B | Economic Studies at BROOKINGS

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HOW MECHANISMS OF QUANTITATIVE EASING IMPACT CAPITAL FLOW, INFLATION, AND PERCEPTION OF THE ECONOMY

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The author wishes to thank Alan Cui and especially Dylan Parikh for his extraordinary contribution.

Abstract

The global recession induced by the Covid-19 pandemic resulted in massive fiscal stimulus and monetary policy responses. It was followed by a period of sharp inflation, at levels not experienced by many advanced economies since the early 1980s (Giovanni et al. 2023).[1] As a result, central banks pivoted from their pandemic-reactive, extraordinarily accommodative monetary policy to a tightening cycle (IMF 2024).[2] These sudden shifts—pandemic stimulus and anti-inflation tightening—resulted in a series of changes to capital flows between countries and changes of perception of economic strength within countries. America issued massive amounts of public debt, first purchased by its central bank and then by domestic buyers along with a smaller and changing group of foreign countries. This paper focuses on United States. The central finding is that despite stronger economic performance, Americans are relatively unsatisfied with the economy. This dissatisfaction may stem from inflation concentrated in the U.S. housing market, political polarization, and measurement error.

[1] Julian di Giovanni et al., *Pandemic-Era Inflation Drivers and Global Spillovers*, NBER Working Paper Series, no. w31887 (Cambridge, Mass: National Bureau of Economic Research, 2023).
[2] International Monetary Fund. *World Economic Outlook: The Great Tightening—Insights from the Recent Inflation Episode*. Washington, DC: International Monetary Fund, October 2024.

Introduction

America's pandemic-era economic performance stands out. The United States had among the most aggressive fiscal and monetary responses to the pandemic, including providing among the highest discretionary fiscal stimulus (Klein 2024) as a percentage of GDP of any country.[3] America's Covid stimulus was targeted to lower income Americans and cut poverty rates by a record 67% in 2021 (Trisi 2024).[4] The United States also had one of the strongest and fastest economic recoveries among developed countries (Brooks and Harris 2024).[5]

Despite this, the American public perceives the state of the U.S. economy as poor. Americans are particularly unhappy with the economy despite its performing better than the EU, the UK, Japan, and to varying degrees China. Economic dissatisfaction is broad and initially correlated with inflation (Nia et al. 2022).[6] However, inflation was a global phenomenon (Santacreu and LaBelle 2022).[7] Americans may find inflation uniquely distasteful, but other explanations are possible. For example, U.S. inflation may have been concentrated among a different set of goods and services that created more unhappiness. As this paper will show, in fact, U.S. inflation was uniquely concentrated within its housing market

The paper explores multiple possibilities, leaning toward the conclusion that an additional cause for American perceptions on the economy are continued changes in the preference for globalization. Initial support for this thesis comes from observation that economic dissatisfaction is also higher in the UK (Zhang 2021),[8] the other country that, through Brexit, has taken major steps toward de-globalization (Silver et al. 2020).[9] Secondary support for the thesis is that a disproportionate share of the dissatisfaction with the U.S. economy comes from members of the

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[3] Klein, Aaron (2024) "Federal Reserve: Conflicts between Monetary Policy and Bank Regulation in Tackling Inflation," *Journal of Financial Crises*: Vol. 6 : Iss. 2, 1-42.
Available at: https://elischolar.library.yale.edu/journal-of-financial-crises/vol6/iss2/1

[4] Danilo Trisi, "Expiration of Pandemic Relief Led to Record Increases in Poverty and Child Poverty in 2022." *Center on Budget and Policy Priorities*, June 10, 2024. https://www.cbpp.org/research/federal-tax/about-16-million-children-in-low-income-families-would-gain-in-first-year-of.

[5] Brooks, Robin, and Ben Harris. "The U.S. Recovery from COVID-19 in International Comparison." *Brookings Institution*, October 17, 2024. https://www.brookings.edu/articles/the-us-recovery-from-covid-19-in-international-comparison/.

[6] Nia Movahedi Nia, Ahmadi A, Bragazzi NL, Woldegerima WA, Mellado B, Wu J, et al. (2022) A cross-country analysis of macroeconomic responses to COVID-19 pandemic using Twitter sentiments. PLoS ONE 17(8): e0272208. https://doi.org/10.1371/journal.pone.0272208

[7] Ana Maria Santacreu and Jesse LaBelle, "Global Supply Chain Disruptions and Inflation During the COVID-19 Pandemic," Federal Reserve Bank of St. Louis *Review*, Second Quarter 2022, pp. 78-91. https://doi.org/10.20955/r.104.78-91

[8] Zhang, H., Ding, Y., & Li, J. (2021). Impact of the COVID-19 Pandemic on Economic Sentiment: A Cross-Country Study. *Emerging Markets Finance and Trade*, *57*(6), 1603–1612. https://doi.org/10.1080/1540496X.2021.1897005

[9] Silver, Laura, Shannon Schumacher, Mara Mordecai, Shannon Greenwood, and Michael Keegan. "In U.S. and UK, Globalization Leaves Some Feeling Left Behind or Swept Up." *Pew Research Center*, October 5, 2020. https://www.pewresearch.org/global/2020/10/05/in-u-s-and-uk-globalization-leaves-some-feeling-left-behind-or-swept-up/.

Republican party. Given Donald Trump's continued hold as the standard bearer of the Republican party—he is the first former President to win his party's nomination after losing a general election since the 1890s (Harmel et al. 2024)[10]—the politics of de-globalization, anti-immigration, and anti-trade have remained a dividing point between the parties and having an increasing impact on economic sentiment despite actual economic performance.

Pandemic Timing

For purposes of this paper, it is helpful to define several time periods as they relate to the pandemic. This paper distinguishes between three time periods:

1) "Pre-pandemic" is up until the end of 2019 (Q4)
2) The pandemic era means between 2020 Q2 and 2022 Q2
3) Post-pandemic refers to after 2022 Q4

The author considers the quarters left out between each time period to be transitionary periods. Changes to the dating of during and post pandemic periods do not meaningfully impact results, although they would change point estimates. The paper will use these time periods when possible. When data is only available on an annual basis, pre-pandemic will refer to the years through 2019, pandemic will refer to 2020-2022, and post-pandemic will refer to 2023 and after.

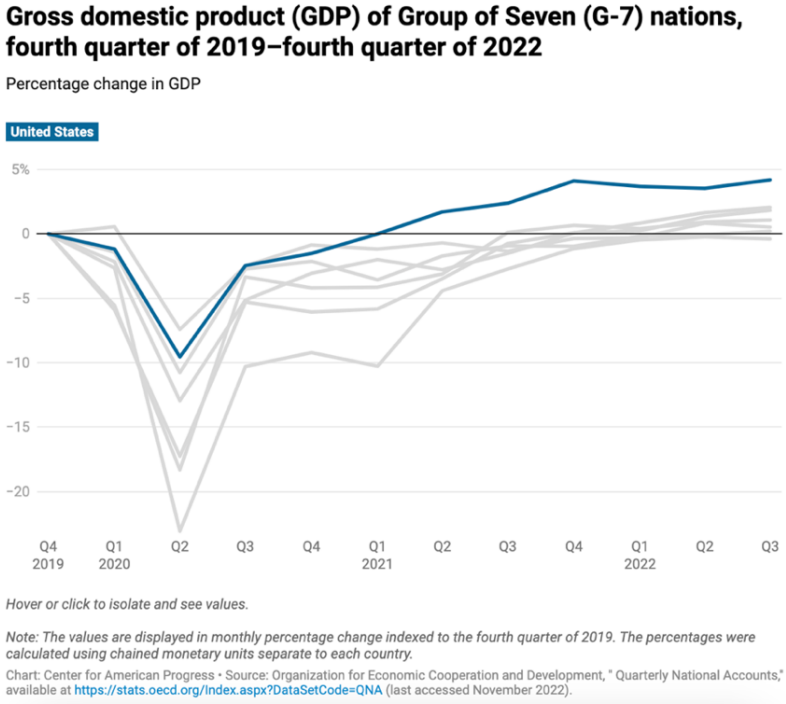
Pandemic Era Public Support

America's Fiscal and Monetary Policy Were Aggressive and Effective

The U.S. has had a stronger post-pandemic economic recovery among G7 nations beginning in 2021 as Figure 1 shows (Rose and Vela 2022).[11] The strength of post-pandemic U.S. economic performance was unexpected, exceeding consensus and internal forecasts (CEA 2024).[12]

[10] Harmel, R., H. Mjelde, and L. Svåsand. 2024. " The Trumpization of the Grand Old Party." *Social Science Quarterly* 105: 403–431. https://doi.org/10.1111/ssqu.13345
[11] Khattar, Rose, and Jessica Vela. "Despite Global Inflation, the U.S. Economic Recovery Is Among the Strongest of G-7 Nations." *Center for American Progress*, October 3, 2023. https://www.americanprogress.org/article/despite-global-inflation-the-u-s-economic-recovery-is-among-the-strongest-of-g-7-nations/.
[12] Council of Economic Advisers. "Beating the Forecasts: How the U.S. Economy Defied Expectations." *The White House*, September 17, 2024. https://www.whitehouse.gov/cea/written-materials/2024/09/17/beating-the-forecasts-how-the-us-economy-defied-expectations/.

Figure 1. Real GDP growth of G7 Countries.[13]



Covid led to a sudden and sharp decrease in economic activity (and hence tax collections) and additional needs for public expenditures (stimulus) to address the crisis. Governments broadly responded with expansionary fiscal policy, although to varying degrees (Makin and Layton 2021).[14] Figure 2 below indicates the difference in budgeted Covid spending as a percentage of GDP across select major economies, showing the U.S. and UK at the top and China at the bottom. The rate at which each country's economy rebounded varied. The U.S. performance remains among the fastest, while the UK's strong initial bounce-back was not sustained. China's growth rate likely remains higher than the United States' due to structural factors and higher expected growth rates in its developing economy. However, in January 2024, the Chinese Beige book declared that "The recovery from COVID – disappointing as it was – is over" (Yao and Zhang 2024).[15]

[13] Reproduced from Khattar, Rose, and Jessica Vela. "Despite Global Inflation, the U.S. Economic Recovery Is Among the Strongest of G-7 Nations." *Center for American Progress*, October 3, 2023. https://www.americanprogress.org/article/despite-global-inflation-the-u-s-economic-recovery-is-among-the-strongest-of-g-7-nations/.

[14] Anthony J. Makin and Allan Layton, "The Global Fiscal Response to COVID-19: Risks and Repercussions," *Economic Analysis and Policy* 69 (2021): 340–49, https://doi.org/10.1016/j.eap.2020.12.016.

[15] Yao, Kevin, and Ellen Zhang. "China's Q4 GDP Grows 5.2% Y/Y, Below Market Forecast." *Reuters*, January 17, 2024. https://www.reuters.com/world/china/chinas-q4-gdp-grows-52-yy-below-market-forecast-2024-01-17/.

Figure 2. Pandemic Spending and Real GDP Growth.[16]

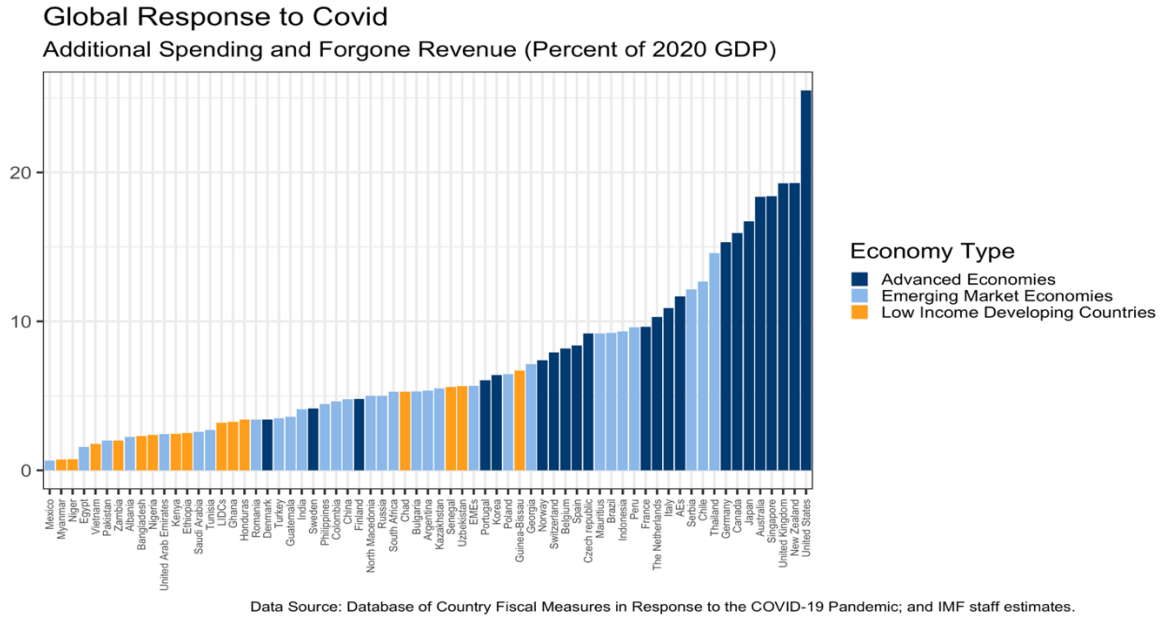
Pandemic Spending and Real GDP Growth

Major Economies with Highest Pandemic Spending

Country	Budgeted Covid-19 Spending (Percent of 2020 GDP)	Real GDP Growth Rate over 2020	Real GDP Growth Rate over 2021	Real GDP Growth Rate over 2022	Real GDP Growth Rate over 2023
G20	9.8	−0.1	4.9	2.3	3.3
United States	25.5	−1.1	5.4	0.7	3.1
United Kingdom	19.3	−8.3	9.7	0.6	−0.2
Australia	18.4	−0.4	5.1	2.5	1.6
Japan	16.7	−0.3	1.4	0.7	1.2
Canada	15.9	−3.0	4.4	2.2	1.0
Germany	15.3	−2.1	1.6	0.8	−0.2
France	9.6	−3.8	5.1	0.7	1.2
China	4.8	6.0	4.4	3.0	5.4

We can also compare the additional spending and forgone revenue different countries experienced during the pandemic, normalized by national GDP. Figure 3 below does that based on IMF staff estimates over a broader set of countries. Here again the U.S. stands out for its aggressive response. Note the UK is tied for the second most aggressive response, while Japan's response was greater than any EU member's. Broadly speaking, Figure 3 illustrates that the more advanced a country's economy, the more aggressively they responded to the pandemic shock.

