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Making America great again

Shimshon Bichler and Jonathan Nitzan¹ [Israel and York University, Canada]

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1. “Leaders” and “Policymakers”

Trump has promised to Make America Great Again. As a self-proclaimed expert on everything of import – [highlighted in this video clip](#) (Anonymous, 2017) – he knows exactly how to increase domestic investment and consumption, boost exports, reduce the country’s trade deficit, expand employment and bolster wages. And as America’s leader-and-policymaker-in-chief, he has taken the necessary steps to achieve every one of these goals. He has lowered taxes on corporations and the rich to induce greater investment, relaxed environmental standards and de-socialized medical care to cut red tape and eliminate waste, curtailed civilian government spending and raised military expenditures to make government lean and mean, warned corporations and individuals to remain economically patriotic and undermined the Fed’s “independence” to prevent interest rates from rising and the stock market from tanking. And if that wasn’t enough, he has also launched a so-called trade war to prevent America from being ripped off by other countries, especially China.

Capitalists and pundits follow him like imprinted ducks. His tweets rattle markets, his announcements are dissected by academics and his utterances are analysed to exhaustion by various media. A visiting alien might infer that he actually runs the world.

And the alien wouldn’t be alone. The earthly population too, conditioned by ivory-tower academics and popular opinion makers, tends to think of political figureheads as “leaders” and “policymakers”. Situated at the “commanding heights” of their respective nation states and international organizations, these “leaders” supposedly set the rules, make policies, steer their societies and determine the course of history. Or at least that’s the common belief.

The reality, though, is quite different. The relentless spread of the capitalist mode of power has long robbed formal politics of its past glory. Contrary to the conventional creed, political figureheads nowadays have little leverage and almost no autonomy. They have become predicable subjects, glorified media pawns whose bureaucratic position subjugates them to a systemic logic they rarely understand but duly obey. Even erratic, “self-made-know-it-all” characters like Trump cannot veer too far from the capitalized script – lest they be reprimanded or simply purged in a capitalist backlash.

Note that our point here is not that formal politics cannot change the world, but that it cannot do so without *significantly transforming* the capitalist mode of power in which it is embedded. And such a transformation is something that most present-day politicians cannot even contemplate, let alone achieve.

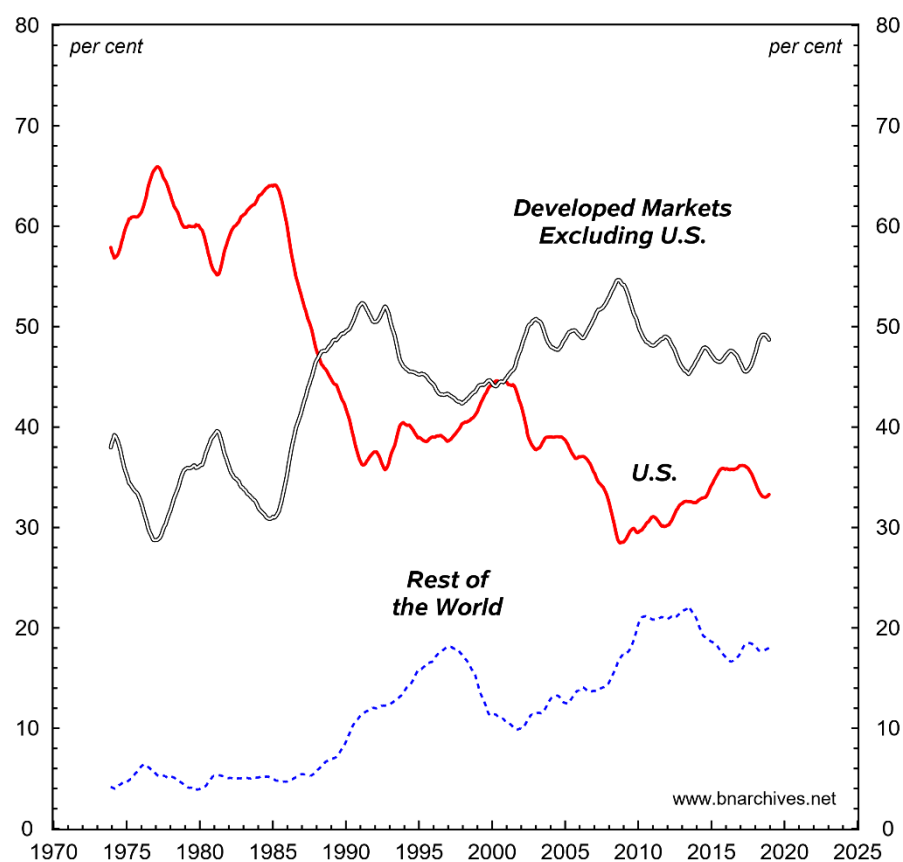
¹ Shimshon Bichler and Jonathan Nitzan teach political economy at colleges and universities in Israel and Canada, respectively. All of their publications are available for free on *The Bichler & Nitzan Archives* (<http://bnarchives.net>). An earlier version of this article was posted as a Research Note (Bichler and Nitzan 2019). Research for this paper was partly supported by the SSHRC.

2. Differential profit

Begin with profit. According to former U.S. President Calvin Coolidge, “the chief business of the American people is business”. His proposition, made in 1925, has since become the ideology and praxis of nearly all nation states on earth. And given that business is ultimately about profit, the “greatness” of a country must be judged by its *differential profit* – in this case, the profit its capitalists earn *relative* to those earned by capitalists in other countries.

Figure 1 offers a historical overview of this differential, showing the global distribution of net (after tax) corporate profit between firms listed in (1) the United States, (2) developed markets excluding the United States and (3) the rest of the world.

Figure 1 Net Profit Shares of Listed Corporations (% of World Total)



NOTE: This chart is updated from Bichler and Nitzan (2012b: Figure 3, p. 59). Net profit is computed as the ratio of market value to the price-earnings ratio. Data for developed markets excluding the U.S. are calculated by subtracting from the profit of firms listed in developed markets the profit of firms listed in the U.S. Data for rest of the world are calculated by subtracting from the profit of all firms the profit of those listed in developed markets. Series display monthly data and are smoothed as 12-month trailing averages. The underlying earnings data are reported on a consolidated basis, including domestic and foreign subsidiaries and the equity share in minority-held firms. The last data points are for December 2018.

SOURCE: Datastream (series code: TOTMKWD(MV) and TOTMKWD(PE) for the market value and price-earnings ratio of all listed firms, respectively; TOTMKUS(MV) and TOTMKUS(PE) for the market value and price-earnings ratio of U.S.-listed firms, respectively; TOTMKDV(MV) and TOTMKDV(PE) for the market value and price-earnings ratio of firms listed in developed countries, respectively).

During the 1970s and early 1980s, U.S. corporate owners still reigned supreme, earning over 60 per cent of all net profit recorded by listed firms around the world. But with the ascent of other developed markets in the late 1980s and the rise of emerging markets since the early 1990s, U.S. differential earnings dropped sharply, falling to 30 to 35 per cent of the total in recent years (as a side note, notice the embarrassing 2016-18 downtick during the Trump presidency).

Judging by this chart, and assuming that a country's "greatness" indeed equals its differential business success, it's clear that America is no longer great – or at least not as great as it once was.

3. Measuring profit: a closer look

But then, profit is a tricky concept with slippery measurements. As noted, the data shown in [Figure 1](#) pertain to the profit of *listed* (publicly traded) companies only. They do not cover the profit of *unlisted* (private) firms. We focus on listed firms here for two reasons. First, there is the issue of size: listed firms tend to represent the largest, "dominant capital" corporations at the centre of the political economy and therefore merit the most attention. Second, there is the question of availability: the profit of listed firms – in this case, those published by Datastream – are available on a regular, standardized basis for most countries, whereas the profit of all firms (listed and unlisted) – which are the purveyance of the national income and product accounts (NIPA) – often are temporally incomplete, incomparable across countries or unavailable altogether.

But do listed firms tell a reliable story?

