

# Analyzing Census Tweets to Develop an Effective Social Media Strategy

Meghana Karthic

Supervised by Rachel Butler, Ben Griffis, Alisha Gurnani, and Rebecca Hutchinson

Economic Indicators Division

# 1

# Motivation



## 2 Objective



**Identify important tweet attributes**  
that will lead to high engagement by analyzing a dataset of 2000+ Census Econ tweets



**Develop template tweets and graphics**  
informed by our findings and recommendations



**Create a foundation for future projects**  
analyzing Twitter data and determining the type of content users will want to see



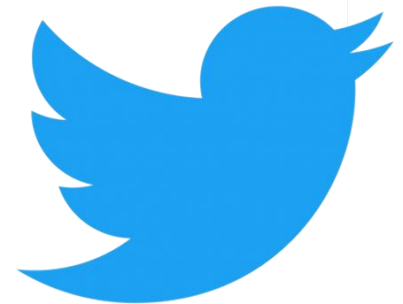
**U.S. Census Bureau** ✓

@uscensusbureau

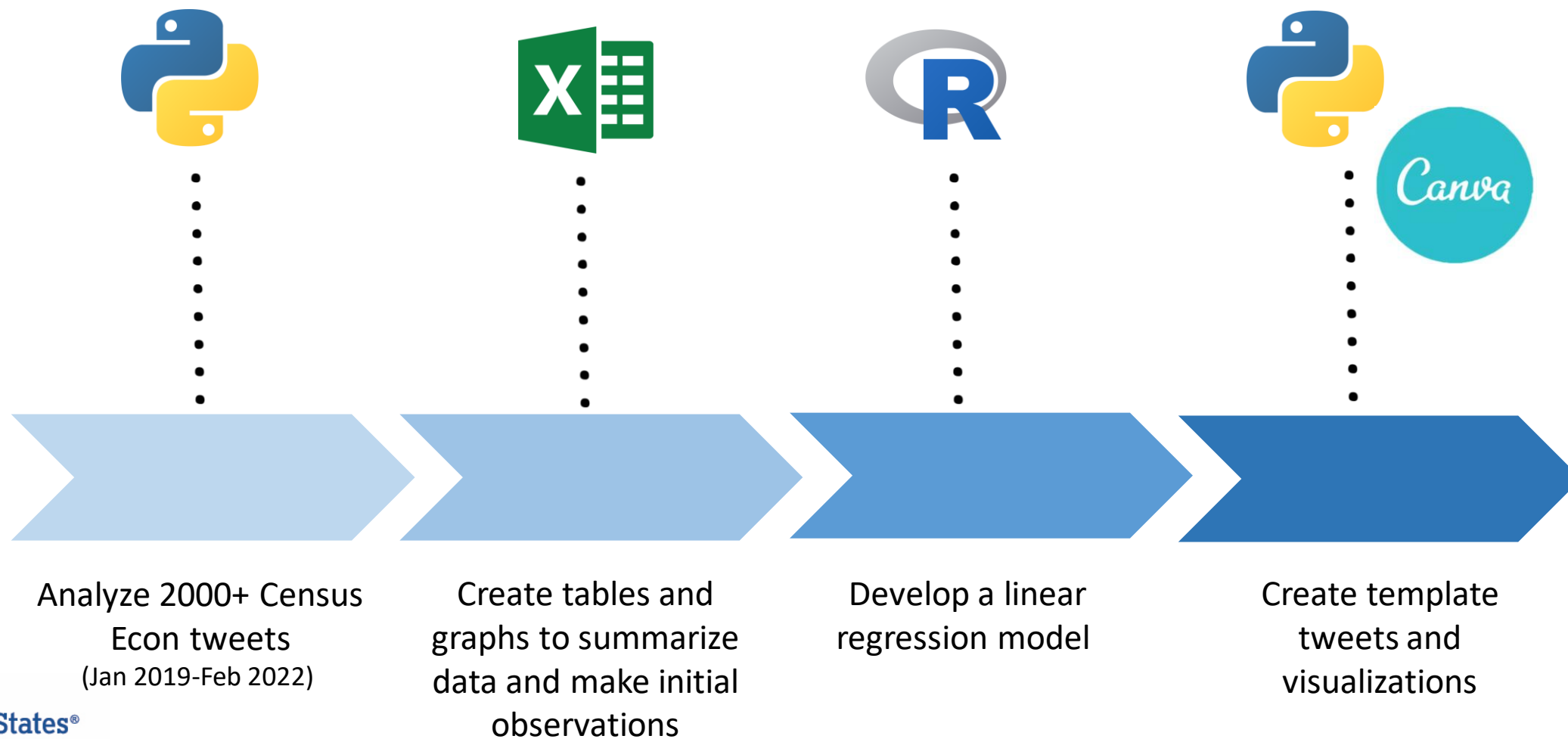
Serving as the nation's leading, trusted source of quality data about its people and economy. Our comment & privacy policy: [go.usa.gov/xMHhg](https://www.go.usa.gov/xMHhg), [go.usa.gov/xkeJw](https://www.go.usa.gov/xkeJw)