Figure 3. Global Response to Covid, Additional Spending and Forgone Revenue.[17]



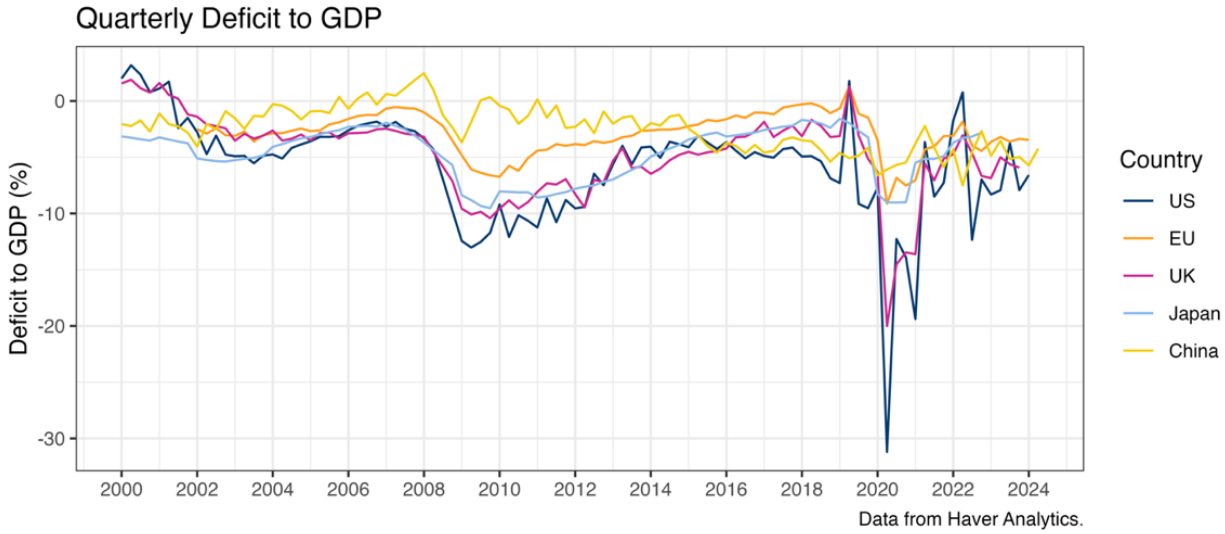
Data Source: Database of Country Fiscal Measures in Response to the COVID-19 Pandemic; and IMF staff estimates.

[16] International Monetary Fund, *Database of Country Fiscal Measures in Response to the COVID-19 Pandemic; and IMF staff estimates*, accessed October 21, 2024, https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19;

[17] International Monetary Fund, *Database of Country Fiscal Measures in Response to the COVID-19 Pandemic; and IMF staff estimates*, accessed October 21, 2024, https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19.

Another way to measure fiscal response is by comparing how much deficits changed as a share of GDP during the pandemic period. As Figure 4 shows, the U.S. deficit expanded the most of five large economies followed by the UK, the EU, Japan, and then China. Not surprisingly, deficit increases correlated with the size of fiscal stimulus provided.

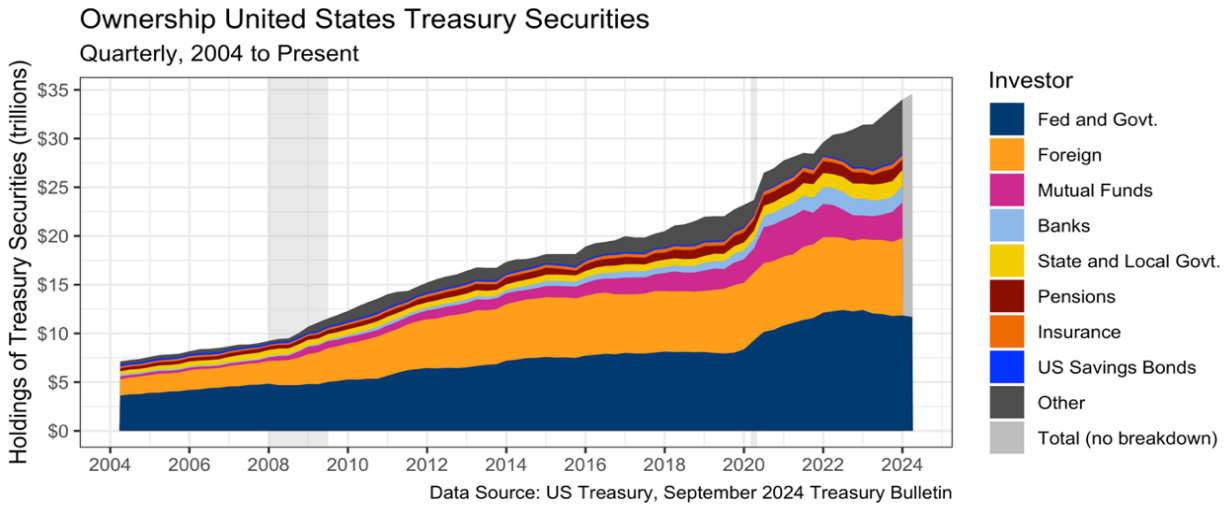
Figure 4. Deficit to GDP.[18]



The result of the aggressive U.S. response was an increase in debt. Outstanding U.S. Treasury securities increased by $6.88 trillion from the start of the pandemic through 2022 Q2. 45% of Treasury debt issued during the pandemic was purchased by the Federal Reserve (Fed), which bought $3.12 trillion as part of its quantitative easing (QE) program. Mutual funds ($389 billion) and foreign investors ($467 billion) purchased smaller but significant amounts. Growth in foreign ownership of Treasuries resumed after the pandemic as shown in Figure 5 below.

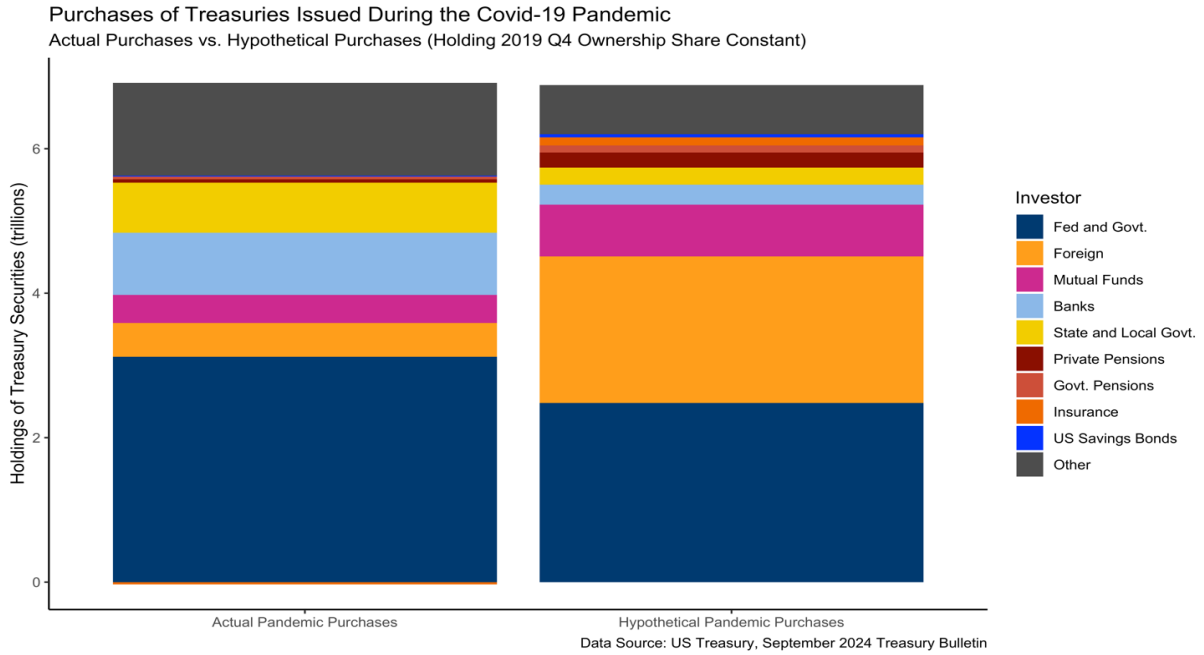
[18] OECD (2024), "General government deficit" (indicator), https://doi.org/10.1787/77079edb-en (accessed on 20 October 2024); OECD (2024), "Quarterly GDP" (indicator), https://doi.org/10.1787/b86d1fc8-en (accessed on 20 October 2024).

Figure 5. Holders of U.S. Treasury Securities.[19]



The pandemic saw substantial changes in the composition of who purchases of U.S. debt, particularly as it relates to foreign investors. If pre-pandemic ownership shares remained constant, the Fed would have bought $2.48 trillion, foreign investors $2.03 trillion, and mutual funds $716 billion. Put another way, foreign investors purchased 77% ($1.563 trillion) less of U.S. Treasuries during the pandemic than their proportional ownership going into the pandemic. This hypothetical is depicted in Figure 6 below.

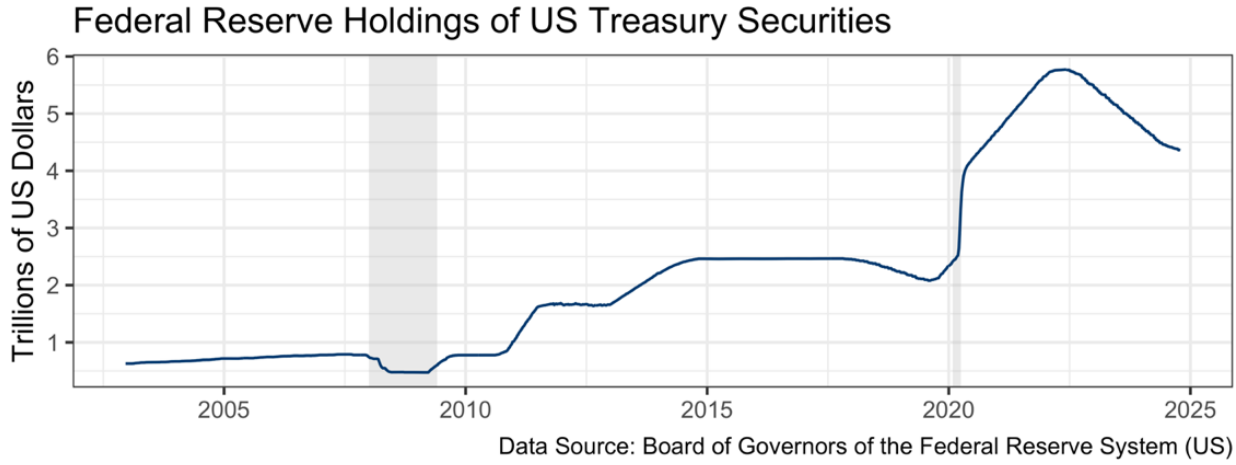
Figure 6. Purchases of Treasuries Issued During Pandemic.[20]



[19] Data from U.S. Department of the Treasury, Bureau of the Fiscal Service, *Treasury Bulletin*, September 2024, accessed October 21, 2024, https://fiscal.treasury.gov/reports-statements/treasury-bulletin/.
[20] U.S. Department of the Treasury, Bureau of the Fiscal Service, *Treasury Bulletin*, September 2024, accessed October 21, 2024, https://fiscal.treasury.gov/reports-statements/treasury-bulletin/.

Following the pandemic, the Fed has let $1.5 trillion in Treasuries mature and roll off its balance sheet as shown in Figure 7 below. Absorbing much of the gap has been the "Other" class of investors, defined as retail/individuals, government-sponsored enterprises (GSEs), brokers and dealers, bank personal trusts and estates, corporate and non-corporate businesses, and other investors. This set of domestic groups have been buying up the Fed's pandemic holdings.

Figure 7. Federal Reserve Holdings of U.S. Treasuries.[21]



Assuming the Fed intends to return to pre-Covid levels, the Treasury market would need to find nearly $6 trillion of buyers to purchase the securities the Fed has bought since the pandemic. With America's federal deficit at historically high structural levels and both candidates promising tax cuts as part of their campaigns, the need for large scale purchases of Treasuries is likely to remain.

Prior to the pandemic, foreign investors owned 29% of total outstanding Treasury debt, versus 23% today. To return to the 29% level, foreign investors would need to purchase $2 trillion in Treasuries (U.S. Treasury 2024).[22] This would require a reorientation of the balance of payments from whatever assets foreign investors are currently purchasing more toward U.S. Treasuries.

If foreign investors increase their purchases of U.S. Treasuries instead of buying other domestic assets, it would reduce the pool of domestic capital available in those countries (Neely 99).[23] If foreigners reduced their American debt purchases from buying assets from other countries, it would impact those other foreign (non-U.S.) assets (Graham et al. 2014).[24] Assuming those

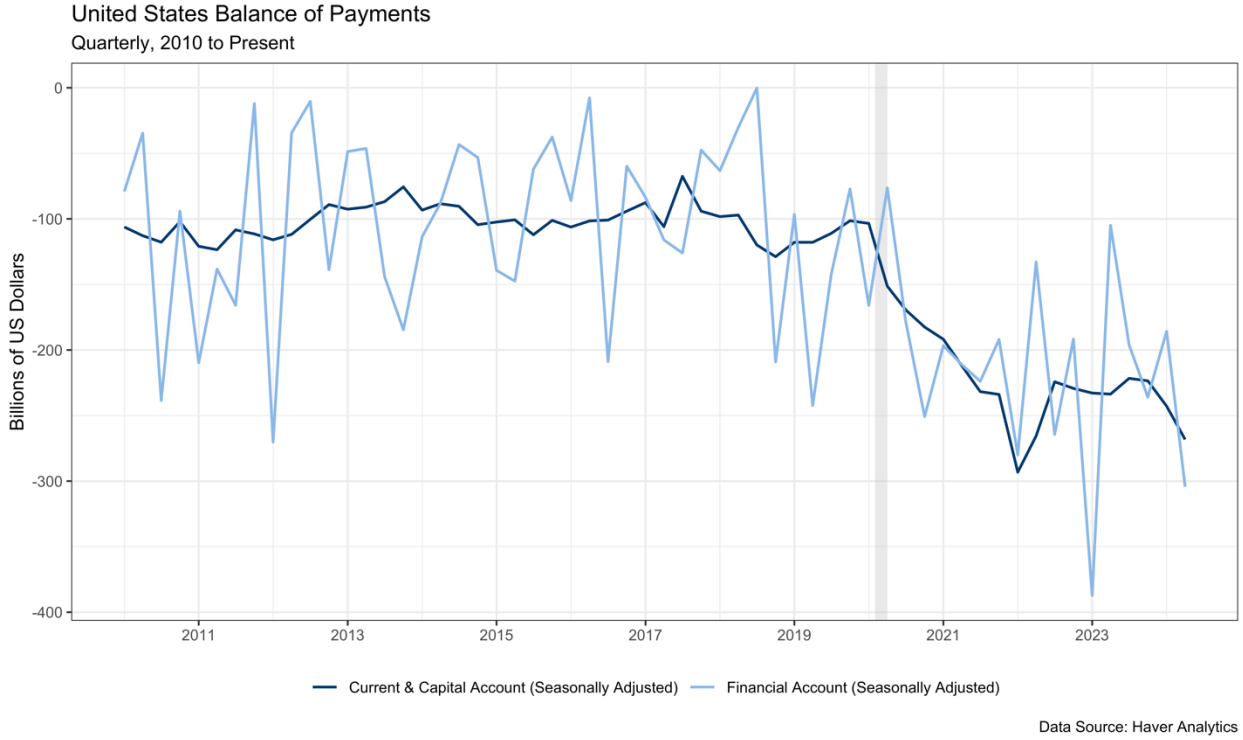
[21] Chart by Authors; Data from Board of Governors of the Federal Reserve System (US)
[22] U.S. Department of the Treasury, Bureau of the Fiscal Service, *Treasury Bulletin*, September 2024, accessed October 21, 2024, https://fiscal.treasury.gov/reports-statements/treasury-bulletin/.
[23] Neely, Christopher. (1999). An Introduction to Capital Controls. Review. 81. 13-30. 10.20955/r.81.13-30.
[24] John Graham, Mark T. Leary, and Michael R. Roberts, *How Does Government Borrowing Affect Corporate Financing and Investment?*, NBER Working Paper Series, no. w20581 (Cambridge, Mass: National Bureau of Economic Research, 2014).

foreign assets are not dollar denominated, it would increase the demand for U.S. dollars, potentially increasing the value of the dollar (Devereux et al. 2023).[25] That would impact the balance of trade by making U.S. exports more expensive and increasing imports (Chakraborty et al. 2015)[26] and ultimately slow the U.S. economy.

