

American trade deficits and the unidirectionality error

Kenneth Austin [Washington, DC] ^{*, ϕ}

Copyright: Kenneth Austin 2019

You may post comments on this paper at

<https://rwer.wordpress.com/comments-on-rwer-issue-no-90/>

Abstract

Many economists fundamentally misunderstand the reasons for American trade deficits. The assertion that *ex ante* fiscal deficits and low savings cause U.S. trade deficits is logically flawed. A very short, deductive proof shows that national savings-investment balances are determined simultaneously across countries. In fact, American trade deficits and low savings are caused by capital flows originating in trade-surplus countries.

This article labels assertions of one-sided causality “the Unidirectionality Error.” This error rules out by assumption the question, “Does the United States borrow because it needs to borrow or because other countries need to lend?”

The flip side of efforts to increase trade surpluses is an effort to export or expel unwanted capital. This contradicts standard economic assumptions that capital is *always* scarce and economies benefit from more and cheaper capital.

Capital outflows may be advantageous for one economy, but harmful to the receiving economy. When the drivers of capital flows are misunderstood, the resulting policy prescriptions can be globally deflationary.

JEL Codes F10, F11, F31, F32, F41

Key words trade, global imbalances, global savings glut, capital flows, open-economy macroeconomics

“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so” Mark Twain.

Section I: Introduction

The capital inflows that have financed U.S. trade deficits¹ since the 1997 Asian financial crisis have inflicted real harm on America’s economy and workers. They have provoked trade and currency “wars”. The inflows are not needed by the U.S. economy, but arise from a glut of savings that cannot find constructive uses in their countries of origin: the “Global Savings Glut”.

Received wisdom asserts America’s *ex ante* domestic saving shortages draw in foreign capital and cause U.S. trade deficits. Mainstream economists across the political spectrum share this dominant narrative; including (from approximately left to right); Jeffrey Sachs (2017), Paul Krugman (2018), Joseph E. Stiglitz (2018), Jason Furman (2018), Alan S.

* Kenneth Austin is an international economist with the U.S. Treasury Department and an adjunct professor at the University of Maryland Global Campus. He has previously taught economics at Elon and Marshall Universities and served in the U.S. Foreign Service. The views and analyses expressed herein are the author’s own. They do not reflect those of the Department of the Treasury or the U.S. Government and contain no nonpublic information.

^{ϕ} The author would like to thank Kurt Schuler, Michael Pettis, Jared Bernstein, Joe Gagnon, Wade Jacoby, Scott Bradford, John Hansen, and Warren Coats for helpful comments, criticisms, and suggestions. Any remaining errors are strictly the fault of the author.

¹ The terms current account and trade balance are used interchangeably in this paper. The term “trade balance” omits certain items included in the current account, but does not alter the underlying analysis.

Blinder (2018), William (Bill) Dudley (2019), Martin Wolf (2017), Stephen Roach (2017), George Schultz and Martin Feldstein (2017), and Desmond Lachman (2018). Lachman concisely summarizes the basic argument:

If there is one point on which almost all economists can agree, it is that a country's external balance is arithmetically the difference between its savings and investment rates. The United States has a large external deficit because it saves less than it invests. Germany has a large external surplus since it saves more than it invests.

The first sentence is true, but the next two sentences that assert that U.S. and German trade balances are caused by domestic conditions in each country may be true. It is also *possible* that:

- Germany saves more than it invests *because other countries (like the United States) have an ex ante savings gap* that drives up interest rates and draws capital out of Germany.
- America saves less than it invests *because other countries (like Germany) have an ex ante savings glut* that depresses German interest rates, unbalances foreign financial markets, and drives foreign savings into the United States.

The first possibility means that U.S. domestic economic conditions alone cause its trade deficits and low savings. The second possibility implies U.S. trade deficits and low savings result *ex post* from economic conditions *external* to the United States. This article fleshes out that second possibility. It will be shown that savings-investment balances cannot be analyzed on a national, partial-equilibrium basis because they are determined simultaneously at the global level.

Let us illustrate this another way. Assume a two-country world: America and Germany. U.S. domestic conditions and policies create –\$500 billion savings-investment and trade deficits and Germany's domestic conditions and policies cause +\$300 billion savings-investment and trade surpluses. That totals a world trade deficit of \$200 billion: a logical impossibility.

A country *may* run a trade deficit because *ex ante* domestic economic conditions draw capital inflows. But categorical statements that savings-investment deficits are *always sufficient* to explain trade deficits are erroneous. Causality can, and does, run the other way when surplus savings create capital outflows from other countries. Furthermore, the capital inflows may upset the receiving country's macroeconomic equilibrium. This is currently true of the United States, where the unneeded inflows may trigger recessions.² This is more than an abstract point of economic theory. The erroneous analysis leads to misguided policy recommendations to cut the U.S. trade deficit by imposing austerity measures. Such policies will compound the recessionary impulse from the capital inflows. That risks a global contractionary spiral.

² While we emphasize the U.S. role as a trade-deficit economy and primary central-bank reserve currency issuer, many of the same arguments apply to other advanced, often Anglophone, trade-deficit economies, i.e. the UK, Australia, Canada and NZ.

Section II: Trade imbalances and credit

In a world without international capital flows (the extension or repayment of international credit), no country could run a trade imbalance. Trade would be Ricardian in the sense that the sole purpose of exports would be to pay for imports. The only way to import would be to export.

- Without an inflow of net credit, the only way for a country to import more is to export more.
- Without a net credit outflow, the only way to export more is to accept more imports as payment.

Thus, without flows of credit, trade must always be balanced. This applies to all parties. Trade imbalances between countries always require a flow of credit to finance the imbalances.

- If a country runs a trade deficit, it is not exporting enough to pay for its imports. It must borrow the money or accept repayment of loans to pay for the additional imports.
- If a country runs a trade surplus, it is not buying enough imports in exchange for its exports. It must repay loans or lend money to allow its trading partners to buy the surplus exports.
- The way a country earns the money to lend abroad or repay loans is to run a trade surplus.

Different systems and different countries finance their trade balances differently, but for all, the trade balance exactly equals its financing. Thus, a country cannot run a trade surplus without lending nor lend abroad without running a trade surplus. These are opposite sides of the same coin. And without any financing, trade must be balanced. By the same token: *finance it, and it will come.*

In a fixed exchange-rate system, if a country does not export or borrow enough to pay for its imports, the importer's central bank must exchange local currency for gold or reserves (another currency) at the official rate. Thus, a trade deficit is always financed (as long as gold and/or reserves last). On the other side of the transaction, if a country does not lend enough or buy enough imports to pay for its exports, it can accumulate enough foreign currency or buy enough gold to finance its exports *indefinitely*. In a fixed-rate system, a trade surplus is often considered the sign of a healthy, or at least, sustainable, economy. Other things equal, a tariff improves a country's trade balance because it makes imports more expensive and reduced reserve sales automatically finance the transaction. Thus if a country is concerned about exhausting its reserves or gold stock, a tariff can help prevent the outflow of gold or reserves.

When the advanced economies floated their exchange rates in the early 1970s, the rules of the game changed. Under floating rates, when an economy has a larger capital inflow than trade deficit (borrows more than it needs) or a smaller capital outflow than its trade surplus (lends less than necessary to finance its trade surplus), it will have a surplus of foreign exchange. *The trade balance is over financed* and the exchange rate must appreciate because the central bank will not intervene. Consequently, the trade deficit will increase or its trade surplus will decrease. *Finance it, and it will come.* An under-financed trade balance has

the opposite effect: a depreciation will cause the trade deficit to decrease or the surplus to increase.

Capital movements determine trade balances. This must be repeated because it confuses those economists who do not accept the new rules (or haven't updated their class notes). Some still worry that a trade deficit will cause a country to run out of reserves *even when its exchange rate floats*. They are also surprised sometimes to understand that trade surpluses must be financed. China did not create huge trade surpluses by simply "manipulating" its exchange rate by levitation or fiat. It had to finance the trade surplus by buying reserves.

Countries that want trade surpluses must move capital out. When he coined the term, "Global Savings Glut," Fed Chairman Ben Bernanke (2005) explained that governments typically pursue export-led growth because they are concerned about inadequate aggregate demand (having someone to buy all they can produce) resulting from a surplus of domestic savings. So, governments borrow domestically and use the money to buy foreign exchange reserves (lend abroad). This is the standard definition of currency manipulation; it finances the trade surplus and corresponding deficit of the country that provides the reserves. But private capital can also finance trade surpluses. Capital seeking safe havens from expropriation or taxation finances trade surpluses. Governments that try to lure foreign investors often unknowingly finance their own trade deficits. If you finance imbalances, they will come.

Policy makers trying to reduce trade deficits with tariffs are generals fighting the last trade war. Tariffs only work in fixed-exchange-rate-systems. In a floating-exchange-rate system, only reducing capital inflows can reduce trade deficits. Tariffs do not directly reduce capital inflows, so something else will adjust to keep the trade balance equal to its financing, probably the exchange rate. Tariffs just change the commodity composition or direction of trade.

Section III: The saving-investment explanation of American trade deficits

The assertion that current American trade deficits are caused by inadequate national savings is based on a misinterpretation of the Savings-Investment Identity. The Saving-Investment Identity states that a country's capital outflow (K) is equal to its private domestic saving (S_{dp})³ minus the government deficit ($G - T$) and private domestic investment (I_{dp}). In other words, private domestic savings are put to use in one of three all-inclusive buckets: lend it to the government, invest it privately at home, or send it abroad. We write:

$$1. \quad S_{dp} - (G - T) - I_{dp} = (S_d - I_d)_p - (G - T) = K = X - M.$$

Total domestic saving equals private saving, S_p , plus government saving, $(T - G) > 0$, (the fiscal surplus). A fiscal deficit, $(G - T) > 0$, (borrowing) reduces net saving, fiscal stimulus (a larger deficit) reduces domestic saving (often by design). Fiscal austerity (deficit-cutting) increases domestic saving, also by design. Net domestic savings, $(S_d - I_d)_p - (G - T)$, is the amount of private savings left after financing domestic investment and the government deficit. It finances K, the net amount that domestic residents "invest" abroad: a capital outflow.

³ The subscripts d and p refer to domestic and private throughout.

A positive K is a capital outflow that finances a trade surplus. A negative K is a capital inflow that finances a trade deficit. Without capital movements, every economy's savings-investment balance would equal zero and every country's trade would be balanced.