[census.gov](https://www.census.gov) Joined March 2009

792 Following 123.8K Followers



### 3 Process



## 4

# Capturing Data with the Twitter API

Attributes informed by:  
**“Maximizing the Tweet Engagement Rate in Academia: Analysis of the AJNR Twitter Feed”<sup>1</sup>**

1	2	3	4	5	6	7	8
Date	Time (EST)	Text	Length (links not included)	Media?	URL?	Poll?	Thread Length (0 = no thread)
2022-02-28	08:14:25-05:00	In 2019, there were 13	218	TRUE	TRUE	FALSE	0
2022-02-24	17:45:02-05:00	New #CensusData relea	203	TRUE	TRUE	FALSE	0
2022-02-24	11:20:01-05:00	Are you a #TruckOwner	242	TRUE	TRUE	FALSE	0
2022-02-22	12:13:01-05:00	The number of U.S. Blac	244	TRUE	TRUE	FALSE	0
2022-02-22	07:10:03-05:00	More #voters (154.6 m	258	TRUE	TRUE	FALSE	0
2022-02-21	17:10:02-05:00	#ICYMI: Phase 8 of the	216	TRUE	TRUE	FALSE	0
2022-02-20	09:05:01-05:00	#ICYMI: Over the past f	251	TRUE	TRUE	FALSE	0
2022-02-19	08:05:02-05:00	Are you a #SmallBusine	246	TRUE	TRUE	FALSE	0
2022-02-17	12:15:01-05:00	Phase 8 of the Small Bu	208	TRUE	TRUE	FALSE	0
2022-02-16	12:05:01-05:00	Over the past four deca	255	TRUE	TRUE	FALSE	0

9	10	11	12	13	14	15
Quan. Position in Thread (0 = no thread)	Qual. Position in Thread	Hashtags	Num. of Hashtags	Retweets	Likes	Replies
0 n/a		['BlackOwned', 'ICY	5	5	9	1
0 n/a		['CensusData']	1	7	7	0
0 n/a		['TruckOwner']	1	3	6	0
0 n/a		['AmericaCounts', 'E	3	8	12	0
0 n/a		['voters', 'elections'	3	13	13	2
0 n/a		['ICYMI', 'AmericaCo	4	3	3	0
0 n/a		['ICYMI', 'AmericaCo	5	2	0	0
0 n/a		['SmallBusinessOwn	5	1	4	0
0 n/a		['AmericaCounts', 'S	3	3	4	0
0 n/a		['AmericaCounts', 'E	4	4	4	0

## 5

# Determining the Engagement Rate (ER)

Characteristic	Frequency	High ER Tweets	Percent High ER
<b>Time of Day</b>			
Early Morning (7am-9am)	650	135	20.77%
Late Morning/Early Afternoon (10am-1pm)	1123	263	23.42%
Late Afternoon/Early Evening (2pm-4pm)	219	70	31.96%
Late Evening/Night (5pm+)	202	81	40.10%
<b>Type of Day</b>			
Weekday	2053	499	24.31%
Weekend	141	50	35.46%
<b>Day of Week</b>			
Monday	220	54	24.55%
Tuesday	344	100	29.07%
Wednesday	516	135	26.16%
Thursday	596	151	25.34%
Friday	377	59	15.65%
Saturday	58	23	39.66%
Sunday	83	27	32.53%