The answer depends on the story we want to tell. In this paper we take a "populist" view, asking whether Trump can make "America" great again. In other words, our story is intentionally – and anachronistically – *nationalistic*. And given this populist bent, it is useful to examine the extent to which our listed-firm measures of profit reflect the broader flow of so-called "national" profit.²

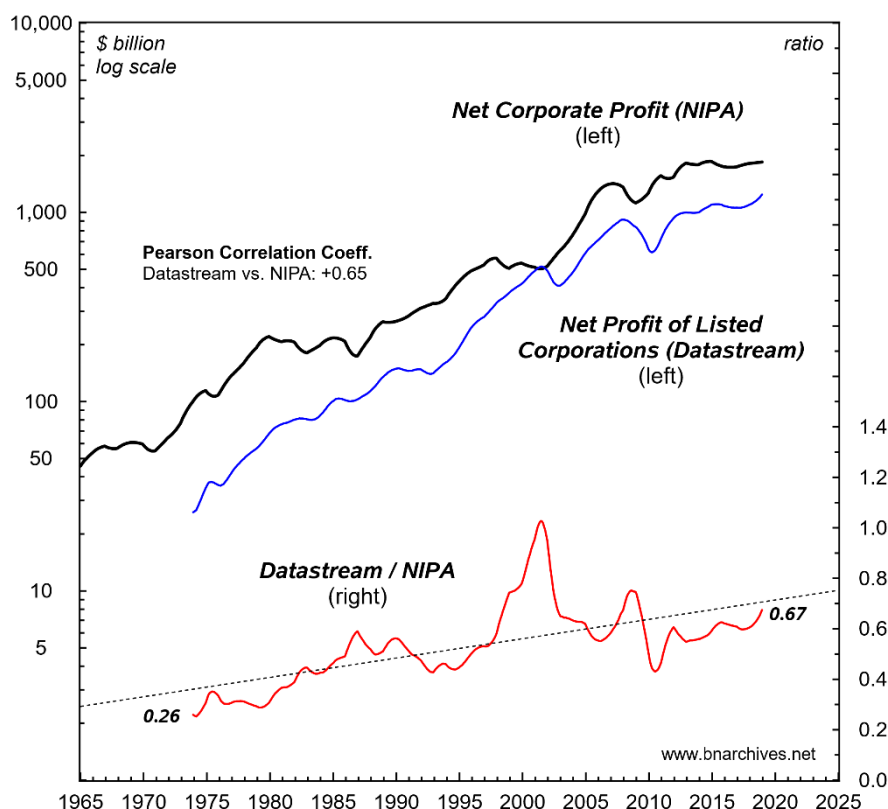
[Figure 2](#) contrasts the evolution of net profit of U.S.-listed corporations as reported by Datastream with the net profit of all U.S. firms, listed and unlisted, as reported by NIPA. The top two series in the chart show these two flows in current dollars (left log scale). The bottom series expresses the decimal ratio between the Datastream and NIPA numbers (right scale).

On the face of it, the comparison suggests that, in the United States, the profit of listed firms does offer a good proxy for the profit of all firms. First, the two series are positively correlated (with a Pearson coefficient of +0.65). And second, over time, the profit of listed firms gets closer and closer to that of all firms (with the Datastream/NIPA ratio rising almost threefold, from 0.26 in 1973 to 0.67 in 2018).³

² The increasing disconnect between the conventional nationalist/statist categories of political economy and the transnational/global reality of accumulation is examined in Nitzan and Bichler (2006) and illustrated in the remainder of the present article.

³ Yardeni and Johnson (2019: Figures 26-27, p. 14) show a similarly positive correlation between NIPA and S&P 500 profit, but unlike our Datastream/NIPA ratio, which trends upward, their S&P 500/NIPA ratio oscillates around a horizontal trend (averaging 0.5). One possible reason for this difference is that the number of firms in the S&P 500 is fixed (at 500), while the number of firms in the Datastream universe is rising. For an earlier comparison between S&P 500 and NIPA profit data, see Petrick (2001).

Figure 2 U.S. Net Profit: Listed Corporations (Datastream) vs All Corporations (NIPA)



NOTE: Net profit of listed corporations (Datastream) is computed as the ratio of market value to the price-earnings ratio. Series display monthly data and are smoothed as a 12-month trailing average. The underlying earnings data are reported on a consolidated basis, including domestic and foreign subsidiaries and the equity share in minority-held firms. Net corporate profit (NIPA) displays monthly data, interpolated linearly from the original annual data and smoothed as a 12-month trailing average. The underlying data include the after-tax profit from domestic and foreign operations of all U.S.-incorporated firms (listed and unlisted). Datastream/NIPA is the decimal ratio of the two profit series. The dashed trendline through the series is a linear temporal regression. The last data points are for December 2018.

SOURCE: Datastream (series code: TOTMKUS(MV) and TOTMKUS(PE) for the market value and price-earnings ratio of U.S.-listed firms, respectively). Bureau of Economic Analysis through Global Insight (series code: ZA for after-tax corporate profit).

4. A simple decomposition

Note that the Datastream universe of companies is not a simple subset of the NIPA universe: whereas NIPA reports the profit of U.S.-*incorporated* firms only (listed and unlisted), Datastream includes the profit of U.S.-*listed* firms only (domestic as well as foreign-incorporated). In other words, Datastream and NIPA firms are not nested, but *partly overlapping* sets.

Equations 1 and 2 decompose Datastream and NIPA profit based on the types of firms covered by each (domestic firms are incorporated locally, while foreign firms are those incorporated in another country):

$$1. \text{ Datastream} = \text{Listed.domestic} + \text{Listed.foreign}$$

$$2. \text{ NIPA} = \text{Listed.domestic} + \text{Unlisted.domestic}$$

Based on these definitions, the Datastream/NIPA profit ratio is given by:

$$3. \frac{\text{Datastream}}{\text{NIPA}} = 1 - \frac{\text{Unlisted.domestic}}{\text{NIPA}} + \frac{\text{Listed.foreign}}{\text{NIPA}}$$

Applied to the U.S. case, Equation 3 suggests that the historical uptrend of the Datastream/NIPA profit ratio shown in [Figure 2](#) is the result of either (1) a long-term drop in the NIPA share of profit earned by unlisted domestic firms and/or (2) a long-term rise in the earnings of foreign firms listed in the United States relative to NIPA profit. The next two sections examine these possibilities in turn and assess their implications for the global “decline of the United States” suggested in [Figure 1](#).

5. Going private, going public

During the 1980s and 1990s, many analysts felt that the end of listed firms was nigh. Michael Jensen (1989) announced the “eclipse of the public corporation”, arguing that the endemic principal-agent problem of listed firms had become a fetter on capitalist efficiency. The public corporation epitomizing this form of organization, he posited, had “outlived its usefulness”. And on the face of it, his prediction seems prescient: the number of U.S.-incorporated listed firms peaked in 1996 and then started to drop perceptibly. By 2012, the country had only 4,102 listed firms – half of the 8,025 it boasted in 1996, and even less than the mere 4,775 it had in 1975 (Doidge, Karolyi, and Stulz 2017: Table 1, p. 467).

But on closer inspection, this decline hasn’t really marked the eclipse of the public corporation. To start with, the key issue here is not the number of listed firms, but their overall importance in the accumulation process. And on that count, the U.S. public corporation remains central. According to Doidge, Karolyi and Stulz (2017), most “delisted” public firms disappear due to mergers and acquisitions, and with the vast majority of their acquirers being *public rather than private*, the bulk of their profits and assets do not end up in “private” hands, but rather re-list under a new public guise. Moreover, firms that do go private – either for “cause” (because they no longer qualify) or voluntarily – tend to be smaller than those that are taken over or merged, so the aggregate effect of their going private is relatively small.

The net result of these considerations is that, although the *number* of public firms in the U.S. has nearly halved since the late 1990s, their *relative size* has declined only marginally if at all. According to our computations, the net profit of the top 0.01 per cent of all U.S.-incorporated firms (which are all listed) rose from 29 per cent of NIPA profit in the 1950s to 69 per cent in 1980s, and then oscillated sideways around an average of 54 per cent for the next two decades (Bichler and Nitzan 2012a).⁴ In other words, they are still very significant. Moreover,

⁴ The number of top 0.01 per cent firms increased from 271 in 1950 to 604 in 2010.

if we were to include in this computation *all* listed firms rather than the very top ones, their proportion of NIPA profit would be much higher. All in all, then, U.S. public firms are fewer in number, but having grown much bigger in size they remain very much dominant in the aggregate.

