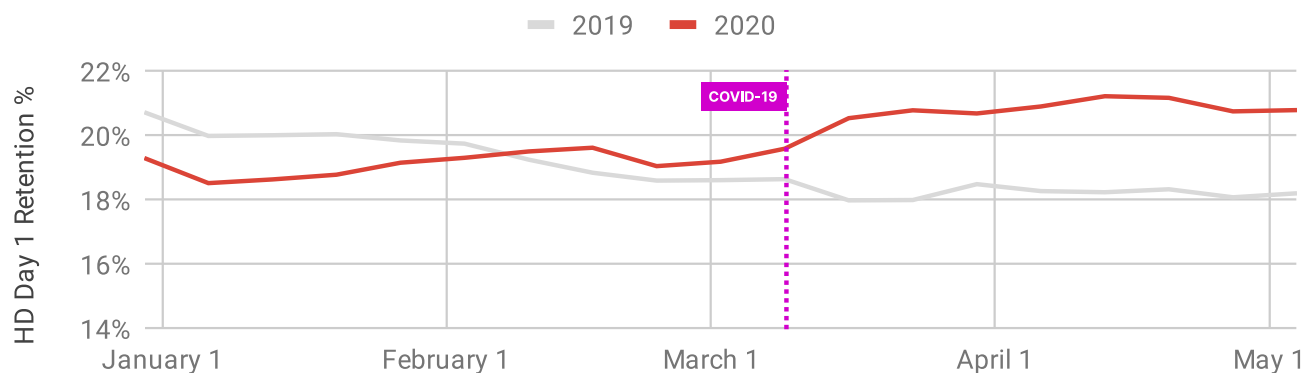


03 How has the Covid-19 pandemic affected gaming habits?

HD gaming saw retention increase across the board, with D1 retention up by 11% and D30 retention up by 8.8% since the pandemic was declared

With more people staying home, the stickiness of HD gaming platforms has increased. Gamers typically have to carve out time in their schedules to continue playing games on their desktops or laptops, but the COVID-19 situation changed play habits.

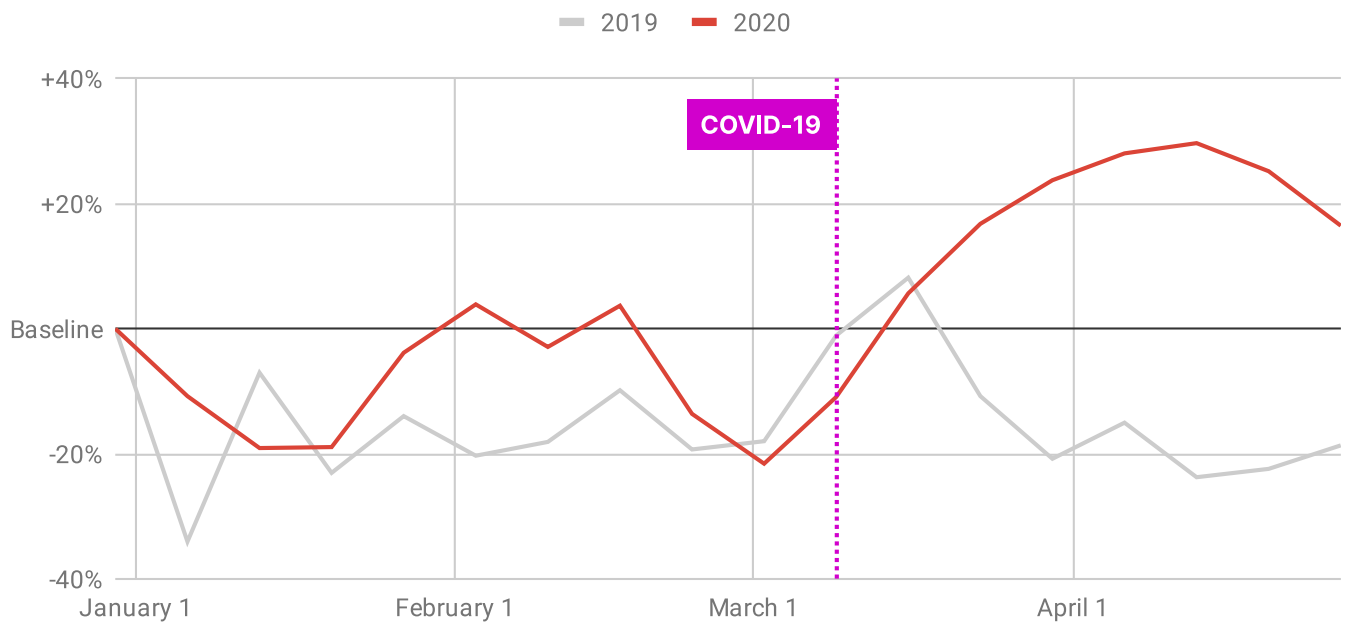
Comparing 2020 to 2019, not only are more players retained on their first day of HD gaming, even day 30 retention has increased by 8.8% since the week of March 8.



04 How has the Covid-19 pandemic affected gaming habits?

Microtransactions have grown, with IAP revenue for mobile games increasing by 24% since the pandemic was declared

IAP revenue by day 7, % change



To benchmark in-app purchase (IAP) revenue, we look at the revenue generated by players within their first week of playing a mobile game.

IAP revenue typically peaks during the traditional December holiday season, but this year, record highs posted in March and April, compared to 2019's holiday numbers.

How has the Covid-19 pandemic affected mobile game advertising?

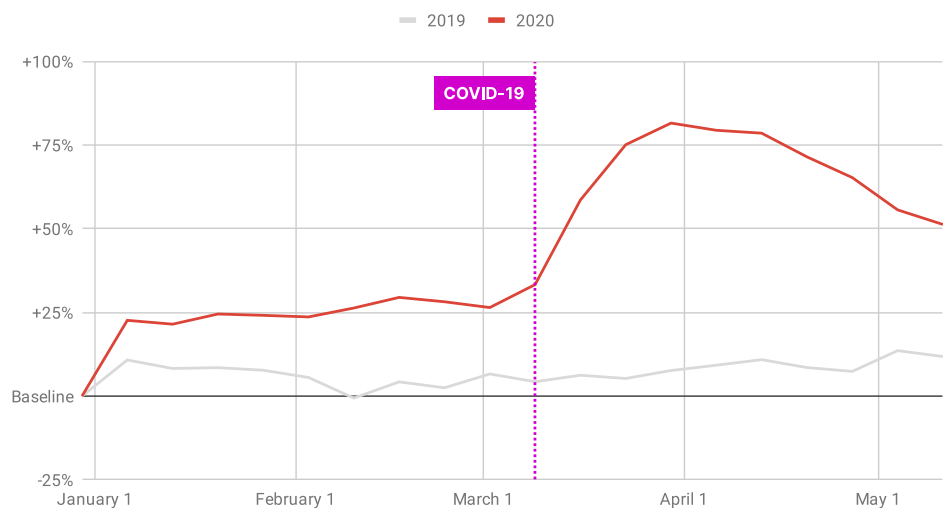
05 How has the Covid-19 pandemic affected mobile game advertising?