## High Engagement Tweets:

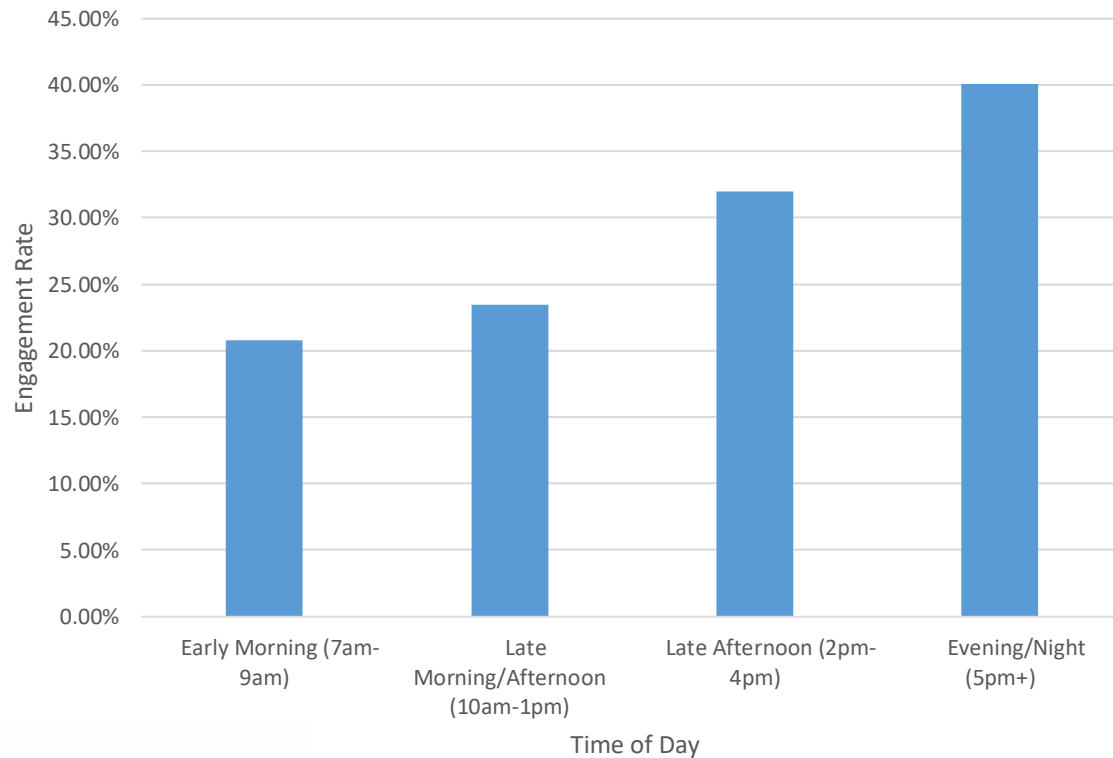
- Tweets with a sum of likes, retweets, and replies above the 75<sup>th</sup> percentile

## We also determined the engagement rate for:

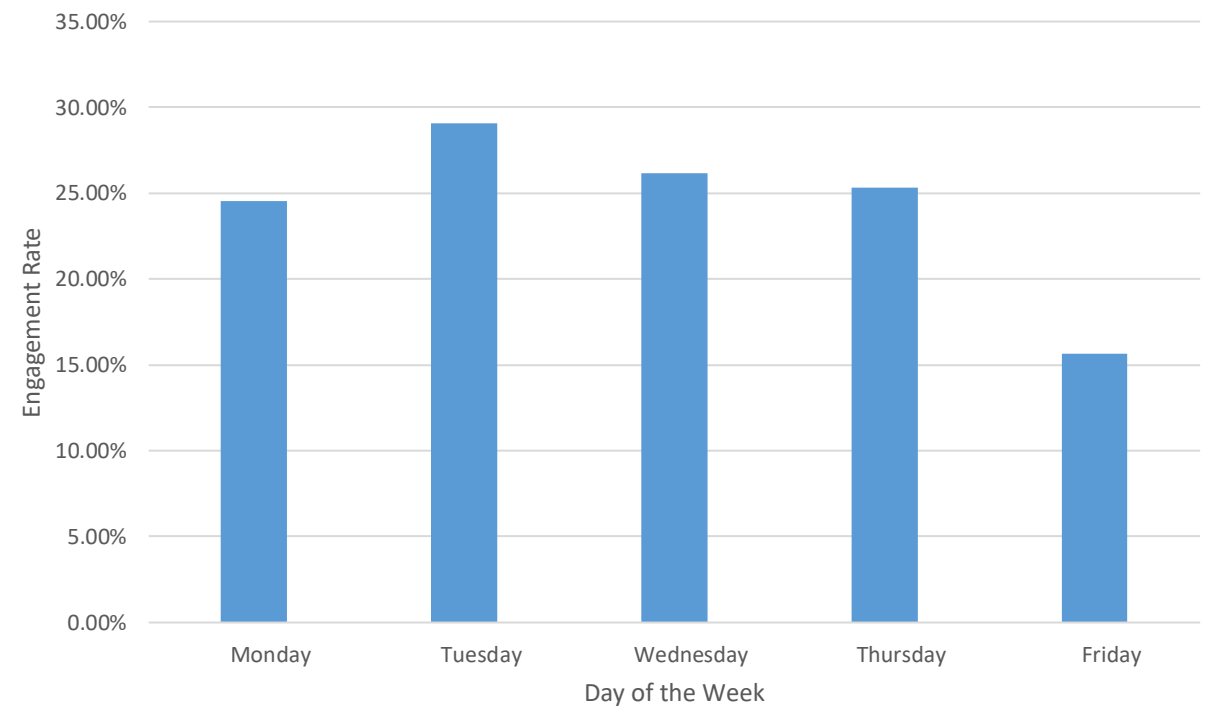
- Media, Poll, URL
- Number of Hashtags
- Position in a Thread