A Closer Look at America's Balance of Trade

The United States' current account deficit expanded during the pandemic and shows little signs of returning to its pre-pandemic level. Figure 8 shows that prior to the pandemic the current account deficit was roughly stable at $100 billion. During the pandemic it more than doubled to $250 billion. Since the pandemic, it appears stable at this new equilibrium.

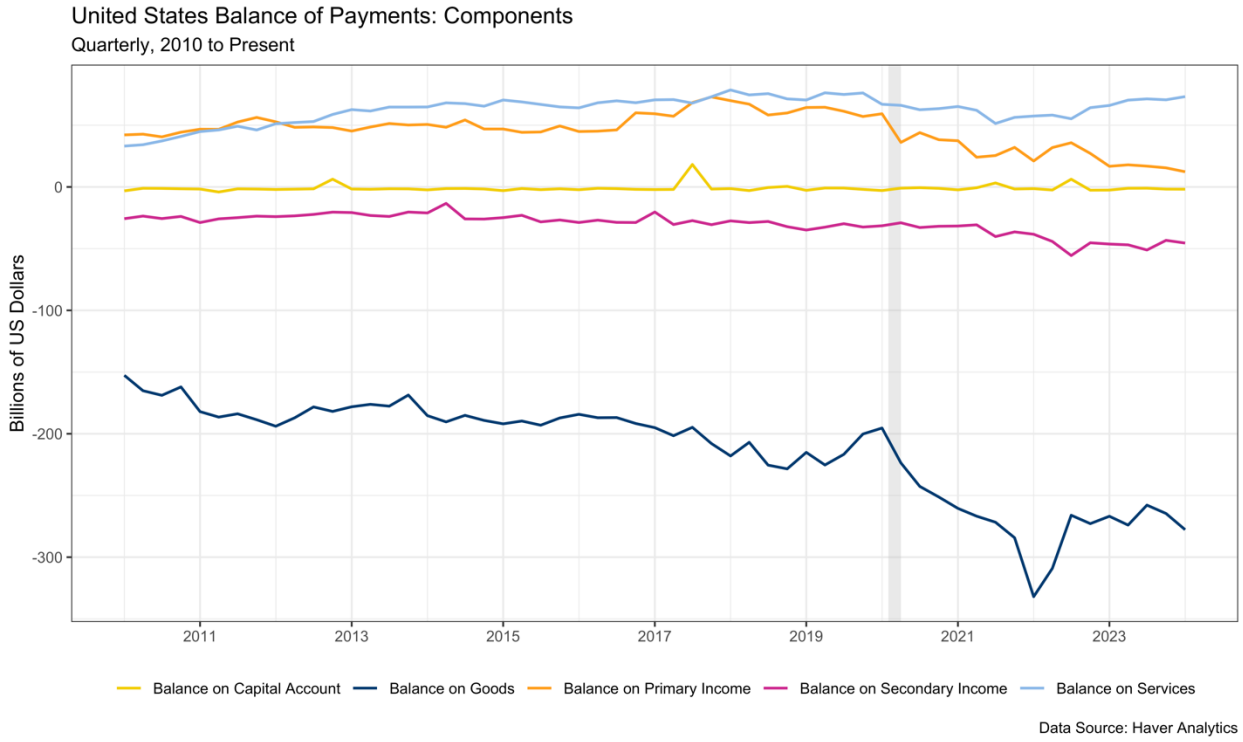
Figure 8. U.S. Financial Account and Current & Capital Account.[27]



[25] Michael B. Devereux, Charles Engel, and Steve Pak Yeung Wu, *Collateral Advantage: Exchange Rates, Capital Flows and Global Cycles*, NBER Working Paper Series, no. w31164 (Cambridge, Mass: National Bureau of Economic Research, 2023).
[26] Suparna Chakraborty, Yi Tang, and Liuren Wu, "Imports, Exports, Dollar Exposures, and Stock Returns," *Open Economies Review* 26, no. 5 (November 1, 2015): 1059–79, https://doi.org/10.1007/s11079-015-9362-z.
[27] Haver Analytics United States (USECON): *BOP: Net Lending [+] or Net Borrowing [-], Financial Account (SA, Mil.$)* (BSBF@USECON[I]), *BOP: Net Lending [+] or Net Borrowing [-], Current & Capital Account (SA, Mil.$)* (BSBCK@USECON[I]) (accessed on October 15 2024).

The two main drivers of this trend are shown in Figure 9. The current account deficit increase is caused by an increase in the deficit of trade in goods (blue line) and a decrease in the balance of primary income (orange line).

Figure 9. U.S. Balance of Payments Breakdown.[28]



Looking more closely, the United States' trade deficit with China has decreased substantially, continuing what has been referred to as a decoupling between the world's two largest economies (Mavroidis and Sapir 2023).[29] The U.S. trade deficits with its next largest trading partners—Canada, Mexico, and Japan—have all increased (USTR 2024).[30] As a bloc, the European Union rivals Canada for total volume of trade and, here again, a post-pandemic increase in U.S. bilateral trade deficits with South Korea, Taiwan, and Vietnam all increased. The U.S. trade balance with Australia, Brazil, Hong Kong, Israel, Malaysia, Saudi Arabia, Singapore, South and Central America, and the UK have recovered to pre-pandemic levels and have not exhibited much change on net relative to pre-pandemic small trade deficits (or larger surpluses).

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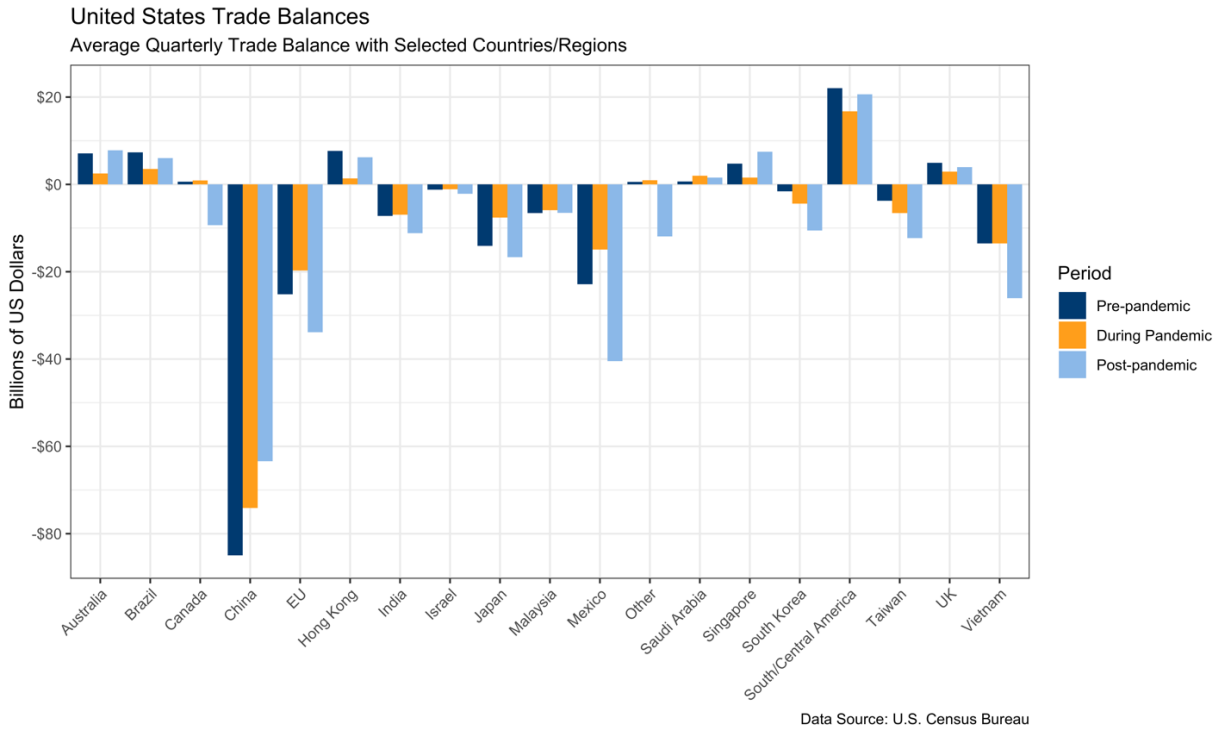
[28] Haver Analytics United States (USECON): *BOP: Balance on Goods (SA, Mil $)* (BSBCG@USECON[I]), *BOP: Balance on Services (SA, Mil $)* (BSBCS@USECON[I]), *BOP: Balance on Primary Income (SA, Mil $)* (BSBCY@USECON[I]), *BOP: Balance on Secondary Income (SA, Mil $)* (BSBCT@USECON[I]), *BOP: Balance on Capital Account (SA, Mil $)* (BSBK@USECON[I]) (accessed on October 16 2024).

[29] Mavroidis, Petros C., and André Sapir. "US-China Decoupling: Rhetoric and Reality." *VoxEU*, September 14, 2023. https://cepr.org/voxeu/columns/us-china-decoupling-rhetoric-and-reality.

[30] Office of the United States Trade Representative. "Countries & Regions." *USTR.gov*. Accessed October 14, 2024. https://ustr.gov/countries-regions.

Figure 10. Average Trade Balance for Selected Countries.[31]

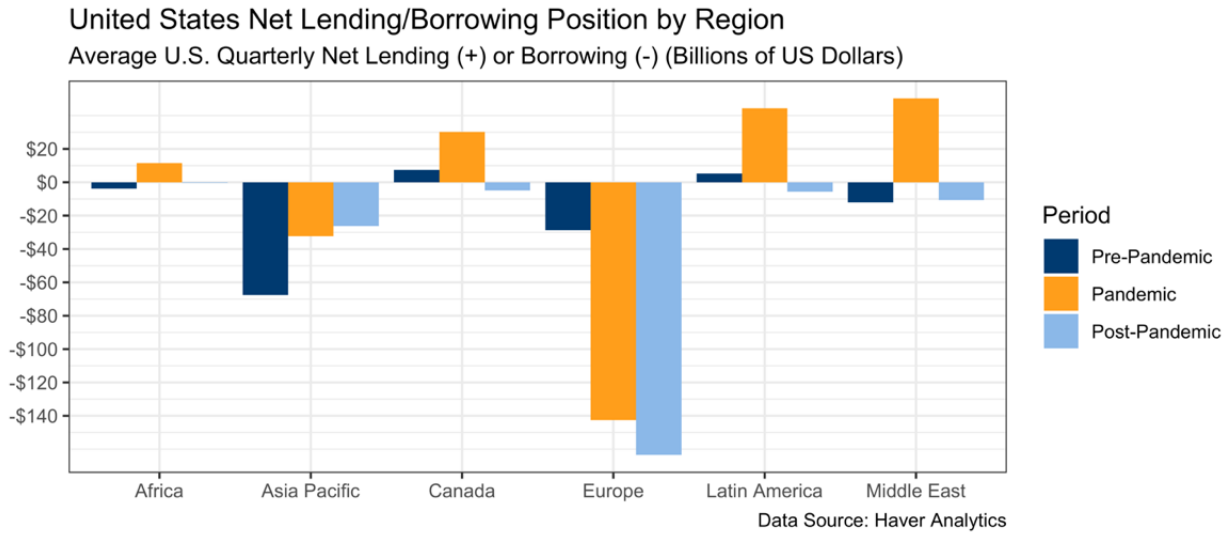


Europe Becomes the U.S.'s Largest Financial Account Lender, Replacing Asia-Pacific Region

Within the U.S. balance of payments, there was a substantial change in the financial account sectors. Europe has become the largest lender to the U.S., surpassing the Asia-Pacific region, which was the largest pre-pandemic financial account lender. Financial account borrowing from Europe spiked during the pandemic and remains elevated, even increasing slightly further since the pandemic as shown in Figure 11 below.

[31] U.S. Census Bureau. *Foreign Trade: Balance*. Accessed October 25, 2024. https://www.census.gov/foreign-trade/balance/.

Figure 11. U.S. Quarterly Net Lending/Borrowing by Region.[32]



The magnitude of Europe's average quarterly post-pandemic lending to the U.S. ($163.5 billion) is over twice as large as Asia-Pacific pre-pandemic lending ($67.5 billion). This massive change in the way American financial instruments are purchased would be a substantial structural shift in the way in which the United States finances its current account deficit if it continues. It suggests that Europe may allow the U.S. to decouple from Asia in a way that maintains its current account deficit through foreign financing.

Decomposing the data further as shown in Figure 12 below, China retrenched its holding by $254 billion, a reduction of more than 5 percent of total U.S. Treasury debt owned by foreign nations pre pandemic. The UK picked up much of this slack, growing their gross U.S. Treasury debt holdings by 73%. Japan, the largest holder of U.S. Treasury debt among foreign nations, kept their nominal holdings relatively constant, which given the large rise in total debt issued and the smaller proportional rise in debt held by foreign countries, reduced its share of U.S. debt held modestly. Another note is Canada's emergence from a non-top 10 holder to the 5th largest holder of U.S. debt. The question going forward is how will the private market respond to the levels of Treasury debt outstanding with the Federal Reserve's Treasury purchases during QE having ended. As China retreats, foreign nations purchasing America's debt are increasingly part of the English-speaking sphere (UK, Canada, Ireland).

[32] Haver Analytics United States (USECON): *Net Lend[+] or Net Borrow[-] from Finl-Acct Transaction(NSA, Mil.$)* (BNBFCA@USINT, BNBFEP@USINT, BNBFZT@USINT, BNBFAC@USINT, BNBFMI@USINT, BNBFSP@USINT) (accessed on 15 October 2024).

Figure 12. Foreign Holders of Federal Debt by Country.[33]

Table 2. Top 10 Foreign Holders of Federal Debt, by Country

	December 2023			December 2019	
Country	Amount Held ($ billions)	Percentage of All Foreign Holdings in Federal Debt	Country	Amount Held ($ billions)	Percentage of All Foreign Holdings in Federal Debt
Japan	$1,136.7	14.30%	Japan	$1,155.2	16.88%
Mainland China	$816.3	10.27%	Mainland China	$1,069.9	15.63%
United Kingdom	$679.2	8.55%	United Kingdom	$392.1	5.73%
Luxembourg	$370.7	4.66%	Ireland	$281.9	4.12%
Canada	$336.1	4.23%	Brazil	$281.8	4.12%
Ireland	$331.5	4.17%	Luxembourg	$254.6	3.72%
Belgium	$314.4	3.96%	Hong Kong	$249.7	3.65%
Cayman Islands	$305.4	3.84%	Cayman Islands	$238.2	3.48%
Switzerland	$287.9	3.62%	Switzerland	$237.5	3.47%
Taiwan	$252.5	3.18%	Belgium	$207.4	3.03%
Total top 10 countries of foreign investors in federal debt	$4,830.7	60.8%	Total top 10 countries of foreign investors in federal debt	$4,368.3	63.8%
Total all foreign investment in federal debt	$7,946.5	100%	Total all foreign investment in federal debt	$6,844.2	100%

Source: Treasury Department International Capital System (TIC), https://www.treasury.gov/resource-center/data-chart-center/tic/Documents/mfhhis01.txt.