Parenthetically, it is important to recognize that these "capital flows," K , may be called "foreign investment," but they are not the same thing as investment in the National Income and Product Accounts (NIPA) sense as " I ," expenditure on capital goods and services. K , represents a flow of savings (a demand for assets) which may be used to purchase new capital goods and services, I . Alternatively, K may be used *inter alia* to purchase existing capital goods, make consumer loans, or purchase bonds, such as U.S. Treasuries in the secondary market. These items are not new investment, I . These two types of investment are often conflated in common parlance even by economists. This distinction has important macroeconomic consequences since an increase in K need not lead directly to an increase in I . It may alternatively finance the government deficit or reduce private domestic savings.

When Paul Krugman (2018) wrote in his New York Times blog, "Basically, we have persistent trade deficits because we have low savings and remain an attractive place for foreigners to invest," this language will mislead the vast majority of his economic lay readership (and some economists). The capital inflow *could* finance a greenfield car factory.⁴ But it also might finance the purchase of imported cars. Since borrowing is a reduction of savings (dis-saving), foreign "investment" may reduce private domestic savings (S_{dp}). Or it might finance the government deficit ($G - T$). Thus, we cannot assume that foreign "investment" inflows ($K < 0$) *per se* implies *any* increase in the job-creating productive capacity of the American economy (as the public and so many politicians have been taught to believe).

Note, that if we aggregate the world's economies there are neither international trade nor capital flows (all $K = 0$). World savings equals world investment. The global equivalent to Expression 1 is (the subscript "w" indicates "world"):

$$2. \quad S_{wp} - (G - T)_w - I_{wp} = (S - I)_{wp} - (G - T)_w = 0 \Leftrightarrow S_{wp} - (G - T)_w = I_{wp}.$$

The dominant narrative asserts that the saving-investment identity fully and completely explains America's trade deficits. An economy will have a capital inflow (and therefore a trade deficit) when it does not save enough to finance its own domestic investment: $S_{dp} - (G - T) < I_{dp}$. Only saving more or investing less can reduce the trade deficit; all else is futile. That can be true in some cases. But it is incorrect to assert that it must be true in all cases. A country that saves more than it invests can generate a capital outflow to another economy where *ex ante* savings equals investment. The second country may have no *ex ante* need for more savings, but the savings inflows alter its savings-investment balance. *Ex post* the second economy will have a negative savings-investment balance.

⁴ Ironically, even the term "Foreign Direct Investment" (FDI) can be extremely misleading. It generally does not finance greenfield "real investment" (I_{dp}), the type included in GDP. In the U.S. case, according to data from the U.S. Bureau of Economic Analysis (BEA), only about 2.5 percent is greenfield investment, establishments and expansions of facilities, the rest is acquisitions, including corporate inversions (BEA, 2018).

Blanchard and Acalin (2016) make a strong case that even in emerging market economies that much of the FDI shown in BoP data is more likely portfolio-debt flows, which merely transits the country, often for tax purposes.

If it were true that each economy could determine its savings-investment balance independently, then every country could run a simultaneous trade surplus. This leads us to a short, simple, deductive proof that conclusively shows that no economy with an open capital account has complete control over its savings-investment balance and trade balance. *This proof should not be necessary* except that so many economists cannot consistently accept its implications.

The proof

3. $[(S_d - I_d)_{pi} - (G - T)]_i = K_i = (X - M)_i$,⁵
4. $\sum_{i=1}^w K_i = \sum_{i=1}^w (X - M)_i = 0$,
5. $\sum_{i=1}^w [(S_d - I_d)_{pi} - (G - T)]_i = 0 \Leftrightarrow S_{wp} - (G - T)_w = I_{wp}$.
 - a. The savings-investment balances of all countries must be determined ***simultaneously***. QED

Explanation

3. $[(S_d - I_d)_{pi} - (G - T)]_i = K_i = (X - M)_i$,

See Equation 1. It is the equivalent to Desmond Lachman statement, “a country’s external balance is arithmetically the difference between its savings and investment rates.”

4. $\sum_{i=1}^w K_i = \sum_{i=1}^w (X - M)_i = 0$,

Another logical identity. All the world’s trade balances and all the world’s international capital flows (the Ks for every country) must sum to zero: Every dollar of country’s exports is a dollar of a partner country’s imports and vice versa. Every dollar of capital that flows out from one country must flow into another. Put another way, we aren’t trading with the moon.

5. $\sum_{i=1}^w [(S_d - I_d)_p - (G - T)]_i = 0 \Leftrightarrow S_{wp} - (G - T)_w = I_w$.

Equation 5 (by simple substitution) states that if all the world’s trade balances and all the world’s international capital flows (the Ks for every country) must sum to zero, thus the sum of all domestic saving-investment balances must also equal zero. Note that this is the same thing that we said about the world economy in Equation 2; world savings equals world investment.

∴ The savings-investment balances of all countries must be determined ***simultaneously***. QED

Equation 5 means that the world’s domestic saving-investment balances are *simultaneously* determined; barring, a cosmic and implausible series of coincidences. Simultaneity *requires* an offsetting change of equal magnitude somewhere else in the world in response to a change in any national savings-investment balance. The proximate mechanism of simultaneity is international capital flows: any capital outflow is the rest of the world’s capital inflow and alters savings-investment balances elsewhere.

⁵ The subscript “i” identifies an individual economy. The subscript and superscripts “w” and “W” refer to the world and the number of countries in the world respectively.

Equation 5 also allows us to more carefully define the term “Global Savings Glut.” When Ben Bernanke coined the term, he was clearly using the term “global” to mean “the rest of the world, excluding the U.S.” The Global Savings Glut meant the total Non-U.S. savings-investment balance: the counterpart to the U.S. savings-investment deficit. The Global Savings Glut was offered as an explanation for the large and perplexing increase in the U.S. current account deficit. Bernanke did get the direction of causality correct, but like most economists underestimated the risks posed by the magnitude and persistence of the inflows to the U.S. financial system.

The proof above shows conclusively that the assumption that causality works in only one direction, the dominant narrative among mainstream economists, is wrong. We will call this the “Unidirectionality Error.” It results from using a partial equilibrium (national) analysis when a general equilibrium (global) analysis of the balance of payments is required. It is a **serious logical error**. It is **wrong** in the same binary sense that “all children are above average” is wrong since no child can be above average unless another is below average. This shows why (as noted in Section II), the fact that the United States saves less than it invests is *not sufficient* to conclude that domestic conditions and policies cause American trade deficits. While “The Proof” should make that obvious in retrospect, it does not belabor the obvious because the error is a common one, even among eminent economists. They not only make the error, but assert it in forceful, crystal-clear language, and build erroneous policy conclusions on it.

Section IV: The standard neoclassical pull theories

The conclusion that inadequate American savings causes global imbalances might still be correct in spite of the Unidirectionality Error. But to justify that conclusion, one must show that the observed capital inflows that have financed American trade imbalances for over 20 years are *pulled* by domestic economic conditions or policies (an *ex ante* need for more savings and investment) rather than *pushed* (by unwanted external savings surpluses). But because of the Unidirectionality Error, the dominant narrative rules out, by assumption, the need to address the issue. So even if the conclusion were true, the dominant narrative would be incomplete.

The standard, neoclassical “pull” theory is that capital flows from countries where it is relatively abundant to where it is relatively scarce; prototypically from advanced economies with large capital stocks, and low marginal returns to capital, to developing economies with relatively small capital stocks, abundant investment opportunities, and low domestic savings and presumably higher marginal returns to capital. Thus, capital would be “pulled” by higher returns in poorer countries, *where they are most needed*. But Lucas (1990) demonstrated that is often not the case and that capital often flows “uphill” from poorer to richer countries (e.g. from China to Canada). Prasad et al (2007) extended the paradox further by noting that these uphill flows were from faster-growing, emerging-market economies.

According to the dominant narrative, America’s large, persistent trade deficits result from expansionist macroeconomic policies: excess aggregate demand. They are structural or policy-driven; too much fiscal or monetary stimulus (a common reason for an IMF program) “crowding out” investment. If a country is creditworthy, an overheating economy will, of necessity, offer exceptional, risk-adjusted returns to pull in capital flows and finance a trade deficit. The inflows are compensating for domestic imbalances but may not necessarily be well used.

If we look for corroborating evidence of this excess aggregate-demand story in twenty-first century America, we generally find the evidence points strongly in the opposite direction. The “pull” theories of imbalances imply that deficit countries offer higher rates of returns either because they have abundant investment opportunities or because domestic borrowers, public or private, need to offer higher risk-adjusted rates of return to sustain higher rates of consumption than domestic production capacity can support. When analyzed through a coherent framework, this is ultimately an empirical question: “Did America’s total expenditures exceed its productive capacity or not?” If they did, then the trade deficits were caused by pull factors.

The following charts (Source: Haver Analytics and author’s calculations) compare the current account to various indicators of excess aggregate demand, such as the fiscal deficit, interest rates, inflation, wage growth, unemployment, and capacity utilization. No indicators have a sustained and theoretically expected relationship to the sharp, ten-year decline of the U.S. current account beginning with the East Asian financial crisis of 1997-98.

Chart 1: Shows the U.S. fiscal balance improving during the early and mid-1990s as a result of strong, balanced growth. About the time of the Asian Financial Crisis, the current account begins to deteriorate even more sharply *even as the U.S. fiscal position goes into surplus*. This is very hard to square with the categorical pronouncements of fiscal hawks like Roach or Feldstein and Schultz that fiscal deficits cause trade deficits.

