Exploring the Digital Marketplace :

How Online Shopping Has Helped and Hurt the U.S. Economy

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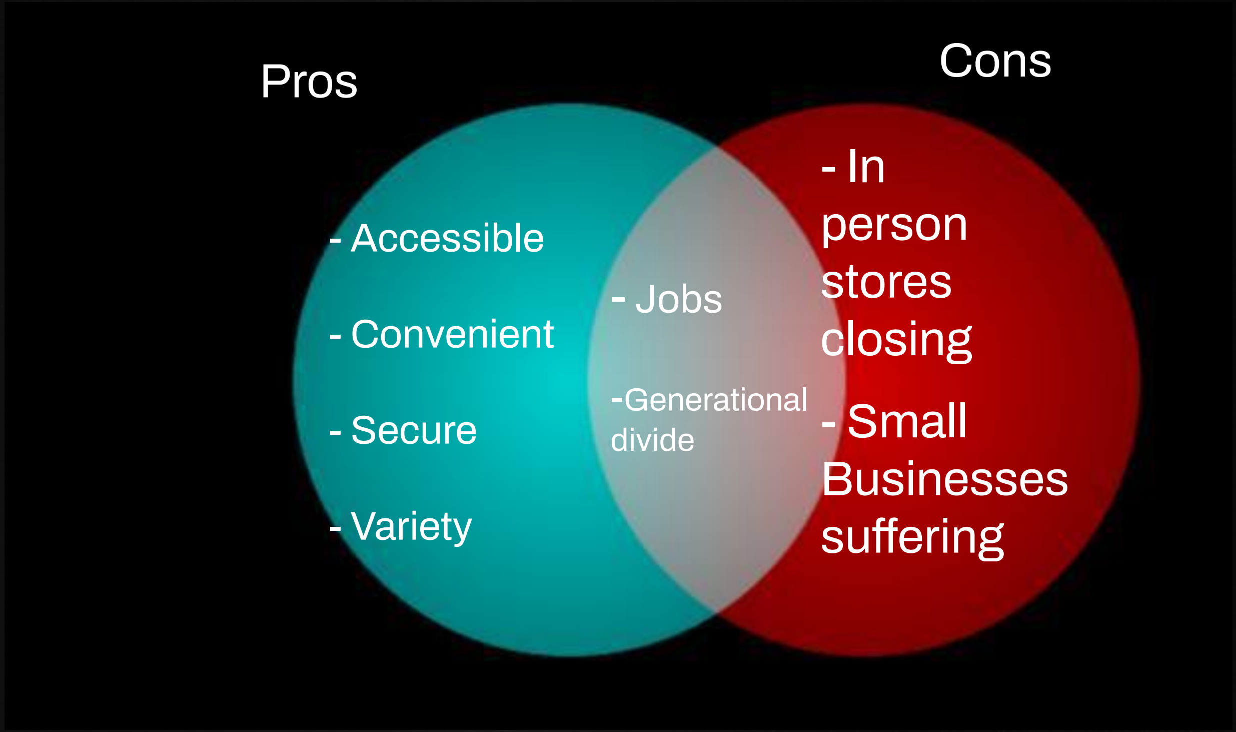
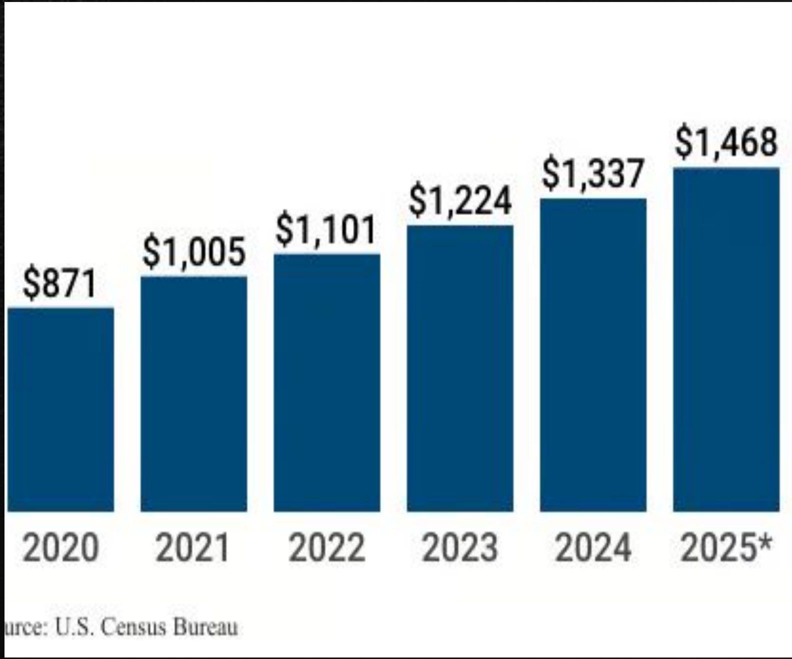
Null Hypothesis