# 6 Impact of Publication Time on ER

The Impact of Posting a Tweet at a Particular Time in the Day on Engagement Rate



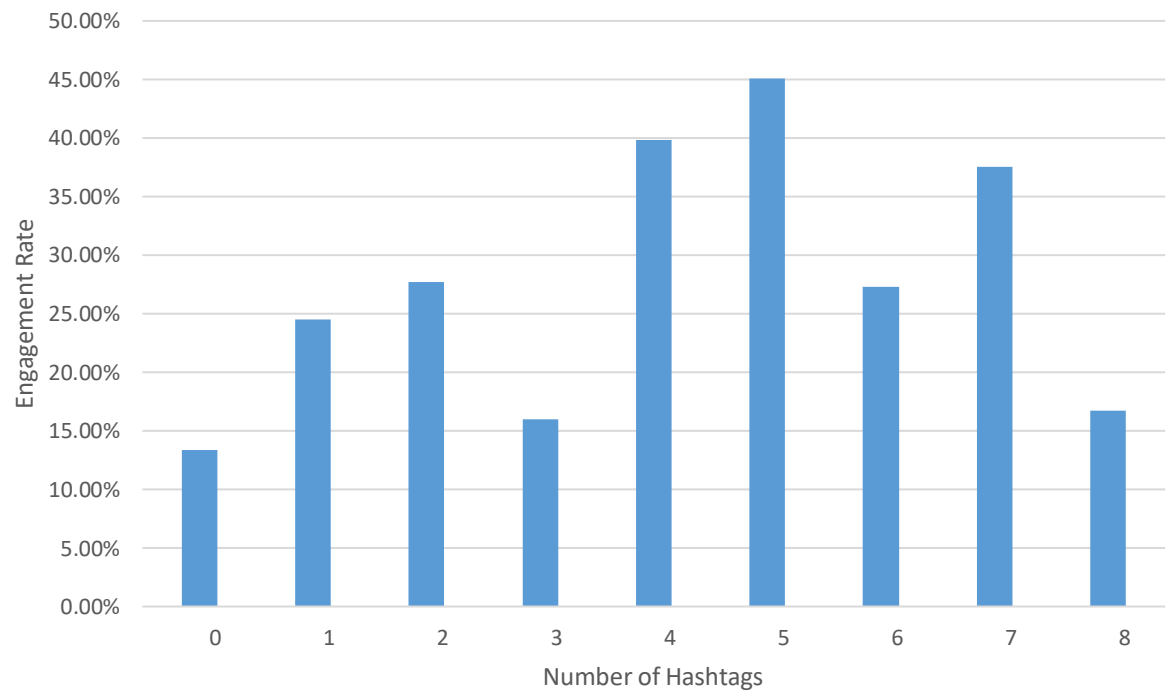
The Impact of Posting a Tweet on a Specific Day on Engagement Rate