The situation in the rest of the world is far clearer. Following the onset of neoliberalism in the 1980s and the emerging-markets boom of the 1990s, existing stock markets outside the United States started to flourish, new ones were established and non-U.S. firms, including large ones, listed themselves in droves. As a result of these processes, from 1987 to 2012 the number of listed firms outside the United States more than tripled, with most of the listings occurring in the developing world (Doidge, Karolyi, and Stulz 2017: Figure 1, p. 466). Whereas in the United States public firms remain central but perhaps no longer growing in importance, in the rest of the world their journey has only just begun.⁵

The implication of these two movements – inside and outside the United States – can be assessed, however tentatively, in reference to Equation 3. In the United States, the NIPA profit share of unlisted corporations has probably followed a flat U-shape trajectory – falling till the late 1990s and rising thereafter. Outside the United States, the NIPA profit share of unlisted corporations has probably declined, due to the listing of more and more firms as well as an increase in the relative size of listed firms.

Now, if these guesstimates are correct, they mean that our Datastream profit numbers reflect the trajectory of NIPA profit in the United States but overestimate it elsewhere. Put differently, they mean that, *ceteris paribus*, the decline in the global profit share of *listed* U.S. firms is greater than the decline in the global profit share of *all* U.S. firms, listed and unlisted. In short, all else remaining the same, American profit “as a whole” hasn’t declined by as much as [Figure 1](#) would have us believe.

6. Trojan horses

But not everything has remained the same. It turns out that many U.S.-listed corporations are not “American” but “foreign” (assuming this distinction is meaningful to start with), and that fact has important implications for our measurements.

Note that the firms represented in [Figure 1](#) are grouped based on where they are listed rather than where they are incorporated. In most countries, listed firms are almost always domestically incorporated, so this distinction is immaterial. But it certainly matters in global financial centres such as the United States, whose stock markets are home to many “Trojan

⁵ These diverging tendencies seem to contradict the popular varieties-of-capitalism wisdom (Hall and Soskice 2001). According to the “varieties” approach, we can distinguish between two modes of corporate governance: the liberal market economies model (LME) where firms tend to rely on the stock market, and the coordinated market economies model (CME) where corporate funds are often raised through credit and fixed-income instruments. The data here, though, seem to suggest *convergence*. All capitalist countries move toward a growing reliance on market capitalization, only that their starting point and pace of change differ. The developed Anglo-Saxon countries, like the United States and the United Kingdom, were leading the pack and were therefore the first to reach “maturity” with a few thousand firms capitalizing most of the profit. The developed non Anglo-Saxon countries, such as Germany and Japan, started later and are still catching up. And the so-called emerging markets are the laggards who just began to capitalize and still have plenty of grounds to cover before reaching their asymptote. For more on this staggered capitalization process, see Nitzan (1996).

horses”: locally listed firms that are incorporated *elsewhere*. And the crucial point for our purpose here is that the *proportion* of such firms has risen significantly in recent decades.

Based on the U.S. Compustat “funda” file, in 1950 foreign-incorporated firms accounted for only 4 per cent of the country’s top 500 listed corporations. But that number grew rapidly: it rose to 14 per cent of the total in 1980, 26 per cent in 1990, 41 per cent in 2000 and 48 per cent in 2010 (Bichler and Nitzan 2012a, p. 52). Other financial centres such as the United Kingdom and Hong Kong may have seen a similar increase, but because most of their Trojan horses are not U.S.-incorporated, this increase does not affect our U.S./ex-U.S. division here. As before, the net effect of this process can be assessed in reference to Equation 3. In the United States, exponential growth in the number of listed foreign firms most probably caused their aggregate profit to rise much faster than the country’s NIPA profit. Outside of the United States, this process has had no similar effect. If we are correct in assuming that most foreign firms that list in countries other than the United States are also incorporated in countries other than the United States, then the profits of these foreign firms are counted as part of the NIPA profit of the rest of the world. While foreign to the specific country where they are listed – for example, a Dutch firm listed in London, or an Australian firm listed in Hong Kong – they are not foreign to the ex-U.S. universe as a whole.

Weighing these two processes together, we can say that, as a global phenomenon, the rise of foreign-listed firms means that our estimates in [Figure 1](#) *understate* the global decline of “purely” U.S. firms. If foreign-listed firms were excluded from our Datastream numbers, the drop in the U.S. share of global profit would have been *steeper* than what the chart currently shows.

All in all, then, we have two opposite movements: (1) an *overestimation* of the U.S. decline due to the disproportionate shift outside the United States from private (unlisted) to public (listed) firms; and (2) an *underestimation* of the U.S. decline due to the rise, in the U.S. and other financial centres, of foreign-listed firms.

Without further research, it is hard to weigh the exact balance of these two trajectories. But given that the effects of these two trajectories on the profit share of the United States are opposite in direction and therefore cancel each other out to some extent, it seems reasonable to conclude, however tentatively, that their balance might alter the pace of the U.S. decline but not its general direction. In other words, judging by the available profit data, the U.S. indeed seems on a long-term descent.

7. The exchange rate

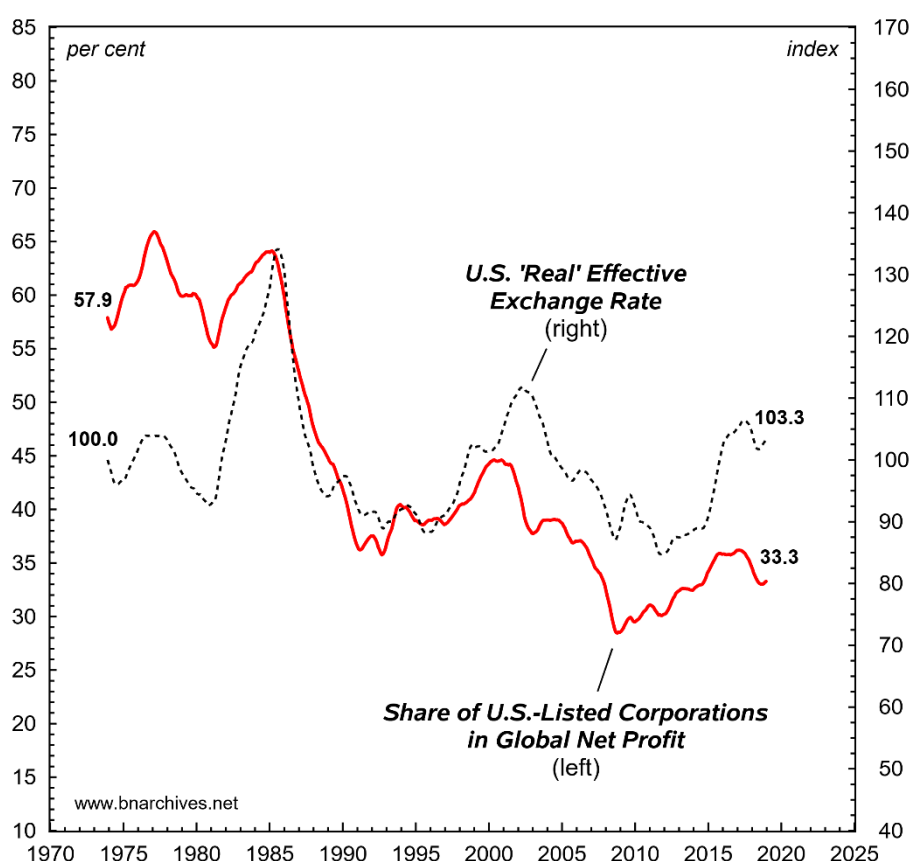
But couldn’t this fall from business grace, even if true on paper, be mostly a consequence of changing exchange rates (Francis, Bichler, and Nitzan 2009-2010)? Since international profits are denominated in multiple currencies, their relative trajectories could be affected by their absolute levels as well as the rates at which they convert, and it is impossible to say, at least a priori, which of the two factors is more important and to what extent.

In general, when the U.S.’s “real” effective exchange rate depreciates – in other words, when the dollar’s value falls relative to a basket of traded currencies adjusted for their respective consumer prices – non-U.S. firms charge relatively higher prices than U.S. firms do and/or convert their local-currency earnings to more U.S. dollars, thus causing the U.S. share of

global profit to fall – and vice versa when the “real” effective exchange rate appreciates (the “real” effective exchange rate of a country depreciates/appreciates with a fall/rise in its nominal exchange rate, as well as when domestic prices decline/increase relative to foreign ones).

[Figure 3](#) shows this impact by contrasting the global profit share of U.S.-listed firms on the left-hand scale with their country’s “real” effective exchange rate on the right, and according to the chart the two series indeed correlate positively. But the correlation is entirely *cyclical*. The long-term trends are not correlated at all: during the past half-century, the exchange rate moved sideways (starting at 100 in 1973 and ending at 103 in 2018), while the global profit share dropped perceptibly (beginning at 57.9 per cent in 1973 and ending at 33.3 per cent in 2018). In other words, America’s fall from business grace can hardly be blamed on its currency.