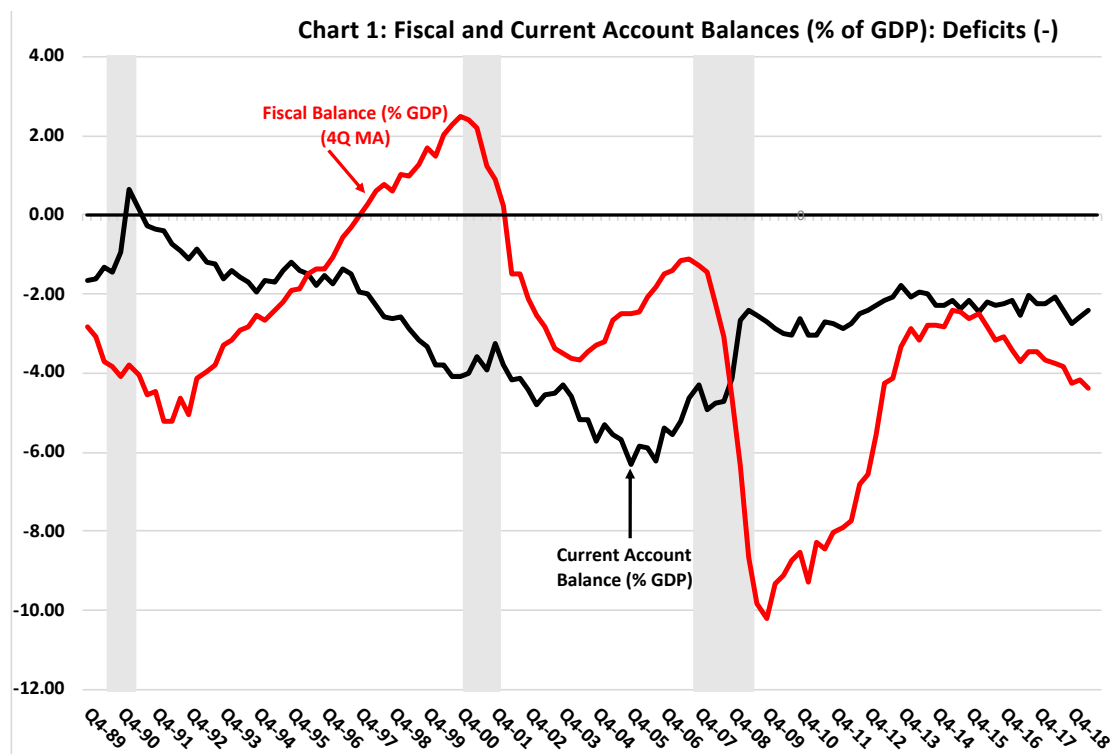


Chart 2: Similarly, U.S. interest rates are generally on a downtrend as the current account deficit marches upward. Starting in 2004, the 6-month T-bill rate spikes as the Fed tries to tighten. But the ten-year bond rate does not follow. This is Greenspan's conundrum, often attributed to foreign purchases of U.S. mortgage-backed securities.

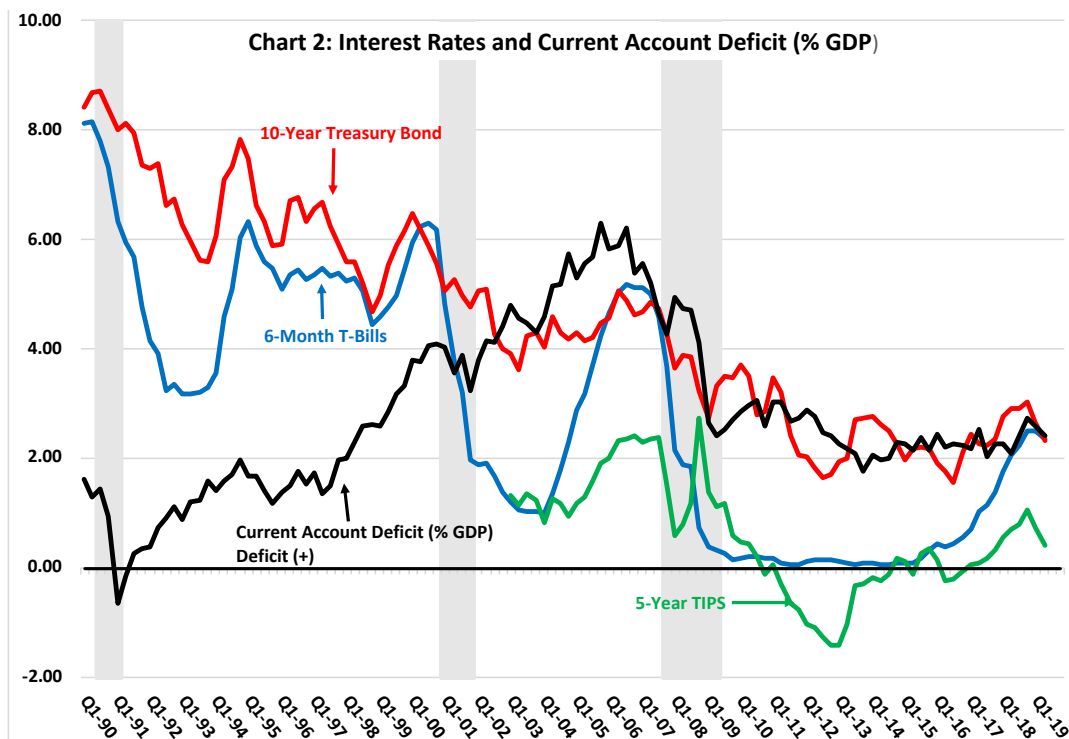


Chart 3: Shows a similar lack of the expected relationship between low and downward-trending Personal-Consumption Expenditure (PCE) inflation (the Fed's measure of its interest-rate target) and the current account deficit.

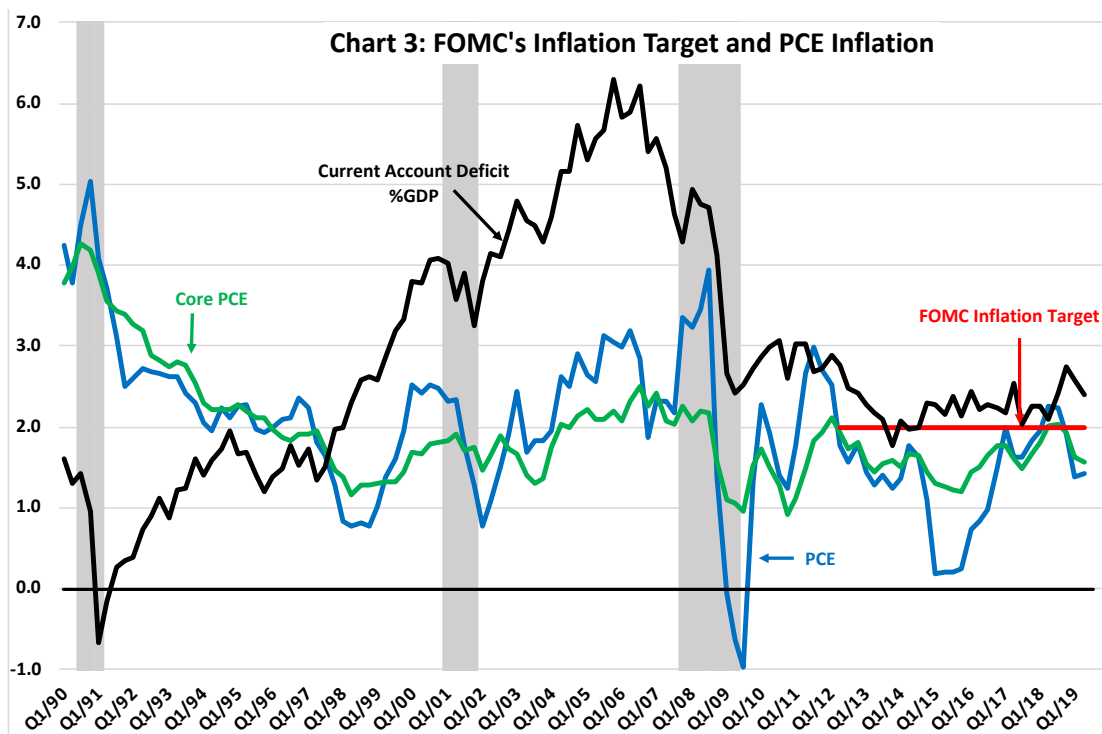


Chart 4: Shows the current account deficit climbing although U.S. wage growth is persistently modest. Even after the 2000-2001 recession causes unemployment to spike, the current account continues to deteriorate.

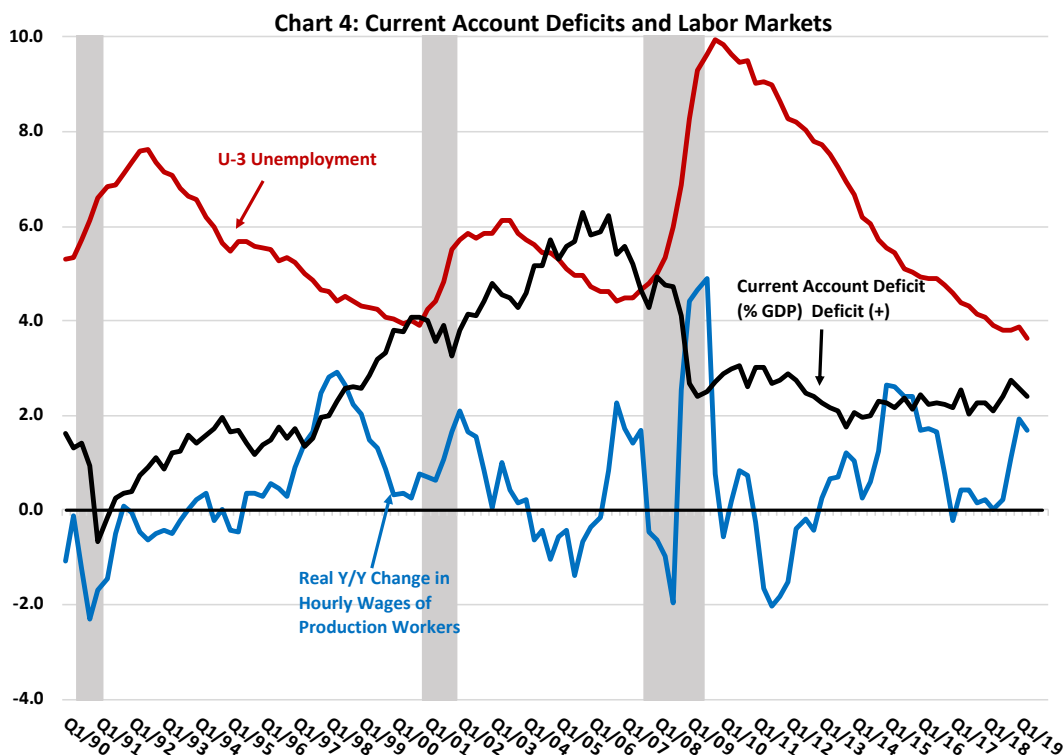


Chart 5: Again, we note a lack of the posited relationship between the current account deficit and any indications of an economy reaching the limits of its productive capacity, as measured by unemployment and capacity utilization.

