



Adobe Digital Economy Index

Vivek Pandya and Costa Lasiy
Federal Economic Statistics Advisory Committee
Adobe Analytics | June 2020



Overview

- Adobe's Digital Economy Index (DEI) is a global economic measure for the 21st century that more quickly, comprehensively, and internationally measures the increasing buying power of digital consumers — with greater detail than any other data source currently available.
- Presentation Outline:
 - Adobe Digital Insights team intro
 - Methodology and data
 - The Digital Economy Index
 - Ecommerce spend tracking
 - Flights data

Adobe Digital Insights Team



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Why we're introducing DEI in an evolving landscape

Before the COVID-19 situation:

- The digital economy has been growing faster than the economy as a whole.
- Inflation has been historically low—influenced by falling prices online.
- Online shopping has been converging with offline as click-and-collect, one-day shipping, and other services let people transact online for a wider variety of goods and services.
- Mobile shopping has allowed people to shop and buy from anywhere at any time.
- Online shoppers have become accustomed to being able to compare and buy products around the world and have them shipped to their door.
- Similarly, e-commerce companies have come to expect competition from around the world.

In this growing global digital economy we need a metric that can track online prices across nations and enables consumers, companies, and policy makers to understand the trends, similarities, and differences across industries and countries.

In today's reality:

- Economic policymakers need insights fast turn-around insights to manage a global health and economic crisis.
- Online shopping has become the primary means of commerce populations around the world as purchases previously made in person are shifted online.
- Shoppers' baskets have shifted toward items related to health, working from home, and social distancing.
- Companies are adjusting to daily changes in demand, supply, and labor availability.

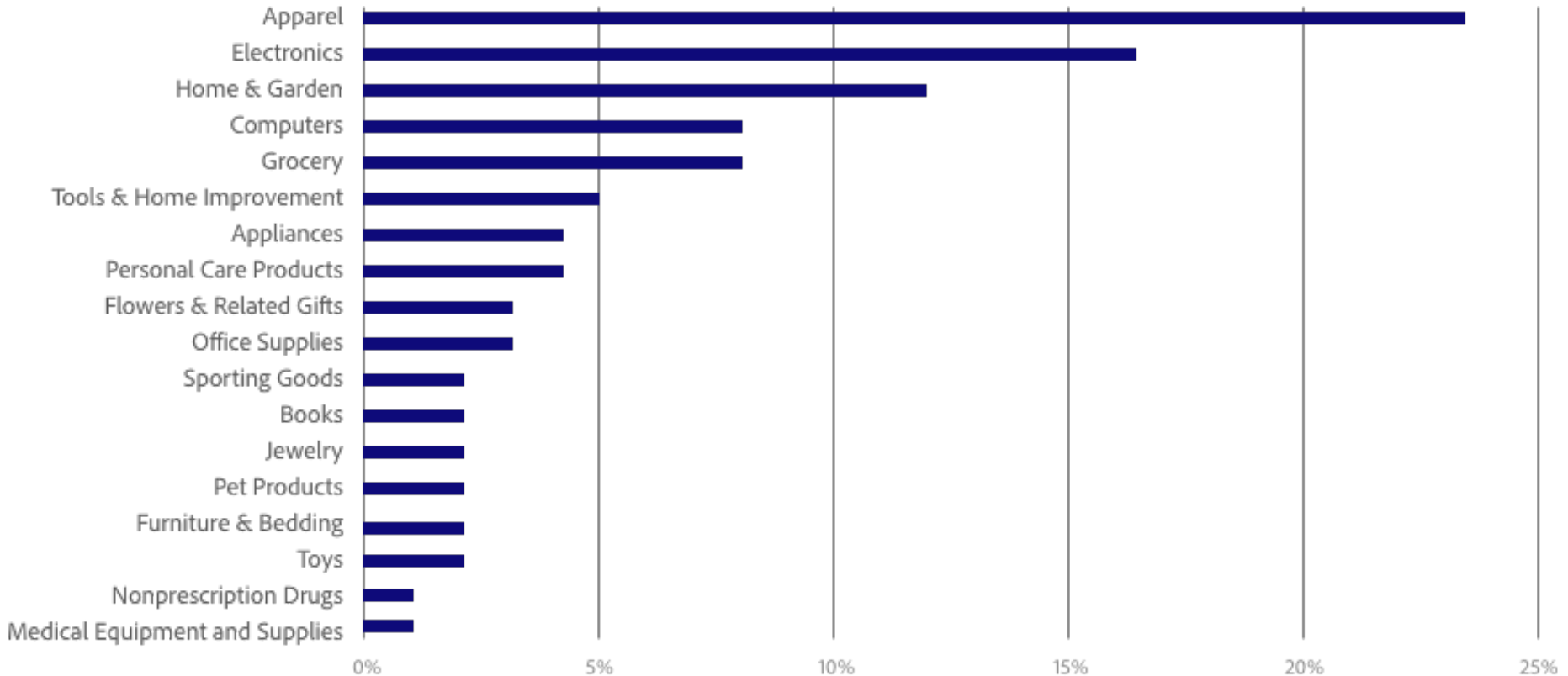
With the global economy rapidly evolving we need a metric and supporting insights that can help consumers, citizens, companies, and policy makers assess their economic world and make intelligent, informed choices about how to help themselves and others.

