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The U.S. Trade Deficit: Myths and Realities

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Abstract

A policy priority of the U.S. government is to reduce America's longstanding trade deficit. Economic planners in the Trump administration blame the postwar world trading system for harming the U.S. economy and hope to change it through wide-ranging tariffs and other measures. Three prominent myths underlie the narrative that the United States has been victimized by trade partners. The first holds that trade liberalization that has left the U.S. open to mercantilist foreign practices is a primary cause of the aggregate U.S. trade deficit. The second is that the dollar's status as the premier international reserve currency obliges the United States to run trade deficits to supply foreign official holders with dollars. The third is that U.S. deficits are caused entirely by foreign financial inflows that America must accommodate by consuming more than it produces. This paper shows that the realities are more nuanced. While foreign and domestic trade policies can affect both imports and exports separately, they are not principal drivers of their difference, the trade deficit. The U.S. can supply the world with dollars without trade deficits. Finally, the trade deficit reflects the interplay of foreign and U.S. macroeconomic factors (including China's saving rate and the U.S. government budget deficit) and often U.S. factors are dominant. Higher Federal fiscal deficits, for example, will likely raise U.S. trade deficits despite more import tariffs.

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The United States has had a net foreign trade deficit in goods and services in every quarter save one since the second quarter of 1976, with the deficit averaging 3.1 percent of GDP annually since the financial crisis year 2008.[1] All the while, academic concern about the deficit has waxed and waned, peaking around the notable bulges during the Ronald Reagan and George W. Bush presidencies (see figure 1).[2] Yet, international trade and trade deficits have steadily gained in political salience. They played leading roles in recent U.S. election cycles, with Donald Trump running in 2024 on an explicit pledge of high universal tariffs aimed at curbing imports.

Long derided on the political Left, trade deficits have more recently been widely blamed on the Right as a cause of manufacturing decline and national impoverishment. The Biden administration was far from trade-friendly, even leaving aside its national security rationales for some trade restrictions: President Biden's National Security Advisor, Jake Sullivan, asserted that "the postulate that deep trade liberalization would help America export goods, not jobs and capacity, was a promise made but not kept."[3] The new Trump administration seems even more willing to intervene in trade for a wide range of objectives, non-economic as well as the economic.

President Trump's longstanding view is that foreign "cheating" causes U.S. trade deficits, through which other countries plunder American jobs and wealth. His advisers and a range of influential thinkers echo that view and flesh it out. Peter Navarro, the White House senior counselor for trade and manufacturing, sees a negative trade balance as evidence that America loses from international trade: "America's record on trade—specifically American's chronic and ever-expanding trade deficit—says that America is the globe's biggest trade loser and a victim of unfair, unbalanced, and nonreciprocal trade." Robert Lighthizer, the U.S. Trade Representative in the first

[1] The exception was 1992 Q1, when a fleeting surplus marked the end of a falling deficit trend starting in mid-1987 and owed to the unwinding of the 1990 oil price shock and slow U.S. recovery from the Gulf War recession.
[2] On the 1980s, see, for example, Krugman (1985) and Marris (1985). On the 2000s, see Cooper (2001, 2007), Mann (2002), the papers and comments collected in the spring 2005 issue of *Brookings Papers on Economic Activity* (Brainard and Perry 2005), Cline (2005), Obstfeld (2005), Bertaut, Kamin, and Thomas (2008), and Caballero, Farhi, and Gourinchas (2008). Hanke and Li (2019) discuss links between the deficit and U.S. trade policy deliberations during the Reagan administration.
[3] Sullivan's speech transcript has been scrubbed from the White House website, but a video is available at https://www.brookings.edu/events/the-biden-administrations-international-economic-agenda-a-conversation-with-national-security-advisor-jake-sullivan/. A recent Left-leaning critique of globalization is Scott, Wilson, Kandra, and Perez (2022).

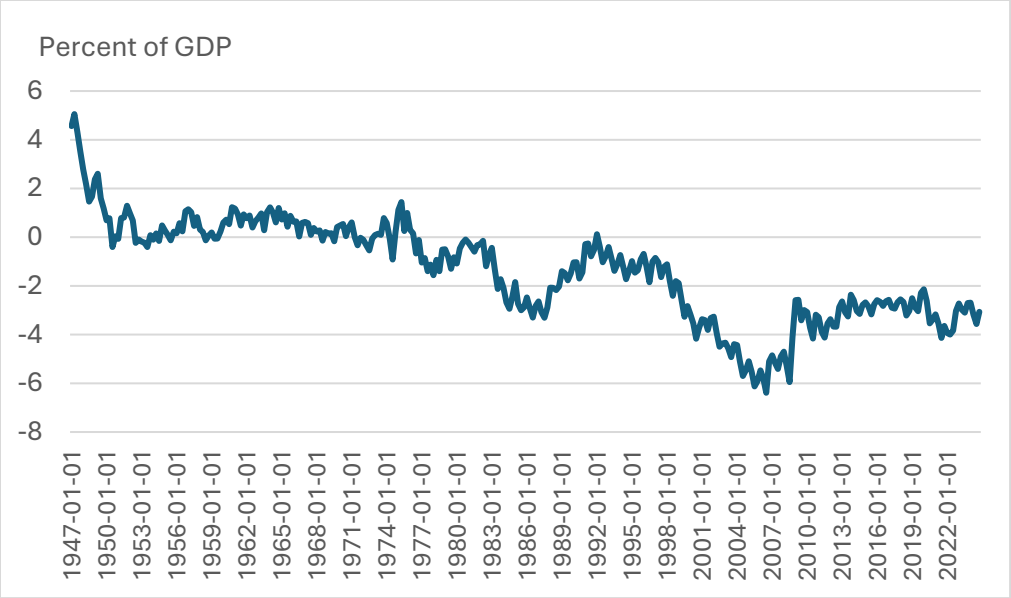

Figure 1 U.S. net exports of goods and services as a percent of GDP, 1947-2024. Non-seasonally adjusted quarterly data. Source: U.S. Department of Commerce, Bureau of Economic Analysis, via FRED, series NA000374Q and NA000334Q.

Trump administration, argues that through external deficits the United States is "trading its assets for short-term consumption," that trade deficits can fuel asset price bubbles, and that they have caused U.S. deindustrialization. He writes that America's "long-term massive deficits tell the story of a country that has failed to protect its own interests." The analyst Michael Pettis asserts that foreign lending to the United States "force[s] adjustments in the U.S. economy that result in lower U.S. savings, mainly through some combination of higher unemployment, higher household debt, investment bubbles, and a higher fiscal deficit," while hollowing out the manufacturing sector. Conservative commentator Oren Cass, a vocal proponent of tariffs to revive manufacturing, expresses similar views.[4] What all these narratives share is the claim that U.S. deficits originate principally abroad, abetted by feckless trade policies that have expanded foreign exporters' access to America's markets.

Three superficially plausible but exaggerated claims underlie the narrative that the United States is a victim of economic decisions made abroad and therefore needs to

[4] See Navarro (2023), Lighthizer (2023), Pettis (2024a), and Cass (2024). For one (of many) accounts of President Trump's views on trade, see Holmes and Phillips (2017).

upend the current global trading system. Each of these myths centers on a different component of the balance of payments. The first myth holds that trade liberalization that has left the U.S. open to mercantilist foreign practices is a primary cause of the aggregate U.S. trade deficit. The second is that the dollar's status as the premier international reserve currency obliges the United States to run trade deficits to supply foreign official holders with dollars. The third is that U.S. deficits are caused entirely by foreign financial inflows, which reflect a more general demand for U.S. assets that America has no choice but to accommodate by consuming more than it produces.

The realities are more nuanced. First, trade policies can move the aggregate trade balance when they have important macroeconomic effects. However, specific U.S. liberalizations such as those associated with the North American Free Trade Area (now the USMCA) can shift bilateral balances among trade partners but are not major causes of the *overall* U.S trade deficit, which will not respond strongly to new tariffs. Second, the dollar's reserve-currency role does not require continuing U.S. trade deficits. Finally, the trade deficit reflects an interplay of foreign and U.S. macroeconomic shocks that vary over time in relative importance. U.S. macroeconomic policies can reduce the trade deficit when that is desirable – for example, though a fiscal consolidation that raises national saving – so America need not adjust passively to foreign developments. And whether trade deficit reduction *is* desirable depends on economic circumstances: deficits can raise welfare if foreign borrowing finances productive new investments or temporary shortfalls in income.

U.S. trade deficits are high and likely to rise, notwithstanding new and prospective tariffs. Moreover, America's net financial liability to foreigners is now above 70 percent of GDP and shows little sign of stabilizing. It is therefore important to reconsider the sources and effects of the U.S. external imbalance, as well as alternative policies to reduce it and their collateral impacts. To do so comprehensively would be a massive task, fraught with difficult challenges of macroeconomic identification, so in this paper I confine myself to four (still ambitious) goals. First, to give an updated overview of the direct links between U.S. deficits and the U.S. national balance sheet.[5] Second, to assess the logical and empirical limits of the preceding three myths regarding

[5] Here I build on the thorough discussion of Milesi-Ferretti (2021).

trade policies, the dollar's global role, and financial inflows. Third, to highlight the domestic sources of the exceptionally large deficits of 1998-2008. That eventful decade offers an important case study because of its outsized intellectual and political impact on today's debates about globalization. It also exemplifies the complex interplay of domestic as well as global forces determining the U.S. trade balance. A concluding section is devoted to my fourth goal: to review two main motivations behind the Trump administration's drive to reduce the U.S. trade deficit, the policies that could be pursued, and their likely impacts.

External imbalances and national wealth: Basic relationships

Conceptually, an economy's balance of trade, or net exports, reflects outcomes in markets for goods and services, while the evolution of its net international wealth depends also on financial returns at home and abroad (as well as international transfer payments, which I ignore for now for expository purposes). A review of relevant balance of payments concepts will help to elucidate the cross-border wealth transfers accompanying U.S. international trade.

Measuring in nominal terms, net exports of goods and services, *NX*, are the difference $X - M$ between exports and imports of goods and services. Net exports also equal the difference between gross domestic product (GDP), or final output, *Y*, and domestic absorption, which is the sum private consumption, *C*, gross private investment, *I*, and government purchases, *G*:

$$NX = Y - (C + I + G). \tag{1}$$

Basic as it is, equation (1) – which is an *identity* and not a theory or hypothesis subject to falsification – has two immediate implications. First, a trade deficit ($NX < 0$) need not reflect excessive "short-term" consumption at the expense of future consumption. It could also result from productive investment (by the private sector or government) that raises future consumption possibilities while also raising workers' wages. Second, as stressed by Sidney S. Alexander in a classic paper, policies that

purport to increase net exports, such as currency depreciation or tariffs, must work through the macroeconomic channel of raising total output relative to absorption.[6]

A full accounting of the connection between trade flows and a country's net external wealth requires an analysis of national saving, which depends on the difference between national income, not national output, and consumption. In my simplified setting, national income is the sum of GDP and net income from the net international investment position. Let A denote gross claims on foreigners (including banking claims, debt and equity securities, and direct investments) offering a gross interest and dividend yield of R^A and L gross liabilities to foreigners offering the yield R^L to nonresident holders. Using the time subscript t to indicate asset stocks at the start of a period t and economic flows within a period t, the current account balance CA_t is defined as national income less absorption, $CA_t = Y_t + (R_t^A - 1)A_t - (R_t^L - 1)L_t - C_t - I_t - G_t$, or

$$CA_t = NX_t + (R_t^A - 1)A_t - (R_t^L - 1)L_t = S_t - I_t, \qquad (2)$$

where S_t denotes the national income accounts definition of saving. Thus, the current account equals, alternatively, net exports plus net international asset income, or saving less investment. This is a broader concept of the external balance than net exports.

But even this measure does not fully capture the dynamics of net external assets, which are also driven by asset-price changes, such as in equities and foreign exchange. Let CG^A denote the rate of capital gains on foreign assets and CG^L the rate of capital gains on liabilities. Neither is reflected in national income accounts. Further, define the *total* gross returns $\tilde{R}^A \equiv R^A + CG^A$ and $\tilde{R}^L \equiv R^L + CG^L$. Then equation (2) implies that the level of net external assets $A - L$, also referred to as the net international investment position (NIIP), follows the process

$$A_{t+1} - L_{t+1} = NX_t + \tilde{R}_t^A A_t - \tilde{R}_t^L L_t. \qquad (3)$$

[6] Alexander (1952).

Generally, $\tilde{R}^A$ and $\tilde{R}^L$ differ owing to different portfolio holdings by domestic and foreign residents, including different currency mixes, as well as differential cross-border taxation of returns. An important question in judging the U.S. external position is if America systematically pays less on its aggregate external liabilities than it earns on its external assets – a so-called "exorbitant privilege," owing to the dollar's singular global status, the liquidity characteristics of U.S. Treasury obligations, or a relatively higher willingness of U.S. investors to hold systematically riskier foreign securities and earn a commensurate risk premium.[7] If we think of $\tilde{R}^L$ as a benchmark global cost of funding, we can rewrite equation (3) in the equivalent form

$$A_{t+1} - L_{t+1} = NX_t + \tilde{R}^L_t(A_t - L_t) + \left(\tilde{R}^A_t - \tilde{R}^L_t\right)A_t.$$

Any exorbitant privilege such that $\tilde{R}^A > \tilde{R}^L$ predictably and persistently allows the United States to consume more over time, in effect because it can sell the safety or liquidity services of its liabilities to the rest of the world in return for goods and services. To see this, iterate the last equation forward, rule out Ponzi borrowing, and take expectations to derive the national intertemporal budget constraint

$$L_t - A_t = \mathbb{E}_t\left\{\sum_{i=0}^{\infty}\left[\prod_{j=1}^{i}\left(1/\tilde{R}^L_{t+j}\right)\right]\left[NX_{t+i} + \left(\tilde{R}^A_{t+i} - \tilde{R}^L_{t+i}\right)A_{t+i}\right]\right\}. \quad (4)$$

When $\tilde{R}^A_{t+i} - \tilde{R}^L_{t+1} \equiv 0$, a nation with foreign debts must eventually repay them entirely through net export surpluses.[8] If $\tilde{R}^A > \tilde{R}^L$ over the longer term, however, the country can earn seigniorage by borrowing abroad and investing in foreign assets A at a higher yield, taking on leverage in analogy to a hedge fund. The question is how far this process can go before the borrower's riskiness (inevitably) rises enough to erode its advantage.

[7] For a comprehensive background survey on the role of asset returns in the international adjustment process, see Gourinchas and Rey (2014).

[8] I am ignoring the situation that might arise in a dynamically inefficient world economy.

Proximate drivers of the U.S. net external position

Persistent U.S. trade deficits have been highly correlated with current account deficits and contributed to a growing negative NIIP. After emerging as an international creditor at the end of World War I, the United States became an international debtor in 1989 following the string of Reagan-era current account deficits that began in 1982.[9] Those concerned about trade deficits often point to their effect on U.S, foreign indebtedness. An analysis of NIIP dynamics clarifies how the linkage has played out in practice.

The major systematic difference between *CA* and *NX* and *CA* is the net income flow from external claims and liabilities. As noted, however, capital gains on the NIIP are an additional determinant. In the U.S. case they have been increasingly significant.

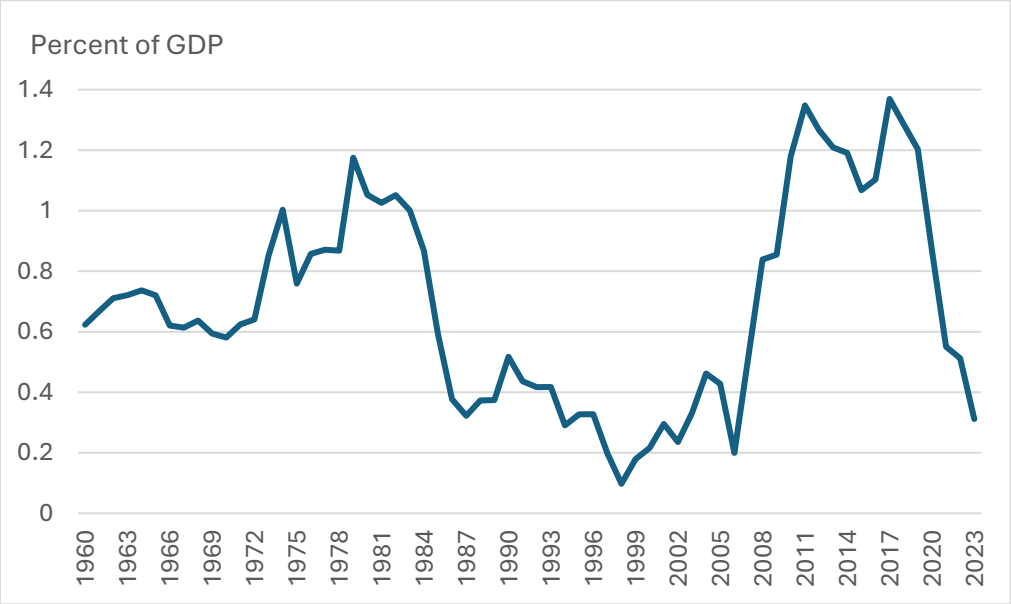

Figure 2 Balance of U.S. international investment income as a percent of GDP. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Start with net international investment income. Figure 2 shows how the balance of U.S international investment income, as measured by the U.S. Bureau of Economic Analysis (BEA), has evolved since 1960. Remarkably, despite the transition from international creditor to debtor in 1989 and a generally growing net foreign debt, the net flow of U.S. foreign investment income has apparently stayed stubbornly positive,

[9] On the U.S. emergence as an international creditor in the 1920s, see Eichengreen (1989).

hitting a low of just under 0.1 percent of GDP in 1998 and a high of 1.37 percent of GDP in 2017.[10] Equation (4) implies that if the net cost of its external position is negative, the United States can remain intertemporally solvent while running smaller net export surpluses than would otherwise be necessary.