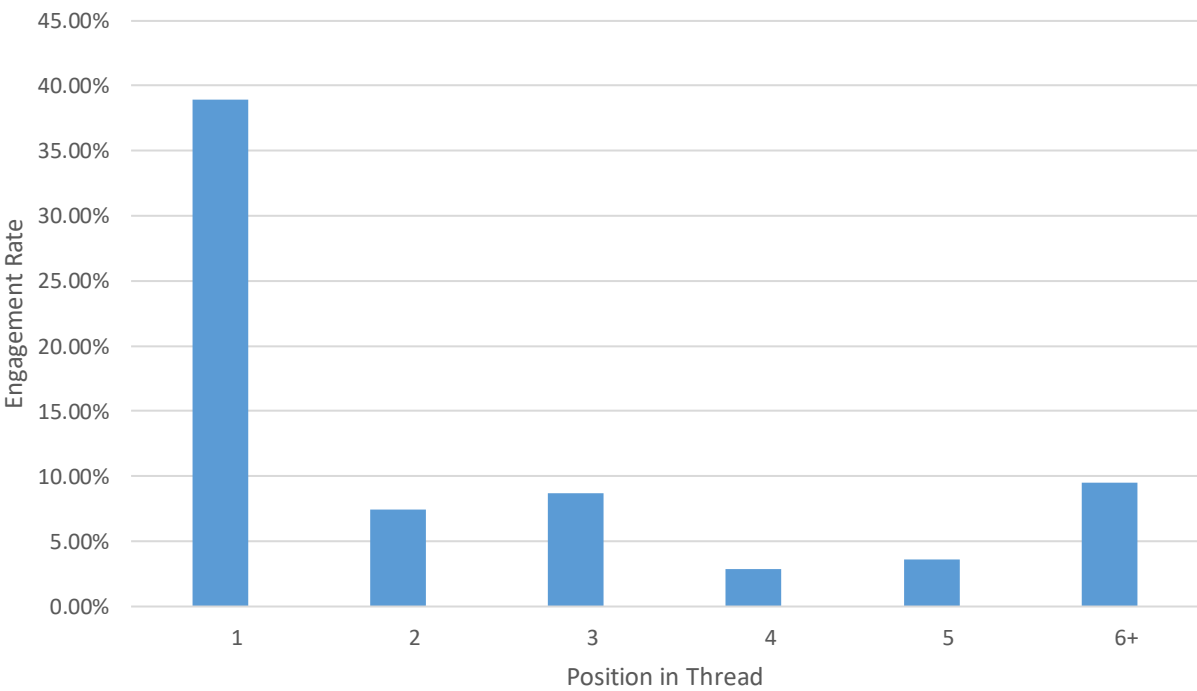
7

# Impact of Hashtags and Threads on ER

The Number of Hashtags in a Tweet and its Impact on Engagement Rate



The Position of a Tweet in a Thread and its Impact on Engagement Rate





## 8

# Results from Linear Regression Model

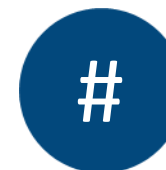
Tweet Attribute	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	4.1961	0.6524	6.431	1.55E-10	***
Media Present	1.9653	0.415	4.736	2.32E-06	***
Thread Position	-0.5048	0.1256	-4.02	6.02E-05	***
Number of Hashtags	0.3497	0.1391	2.515	0.01199	*
Post on Monday	1.6791	0.7475	2.246	0.02478	*
Post on Tuesday	1.8297	0.6565	2.787	0.00536	**
Post on Wednesday	2.5513	0.5935	4.299	1.79E-05	***
Post on Thursday	1.4861	0.5763	2.579	0.00998	**
Post on Saturday	1.6485	1.2478	1.321	0.18658	
Post on Sunday	1.0186	1.0817	0.942	0.34648	
Post in Late Morning/Afternoon (10am-1pm)	0.4557	0.4313	1.057	0.29079	
Post in Late Afternoon (2-4pm)	0.9202	0.6937	1.327	0.18476	
Post in Evening/Night (5pm+)	2.1374	0.7299	2.929	0.00344	**

Significance codes: 0 \*\*\* 0.001 \*\* 0.01 \* 0.05



## Media

High quality, easy-to-understand pictures and videos



## Hashtags

Effective, commonly-searched hashtags



## Threads

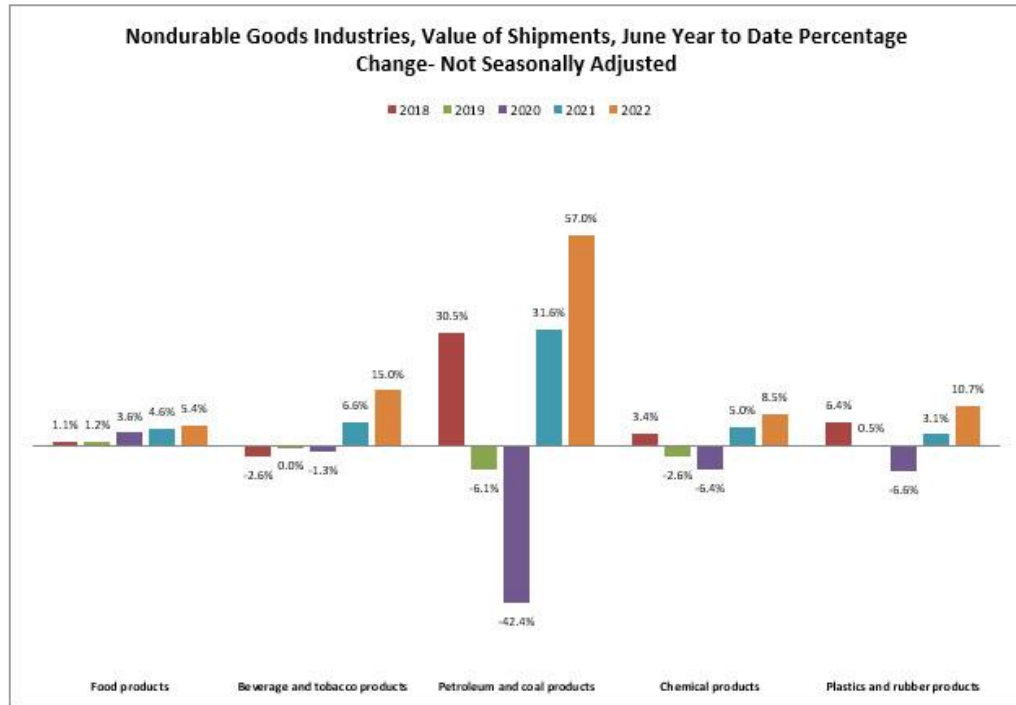
Avoid posting a tweet in a long thread



## Day and Time

Post after 5pm on days between Mon. and Thu.