Digital Economy Index Methodology

The DEI uses the Fisher Price Index to track prices in the world of Ecommerce:

- The Fisher Ideal Price Index uses quantities of matched products purchased in the current period (month) and a previous period (previous month) to calculate the price changes by category.
- The index is **weighted by the real quantities** of the products purchased in the two adjacent months.
- The DEI is powered by Adobe Analytics, which analyzes 1 trillion visits to retail sites and over 100 million SKUs. Adobe Analytics measures transactions from 80 of the top 100 U.S. online retailers.
- Adobe uses a combination of Machine Learning and manual effort to categorize the products into the categories defined by the CPI manual.
- Methodology developed alongside Austan Goolsbee and Pete Klenow

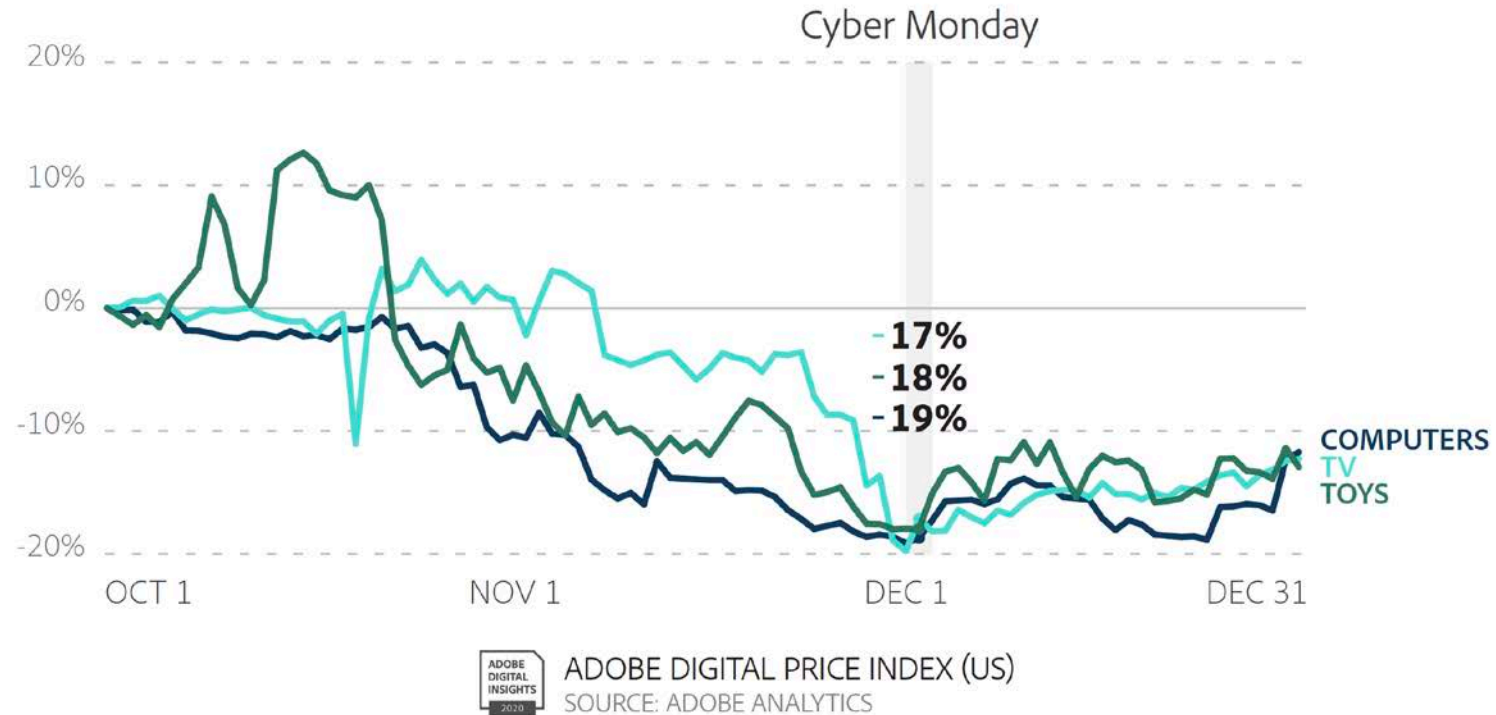
Digital Economy Categories



Online Contribution to Digital Basket (U.S., Jan 2020)