America's seeming ability to carry a large negative NIIP at negative cost has fueled the discussion of exorbitant privilege. U.S. financial-market openness and depth have been essential. Also fundamental was the concentration of U.S. liabilities in dollar-denominated debt instruments and of its assets in equity instruments – portfolio and FDI – allowing it to pay less due to a dollar liquidity premium and earn more due to an equity risk premium. Several studies suggest that those advantages may be ending.[11]

As documented by Fatih Guvenen, Raymond J. Mataloni, Jr., Dylan G. Rassier, and Kim J. Ruhl, however, the BEA measure in figure 2 is flawed due to MNCs' gaming of international tax rules by locating certain productive assets overseas.[12] For example, measured net foreign earnings soared after the Global Financial Crisis because of ultra-low U.S. interest rates and a historically weak dollar, but also because of an acceleration of MNC profit shifting abroad (including corporate inversions). The Obama administration moved in 2016 to limit inversions and in some respects, the 2017 Tax Cuts and Jobs Act further reduced the tax advantage of booking profits abroad. These policies, together with generally rising U.S. interest rates (relative to foreign rates) and a stronger dollar starting in 2015, lowered net foreign earnings measured in dollars, which by 2023 had fallen to slightly above 0.3 percent of GDP.

Equation (3) shows how asset-price changes in addition to asset earnings and net exports feed into the evolution of the NIIP. Figure 3 plots the NIIP of the United States over time along with the values that would be implied by the cumulation of current account balances alone and by the cumulation of net exports alone (both of which omit capital gains and losses on the international position).[13] The NIIP first dips sharply

[10] As noted above, and as is discussed further in a moment, these figures may be somewhat inflated by overstatement of the returns on U.S. FDI abroad.
[11] For more detailed analyses, see Milesi-Ferretti (2021), Atkeson, Heathcote, and Perri (2023), Bertaut, Curcuru, Faia, and Gourinchas (2024), and Jiang, Richmond, and Zhang (2024).
[12] Guvenen, Mataloni, Rassier, and Ruhl (2022) show how MNC profit shifting reduced measured U.S. exports over 1982-2016 while substantially bloating measured returns on FDI. This distortion did not affect the total measured current account balance, however.
[13] The cumulated *CA* and *NX* measures are both based at the 1976 value of the NIIP.

below the two cumulative variables in 2020, as the COVID-19 pandemic breaks out, and it has remained lower since. At the end of 2023, U.S. net international indebtedness stood at 72.6 percent of GDP, whereas the cumulation of past current account and trade deficits were 54.8 and 54.3 percent of GDP, respectively.[14]

Fluctuations in exchange rates and in price of securities such as stocks explain the divergence in figure 3 between the actual NIIP and the level that cumulative current account balances would imply. But the effects are levered up by the very high levels of *gross* foreign assets and liabilities that net out to give the NIIP. Large gross positions are motivated by mutually beneficial risk sharing between countries and by specialized financial intermediation, but also by less benign objectives such as cross-border tax avoidance or evasion and regulatory arbitrage.[15] Gross positions widened sharply over time as international financial integration grew and financial "supply chains" of linked intermediaries exploded; see figure 4. At the close of 2023, U.S. external liabilities were close to double its GDP and assets were about 125 percent of GDP. These are much

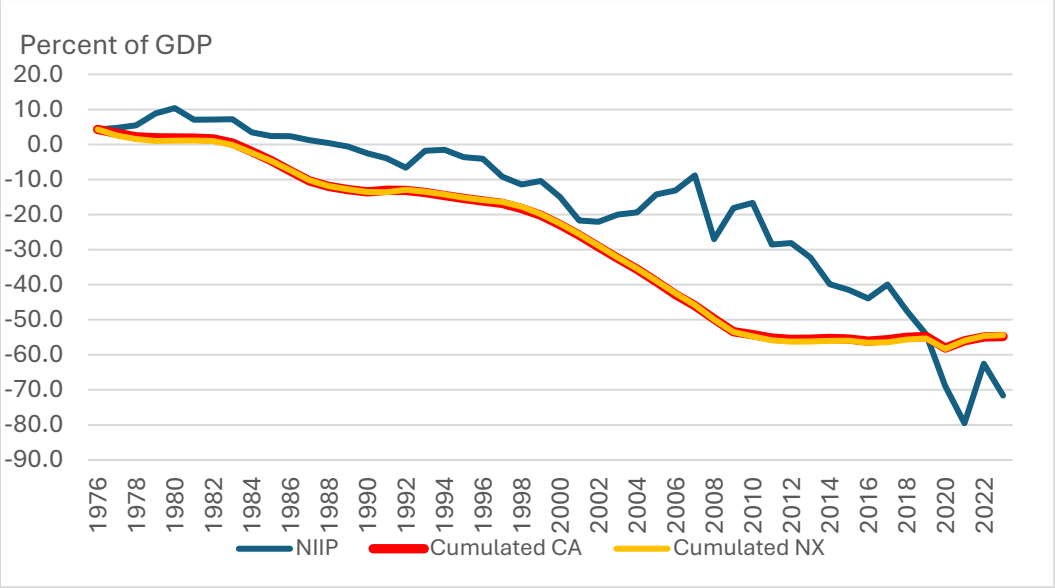

Figure 3 U.S. net international investment position, cumulative current account balances, and cumulative net exports as percentages of GDP. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis and author's calculations.

[14] There is little difference between the cumulative current accounts and net exports, which may seem surprising in view of the sometimes-sizable positive earnings on the NIIP. However, the other item separating *CA* from *NX* – net transfers from abroad – has at times been negative enough to offset positive net investment income.
[15] See Coeurdacier and Rey (2013).

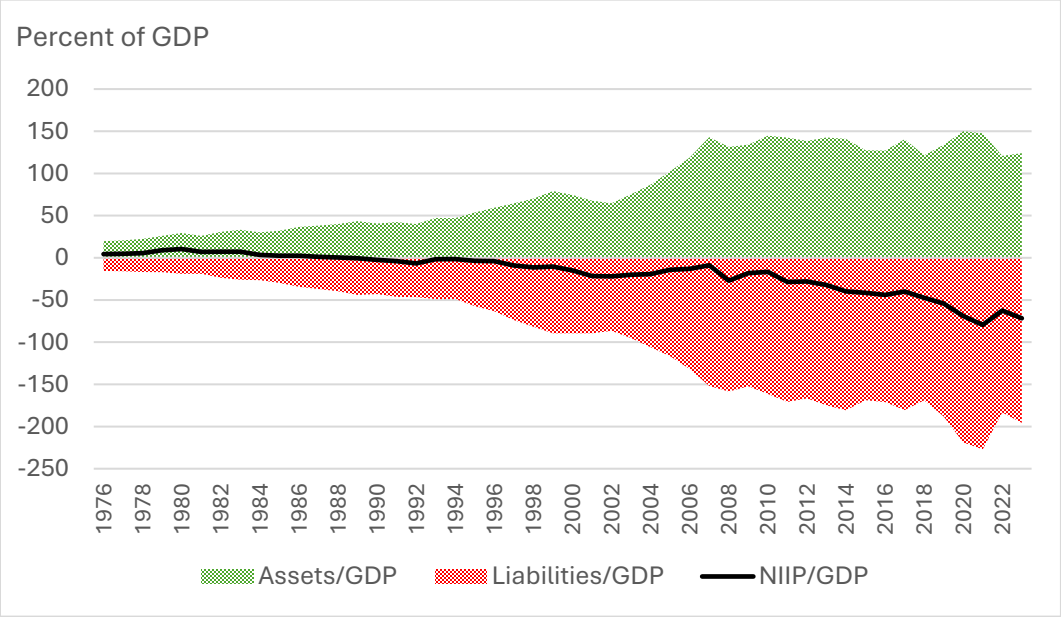

Figure 4 U.S. foreign assets (+), liabilities (−), and net international investment position as percentages of GDP. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis.

higher than the levels at the start of the millennium.

Given such elevated leverage, it is not hard to see how asset-price moves can cause changes in the NIIP that swamp those due to the current account. Foreign investors hold significant U.S. equities, so a runup of stock prices worsens the U.S. NIIP; equity-price rises abroad have the opposite effect. Movements in the dollar's exchange rate effect massive wealth redistributions into or out of the United States. U.S. foreign liabilities (debt and equity alike) are almost entirely dollar-denominated, whereas the U.S. foreign asset position is skewed toward foreign currencies. As a result, a strengthening dollar worsens the NIIP and a weakening dollar enhances it.

The BEA estimates the components of the NIIP change due to asset price movements (measured in the assets' currency of denomination) and exchange-rate movements. Its methodology, applied consistently starting in 2003, allocates the overall annual change in the NIIP to the financial-account balance (the net acquisition of foreign assets, equal to the current account balance apart from errors and omissions); price changes in local currency; exchange-rate changes; and "changes in volume and

valuation not incorporated elsewhere."[16] Figure 5 illustrates the cumulative contribution of each factor to the NIIP.[17]

The figure shows that cumulatively, divergent international asset-price developments have been the prime non-*CA* driver of the U.S. external position this decade and are largely responsible for the recent decline shown in figure 3. To the extent that rising U.S. stock prices portend expected future increases in American productivity, the resulting fall in the NIIP means that some welfare gains are shared with foreigners.[18] The other decade in which asset-price changes played a big role in the medium-term evolution of the NIIP was the first one of this century, as I discuss further below. Sometimes, exchange rate changes have been important.

Since 2019 the major action has been in asset prices, with equity markets prominent. This reflects not only a turbulent period marked by the pandemic, policy responses, geopolitical pressures, and the post-pandemic, post-Ukraine inflation surge, but also the greater importance of equities for the liabilities side of the United States' balance sheet. Since 2015, the share of equities (portfolio and FDI) in U.S. external liabilities has nearly doubled, whereas the share of equities in U.S. external assets has risen more modestly; see table 1. Thus, foreigners are better positioned to gain from out-performance by U.S. stocks – or to lose big if U.S. markets decline.

The current account can be less important than asset prices in driving the NIIP. When this is so, the main channel whereby capital inflows from overseas worsen the NIIP is not through a higher trade deficit, but through dollar, bond, and equity appreciation, all of which have partially offsetting positive U.S. welfare impacts (on wealth and the terms of trade).

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[16] The last item reflects estimated effects of "addition of new reporters, corrected reporting, or other changes to the reporting panels" used in the U.S. Treasury's Treasury International Capital (TIC) surveys. See U.S. Department of Commerce (2024), chapters 23 and 24. The actual number that the BEA reports for the 2021 fall in the NIIP attributable to dollar appreciation is $951 billion, not far off my example in the text.

[17] These numbers value FDI holdings at "market value," which the BEA measures by extrapolating prices of marketable portfolio equities to FDI holdings. Milesi-Ferretti (2021) assesses shortcomings of this approach, although alternatives also involve tradeoffs. The claims for which the BEA reports its decomposition exclude financial derivatives

[18] However, the welfare implications could be net negative if higher corporate profits reflect market-power rents that partly accrue to foreigners, as argued by Atkeson, Heathcote, and Perri (2023).

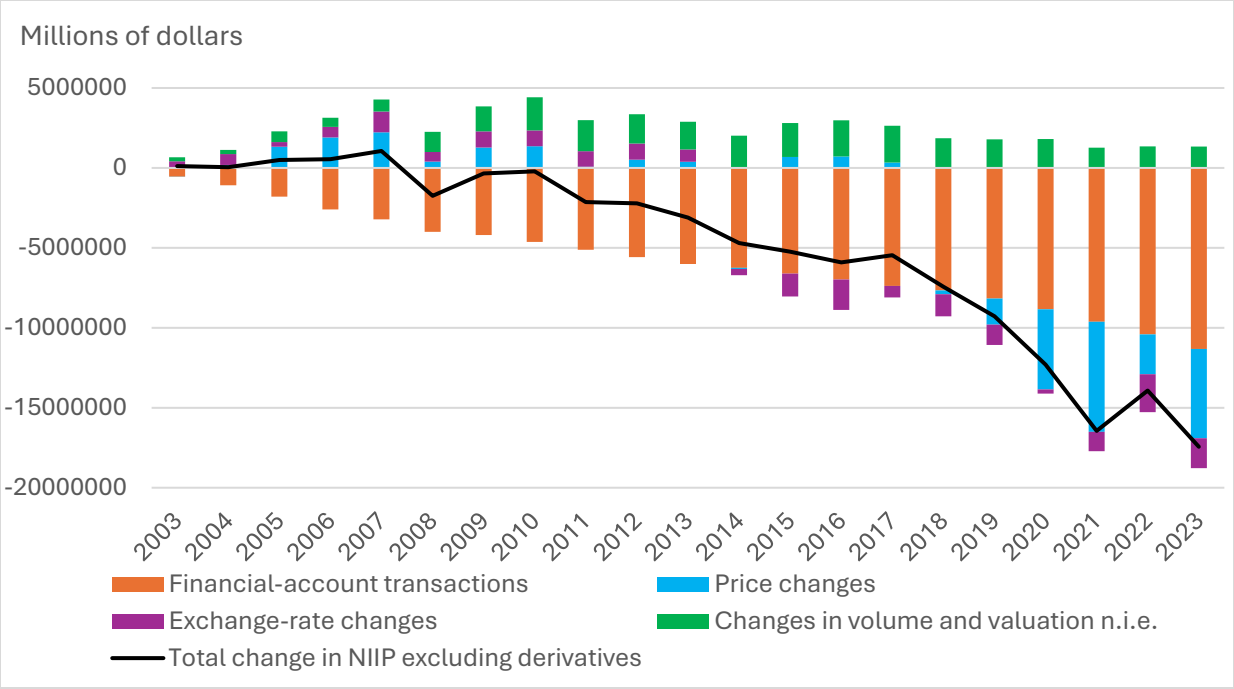

Figure 5 Cumulative accounting breakdown of the end-year NIIP for the United States, 2003-2023. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis, Table 1.3. Change in the U.S. Net International Investment Position, December 27, 2024 release.

Table 1 Equity shares in U.S. foreign assets and liabilities, 2015 and 2023		
	2015	*2023*
Foreign assets		
Portfolio equity	0.29	0.34
FDI	0.31	0.31
Foreign liabilities		
Portfolio equity	0.16	0.27
FDI	0.17	0.27

Source: External Wealth of Nations database at https://www.brookings.edu/articles/the-external-wealth-of-nations-database/ (Milesi-Ferretti 2025). Foreign assets exclude official gold holdings.

Three accounts of the foreign origins of U.S. trade deficits

As explained earlier, three prominent myths locate the principal sources of U.S. deficits beyond America's borders. The first myth is that U.S. deficits originate mostly in unfair

foreign trade practices to which America has exposed itself through ill-advised trade liberalization. On this theory, tariffs provide a ready remedy. A second myth is that the world's desire to hold the dollar as its main reserve currency is a prime determinant of U.S. foreign deficits. One variant of this view, which is entirely false, is that U.S. current account deficits are necessary for foreign official holders to acquire dollars; another variant, of limited quantitative importance but more accurate, is that global dollar preference has asset price effects that make the U.S. deficit bigger. A final myth is that U.S. deficits result entirely from excessive saving by our trade partners, which forces the U.S. to borrow from them and spend the proceeds on extra imports.

Commercial policies

Commercial policies such as import tariffs, export subsidies, and non-tariff trade barriers change relative prices or trading opportunities and thereby can affect bilateral trade patterns as well as the fortunes of individual industries. They can also alter the levels of aggregate imports and exports. From these truths, many trade critics conclude that commercial policies must also have a first-order effect on a country's aggregate trade *balance*. That conclusion relies on a classic fallacy of composition.

At the aggregate level a country's trade balance reflects the difference between its saving and investment, or equivalently, between its output and its absorption. These are macroeconomic variables that may respond to trade restrictions, but not always in ways that push imports to fall by more than exports.

Take the example of a blanket import tariff, such as President Trump proposed. One factor that limiting any trade-balance impact for an economy near full employment, like the United States today, is the economy's overall resource constraint. A tariff raises home demand for domestically produced import substitutes. To a more limited degree, it will also raise the demand for some nontraded goods. What is the source of the corresponding supply? Most likely, the export sector, implying that exports will tend to

decline in tandem with imports. This insight is the famous symmetry theorem proved by Abba P. Lerner in 1936.[19]

Lerner derived his result for a nonmonetary economy. But even in a Keynesian setting, if the exchange rate is flexible, a different general-equilibrium factor comes into play, as shown by Robert Mundell.[20] The tariff causes a currency appreciation that discourages imports and exports alike, preventing any substantial gain in the trade balance. One can intuit this result in several ways, but Mundell himself might explain it as follows: while the tariff has an incipient expansionary effect on the trade balance and aggregate demand, the resulting upward pressure on the home interest rate causes the currency to appreciate until output has returned to its initial level and the upward interest-rate pressure abates.[21] Imports are lower but exports are lower and the trade balance is unchanged.

Figure 6 places the postwar evolution of the U.S. trade balance within the context of major U.S. trade liberalization events. Particularly since the Tokyo GATT round that went into effect in 1980, U.S. imports have expanded faster than exports (as a share of GDP), leading to the generally deteriorating trade balance that figure 1 show. This pattern makes it tempting to blame America's deficits on trade liberalization, yet the record is more consistent with the view that domestic U.S. macroeconomic conditions and policies were the main causal factors.

For example, the (at that time) unprecedented trade deficit that emerged in the early 1980s was associated with an unprecedented real dollar appreciation, shown in figure 7, which in turn was driven by tight monetary policy (the Volcker disinflation) and lax fiscal policy (the Reagan tax cuts and ramp-up in defense spending). Beyond that episode, net exports and the dollar tend to be negatively correlated. As discussed below, however, the years from 2002 through the financial crisis stand out because the trade

[19] Lerner (1936). For an updated theoretical treatment, see Costinot and Werning (2019). Lerner gives priority for the discovery to Charles Bastable, Alfred Marshall, and Arthur Pigou.

[20] Mundell (1961). The first writer to observe that trade interventions induce offsetting exchange-rate responses was probably Hume (1752), who wrote of countries that impose export prohibitions, "these prohibitions serve to no other purpose than to raise the exchange against them, and produce a still greater exportation." Mundell's reasoning implies that an export tax weakens a floating exchange rate.