Notes: Data, including estimated foreign holders of federal debt historically by month, in these Treasury Department tables are periodically adjusted. Aggregate data totals in **Table 1** vary slightly from aggregate data totals in **Table 2** because of minor technical differences between the two sources. Percentage approximations calculated by CRS. Percentages may not sum to 100% due to rounding. Data current as of June 10, 2024.

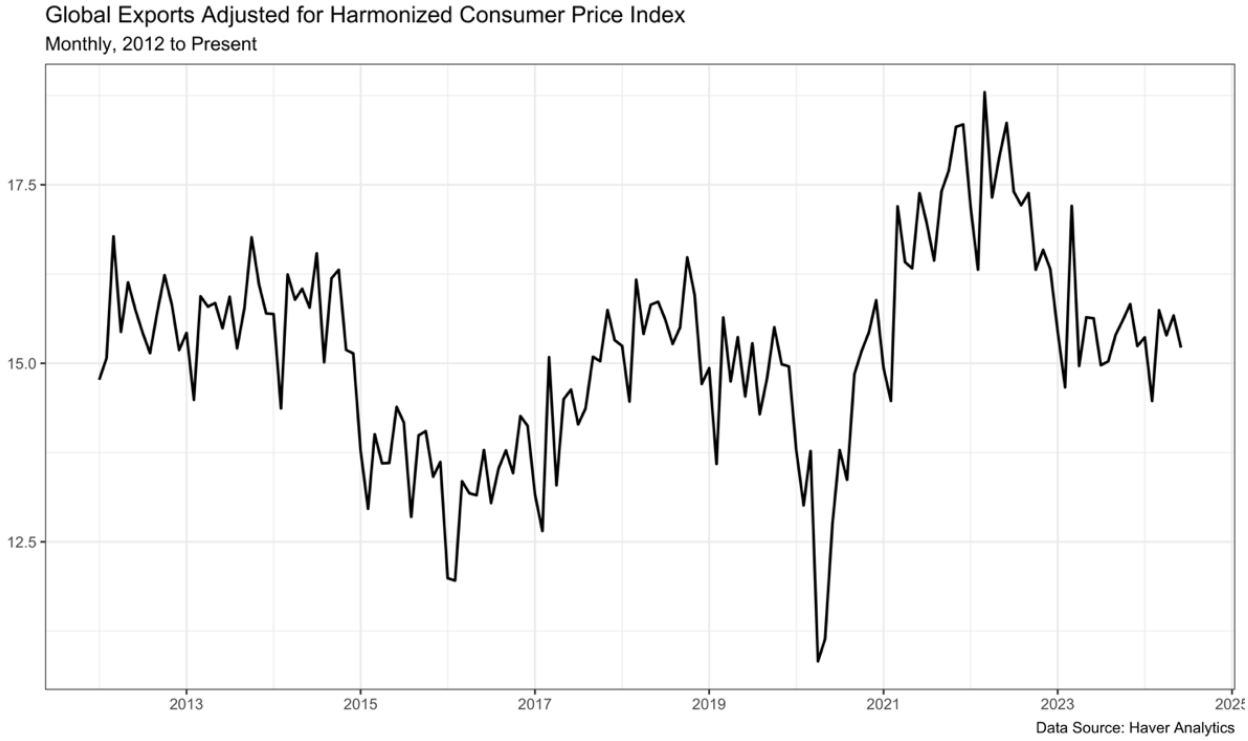
Global Trade Resumes

Pandemic restrictions and supply chain disruptions slowed trade, but trade resumed after the pandemic restrictions were lifted. Before adjusting for inflation, global trade in early 2024 appeared to be higher than in 2018 (Attinasi et al. 2024).[34] Adjusting for inflation using the Harmonized Consumer Price Index, global trade was consistent with 2018 levels.

[33] Reproduced from Marc Labonte and Ben Leubsdorf, *Foreign Holdings of Federal Debt*, RS22331 (Washington, D.C.: Congressional Research Service, December 18, 2020), https://crsreports.congress.gov/product/pdf/RS/RS22331.

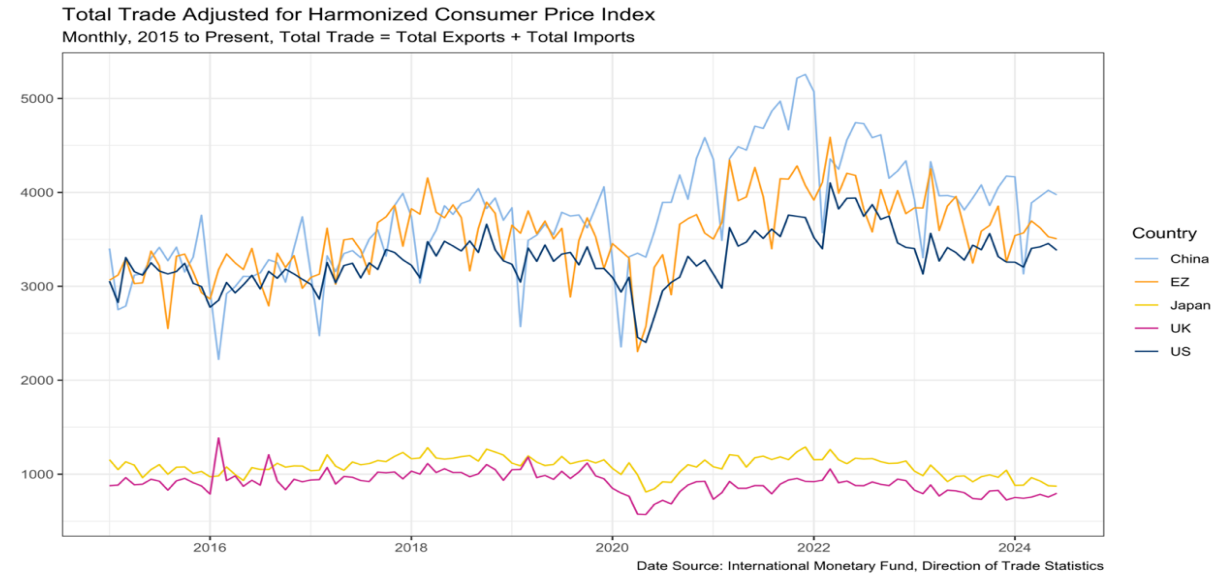
[34] Attinasi, Maria Grazia, Lukas Boeckelmann, Laura Hespert, Jan Linzenich, and Baptiste Meunier. "The Impact of Global Shocks on the Euro Area Economy." *ECB Economic Bulletin*, Issue 1/2024. European Central Bank, 2024. https://www.ecb.europa.eu/press/economic-bulletin/focus/2024/html/ecb.ebbox202401_01~d1c3b1b0a5.en.html.

Figure 13. Global Exports Adjusted for Harmonized Consumer Price Index.[35]



Not surprisingly, the U.S., the EU, China, Japan, and the UK have all similarly exceeded pre-pandemic trade levels, as shown in Figure 14 below.

Figure 14. Total Trade for U.S., U.K., China, Japan, and the European Union.[36]



[35] Haver Analytics Direction of Trade, Monthly (IMFDOTM) (accessed on 17 October 2024); Haver Analytics Euro Area & EU (EUDATA): *Harmonized Indexes of Consumer Prices (overall index)* (accessed on 17 October 2024)
[36] Haver Analytics Direction of Trade, Monthly (IMFDOTM) (accessed on 17 October 2024); Haver Analytics Euro Area & EU (EUDATA): *Harmonized Indexes of Consumer Prices (overall index)* (accessed on 17 October 2024)

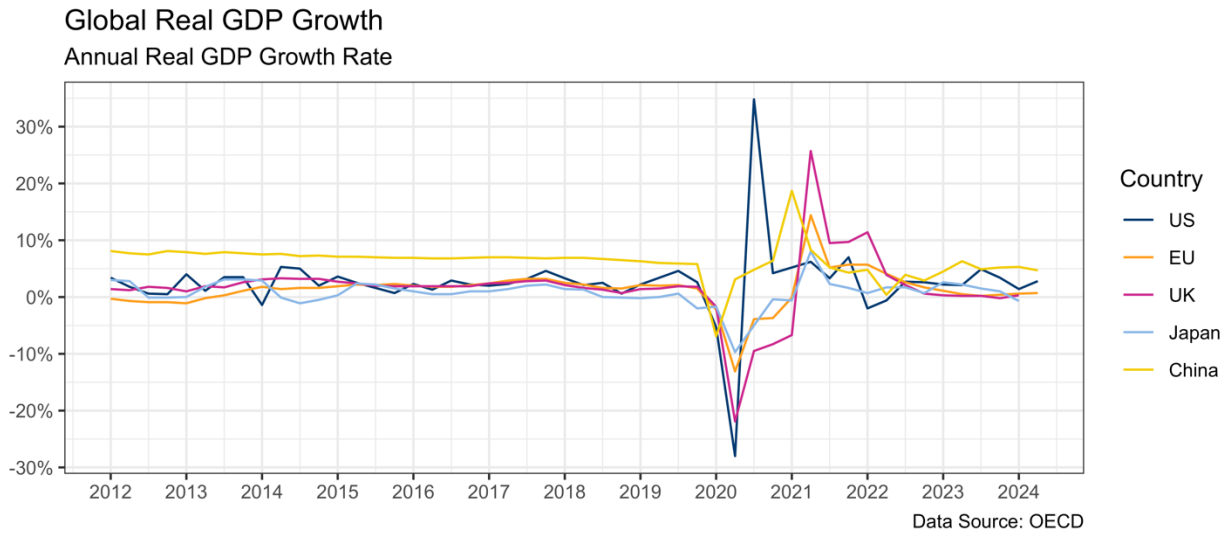
Growth and Perceptions of Growth

This section explores the ways in which the U.S. economy grew during and after the pandemic. During this period, the U.S. economy grew faster than its developed counterparts. This growth featured an investment boom. The investment boom portends a potential source of continued economic strength for the U.S. and the possibility of a change in global ordering on several metrics. However, despite this boom, American sentiment about the condition of the economy lagged that of peer nations.

U.S. GDP Recovered Fastest After the Pandemic

The U.S. economy recovered the quickest of major economies following the pandemic and has maintained stronger growth relative to pre-pandemic trend (Stone 2024).[37] As Figure 15 shows, America's snap back happened in 2020. China was the next-fastest several quarters later at the end of 2020, with Japan, UK, and the EU not having their main Covid bounce-back quarters until 2021.

Figure 15. Annual Real GDP Growth.[38]



Gross investment and capital formation tell a different but complementary story. While the U.S. and the EU showed roughly similar trends before and through the 2008 global financial crisis, the U.S. resumed growth in 2013 and gradually built up a stronger rate of gross investment, as seen in Figure 16. This structural gap remained through the pandemic but then widened sharply

[37] Stone, Chad. "Chart Book: Tracking the Recovery From the Pandemic Recession." *Center on Budget and Policy Priorities*, April 3, 2024. https://www.cbpp.org/research/economy/tracking-the-recovery-from-the-pandemic-recession

[38] OECD (2024), "Quarterly GDP" (indicator), https://doi.org/10.1787/b86d1fc8-en (accessed on 20 October 2024)

following the pandemic. Through the pandemic, the U.S.-EU gap in investment and capital formation was roughly stable between $250 billion to $350 billion, then grew to $520 billion by 2024 Q1 as shown in the Figure 17.

Figure 16. Gross Investment and Capital Formation.[39]

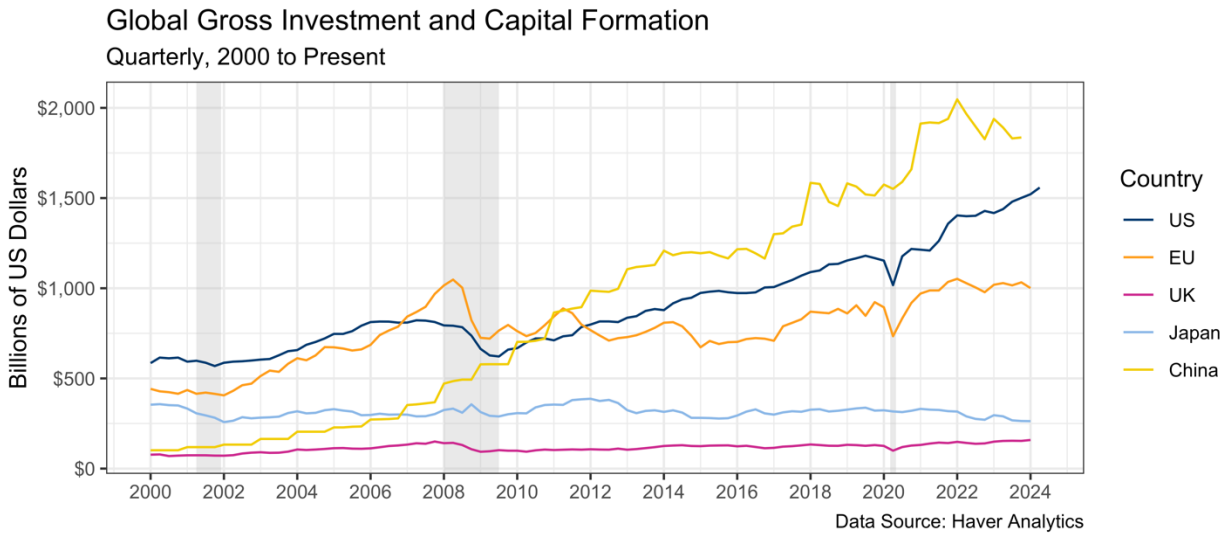
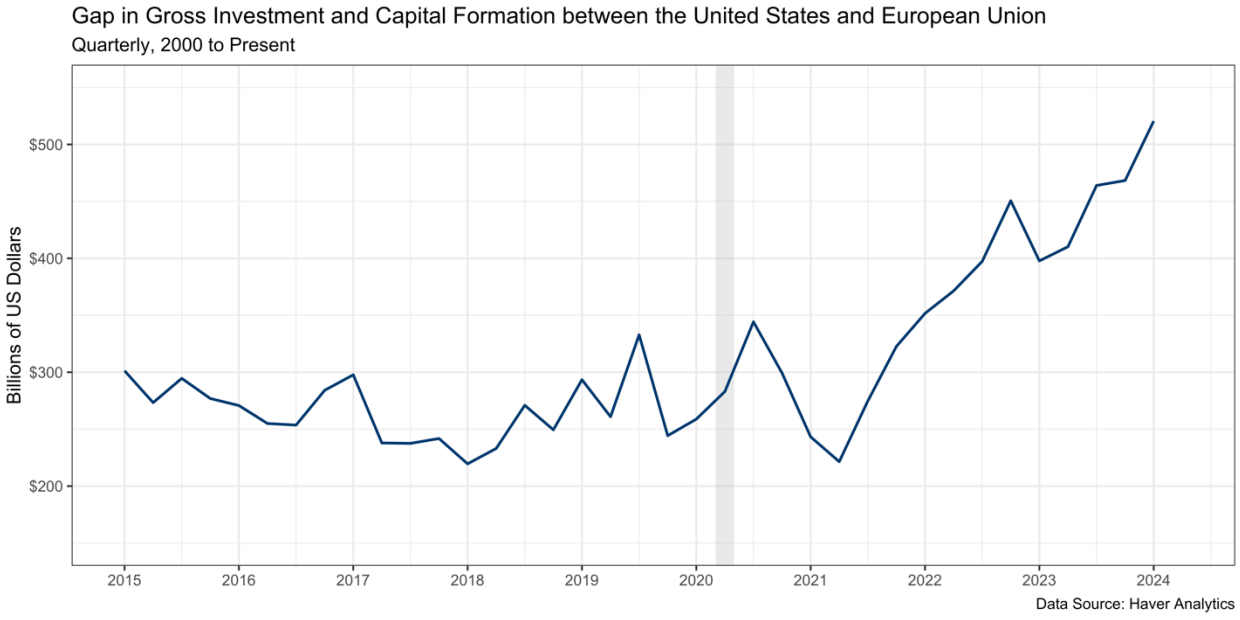