Figure 3 *Net Profit Shares of U.S.-listed Corporations (% of World Total) and the U.S. “Real” Effective Exchange Rate*



NOTE: Net profit is computed as the ratio of market value to the price-earnings ratio. Series display monthly data and are smoothed as 12-month trailing averages. The raw earnings data are reported on a consolidated basis, including domestic and foreign subsidiaries and the equity share in minority-held firms. The last data points are for December 2018.

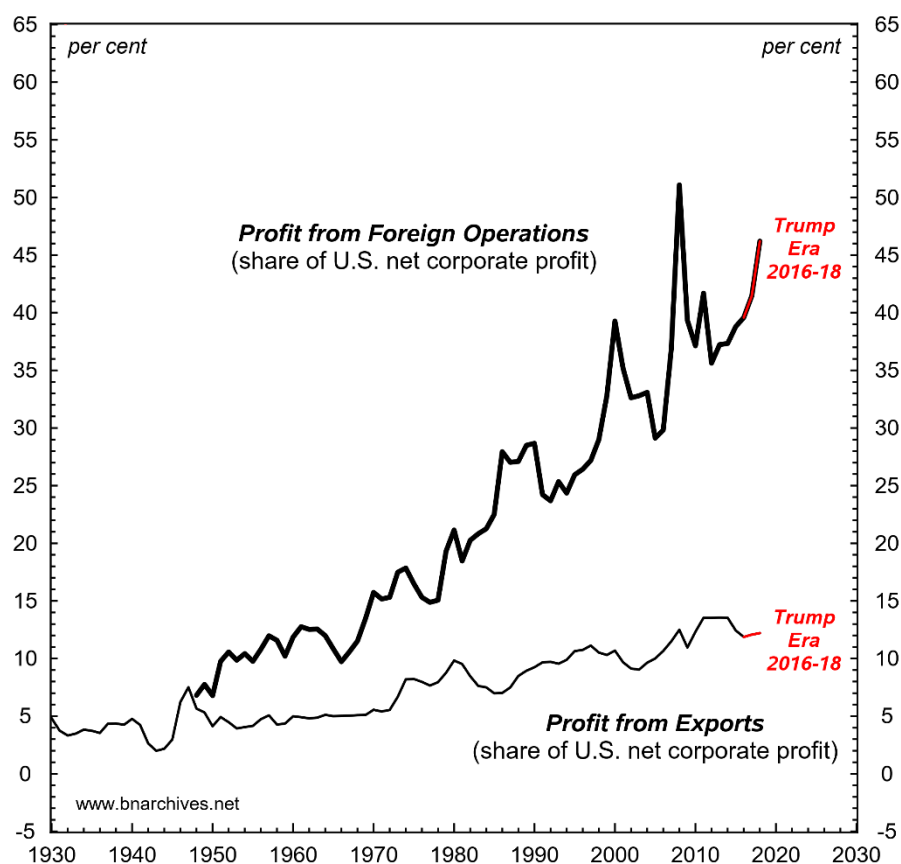
SOURCE: Datastream (series code: TOTMKWD(MV) and TOTMKWD(PE) for the market value and price-earnings ratio of all listed firms, respectively; TOTMKUS(MV) and TOTMKUS(PE) for the market value and price-earnings ratio of U.S.-listed firms, respectively; IMF’s *International Financial Statistics* via DataInsight (series code: LRE_C_C111 for the CPI-based “real” effective exchange rate of the U.S. dollar).

8. Breaking the national envelope

On the whole, then, the global decline of so-called American firms is not an accounting gimmick or an exchange-rate artefact. It is a real process with real causes and real consequences. And paradoxically, this decline is intimately related to a seemingly opposite process: the growing dependency of these very “American” firms on foreign operations.

This latter dependency is shown in [Figure 4](#). The top series measures the share of U.S. corporate profit coming from foreign subsidiaries, while the bottom series estimates the share earned from exports.

Figure 4 *U.S. Corporate Dependency on Foreign Profit: Foreign Operations vs Exports*



NOTE: This chart is revised and updated from Nitzan and Bichler (2009: Figure 15.6, p. 357). Profit from foreign operations denotes receipts from the rest of the world as a per cent of corporate profit after tax. Profit from exports is estimated by the export share of GDP. The last data points are for 2018.

SOURCE: U.S. Bureau of Economic Analysis through Global Insight (series codes: ZBECONRWRCT for after-tax corporate profit receipts from the rest of the world; ZA for after-tax corporate profit; X for exports; GDP for GDP).

In the mid-1940s, both measures hovered around 7 per cent. The United States was still a relatively closed economy with an expanding population, rising “real” wages and rapidly growing GDP per capita. In this context, U.S. firms looked mostly inward, earning over 85 per cent of their profit from domestic operations.

But the relentless drive of large firms to augment their capitalized power over the underlying population mandated “strategic sabotage” in the form of rising unemployment and slowing growth (as examined in Nitzan and Bichler, 2014; see also the animation by Thouvenot, 2019), while their quest for differential accumulation relative to lesser firms set in motion a merger and acquisition uptrend that eventually made them “too big” for the decelerating U.S. market (Nitzan, 2001; Nitzan and Bichler, 2009, Part V).

This differential power process, we argue, is key to understanding the exponential rise in the share of corporate profit from foreign operations shown by the top series in [Figure 4](#). Having exhausted the most lucrative takeover targets in their home country, and with their home country stagnating and therefore not generating new takeover targets at a fast enough rate, large U.S. firms have had no choice but to break the national envelope and go global. They started taking over foreign firms at an ever increasing rate (most FDI occurs via mergers and acquisitions rather than greenfield investment), and as the process accelerated the share of foreign profit rose dramatically. Foreign operations currently account for roughly half of all U.S. corporate profit, and if the uptrend persists the so-called American firm will soon become a misnomer.

9. Making America great again

Can Trump reverse or even dent this long-term evisceration of “America”? The short answer is no. So far, his policies have only hastened this evisceration, accelerating the upward redistribution of income and amplifying the de-Americanization of U.S. corporations. During his three years in office, the share of foreign profit, instead of falling, has risen dramatically (final red segment in the top series of [Figure 4](#)). Based on his record, it is no wonder that the U.S. “business community”, and particularly its leading firms, are firmly behind him.

The only hair in the soup is his so-called trade war against China (Bichler and Nitzan 2018). On the face of it, this “war” looks like a flash-in-the-pan media stunt. China is unlikely to succumb in any meaningful way – and even if it does, exports are a sideshow for U.S. corporations (bottom series in [Figure 4](#)), so the overall impact on the global profit share of U.S. firms is likely to be marginal.

But international trade is not an isolated process. The “free” (read corporate-determined) flow of commodities is the bedrock of “free” (read corporate-determined) foreign investment, and if Trump’s trade war develops into a full-scale investment war, all bets will be off. At that point, and assuming he is still there, the maker of a great-again-America will likely be pressured to reverse course or lose the presidency.

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American trade deficits and the unidirectionality error

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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.

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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 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 K s 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. $\sum_{i=1}^w [(S_d - I_d)_{pi} - (G - T)]_i = 0 \Leftrightarrow S_{wp} - (G - T)_w = I_{wp}$.

Equation 5 (by simple substitution) states that if all the world’s trade balances and all the world’s international capital flows (the K s 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.

$\therefore$ 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.