Mobile gaming ad impressions increased by 57%, and ad revenues surged by 59%

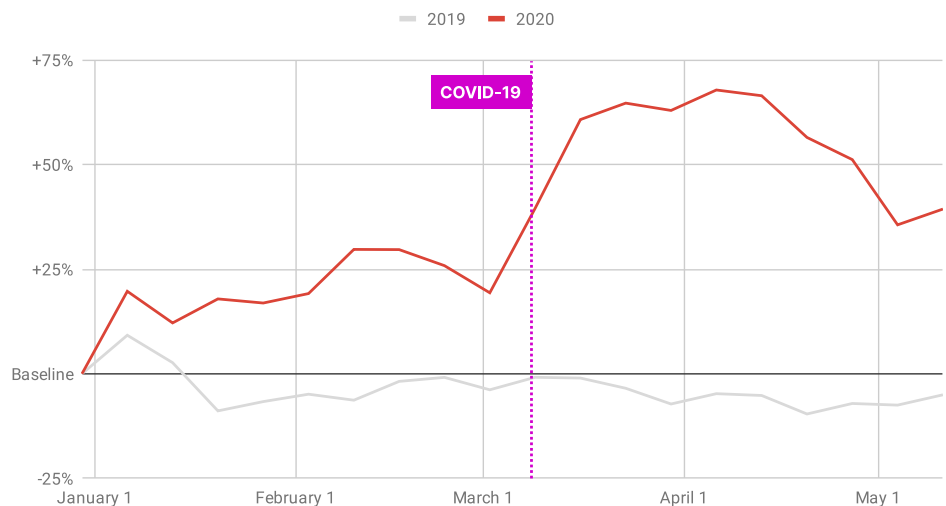
As detailed in our [2020 Mobile Game Monetization Report](#), mobile ad revenue has grown tremendously over the last few years. However, the effect of COVID-19 on mobile gaming ads is unprecedented.

In the weeks following March 8, ad impressions for mobile games were 57% greater in 2020 than for the same period in 2019. The increased number of players led to record-high levels of ad revenue in the mobile gaming ecosystem. Similarly, ad revenue percentage growth was up 59% compared to 2019.

Mobile gaming ad impressions, % change



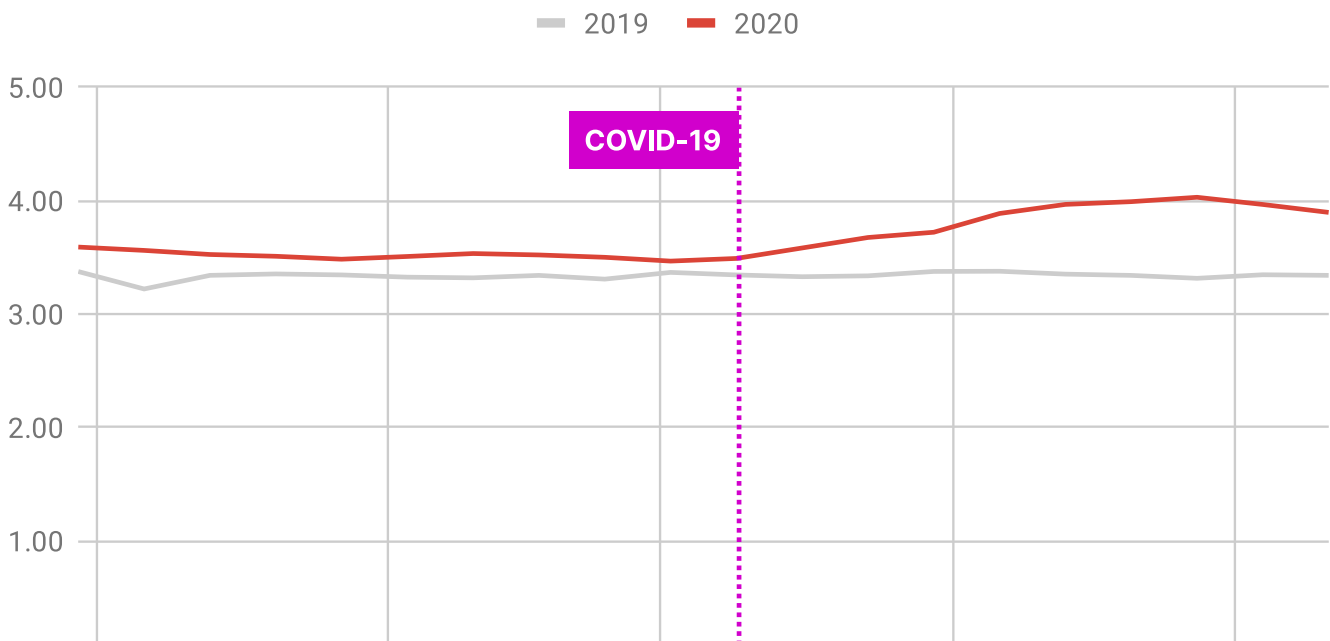
Mobile gaming ad revenue, % change



06 How has the Covid-19 pandemic affected mobile game advertising?

Among mobile game players who watch ads, average number of ads watched increased by 14%

Average # of ads watched per ad watcher



Users in mobile games with ads generally watch 3-4 ads per day. We benchmarked this at around 3.3 ads in our [2020 Mobile Game Monetization Report](#), but in the wake of the pandemic, this number has stabilized to an average of 3.8 ads per daily ad watcher.

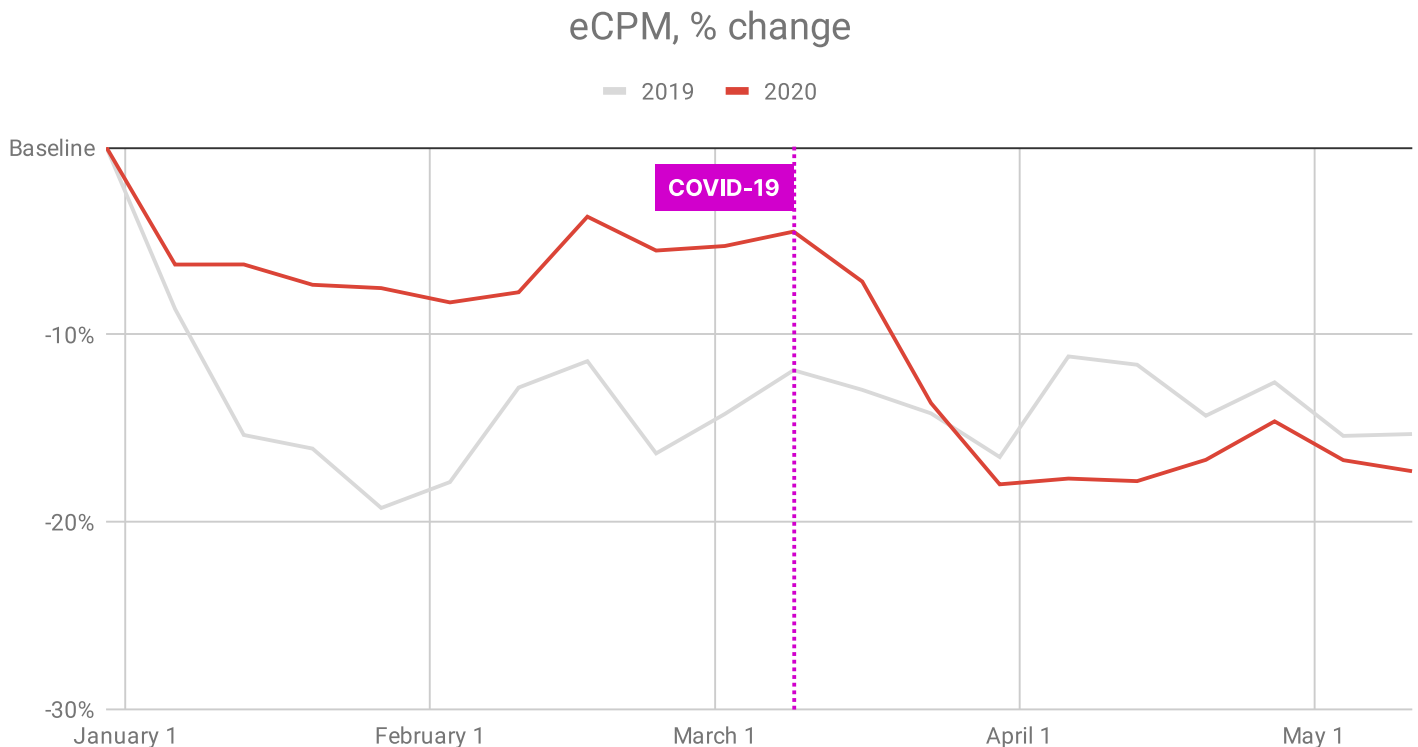
While an increase of 0.5 ads per day may not seem like a lot, this translates to a huge volume influx when factored across millions of users playing mobile games.