Source: Adobe Analytics

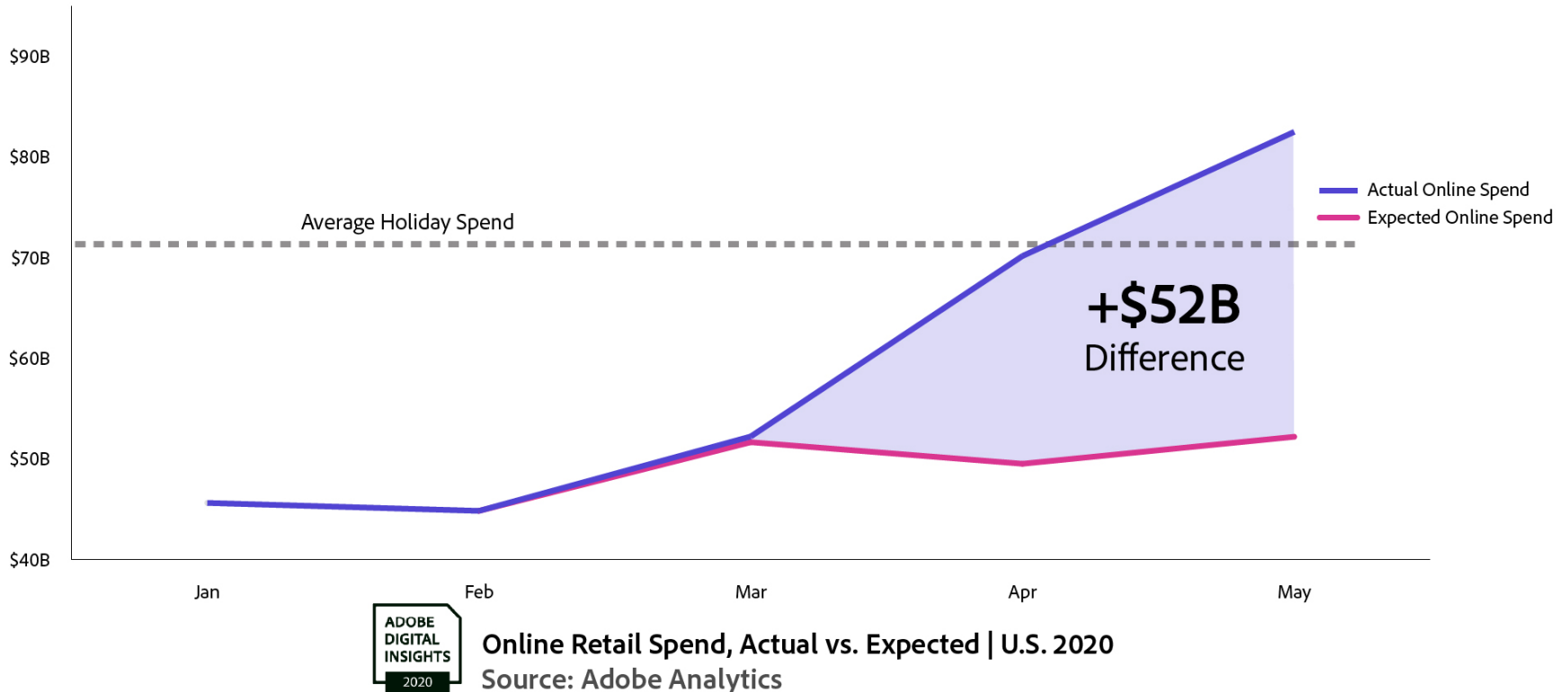
DEI Data Availability



The DEI is available in real-time:

- Adobe is currently calculating the Price indexes on a bi-monthly basis