The pros and cons of online shopping have had no effect on the US economy over the past five years.

Meeting in the Middle



Total US Online Retail Sales



1005/871= 1.154-1(*100)=15.4%
1101/1005=1.096-1(*100)=9.6%
1224/1101=1.112-1(*100)=11.2$
1337/1224=1.092-1(*100)=9.2%
1468/1337=1.098-1(*100)=9.8%

15.4%+9.6%+11.2$+9.2%+9.8%=55.2%
55.2%/5=11.04%

found the standard deviation by calculating the average of the five percentages, measuring how far each value was from that average, squaring those differences, averaging them, and then taking the square root.

The Expanding Preference for Convenience

Evidence

- "U.S. consumers who prefer online shopping say **convenience** is the main reason".

Online shopping saves **time**, reduces **travel**, offers quick product **research** and **evaluation**, making it an easy choice for busy consumers.

Convenience is a major drive of e-commerce growth, and as more people rely on online shopping, digital retail becomes a stable and essential part of the economy.

Strong Online Demand for Everyday Items

Evidence:

- “Americans are most likely to buy **apparel and accessories online**”.
- **“43%** of U.S. consumers bought clothing and **33%** bought shoes online in the last 12 months”.

Consumers trust online stores for variety, sizing options, and easy returns with these frequently purchased items.

High and consistent online demand for everyday products strengthens the e-commerce sector, boosting total sales and supporting year-round economic activity.

Rising Trust

Evidence:

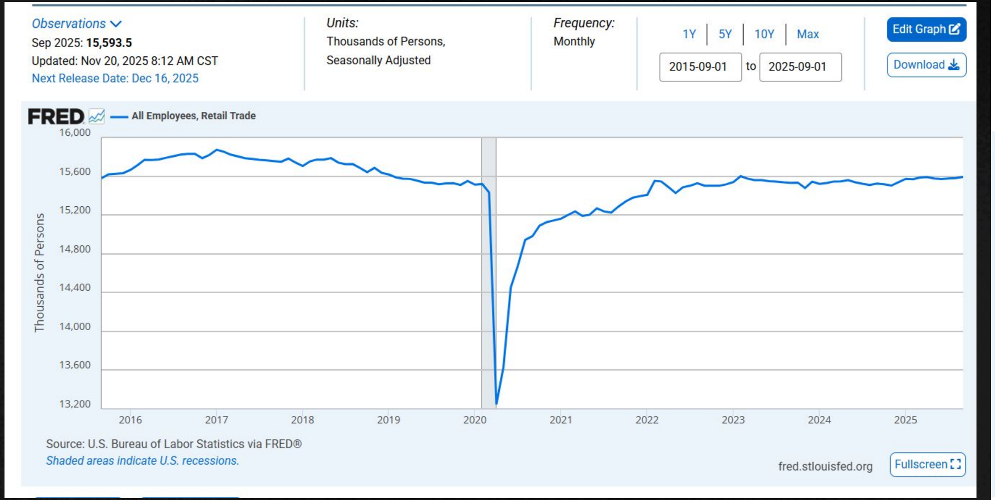
- U.S. shoppers increasingly buy **home furnishings** and **consumer electronics** online.
- Furniture and home furnishings make up **8.36% of all U.S. e-commerce sales**.