07 How has the Covid-19 pandemic affected mobile game advertising?

Individual average eCPM decreased by 3% compared to 2019

Effective cost per mille (eCPM) typically decreases post-holiday at the beginning of the calendar year, but it levels out around March. However, with 2020's increased volume and conversion rates across the board, coupled with a decrease in brand and non-gaming marketing campaigns, individual average ad performance decreased more than usual in March.

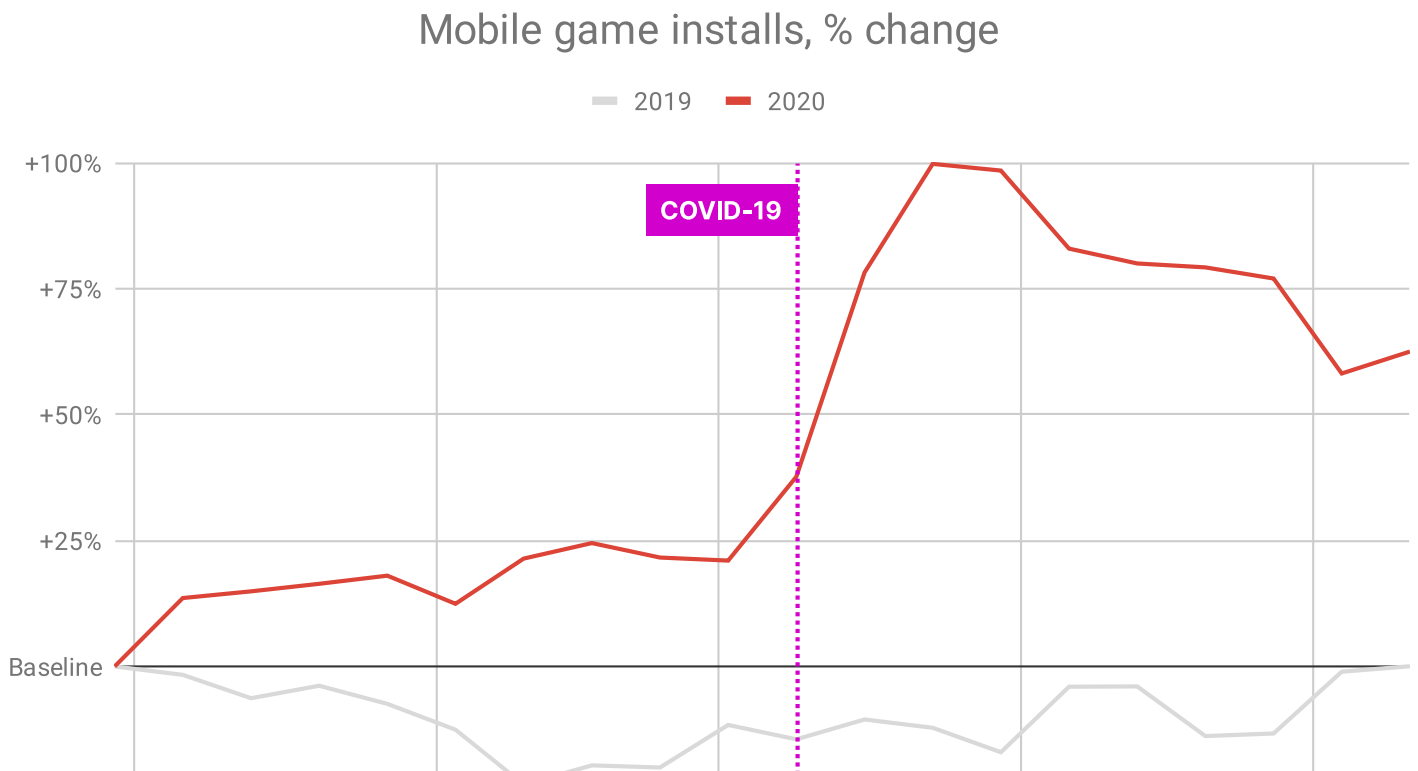
For game developers using ads, overall revenues were still up due to higher volumes outweighing this performance decline.



What has changed for mobile game user acquisition?

08 What has changed for mobile game user acquisition?

Mobile gamers are installing **84%** more apps

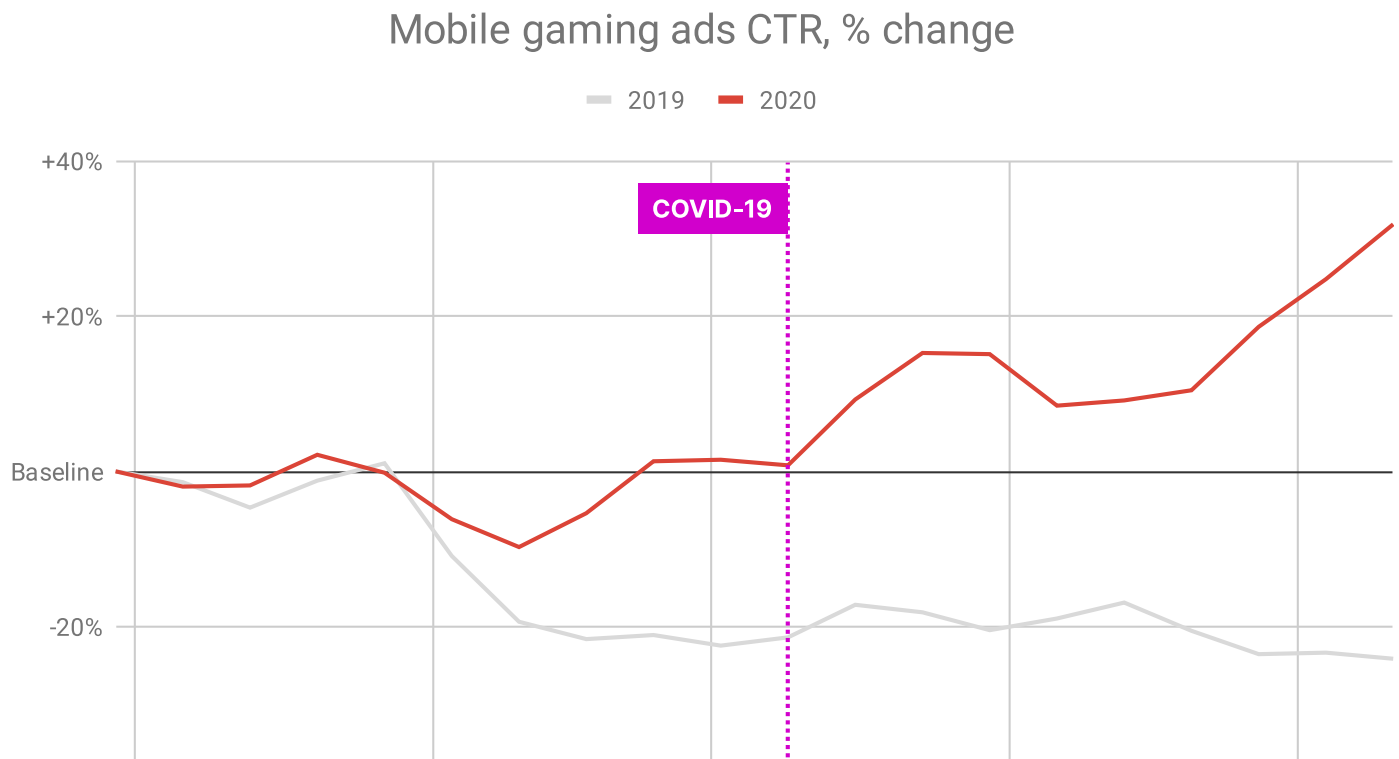


Along with an increase in the number of players came a record number of mobile game installs. This year was already performing at about 13% above the baseline, but the effect that pandemic conditions had on install numbers in early March is extraordinary.