- The data allows for more granular looks, even at a daily level
- During the holiday season, Adobe tracks prices at a daily level for select categories

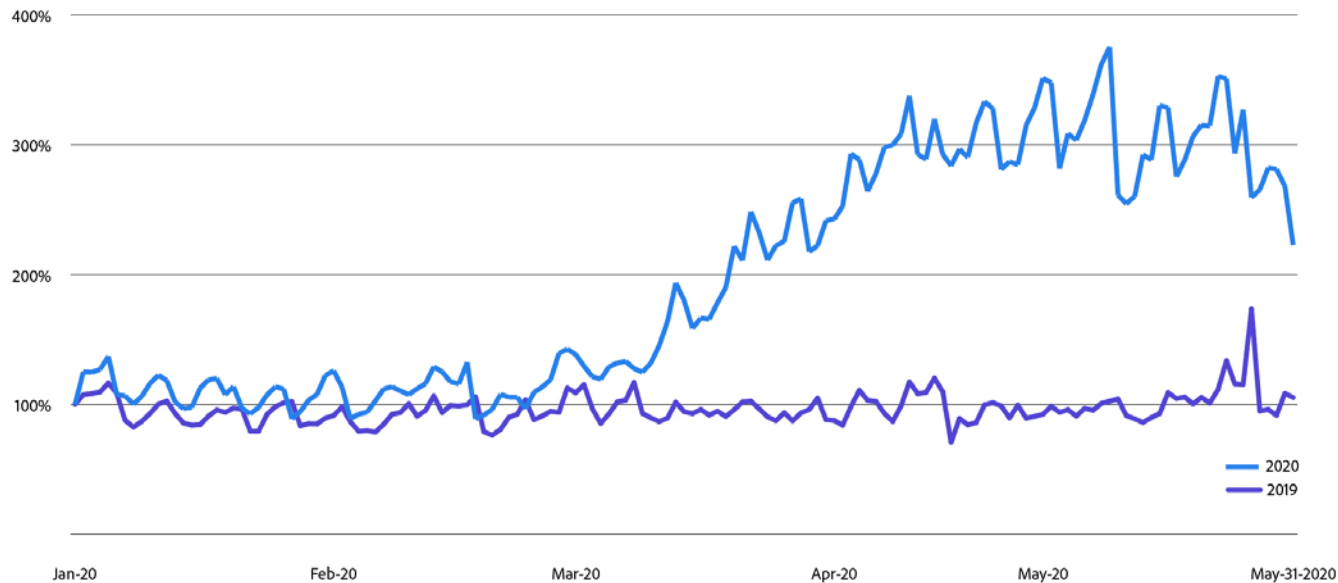
The Rise Of Ecommerce With the Lockdown Measures