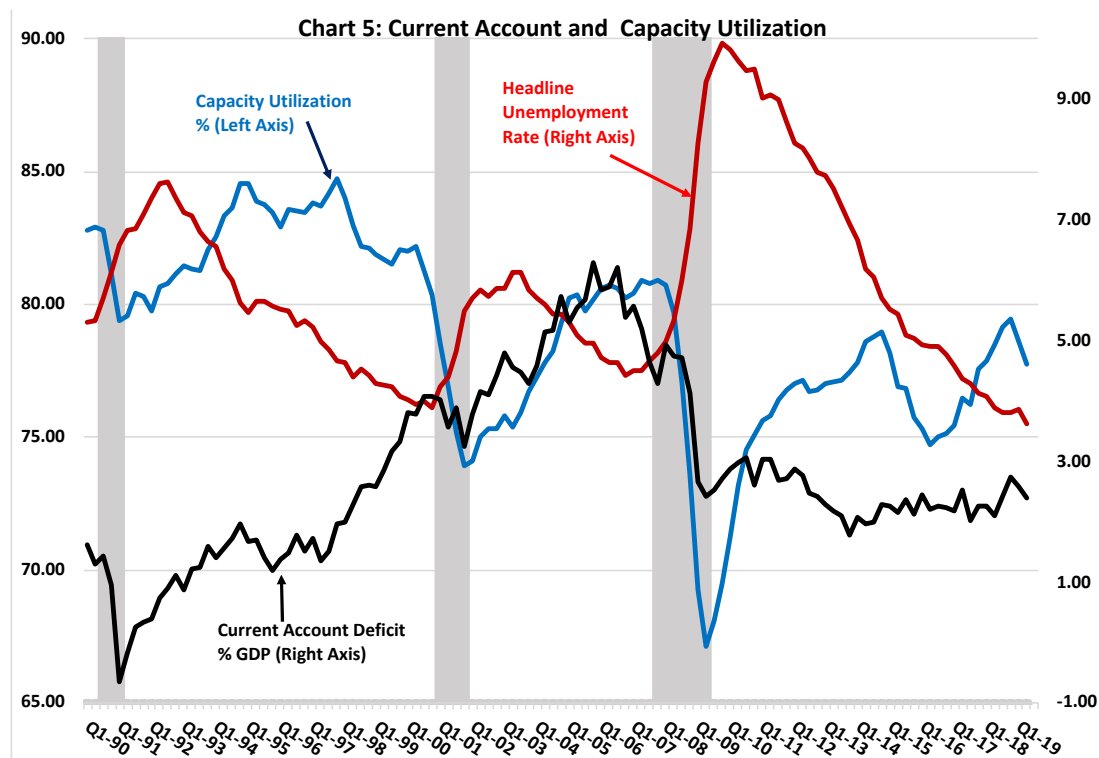
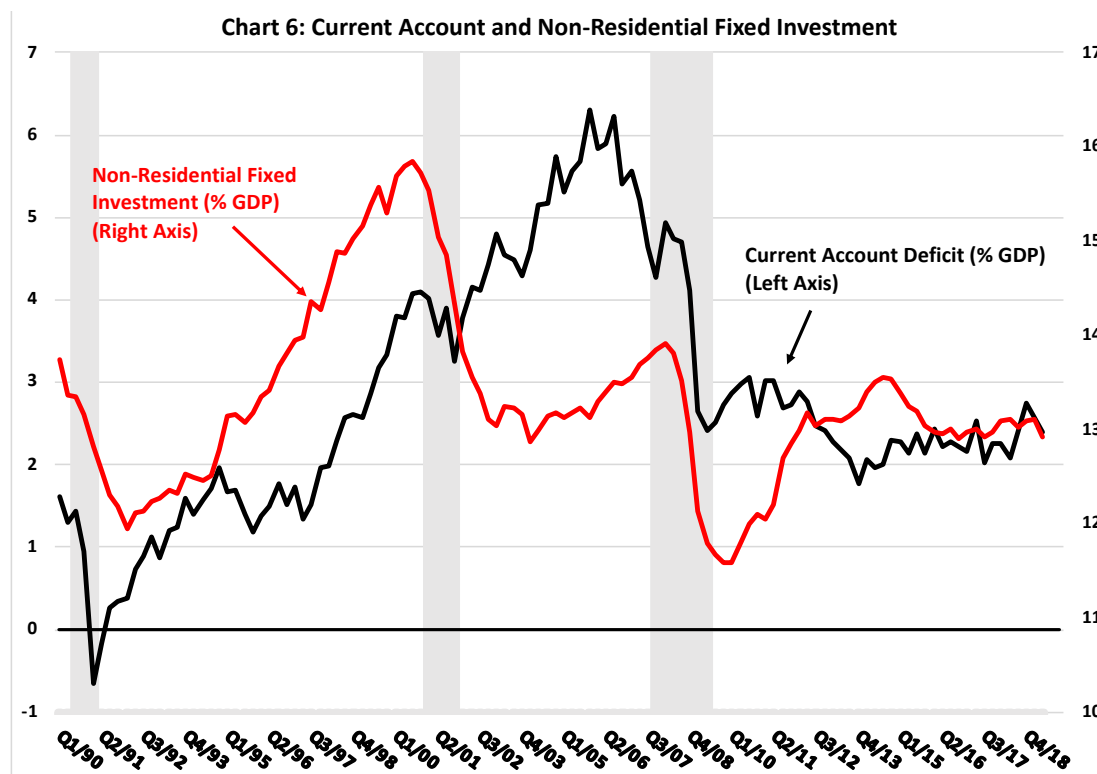


Chart 6: The current account and the growth of non-residential fixed investment both follow a similar trajectory for much of the 1990s, but when the 2000-2001 recession hits, they take sharply different paths. This makes it hard to argue that the capital account inflows that financed the U.S. current account deficit were maintaining U.S. investment.



These charts suggest that the growth of the U.S. current account deficit was externally driven. The current account deficit shrank after the near collapse of the U.S. financial system and the beginning of the Great Recession in accord with textbook theory. But the current account remained flat through the long and painfully slow U.S. recovery.

Of course, the initial conclusions of those guilty of the Unidirectionality Error might still be correct if there is sufficient empirical evidence that America's domestic conditions pulled in capital. But that evidence is only a hypothetical. Those who committed the Unidirectionality Error have not provided it (if it exists) and their error obscured the need to provide it.

Section V: The impact of “pushed” capital inflows on the recipient economy

The Unidirectionality Error is associated with another common misinterpretation of the Savings-Investment *Identity* (Equation 3). The Savings-Investment *Identity* (Equation 3) is *not the same thing* as the Savings-Investment *Equilibrium Condition*, although the two are often conflated.

The Saving-Investment *Identity* is always true in a tautological sense. It is a logical identity due to one definition of investment: Investment is domestic output that is not domestically

consumed by households or the government or exported.⁶ It includes unspecified components of both *productive* (desired) and *unproductive* (undesired) investment.⁷

6. $I_{dp} = I^* + \hat{I}$, where:

I^* = productive investment (including reasonable and expected failure rates due to normal risks).

\hat{I} = unproductive or “undesired” investment (yielding unexpected and large losses).

\hat{I} can include unwanted and unsold inventory (the Keynesian convention) or underutilized capacity. These were created in the expectation of profit, but are not profitable *ex post* because of insufficient aggregate demand. When producers and investors realize this, they will reduce output. Thus, we rewrite the Savings Investment *Identity* (Equation 3):

3'. $(S_d - I_d)_p - (G - T) = K \Leftrightarrow S_{dp} - (G - T) - K = I_{dp} = I^* + \hat{I}$ (Saving-Investment *Identity*)
 and distinguish it from the Savings-Investment *Equilibrium Condition*:

7. $S_{dp} - (G - T) - K \stackrel{e}{=} I^*$ (Saving-Investment Equilibrium Condition).

7'. If $S_{dp} - (G - T) - K > I^*$, the economy contracts until equilibrium is restored.

7''. If $S_{dp} - (G - T) - K < I^*$, the economy expands until equilibrium is restored.

In a savings-scarce world, capital will normally flow to where it can be usefully invested. But, in a savings glut world, capital flows that cannot be *usefully* invested may trigger financial crises.

Borio and Disyatat (2011) and Truman (2009) have asserted that failures of the U.S. financial system and its regulation, not the Global Savings Glut, caused the Financial Crisis of 2007-8 and the ensuing recession. However, these are not separate and mutually-exclusive explanations of the Financial Crisis. In fact, these are just two alternative perspectives. By Walras' Law excess demands must sum to zero and we cannot have just one market out of balance. Saving is the flow demand for assets. The Global Savings Glut is a Global Asset Shortage.

Prior to the Crisis, there was an enormous surge of foreign demand for U.S. assets, particularly for low-risk assets like U.S. Treasury securities. These purchases were financed with the net savings generated by foreign current account surpluses. The U.S. sellers of these assets then needed to either consume the proceeds of the sale (reduce their savings) or rebalance their portfolio by purchasing other assets. Thus, cross-border capital flows not only alter national savings-investment balances, but can also change the *quality of investment and debt*. It is useful to specify the determinants of private consumption, C , and savings, S_{dp} to demonstrate this.

+ + - + -

8. $C = C(Y - T, B, D, W, g)$.

⁶ A slightly more rigorous algebraic explanation is provided in the Appendix.

⁷ It is clearly beyond the scope of this analysis, but the distinction between the different types of investment bedevils economists at all levels and conflates identities and equilibrium conditions. Economics, as a discipline, would benefit from giving separate **and distinct** names to these separate things.

Consumption is a function of $Y - T$, disposable income; B , net household borrowing; D , the stock of household debt; W , nominal household wealth; and g , the gini coefficient. The gini coefficient represents the commonly accepted idea that the wealthy have a higher marginal propensity to save. Since a higher gini coefficient represents greater concentration of wealth, the gini coefficient should be negatively related to aggregate consumption. Private saving is:

$$9. \quad S_{dp} = Y - T - C \text{ (Disposable private income minus consumption.)}$$

Alternatively, we can represent Expression 9 as:

$$9'. \quad S_{dp} = S_{dp}(Y, T, B, D, W, g)$$

Household borrowing (B) and changes in debt stock (ΔD) are, of course, intimately related. New borrowing is a change in the debt stock, but the two can be very different in a financial crisis in the case of debt defaults, bankruptcy, or similar events, so they are represented separately.

If the inflow of foreign savings is needed, or can easily be channeled to productive investment by lower interest rates, it will not be a problem. But an inflow of foreign savings that cannot finance productive real investment can force a reduction of the recipient country's savings-investment balance in a number of ways that are either immediately unpleasant or unsustainable.

- Stagnation or recession (reduction of Y) reduces domestic saving by, *inter alia*, reducing income and forcing households to live off their savings,
- Reduction of household saving due to an increase in consumer borrowing (increase in B) which can result from relaxation of prudential standards,
- Asset-price bubbles which temporarily increase W (wealth) and encourage consumption,
- Increase in residual/bad investment (unsold merchandise or empty buildings).