# Lack Consistent Color Scheme and Branding



## Note for the graph:

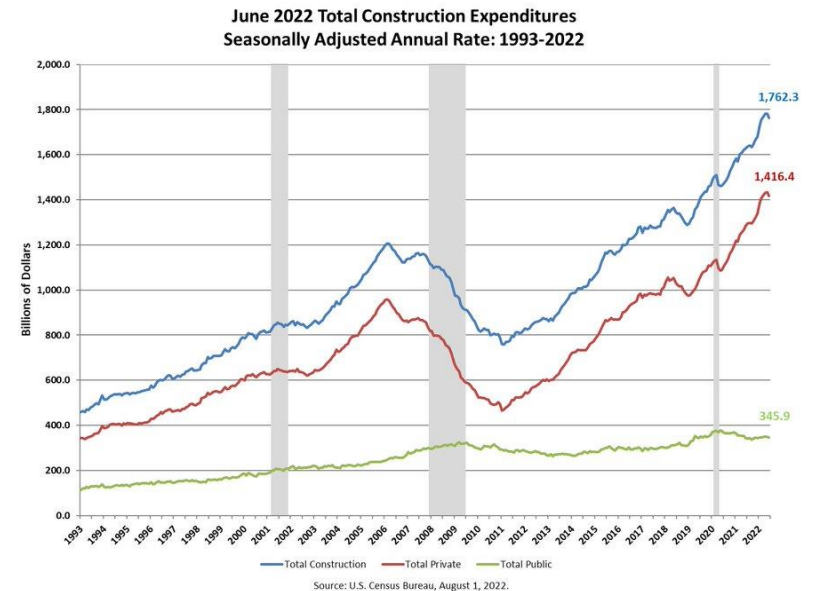
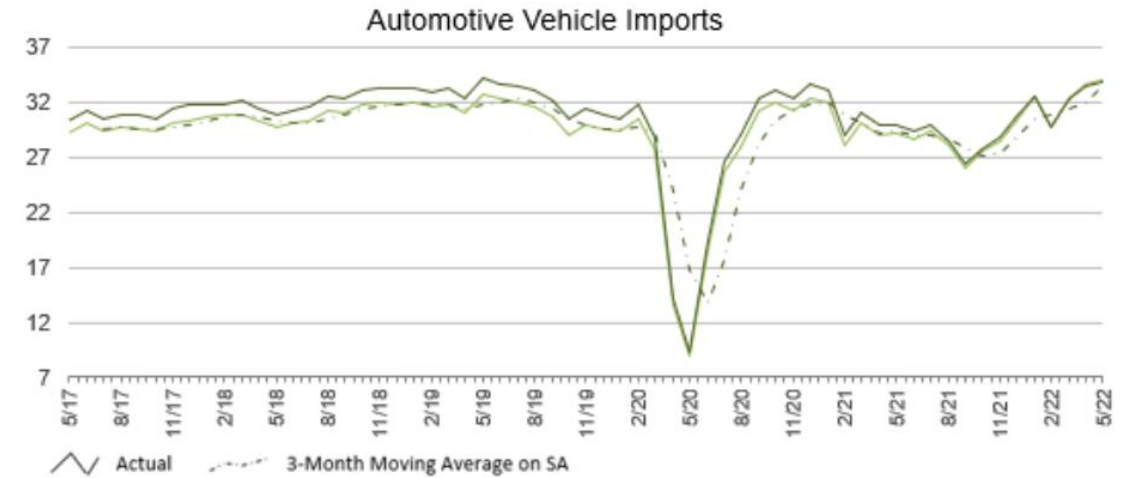
0.0% indicates that the change is less than 0.05 percent for a percent increase or decrease.

Data not adjusted for price changes.

Statistical significance is not measurable for this survey. The Manufacturers' Shipments, Inventories, and Orders estimates are not based on a probability sample, so the sampling error of these estimates cannot be measured nor can the confidence intervals be computed.

Source: U.S. Census Bureau, Manufacturers' Shipments, Inventories and Orders, August 3, 2022.