[21] For supportive evidence from the China tariffs of the first Trump administration, see Jeanne and John (2024).

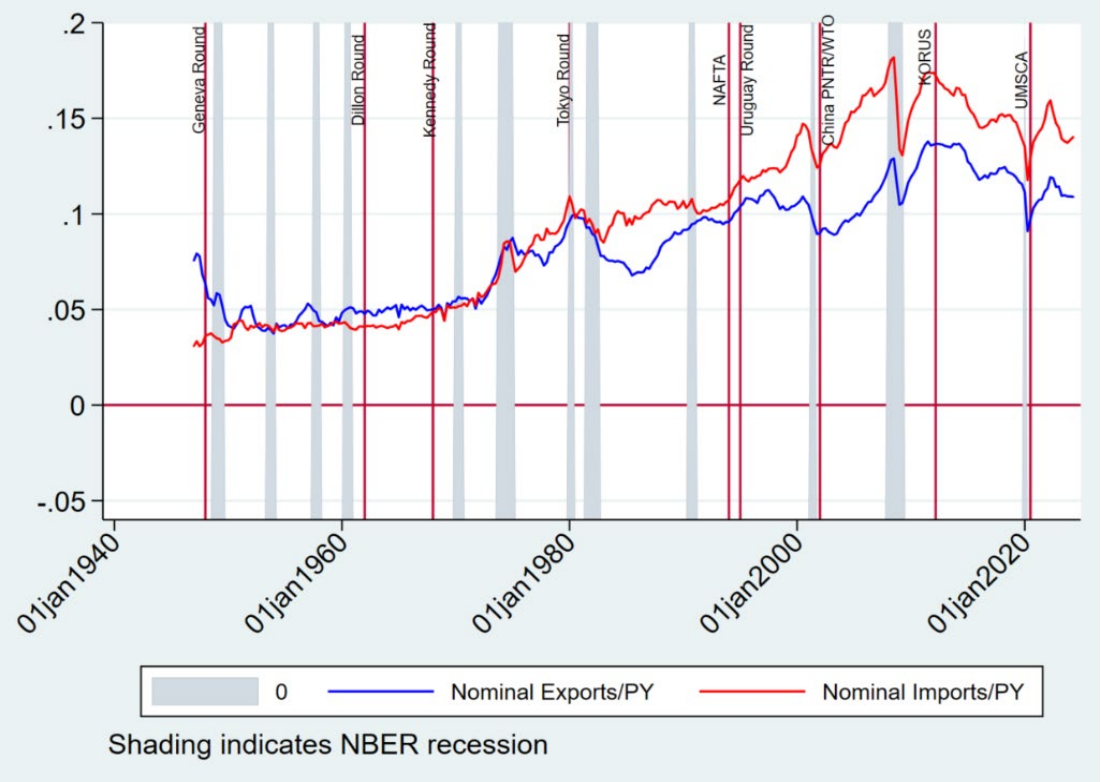

Figure 6 Major trade liberalizations and U.S. import and export shares. Source: U.S. Department of Commerce, Bureau of Economic Analysis.

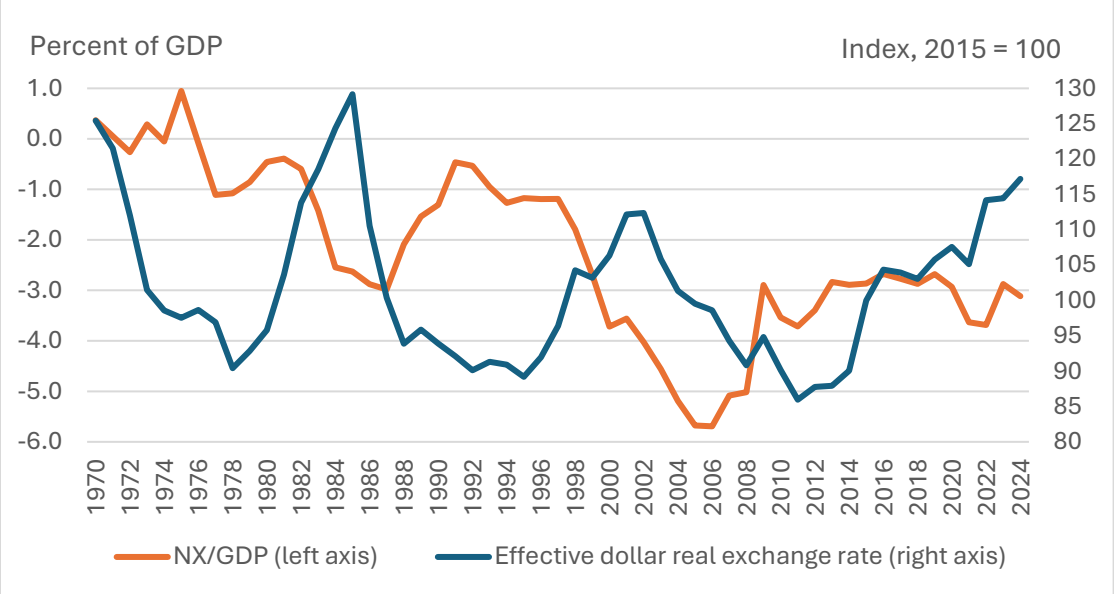

Figure 7 U.S. net exports and dollar real effective exchange rate. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis, and OECD (series CCRETT01USA661N via FRED).

deficit rose despite a sharply falling dollar, widening even beyond the two years or so for which adjustment lags could be a plausible explanation.

The dollar is generally a strong correlate of the trade balance, sometimes with lags, because unlike a tariff, dollar depreciation (say) subsidizes exports at the same time as it taxes imports.[22] In contrast, a tariff may be offset by currency appreciation and through various additional channels can reduce exports. However, exchange rates are endogenous variables under a flexible-rate regime, and their relationship with the trade balance depends on the exogenous shocks that drive them. For example, a currency appreciation due to a rise in demand for a country's exports could well be associated with a bigger trade surplus. Thus, the exchange rate is not a sufficient statistic for the trade balance, which is driven by other factors – foreign demand, as just mentioned, but crucially, domestic spending.

To gauge the plausibility of charges that trade agreements have been the main drivers of U.S. deficits, consider the North American Free Trade (NAFTA) Agreement of

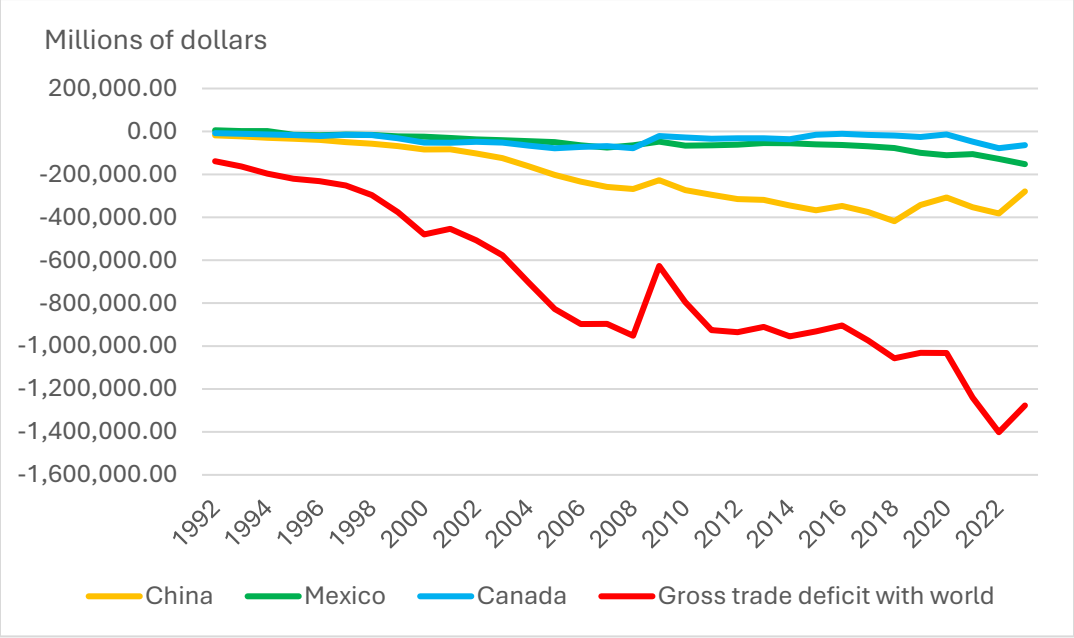

Figure 8 U.S. trade balances in goods with China, Mexico, and Canada, and sum of bilateral deficits with all trade partners with which the United States is in deficit. Annual data. Source: U.S. International Trade Commission.

[22] See Farhi, Gopinath, and Itskhoki (2014).

January 1994 and China's receipt of Permanent Normal Trading Relations (PNTR) in January 2002, both seeming precursors of widening deficits in figure 6.

As noted above, trade liberalization with NAFTA partners and China should expand bilateral trade between these countries and the United States. But if U.S. trade liberalizations lead to bigger overall deficits, we would also expect to see expanded bilateral deficits with these countries accounting for the bulk of the rise in overall U.S. deficits. Figure 8 considers this prediction. The post-agreement rises in bilateral deficits with China, Mexico, and Canada come nowhere near to accounting for the bulk of the rise in the sum of U.S. deficit balances (even though the bilateral deficit with China rises sharply after the early 2000s).

The preceding numbers do not include Chinese content entering the United States through imports from third countries. In principle, it is hard to see why China's attainment of PNTR would lead to more of its content entering the United States via third countries, rather than less. A rough but conservative empirical check is to suppose

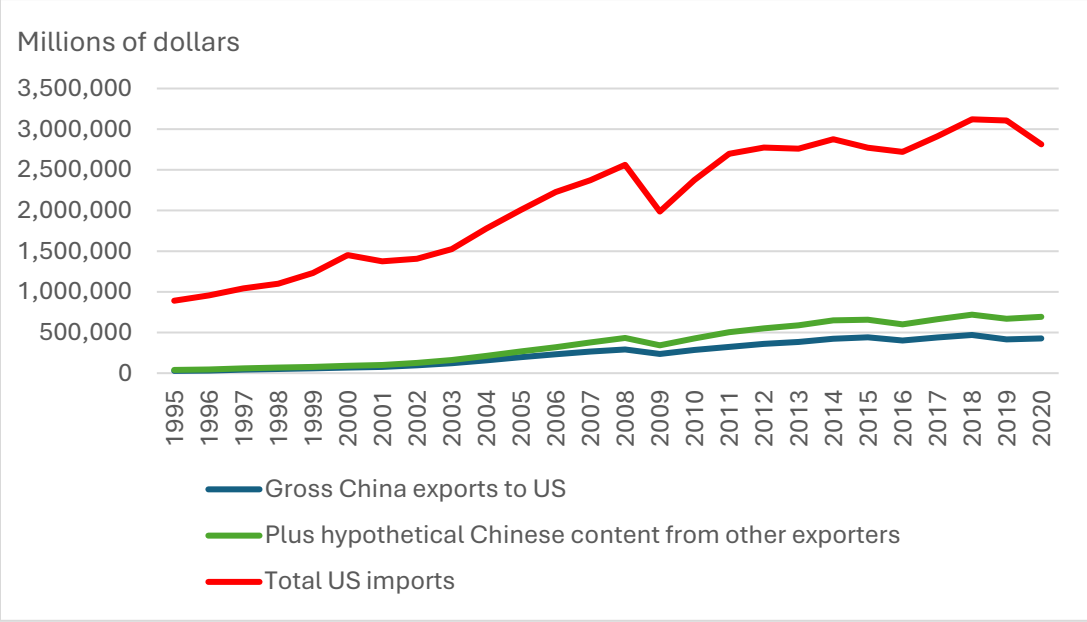

Figure 9 Hypothetical impact on total U.S. imports from China of Chinese content embodied in third countries' exports to the United States. Annual data. Source: OECD, Trade in Value Added (TiVA) 2023 edition: Principal Indicators, and U.S. Department of Commerce, Bureau of Economic Analysis.

that an amount equal to 20 percent of Chinese worldwide exports of intermediate products eventually finds its way into other exports to the United States. Figure 9 compares actual U.S. imports from China and the hypothetical augmented series with total U.S. imports of goods and services. The modification makes little difference.

Econometric analysis of tariff effects on the trade balance is fraught with hazards: tariffs are responsive to trade balance or growth pressures and hence are endogenous; they may be infrequent in any one country's time series data; they sometimes move in concert with reciprocal concessions from trade partners. Davide Furceri, Swarnali A. Hannan, Jonathan D. Ostry, and Andrew K. Rose address the first two of these limitations by applying instrumental variable estimation and exploring industry-level data within a 151-country panel of annual data. Their basic finding is that tariffs have little impact on trade balances and bring about real currency appreciation, in line with the Mundell prediction.[23] In another relevant study, the International Monetary Fund, using a global gravity model of the web of foreign trade flows, finds that the main drivers of bilateral trade imbalances from the 1990s through 2018 were macroeconomic.

Narratives critical of U.S. trade policy in the 1990s and 2000s focus on import surges, as does the "China shock" literature. But a key global structural change directly impacted U.S. export rather than import-competing industries: China's entry into the WTO. Ocurring virtually at the same time as its acquisition of PNTR with the United States, China's WTO entry in December 2021 gave it improved market access worldwide, intensifying its competition with many countries, including the world's biggest exporter at the time, the United States. Chinese competition led some buyers to substitute away from U.S. exports; in effect, this was a negative shock to world demand for U.S. exports. Of course, U.S. firms facing "China shock" import surges at home may well also have faced more intense Chinese competition in foreign markets too, amplifying their U.S. layoffs and plant closures.

Figure 10 shows how WTO entry by China changed the U.S. position in global export markets. The U.S. global export share plummeted over the 2000s, roughly stabilizing after the Global Financial Crisis. Meanwhile, China's share rose. China's

[23] Furceri, Hannan, Ostry, and Rose (2022); International Monetary Fund (2019). Other studies find negative effects of tariffs on output and investment, with at best slight positive effects on the trade balance. See, for example, Barattieri, Cacciatore and Ghironi (2021) and Boer and Rieth (2024).

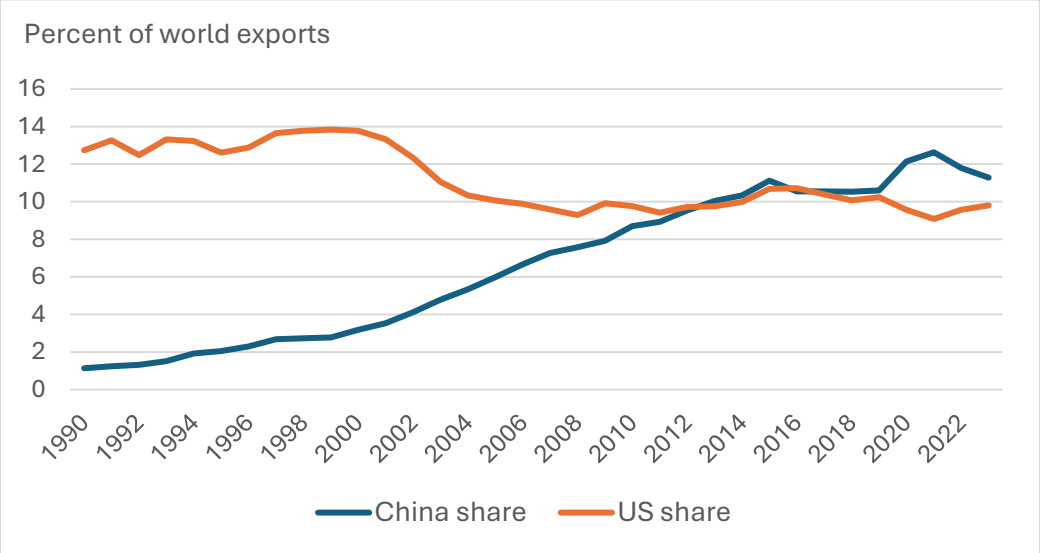

Figure 10 With WTO entry in 2001, China's share of world exports grew more quickly while that of the United States declined. Annual data. Source: World Bank.

export growth was not the only structural change in world trade. Germany's exports more than doubled in dollar terms over the 2000s through the 2008 crisis.

A fall in world demand for U.S. exports is a negative macroeconomic demand shock that worsens the U.S. terms of trade (the purchasing power of exports over imports). Because the terms of trade fall, however, the dollar depreciates (as in figure 7), somewhat or completely offsetting the effect on export volumes. As I will discuss below, U.S. exports in fact rose from 2002 to 2008 as the dollar depreciated. Global GDP growth rates above the U.S. rate (especially when measured in depreciating dollars) also helped lower the U.S share of world exports during the 2000s.

The dollar's global role

The U.S. dollar is the world's overwhelmingly dominant reserve, invoicing, vehicle, anchor, and funding currency.[24] Several theories argue that bigger structural U.S. deficits are the inevitable outcome. One asserts that countries can gain the dollar reserves they wish to hold only by running external surpluses with the United States. In turn, as the world economy grows, growing reserve demand obliges the United States to

[24] Bertaut, Beschwitz, and Curcuru (2023) offer a recent assessment.

run persistent deficits. A second class of theories focuses on asset-price effects that contribute to U.S. deficits. One of these contends that global dollar demand causes a chronically overvalued dollar. A related claim is that the dollar's status allows the United States to borrow more cheaply abroad, creating a structural deficit.

The idea that the global demand for dollar assets can be satisfied only through U.S. current account deficits is widespread but wrong.[25] The world could alternatively acquire those dollar assets in exchange for *other assets* rather than goods and services.

Figure 11 shows how this process plays out in the data. Foreign acquisitions of U.S. assets (the negative bars, overwhelmingly denominated in dollars) normally exceed the U.S current account deficit in absolute value, a possibility because U.S residents simultaneously acquire high volumes of foreign assets (the positive bars, mostly denominated in foreign currencies). In short, the counterpart payments for foreign purchases of dollar claims on the United States – and notably foreign central bank purchases of reserve assets like U.S. Treasuries – can reside in the non-official financial account rather than the current account.[26]

What about U.S. trade partners that may not be attractive destinations for capital inflows, making foreign residents less willing to acquire their assets? The previous point still applies. In 2023, the Kingdom of Eswatini (formerly Swaziland) had a bilateral trade deficit with the United States but an overall current account surplus. It can use the currencies it earns through its surplus with non-U.S. trade partners to buy dollar reserves, despite its deficit with America.