CTR for mobile gaming ads went up 34% compared to 2019

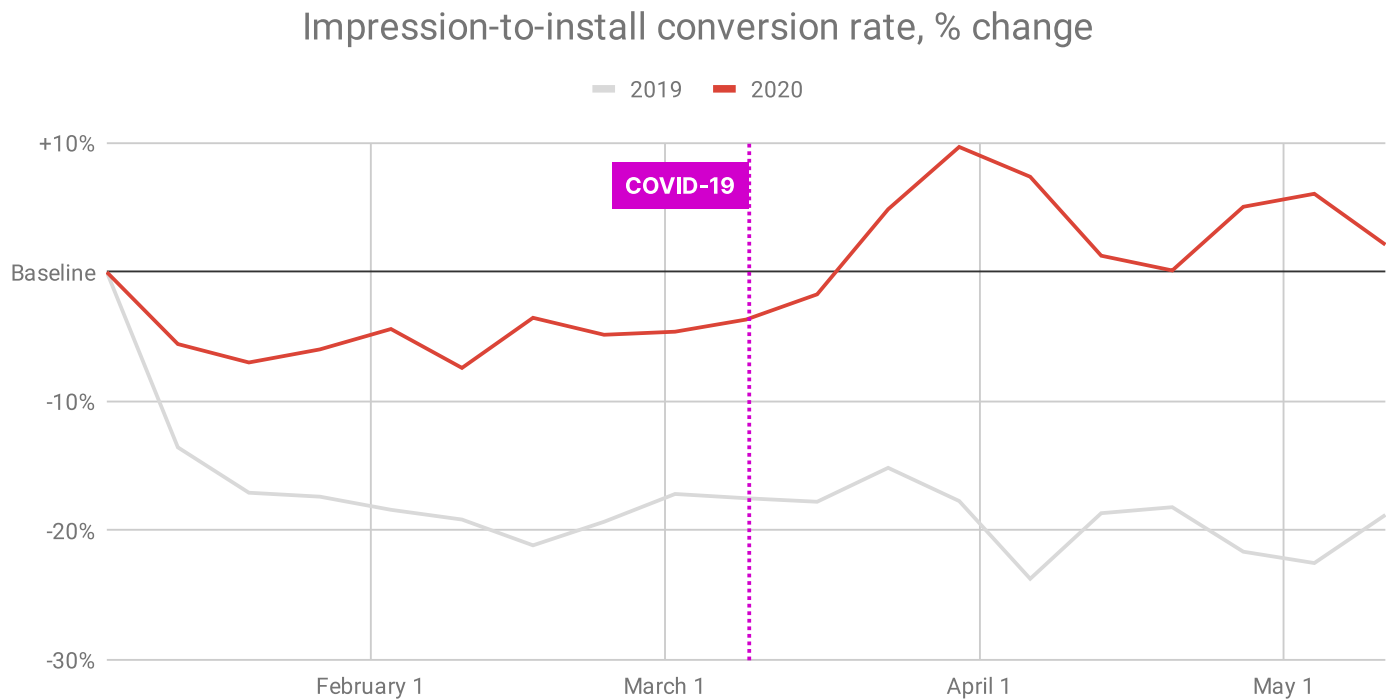
We define click-through rate (CTR) as the number of users who clicked on an individual ad divided by the number of ad views. This is important, since clicking on an ad is the first active engagement step in the marketing funnel toward a desired action, such as an app install.

CTR generally falls in the range of 1-2%, but due to the millions of ad impressions that flow through the gaming ecosystem, even small adjustments can cause large changes down the funnel. As the COVID-19 situation evolved into a pandemic, CTR deviated from the usual decline in February to spike in March to levels higher than those typically seen during an active holiday season.



10 What has changed for mobile game user acquisition?

Mobile ad viewers are converting at higher frequencies, with install conversion rates up by **23%**



Conversion rate for users installing mobile games from advertising views went up since the pandemic was declared, which means a higher percentage of players who viewed ads ended up installing the apps they watched ads for.

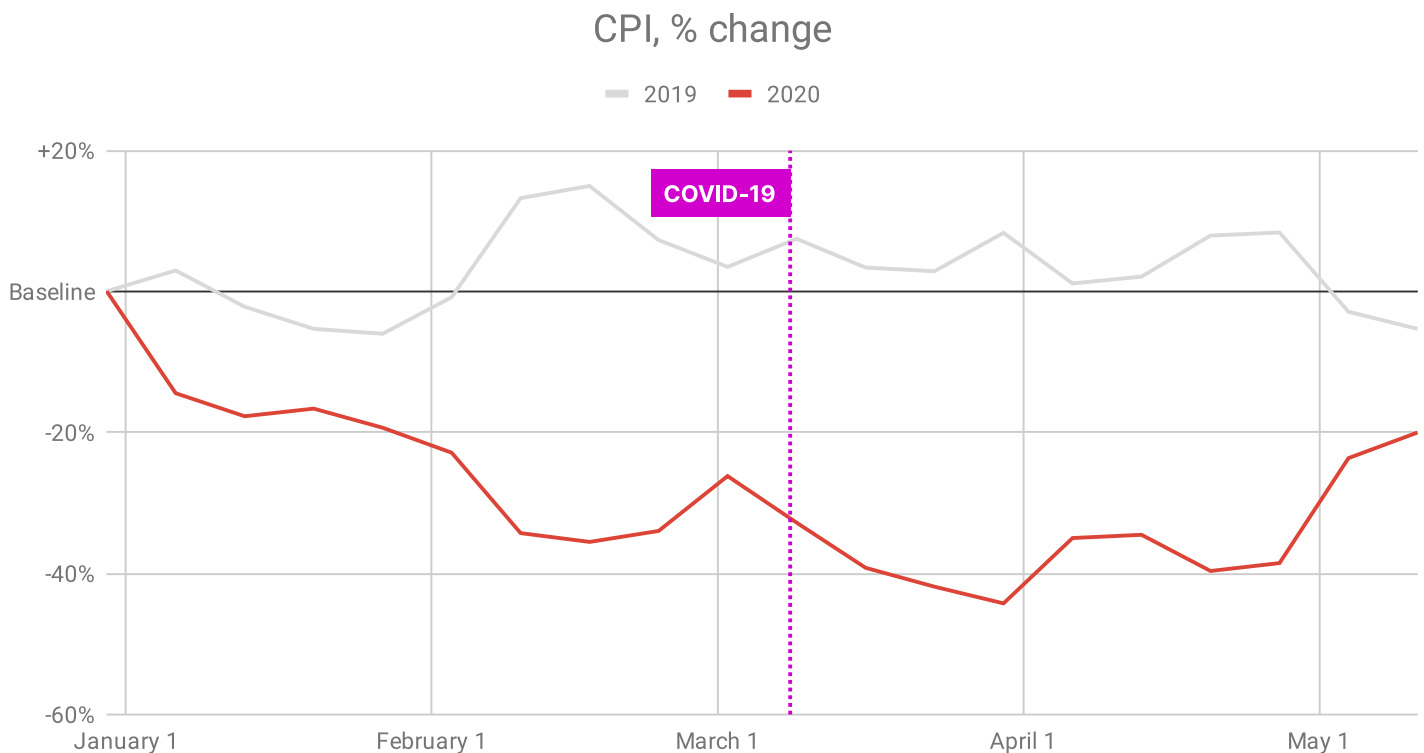
Improvements to Unity's ad-serving algorithm year over year already had 2020 performance benchmarked higher than 2019, but the pandemic's bump is noticeable a week after the official declaration. This 1-week delay is due to the 7-day delay window used when tracking install attribution.