<https://www.census.gov/manufacturing/m3/index.html>

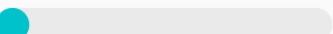


# Bold, Visually Appealing Graphs

## JUNE 2022 RECAP OF ECONOMIC INDICATORS

### Housing

Homeownership Rate  65.8%

Rental Vacancy Rate  5.6%

### Consumption

↑ Retail Sales  
+1.0%, Jun. 2022

↑ Services Revenue  
+1.4%, Jun. 2022

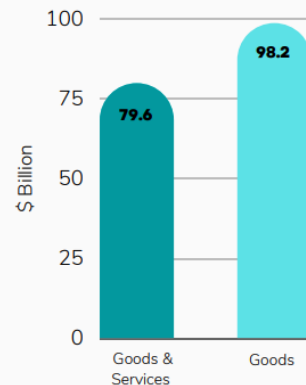
### Construction

↓ New Residential Sales  
-8.1%, Jun. 2022

↓ Construction Spending  
-1.1%, Jun. 2022

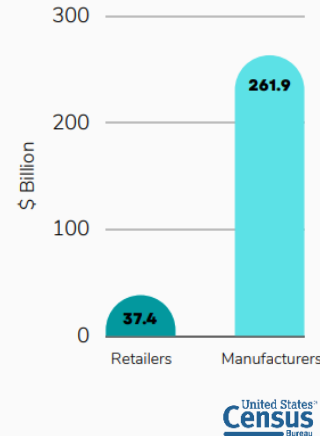
### International Trade Deficit

Jun. 2022

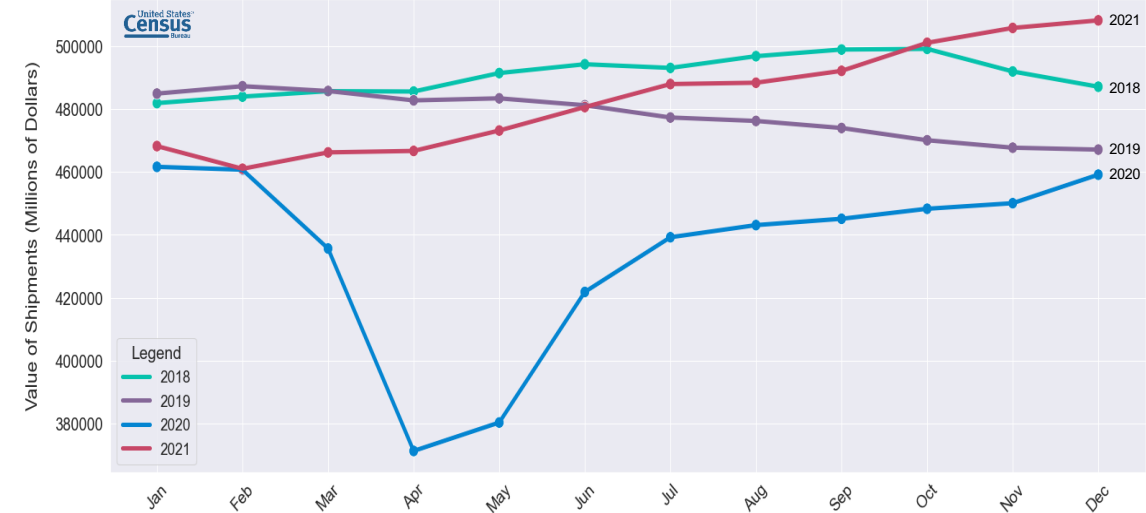


### Quarterly Profit

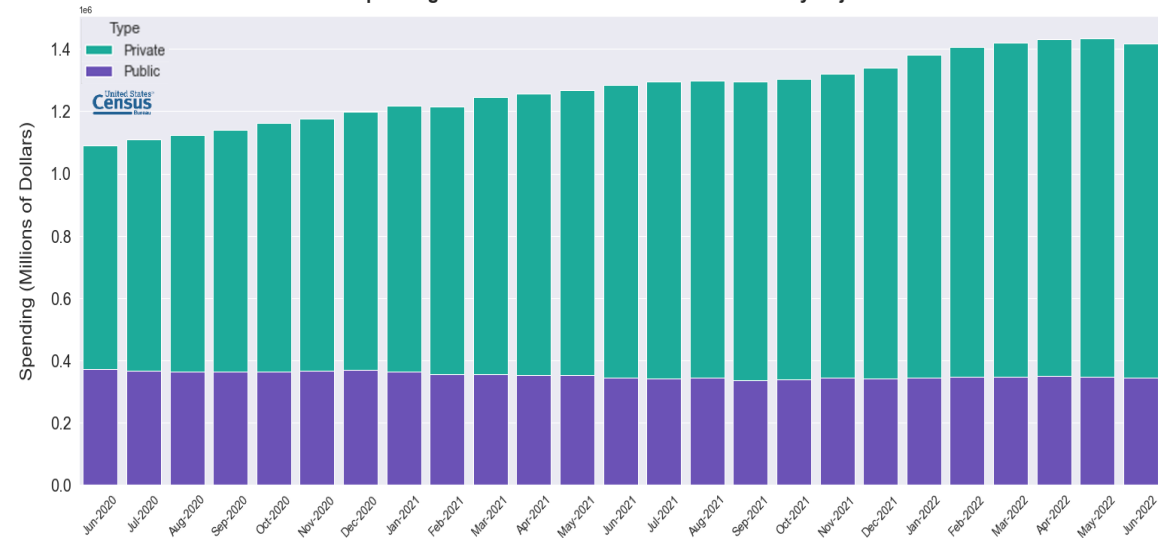
Q1 2022



Seasonally Adjusted Values of Manufacturers' Shipments from 2018 to 2021

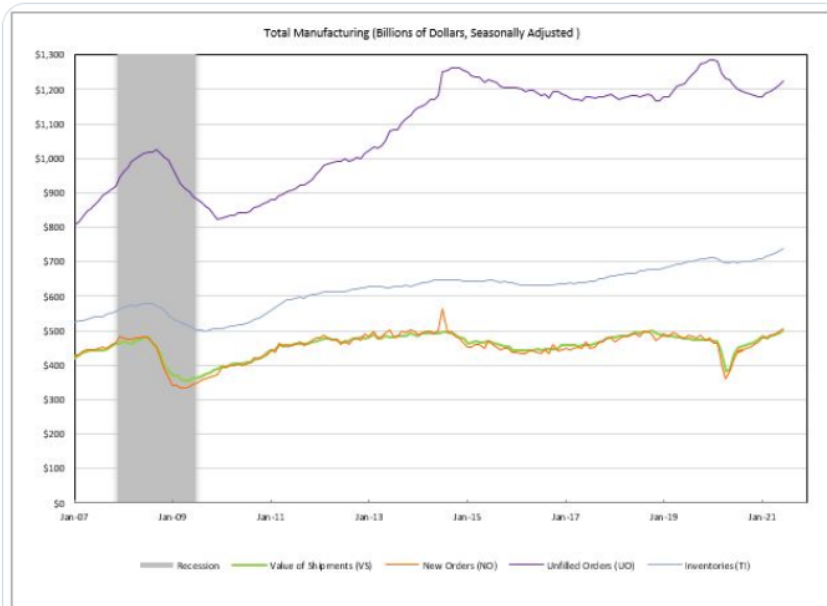


Construction Spending from June 2020 to June 2022: Seasonally Adjusted Annual Rate



# Room for Improvement

[#ManufacturedGoods](#) [#neworders](#), up thirteen of the last fourteen months, +1.5% to \$506.0B (seasonally adjusted) in June 2021. [go.usa.gov/xUNJe](https://go.usa.gov/xUNJe) [#CensusEconData](#) [#MadeInUSA](#) [#mfg](#)



#### Note for the graph:

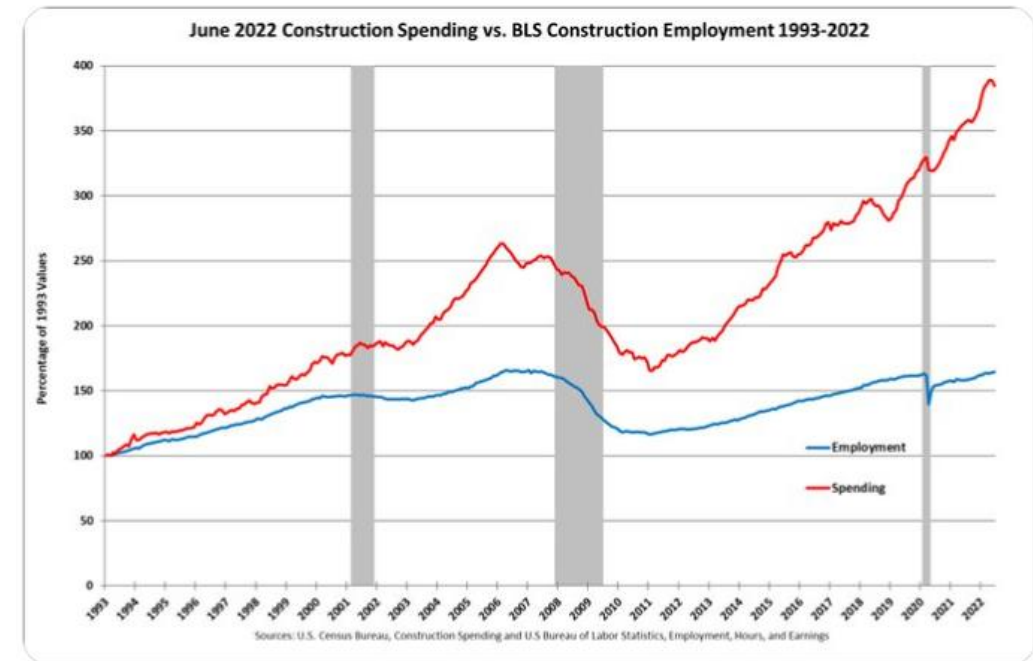
Data not adjusted for price changes.