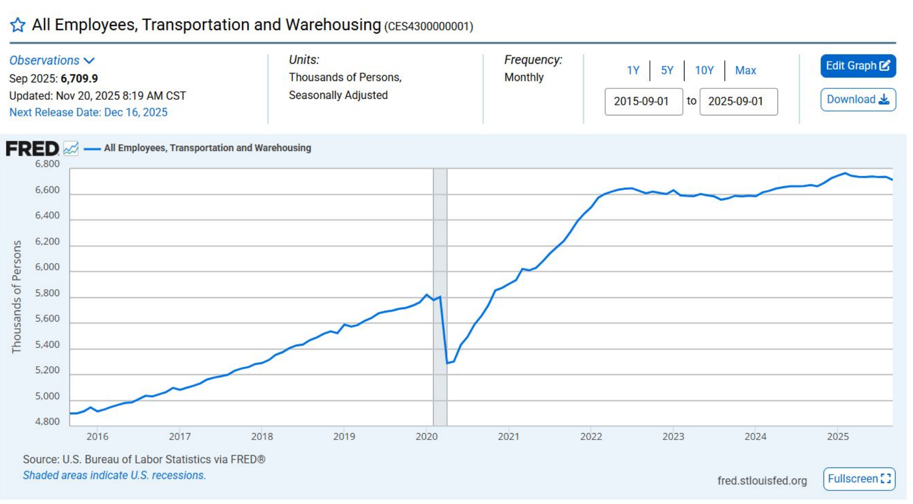
While furniture is just one example, consumers are becoming **more comfortable purchasing large or expensive products online.** Again this is a **result of convenience** and also favorable online policies.

Online shoppers are becoming more **educated** on **cyber safety**, so they may also feel more secure in the digital marketplace and **more trusting** to make big tickets purchases.

Growing trust in expensive online purchases expands e-commerce's economic impact, increasing revenue and encouraging businesses to innovate further and higher class businesses to tap in to online marketplaces

Job gain- FRED data





Increased Job Loss in Retail

- **Stores are closing** due to more cheap and convenient online options.
- **Less people shopping in person** businesses can operate with **less employees**

- Online companies use **automated communication,** further eliminating jobs
- **Convenience overpowers local shopping**. You are able to do online shopping 24/7 where as local/in-person shopping doesn't normally have that option available

Devastating Small/Physical Businesses

- Physical stores experience fewer in-person purchases, putting significant **pressure on small and medium-sized businesses** that rely heavily on foot traffic to survive
- Large online retailers can **buy in bulk**, so they sell their products for cheaper.
- Online retailers also rarely run out of stock due to them **owning larger warehouses** while smaller shops don't have the luxury of that type of storage
- The rise of e-commerce can weaken the real economy by **reducing local business activity** and contributing to a **decline in commercial real estate demand**. This would be damaging toward jobs, physical stores, communities, and economic diversity as we now know it.


Rise of Online Shopping vs. U.S. Retail Store Closures
E-commerce Share (%)
16
18
20
22
24
26
Store Closures Announced
6000
8000
10000
12000
14000
2022.0
2022.5
2023.0
2023.5
2024.0
2024.5
2025.0
Year

Favoring Younger Gens

- “Millennials (born **1981–1996**) are the **most likely to shop online**.”
- Gen Z (born **1997–2012**) are the **most likely to use hybrid shopping** (mix of online and in-store).

Younger generations are more **comfortable** with technology, meaning online shopping platforms are much easier for them to use. Older consumers may struggle with digital interfaces, security concerns and efficiency. **Brick-and- mortar stores** may feel the most convenient to them.

This proposes a possible data imbalance, as **online shopping data is heavily influenced by younger users** since they are the ones using it most, not reflecting the opinion of the rest of the population.

Table 2. Estimated Measures of Sampling Variability for Quarterly U.S. Retail Sales Estimates: Total and E-commerce

(Estimates are shown as percents and are based on data from the Monthly Retail Trade Survey.)