- May ecommerce spend grew 78% YoY, reaching \$82.5B
- Electronics sales saw a 58% lift in online sales in April compared to January
- Grocery sales saw a 110% lift in online sales in April

The Line Between Online and Offline Is Blurring

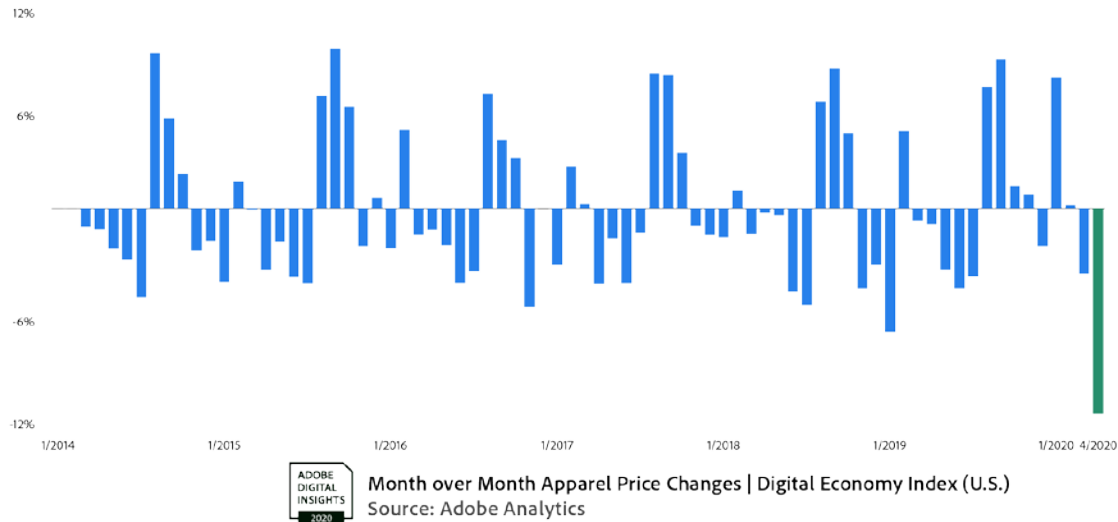
- Even before shutdown measures began, consumers showed a propensity toward the quick Buy-Online-Pick-Up-In-Store “delivery” method.
- During lockdown, BOPIS orders tripled YoY, but have started to come down since the reopening began.
- 46% of consumers reported using their smartphone for comparing prices while shopping in store (Survey, 2018).