Statistical significance is not measurable for this survey. The Manufacturers' Shipments, Inventories, and Orders estimates are not based on a probability sample, so the sampling error of these estimates cannot be measured nor can the confidence intervals be computed.

Source: U.S. Census Bureau, Manufacturers' Shipments, Inventories and Orders, August 3, 2021.

<https://www.census.gov/manufacturing/m3/index.html>

Seasonally adjusted [#ConstructionEmployment](#) in June 2022 is 0.6% above the February 2020 employment peak level, according to BLS as compared to Total [#ConstructionSpending](#) which exceeds February 2020 spending levels. [#CensusEconData](#)



# 12 Template Tweet

#BackToSchool season is just around the corner! As you think about shopping for the new school year, read about the new #Census data on retail sales for clothing stores.

How did your state do? ↓

Prep for #BacktoSchool shopping by checking out the new #Census data on retail sales for clothing stores!

Like this tweet if you're excited for #BackToSchool season! 📚

#BackToSchool shopping can be stressful! Clear your mind by reading about new #Census data on retail sales for clothing stores.

Is your state on here? ↓



## 13 Next Steps



Continue to develop  
and publish  
template tweets



Conduct a study to  
get feedback on  
content of tweets



Direct contents  
towards most  
engaged followers

- Rachel Butler
- Ben Griffis
- Alisha Gurnani
- Rebecca Hutchinson