Another reason U.S. current account deficits may fall far short of global acquisitions of U.S. dollar assets, including official foreign exchange reserves, is that many dollar claims are claims on non-U.S. residents, for example, banks in London, Singapore, or Hong Kong that deal in offshore currencies.[27]

One indicator of official dollar reserve holdings outside the U.S. jurisdiction is the

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[25] Recent examples include Atkinson (2024) and Rappeport (2024). For a critique, see the arguments in Bordo and McCauley (2019), which I extend in some respects.

[26] See Obstfeld (2024b).

[27] An important force behind the development of the offshore Eurodollar market in London and Paris starting in the 1950s was the desire of Soviet bloc central banks to protect their dollar deposits from possible interdiction by U.S. authorities, a motive that has gained renewed relevance after recent financial sanctions against Russia. See Cooper (1968, p. 119) and Hirsch (1969, p. 149). Communist China also used this strategy.

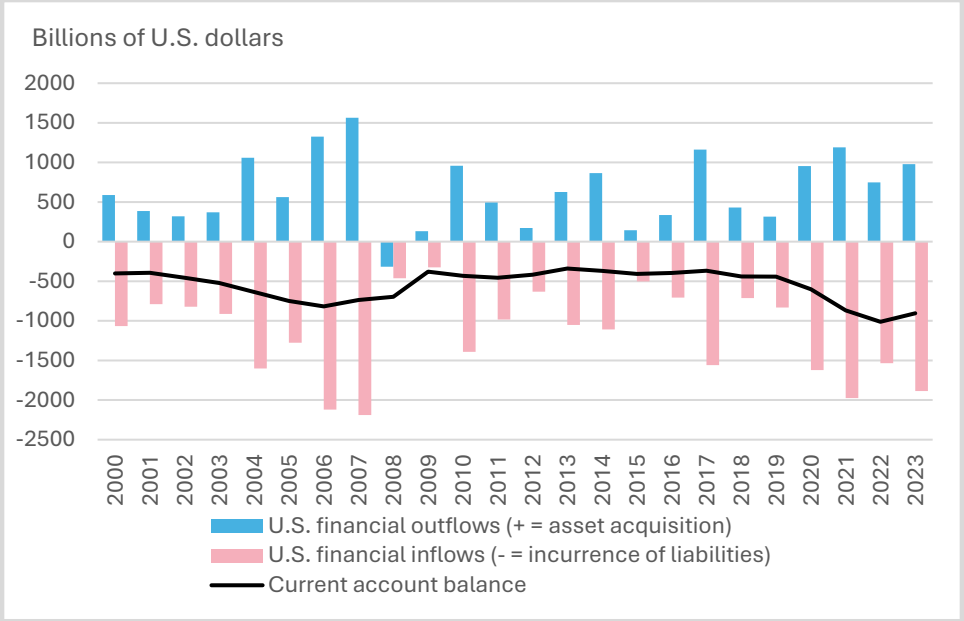

Figure 11 Gross U.S. financial inflows and outflows and the current account balance. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis.

discrepancy between BEA data on U.S. liabilities to foreign official agencies and the International Monetary Fund's Composition of Foreign Exchange Reserves (COFER) data on reserves reported by member and non-member countries, which in principle include reserves that are not direct claims on U.S.-resident entities.[28] Some of the BEA official liabilities are not truly reserve assets (for example, they include holdings of sovereign wealth and government pension funds), so figure 12 adds a third, narrower series consisting of the most liquid international reserves, securities held in custody for foreign and international accounts at the Federal Reserve Bank of New York. Many countries that report to the IMF do not give the currency composition of their reserves, so to construct figure 12, I assume that "unallocated" COFER reserves consist of dollars in the same proportion as allocated reserves – for which the share of dollars reached a low of 58.4 percent in 2023. COFER reserves have uniformly exceeded BEA official liabilities, although the estimated gap has narrowed in the past five years; COFER reserves far exceed the New York Fed's custodial holdings. Figure 12 shows that global

[28] See also Bordo and McCauley (2019).

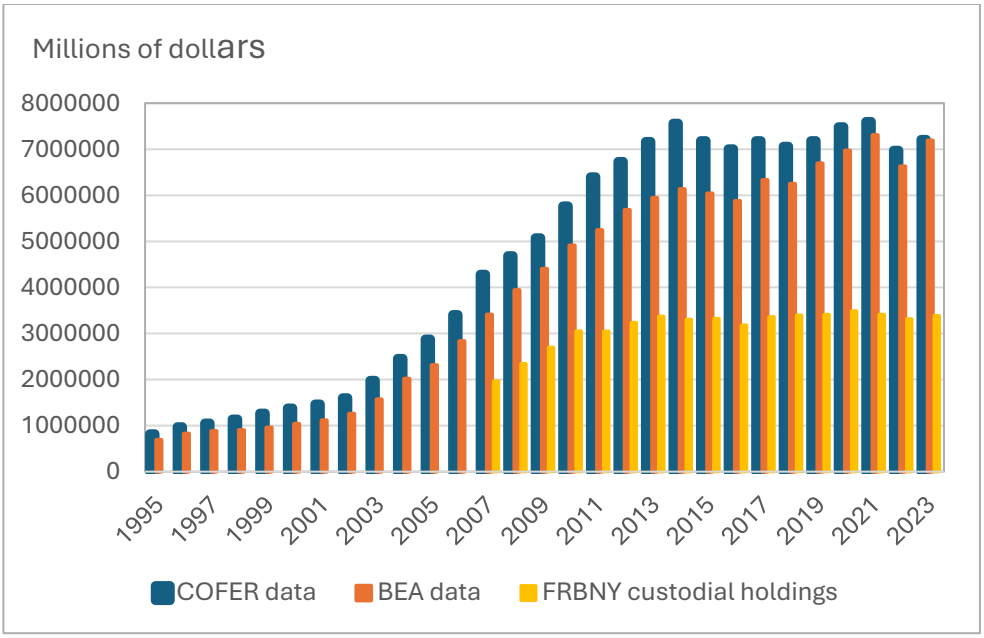

Figure 12 IMF data on global official dollar reserves and BEA data on U.S. liabilities to foreign official holders. Unallocated COFER reserves are assumed to match the dollar share of allocated reserves. Annual data. Source: IMF COFER database, U.S. Department of Commerce, Bureau of Economic Analysis, and Board of Governors of the Federal Reserve System via FRED. The chart shows end-of-year FRBNY custodial holdings.

dollar reserves, measured by either the COFER measure or the New York Fed's custodial holdings, have been essentially constant in nominal terms for a decade.

Notwithstanding the preceding considerations, Stephen Miran has set out a "blueprint for restructuring the global trading system" built on a central premise that the dollar's status will inevitably lead to growing and ultimately unsustainable current account and trade deficits.[29] He calls this a "Triffin dilemma" following the economist Robert Triffin, who first suggested in the late 1950s that the dollar-gold link central to the Bretton Woods system was doomed:

> In Triffin world, the reserve asset producer must run persistent current account deficits as the flip side of exporting reserve assets. [U.S. Treasuries] become exported products which fuel the global trade system. In exporting USTs, America receives foreign currency, which is then spent, usually on imported goods. America runs large current account deficits not because it imports too

[29] Miran (2024).

much, but it imports too much because it must export USTs to provide reserve assets and facilitate global growth....

As the United States shrinks relative to global GDP, the current account or fiscal deficit it must run to fund global trade and savings pools grows larger as a share of the domestic economy. Therefore, as the rest of the world grows, the consequences for our own export sectors—an overvalued dollar incentivizing imports—become more difficult to bear, and the pain inflicted on that portion of the economy increases.

Apart from its conceptual flaws, Miran's story falls afoul of two basic facts. First, the U.S. share of world GDP at market exchange rates has averaged around 25 percent since around 1990. It may well be destined to fall, but we have not seen it yet. Second, a consequence of the last fact and figure 12 is that the global reserve stock as a fraction of U.S. GDP has fallen sharply. To illustrate, figure 13 shows the ratio to U.S. nominal GDP of two broad measures of nominal dollar reserves based on the COFER data, the one shown in figure 12 (v.1) and an alternative which assumes that all "unallocated" reserves are held in U.S. dollars (v.2). The era of accelerating global reserve growth after the late

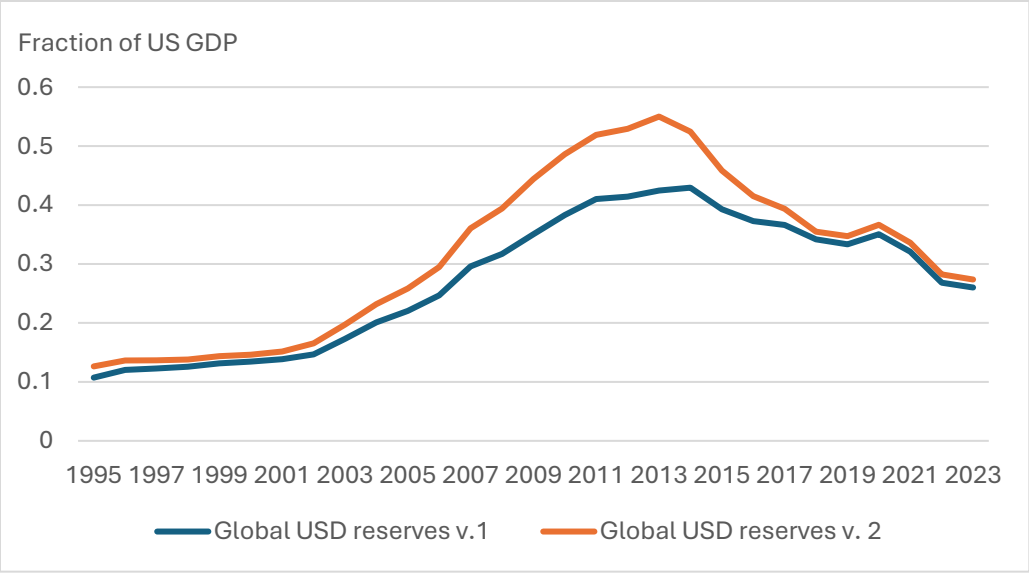

Figure 13 Alternative measures of global U.S. dollar foreign exchange reserves as shares of U.S. nominal GDP. Here, "v. 1" assumes that unallocated COFER reserves are invested in U.S. dollars in the same proportion as allocated reserves; "v.2" assumes that all unallocated reserves are invested in U.S. dollars. Annual data. Source: IMF COFER database and U.S. Department of Commerce, Bureau of Economic Analysis.

1990s lasted a decade and a half and has been over for a while. Yet U.S. deficits have not abated: global dollar reserve demand cannot explain the ongoing transfer of wealth to foreigners via the U.S. current account deficit.[30]

Although there is no mechanical accounting link whereby global reserve demand feeds one-for-one into the U.S. current account deficit, the dollar's unique global role could operate in another way: by lifting the dollar's value against other currencies compared with its value in a world where it was less in demand. Other things being equal, a stronger dollar would encourage imports, discourage exports, and worsen the trade balance. It could therefore also be a deflationary force on the domestic economy or a drag on manufacturing activity.

A related effect of the dollar's global role could be a liquidity premium that reduces the cost of borrowing in dollars, while also strengthening the currency on net.[31] This potential source of "exorbitant privilege" could raise net international investment income while reducing net exports because of a stronger dollar and higher consumption and investment spending, with an indeterminate effect on the current account.

Nailing these effects down empirically is challenging. The most widely used approach has been to estimate a cross-country panel model of current-account determination, where the independent variables can include demographic factors that influence saving, government fiscal positions, resource endowments, net foreign assets, per capita real income, among other potential drivers. In such a framework, one could hope to capture the effect of the dollar's unique role through either a U.S. dummy variable – how different is the U.S. from other countries? – or some constructed variable that captures global dollar demand.

In an example of the former approach, Menzie Chinn and Hiro Ito put the average additional U.S. deficit associated with the dollar's singular status at about 2

[30] In his famous book, Triffin (1961) worried that foreign official dollar reserves had grown so large that the U.S. could not redeem them all in gold at the promised price of 1/35 oz. per dollar. He did not see foreign demand for dollar reserves as driving an inevitable U.S. trade or current account deficit, contrary to Feldstein (2013, p. 119n). Triffin viewed the U.S. as a structural capital exporter to a reconstructing and developing world and advocated a U.S. current account surplus big enough to cover net capital outflows without further growth in potential foreign claims on the limited U.S. gold stock.

[31] See, for example, Engel and Wu (2023) and Jiang, Krishnamurthy, and Lustig (2021).

percent of the country's GDP. This is roughly the same as Łukasz Rachel's and Lawrence H. Summer's estimate of the fall in the U.S. saving-investment balance due to a 100 basis point reduction in national borrowing costs, based on conventional interest elasticities of saving and investment.[32]

The International Monetary Fund's External Balance Assessment (EBA) methodology is similar in spirit to the Chinn-Ito approach, although its goal is to assess current account "norms" based on desirable settings for policy variables such as the fiscal deficit. The 2018 vintage of the EBA model explicitly estimated the effect on the norm of a country's currency share in international reserves, finding that "for each 10 percentage points of global reserves held in its currency, a country's current account balance is weakened by about 0.3 percent of GDP." With the dollar comprising about 60 percent of international reserves, the implied additional U.S. current account deficit is around 1.8 percent of GDP, not far from the preceding Chinn-Ito estimate. However, the 2022 EBA provisionally dropped the reserve-currency variable for the current account norm, as it had lost statistical significance in the underlying econometric model.[33]

Because a reserve-currency privilege reduces the investment income drain due to a negative NIIP, an estimate that it weakens the current account implies that it weakens net exports even more. The finding is consistent with equation (4) above: a country that earns a premium on its external position can repay its net foreign debt with smaller net export surpluses over time (although it eventually must have surpluses). In present discounted value, it can consume more while producing less.

While these considerations suggest that the dollar's global role induces a bigger deficit, they could just as well imply a smaller surplus. The euro area has a trade surplus despite issuing the world's second most important reserve currency. Moreover, the dollar's global role – which confers aggregate gains on the United States – derives not only from preferences and needs that foreigners impose on a passive America, but from institutions of U.S. origin (such as a consistent rule of law, independent monetary policy, and deep, open financial markets) that also underpin American prosperity.

An additional factor strengthening the dollar in the past has been currency

[32] See Chinn and Ito (2022, p. 11) and Rachel and Summers (2019, p. 16).
[33] The two vintages of the EBA model are reviewed in Cubeddu et al. (2019) and Allen et al. (2023).

manipulation by some U.S. trade partners.[34] When a single small country intervenes in the foreign exchange market to weaken its currency deliberately againsr the dollar, that need not move the dollar's cross exchange rates with other currencies such as the euro and yen. Undervaluation thus will pertain to a range of currencies and any negative impacts on trade partners' foreign balances will be spread across all of them roughly in proportion to their trade shares. It is not only the U.S. deficit that will rise.[35]

If many countries simultaneously buy dollars, however, this can strengthen the dollar relative to major foreign currencies, leading to a disproportionate negative impact on the U.S. trade balance. Estimates by Joseph E. Gagnon and Madi Sarsenbayev suggest that this factor has been a significant determinant of the U.S. deficit in some years (notably close to the Global Financial Crisis).[36]

Those who blame U.S. deficits partly on foreign currency manipulation thus have a point, although foreign official dollar purchases do not feed one-for-one into U.S. deficits and estimates like those of Gagnon and Sarsenbayev also leave big current account gaps that are not explained by dollar exchange holdings abroad. Figure 13 suggests the effects could be losing importance over time.

If foreign manipulation (or dollar reserve holdings otherwise motivated) induces a nominal dollar depreciation, this might not translate into a permanent real appreciation without offsetting government support of domestic demand (fiscal or monetary). However, ascribing much of U.S. fiscal deficits to this channel is highly implausible.

Foreign capital inflow as the primary causal factor

In an influential book, Matthew Klein and Michael Pettis assert that "The persistence of the American current account deficit can only be explained by excessive savings abroad

[34] For overviews, see Bergsten and Gagnon (2017) and Gagnon (2020).

[35] If one insists that an official purchase of a currency leads to a corresponding surplus with the currency's issuer, absurd conclusions may follow. Thus, Pettis (2012, p. 173) supposes that if any country intervened in foreign exchange by buying the IMF's Special Drawing Rights (SDR) basket rather than dollars, it "would be forcing the corresponding deficit not just onto the U.S. economy, but also onto those of other countries (according to the currency component of the SDR)."

[36] The methodology of Gagnon and Sarsenbayev (2021) is in the same family as those of Chinn and Ito and the IMF EBA initiative. Gagnon and Sarsenbayev find that on average over 1986-2018, foreign official dollar holdings are associated with an additional −1.2 percent of GDP effect on U.S. current account.

and the US role in absorbing these excess savings."[37] Pettis (2024) contends that foreign saving finds its way to the United States in the form of capital inflows, forcing the country to run current account deficits.

> because the United States has given up control of its capital account, it has no choice but to be a persistent net importer of foreign capital.
>
> It is important to understand that this is not because the United States needs foreign capital but rather because foreigners need a safe place to absorb their excess savings. As long as foreigners prefer to acquire U.S. assets in exchange for their surpluses and are able to force the United States into a net capital account surplus, the United States must run a current account deficit.

Economists such as Robert Aliber have expressed variants of this view.[38]

This description of the world is right in believing that in an integrated world economy, changes in saving and investment abroad as well foreign portfolio shifts in demand for U.S. assets can affect the U.S. balance of payments. But it is wrong in believing that shocks originating within the U.S. economy are not also important, or that the U.S. is the helpless victim of external forces and lacks effective policy levers to offset foreign shocks.