Figure 17. Gap between U.S. and E.U. Gross Investment and Capital Formation.[40]



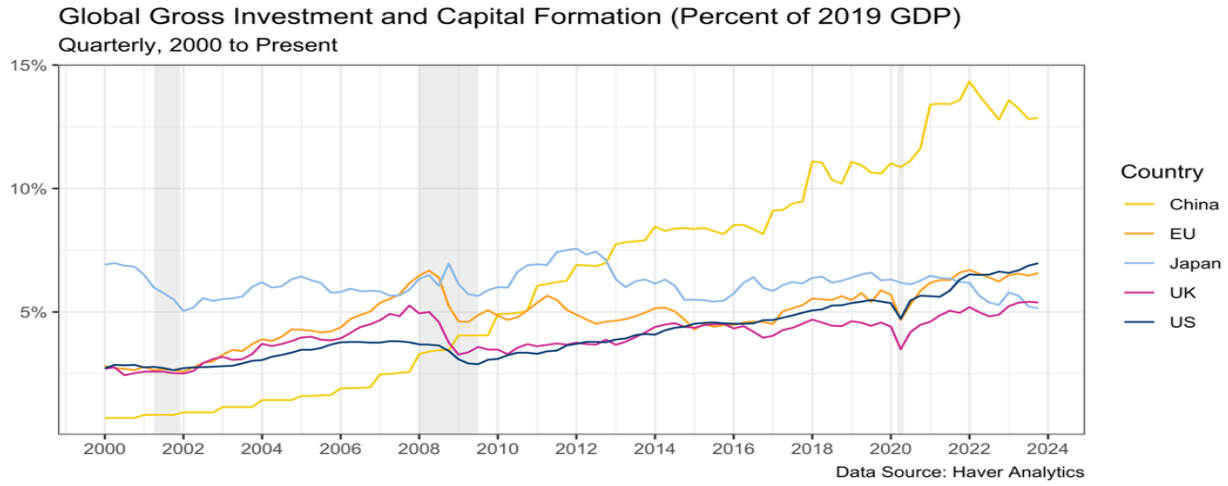
[39] Haver Analytics: *China: GDP: Investments (Bil. Yuan)* (A924NFB@EMERGEPR), *UK: GDP: Changes in Inventories and Stocks (SA, Mil.Pounds)* (CAEXQ@UK + NPQSQ@UK), *Japan: GDP: Gross Domestic Capital Formation (SAAR, Bil.Yen)* (N9D2@JAPAN), *Gross Domestic Investment (SAAR, Mil.$) (IDGX@USNA)*, *EU27: Gross Capital Formation (SWDA, Mil.EUR)* (J997GCFN@EUDATA) (accessed on 19 October 2024)
[40] Haver Analytics: *Gross Domestic Investment (SAAR, Mil.$) (IDGX@USNA)*, *EU27: Gross Capital Formation (SWDA, Mil.EUR)* (J997GCFN@EUDATA) (accessed on 21 October 2024)

China's post-pandemic experience has been one of decline or plateau. This follows a massive run-up in gross investment and capital formation since economic liberalization. It may be that China's current investment and capital formation level, approaching $2 trillion per quarter, is at an equilibrium given the size and status of its economy. Or it could be that China's post-Covid economy is structurally able to accommodate only this level and that had the pandemic never happened, pre-pandemic growth would have continued. This counterfactual will be impossible to know given the long-term impacts of the pandemic and changing nature of global trade (Zhengyuan 2024).[41]

It is still early to tell if the United States' trend of higher levels of gross investment and capital formation will remain consistently ahead of Europe or whether China's gross investment and capital formation will remain around its current level. America's stronger economic growth than Europe's makes it appear more likely that the trends of these two major economies may be different on this dimension going forward. If the U.S. and China maintain their post-pandemic rates of growth, the U.S. will pass China in gross investment and capital formation perhaps as early as 2026, reversing an order that started in 2010, when the U.S. was struggling with the impact of its housing crash and the global financial crisis.

Economic performance during and after the pandemic appears to explain much of the investment and capital formation gap between the U.S. and the EU. Measuring gross investment against 2019 national GDP, the differences between the U.S. and the EU largely disappear. China's growth since 2019 looks more substantial. This leads to the conclusion that overall economic growth differences are the main driver of gross investment and capital formation differences as shown in Figure 18 below.

Figure 18. Gross Investment and Capital Formation as Percent of 2019 GDP.[42]



[41] Zhengyuan, B. "COVID-19: Catalyzing US-China Supply Chain Realignments." In *COVID-19 and US-China Relations*, chapter 4, 71-89. OAPEN, 2024. https://library.oapen.org/bitstream/handle/20.500.12657/92659/978-3-031-54766-9.pdf?sequence=1#page=71.
[42] Haver Citation

Indicators of America's strong investment can be found in its record new business creation levels. Total monthly business applications reached a record high 545,914 in July 2020 and have remained above 400,000 since, well up from the pre-pandemic high of 314,337 in December 2019 (U.S. Census Bureau). Decker and Haltiwanger link the sustained increase in new business formation to the pandemic spike in quits (Decker and Haltiwanger).[43] Specifically, the pandemic shifted workers' lifestyle preferences towards increased flexibility and working from home, while altering consumer behavior towards online services, creating new market opportunities. As a result, workers who had left jobs found it attractive and easy to pursue entrepreneurship (Decker and Haltiwanger).[44] The 2021 American Rescue Plan Act also played a major role, as the stimulus helped fund new entrepreneurs and reduced the financial risk of failure (Duke 2024).[45]

Pandemic Response Programs Achieve Target of Reducing Poverty

The benefits of the pandemic and post-pandemic economy were felt substantially at the bottom of America's economic distribution. The U.S. has long had higher rates of income inequality than Europe, the UK, Japan, and many other advanced economies (Santacreu and Zhu 2017).[46] The pre-pandemic U.S. Gini Index hovered above 40 compared to below 35 in the EU, the UK, and Japan (World Bank 2024).[47] However, the pre-pandemic period featured the longest sustained economic expansion on record, reducing U.S. unemployment to historically low levels (Ansell and Mullins 2021).[48] Despite the prolonged strong labor market and economy, nearly 41 million Americans were in poverty in 2019, including 9.9 million children. During the pandemic those figures dropped sharply to 26.4 and 4.0 million respectively. This drop is largely attributed to government fiscal assistance, including substantial per capita payments. These included: the CARES Act, the Consolidated Appropriations Act, and the American Rescue Plan Act. Once expanded payments from some of these programs ended in 2022, poverty figures snapped back to pre-pandemic totals for Americans overall (although slightly less for children, as seen in Figure 19 below).

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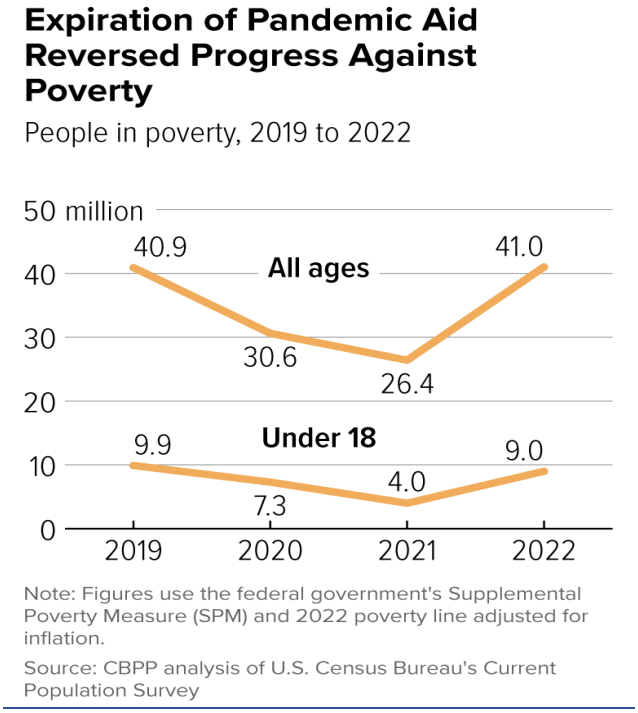
[43] Decker, Ryan A. and John Haltiwanger. 2023. "Surging Business Formation in the Pandemic: Causes and Consequences?" *Brookings Papers on Economic Activity*, Fall. 249-302.
[44] Ibid
[45] Duke, Brendan. "Entrepreneurship, Startups, and Business Formation Are Booming Across the U.S." *Center for American Progress*, March 18, 2024. https://www.americanprogress.org/article/entrepreneurship-startups-and-business-formation-are-booming-across-the-u-s/.
[46] Ana Maria Santacreu and Heting Zhu, "How Does U.S. Income Inequality Compare Worldwide?," St. Louis Fed On the Economy, Oct. 16, 2017.
[47] World Bank, "*Gini Index (World Bank Estimate)*," in *World Development Indicators*, The World Bank Group, accessed October 21, 2024, https://data.worldbank.org/indicator/SI.POV.GINI.
[48] Ryan Ansell and John P. Mullins. "COVID-19 Ends Longest Employment Recovery and Expansion in CES History, Causing Unprecedented Job Losses in 2020." Monthly Labor Review, U.S. Bureau of Labor Statistics, June 2021. https://www.bls.gov/opub/mlr/2021/article/covid-19-ends-longest-employment-expansion-in-ces-history.htm.

Figure 19. Expiration of Pandemic Aid Reversed Progress Against Poverty.[49]



Perceptions of Growth and Macroeconomic Indicators are Inverted

The U.S. economy did remarkably well compared to other major economies at responding to the Covid-induced recession. The U.S. experienced strong economic growth, a robust labor market, large capital inflows and business creation, and substantial reductions in poverty. The economic rebound defied projections made during the pandemic, including in 2023 when an astounding 100% of economists surveyed predicted a recession while instead the economy grew by 2.5% (Wingrove 2022; CEA 2023).[50]

Thus, one should expect Americans to feel relatively better about their nation's post-pandemic economy than others. However, Americans perceive the economic situation in the U.S. negatively. Perception was so negative that the term "vibecession' was coined to discuss the disconnect between actual economic performance and perception (Smith 2024).[51]

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[49] Reproduced from Danilo Trisi, "Expiration of Pandemic Relief Led to Record Increases in Poverty and Child Poverty in 2022," Center on Budget and Policy Priorities, June 10, 2024. https://www.cbpp.org/research/federal-tax/about-16-million-children-in-low-income-families-would-gain-in-first-year-of.

[50] Josh Wingrove, "Forecast for U.S. Recession Within Year Hits 100% in Blow to Biden," Bloomberg, October 17, 2022, https://www.bloomberg.com/news/articles/2022-10-17/forecast-for-us-recession-within-year-hits-100-in-blow-to-biden; Council of Economic Advisers. *Ten Charts That Explain the U.S. Economy in 2023*. December 19, 2023. Accessed October 23, 2024. https://www.whitehouse.gov/cea/written-materials/2023/12/19/ten-charts-that-explain-the-u-s-economy-in-2023/

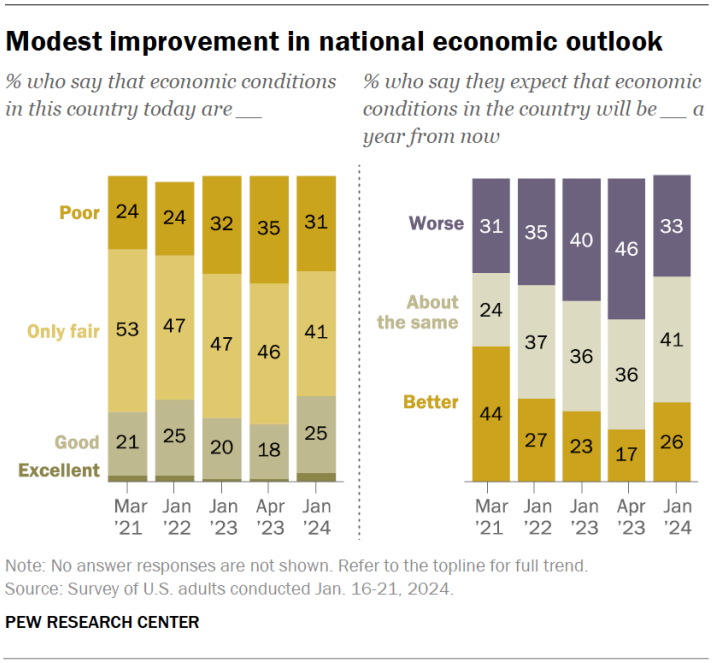
[51] Vanek Smith, Stacey. "Why Are We in a Vibecession When Economic Data Looks Good?" *Marketplace*, June 25, 2024. https://www.marketplace.org/2024/06/25/economic-data-glum-vibes-vibe-cession-pessimism/.

In contrast, Europeans perceive the economic situation in their countries relatively positively even though unemployment is higher and real GDP growth is lower. Perceptions in the UK are similar to the U.S., which is interesting since both countries engaged in substantial economic stimulus and had stronger economic recoveries than the EU.

The facts show that Americans' economic perceptions during and post-pandemic started pessimistic and got worse even as the economy rebounded. A report by the Pew Research Center found that 35% of Americans described the economy as "Poor" in April 2023, an increase of 45% from levels seen during the pandemic (March 2021 and January 2022) (PEW 2024).[52] It is worth noting that the decline in economic outlook was occurring at the same time as the snap back in poverty during 2022. It is possible that part of the sentiment decline was related to the return of poverty levels to their pre-pandemic rates.

Pessimism extended beyond the moment, infecting views about the future; 46% of Americans expected the economy to be worse a year from now (in April 2023), compared to projections during the pandemic (March 2021). Only 17% expected conditions to improve, a sharp decline from readings taken during the pandemic. As Figure 20 shows, those numbers rebounded slightly in January 2024 but remained below pandemic levels.