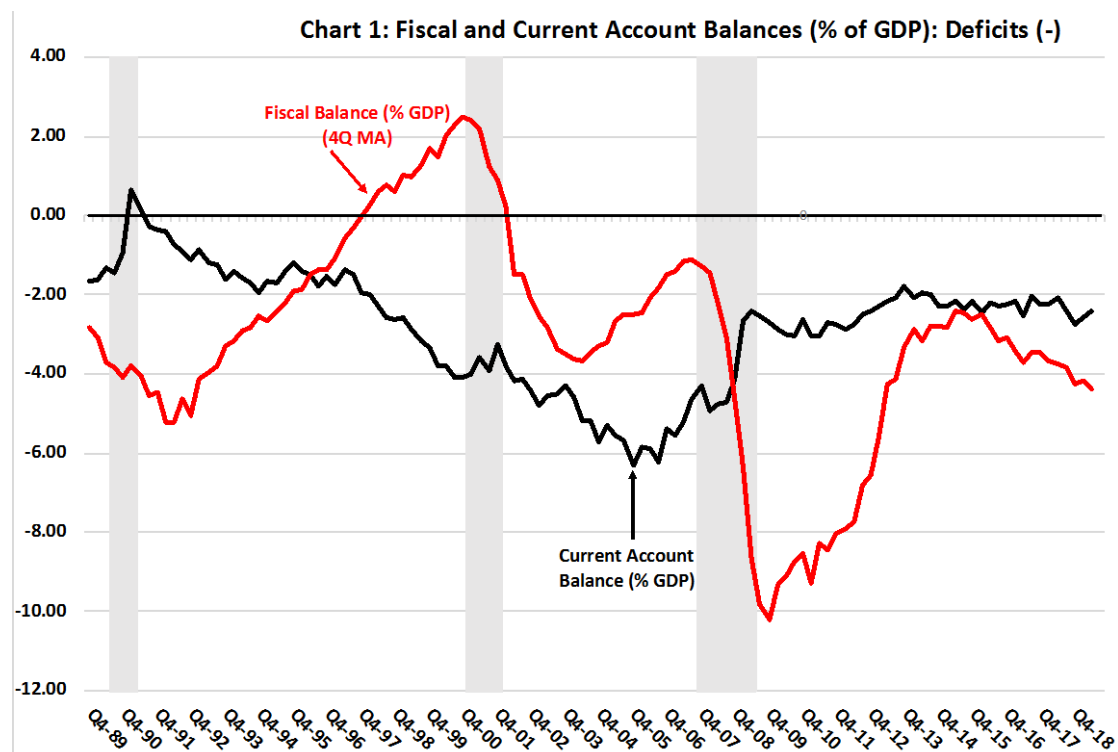


Chart 2: Similarly, U.S. interest rates are generally on a downtrend as the current account deficit marches upward. Starting in 2004, the 6-month T-bill rate spikes as the Fed tries to tighten. But the ten-year bond rate does not follow. This is Greenspan's conundrum, often attributed to foreign purchases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

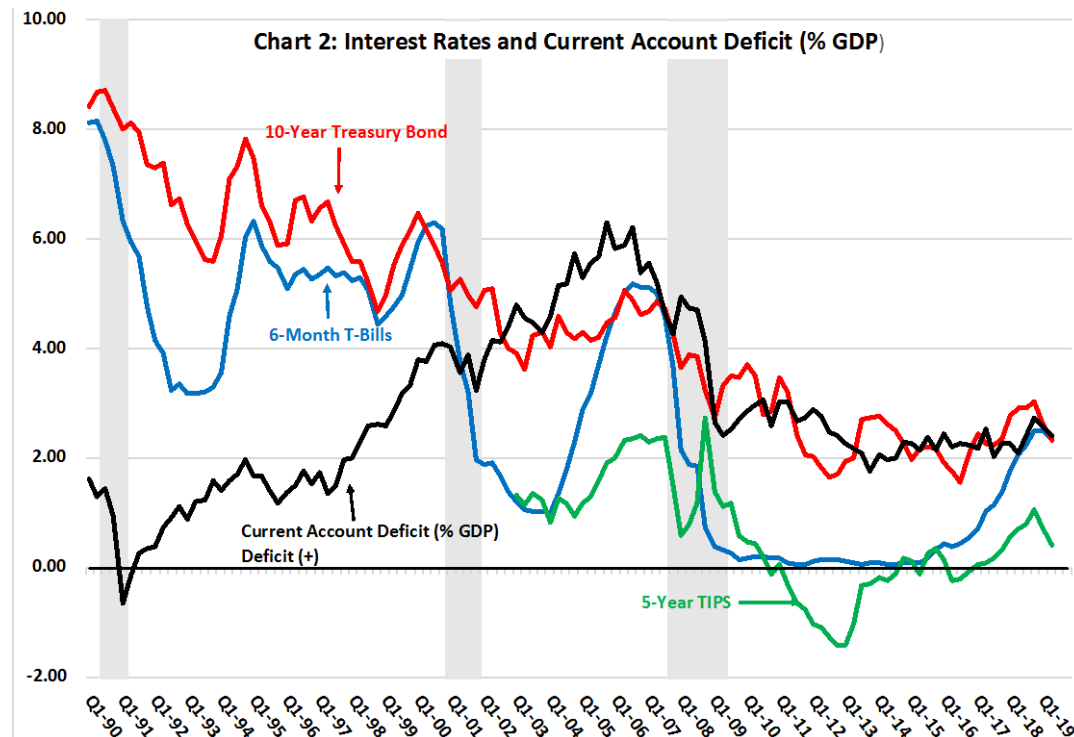


Chart 3: Shows a similar lack of the expected relationship between low and downward-trending Personal-Consumption Expenditure (PCE) inflation (the Fed's measure of its interest-rate target) and the current account deficit.

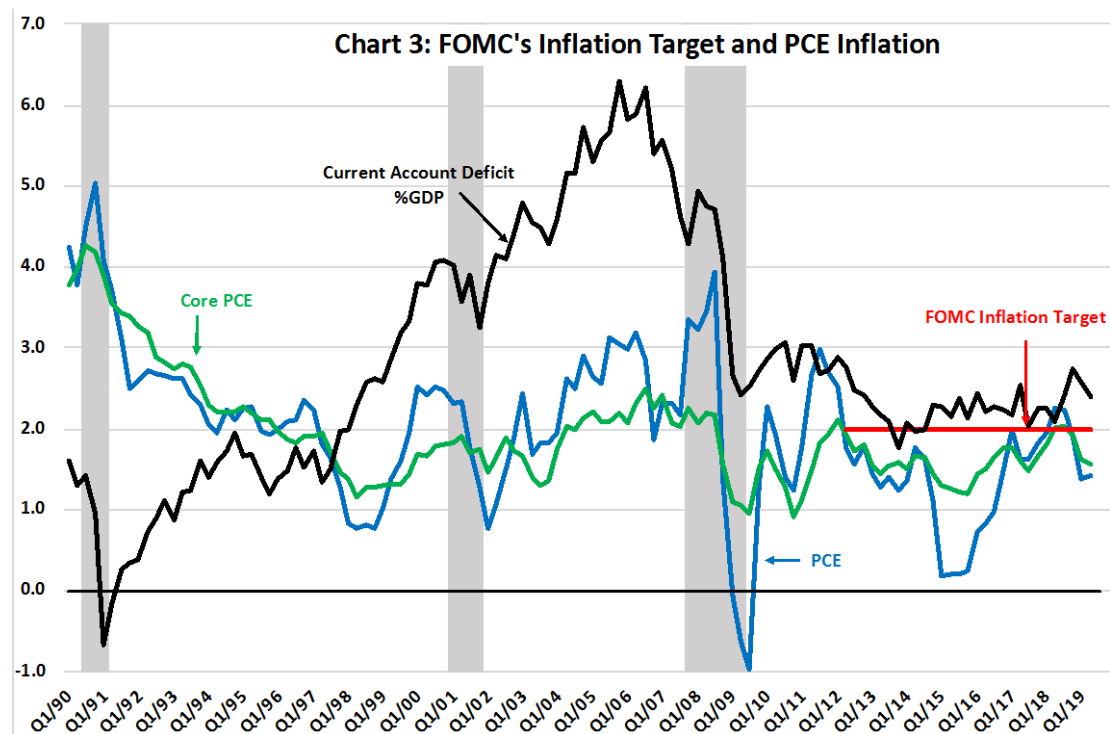


Chart 4: Shows the current account deficit climbing although U.S. wage growth is persistently modest. Even after the 2000-2001 recession causes unemployment to spike, the current account continues to deteriorate.