11 What has changed for mobile game user acquisition?

Average CPI for mobile games dropped by 33%, so new users are more affordable than ever to acquire

There's been an unprecedented decrease in cost per install (CPI) for gaming apps as non-gaming advertisers pull back their budgets. This means that fewer competitors are vying for the same user's eyeballs.

It's not all roses though. A drop in CPI is great for advertisers who wish to acquire users at a cheaper rate, but the revenue that publishers get from ads may suffer due to the decrease in eCPM.



How has the Covid-19 pandemic affected different areas of the world?

Different countries showed similar performance spikes corresponding to the timing of stay-at-home restrictions

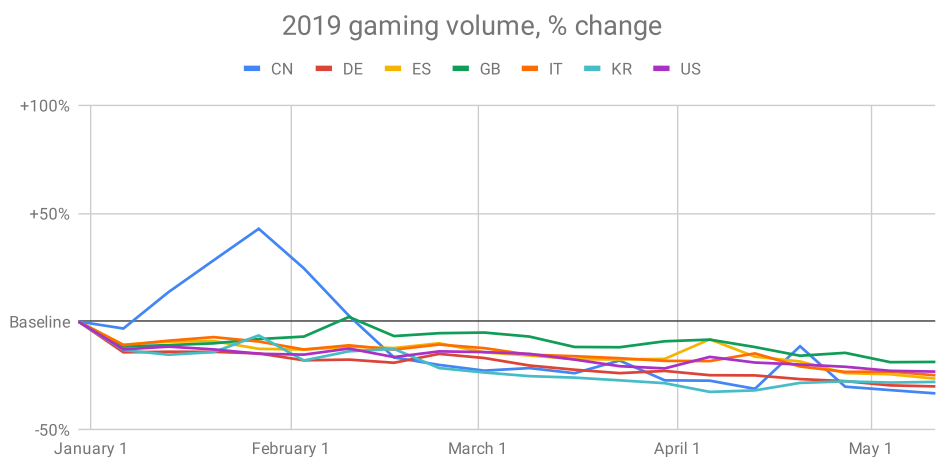
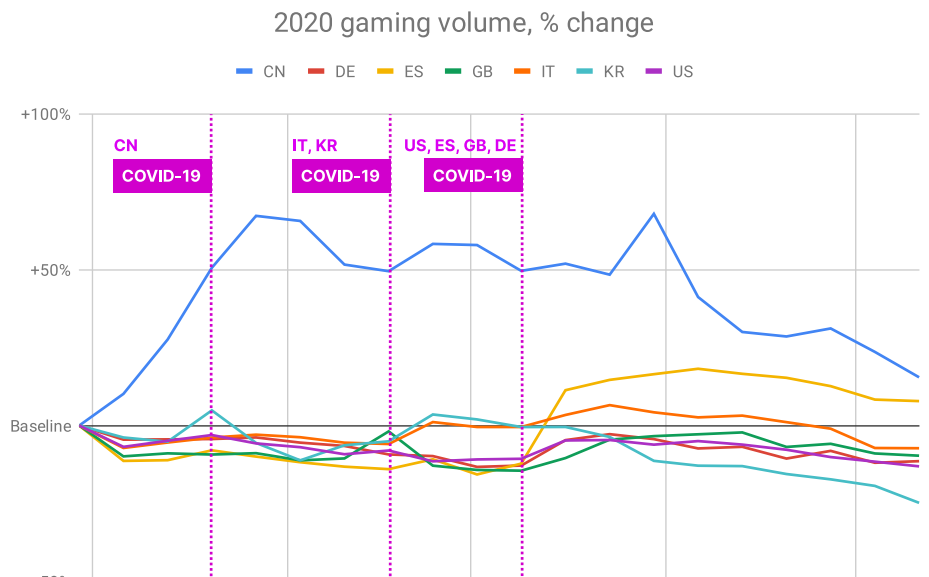
The world responded to COVID-19 similarly, but lockdowns all started at different times.

China was first to implement stricter methods, with authorities imposing a lockdown on Wuhan province on January 23, 2020.

Italy followed on February 23, with Lombardy and northern provinces entering lockdown after a surge of confirmed cases. The entire country would be locked down by March 8. South Korea followed a similar timeline, with residents of Daegu on February 20 asked to stay home.

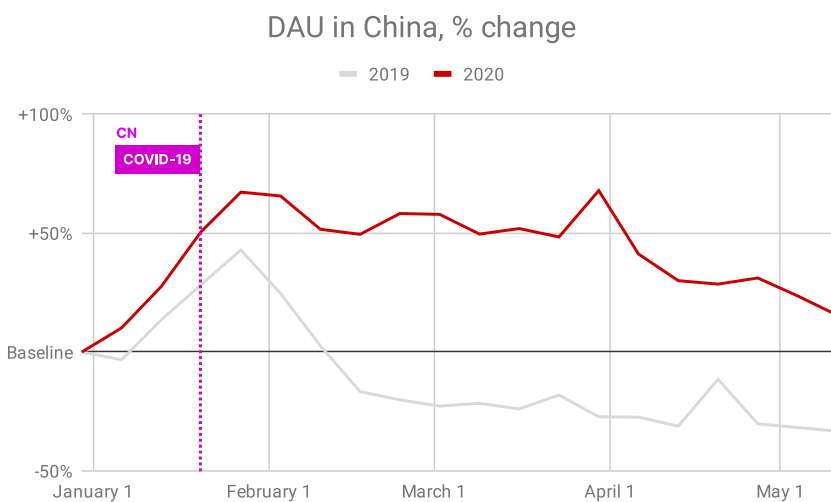
Much of western Europe and the US were enacting stricter measures as the WHO announced the global pandemic on March 11.

Gaming volume usually experiences a decrease immediately following the traditional December holiday season, and the data from 2019 demonstrates this pattern, but 2020 defies that trend and shows the effect of global pandemic conditions surpassing holiday numbers.



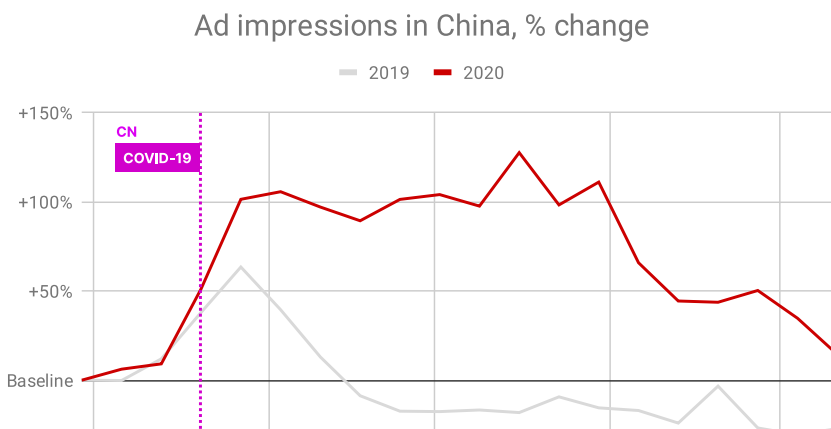
13 How has the Covid-19 pandemic affected different areas of the world?

China's seasonal spike from Chinese New Year was increased further due to Covid-19 by 51%



Chinese New Year signifies a huge upward spike for gamers in one of the most populous regions in the world, but Covid-19's effects compounded this trend. Wuhan's lockdown on January 23, 2020, coincided with Chinese New Year celebrations on January 25.

We've used DAU and mobile ad impression traffic as proxies of overall traffic, since they give a sense of scale per user along with how much money is flowing through the ecosystem.



Usage spiked during 2019 Chinese New Years, but in 2020, Covid-19 has had the effect of adding onto the spike and sustaining the increase for several months, even as restrictions have been eased.

Has the Covid-19 pandemic affected what players play?