To avoid a recession, the government may try to:

- Fiscal expansion (increasing the government deficit) to compensate for weak demand,
- Loose monetary policies, including ultra-low interest rates and quantitative easing.

If demand for domestic output cannot be maintained due to imports displacing demand for domestic goods, firms may reduce investment: the flexible accelerator principle. This makes it more difficult to absorb foreign capital inflows with new investment.

As we have learned since the 1990s, low nominal rates can lead to poorly managed risk-taking as investors search for yield. This can *temporarily* restore the savings-investment balance and sustain economic growth, but when losses or loan defaults are recognized, aggregate demand can quickly collapse. In other words, the external imbalance moves the economy away from internal balance (Aggregate Demand = Aggregate Supply, full employment, and low inflation) and the financial system may be more fragile. The Dot-com bubble and 2007-8 Financial Crisis taught us that sharply declining or low interest rates can trigger recessions in ways that are not fully captured in standard macroeconomic models. Once lenders and investors realize that borrowers are defaulting or their investments are

going bad (distressing levels of \hat{I}), they will pull back and the economy will contract until total savings (including inflows) equals good investment.

What would have happened if U.S. financial regulators had been more aggressive and foresighted? Almost certainly, the long, slow recovery from the Dot-com recession would have lingered even longer. It was only when the discipline of the financial sector eroded and risky new assets were created that the U.S. economy began to grow again and employment matched its prerecession levels (but it was much longer until employment caught up with labor force growth).⁸ There were not enough productive, prudent investment opportunities to match the inflow of foreign savings. Better regulation alone could not have solved the underlying problem.

Section VI: Which capital flows are mutually beneficial?

One reason to expect that market transactions among private parties are generally mutually beneficial is because individuals are free to reject transactions that do not benefit them. However, at an aggregate level, many economies (including the United States) are committed to unrestricted capital movements on the *presumption* that they are beneficial. There is no mechanism to identify and reject undesirable capital inflows.

This lack of a strong argument (and supporting evidence) that the United States economy in fact needs capital inflows raises an intriguing question: “Is it an ‘exorbitant privilege’ to borrow at low rates if the United States does not need to borrow at all?”

As Rey (2014) notes, the empirical evidence that capital flows are mutually beneficial has been difficult to verify. However, there is no widely accepted theoretical justification for this proposition equivalent to Ricardo’s Theory of Comparative Advantage (which affirmed the mutual benefits of *balanced* trade in goods). It is often implied, without being formally stated, that Ricardo proved the advantage of “globalization,” a much broader term that includes other international transactions and relations, including the free movement of capital.

Some countries do try to limit capital inflows and improve their trade balances. These policy makers disagree with the assertion that capital inflows are *always* beneficial. So, we must ask, “Are the capital flows that cause American trade deficits mutually beneficial?”

By recognizing that $(S_d - I_d)_p - (G - T)$ and K are simultaneously determined, we can examine different cases where there may not be *mutual* benefits of free capital flows. Our criterion is that, if capital inflows are mutually beneficial, then for every affected economy, output (national income) will be higher and debt levels more sustainable if $K \neq 0$.

10. “ $(S_d - I_d)_p - (G - T) = K \neq 0$ ” is economically superior to “ $(S_d - I_d)_p - (G - T) = 0$ ”.

In a capital scarce world, we can expect that inflows are “pulled” to where they are needed most. In that case, foreign savings can finance new investment at higher rates of return than in their country of origin. This is beneficial to the receiving country and to the foreign savers

⁸ Private payroll employment did not regain its December 2000 peak until May 2005 (and the U.S. population 16 – 64 years old grew by almost 10 million in the same period). The United States has never regained the December 2000 employment-to-population ratio of 74.2 among that age group. (Source U.S. BLS and Haver).

(although maybe not to the country of origin *taken as a whole* if capital is scarce). This case represents the conventional wisdom about trade. Good examples would be the capital flows from England to the United States that financed the expansion of the railroads and American industrialization in the nineteenth century; flows of American capital to Europe right after World War II; and the inflows of capital that helped finance German reunification. Even in a Global Savings Glut world, this will describe inflows to *some* economies.

In a Global Savings Glut world, in stark contrast to the conventional wisdom, we can expect examples where capital is pushed where it is not wanted. The outflow from a country that cannot *ex ante* find useful domestic investments for its own savings should be considered a market failure. A central bank reserve purchase is not even a market transaction. Capital can be “pushed” into an initially-balanced economy that does not need it from an economy that needs it even less. How will the recipient economy adjust from the “ $(S_d - I_d)_p - (G - T) = 0$ ” to “ $(S_d - I_d)_p - (G - T) = K$ ” when K is negative (a capital inflow) and causes a trade deficit?

In such cases, from the perspective of the recipient economy:

11. “ $(S_d - I_d)_p - (G - T) = K < 0$ ” is **not** superior to “ $(S_d - I_d)_p - (G - T) = K = 0$ ”

because the capital inflow moves the economy from stable internal balance or requires assuming too much debt to sustain full-employment output.

This was evident in the decade prior to the Financial Crisis of 2007-8. Private and official capital inflows financed increases in the U.S. current account deficit from about 1.5 percent of GDP before the 1997 East Asian Financial Crisis to 4 percent of GDP four years later. The same capital inflows helped finance the dot-com bubble that led to the recession of 2001. After a slight reversal during that recession, the U.S. current account deficit continued to grow and reached five percent of GDP in the years preceding the U.S. 2008 financial crisis. American foreign reserve sales reached almost \$500 billion in 2006 and 2007, and then hit \$555 billion in 2008. This helped finance the deterioration of prudential standards in the mortgage market.

When Feldstein and Schulz (2017) state: “If a country consumes more than it produces, it must import more than it exports,” they cannot simply assume that America runs a trade deficit because it consumes more than it *could* produce. They need to also consider the alternative explanation, America produces less than it could because of the trade deficit. Is a country with a negative output gap living beyond its means? Is it “overheating” or has an over-appreciated exchange rate “switched” both domestic and foreign expenditure to foreign goods and taken domestic production offline?

It was clear during the first decade of the new millennium that some U.S. factories were shutting down because of import competition (diversion of demand), not because of competition for inputs (such as labor) with exporting factories. The workers in those factories were often displaced directly onto the unemployment line (at near-zero opportunity cost). (Autor et al., 2016) Trade was not freeing up a “scarce factor of production” for use in more productive sectors.

Consumers may have appeared to be getting imports at lower prices than competing domestic goods, but that too was deceptive at an aggregate level. The goods were being imported on credit. In effect, the down payment was lower, but the all-in price was not. What

was purchased on credit could have been produced domestically and produced local income. If Americans were “living above their means,” it was because, collectively, their incomes were reduced below their consumption. Whatever was happening, the standard Ricardian paradigm of comparative advantage and gains from *balanced* trade was not applicable.

Feldstein and Schulz also sternly warned us: “Federal deficit spending, a massive and continuing act of dissaving, is the culprit. Control that spending and you will control trade deficits.” But they confuse cause and effect. U.S. trade deficits began to grow rapidly after the East Asian financial crisis in 1997 *when the U.S. Federal Budget was in surplus*. It was only in 2001, after open public debate about the need for counter-cyclical stimulus (tax cut), that the budget went into deficit again. But even as the economy recovered slowly, the trade deficit, powered by massive foreign central bank reserve purchases, deteriorated. Between the recessions, the federal budget was in deficit, due to both the automatic stabilizers (such as unemployment insurance) and 2001 tax cut. But in spite of the tax cuts and war in Iraq, prior to Great Recession, the deficit was shrinking back to the 1 percent of GDP level. After the Great Recession, foreign central banks continued to intervene to prevent their currencies from appreciating. That foreign central bank intervention, by design, slowed the improvement in the U.S. trade balance. It was also a drag on aggregate U.S. demand. The U.S. recovery was painfully slow.

A second problem with Feldstein and Schulz’s categorical assertion that fiscal deficits are *the* cause of trade deficits is logically suspect. It implies that if every economy had a fiscal surplus, then every country could simultaneously have balanced trade or a surplus. That is, of course, impossible and a fallacy of composition.

Now, let us look at a case where a country suffers from insufficient aggregate domestic demand. If this is a transient cyclical problem, the usual fiscal and/or monetary remedies or a temporary increase in net exports might suffice to stabilize the economy at full employment. But if an economy has a persistent, structural tendency to surplus saving (in excess of desired investment), it will face the same adverse adjustment problems discussed above. In that case, an outflow of capital (K is positive) will provide a stimulus via the increase in net exports so that:

$$12. \text{“(}S_d - I_d\text{)}_p - (G - T) = K > 0\text{” superior to “(}S_d - I_d\text{)}_p - (G - T) = K = 0\text{.”}$$

The capital outflow moves the economy toward sustainable internal balance. Pushing surplus savings out is beneficial to the country of origin. *This explains why some countries want trade surpluses*, but that does not make the resultant outflow beneficial to the recipient country. In a world of capital scarcity, these outflows can be mutually beneficial, but in a Global Savings Glut world, these outflows can be pernicious when no partner wants them. They can be the driver of trade and currency wars: the bringer of recessions, financial crises, or stagnation.

Every country that runs a trade surplus expels savings. The trade surplus actually performs the same macroeconomic function as a fiscal deficit; it is a demand stimulus. The same economists who worry that fiscal deficits will “crowd out” investment by absorbing savings, seem oblivious to the fact that financing an export surplus also “crowds out” financing for domestic investment! They neither acknowledge the issue nor explain the inconsistency.

The effect on the savings inflow on aggregate demand in the trade-deficit country would be similar to running a fiscal surplus. Whether this is good or bad will depend on the initial state

of the economy. If the country suffers from excess aggregate demand, then the inflow of savings and the resulting trade deficit will be useful in the short run, especially if the savings inflow is channeled to useful (hopefully even self-amortizing) investment. However, if the trade-deficit country is initially in internal macroeconomic balance, the savings inflow will be disequilibrating and a drag on domestic output if the inflow cannot be converted to useful investment (and may actually reduce investment because investors need less capacity). In this case, additional fiscal stimulus may be needed to compensate for the trade deficits. Thus, in this case, trade deficits *cause* government deficits rather than the other way around as is commonly asserted.

The effects on asset markets and the international investment position is the opposite in the two cases. The trade-surplus country is lending its savings abroad and acquiring foreign assets (or retiring its foreign debt). The trade-deficit country is incurring debt (or liquidating foreign assets). One asymmetry would be if the trade deficit country tries to offset the loss of aggregate demand through additional fiscal stimulus. That would further increase national indebtedness. The economies complaining about trade deficits are, in effect, trying to resist the unwanted accumulation of unnecessary external debt.