The basic theoretical framework for understanding the global transmission of saving and investment shocks was set out by Lloyd A. Metzler. Imagine a world of two regions, Home (H) and Foreign (F), with free international borrowing and lending in a real bond indexed to a single global consumption and investment good. In each country, saving S is an increasing function of the domestic real interest rate, r, while investment I is a decreasing function of r. If the two regions are prevented from trading, the capital market in each will settle at an autarky equilibrium interest rate r^{aut} at which saving equals investment, $S(r^{\text{aut}}) = I(r^{\text{aut}})$.

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[37] Klein and Pettis (2020, p. 214).

[38] Aliber (2024). Pettis' inference is that durable reduction in the U.S. current account and trade deficits requires the United States to levy a tax on foreign borrowing. The idea of a capital inflow tax was codified in a 2019 U.S. Senate bill co-sponsored by Senators Tammy Baldwin and Josh Hawley, which would have amended the Federal Reserve Act and tasked the Fed with targeting the U.S. trade deficit through a "market access charge on certain purchases of United States assets" leading to a "trade-balancing exchange rate." The bill's text is at https://www.congress.gov/bill/116th-congress/senate-bill/2357/text?loclr=cga-bill&mc_cid=ef4ba9849b&mc_eid=%5B88323f6801%5D.

Figure 14 describes a global equilibrium. Because its residents are relatively less frugal or its investment opportunities more attractive, Home has a higher autarky interest rate than Foreign ($r_{\mathrm{H}}^{\mathrm{aut}} > r_{\mathrm{F}}^{\mathrm{aut}}$). In the global equilibrium, Home borrows from Foreign and the common interest rate $r^* = r_{\mathrm{H}}^* = r_{\mathrm{F}}^*$ at which Home's desired borrowing (and current account deficit), $I_{\mathrm{H}}(r^*) - S_{\mathrm{H}}(r^*)$, equals Foreign's desired lending (and current account surplus), $S_{\mathrm{F}}(r^*) - I_{\mathrm{F}}(r^*)$, lies between the two autarky rates.

This simple model has a clear implication that developments in Foreign will affect the current account of Home. Figure 15 shows the outcome if Foreigners decide to save more at every interest rate – inducing a rightward shift in the Foreign saving schedule. Global saving rises, the world interest rate falls, Foreign's surplus rises, and Home's current account deficit rises equally. The rise in capital outflows from Foreign must equal the rise in capital inflows to Foreign, and indeed the exogenous impulse driving those inflows comes from abroad. But Home has policy tools to reduce unwelcome capital inflows (even without taxing them). A tighter fiscal policy that raises national saving, for example, would shift the Home saving schedule to the right, reducing Home borrowing from Foreign and the world interest rate. Were this contractionary domestically, the central bank could lower its policy interest rate.

The more general point is that capital inflows are determined not just by saving flows originating abroad, but also by domestic factors. As another example, a leftward shift of the Home saving schedule raises the Home current account deficit and capital inflows and raises domestic and global interest rates. But although equilibrium still implies that the rise in Home capital inflows equals the rise in Foreign capital outflows, it would be wrong to conclude that the former are caused by the latter. In this case, foreign capital is pulled in, not pushed in from abroad.

In figure 15, an increase in Home's deficit accompanies a rise in global saving. However, shifts in asset preferences can affect Home's current account balance even

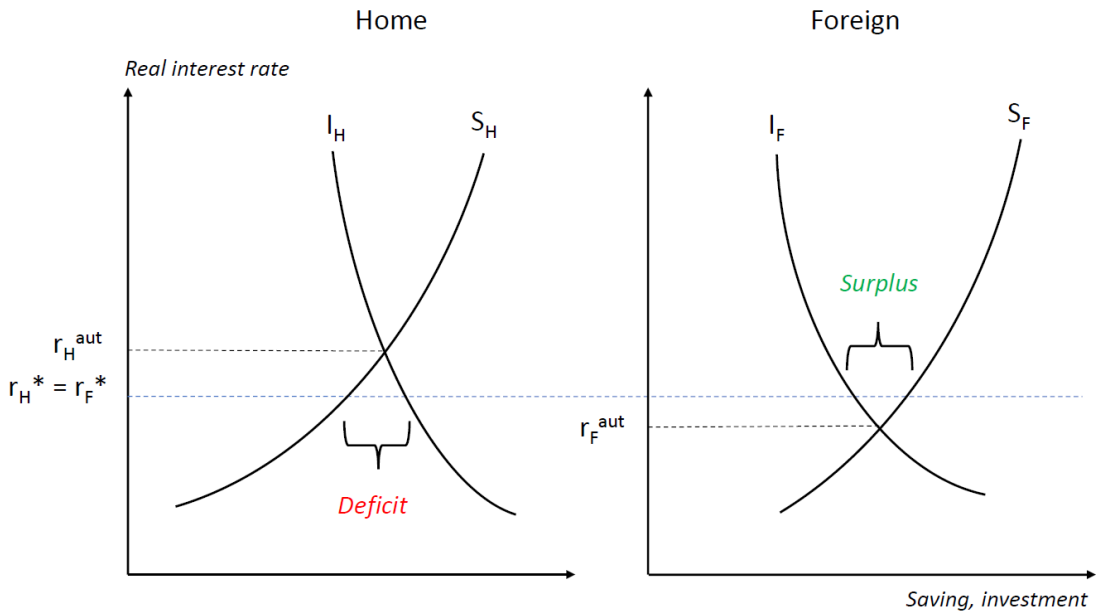

Figure 14 Determining global equilibrium interest rate and current account balances in a two-region world economy.

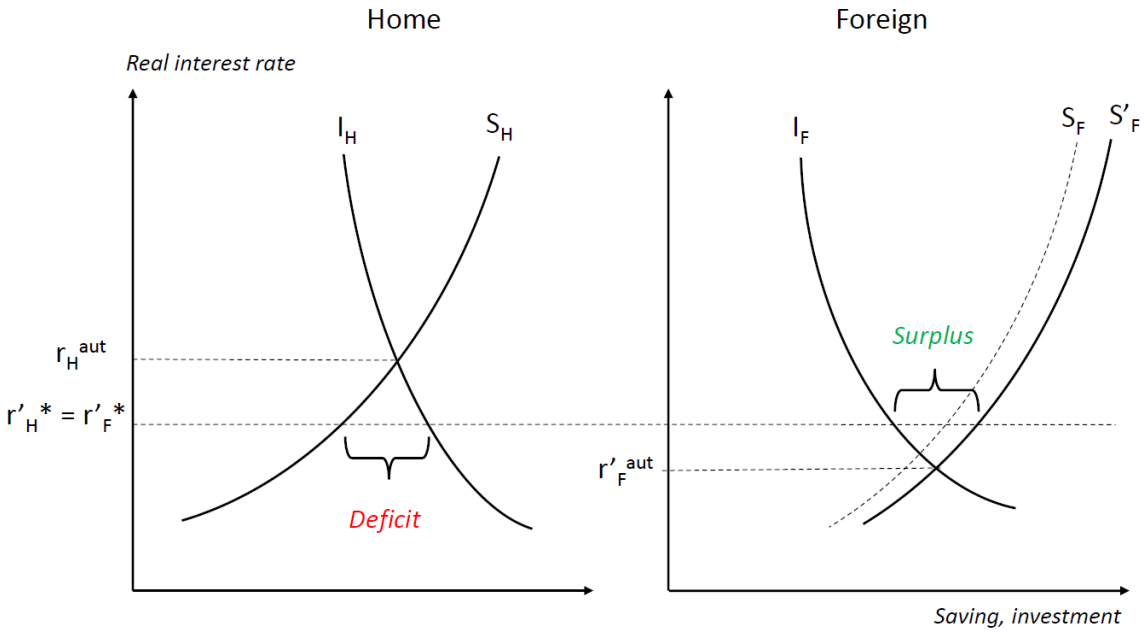

Figure 15 Effects of a rise in Foreign saving on global equilibrium interest rate and current account balances.

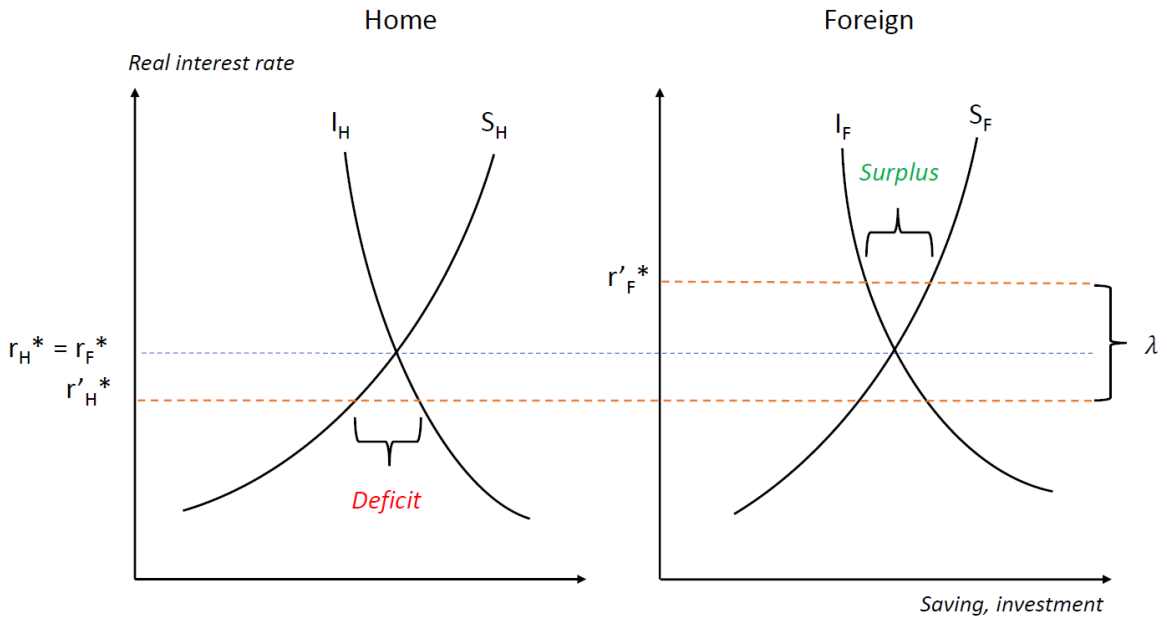

Figure 16 Effects of a global portfolio preference λ shock in favor of Home liabilities.

when total world saving remains unchanged. Figure 16 shows the result when Foreign lenders develop a portfolio preference, denoted by a "liquidity" premium λ, for securities issued by Home. In this case, asset-market equilibrium holds when $r_H^* = r_F^* - \lambda$ and the preference change will cause Home to run a bigger deficit and Foreign to run an equally bigger surplus. Because saving rises in Foreign and Falls in Home, total global saving (and investment) may rise or fall, but is unlikely to change much.

Applied to the United States, the implication is that higher current account deficits may originate abroad but may also stem from domestic factors and respond to domestic policies. They may or may not be related to changes in world saving. Allocating any historical change to foreign and domestic sources raises difficult identification problems, but an exclusive focus on foreign shocks does not fit the data. The U.S. experience in the late 1990s and 2000s is an important case study.

Revisiting the U.S. current account deficits of 1998-2008

The years from 1998 to 2008 saw U.S. trade and current account deficits bigger than any seen before or since, along with an unprecedented expansion of global imbalances generally. The U.S. goods and services trade deficit for the year 2006 reached 5.7

percent of GDP (figure 1) and the current account deficit reached 5.9 percent. In 2007, China's current account surplus attained an astounding 9.9 percent of its GDP.

The decade continues to throw a long shadow over current trade policy debates. As the trade deficit ballooned, the seasonally adjusted share of manufacturing employment in the nonfarm sector fell from 14.1 percent in January 1998 to 9.5 percent in December 2008, representing a loss of 4.76 manufacturing jobs. Cheap imports from China hit some American heartland communities especially hard—the China shock. The collateral effects along several dimensions, including on wages, continue to fuel resentment against China and are often linked to its trade surpluses.[39] Finally, the decade ended with the Global Financial Crisis, which complicated adjustment to earlier trade dislocations and is blamed by some on capital inflows imposed on the United States from abroad. These, it has been claimed, powered the U.S. trade deficit and deindustrialization.

Narratives that place most blame for these events outside the United States and especially on China have a long tradition and remain prevalent, even among those who agree that macroeconomic factors rather that U.S. trade liberalization or foreign commercial policies are not prime drivers of U.S deficits. Ben S. Bernanke, then a Federal Reserve governor, offered the most influential analysis in his well-known "global saving glut" speech of March 2005, which located "the principal causes of the U.S. current account deficit outside the country's borders…."[40]

Gordon Hanson's 2024 review of Lighthizer (2023) illustrates the persistence of Bernanke's account:

> The US trade deficit did rise from 1998 to 2008, before dropping back to 1999 levels in the early 2010s. The cause was not the [World Trade Organization], but the 1997 Asian financial crisis, after which Asian central banks substantially increased their holdings of foreign reserves, primarily by purchasing US Treasury bills. That resulted in the United States having a bigger capital account surplus, meaning that more capital was flowing into the United States than was flowing

[39] On impacts of trade with China, see, for example, Autor, Dorn, and Hanson (2013), Ebenstein, Harrison, and McMillan (2014), and Pierce and Schott (2016).

[40] Bernanke (2005). Contemporary observers who likewise saw the U.S. deficit as being determined by foreign desire for U.S. assets include Cooper (2001) and Dooley and Garber (2005).

> out. The United States offset that account surplus by importing more than it exported. The US trade balance was affected because US Treasury bills remained the foreign asset of choice for central banks around the world, which pushed up the value of the dollar, making imports cheaper and US exports more expensive, causing a large trade deficit.[41]

While this narrative of how U.S. 1998-2008 deficits were imported is compellingly simple, it also sits uneasily with several macroeconomic facts about the period. A more accurate story suggests that the factors fueling the largest U.S. deficits of the 1998-2008 decade were made in America rather than imported.

Evidence from global imbalances

A first basic check is to look at the global counterpart surpluses to U.S. deficits. Figure 17 shows how global imbalances have evolved since the mid-1980s, with each bar representing a country or country group's net surplus or deficit.[42] The black bars are the statistical discrepancy in the global current account, caused by measurement errors in balance of payments statistics. It is the missing current account surplus (when positive) or deficit (when negative) that would make the sum of all countries' current account balances equal to the theoretical value of zero. Global imbalances expanded sharply in the 1998–2008 decade, before retracting in 2009. At their height, in 2006, they reached nearly 3 percent of global GDP. As figure 17 shows, the dominant fact of 1998–2001 (when the expansion began) is the rise of the U.S. deficit. No imbalances on the surplus side of the ledger, including those of "other East Asia" (which includes newly industrialized Hong Kong, Korea, Singapore, and Taiwan), are comparable.

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[41] Hanson (2024, pp. 170-171).

[42] For country groups' gross surpluses and deficits, see Obstfeld (2024a). The higher dispersion of imbalances after the 1990s may well owe to lower trade costs, as argued by Eaton, Kortum, and Neiman (2016), Reyes-Heroles (2016), and Alessandria, Bai, and Woo (2024). However, lower trade costs largely affect the sizes of the responses to fundamental determinants of imbalances, rather than the signs. Reduced international financial frictions likely also played a role. Tariffs are one form of trade friction. However, the finding that a higher tariff may mute the impact of some shocks need not imply that imposing a tariff – a shock in its own right – will shrink a pre-existing trade imbalance.

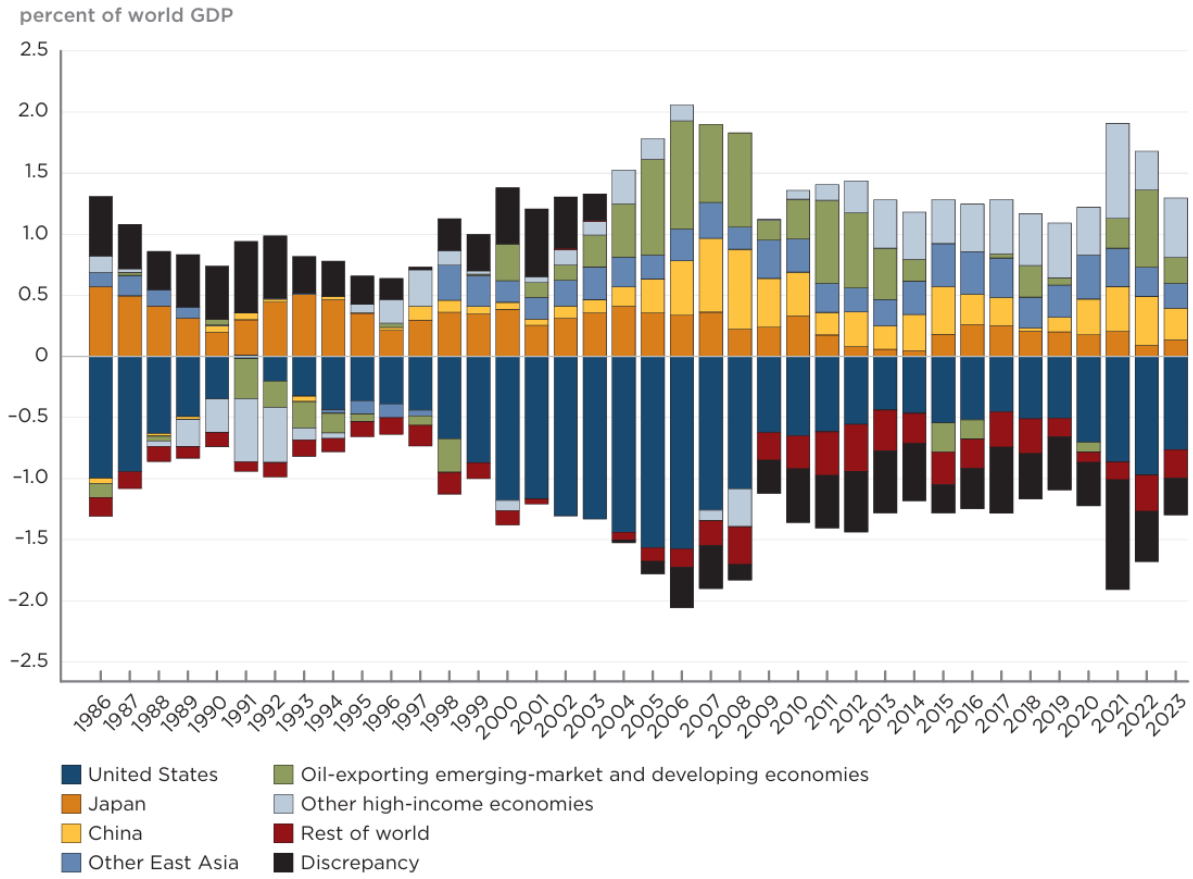


Figure 17 Net global current account imbalances, 1986-2023. Annual data. Source: IMF, World Economic Outlook database, April 2024, with China data before 1997 from World Bank, World Development Indicators.