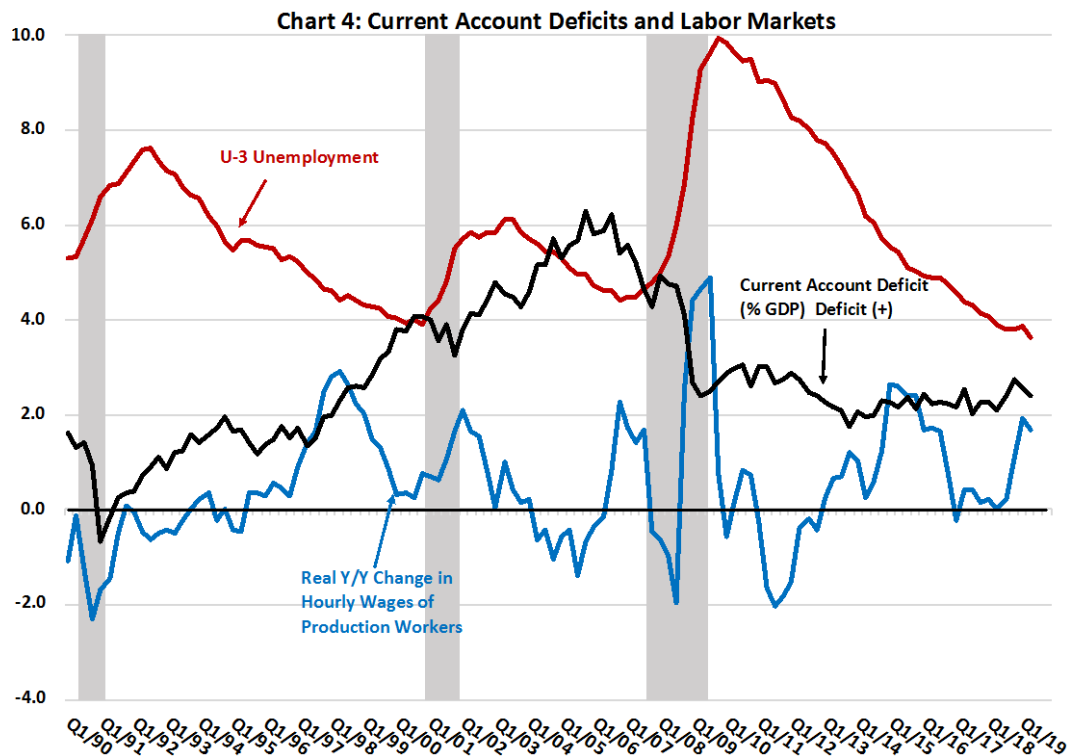


Chart 5: Again, we note a lack of the posited relationship between the current account deficit and any indications of an economy reaching the limits of its productive capacity, as measured by unemployment and capacity utilization.

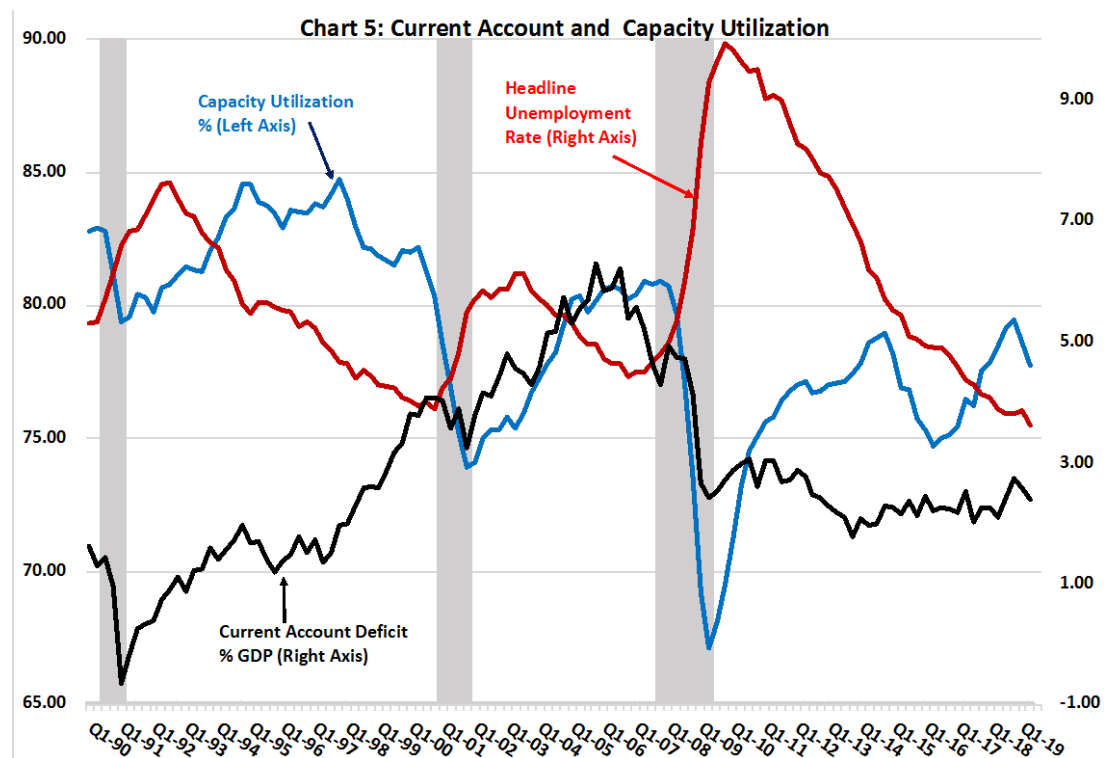
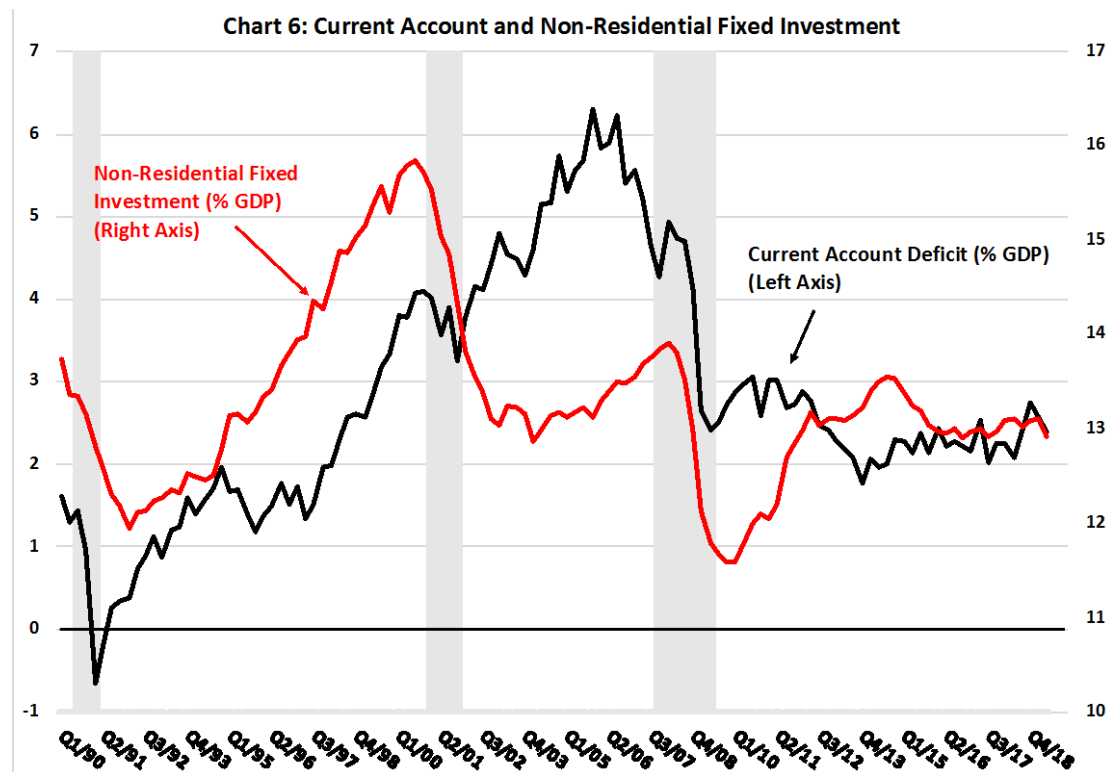


Chart 6: The current account and the growth of non-residential fixed investment both follow a similar trajectory for much of the 1990s, but when the 2000-2001 recession hits, they take sharply different paths. This makes it hard to argue that the capital account inflows that financed the U.S. current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

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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:

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

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

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The “Nobel Prize” for Economics 2019... illustrates the nature and inadequacy of conventional economics

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Abstract

The prize has gone to three people studying ways to get the poor to derive more benefit from existing “development” practices, such as improving their school attendance. Such a focus takes for granted and sees no reason to question the existing market and growth driven economy and its derivative, conventional development theory. Thus this kind of research is no threat to the massively unjust global systems and structures that keep billions in poverty. The awarding of this prize provides a telling illustration of the mentality that drives orthodox economics. The most important contribution to eliminating global poverty that the economic establishment could identify need not involve any concern with how to alter the processes that deprive Third World people of a fair share of the world’s wealth. The most important concern is finding how to get a few more of them to do things like get credentials and jobs within the existing system.