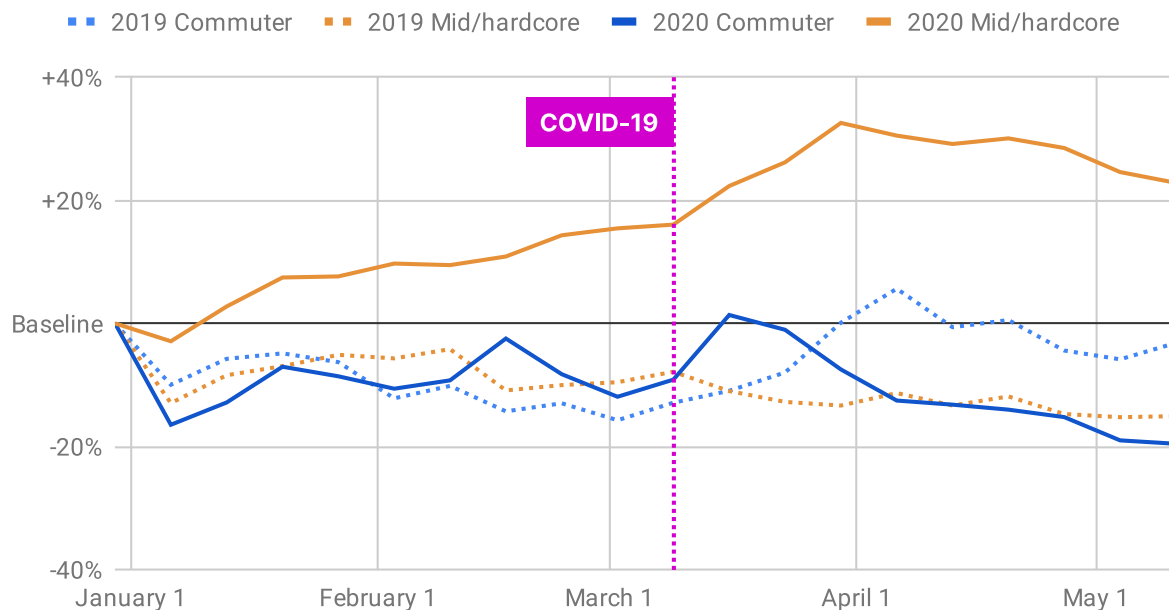
14 Has the Covid-19 pandemic affected what players play?

Engagement on “Commuter” apps decreased 7% in volume, while mid- and hardcore apps increased 39%

Thanks to their portable nature, a lot of mobile games see activity when players are on the move. A certain subset of gaming apps – “commuter” apps – have play patterns that make them easy to play while commuting on public transit like buses and subways. They also have shorter play sessions, which makes them easy to pick up and put down during the workday.

On the opposite end of the spectrum, mid- and hardcore mobile games demand longer stints of player concentration. These games mirror the gameplay depth found in PC titles, and some of them are even direct ports of PC titles.

Commuter and mid/hardcore DAU, % change



The growth of mid- and hardcore app usage noticeably spikes around the week of March 8, 2020. However, the months leading up to the global pandemic saw these apps performing better than in 2019. This can be attributed to the earlier rollout of epidemic control measures in Asian countries like China, South Korea, and Japan, where mid- and hardcore mobile apps are more popular.

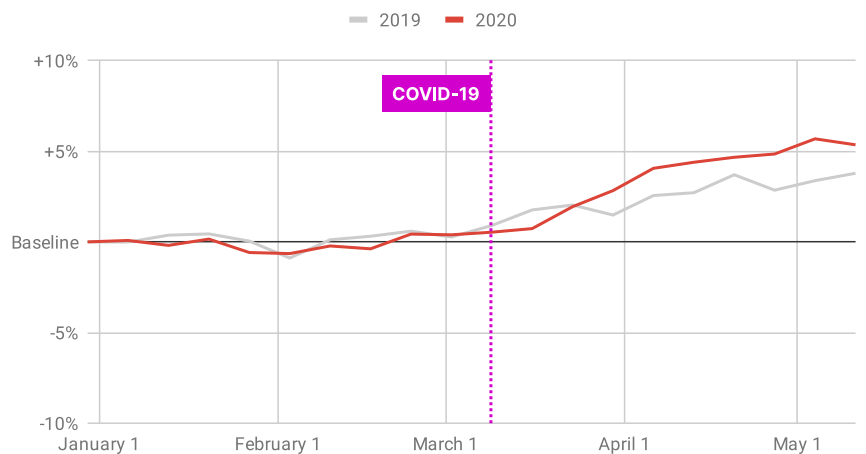
Number of mobile sessions increased by 10%, while HD gaming remained roughly the same

The number of average mobile gaming sessions per player tends to increase over the early part of the year as people return to work, since mobile games are bite-sized experiences that can be played while commuting or during lulls in the work-day. This usually levels out during the spring as people’s work schedules become more demanding. This metric doesn’t necessarily mean that people play longer throughout the year, but that the average player will play at a higher frequency.

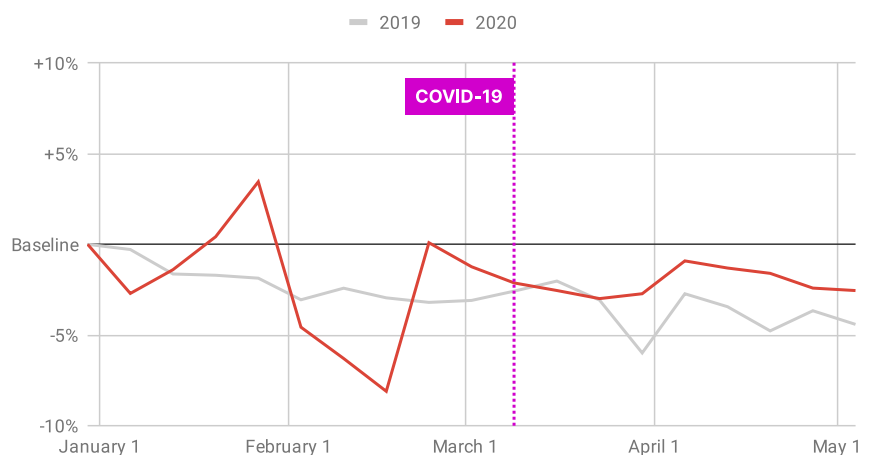
After the Covid-19 pandemic was declared, the normalized session count per player has increased to above last year’s benchmark. The year-over-year gap has widened since the onset of the pandemic.

The number of HD gaming sessions per player is generally inconsistent due to the effect of large game launches in a limited sample pool. We did not see a significant change in response to Covid-19 conditions.