These data would be enough to rule out the Asian crisis countries as a major driver of US deficits (except perhaps in 1998) but for the unexplained global discrepancy that also begins to grow after 1997, reaching a peak in 2001. At the global level, through 2003 there was a "missing current account surplus" that cannot be attributed reliably to any set of countries. It seems unlikely that the discrepancy is entirely due to unreported surpluses of Asian crisis countries and China, especially considering the data for 2004, where there is no net discrepancy, but there is no way to be sure.

The net surplus of oil-exporting emerging-market and developing economies (EMDEs) becomes a more significant counterpart of the growing U.S. deficit starting in

2003. China joins only in 2005. It is also in 2005 that the missing global surplus becomes a sizable missing global deficit, as the discrepancy's sign flips.

Inspecting the pattern of global imbalances leads to three tentative conclusions: Asian crisis countries are unlikely to have played the dominant role in the U.S. deficits of 1998–2008; oil surpluses are a consistently big counterpart of U.S. deficits after about 2003; and Chinese surpluses become significant, but not until later in the decade. A caveat, however, is that the global current account discrepancy early in the decade makes it hard to identify precisely the counterpart surpluses to the United States' position as the historically massive U.S. deficit is emerging.

Figure 18 Ten-year TIPS interest rates. Monthly data. Source: Global Financial Data.

Evidence from interest rates and equity prices

The simple Metzler model of global capital market equilibrium oversimplifies by assuming that real interest rates must be equalized globally. Most importantly, expected changes in real exchange rates drive a wedge between national interest rates, as do differences in currency risk, issuer preference (as in figure 16), or more tangible barriers to cross-border financial flows. Nonetheless, world real interest rates trend together and

should generally move together in response to major shocks to saving and investment, regardless of country of origin.[43]

If a growing U.S. deficit is being driven by growing foreign saving, we should also observe falling U.S. real interest rates. Figure 18 shows the rate on 10-year Treasury Inflation Protected Securities (TIPS). The rate actually rises in the immediate wake of the Asian crisis, until an abrupt fall over 2000-2002. Then, from mid-2002 through mid-2007, there is little net fall in the TIPS rate, even as the U.S. deficit expands.

Expectations-adjusted nominal yields tell a similar story. Figure 19 shows real long- and short-term yields in the United States compared with the unweighted average of eleven other industrial countries.[44] Panel (a), for long-term government rates, shows little net fall in the U.S. rate between 2001 and mid-2007. Moreover, the U.S. rate is consistently below the average of foreign rates. If foreign capital were surging into the United States, we might expect the dollar to appreciate in real terms, setting up the expectation of a longer-term depreciation and raising the U.S. real rate relative to foreign rates (as in Obstfeld 2020). However, the gap could also indicate a strong global preference for U.S. bonds. While foreign long-term real rates decline by a bit more between 2001 and mid-2007, the net decline is not dramatic.

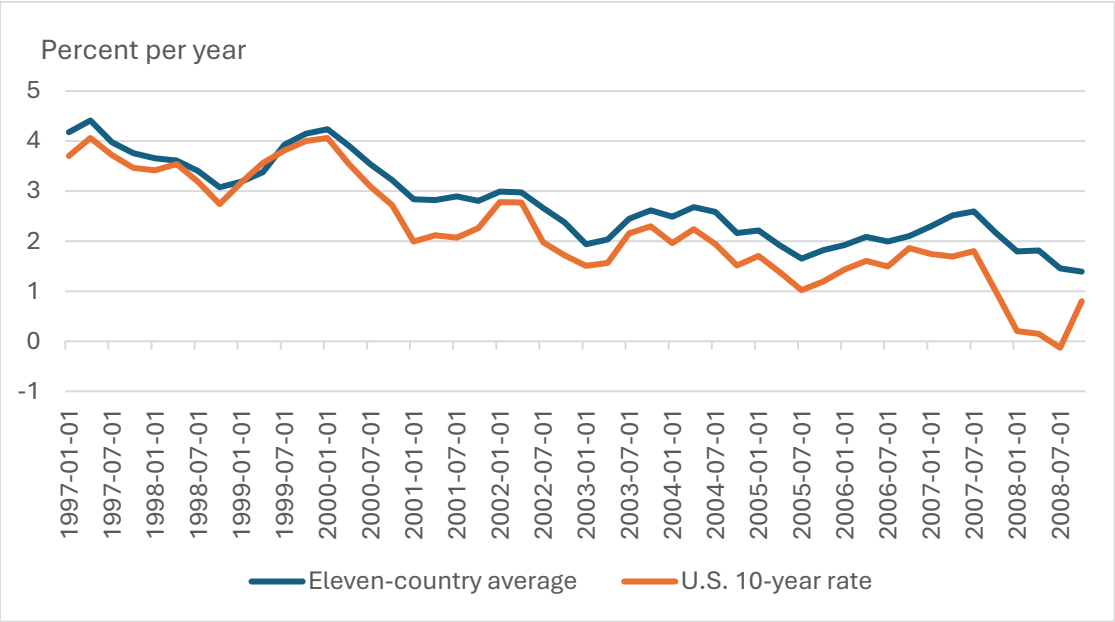
Panel (b) of figure 19 shows short-term real rates. The most striking figure of this chart is the huge gap between U.S. and foreign rates, with U.S. rates becoming substantially negative from mid-2001 through the end of 2004. Comparing panels (a) and (b), the very low rates in panel (b) seem too low to be explained entirely by a liquidity preference for dollar bonds and could reflect a more accommodative Fed policy stance compared with central banks abroad.

What about other financial assets? If capital was surging to the United States in the 2000s and elevating asset prices in all categories, one would expect U.S. equities to outperform foreign equities. As figure 5 shows, however, the mid-2000s saw relative asset-price performance in the United States and abroad *add* to U.S. external assets,

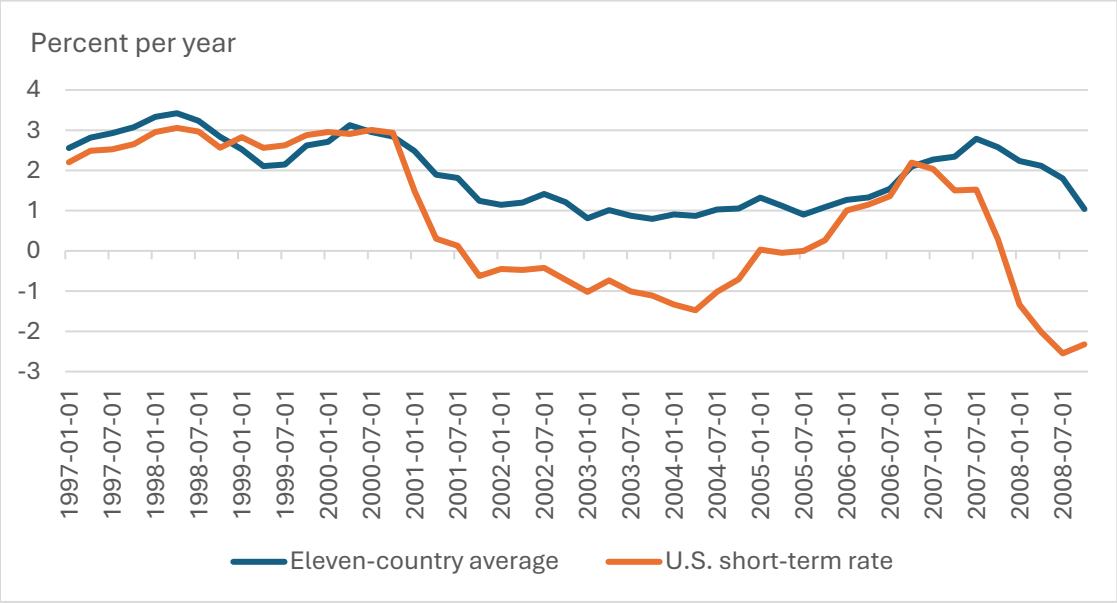
[43] For the case of differing national consumption mixes and variable real exchange rates, see Obstfeld (2020). On trends in global real interest rates, see Obstfeld (2025).

[44] Data come from Obstfeld (2025). Inflation expectations are proxied as in that paper. Nominal short-term yields are 3-month interbank or treasury rates. The foreign countries are Australia, Canada, France, Germany, Italy, Japan, New Zealand, Spain, Switzerland, Sweden, and the United Kingdom.

suggesting that U.S. foreign assets appreciated relative to U.S. foreign liabilities before translating price gains into dollar terms. Equity-price data support this inference.



(a) Ten-year government bond yields



(b) Three-month government borrowing or interbank rates

Figure 19 Long- and short-term real interest rates for the United States compared with the unweighted average of eleven other industrial countries, 1997-2008. The U.S. rate is the 3-month Treasury bill rate. Quarterly data. Source: Obstfeld (2025).

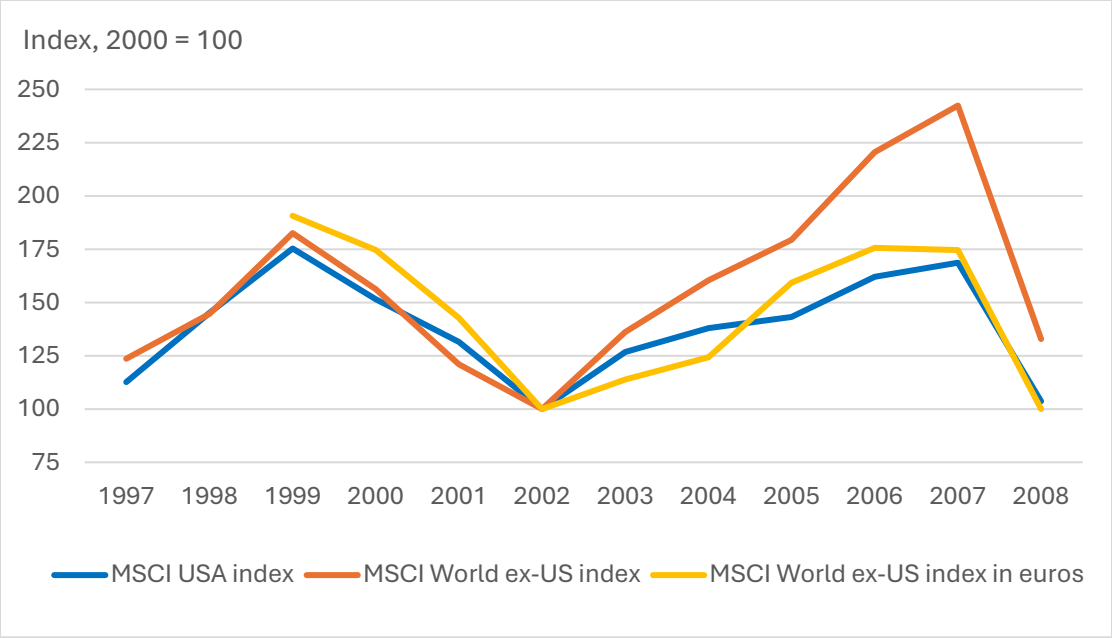


Figure 20 Equity prices for United States and rest of world, 1997-2008. Annual data. Source: Morgan Stanley Capital International (MSCI) equity indexes for USA, World ex-USA, and World ex-USA in euros, via Datastream.

Contrary to the experience since the Global Financial Crisis during which U.S. equity has strongly outperformed, equity markets abroad did better over much of 2002-2008. Figure 20 shows this advantage emerging after 2004 when foreign equities are valued in euros; foreign equities look even more attractive when valued in dollars because the dollar depreciated strongly.[45] The dollar's steep fall starting in 2002 is another important indicator, however, that an account of U.S deficits driven entirely by foreign capital inflows cannot be complete.

The dollar's long slide, exports, and imports

Proponents of the global saving glut theory posit that foreign demand for US assets strengthened the dollar, helping to drive the trade balance more deeply into deficit. A flip side of higher global saving was a flood of low-priced exports from China and other industrializing economies, which forced the Fed to keep interest rates low. The behavior of the dollar over 1998–2008 suggests a more nuanced account.

[45] This chart is inspired by figure B.1 in Atkeson, Heathcote, and Perri (2023). See also Milesi-Ferretti (2021).

Figure 7 shows the dollar's nominal effective exchange rate. The dollar started rising in the mid-1990s following the Clinton-Rubin strong dollar pivot and continued until the second quarter of 2002, possibly consistent with increases in foreign investors' demand for dollars as in the saving glut theory. But then it began to depreciate markedly, a process that continued through the third quarter of 2008. Returning to figure 5(b), dollar depreciation and net gains on the U.S equity position caused the U.S. NIIP to *improve* over 2004-07 despite record ongoing current account deficits.

The dollar's lengthy depreciation phase is inconsistent with the claim that foreign capital inflows continued to bid up the dollar, expanding the U.S. trade deficit by making U.S. exports less competitive and imports cheaper for U.S. consumers.

The reality is that after falling from 1997 (when they were 11.1 percent of GDP) to around 9 percent of GDP in 2002–2003, U.S. exports began to expand strongly and steadily (to 12.4 percent of GDP in 2008) until the Lehman Brothers failure threw the global economy into a tailspin. The U.S. net export deficit grew nonetheless because imports rose even more quickly than exports. Figure 21 shows that imports rose sharply after 2002 despite the dollar's depreciation.

This was also a period when global value chains expanded, raising gross exports and imports more than their value-added counterparts. However, the U.S. trade deficit did not expand mostly because more intermediate imports were embodied in exports. Figure 21 also reports value-added exports and imports for 1995-2020 computed using the OECD's TiVA data. Rising exports were not artifacts of rising global value chains.

Further insight comes from looking separately at the evolution of trade prices and quantities. The ratio of nominal net exports to nominal GDP can be written as

$$\frac{NX}{Py} = \frac{P_X x}{Py} - \frac{P_M m}{Py},$$

where $y, x,$ and m are real GDP, exports, and imports and $P, P_X,$ and P_M are their dollar prices. With zero subscripts denoting initial values, a useful accounting breakdown of

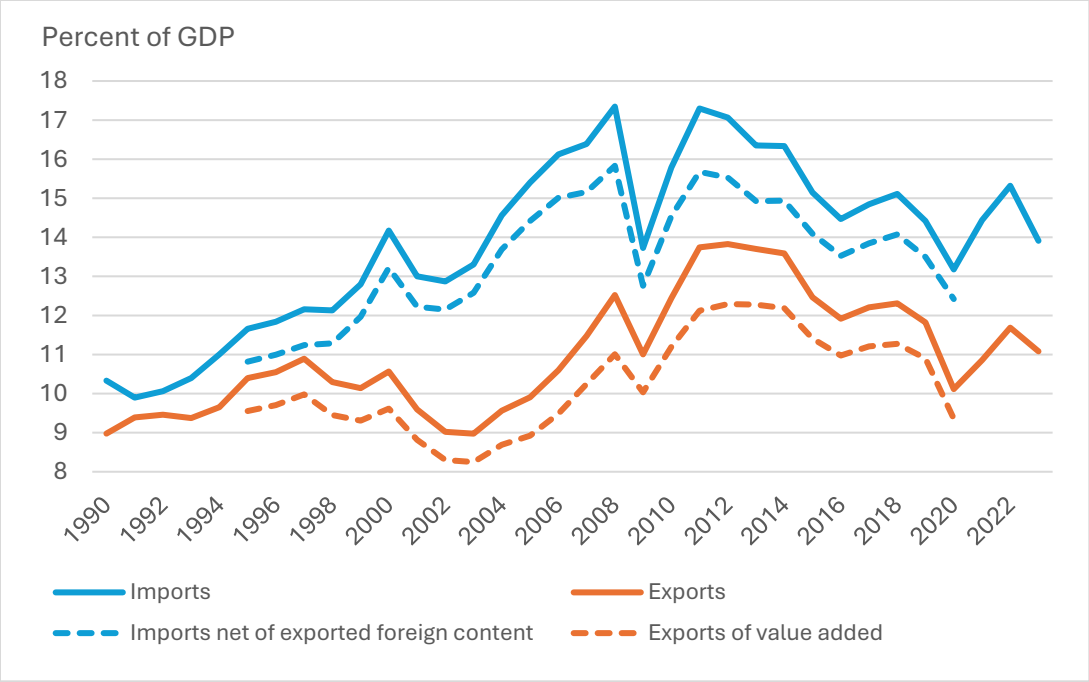


Figure 21 U.S. imports and exports, raw and value-added bases. Annual data. Source: U.S. Department of Commerce, Bureau of Economic Analysis and OECD, Trade in Value Added (TiVA) 2023 edition: Principal Indicators.

quarterly changes in NX/Py into relative prices (in terms of the GDP deflator) and quantities (real trade volumes relative to real GDP) is

$$\Delta\left(\frac{NX}{Py}\right) = \left(\frac{x_0}{y_0}\right)\Delta\left(\frac{P_X}{P}\right) + \left(\frac{P_{X,0}}{P_0}\right)\Delta\left(\frac{x}{y}\right) - \left(\frac{m_0}{y_0}\right)\Delta\left(\frac{P_M}{P}\right) - \left(\frac{P_{M,0}}{P_0}\right)\Delta\left(\frac{m}{y}\right) + \text{interactions.}$$

Above, higher import prices always reduce the trade balance because the accounting formula ignores the behavioral response of the import quantity demanded (m). The latter reduces m and reduces $P_M m = M$ when the price elasticity of import demand is > 1

Figure 22 shows the individual price and quantity contributions to NX/Py, cumulating changes from the first quarter of 1992 through the last quarter of 20212. There are several takeaways:

1. Real exports/GDP grow steadily after early 2002 (coincident with dollar depreciation).

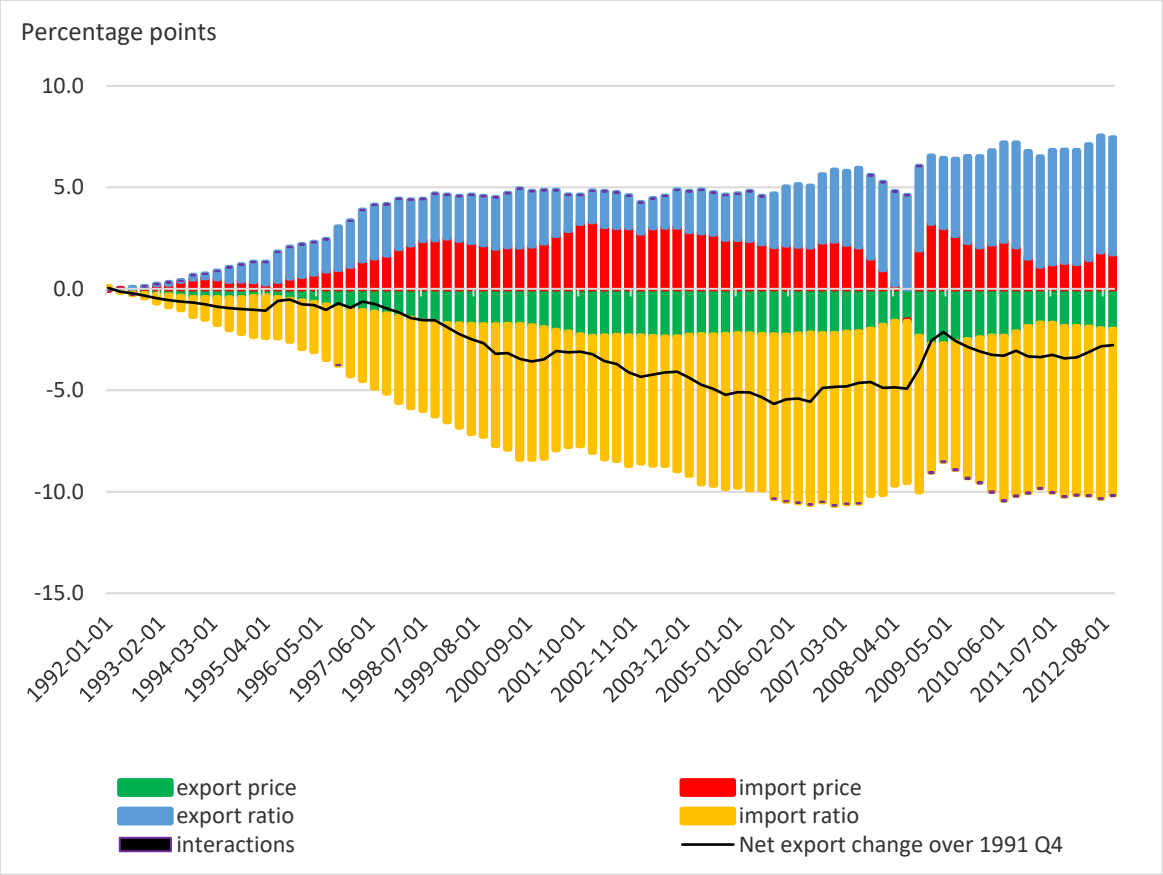


Figure 22 Forensic breakdown of U.S. trade deficit components, 1992-2012. Quarterly data. Source: U.S. Department of Commerce, Bureau of Economic Analysis, via FRED.

2. But real imports grow more quickly starting early 2002, despite dollar depreciation.
3. Import prices fall (relative to the GDP deflator) through 2002:Q1, but afterward rise until the Global Financial Crisis (coincident with dollar depreciation). The causes are the dollar's fall and a global upswing following the dot-com collapse, driven by abundant global liquidity.
4. The value effect of import price declines makes the trade deficit grow less quickly (reducing the dollar cost of a given import volume) but rising import prices starting in early 2002 increase the deficit, other things equal.
5. Relative export prices are relatively flat over 2002-2007, even as relative import prices rise, so the U.S. terms of trade worsen.

In short: the data contradict claims that a strong dollar discouraged exports after early 2002 or that the concurrent import surge resulted from falling import prices. Rising consumption and investment fueled import growth despite rising import prices; exports rose but could not keep up.

A more complex narrative

Theories that paint the United States as the helpless recipient of global capital inflows and cheaper foreign goods do not stand up against the data for the 2000s, notably for the 2002-2008 period when the U.S. deficit reached record highs and the U.S. housing bubble began in earnest, culminating in a massive crisis. A more complex narrative better fits the facts. Certainly, international factors mattered; but domestic factors were important too, and at times, more important.[46]

From 1998 to 2002, the global saving glut theory has more plausibility: the dollar at least continues to appreciate (figure 7), which could represent increased foreign demand from East Asian countries and others, as modeled by Olivier Blanchard, Francesco Giavazzi, and Filippa Sa.[47] However, global saving falls as a fraction of world GDP from 1998 to 2002 according to IMF data.[48] While U.S. real interest rates do fall from 2000 to 2002 (after rising between 1998 and 2000), this is more immediately linked to the dot-com collapse, its global effects, and the Fed's efforts to stave off recession, which themselves cannot explained by a (nonexistent) increase in global saving. Instead, we are mostly seeing an investment collapse. One can argue that the dot-com crash created an ex ante surplus of global saving over global investment, resolved by a fall in global interest rates. But that is different from a rise in

[46] This account is consistent with that given by Obstfeld and Rogoff (2010), but updates for subsequent research and experience. Rajan (2010) and Chinn and Frieden offer broadly consistent analyses with an emphasis on political factors.

[47] Blanchard, Giavazzi, and Sa (2005) develop a dynamic portfolio balance model of the dollar.

[48] See figure 11 in Obstfeld (2025) but recall the earlier caveat about data gaps (the global discrepancy) for this period. Global saving rises afterward through the Global Financial Crisis, but real interest rates do not fall, suggesting rightward shifts in both the saving and investment schedules at the global level. Figure 17 shows that higher emerging oil exporter revenues were a likely driver of the global saving increase. These surpluses, in turn, were driven by high global growth and loose liquidity conditions.

precautionary saving by emerging economies. Moreover, the dominant trigger – the collapsing tech bubble – was hardly external to the United States.

From 2002 to 2008, the global saving glut theory of the U.S. deficit looks even less convincing owing to the dollar's depreciation up until the financial crisis (although IMF data do show global saving rising by 2.4 percentage points between 2002 and 2008, the net contribution all due to emerging markets). An alternative narrative consistent with the dollar's fall suggests that over that period, capital was to a large degree *pulled* into the United States from abroad rather than *pushed* in by elevated global saving with nowhere to go but America. Three interacting factors, two of them largely home grown, led Americans to spend and borrow, issuing dollar bonds in global markets and pushing the dollar to weaken:

1. Easy financial conditions and the real estate bubble.
2. U.S. fiscal and monetary policy.
3. Foreign safe asset demand, including official dollar purchases, which held down U.S. interest rates.

In addition, a major global structural shock also contributed to dollar depreciation, with a likely negative effect on the U.S. trade balance:

4. China's entry into the WTO.

FINANCIAL CONDITIONS AND THE REAL ESTATE BUBBLE. The U.S. credit and housing boom of the 2000s owed to financial market innovations that made it easier for borrowers—mortgage borrowers in particular—to issue dollar debt. These innovations include the rapid growth in nontraditional mortgages, derivative financial instruments, and looser lending standards due to the spread of the originate-to-distribute lending model. Banks piggybacked on these developments to increase their leverage.[49] The Commodities Futures Modernization Act of 2000 was a factor promoting looser regulation.

Housing appreciation, in turn, further loosened collateral constraints, fueling more credit expansion and consumption, some via equity extraction. Net private saving fell from 7.3 percent of GDP in 2002 to 4.5 percent in 2007. At the same time, gross

[49] See, for example, Jaffee, Lynch, Richardson, and Van Nieuwerburgh (2009).

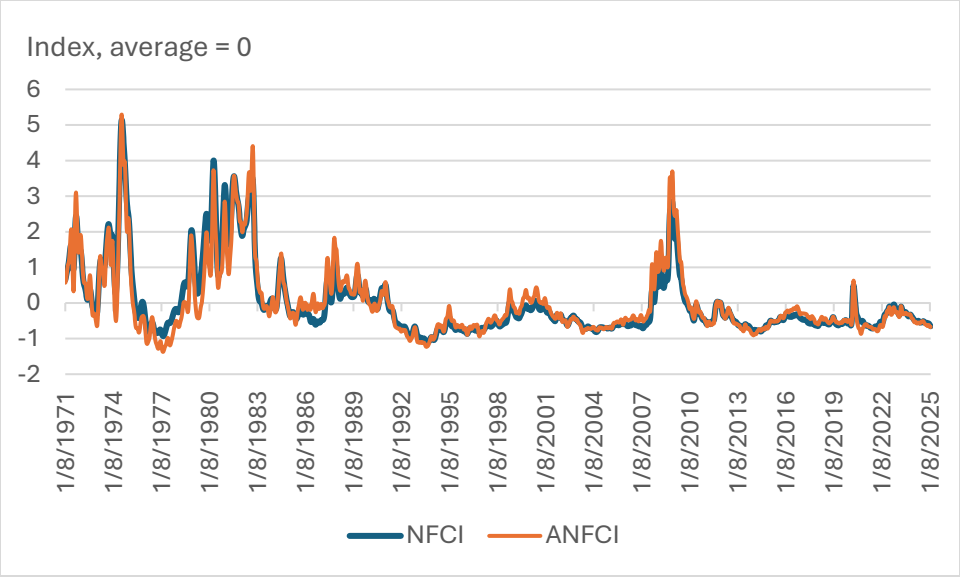


Figure 23 National financial conditions index and adjusted national financial conditions index. Weekly data. Source: Federal Reserve Bank of Chicago, https://www.chicagofed.org/research/data/nfci/current-data

residential investment surged from 4.8 percent of GDP in 2001 to a peak of 6.6 percent in 2005, while gross private nonresidential investment flatlined over the same period.

The Chicago Fed national financial conditions indexes in figure 23 indicate the relatively easy financial conditions prevailing between 2002 and mid-2007. Generally, easy financial conditions are associated with a weak dollar.[50] Furthermore, higher dollar debt issuance directly drives the dollar down, other things equal.[51] To be sure, housing appreciation and easy financial conditions were widespread globally, but each country had its own story. For example, housing bubbles in the euro area owed to the launch of the single currency at the start of 1999, which eased financial conditions in peripheral

[50] In Obstfeld (2024a), I show the strong tendency of the dollar to depreciate when U.S. bank lending standards, as measured in the Fed's Senior Loan Officers Opinion Survey, ease. Further related evidence is in Obstfeld and Zhou (2022). Other indicators of financial conditions line up well with the Chicago Fed's, for example, the Office of Financial Research Financial Stress Index.

[51] In Obstfeld (2024c), I model this linkage and its connection to the housing market and financial innovation. My model is based on portfolio-balance exchange rate models like Kouri (1983) and Blanchard, Giavazzi, and Sa (2005) and a housing-finance collateral assumption as in Iacoviello (2005). MacMullen (2025) presents a model in which U.S. government debt issuance weakens the dollar due to portfolio-balance effects. He displays a striking positive correlation since 1980 between U.S. debt relative to the rest of the world, a weaker dollar in real terms, and U.S. net exports. In his data, the early 2000s are exceptional in that the dollar weakens over a prolonged period without a substantial rise in net exports.

countries and helped drive housing appreciation.[52] The United States stood out for the deterioration of lending standards that accompanied its housing boom (Rajan 2010), a result of government policy and distorted incentives in financial markets.

Across countries, there was a negative correlation between current account balances and housing appreciation in the 2000s (see Obstfeld and Rogoff 2010, pp. 154-155), but this reflects bidirectional causality. While capital inflows could, in principle have been the primary driver of the housing bubble in the American case, supporting evidence is weak. In an extensive empirical study, Jack Favilukis, David Kohn, Sydney C. Ludvigson, and Stijn Van Nieuwerburgh document the empirical weakness of links between capital inflows to the United States and home prices. Researchers have also drawn inferences from economic models. Andrea Ferrero argues that U.S. credit and preference shocks are the main explanation for the negative correlation between home prices and the current account. Like Favilukis et al., he attributes the housing bubble, instead, to relaxed borrowing constraints and standards in the United States. In contrast, Alejandro Justiniano, Giorgio E. Primiceri, and Andrea Tambalotti find that in their model, capital inflows explain between a quarter and a third of the increase in U.S. home prices and household debt in the 2000s – but this result still leaves most of the home-price and debt surge as the result of other forces. Peter Lihn Jørgensen builds on these themes in a dynamic macroeconomic model that explains U.S. housing inflation in 2000–2002 as the product of a global saving glut but attributes the subsequent price rises up to 2006 to looser U.S. borrowing constraints and the resulting dollar debt issuance. The model also captures the steadily growing U.S. current account deficit between 2000 and 2006, together with the dollar's appreciation in the first phase of this period and its depreciation in the second phase.[53]

Even if the net capital inflows central to the saving glut story did not cause the housing boom, but instead in large measure reflected the boom, gross foreign capital inflows to housing finance, themselves financed by capital outflows from the United

[52] See Giavazzi and Spaventa (2010).

[53] See Favilukis, Kohn, Ludvigson, and Van Nieuwerburgh (2013); Ferrero (2015); Justiniano, Primiceri, and Tambalotti (2014); and Jørgensen (2023).

States, played an important role in easing U.S. financial conditions further.[54] Liquidity was ample globally, but given the dollar's global role, a Federal reserve policy of low interest rates helped to bring that about.

U.S. FISCAL AND MONETARY POLICY. Sizable tax cuts in 2001 and 2003 provided a tailwind to the current account deficit. Net government saving dropped from 1.2 percent of GDP in 2000 to –5.1 percent of GDP in 2003, before slowly recovering through 2006.

Even after the positive fiscal impulse moderated, private spending continued rising because of strong private spending, fueled in part by home-price appreciation. The proposition that accommodative Federal Reserve policy added to financial ease and supported the bubble's emergence and growth is contested. Studies such as those by Marek Jarociński and Frank Smets and by Òscar, Jordà, Moritz Schularick, and Alan M. Taylor suggest that monetary policy had a significant effect on home prices. Jane Dokko, Brian M. Doyle, Michael T. Kiley, Jinill Kim, Shane Sherlund, Jae Sim, and Skander Van Den Heuvel argue that while low interest rates raise home prices, the U.S. increases in the 2000s were far greater than what the historical correlation between home prices and interest rates would suggest. They attribute the divergence to innovations in housing finance.[55] Those who argue that interest rates have little impact on home prices also implicitly deny the major channel through which capital inflows are supposed to ignite housing booms, namely, by bringing about lower interest rates.[56]

Less debatable is that the Fed's stance did nothing to restrain the housing-market froth. It certainly contributed to the dollar depreciation that began in 2002, reinforcing the impact higher of dollar debt issuance by U.S. residents. Figure 19(b) shows that U.S. short-term real rates fell below foreign rates at the start of 2001 and the gap widened steadily until shortly before the Fed began its hiking cycle in June 2004. Only late in 2006 did U.S. real short rates converge with those of other industrialized economies.

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[54] See Acharya and Schnabl (2010), Bernanke, Bertaut, DeMarco, and Kamin (2011), and Shin (2012). Figure 4 shows how U.S. gross foreign assets and liabilities both rose sharply after shrinking due to the Asian crisis and dot-com recession.

[55] See Jarociński and Smets (2008); Dokko, Doyle, Kiley, Kim, Sherlund, Sim, and Van Den Heuvel (2011); Jordà, Schularick, and Taylor (2015).

[56] See the discussion of the housing sector, capital inflows, and interest rates in Bernanke (2010).

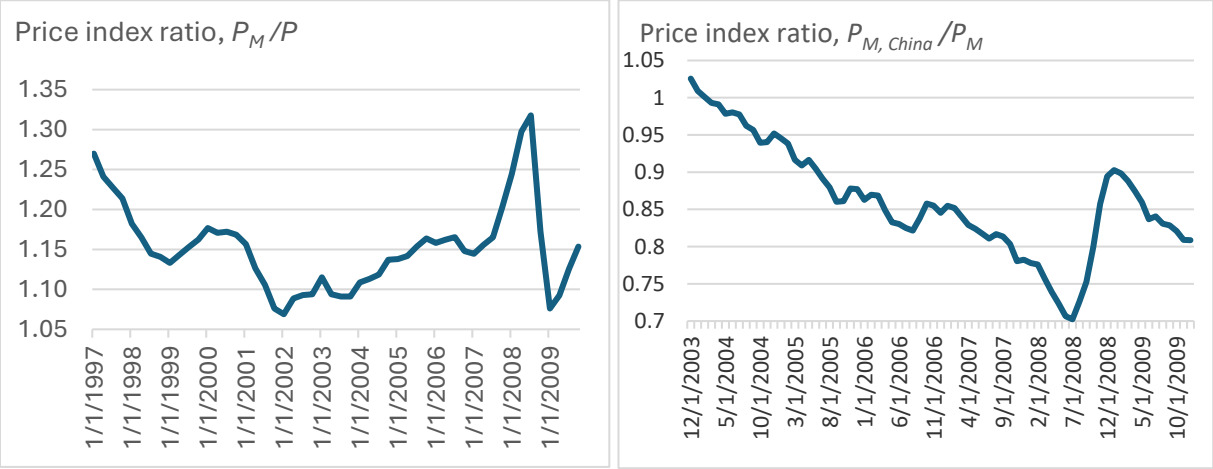
Table 2 Unemployment gap and consumer-price inflation, 2001-2008		
	Unemployment gap (p.p.)	*Inflation (percent)*
2001	0.35	2.8
2002	0.76	1.6
2003	0.77	2.3
2004	0.40	2.7
2005	−0.03	3.4
2006	−0.52	3.2
2007	−0.11	2.9
2008	1.99	3.8

Source: Fourth-quarter unemployment rate less non-cyclical unemployment rate and annual CPI inflation rate. Source: CBO and World Bank, both via FRED.