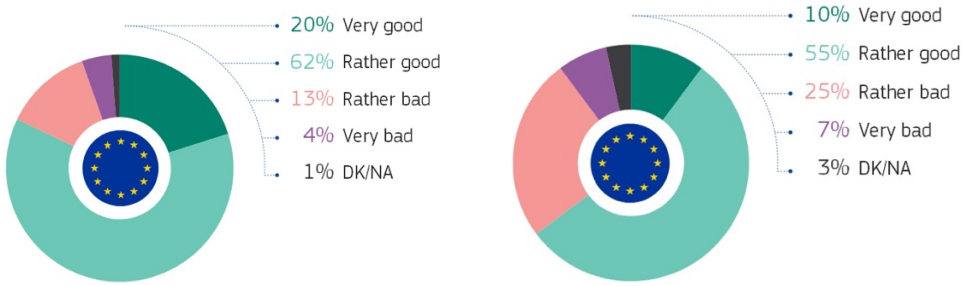
Figure 20. Modest improvement in national economic outlook.[53]



[52] Pew Research Center. "Views of the Nation's Economy." *Pew Research Center*, January 25, 2024. https://www.pewresearch.org/politics/2024/01/25/views-of-the-nations-economy/.
[53] Reproduced from Pew Research Center. "Views of the Nation's Economy." Pew Research Center: U.S. Politics & Policy. January 25, 2024. https://www.pewresearch.org/politics/2024/01/25/views-of-the-nations-economy/.

In contrast, Europeans have a positive view of their quality of life and economic outlook. As shown in Figure 21, when asked in January and February of 2024, 82% of Europeans report quality of life of "Very good" or "Rather good" and 65% report the same of their economic situation.

Figure 21. Quality of Life (left) and Economic Situation (right).[54]



European Union consumer confidence shows a more pronounced and expected increase during the post-pandemic recovery. Figure 22 below shows a two-pronged impact on confidence from the sharp decline when the pandemic hit, a subsequent rise as the pandemic receded, an even sharper decline through the end of the pandemic that bottomed out in October 2022, and then steady growth trend.

Figure 22. European Union Consumer Confidence.[55]

[54] Reproduced from European Commission. *Standard Eurobarometer 100: Public Opinion in the European Union, Summer 2023*. Eurobarometer Survey 100, September 2023. https://europa.eu/eurobarometer/surveys/detail/3218.

[55] European Commission. *Business and Consumer Surveys: Time Series Data.* Directorate-General for Economic and Financial Affairs. Last modified July 2024. Accessed October 24, 2024. https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en.

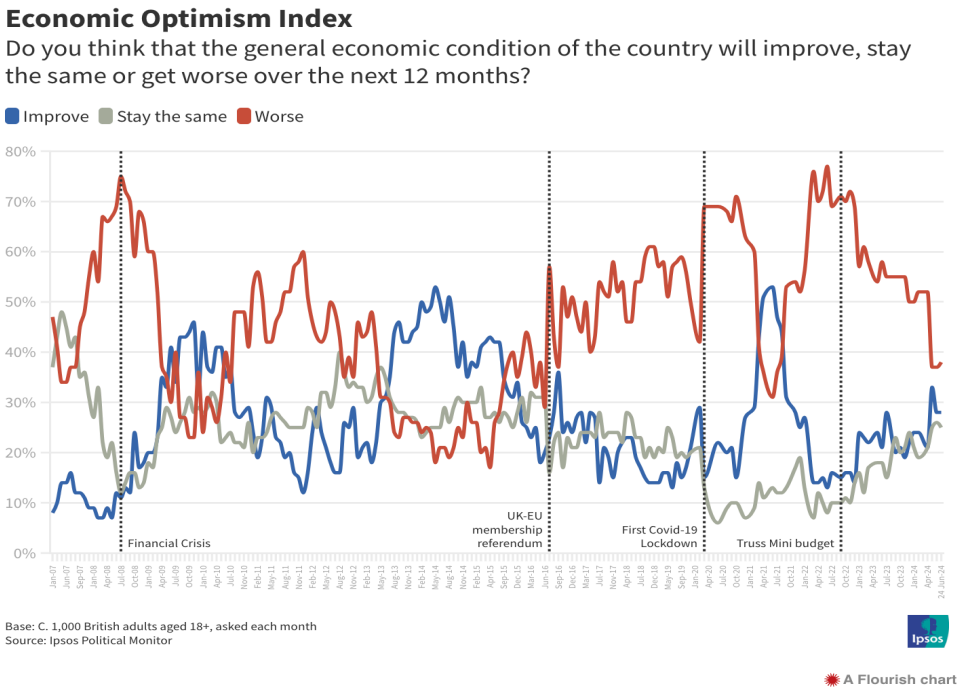
Europeans were increasingly optimistic during the pandemic, even surpassing pre-pandemic levels, only to see that confidence recede in the post pandemic world and stabilize at a lower rate than prior to the pandemic, as shown in Figure 23.

Figure 23. European Union Economic Optimism Index.[56]

The UK's consumer sentiment trend was more similar to the U.S. than the EU. In the UK the majority of people believed consistently during the pandemic—with one exceptional surge during 2021—that the economy was getting worse. The brief and failed tenure of Prime Minister Liz Truss corresponded with record levels of economic pessimism. UK optimism has risen since then with pessimism now returning to levels seen around the 2016 Brexit referendum, as shown in Figure 24 below.

[56] European Commission. *Business and Consumer Surveys: Time Series Data.* Directorate-General for Economic and Financial Affairs. Last modified July 2024. Accessed October 24, 2024. https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/business-and-consumer-surveys/download-business-and-consumer-survey-data/time-series_en.

Figure 24. U.K. Economic Optimism Index.[57]



Misery Index and Distribution

There are many theories for why the economy is perceived to be in poor condition in the U.S. (Smialek 2024).[58] This paper considers three: the asymmetric impact of inflation or employment, increased political polarization, and measurement error. Political polarization was discussed above.

Turning to the question of inflation, macroeconomists have tried to capture consumer sentiment on the economy as Brookings' Arthur Okun popularized the misery index, a simple addition of the inflation and unemployment rates (Nessen 2023).[59] The misery index has been widely used as a measure to capture what consumer sentiment should be based on economic fundamentals (Irwin 2023).[60] The index fell from the time it was coined in the 1970s through the pre-pandemic periods, as trend inflation and NAIRU both fell in the U.S.

[57] Reproduced from Ipsos "Economic Optimism Index (EOI): State of the Economy 1997 - Present." Ipsos, Accessed October 21, 2024. https://www.ipsos.com/en-uk/economic-optimism-index-eoi-state-economy-1997-present.
[58] Smialek, Jeanna. "Why Are People So Down About the Economy? Theories Abound." *The New York Times*, May 30, 2024. https://www.nytimes.com/2024/05/30/business/economy/inflation-economy-americans.html.
[59] Nessen, Ron. "The Brookings Institution's Arthur Okun: Father of the Misery Index." *Brookings*, June 1, 2023. https://www.brookings.edu/articles/the-brookings-institutions-arthur-okun-father-of-the-misery-index/.
[60] Irwin, Neil. "The Misery Index Is Falling Fast." Axios, June 26, 2023. https://www.axios.com/2023/06/26/misery-index-falling-fast.

During the pandemic the misery index rose, first as unemployment skyrocketed, then as inflation increased. However, the index fell as employment returned and inflation subsided. Yet as Paul Krugman wrote: "Misery seems to be taking a holiday" (Krugman 2022).[61] The Misery Index is 6.54 (September 2024) a level roughly equal to the 2016-2018 period when consumers were broadly much happier about the economy (Misery Index 2024).[62]

Pre-pandemic research by Ravallion argues that the misery index's simple addition of inflation and unemployment fails to adequately appreciate the distinct impact of each across the economic distribution spectrum (Ravallion 2021).[63] He argues that the misery index only captures sentiment for high-income people but doesn't capture the experience for lower income people. Instead Ravallion proposes that "[f]or the poorest, the effect of inflation is swamped by the unemployment rate."

Ravallion's thesis would imply that poorer Americans should be happier with the current economy's low unemployment rate and not as bothered by the recent spike of inflation. However, Federal Reserve Bank of Chicago President Austan Goolsbee argued that the pandemic-era inflation particularly hurt lower-income households harder (Goolsbee 2021) than others.[64] Goolsbee's argument builds on a Hobijn and Lagakos paper on "inflation inequality" that "inflation experiences of U.S. households vary significantly…cost of living increases are generally higher for the elderly, in large part because of their health care expenditures, and that the cost of living for poorer households is most sensitive to fluctuations in gasoline prices" (Hobjin and Lagakos 2003).[65] The United States' uniquely large health care sector and lack of nationalized health care could explain some of the idiosyncratic experiences of inflation there. Goolsbee speculated that the distributional impacts were exacerbated by the pandemic's unique impact of promoting virtual vs. in-person commerce overlayed on America's digital divide, noting that "shopping online is far more common among high-income people" and that online prices fell while the overall CPI rose during the pandemic.

The post-pandemic period is providing new data as to whether unemployment or inflation colors perception of economic unhappiness. The primary finding in the United States leans toward inflation. Inflation at these levels had not been experienced by Americans in 40 years meaning

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[61] Krugman, Paul. "The Misery Index Is Back." The New York Times, September 13, 2022. https://www.nytimes.com/2022/09/13/opinion/inflation-misery-index-economy-prices.html.
[62] "Misery Index," MiseryIndex.us, accessed October 21, 2024, https://www.miseryindex.us; University of Michigan, *Survey of Consumers: August 2023 Data Booklet*, August 2023, accessed October 21, 2024, https://data.sca.isr.umich.edu/fetchdoc.php?docid=76781.
[63] Ravallion, Martin. *Macroeconomic Misery by Levels of Income in America*. NBER Working Paper No. 29050. Cambridge, MA: National Bureau of Economic Research, July 2021. https://www.nber.org/papers/w29050.
[64] Goolsbee, Austan. "The Missing Data in the Inflation Debate." *New York Times*, December 30, 2021. https://www.nytimes.com/2021/12/30/opinion/inflation-economy-biden-inequality.html.
[65] Bart Hobjin and David Lagakos. *Inflation Inequality in the United States*. 173. October 2003. https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr173.pdf

that prior data and analysis on inflation's reaction among Americans relies on a different generational cohort in a different era. Despite widespread forecasts of a post-pandemic recession driven by the Federal Reserve's rate-tightening cycle, the U.S. economy both grew and continued to create jobs (Panday et al. 2024).[66] Inflation fell, and while the overall inflation rate is still above the Fed's target level of 2%, current inflation excluding housing meets (US Treasury 2022) the Fed's target rate.[67]

Housing's Role in Inflation and the Fed's Role in Creating Housing Inflation Through QE

The post-Covid economic recovery featured the highest inflation the U.S. has experienced in a generation. Year-over-year inflation peaked at 9% in 2022, as measured by the Consumer Price Index (CPI)[68]. The cause of this episode of inflation remains hotly debated. Federal Reserve Chairman Powell, in his 2024 speech in Jackson Hole, Wyoming listed multiple reasons for the outbreak of inflation including supply chain shocks, speed of demand snap-back post-pandemic, Russia's invasion of Ukraine, and tight labor markets.[69] Others cite unprecedented levels of fiscal stimulus and rapidly-shifting consumption preferences as underlying factors.[70] Housing was absent from Powell's list of drivers for inflation in the United States. This is more surprising given the role the Fed's quantitative easing played in buying the vast majority of mortgage-backed securities in the United States during the pandemic.

However, the path of housing inflation differed from overall inflation and remains elevated while other categories have cooled. As shown in Figure 25 below, before the pandemic, housing inflation had been stable and above overall CPI. During the beginning of the inflation spike in 2021, housing inflation remained low initially, falling below overall inflation for the first time in almost a decade at the start of 2021. After overall inflation took off, housing inflation followed.

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[66] Satyam Panday, Debabrata Das, and Soumyadip Pal. S&P Global. "Economic Outlook U.S. Q4 2024: Growth and Rates Start Shifting to Neutral." *S&P Global Ratings*, September 24, 2024. https://www.spglobal.com/ratings/en/research/articles/240924-economic-outlook-u-s-q4-2024-growth-and-rates-start-shifting-to-neutral-13258419.

[67] U.S. Department of the Treasury. "Statement by Benjamin Harris, Assistant Secretary for Economic Policy, for the Treasury Borrowing Advisory Committee." Press release, October 31, 2022. https://home.treasury.gov/news/press-releases/jy1062.

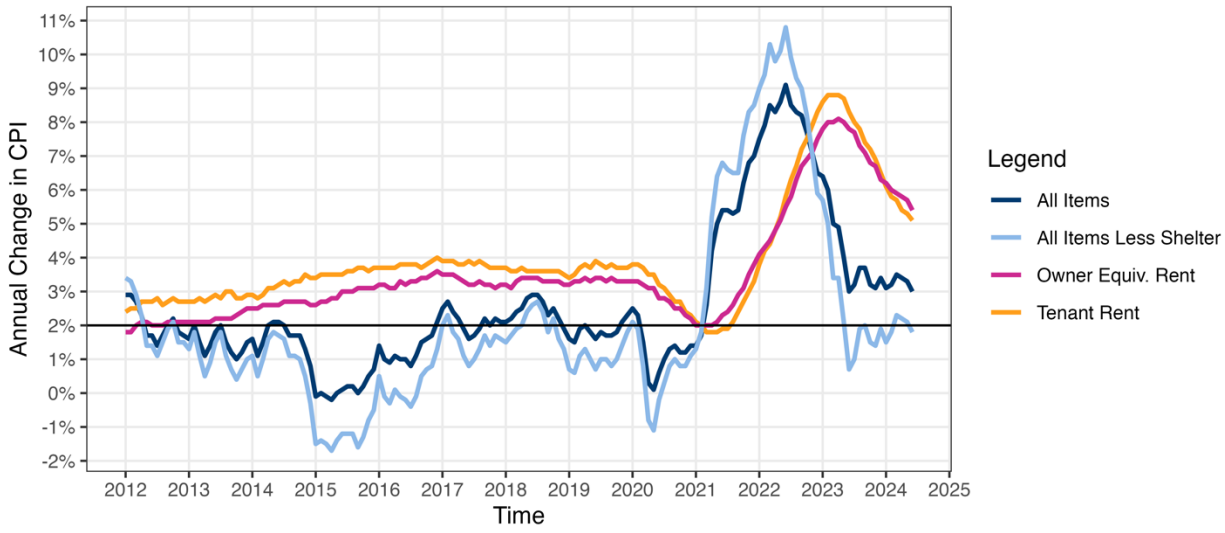
[68] This paper uses the specific measure of CPI-U as the benchmark for CPI as is often done.

[69] Jerome H. Powell, "Review and Outlook" (speech, "Reassessing the Effectiveness and Transmission of Monetary Policy," an economic symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, August 23, 2024), https://www.federalreserve.gov/newsevents/speech/files/powell20240823a.pdf.