The 720,000 pound Prize has been awarded for studies carried out in “developing” countries over several decades, applying randomised trials to determine the effects of interventions like school meals, small monetary incentives for school attendance and work motivation (Nobel Media, 2019.) Especially noteworthy are devices for reducing “...purchasing of temptation goods”, (...conceivably also of use in rich countries.) These are identified as “nudges”, only likely to make small differences in the right direction but claimed to be capable of adding to significant effects in large populations. Much if not all of this work would seem to be unambiguously worthwhile, such as exploring how to improve vaccination rates. But there are disturbing criticisms which go far beyond these studies to indict the tunnel vision and ideological nature of conventional economic theory and practice.

The focus in these studies is on getting *individuals* to perform better within the system. The faulty individual is the problem; as Mader et al. (2019) say, “The idea is to ‘help’ poor people overcome supposedly irrational ‘risk aversion’ in order to be more entrepreneurial, or more ‘time-consistent’ and save for a rainy day.” Even leaving the issue of fault aside, this focus on individualism is the first problem; like “micro-finance” which helps the budding entrepreneur to invest and get ahead, it is about helping the most able and energetic to succeed, presumably on the assumption that if enough do so a good society will eventually result. This is to ignore the possibility that the problems are due to faulty social structures rather than faulty individuals, and the possibility that the best solutions would involve collective effort to establish radically alternative structures and systems.

Thus the second major problem is that the approach takes conventional development theory and practice for granted. It reveals a complete absence of interest in the possibility that these are technically and morally unacceptable and a legitimization of structures and practices which have condemned billions of people to suffer extreme poverty for decades, and which continue to do so. Mader et al. reject the “behaviourist” approach to the study of poverty and argue that the concern should be “...the political, social and cultural questions about what causes poverty and inequality.” Kvangraven (2019) recognizes that poverty alleviation is not

development and that while "...small interventions might generate positive results at the micro-level, they do little to challenge the systems that produce the problems."

In other words, this kind of focus has powerful ideological significance; it distracts attention from the way economic orthodoxy takes it for granted that there can be no conceivable alternative to the current approach to "development". It is necessary here to briefly outline a critique of the dominant perspective.

Few if any areas of economics are as open to criticism as are conventional "development" theory and practice. The source of the problem lies in the taken for granted conception of what constitutes "development". There could be many perspectives on what the goals of development might be, and what the means to them might be. However almost all contemporary discussion centres only on one conception. Its essential assumptions and principles are;

- The goal, or at least the one that enables the achievement of all others, is increasing the amount of producing and consuming going on, i.e., growing the GDP.
- Poor countries must therefore plunge into the global market economy. They must find something to try to sell, if only cheap labour, competing against all other poor countries. Only if something can be sold can the money be earned to import what is needed.
- It is not possible to develop without capital. People who have capital must be attracted to invest it in setting up farms, factories, fishing fleets and mines, to produce exports.
- These ventures will produce whatever the investors think will maximize their profits within the global market economy. (Foreign investment *never* goes into producing to meet urgent local needs.)
- Foreign investors will not come in unless there are ports, power stations, roads etc. So the government must go into debt to build these.
- Before long the loan repayments will probably have become impossible, but the friendly people at the IMF and World Bank will come to the rescue with more loans...and Structural Adjustment Packages which will require the country to gear its development more closely to the interests of the foreign investors; i.e., de-regulate, devalue, sell off industries cheaply to foreign corporations, enable sale of land from peasants to corporations, cut subsidies and welfare so loan repayments can be made.
- The result is that the country will develop a lot of factories and plantations, but none of them are likely to be producing anything the poor majority want or can afford. The country's resources will mostly be flowing into the production of goods to sell in rich world supermarkets.
- If the country does not have any logs left to export and can't attract foreign corporations in, then unfortunately it can't have any "development".
- It is imperative that market forces be allowed to determine the country's fate. Business turnover and GCP will be maximised if there is minimal regulation, subsidies, protection or other interference with market forces. So, free corporations to invest in what makes most money for them. Ignore the fact that markets will always

deliver scarce resources to the rich, because the rich can always pay more for them, and will always develop industries that produce what the rich want to buy.

- All this is cast as not just legitimate, it is inevitable ... it's just the way the market system works. People with capital to invest are not going to come in and produce beans for hungry peasants making negligible profits when they can invest in soy exports and make good profits. You can't expect high royalties on your copper exports when other countries are willing to accept lower royalties because they are desperate to pay off their debt.
- The impoverished masses are told to accept these processes because they will benefit via "trickle down". They are not told that in fact very little ever trickles down or that it is not the case that the mechanism is lifting large numbers out of poverty (except in China, which has taken the exporting capacities other countries once had and thus raised unemployment rates there; see Hickel, 2017.) Nor are they told that global resource limits rule out any possibility of trickle down ever raising billions of impoverished people to tolerable living standards, let alone to rich world levels.

After 70 years of this approach to development about four billion people are very poor, around 800 million are hungry and more lack clean water, thousands of children die avoidably every day... and half the world's wealth has now been accumulated in the hands of less than 20 people. Leahy's work (2009, 2019) is unusual in pointing out the futility of mainstream African development efforts to get impoverished farmers to succeed in the intensely competitive global "free market" food export arena. (Let's not draw attention to the fact that US agribusiness is subsidized \$20 billion every year.)

This conventional approach is a delight to the world's rich; development cannot take place unless the owners of capital get opportunities to invest in profitable ventures, and Third World productive capacity goes into stocking rich world supermarkets and not into producing what the people urgently need. Even worse, it prevents them from using the resources around them, the soils, forests, rainfall and their own labour and traditional skills, to produce for themselves basic goods they need. "Development" theory rules this out; there is no alternative, indeed no alternative is conceivable. This is just as well; imagine how disruptive it would be if Third World people worked out how to develop satisfactorily without having anything to do with investors, banks, debt, export industries, or the IMF. But the risk is slight as all the experts and advisers have studied conventional economics.

The economics text books do not point out that conventional economics is only one of many possible kinds of economics, a kind narrowly focused not on increasing religious observance for instance, but simply on maximizing production for sale in markets. By contrast the development goal of Bhutan is to maximize the Gross National Happiness.

Thus conventional development economics is in fact only about capitalist development; it is an approach which allows development to be driven by the investment of capital to maximize profits. It produces a great deal of development, but it is almost entirely only *development in the interests of the rich*. It can, in other words, be seen as a thinly disguised form of plunder. Economics courses tend not to draw attention to this interpretation of how development works.

What then might be the goals of a more acceptable conception of "development"? One suggestion might be, enabling all to enjoy a high quality of life in ecologically sustainable

ways. Consider the factors most likely to enable this. Would not these include, having good health, good food, sufficient shelter and clothing, having a good family and friends in a supportive community, satisfying and appreciated work, freedom from violence, insecurity, stress, anxiety and depression, knowing others care about you, knowing you will be secure in old age, a relaxed pace, a pleasant and sustainable environment, a sense of having collective control over one's society, living in a society one can be proud of, one that all the world's people could share? Except perhaps for the first of these factors, *monetary wealth is irrelevant let alone a prerequisite*. Some of the world's poorest people, including those living in rich world Eco-villages, enjoy them all.

It is very easy to design settlements and economies which would guarantee these conditions. Here is a brief indication of The Simpler Way vision.

- Assist people to build highly self-sufficient and cooperative local / village / regional / economies which devote local resources to meeting as many of their needs as possible.
- In framing goals and policies totally ignore monetary values, volumes of investment, business turnover or GDP.
- Aim at providing simple but sufficient, food, housing, clothing, etc., via community development committees organizing available land, labour and skills to meet as many urgent needs as possible. Focus first on intensive development of alternative / sustainable agriculture. This might involve many existing small private farms and firms but would prioritise building community collective capacities, through non-profit co-operatives, commons, community supported agriculture, working bees, edible landscapes, tree crops, free food sources etc. Only export surpluses.
- Facilitate craft, garden, artisan, hand tool and traditional means of producing as these are typically quite adequate, but use modern technologies where sensible.
- Eliminate unemployment. Organize for all to have a productive role; there are many things that need doing. This is best done by setting up village co-operatives to produce necessities, e.g., fish or poultry.
- If necessary create village currencies to enable trade between people who have no national currency, simply by recording credits and debts created by mutually beneficial exchange.
- Establish village self-government, via participatory town assemblies and committees. Avoid top-down authoritarian or expert led procedures. The empowerment and morale of all as equal citizens is crucial for effective village functioning.
- Avoid or at least minimise involvement of official government agencies, except in so far as they are willing to support village-led development.
- These activities can flourish without any need to first eliminate the normal market driven economy. They involve the establishment of a new Needs-Driven-Economy alongside the old Profit-Driven-Economy. In time it is likely that the role for the latter will become less relevant.
- The most important committees organize cultural affairs, education, monitoring (especially of community morale and perceived quality of life), festivals, celebrations and the provision of local leisure and holiday activities, all at negligible dollar or resource costs.