This leads to a strange inconsistency in the public debate regarding fiscal deficits and trade deficits. Fiscal deficits add aggregate demand and trade deficits withdraw it. Both imply increases in aggregate indebtedness. Yet fiscal deficits provoke warnings that there is no “free lunch,” but America’s trade deficits and external borrowing are called an “exorbitant privilege.”

Even for trade-surplus countries, the benefits of the outflows may be dubious. The outflows relieve the symptoms of a market failure, an inability to either consume or invest an economy’s own production. However, the outflows do not solve the underlying problem, they export it.

Section VII: Why we know that the world has surplus capital today

How can we tell the difference between a world where scarce capital flows to where it is scarcest and a Global Savings Glut world where unwanted capital flows from where it is not wanted or needed to where it is not wanted or needed either? The first test is the direction of interest rates.

From Equation 5, the global Savings-Investment Identity we get:

$$5. \quad S_{wp} - (G - T)_w = I_p.$$

The equivalent global Equilibrium Condition is:

$$13. \quad S_{wp} + (G - T)_w \stackrel{e}{=} I_w^*.$$

13'. If $S_{wp} + (G - T)_w < I_w^*$, (A global excess demand for savings)
 then there must be an increase of some combination of global output (income) and interest rates.

13''. If $S_{wp} + (G - T)_w - K > I_w^*$, (A global excess supply of savings)

then there must be a decrease of some combination of global output (income) and interest rates.

In the capital-scarce world (Expression 13'), capital flows will tend to keep global output growth strong and world real interest rates high. In the capital-glut world, output will slow and interest rates will fall until they ultimately reach the zero-lower bound, at least in some economies. At that point, the entire burden of adjustment will fall on declining income to reduce aggregate savings because nominal interest rates cannot fall any more. This indicates that, thus far, the current century is a savings-glut period: interest rates have fallen globally and income growth has faltered and slowed, especially in the savings-absorbing United States.

There is another clue that the world is not currently short of savings and that profitable investment is not constrained by the availability of financing in advanced economies and many emerging market economies. Generally, the lack of demand for more production is the limit on new investment. In a capital-scarce world, countries would see capital inflows as a way to sustain higher levels of productive investment. And capital outflows would be a problem. Today, there are many obvious examples of countries that *insistently* want to run trade surpluses and want to be *rid* of savings. It *inescapably* follows that many economies want, or need, to reduce savings by exporting them. To many economists steeped in classical and neo-classical growth theory, this is counterintuitive. But it happens on a large enough scale to be undeniable.

There are many countries and many eras in which this is not true. But for those who try to make the categorical statement that savings are *always* scarce and that more savings are useful, *without exception*, periods and places of capital scarcity are not counterexamples.

In a true capital-scarce world, America's "exorbitant privilege" of being a reserve currency issuer and running persistent trade deficits would be *sincerely* envied. Yet, no matter how loudly Americans complain about the trade deficits, no one wants to trade places. Many countries insist on taking the opposite side of the transaction. America's "privilege" is to borrow cheaply when it is an economic burden to borrow at all.

Section VIII: What mechanism drives (pushes) capital uphill?

If capital flows cause trade deficits, then we need to ask, "What drives capital flows?" Does the mechanism match the needs of both economies or is it essentially driven by conditions in only one economy? Unidirectionality arguments are incomplete because they do not explicitly posit any mechanism. If the United States did suffer from a combination of insufficient savings and fiscal profligacy, it would have raised U.S. and global interest rates, but interest rates have been trending down for the last two decades. The flows of savings to the United States are "uphill" because they defy the normal neoclassical paradigm and interest rate signals. The flows should go the other way. If anything, the United States should be a *net lender*, not a *net borrower*.

Some analysts cite reasons that some trade-surplus economies need to acquire foreign assets (e.g. Japan and Germany are aging societies and savings are driven by demographics). Others acknowledge that some countries need to acquire reserves to prevent their currencies from appreciating, including both oil-producing countries and rapidly growing

East Asian economies. A third reason, is because weak financial institutions cannot intermediate domestic savings into real domestic investment. The last two reasons, in particular, are just another way of saying that these countries have a savings glut. In a provocative analysis, Joffe (2017) concludes that some dynamic, East Asian economies run export surpluses as a result of deliberate policies of channeling capital for strategic purposes. Though why these countries continue to run large export surpluses well after they become modern economies is not entirely clear. None of these reasons justify the conclusion that the trade deficit countries need net capital inflows.

Prasad (2014) (p 27) explains that U.S. financial assets are attractive to emerging-market central banks because:

The U.S. has put together a winning combination that no other country comes close to matching— not just a large economy but also deep financial markets, rock-solid public institutions, and an effective legal framework— that other countries have faith in. The consequence is that the U.S. dollar is likely to remain the world's main port for shelter from financial storms for a long time to come.

However, this just explains why capital outflows are directed towards the United States, but does not reflect a U.S. need for capital inflows. Prasad himself notes on page 298,

The situation is rife with paradox. Fixing the global monetary system now requires that the U.S. put its domestic economic policies in order. This will entail getting a grip on long-term public finances instead of just relying on easy money policies that raise the risks of future financial instability. Until that happens, the rest of the world will be stuck in the trap of continuing to support U.S. fiscal profligacy.

But there is really no paradox here, just the logical inconsistency that comes from getting the direction of causality wrong. The U.S. countercyclical monetary and fiscal stimulus is required to compensate for the inflows of foreign savings from foreign central banks.

When U.S. interest rates reached the zero lower bound and economists worried that the economy was trapped in a state of secular stagnation, the standard market models of international capital flows obviously no longer applied. But push factors do not require that the flows be mutually beneficial or even exclude that they might be harmful, just a commitment from all parties to relatively free capital mobility. There are several types of push factors:

Safe Haven: Safe haven flows may originate in countries with surplus savings or where savings are scarce. Investors may be protecting money from their home government. In some cases, the money is the product of criminal or kleptocratic enterprises shielded from law enforcement or tax authorities. The reason may be anxiety about home countries' investment climates: protection from confiscation, revolution, or war. Safe-haven flows may result from an inability of the domestic financial system to create safe assets. In effect, savers have a strong "anti-home bias". Such flows may aggravate domestic savings shortages. Regardless of the motives for seeking a safe haven, the macroeconomic effects on the safe-haven country are essentially the same. Any *net* inflows finance a safe-haven country's trade deficit and additional financial volatility.

Savings Glut: The “push” comes from economies with structural savings surpluses. In closed economies, these savings might cause recessions. In an open economy, the surplus savings can be lent abroad and finance net exports, avoiding a recession, high levels of debt-financed private and government consumption, or secular stagnation depending on the particular circumstances. This is the motive for many governments to try to achieve export surpluses: producing more than they consume.

In some cases, the savings are mobilized by the state or central bank and used to directly finance the trade surpluses. In other cases, the private sector demands “safe” foreign assets in the absence of attractive returns or even in spite of poor returns abroad or concern about eventual depreciation. This can represent some form of market failure. Often, these private flows are aggravated by macroeconomic policies intended to increase savings in the country of origin, even though the savings may eventually become a drag on aggregate demand.

Reserve accumulation is the simplest push-factor mechanism. Austin (2014) describes the mechanics in detail. A country with weak aggregate demand can expel surplus capital by setting a depreciated exchange rate. That rate fixes a low relative price of the country’s goods on world markets and creates a trade surplus and an inflow of foreign exchange (generally dollars) in the hands of exporters. If that inflow is simply sold locally, it depresses the local price of foreign currency and cause a corresponding appreciation of the local currency. That would reduce the trade surplus. To maintain the fixed exchange rate and the trade surplus, the surplus must be *financed* by the purchase of foreign assets. If the private sector cannot, or will not, purchase sufficient foreign assets, the central bank has to purchase the balance at the official rate.

The central bank must buy this foreign exchange surplus and purchase reserves without regard to the needs of the reserve issuer or market conditions. Its demand for reserves is determined solely by the chosen exchange rate and the resulting private sector net sales of foreign exchange. The return on reserve assets is, at best, a secondary consideration. Prasad (2014, p. xiv) notes that emerging markets ultimately expect to experience capital losses on dollar reserves.

The role of exchange rates in causing global imbalances is often misunderstood. Demanding that a country stop “manipulating” its currency is equivalent to asking that country to stop buying central-bank reserves. An exchange rate alone cannot cause and sustain a trade imbalance without a counterpart flow of savings to finance it. Such currency manipulation would be an obviously bad policy and a drag on growth for a capital-scarce economy. But for a country with a savings glut depressing aggregate demand, this would help maintain growth. Thus, maintaining a depreciated exchange rate and large surpluses is a strong indication of a savings glut.

Precautionary Reserve Purchases: A common argument used to explain trade imbalances is that some countries need to acquire precautionary reserves as self-insurance against a sudden stop or reversal of capital flows. The precautionary motive may be real, but this is a weak explanation of trade imbalances. A central bank can sterilize the private inflows and purchase reserves to give it one-for-one insurance against sudden stops or reversals of capital flows without financing a trade surplus (but would probably pay a negative spread). The large reserve build ups after the East Asian financial crisis may have been an over-reaction, or they could have just vented surplus savings (export-led growth). Even genuine

precautionary reserve purchases, from the perspective of the reserve issuer, are pushed capital inflows.

Flows at the zero lower bound among advanced countries are puzzling. The large financial outflows from stable and conservative Germany do not have an obvious, return-maximizing mechanism driving them. One can easily understand how German funds flowed to the peripheral states of the EMU and Eastern Europe prior to the 2011 financial crisis. After that, it became harder. Even as the current accounts of the crisis countries swung to surpluses, German surpluses grew again; German investors acquired even more foreign assets elsewhere, including a significant amount of interbank lending. But the precise mechanism pushing German outflows is not clear, even if its effects are evident. But Germany is a clear case of an economy that benefits from capital outflows at the expense of its neighbors.

Section IX: Allocation of the surplus savings and “currency wars”

The Global Savings Glut (alternatively: Global Asset Shortage) does not mean that every country will suffer recession. International capital flows will distribute the recessionary burdens within the system. Those countries that have initial savings gluts (asset shortages) will benefit by encouraging capital outflows that import aggregate demand. Such countries characteristically justify their trade surpluses as the result of righteous parsimony and claim that trade deficits are a sign of licentiousness and failure. They will not acknowledge the possibility that their capital outflows and trade surpluses are the result of domestic imbalances or of a weak financial system.