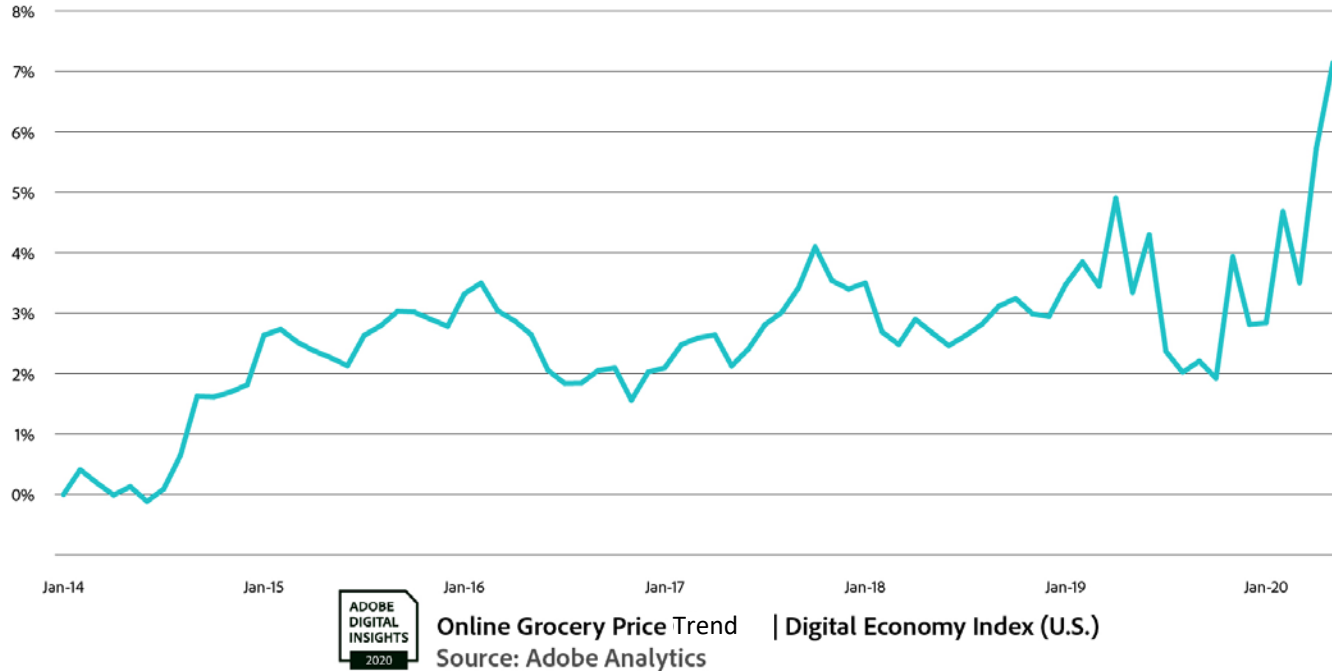
Online B.O.P.I.S. Orders | 2019 vs 2020 (U.S.)
Source: Adobe Analytics

Apparel saw its Largest Monthly Price Decrease in April

- The average apparel price growth for April over the past 5 years has been -2.9%
- This year that growth is -12%
- April saw the largest monthly drop for Apparel in over 5 years.



Online Grocery Prices Tick Up in May, Consumers are feeling the Pinch

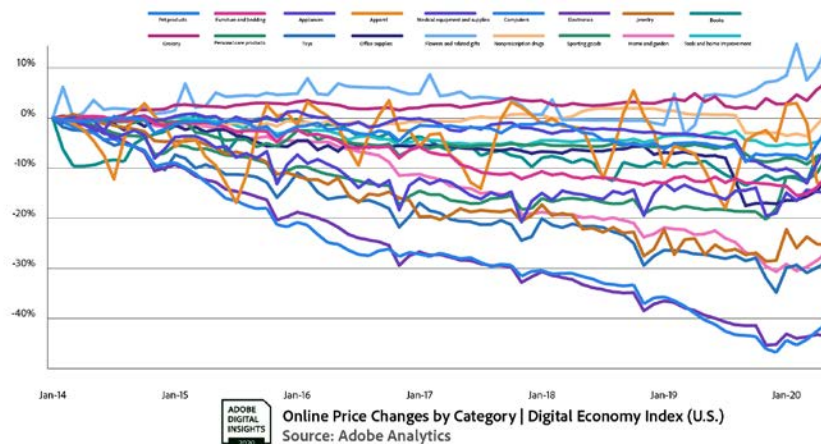
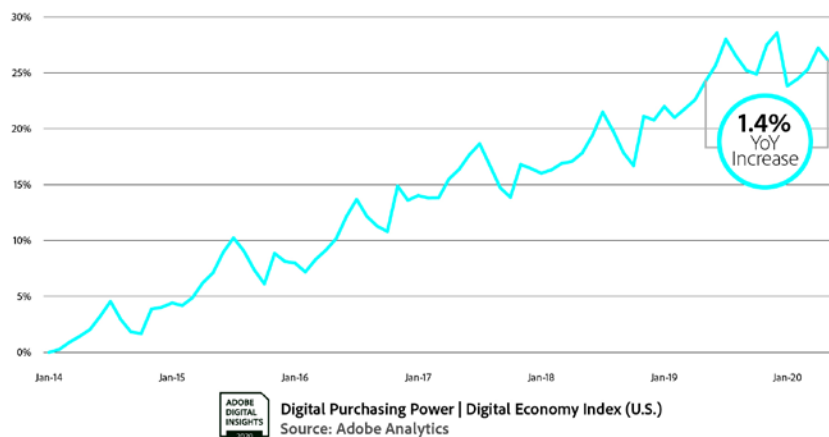


Grocery prices were up in May by **4% YoY** and increased **1.3% MoM**. In our survey, approximately 60% of consumers say that they believe prices have gone up for grocery.