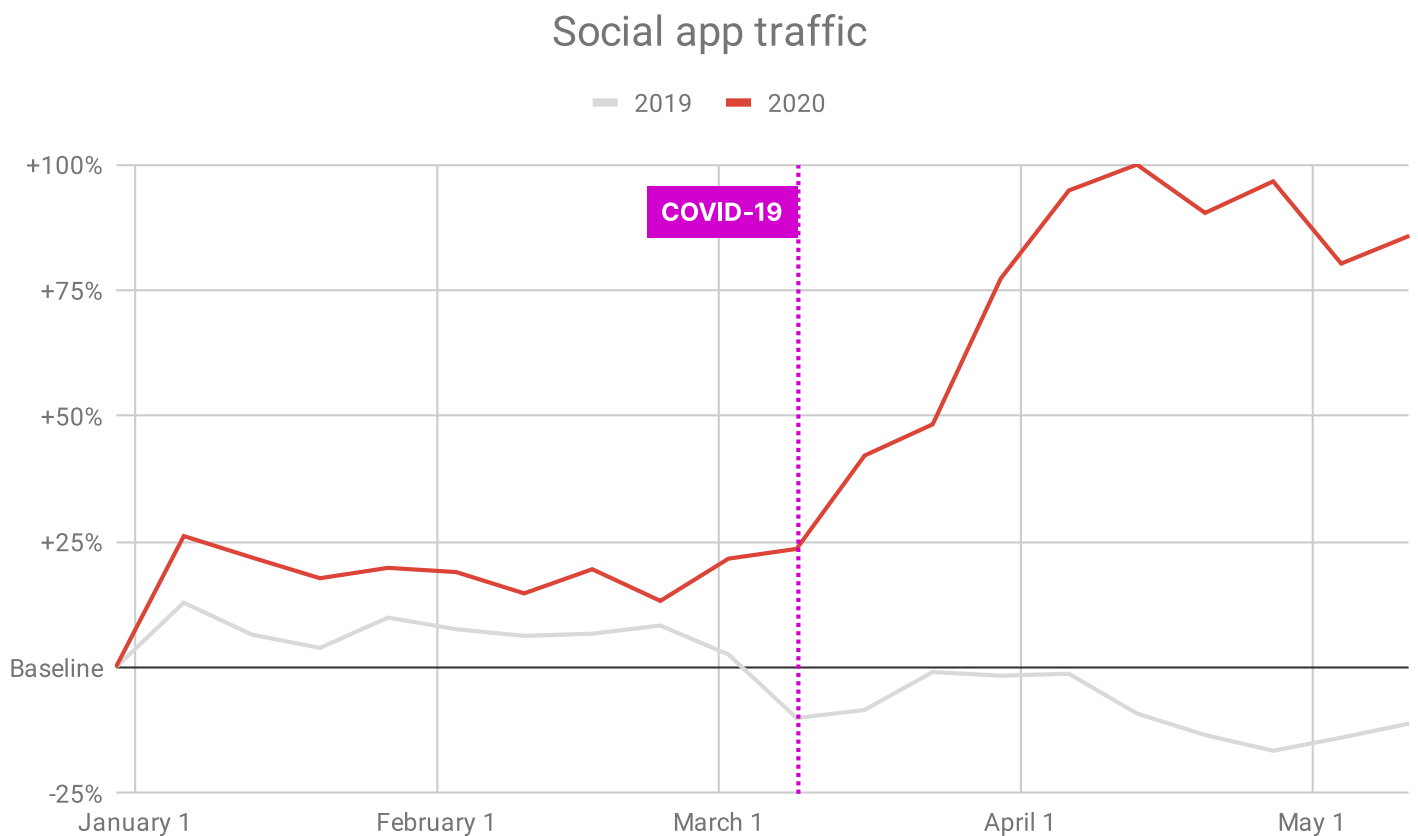
Mobile # of sessions per player, % change



HD # of sessions per player, % change



Social networking apps and social gaming traffic increased by 83%

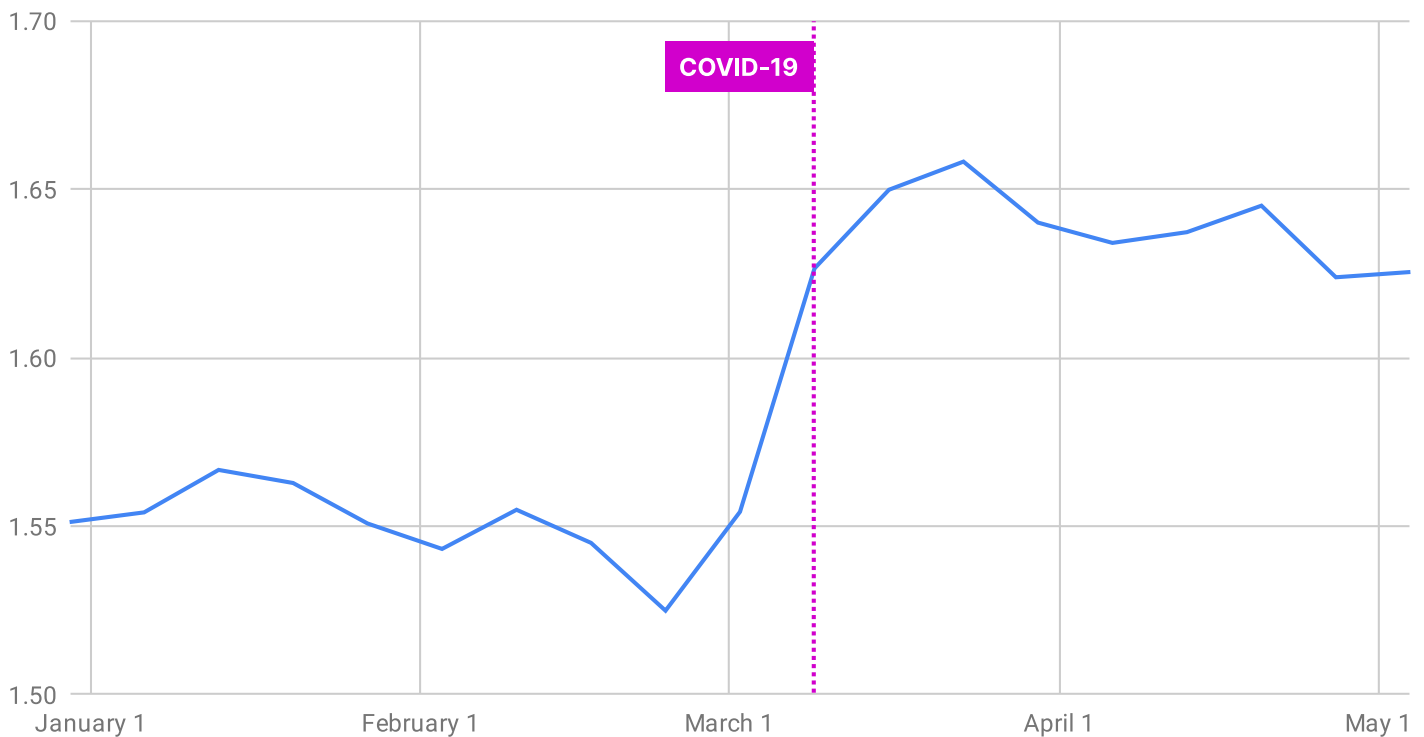


Generally, social apps decline in usage during the spring and summer as people spend time outside, but Covid-19 pandemic conditions have caused traffic for these apps to skyrocket. While gatherings of people are widely discouraged, social apps and multiplayer features have seen increased usage.

Players are playing more mobile games than ever, with simultaneous games per user up by 5%

During non-pandemic times, users on average play about 1.5 games at a time. Many users play only one game, and a good majority play 2-4. The COVID-19 event seems to have caused a shift: for the first time ever, many one-game-only users have picked up another app to occupy their newfound free time.

2020 average # games played per user



Do users who started playing games after the pandemic was declared behave differently?

18 Do users who started playing games after the pandemic was declared behave differently?

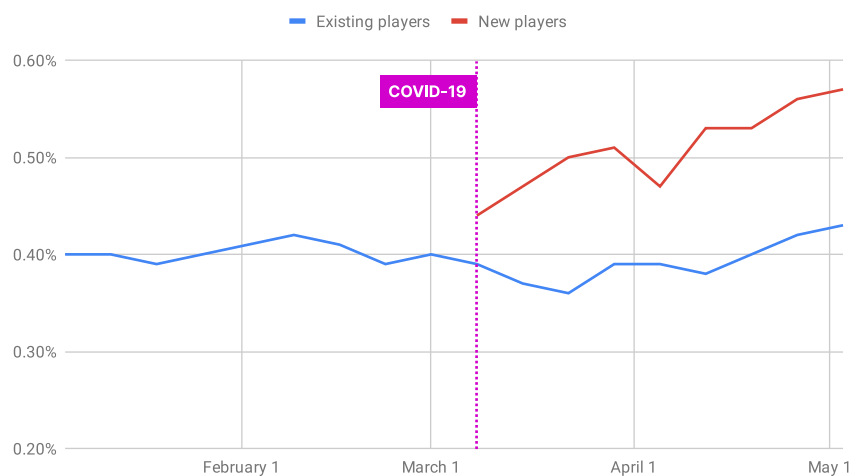
“Pandemic gamers” convert **27.5%** more often to paying users, but generate **8%** less daily revenue

Games are certainly getting more users than ever, but are those users generating IAP revenue for developers?