The United States and certain other Anglophone countries allow unrestricted inflows, essentially acting as the world's bank and passively accepting deposits. However, that does not mean that the policy is macroeconomically sound. If the mechanism that drive the capital outflows reflects only the requirements of source countries and do not match the flows to the needs and absorptive abilities of the destination countries, then the flows are not mutually beneficial. Paradoxically, the ultimate cause of their problems is not poor policies or institutions, but good legal protections and solid capital markets that make them reserve issuers and safe haven currencies.

It is a common fallacy that the exchange rate *per se* is the problem, but the real problem is the inflow of foreign savings. The exchange rate is only the mechanism that carries out the expenditure switching and transfers aggregate demand from domestic goods to foreign goods.

The typical standard of currency manipulation is Asian-style central bank reserve purchases. Although the United States has a nominally flexible exchange rate, it allows other nations to unilaterally fix their exchange rates against the dollar. They buy U.S. dollars from their exporters in order to defend that rate and then buy U.S. securities with the dollars. This finances the desired trade imbalances. Unlike a Bretton-Woods type fixed-rate system, those exchange rates are not subject to mutual agreement. Such a system of exchange-rate management is a very efficient method of venting excess saving. The central bank of the currency-manipulating country has fairly good control not only of the current account, but its financing.

Germany uses a less effective method of pushing out surplus savings via private channels, often via its banking system (Jacoby, 2017). Private German investors send their money

abroad because they have no use for their money at home. In a high-interest-rate and capital-scarce world, this would be a boon for the economies taking the other side of the transaction. But in a savings-glut world, the resultant capital outflows are not welcome elsewhere. German government officials reject as absurd the idea that Germany's trade surpluses are the result of "currency manipulation" since Germany does not have its own currency. But Germany's macroeconomic and labor policies (deliberate fiscal surpluses and the Hartz labor reforms), can have a similar effect. These policies would be recommended by German authorities for deficit countries that wanted to move towards balance. But when a country has a large trade surplus, the effect of those policies is to maintain or increase those surpluses. That is arguably a violation of IMF members' obligation under Art. IV 1. (iii) "... (to) avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members..."

But in a world where foreign financial markets do not generate either opportunities or incentives to profitably invest abroad, the capital outflows may not be sufficient. Without drastic domestic reforms, Germany needs an even larger trade surplus to provide an adequate market for everything it is capable of producing. Large outflows of capital to southern Europe have already financed unbalanced growth and financial crises. China's central bank was free to intervene in foreign exchange markets and send capital abroad, even at a loss, but Germany cannot do that.

China briefly tried the German approach with mixed results starting around 2014. Instead of large-scale reserve purchases, China relaxed controls on private outflows and encouraged outward investment by public and semi-public entities. It quickly lost control of outbound capital flows, which were much larger than anticipated. Many Chinese households wanted foreign assets, not only for economic reasons or portfolio diversification, but apparently to protect against expropriation (safe haven). China's central bank no longer needed to purchase reserves, but had to sell reserves. Eventually, the Chinese authorities cracked down on capital outflows and began buying reserves again.

From the perspective of deficit countries, the root problem is that the large internal imbalances of surplus countries spill abroad. It makes no difference if imbalances are due to policy reasons, structural reasons, or weak or inadequate financial systems that cannot intermediate saving to productive domestic investment. Allowing countries and politicians to export their imbalances and the resultant consequences creates a moral hazard at the heart of the Global Savings Glut.

Section X: A Note on the non-consequence of bilateral trade balances

Note that capital flows do not need to be exactly mirrored by bilateral trade balances. Some countries that are in overall balance or deficit (no net capital outflows or trade surpluses) may have large bilateral surpluses offsetting deficits with others countries. However, the root of trade-deficit countries' problems is the surplus savings of trade-surplus countries. Take a hypothetical example of Germany running a large current account surplus with Mexico and using the proceeds to purchase U.S. assets. Mexico's current account deficit would initially be underfinanced and America's current account deficit would be overfinanced. This would cause the peso to depreciate against the dollar and result in a bilateral Mexican current-account surplus with the United States. But the root cause of Mexico's bilateral surplus with the United States is German purchases of U.S. assets, not Mexican policy.

This arrangement recalls the triangular-trade system of the American colonial period. The North American colonies supplied agricultural foodstuff to the Caribbean colonies, the Caribbean colonies supplied sugar and molasses to England, and England supplied manufactures to North America (See Figure 1). The modern world involves many more countries, but the underlying principle is one where countries can pay for their imports from one country by exporting to others. Similarly, one country can accumulate savings by running trade surpluses with a second country and then invest the proceeds in a third country (See Figure 2). The system is balanced when the third country (e.g. America) runs a trade deficit financed by the capital inflows from the first (e.g. China). Austin (2014) gives a fuller explanation of how Chinese purchase of U.S. assets as reserves could logically lead to U.S. bilateral trade deficits with third countries.

Figure 1: Eighteenth Century Triangular Trade



Figure 2: Twenty-First Century Triangular Trade



Section XI: The policy consequences of the “unidirectionality error”

The assumption that the domestic saving-investment balance always determines capital inflows or outflows (and therefore the trade balance) can lead to serious policy errors when the causation goes in the opposite direction. Unwanted (pushed) inflows of capital are a deflationary impulse: a drag on aggregate demand. Fiscal stimulus is the correct policy response. The *worst possible* response is deflationary policies in the deficit countries: *austerity*. Austerity would be an appropriate response if the economy actually needed more saving, but the need for savings is fallacious. Capital inflows create a local savings glut; austerity compounds the problem.

The Unidirectionality Error results in a second policy error: fiscal stimulus is applied to the wrong economies. Trade-deficit economies are forced to use fiscal stimulus and accumulate more debt to achieve internal balance and full employment. In the case of an open capital account and Global Savings Glut, stimulus may be ineffective for trade-deficit countries. Fiscal stimulus may attract more capital inflows, further increasing the trade deficit, but diffuse the benefits over the whole world. So, the government sees fewer additional tax revenues and a larger net increase in debt. This raises sustainability issues. Countercyclical policies will work best when they are used to deal with transient shocks, including those from abroad. They cannot be a long-term solution to the propagation of foreign structural imbalances. Fiscal stimulus is underprescribed for trade-surplus economies where the global problem originates. Stimulus and structural reform should be applied *at the origin* in those economies that produce the capital outflows (trade-surplus countries). The good thing about stimulus policies wherever they are undertaken is that they reduce the Global Savings Glut.

In addition to the usual macroeconomic policy issues, trade surplus countries need to examine structural issues. Although many individual households may be deficient savers, these societies' savings exceed their investments. Aggregate savings levels are obviously not an investment-constraining factor. On the contrary, low consumption levels (aggregate demand) may be a bigger drag on investment. These countries need to look through their legal and tax codes to determine why their incentives to save are so disproportionately robust compared to their incentives to invest. Ironically, their worst policy errors may have been to suppress wages and living standards. Japan's economy has been relatively stagnant since the early 1990s in spite of large-scale fiscal and monetary stimulus and large and persistent external surpluses. Its large domestic imbalances have not responded to the usual macroeconomic remedies.

The greatest human consequences of the Unidirectionality Error are when deficit countries suffer a resulting financial crisis. The proposed remedy of external creditors is often austerity. This compounds the initial deflationary impulse with deflationary policy. Rather than employing people to repay the debt, austerity throws people out of work and undermines the ability to repay. Repaying the debt would involve reversing the unwanted capital flows which is the last thing the creditor country wants. The creditor uses the Unidirectionality Error to justify placing the adjustment burden strictly on the debtor. The proper response is reflation in the creditor country designed to achieve internal balance and allow for debt repayment (reversal of capital flows). Only when too much domestic demand *pulls in* capital flows is austerity likely to be an appropriate policy response to unsustainable trade deficits. Austerity, wherever it is undertaken and for whatever reason, adds to the Global Savings Glut.

This conclusion is similar to the model results in Eggertsson et al (2015, 2016 A, 2016 B and C) which show that capital flows can transmit secular stagnation to countries that would otherwise have positive real interest rates and full employment. Eggertsson (2016 B) frames the issue well:

...in a global secular stagnation, neo-mercantilist policies – policies that attempt to improve one country's net foreign asset position relative to another or run persistent current account surpluses – are beggar-thy-neighbor. Neo-mercantilist policies alleviate the secular stagnation of the country pursuing them by exporting savings, but at the expense of the trading partner.

This is the same type of capital flow described as not mutually beneficial in Section VI. Their model shows that in the case of secular stagnation, fiscal stimulus results in positive externalities, but that monetary stimulus tends to generate negative externalities. Thus, their preferred solution to secular stagnation is coordinated, multilateral, fiscal stimulus. But this preferred policy is unrealistic if surplus countries do not cooperate. Many trade-surplus countries have balked either at reducing their surpluses or the political difficulty of reforms (even those that would actually *raise* consumption rates for much of the population). (See Jacoby, 2017 for a case study of Germany.)

However, it is clear in their model that some countries will benefit by reducing capital inflows. In the 2015 working paper (page 4), they note the potential benefits to some countries of closing financial markets, but state that “..superior policies exist and we do not endorse capital controls in countries such as the US and UK as a desirable way to escape secular stagnation.” Their implicit preferred policy alternative is fiscal stimulus, but they *never* actually demonstrate that that some restrictions on capital inflows might not be superior for countries like the U.S. and UK. In the final version of this paper (2016 C), this categorical statement that “superior policies exist” is walked back in favor of “..other (unspecified) policy options *may* (*emphasis added*) be preferable” (p. 610). As Ghosh and Qureshi (2016) show, anything that can be construed as “capital controls” is often “viscerally” viewed as unacceptable in many quarters. Austin (2016) categorizes antipathy to capital controls among some orthodox economists as a doctrinal “article of faith.” This attitude seems to hinder Eggertsson et al accepting the logical implications of their own model. This raises the question of what defensive measures might be appropriate in the face of “neo-mercantilism.” Removing distortionary incentives to capital inflows may be a doctrinally preferable alternative to capital controls for some economists. Many countries, including the United States offer *incentives* to foreign capital, such as tax exemptions on inflows, that can be reappraised if the inflows are not wanted.

Section XII: Conclusions

The economics profession has accepted an incomplete narrative based on a partial equilibrium analysis of the world’s largest and most obvious general equilibrium problem: the international balance of payments. This approach has allowed misguided conclusions based on the implicit idea that every economy can determine its external balance independently. The argument is incomplete without a strong explanation of why countries like the United States “need” the inflows. A complete argument must describe the mechanism that supposedly matches the rest-of-the-world’s need for American assets with the American need for external financing. An incomplete economic model is the sound of one invisible hand clapping.