Inflation Throttles U.S. Digital Purchasing Power in May

U.S. Digital Purchasing Power decreased by 1% in May compared to April:

All DEI categories experienced inflation this month, except for apparel, appliances, and jewelry, as a result DPP decreased.



Adobe Flights Data Availability

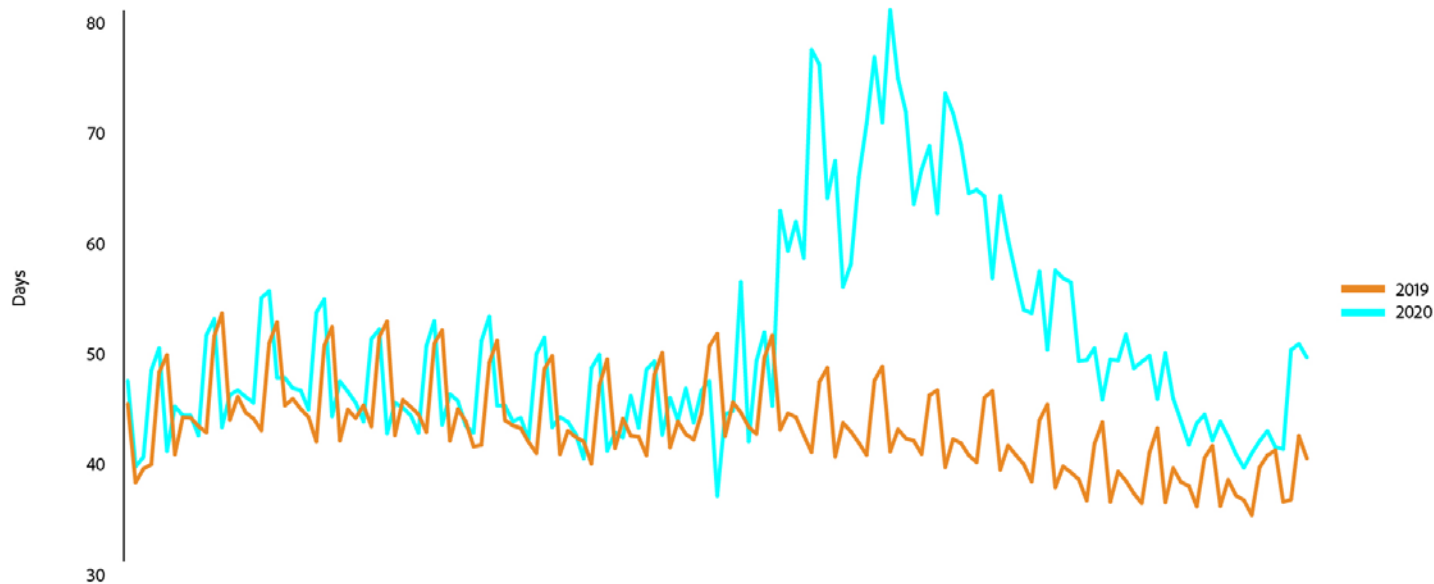
Adobe Analytics measures transactions from 7 out of the top 10 US airlines

The available data captures

- Origin-destination pairs
- Price
- Quantity
- Flight class
- Departure date
- Booking date