[70] Ben Bernanke and Olivier Blanchard, "What Caused the U.S. Pandemic-Era Inflation?" (working paper, Hutchins Center Working Paper, The Brookings Institution, Washington D.C., 2023), 25, https://www.brookings.edu/wp-content/uploads/2023/06/WP86-Bernanke-Blanchard_6.13.pdf; Christoffer Koch and Diaa Noureldin, "How We Missed the Inflation Surge: An Anatomy of Post-2020 Inflation Forecast Errors" (Working Paper No. 2023/102. International Monetary Fund, 2023), https://www.imf.org/en/Publications/WP/Issues/2023/05/12/How-We-Missed-the-Inflation-Surge-An-Anatomy-of-Post-2020-Inflation-Forecast-Errors-533321; Dario Caldara et al., *The Effect of the War in Ukraine on Global Activity and Inflation*, FEDS Notes (Washington, D.C.: Board of Governors of the Federal Reserve System, 2022), https://www.federalreserve.gov/econres/notes/feds-notes/the-effect-of-the-war-in-ukraine-on-global-activity-and-inflation-20220527.html.

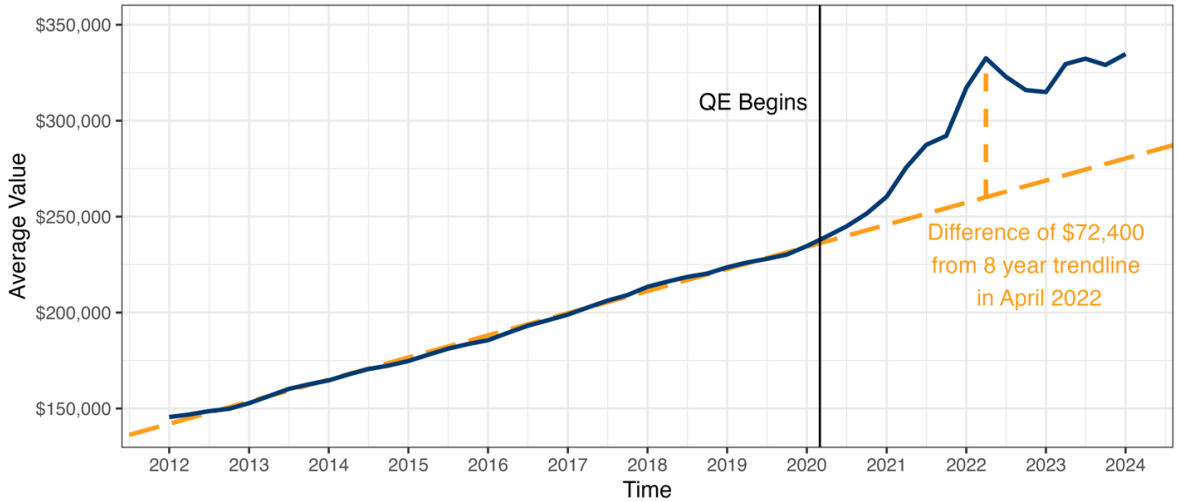
While overall inflation peaked in 2022, housing inflation kept rising, reaching its highest level almost a full year later in early 2023. Subsequently, while overall inflation has eased, housing inflation remains elevated at 5% as of mid-2024, whereas overall CPI is down to 3% and non-housing inflation is down to the Federal Reserve's target rate of 2%.

Figure 25: Change in CPI of All Items and Main Housing Items, Monthly, 2012-2024.[71]



Housing inflation is reflected in soaring home prices. The average value of a house rose by nearly $100,000 between 2020 and 2022. This asset value explosion marks a sudden shift from pre-pandemic trends. The rate of pre-pandemic home appreciation would have resulted in a gain of only $25,500 instead of the observed increase of $97,900. Figure 26 below shows that this home valuation increase has persisted.

Figure 26. Average Home Valuation in the United States.

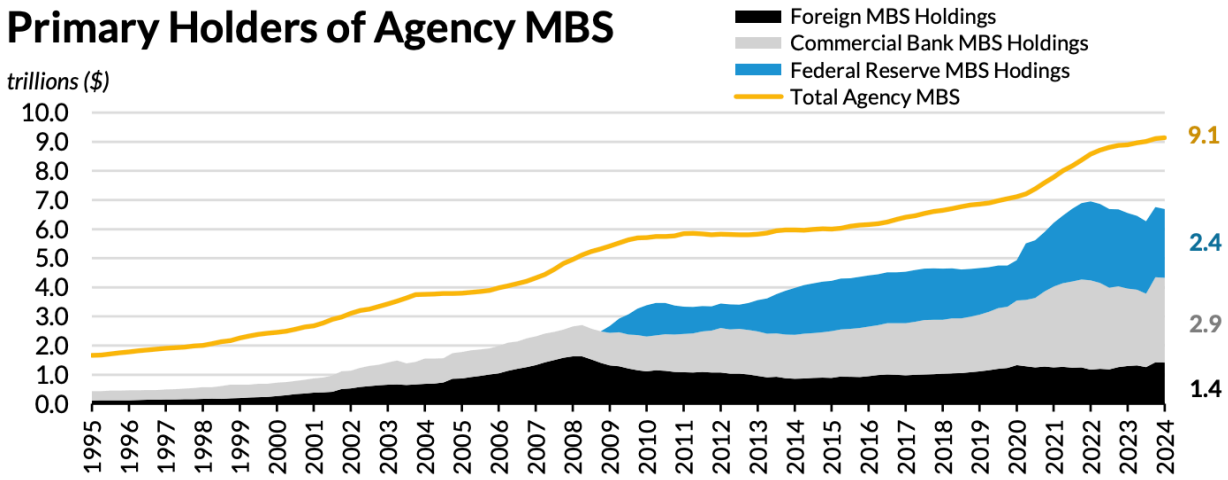


[71] Haver Analytics United States (USECON) (Prices – Consumer Price Indexes; accessed July 2024).

America's house price appreciation and inflation has a connection to monetary policy that has not been fully appreciated. The Federal Reserve's quantitative easing (QE) program purchased Treasury (discussed earlier in the paper) and mortgage-backed securities (MBS). It did so because these are the two assets the Fed is allowed to buy under Section 14 of the Federal Reserve Act, which is the legal basis for how the Fed operates its QE program (Klein forthcoming).

How large was the Fed's purchase in this market? The Fed's ownership of $2.7 trillion of agency MBS is 26% of the entire $9.1 trillion MBS market (as shown in Figure 27 below). During the 2020-2022 QE period, total agency MBS increased by $1.5 trillion, of which the Fed purchased $1.3 trillion.[72] The Fed's MBS purchases were equal to 87% of total MBS increase during the QE period.

Figure 27. Ownership of Agency Mortgage-Backed Securities.[73]



Sources: Financial Accounts of the United States (table L.211), Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Moody's Analytics and Urban Institute Calculations. Data as of Q1 2024.
Note: A small amount (roughly 5%) of foreign MBS holdings is agency debentures. Holders not shown: Households, nonfinancial business, federal, state and local governments, insurance companies, pension and retirement funds, money market and mutual funds, REITs, ABS issuers, brokers, and holding companies.

While other countries experienced temporary increases in home valuations, the United States' continued above-trend home valuation appears to be an outlier. Figure 28 below shows the EU's house post-pandemic price index flattened and has returned to valuations equal to pre-pandemic trend.

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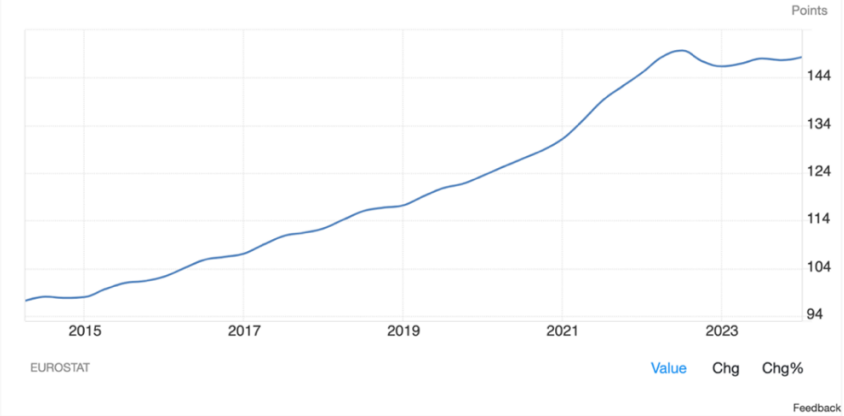
[72] Laurie Goodman et al., *Housing Finance at a Glance: A Monthly Chartbook* (Washington D.C.: Housing Finance Policy Center, Urban Institute, April 2020), https://www.urban.org/sites/default/files/publication/102088/april-chartbook-2020_0.pdf; Laurie Goodman et al., *Housing Finance at a Glance: A Monthly Chartbook* (Washington D.C.: Housing Finance Policy Center, Urban Institute, April 2022), https://www.urban.org/sites/default/files/2022-04/Housing%20Finance%20At%20A%20Glance%20Monthly%20Chartbook,%20April%202022.pdf.

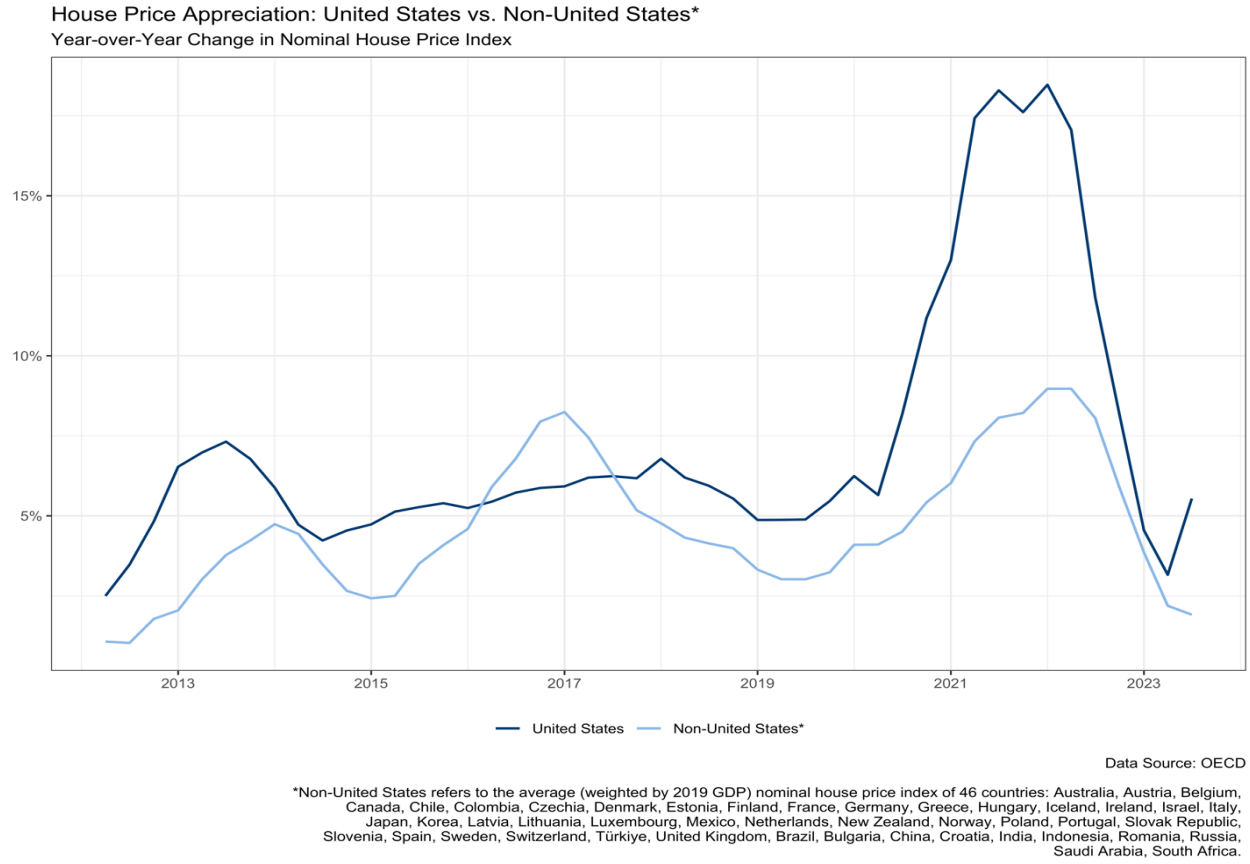
[73] Reproduced from Urban Institute, *Housing Finance at a Glance: Monthly Chartbook September 2023* (Washington, DC: Urban Institute, 2023), https://www.urban.org/sites/default/files/2023-09/Housing%20Finance%20At%20A%20Glance%20Monthly%20Chartbook%20September%202023.pdf.

Figure 28. European Union House Price Index, 2021-2024[74]



The chart below compares house price appreciation in the U.S. from a global weighted average. It is important note that other central banks either did not engage in QE or if they did, they did not focus their purchases on mortgage-backed securities.

Figure 29. House Price Appreciation: United States vs. Non-United States[75]



[74] "European Union House Price Index," Trading Economics, accessed August 26, 2024, https://tradingeconomics.com/european-union/housing-index.
[75] OECD (2024), "Housing prices" (indicator), https://doi.org/10.1787/63008438-en (accessed on 4 October 2024).

The increase in housing costs fed into consumer sentiment regarding housing. The Fannie Mae Home Purchase Sentiment Index, which measures consumer optimism about the housing market, remains well below pre-pandemic levels; as of June 2024, 86% of Americans believe it is a bad time to buy a home—an all-time low (Fannie Mae 2024).[76]

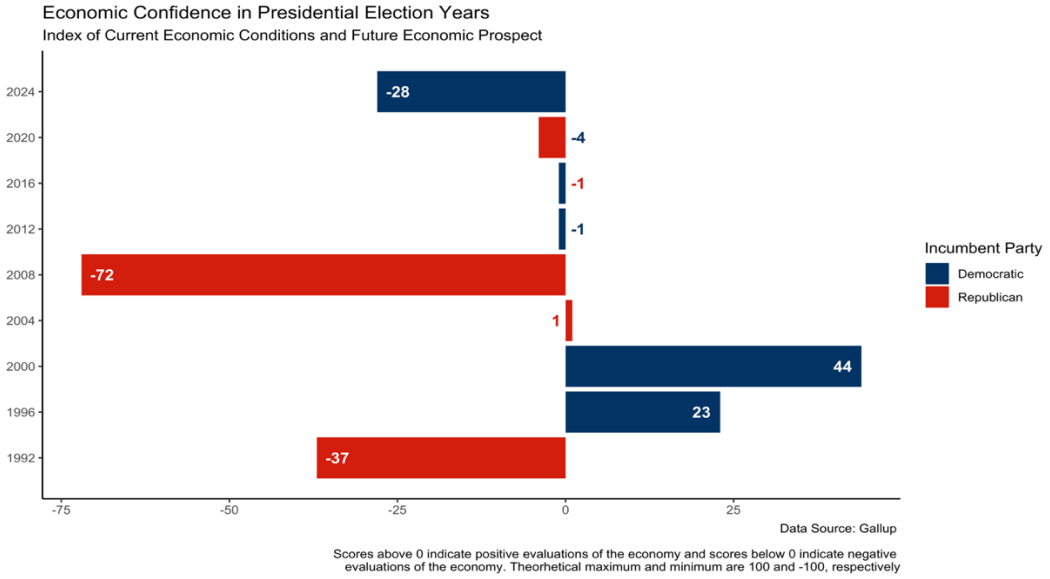
Further research on the impact of housing on consumer sentiment may explain Americans' economic pessimism. One might expect house price appreciation to weigh positively on consumer sentiment for homeowners, as for the majority of Americans their home is their largest financial asset. However, non-homebuyers and those who own a home but wish to buy a more expensive one may see the rise of home values (as well as property taxes) as a net negative. Prospective homebuyers may react asymmetrically to home price appreciation, believing that future home ownership is not possible. It is worth noting that homeownership is often cited as being central to "the American dream" to illustrate the primacy of housing in consumer sentiment in America.