An important question is whether monetary policy might have been too loose, as several Fed critics have argued. The rate was arguably too low from a financial-stability perspective, but that was not the immediate target for monetary policy. After the brief U.S. recession of 2001, the Fed held interest rates low in the face of a "jobless recovery" and fears of entering into Japanese-style deflation (Bernanke 2010). Raising rates might therefore have been contractionary and deflationary. The counterfactual is hard to prove. Unless one assumes that deflationary expectations had already set in, the real policy interest rate was negative, and far below standard estimates of neutral or natural interest rates for that period, the lowest of which is about 1 percent (see Obstfeld 2023, figure 20). In any event, the Fed somewhat overshot: unemployment fell below the CBO's non-cyclical rate of unemployment in mid-2005 while inflation rose steadily from its 2002 level of 1.6 percent (see table 2). The very high inflation of 2008, soon to be swept away by the financial crisis, alarmed policymakers at the time. It was a worldwide phenomenon driven by booming commodity prices.

Low import-price inflation could be a channel through which foreign developments influenced U.S. monetary policy and therefore the housing market. As figure 22 shows, however, overall U.S. import prices were rising from early 2002. The causes were the dollar's fall and a global upswing following the dot-com collapse, driven by abundant global liquidity. The relative price of imports from China did fall sharply –

the source of the China shock – but given their still-limited presence in the import price deflator, this was not enough to offset rising relative prices for other imports (see figure 24). Studies around that time from both the Federal Reserve and the Bank of Canada suggest that until the late 2000s, the influence of Chinese exports on U.S. and global inflation was small.[57]



(a) Import price relative to GDP deflator P (b) China imports relative to all imports

Figure 24 Relative deflators for all import prices and imports from China. Quarterly and monthly data. Source: U.S. Department of Commerce, Bureau of Economic Analysis, and U.S. Department of Labor, Bureau of Labor Statistics.

FOREIGN SAFE ASSET DEMAND. The Metzler model predicts that a reduction in Home saving – a leftward shift of the saving schedule in figure 14 – will raise domestic interest rates as it widens the current account deficit. If a U.S. consumption and borrowing boom caused the deficit to widen in the 2000s, U.S. interest rates therefore should have risen. Yet long-term real rates stayed fairly flat (see figures 18 and 19(a)).

Figure 16 suggests how a simultaneous fall in U.S. saving and rise in foreign preference for U.S. assets could have this effect. When occurring together, a fall in

[57] See Kamin, Marazzi, and Schindler (2004) and Côté and de Resende (2008). Figure 9 indicates why the inflation impact was small for the United States, although other U.S. trade partners may have lowered export prices in response to Chinese competition.

Home saving and a rise in global preference for Home assets have opposite effects on the Home interest rate but parallel additive effects on the deficit.

One source of preference for U.S. assets was foreign demand for dollar reserves (figures 12 and 13). Potentially, that demand better than doubled between 2002 and 2008, with holdings reaching a level between 32 and 40 percent of U.S. GDP. Private sector demand for safe assets also played a role (Caballero, Farhi, and Gourinchas 2008). Fed policy aimed at keeping short-term interest rates low was another source of demand for U.S. bonds. While foreign official demand for safe dollar assets pushed in the direction of a stronger dollar, easy Fed policy (coupled with forward guidance) and a surge in dollar borrowing by U.S. households.

CHINA'S WTO ACCESSION. As discussed earlier, this development, while perhaps not greatly lowering global inflation, was a negative shock to the global demand for U.S. exports, and likely to the trade balance. The shock was bigger because Chinese policies, including undervaluation of the renminbi, state aid to exporters, and suppression of domestic consumption, lowered export prices. In this sense, higher Chinese saving directly influenced U.S. trade – although the exchange rate effect was opposite to what the capital inflow surge central to Bernanke's (2005) account would imply.

Summary

The record trade and current account deficits that the United States experienced between 1998-2008 has multiple interacting causes, foreign and domestic. For the 2002-2008 period of the most extreme housing bubble, domestic forces seem to have played a major role.

In a textbook Keynesian model, the trade balance depends – apart from exogenous technology and preference shocks – on domestic absorption (which raises imports and may limit exports), foreign absorption (which raises exports), and the real exchange rate (which shifts global demand toward domestic goods when the home currency depreciates).

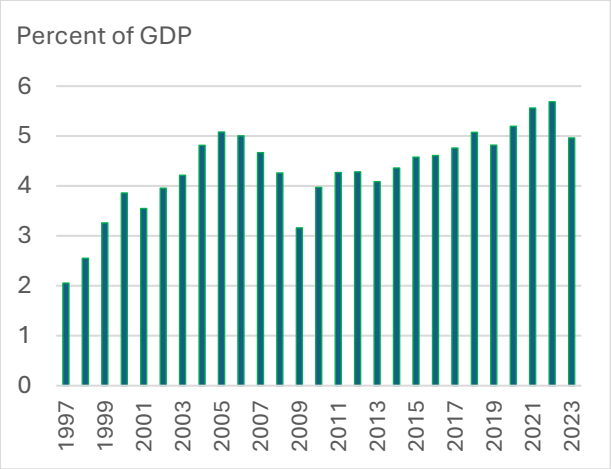
Between 1998 and 2001, the dollar strengthened, discouraging exports and encouraging imports, and the world economy slowed. Unsurprisingly, the U.S. trade balance deteriorated.

Between 2002 and 2008, the picture is more complex. China's WTO entry was an important exogenous negative shock to the global demand for U.S. exports, but owing to the dollar's strong depreciation, exports rose on net. Generally buoyant world demand helped. How, then, could the U.S. trade balance have become so deeply negative?

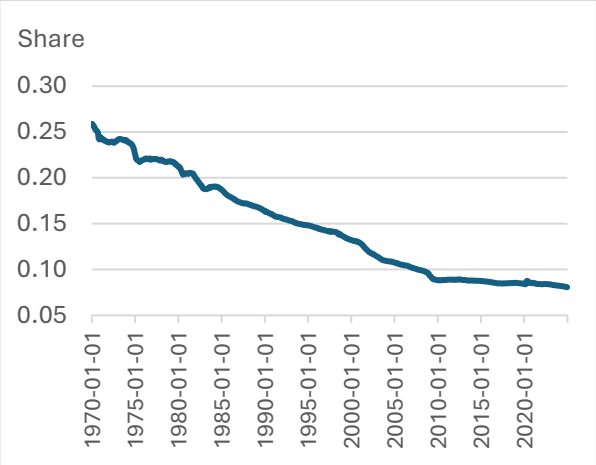
The answer must depend on the rise in U.S. absorption over this period, consumption and real estate investment, to a large degree driven by the housing bubble. The resulting rise in import demand seems too large, however, to be explained entirely by a stable relationship between absorption and imports. It is possible that a U.S. preference shift in favor of imports also occurred. Despite the rise in overall import prices relative to the GDP deflator, import spending as a share of absorption rose from 12.5 percent in 1999 and 13,7 percent in 2000 to 16.5 percent in 2008. Figure 21 suggests that this shift cannot be explained by expanding global value chains over that period, as imports net of exported foreign content also rose sharply.

Concerns about trade deficits and policy options to reduce them

Among the ills blamed on U.S. trade deficits, two stand out. One is the charge that deficits cause deindustrialization. The second is that deficits transfer wealth to our trade partners, including those who are strategic competitors. Putting these together, trade deficits are held to drain America of its manufacturing jobs and its treasure. These concerns motivate current policy proposals aimed at reducing deficits



(a) U.S. manufacturing trade deficit



(b) Manufacturing share of nonfarm employment

Figure 25 A high and persistent manufacturing trade deficit has accompanied a falling labor force share employed in manufacturing. Annual and monthly (seasonally adjusted) data. Source: U.S. Census data, NAICS2 codes 31-33; and U.S. Bureau of Labor Statistics.

Manufacturing and the ineffectiveness of tariffs

The U.S. trade deficit in manufacturing has moved along with the overall trade deficit while in parallel, manufacturing jobs have declined as a percentage of the nonfarm workforce (figure 25). It makes little sense, however to "blame" the trade deficit for the decline in manufacturing employment – it is just as plausible to blame the decline in manufacturing employment for the manufacturing trade deficit. Both are endogenous variables that respond to economic shocks.

Consider how a housing bubble affects an economy, like the United States' today, that is close to full employment. The increase in home prices raises wealth, consumption, and housing investment, and accordingly the demands for both manufactures and services rise. Services are preponderantly nontradables, so to produce more of them, the economy must produce fewer manufactures. The manufacturing sector shrinks and with more manufactures demanded but fewer produced, the balance must be imported from abroad, implying a bigger trade deficit. In summary, the bubble drives both the trade deficit and the fall in manufacturing employment.

Alternatively, imagine that the expected future pace of productivity growth rises in manufacturing. Consumers, feeling richer, spend more; investment in manufacturing

may pick up as well. With full employment, resource constraints dictate again that unless there has been a simultaneous pickup in services productivity growth, manufacturing employment will shrink and the trade deficit will rise. These effects stem, however, from a shock – higher expected manufacturing productivity growth – that is unambiguously good for the economy. If we look at a cross section of otherwise identical economies, those with bigger trade deficits will tend to have smaller manufacturing sectors. The reasons could be entirely benign or – as in the case of a housing bubble – or less so.[58]

Currently, both major political parties in the United States take it as axiomatic that U.S. manufacturing employment is deficient. Manufacturing proponents rightly point to China's suppression of demand and subsidization policies as factors that have raised its share of global manufacturing – a beggar-thy-neighbor policy, since these policies do raise trade deficits and limit manufacturing employment elsewhere. One reason this is problematic, they argue, is that manufacturing generates more positive spillovers via innovation than services do, justifying corrective government intervention.

However valid these concerns are, tariffs are not an effective, let alone efficient, intervention. U.S. import tariffs need not improve the trade balance (as argued above) nor, consequently, will they necessarily create manufacturing jobs. They will raise prices to consumers and penalize export firms, which are especially dynamic and productive.[59]

In an economy at full employment, like the United States' today, a tariff is not a "subsidy to production" as claimed by Michael Pettis, but a subsidy to import-competing goods only, the prices of which rise relative to the export goods produced in the tradable sector.[60] Accordingly, the output of the latter will fall (Lerner symmetry) unless there is an overall reduction in service-sector employment allowing the tradable sector in general to expand. For this to occur, however, the demand for nontradables services must fall; and since the relative price of services has fallen due to the tariff, making them

[58] Lawrence (2024) thoroughly surveys theory and evidence on the structural transformation process through which manufacturing employment inevitably declines over time. See also the analysis in Kehoe, Ruhl, and Steinberg (2018).

[59] See, among many studies, Bernard, Jensen, Redding, and Schott (2007) and Atkin, Khandelwal, and Osman (2017).

[60] Pettis (2025) argues that tariffs subsidize production and penalize consumption. Neither is the case. On the consumption side, a tariff penalizes consumption of imports and import-competing goods, but not of export goods or nontradable goods.

more attractive to buyers, equilibrium requires a fall in overall spending – and therefore a bigger trade surplus. The prediction that tariffs necessarily help manufacturing employment therefore is closely related to the statement that they necessarily improve the trade balance, for which there is no evidence. If tariffs apply to intermediate imports, as have those imposed by President Trump in his two administrations, then they act as a tax on production of both import-competing products and exports.

If more foreign investment enters U.S. manufacturing to jump over a higher tariff wall, total labor supply might expand if the additional capital pushes real wages up enough to draw workers from the sidelines. This channel could, in principle, provide some scope for more manufacturing employment. A potential offset is that other capital owners, faced with more intense domestic competition, might shift their investment abroad.

Currency depreciation and capital import taxation

Two different policy directions could, in principle, deliver palpable effects on the trade balance and on manufacturing. One is to tax capital inflows, as suggested by Pettis (2024a). If the cost of foreign finance rises, there will be less of it, forcing the United States to live more closely within its means. The equilibrium with a capital inflow tax imposed by Home is analogous to that in figure 16 (since the tax is a wedge forcing the Home interest rate above the Foreign rate). In practice, a capital inflow tax would work in two ways: it would weaken the dollar, taxing imports and subsidizing exports, and it would raise the domestic interest rate above foreign rates, encouraging saving while reducing investment. Along with concomitant effects on the liquidity of U.S. financial markets, the macro effects on saving and investment could be harmful to long-term growth, as well as contractionary in the short run.[61]

[61] Since the U.S. is a large-country borrower, a capital inflow tax could, in theory, improve its intertemporal terms of trade by depressing world interest rates; see Costinot, Lorenzoni, and Werning (2014). Just as likely, such government interference in financial markets could undermine global confidence, tending to push up U.S. borrowing costs. Analogously, U.S. import tariffs can improve the intratemporal terms of trade, but not necessarily after trade partners retaliate.

The capital inflow tax would therefore be an unlikely route for the current U.S. administration to follow once tariffs fail, because a seemingly less painful and more effective option is available, directly weakening the dollar. But dollar depreciation is not a free lunch either: the consequences depend on how that depreciation is brought about.

One route would be a Fed cut in interest rates. Unless the U.S. economy moves into recession, a substantial interest rate cut now would be inflationary. Not only is higher inflation undesirable in itself. It would also erode the extent to which the dollar's nominal depreciation was a *real* depreciation. And without real depreciation, there would be no durable boost in the trade balance or manufacturing employment.

What about foreign monetary policies? U.S. trade partners, with economies generally growing more slowly than America's, are unlikely to agree to tighter monetary policies contrary to domestic imperatives.

One might seek joint currency action with major trade partners, backed by coordinated foreign exchange intervention and promises of future macroeconomic adjustments, as in the 1985 Plaza Accord. Exchange rate effects are likely to be short-lived unless the promised changes in macroeconomic fundamentals are forthcoming. Also, any dollar depreciation achieved would be inflationary unless accompanied by a tighter U.S. fiscal policy that raises national saving. This shift happened in the United States in December 1985, with the passage of the Gramm-Rudman-Hollings legislation. Nothing comparable is on the horizon now.

It is unclear why other countries would go along: few view their currencies as undervalued. In 1985, G5 countries were motivated by fears of a U.S. protectionist backlash to the strong dollar. Now, protectionism is the point of U.S. policy. Miran (2024, p. 28) discusses a range of coercive actions the present U.S. administration could take to compel a "Mar-a-Lago Accord," including punitive tariffs and threats to withdraw American security guarantees. Such incursions on trade partners' policy sovereignty seem as likely to induce economic and political decoupling from the United States as policy compliance.

A final option that would weaken likely the dollar, spur employment in tradable industries, and reduce the trade deficit is fiscal restraint. This would have the collateral benefit of mitigating the biggest risk on the U.S. external balance sheet.

America's foreign liabilities

As noted earlier, the U.S NIIP now stands at −72.6 percent of GDP (though as recently as 2021 the number was −80.8 percent of GDP). This number is now about 18 percentage points above the level of past cumulated current account deficits. While the U.S. in the past was able to act as a financial intermediary and maintain positive net asset income from abroad despite a negative NIIP, that advantage has slipped as U.S. interest rates have risen and as foreigners increasingly hold U.S. equity positions. The net impact has been positive to the extent that such holdings promote risk international sharing or have reflected funding of productive investments, which ultimately raise GDP, but there can be negative effects when a rising value of equity holdings reflects higher rents (see Atkeson, Heathcote, and Perri 2023).

Why doesn't the large U.S. net external liability induce a compression of spending that reduces the trade deficit, as in the gold-specie-flow mechanism that David Hume first expounded nearly three centuries ago? One reason is that consumption spending depends on overall wealth, not just net external wealth, and the former has grown apace even as liabilities to foreigners have grown. Excluding government bond holdings, overall U.S. private-sector wealth in 2023 was about six times as big as the absolute value of the NIIP.[62]

Equation (4) shows that a negative NIIP requires eventual trade surpluses, and hence forgone consumption, except to the extent that the United States can earn seigniorage from expanding its international leverage. In the earlier notation, if $NIIP = A - L$, lower-case letters denote ratios to nominal GDP, Y, and g is the growth rate of nominal GDP, then a steady state ratio $\overline{niip}$ of the nominal NIIP to income requires a steady state current account deficit $ca = g\,\overline{niip}$ and a steady state net export surplus of

$$\overline{nx} = -[(R^L - 1) - g]\overline{niip} - (R^A - R^L)\overline{a}.$$

[62] See UBS (2024). A more detailed analysis of the implications would take account of the highly unequal distribution of wealth in the United States.

U.S. privilege may lead to somewhat higher deficits, but because of privilege, these higher deficits are to some degree feasible intertemporally. Even in the absence of privilege, if $g \approx 1.04$, the trade balance surplus needed to stabilize *niip* at, say, 1 could be moderate. However, if a privilege does persist, there are limits to how far external liability expansion can go without pulling up U.S. external borrowing costs sharply. At end-2023, U.S. gross external liabilities were already nearly equal to half the world economy (see figure 4).

The NIIP could be reduced through unanticipated dollar depreciation but attempts by U.S. policymakers systematically to exploit that channel of external adjustment through purposeful devaluation would counterproductively elevate U.S. borrowing costs.

Discussions of the NIIP sometimes focus on risks of a funding crisis, the overall NIIP is the wrong variable for assessing this. Equity liabilities, portfolio and FDI, are self-liquidating, and not subject to default. Furthermore, U.S. external assets cannot automatically be used to repay debts – the owners are not necessarily the same as the external debtors. A more reliable measure of default risk would be the U.S. gross debt liability to foreigners, which at the end of 2023 stood at 82 percent of GDP (Milesi-Ferretti 2025). Among U.S. foreign debtors, the biggest by far is the U.S. Federal government, and here also resides the biggest risk. Were fiscal deficits to grow so that markets demanded much higher interest rates on Treasury debt, the result could cascade through U.S. financial markets with unpredictable effects.

This scenario provides another motivation for U.S. fiscal adjustment, alongside the additional benefit of reducing the political pressures for damaging trade policies.

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