Flight Booking Behaviors Returning to Normal

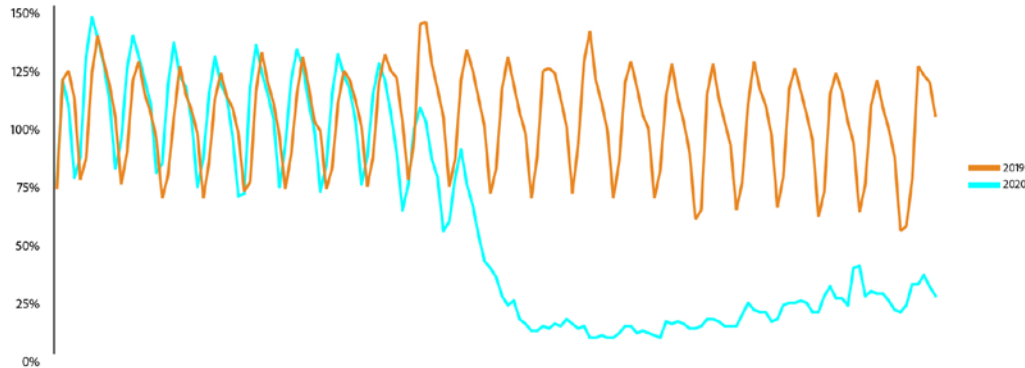
Days between booking and departure date.



Domestic Flight Booking Curve | U.S.
Source: Adobe Analytics

- In mid-March the days to departure started to lengthen among those that still bought tickets, with the booking curve peaking at nearly 90 days the first week of April.
- Since then the time to departure has come down as people are slowly buying more tickets.

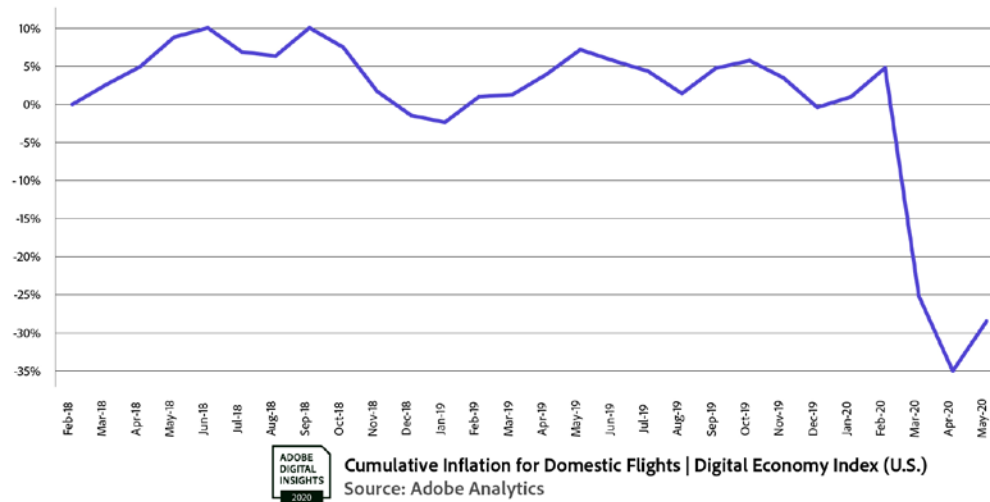
Flight Bookings Are Rising



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Domestic Airline Bookings (Days Since January 1st) | U.S.
Source: Adobe Analytics

Flight bookings have tripled since April 1-7 to May 25-31



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Cumulative Inflation for Domestic Flights | Digital Economy Index (U.S.)
Source: Adobe Analytics

Flight prices increase in May after experiencing significant deflation in March & April, but they are still down 28%.

Average daily revenue relative to first week of January 2019 = 100%
Data thru 31st May 2020

Future Work

- Regional breakouts of the DEI (State/Zip/City)
 - Analysis of purchasing behavior by income using ACS data
- Addition of other countries
- Fluid category weighting
- A category-based breakout of ecommerce growth

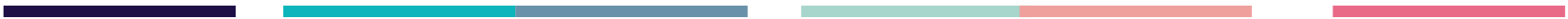
Scope and plan

March announcement

April monthly refreshes begin

Additional countries and “H1 Outlook
Report”

Holiday pricing trends



Stay tuned for updates and data refreshes here:

<https://www.adobe.com/experience-cloud/digital-insights/digital-economy-index.html>

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