Quarter	Coefficient of Variation (CV)		Standard Error (SE) for E-commerce as a Percent of Total	SE for Percent Change From Prior Quarter		SE for Percent Change From Same Quarter A Year Ago	
	Total	E-commerce		Total	E-commerce	Total	E-commerce
2nd quarter 2025(p)	0.9	2.1	0.3	0.2	0.5	0.2	0.7
1st quarter 2025(r)	0.9	1.9	0.2	0.1	0.4	0.2	0.5
4th quarter 2024	0.9	1.9	0.3	0.2	0.5	0.3	0.6
3rd quarter 2024	0.9	2.0	0.2	0.1	0.2	0.3	0.7
2nd quarter 2024	0.8	2.0	0.2	0.1	0.4	0.2	0.7

(p) Preliminary estimate. (r) Revised estimate. (Z) Estimate is less than 0.05%.

Government data shows the **coefficient of variation (CV)** for e-commerce is **about 2.0**, more than **double** that of total retail (~0.9).

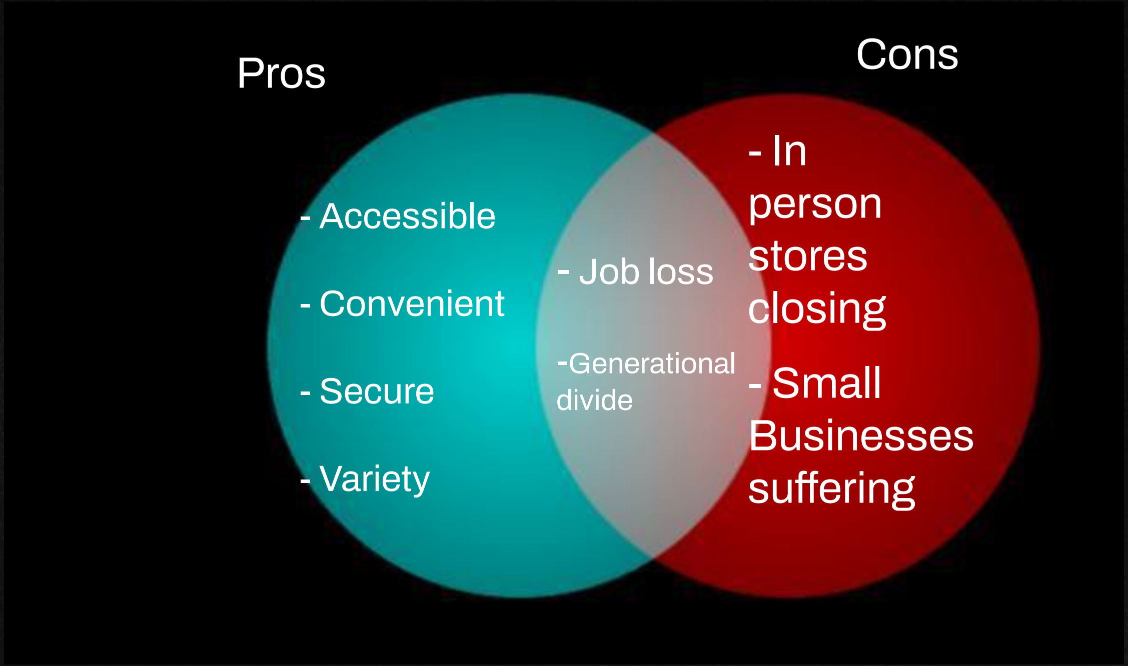
Standard errors for **percent change** in e-commerce (0.4–0.7) are **much higher** than total retail (0.1–0.3).

E-commerce has a smaller and more **age-skewed sample**, as younger generations use online shopping platforms most, so the **estimates fluctuate more** and are harder to measure accurately.

This means online shopping statistics may not fully **represent** the shopping behaviors of the entire population, especially older groups who shop in-store more often.

Conclusion

In conclusion, online shopping affects the economy in many ways. The economy benefits and gets hindered by online shopping. Jobs are created and destroyed specifically in the retail department. Jobs are lost due to less need for retail employees as there is less store activity then in the past, jobs are also lost due to small businesses closing.



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Explaining physical retail store closures in digital times - ScienceDirect
Fewer Workers as Number of Retail Clothing Firms Shrink


Thank You!!!