But not only is it impossible for an economy to determine its external balances independently, but when an economy is open to unfettered flows of capital, those flows will help determine its internal balances. Sometimes market mechanisms require these flows to be mutually beneficial. In other cases, absent a mechanism that insures that capital flows where it is needed, unwanted capital can be pushed into another economy where they do not finance productive investment and causes great harm. Trusting in Providence or coincidence is not sufficient to ensure that the flows match the needs of both borrowing and lending economies. The Global Savings Glut is the root cause of global imbalances; the low U.S. savings rate is an effect – a statistical artifact.

This is counterintuitive to those who believe high savings rates, trade surpluses, and reserve currency status are virtuous. The irony is that trade surpluses are often the result of high-saving countries, that do not invest at home, lending money to *involuntary* low-savings countries.

The Unidirectionality Error leads to the false conclusion that the United States has a problem of structurally-low savings. But if we get the direction of causality wrong, it may prevent us from examining whether trade surplus countries that have a structural problem of elevated savings.

The U.S. role in the current international monetary system ironically depends on its willingness and ability to borrow whatever the rest of the world needs to lend regardless of, or in spite of, America's own needs. The United States is implicitly providing a public good which it has no obligation to provide without compensation but at very-real cost: an exorbitant burden.

When large numbers of systematically important countries need to lend externally, this system becomes unsustainable. It is too destructive to the countries on which trade-surplus countries depend. The United States (and other trade deficit countries) whether by politics or economic self-preservation, may eventually be forced to take defensive measures.

U.S. austerity policies would only aggravate the problem. The proper policy responses to global imbalances are stimulus policies and higher wages and living standards in trade-surplus economies, such as China, Germany, and Japan.

Some economists may find these conclusions unorthodox. But, in fact, the analysis itself is extremely conventional. Anything heretical in the results comes from two sources: 1) identifying common, but serious, errors of reasoning among mainstream economists and 2) recognition of the Global Savings Glut, in lieu of the normally-assumed state of capital scarcity.

“Reality is that which, when you stop believing in it, doesn't go away” (Philip K. Dick – science fiction author).

Appendix: The saving-investment identity

The Saving-Investment Identity is based on the National Income and Product Accounts. Algebraically, the Saving-Investment Identity (which must hold by definition) is:

$$(S_d - I_d)_p - (G - T) - K = 0 \leftrightarrow (S_d - I_d)_p - (G - T) = K = X - M,$$

Where: $(S_d - I_d)_p - (G - T)$ = the domestic savings-investment balance,

$K = X - M$ = Net foreign investment (the negative of the capital account) is equal to net exports,

$S_{dp} = (Y_d - T) - C_d$ = Private domestic saving is national income minus taxes and consumption

$(S_d - I_d)_p$ = Private domestic saving minus private domestic investment,

$(G - T)$ = The government deficit (government dissaving).

This says that the domestic saving-investment balance, $(S_d - I_d)_p - (G - T)$ must equal the outflow of saving, $K = X - M$.

NB: Private domestic investment, I_{dp} , is defined here as: $I_{dp} = Y - C - G - (X - M)$. Investment is a residual: leftovers. Therefore, the saving-investment identity is tautologically true. I_{dp} may contain both productive and profitable (desirable and intended) investment and bad (unintended) investment: $I_{dp} = I^* + \hat{I}$.

Bibliography

Austin, Kenneth E. (2016) "Secular Stagnation and Two Articles of Faith of the Conventional Wisdom." *World Economics*, 17(3), July – September, pp. 55-90.

Austin, Kenneth (2014) "Systemic Equilibrium in a Bretton Woods II-Type International Monetary System: The Special Roles of Reserve Issuers and Reserve Accumulators." *Journal of Post Keynesian Economics* 34(4), pp. 607-634.

Autor, David H., David Dorn, and Hanson, Gordon H. (2016) "The China Shock: Learning from Labor Market Adjustment to Large Changes in Trade." NBER Working Paper No. 21906 January.

Bernanke, Ben S. (2005) "The global saving glut and the US current account deficit." Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia.
www.federalreserve.gov/boarddocs/speeches/2005/200503102/.

Borio, Claudio and Piti Disyatat, (2011) "Global imbalances and the financial crisis: link or no link?" BIS Working Papers, No 346, May. <https://www.bis.org/publ/work346.htm>.

Blanchard, Olivier and Julien Acalin (2016) "What Does Measured FDI Actually Measure?" Peterson Institute for International Economics, PB16-17, October.
<https://piie.com/system/files/documents/pb16-17.pdf>

Blinder, Alan S. (2018) "A Brief Introduction to Trade Economics." *The Wall Street Journal*, July 8.
<https://www.wsj.com/articles/a-brief-introduction-to-trade-economics-1531074006>

Dudley, William (Bill) (2019) "Why the U.S. Trade Deficit Keeps Growing: Trumps fiscal policy is undermining his agenda." Bloomberg, March 15, 2019,
<https://www.bloomberg.com/opinion/articles/2019-03-15/why-the-u-s-trade-deficit-is-growing>

Eggertsson, Gauti B., Neil R. Mehrotra, Sanjay R. Singh, and Lawrence H. Summers, A Contagious Malady? Open Economy Dimensions of Secular Stagnation, (Working Paper) November, 2015.
<https://pdfs.semanticscholar.org/6f1b/0accb67be5eed1a7afed3e6281ab661cc86c.pdf>.

Eggertsson, Gauti B., Neil R. Mehrotra, Sanjay R. Singh, and Lawrence H. Summers (2016) "A Contagious Malady? Open Economy Dimensions of Secular Stagnation." *IMF Economic Review*, 64, pp. 581-634. 2016 (C). <https://link.springer.com/article/10.1057%2Fs41308-016-0019-8>.

Eggertsson, Gauti B., Neil R. Mehrotra, Sanjay R. Singh, and Lawrence H. Summers (2016) "A Contagious Malady? Open Economy Dimensions of Secular Stagnation," NBER Working Paper No. 22299, June 2016 (A).
<https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbXZlscm1laHJvdHJhfGd4OjI5ZWRIOTIzOTRIOTBkMjY>

Eggertsson, Gauti B., Neil R. Mehrotra, and Lawrence H. Summers (2016B) "Secular Stagnation in the Open Economy." *American Economics Review, Papers and Proceedings*, 106(5), pp. 503–507.

Furman, Jason (2018) "Worry About the Trade Deficit—a Bit." *Wall Street Journal*, May 1, 2018.
<https://www.wsj.com/articles/worry-about-the-trade-deficit-a-bit-1525215114>

Ghosh Atish R., Mahvash S Qureshi (2016) "What's in a Name? That Which We Call Capital Controls," IMF Working Paper No. 16/25. <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Whats-In-a-Name-That-Which-We-Call-Capital-Controls-43705>.

- Jacoby, Wade (2017) "Surplus Germany." Transatlantic Academy Paper Series, May.
<http://www.transatlanticacademy.org/publications/surplus-germany>
- Michael Joffe (2017) "Why does capital flow from poor to rich countries? – The real puzzle." *Real-World Economics Review*, issue no. 81, September 30, 2017, pp. 42-62
<http://www.paecon.net/PAEReview/issue81/Joffe81.pdf>
- Krugman, Paul (2018) "Paul Krugman Explains Trade and Tariffs." *New York Times*, March 15, 2018.
<https://www.nytimes.com/2018/03/15/opinion/paul-krugman-aluminum-steel-trade-tariffs.html>
- Lachman, Desmond (2018) "The US and Germany are on a trade collision course," *The Hill*, May 7.
<http://thehill.com/opinion/finance/386542-us-germany-on-a-trade-collision-course>
- Prasad, Eswar S. (2014) *The Dollar Trap: How the U.S. Dollar Tightened Its Grip on Global Finance*, Princeton, New Jersey, Princeton University Press. Kindle Edition.
- Prasad, Eswar, Raghuram Rajan, and Arvind Subramanian (2007) "The Paradox of Capital," *Finance and Development*, Vol. 44, Number 1, March.
<https://www.imf.org/external/pubs/ft/fandd/2007/03/prasad.htm>
- Rey, Hélène (2014) "Capital Account Management." In *What Have We Learned? Macroeconomic Policy after the Crisis*, eds George Akerlof, Olivier Blanchard, David Romer, and Joseph Stiglitz. Cambridge Massachusetts, MIT Press.
- Roach, Stephen (2017) "Donald Trump is suffering from trade deficit disorder." *Financial Times*, March 7.
<https://www.ft.com/content/eea50292-0331-11e7-aa5b-6bb07f5c8e12>
- Sachs, Jeffrey (2017) "Will Economic Illiteracy Trigger a Trade War?" Project Syndicate, April 20, 2017.
<https://www.project-syndicate.org/commentary/trump-economic-illiteracy-trade-war-by-jeffrey-d-sachs-2017-04>
- Shultz, George P. and Martin Feldstein (2017) "Everything you need to know about trade economics, in 70 words." *Washington Post*, May 5.
https://www.washingtonpost.com/opinions/everything-you-need-to-know-about-trade-economics-in-70-words/2017/05/05/a2b76a02-2f80-11e7-9dec-764dc781686f_story.html?utm_term=.9ac66846f184
- Stiglitz, Joseph E. (2018) "The US is at Risk of Losing a Trade War with China," *Global Thought*: Columbia University, July 30.
<https://cgt.columbia.edu/news/stiglitz-us-risk-losing-trade-war-china/>
- U.S. Bureau of Economic Analysis (2018) "New Foreign Direct Investment in the United States: 2017," BEA 18-34, July 11,
<https://www.bea.gov/system/files/2019-05/fdi0718rs.pdf>.
- Truman, Edwin M. (2009) "Lessons from the Global Economic and Financial Crisis," Peterson Institute for International Economics, November 11.
<https://www.piie.com/publications/papers/truman0911.pdf>
- Wolf, Martin (2017) "Dealing with America's trade follies." *Financial Times*, April 18.
<https://www.ft.com/content/fca7e9a4-2366-11e7-a34a-538b4cb30025>

Author contact: ken.unidirectionality@gmail.com

SUGGESTED CITATION:

Austin, Kenneth (2019) "American trade deficits and the unidirectionality error." *real-world economics review*, issue no. 90, 9 December, pp. 13-40, <http://www.paecon.net/PAEReview/issue90/AustinK90.pdf>

You may post and read comments on this paper at <https://rwer.wordpress.com/comments-on-rwer-issue-no-90/>