Political Polarization Driving Sentiment

Another possibility is that political factors are driving economic unhappiness. Americans have become increasing politically polarized (Oberlander 2024).[77] As data from Gallup shows in Figure 30 below, consumer sentiment during Presidential election years appeared to track overall economic conditions reasonably well: in 1992 and 2008 Americans were quite unhappy, while during times of strong growth in 1996 and 2000 they were more confident. The 2020 data is an exception, in that confidence was relatively strong despite the pandemic-era recession, but it is likely due to optimism that recovery was around the corner, as discussed earlier. However, in 2024 Americans are highly negative despite positive economic performance, as seen in Figure 30 below.

[76] Fannie Mae. "Homebuying Sentiment Hits New Survey Low." Fannie Mae Newsroom, June 7, 2024. https://www.fanniemae.com/newsroom/fannie-mae-news/homebuying-sentiment-hits-new-survey-low.
[77] Jonathan Oberlander. "Polarization, Partisanship, and Health in the United States". *J Health Polit Policy Law* 1 June 2024; 49 (3): 329–350. doi: https://doi.org/10.1215/03616878-11075609

Figure 30. Gallup U.S. Economic Confidence in Presidential Election Years [78]

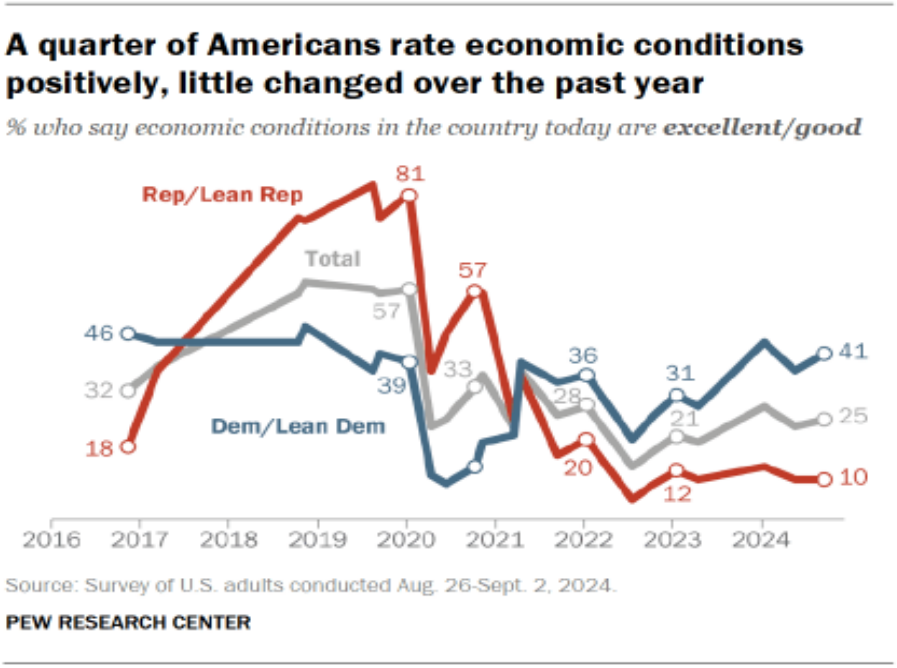


Research from the Federal Reserve Bank of Richmond shows that "the partisan sentiment gap has been widening over time" (O'Trakoun 2024).[79] That same research indicated an asymmetric response between politization and sentiment. Federal Reserve Bank of Richmond researchers tracking the misery index found that those who were of the same political party as the president are less likely to exhibit the partisan bounce of happiness when the misery index is high. Thus, while the opposition party is structurally less happy to begin with, the incumbent party is less prone to optimism, reducing overall sentiment.

It may also be that the political effect is not symmetric between the two parties. Data from the Pew Research Center shows a much larger swing among Republicans than among Democrats over recent elections. As Figure 31 shows, Republicans swung from 18% reporting an excellent or good economy at the end of 2016 to 81% prior to the pandemic in 2020, while Democrats moved only slightly from 46% to 29%. While people from both parties were less positive about the economy in 2022 and 2023, Republicans have become even more negative, with a reduction of 50% in the share who report the economy as excellent/good, while Democrats rose slightly over that time period, despite starting at a substantially higher level.

[78] Jeffrey M. Jones, "2024 Election Environment More Favorable to GOP Than Democrats," *Gallup*, October 19, 2023, https://news.gallup.com/poll/651092/2024-election-environment-favorable-gop.aspx.
[79] O'Trakoun, John. "Sentiment Is Sweet When You're in the Driver's Seat." *Federal Reserve Bank of Richmond*, March 26, 2024. https://www.richmondfed.org/research/national_economy/macro_minute/2024/sentiment_is_sweet_20240326.

Figure 31. Positive ratings of economic conditions by party. [80]



That political polarization extends to perceptions about inflation should not be surprising as inflation is the American consumer's top economic issue in the upcoming election (Gillespie 2023).[81] There is a substantial political gap within Americans on inflation with 80% of Republican-leaning voters describing inflation as a "very big problem" compared with 46% of Democrats (PEW 2024).[82] Inflation is considered a very big problem by more Republicans than any other issue, including immigration, while it ranks fourth among Democrats (PEW 2024).[83]

An alternative explanation around inflation that is not as political instead has to do with time. Consumers could be more focused on price levels than annual rates of change. Even as inflation rates recede, consumers may remain negative about changes in overall price level, driving a prolonged state of negativity. For example, consider a good that changes in price from 100 to 110 in one year, then to 115 in year two, and then 118 in year three. The inflation rate for that good went from 10%, to just under 5% to under 3%. Using only the final year's inflation rate, inflation would not be a major concern. However, to a consumer remembering the price three years ago, the overall inflation rate would be 18%, a large number even over three years. This holds true when looking at the average price of common goods. For example, basic food staples saw their

[80] Reproduced from Pew Research Center. "Economic Ratings and Concerns." September 9, 2024. https://www.pewresearch.org/politics/2024/09/09/economic-ratings-and-concerns/.
[81] Gillespie, Lane. "How the 2024 Election Could Impact the Economy: Survey Results." Edited by Tori Rubloff. *Bankrate*, October 2023. https://www.bankrate.com/personal-finance/2024-election-and-the-economy-survey/.
[82] Pew Research Center. "Public's Positive Economic Ratings Slip; Inflation Still Widely Viewed as Major Problem." May 23, 2024. https://www.pewresearch.org/politics/2024/05/23/publics-positive-economic-ratings-slip-inflation-still-widely-viewed-as-major-problem/.
[83] Ibid

prices remain high; milk in 2024 is $4 per gallon, up from $3.20 before the pandemic (BLS),[84] while bread in 2024 is about $2.00 per pound, up from $1.30 (BLS).[85]

Sentiment Might Be Mismeasured

An alternative argument recently put forth by Cummings and Tedeschi is that sentiment is not as bad as measurements indicate (Cummings and Tedeschi).[86] They argue that survey methodology changes, particularly the change from telephone to online data collection for the University of Michigan's benchmark consumer survey have driven a structural decline in readings of sentiment activity. As they argue:

> "In October 2024, despite a low 4.1% unemployment rate, strong retail spending, and inflation that has largely returned to target, the index stands at 68.9, in the 15th percentile of the historical distribution and well below where we would predict given pre-pandemic relationships with key economic data. For reference, the index level is now lower than it was 15 years ago in September 2009, when the economy was barely emerging out of the recession brought on by the global financial crisis and the unemployment rate was 9.8%, more than double its current value."

A related but different argument presented by Cummings, Harris, and Mahoney shows that the gap between predicted and actual consumer sentiment began in the pandemic but really widened post pandemic as shown in Figure 32 (Cummings et al., 2024).[87]

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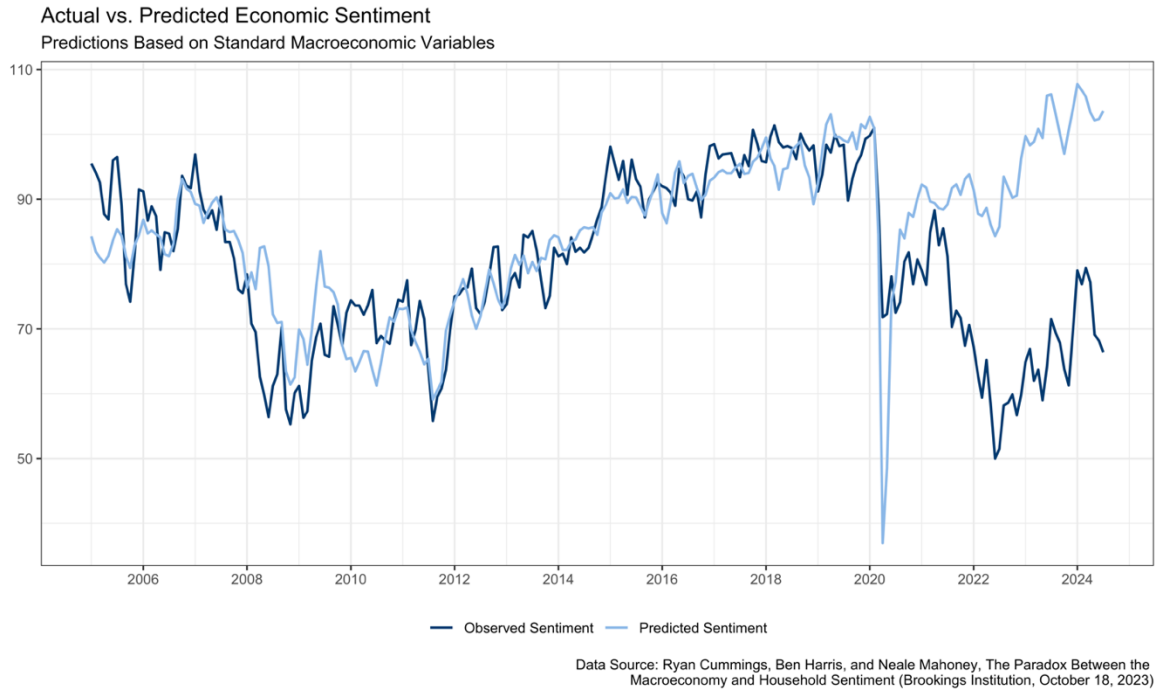
[84] U.S. Bureau of Labor Statistics, Average Price: Milk, Fresh, Whole, Fortified (Cost per Gallon/3.8 Liters) in U.S. City Average [APU0000709112], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/APU0000709112, October 23, 2024.

[85] U.S. Bureau of Labor Statistics, Average Price: Bread, White, Pan (Cost per Pound/453.6 Grams) in U.S. City Average [APU0000702111], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/APU0000702111, October 23, 2024.

[86] Cummings, Ryan, and Ernie Tedeschi. *The Effect of Online Interviews on the University of Michigan Survey of Consumer Sentiment*. Briefing Book. Accessed October 23, 2024. https://www.briefingbook.info/p/the-effect-of-online-interviews-on.

[87] Ryan Cummings, Ben Harris, and Neale Mahoney, *The Paradox Between the Macroeconomy and Household Sentiment* (Brookings Institution, October 18, 2023), https://www.brookings.edu/articles/the-paradox-between-the-macroeconomy-and-household-sentiment/.

Figure 32. Actual vs Predicted Economic Sentiment. [88]



There is reason to be cautious about this interpretation more broadly than the University of Michigan survey data, which may be not comparable over time due to survey changes. Tedeschi and Cummings pin much of the change on age demographics of respondents, arguing that older Americans are less happy than younger ones, perhaps due to the impacts of inflation which may well not be the same over age cohorts, particularly as older Americans are more likely to live on fixed incomes (Lusardi 2011).[89] However work by Blanchflower, Bryson and Xu shows substantial increases in measures of unhappiness among youth in the pandemic periods (Blanchflower et al. 2024)[90]. It would take more analysis to understand which effect is behind the changes.

[88] Figure 2 in Ryan Cummings, Ben Harris, and Neale Mahoney, *The Paradox Between the Macroeconomy and Household Sentiment* (Brookings Institution, October 18, 2023), https://www.brookings.edu/articles/the-paradox-between-the-macroeconomy-and-household-sentiment/.

[89] Annamaria Lusardi, *Financial Literacy and Retirement Planning: New Evidence from the Rand American Life Panel*, NBER Working Paper No. 17103 (Cambridge, MA: National Bureau of Economic Research, 2011), https://www.nber.org/papers/w17103.

[90] Blanchflower, David G., Alex Bryson, and Xiaowei Xu. 2024. "The Declining Mental Health of The Young And The Global Disappearance Of The Hump Shape In Age In Unhappiness." Working Paper Series. National Bureau of Economic Research. https://doi.org/10.3386/w32337.

Conclusion

Global economies are discovering the post-pandemic "new normal." The U.S. experience has been one of stronger-than-expected economic growth. This growth came, in part, due to strong policy responses during the pandemic, including larger fiscal stimulus than received by other major economies. The stimulus triggered growth as intended, but also required substantial issuance of public debt. This debt was financed, at first by the Federal Reserve. Foreign investors substantially reduced their purchases of U.S. Treasuries. As the Fed withdrew, other domestic purchases have filled the breach. Whether that trend continues will have a major impact on America's interest rates, the value of the dollar, and the global flow of capital.

America's balance of payments has changed significantly. During the pandemic the Federal Reserve purchased massive amounts of U.S. Treasury debt as part of its QE program. In the post pandemic period, Europe has become America's largest net lender, replacing Asia. Within Asia, Japan kept its U.S. debt purchasing level (but its share fell) while China retrenched in buying U.S. Treasuries. The UK and Canada picked up much of this slack increasingly owning more American public debt. This could be part of the global decoupling of America and the UK and create an even greater economic bond between the two nations.

Despite stronger economic growth, Americans perceive the economy as poor. Potential reasons include the cumulative impact of inflation, asymmetric weighting toward inflation over employment, distributional impacts and causes of inflation, the rising cost of housing, and political polarization. To the extent political polarization is the cause of negative sentiment, the data indicates that is largely driven by Republicans. Given the anti-trade policy positions of former President and current candidate Trump, there is reason to believe that consumer discontent with economic performance is intertwined with negative views about trade.

Further support for this hypothesis is found in the UK, where public sentiment on the economy is also relatively weak and anti-trade and globalization politics are salient. Others may argue that the UK's position is more of "buyers' remorse" as a result of weaker economic performance due to the ramifications of Brexit. If that were true, then a potential paradox can be found where consumers are unhappy about both globalization and de-globalization.

The post-pandemic era continues to work out through both the pandemic's impact and the growing political movements against globalization. The Federal Reserve's massive quantitative easing program distorted the market for U.S. Treasuries and mortgage-backed securities. This resulted in increased housing valuations in the U.S., increasing inflation, which in turn decreased consumer happiness. This cycle had significant consequences politically with inflation becoming a major issue, particularly among Republican voters. The consequences will be seen in the results of the American election which could add further fuel to the fire of de-globalization.