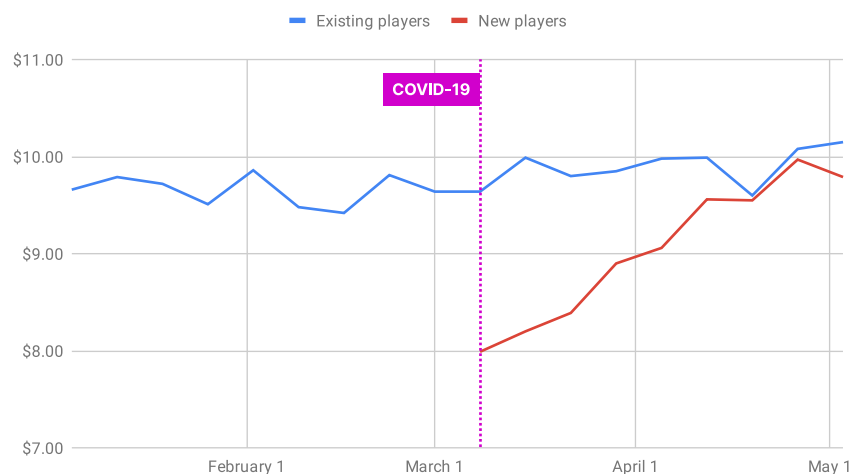
Players who started playing since the pandemic was declared convert to paying players at a higher frequency than longtime gamers, but their daily average revenue per paying user (ARPPU) was far lower.

As the initial boom of new players from Covid-19 conditions levels off, ARPPU for this cohort begins to normalize to metrics similar to past years. Daily ARPPU approaches that of existing players as the pandemic gamers filter out due to regular attrition, so remaining paying users in the cohort conform to the existing player spending.

2020 payer conversion %



2020 daily ARPPU

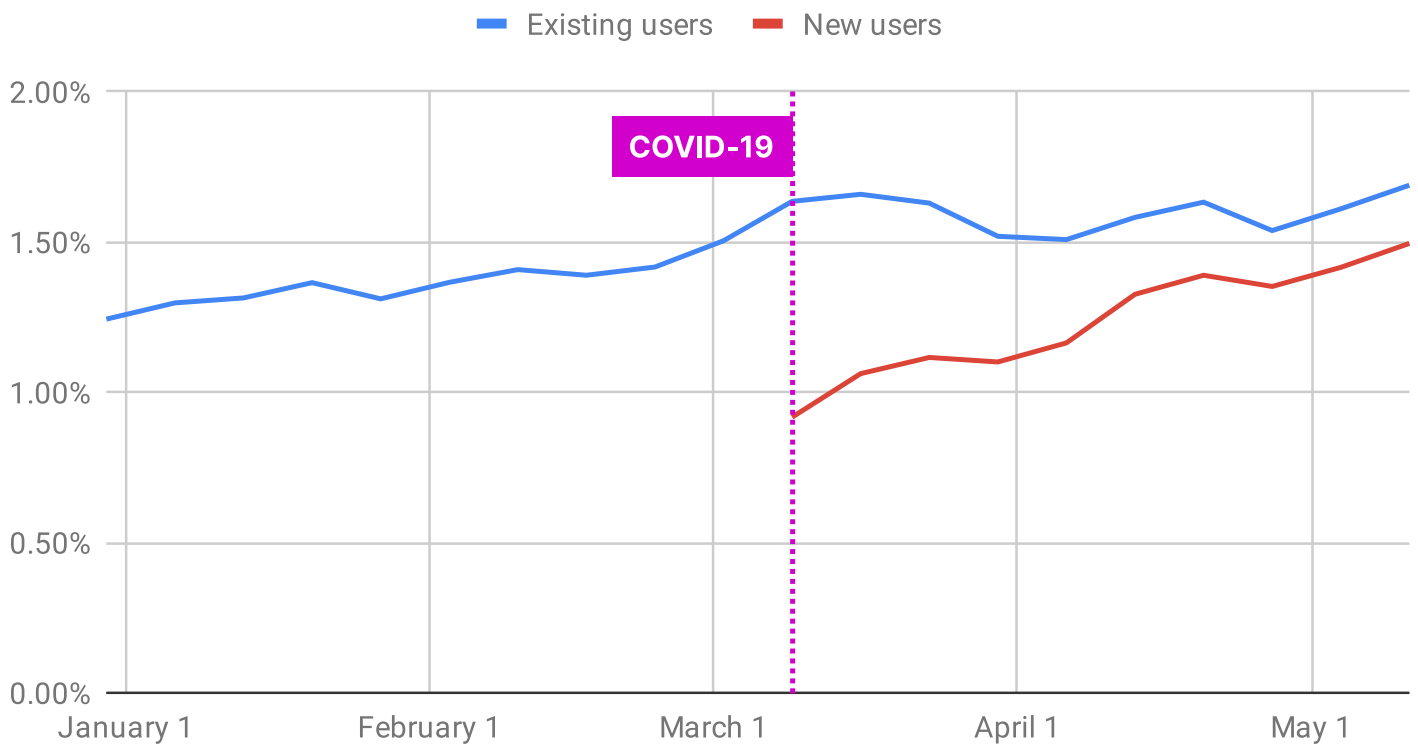


19

Do users who started playing games after the pandemic was declared behave differently?

Mobile app “pandemic gamers” installed **30% fewer apps from mobile ads** than existing users

2020 install conversion % for mobile ad viewers



While overall conversion rates have gone up due to existing users converting more often, the new cohort of users brought in by Covid-19 conditions have a lower tendency to install apps when viewing mobile ads. This gap narrows as time progresses and behavior of the new user cohort conforms to established trends.

What's next?

For game developers and publishers

The COVID-19 pandemic represents an unprecedented event in the highly competitive gaming industry. As revenue streams like IAP fluctuate, we recommend that game developers consider adding another revenue source, such as ad revenue, to their monetization stack.

For more information and support tailored to your app and business, [contact Unity's account team](#).

For advertisers

CPI for user acquisition has never been lower for gaming apps due to lack of competition from traditional demand media and an audience eager to pay attention.

[Contact Unity's performance demand team](#) to learn more.

As for brand buyers, the lack of competition in the space also means great opportunities to reach gaming audiences, which have grown tremendously during this time of limited movement and interaction.

[Contact Unity's brand demand team](#) to learn more.

For everyone

Our top priority remains the safety and health of all Unity developers, partners, employees, and gamers around the world. If you're looking for health-related guidance or advice concerning Covid-19, please consult a competent health professional or visit the [World Health Organization's Covid-19 website](#) where you can find information related to country-specific guidelines.

Authors

Emory Irpan, Head of Publisher Operations, Americas

Before leading Unity's Publisher Operations team, Emory worked on multiple indie games and AAA franchises like The Sims and Call of Duty as a producer and product manager. Currently, he's playing Clash Royale, Fallout Shelter, Monster Hunter: World, Puzzle & Dragons, and Words With Friends.

Nathan TenBoer, Publisher Operations, Americas

Nathan has over six years experience in BI and Data Analytics, and was with GSN Games before joining Unity. Lately, he's been playing Teamfight Tactics, Ori and the Will of the Wisps, and Valorant.

Arjun Gohil, Publisher Operations, Americas

Having worked for Electronic Arts and Ubisoft in various BI and Analytics roles, Arjun comes from a rich data background in the gaming industry.

Russell Young, Analytics Consultant, deltaDNA

Russell works with the Unity deltaDNA Player Experience Consulting team, which specializes in game audits, due diligence and workshops. A Tableau Desktop Certified Associate, he previously worked as an analyst in housing and international health. He is currently playing Cards, the Universe and Everything (CUE).

Special thanks

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Unity Client Partner, Performance Ads team

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