- Recognise that the quality of life must be redefined in terms of enjoying, community, arts and crafts, a relaxed pace, leisure time, freedom from stress, depression, unemployment and insecurity, contributing to an admirable society... as distinct from accumulating individual or national monetary wealth. One's wealth-of-life-experience would derive from how well one's village was working.
- These local economies will need some but very few basic inputs from the wider regional and national economies, such as chicken wire, plastic irrigation pipe, cement and hand tools. Providing these would require governments to allocate very few national resources. Governments would need to widely distribute the few mostly light industries producing these items so that each village could make a contribution the national supply of some of these, enabling it to pay for its imports of those it required.
- The miniscule resources needed would leave national governments quite capable of funding the socially crucial systems villages need but can't provide for themselves, such as medical services, especially when this alternative approach would enable them to redirect the wealth flows presently going out to foreign investors and shoppers.

Most of these elements are characteristic of the 3,000 Eco-villages that now exist. The *Remaking Settlements* study (Trainer, 2019) explains how an outer Sydney suburb redesigned along these lines might cut per capita dollar and resource costs by 90% while providing most of its food and other needs. Lockyer (2019) found that the Dancing Rabbit Eco-village in Missouri had per capita resource use rates around 5 to 10% of US national averages. Sustainability cannot be achieved unless reductions of this order are achieved, and they can only be achieved where settlement geographies and economies are *small in scale*, *integrated* and highly *collectivist / cooperative* (although there could also be many privately owned small farms, firms and co-ops.). For example these conditions enable kitchen scraps to go straight to the poultry and their manures to go straight to gardens, at no cost in energy, transport, bureaucracy etc. The study of egg supply by Trainer, Malik and Lenzen (2019) found that such a supply path would have dollar and energy costs around 0.5% - 2% of the typical supermarket path.

The Senegalese government is working to establish 1,400 Eco-villages (St Onge, 2015). Leahy (2009; 2019) documents the remarkable success of the kind of alternative village self sufficiency advocated above, concerned to enable African villagers to use the resources around them to cooperatively meet as many of their basic needs as possible.

Evidently no relevance or value is seen in any of this by the Nobel Prize winners, or the judges, or almost anybody else within the economics profession/industry. To them this would be obvious because this alternative fails to recognise that economics in general and "development" in particular can only be about earning more money, investing capital, increasing production for sale, and raising the GDP. Hence the remarkable power that the study of economics has on the mind. These people profess to want to remedy poverty but they can see no reason to study the glaringly obvious, glaringly unjust massive structures that determine and legitimize the flow of Third World wealth into the pockets of the rich while keeping billions impoverished. Most disturbing is not that three high prestige researchers think the best strategy is not to question that system while working out how to help/prod a few more people to get more of the scarce credentials and jobs it offers, it is the mentality of the economics establishment which has led it to regard this work as the most valuable contribution to poverty relief they could find.

For a more detailed critique of conventional development, and of the alternative to it, see TSW: [Third World Development](#).

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Greenwish: the wishful thinking undermining the ambition of sustainable business

Duncan Austin*,¹ [UK]

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*Bad news for the environment: sustainable business isn't succeeding.
I'm frustrated, too. But we can make it succeed.*

Introduction

The two-decade-old sustainable business movement has reached a major crossroads that few of its participants yet recognize. While the movement can claim many successes, it is becoming clear that there are limits to the contribution sustainable business can make to delivering a sustainable human culture. Yet, unless its practitioners quickly acknowledge such limits, the movement risks diverting effort and resources away from the types of change that might really make a difference – and are now urgently required.

From the outset, the sustainable business movement has confronted instances of so-called greenwash, in which companies promote token but well-publicized sustainability initiatives to divert attention from environmentally damaging core businesses they have no intention of changing. Such efforts are relatively easy to expose because of their small scale and underlying cynicism.

Twenty years on, we may now be facing a new affliction of greenwish – the earnest hope that well-intended efforts to make the world more sustainable are much closer to achieving the necessary change than they really are. This unsought condition may prove every bit as harmful as greenwash, and possibly harder to unpick, because it is more widespread and arises mainly from good intentions.

The rise of market environmentalism

I reach this conclusion reluctantly. For nearly 25 years, I have been an enthusiastic advocate of the sustainable business movement, first at an environmental non-profit organization and then at a sustainable investment firm. As environmental policy initiatives faltered in the 1990s – in the face of newly coordinated corporate opposition to regulations and the headline disappointment of the 1997 Kyoto meeting – I, like many others, sought to leverage market forces to promote sustainability.

The talk at the time was of win-win opportunities – new business products or processes that might be good for both planet and profit – a notion substantiated by both early developments

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¹ I am grateful to Raj Thamotheram of Preventable Surprises and John Fullerton of Capital Institute for distributing an earlier version of this essay.

and many subsequent innovations. The collective focus on such opportunities also defused the growing business-versus-environment antagonism of the period.

Like others, I benefitted personally from this transition; pursuing one's environmental interests in the private sector offered decidedly better compensation than in the non-profit sector. Consequently, my new disquiet regarding the sustainable business movement may appear both ungrateful – because it has provided me a rewarding career – and oddly timed – because, by many metrics, its two principal pillars appear to be in good health:

- A Socially Responsible Investing (SRI) movement has seen the finance industry infuse sustainability considerations into its investment decision-making.² From an almost non-existent base in the 1990s, it is estimated that a quarter of global financial assets are now managed sustainably in some form or other, rising to as much as half in Europe and Australasia.³
- A broader Corporate Social Responsibility (CSR) movement has encouraged a focus on sustainability in the private sector, beyond just the finance industry, and has also seen healthy uptake. As one crude measure, while only eleven companies produced sustainability reports in 1999, today 90 percent of the world's largest firms publish such reports.⁴

As these two movements emerged in the late 1990s (and as policy efforts withered), society effectively embraced a notion of market environmentalism, which has become the dominant paradigm – and seemingly our best hope – for achieving a more sustainable culture.

In many respects, market environmentalism has achieved considerable successes. The combined efforts of early sustainability champions inside corporations, encouraged by sustainable investors on the outside, successfully directed many companies towards previously unseen areas of innovation. The sustainable business movement can credibly claim to have catalysed many new products and processes, from greener household products to renewable energy technologies to more organic foods to a host of unsung industrial efficiencies.

Early successes triggered a virtuous circle of momentum, encouraging more firms to adopt CSR principles, enticing more investors to consider sustainability factors and ensuring ever more sustainable solutions in the marketplace. Innovation has combined with innovation, leading to dramatic and environmentally beneficial cost declines in many new technologies, from solar panels to batteries to lighting.

² The terminology has evolved considerably to now include “sustainable investing”, “ESG (environmental, social and governance) investing” and, most recently, “impact investing”. Here, I stick with the original formulations of SRI and CSR as umbrella terms for these slightly different approaches.

³ Global Sustainable Investment Alliance, *Global Sustainable Investment Review 2016*, March 2017 http://www.gsi-alliance.org/wp-content/uploads/2017/03/GSIR_Review2016.F.pdf [accessed 19 November 2019].

⁴ Eleven companies in 1999: from <http://database.globalreporting.org/search>. In fact, two reports from different Procter and Gamble entities, for a total of 12 reports. Second figure from page 17 of Global Reporting Initiative, *GRI Annual Report 2016-2017*, 2017 <https://www.globalreporting.org/resourcelibrary/GRI%20Annual%20Report%202016-2017.pdf> [accessed 20 November 2019].

Less tangibly, the SRI and CSR movements have fostered a sea change in attitudes across much of the private sector. Auto companies went from their 1990s default of lobbying against fuel efficiency standards to competing vigorously on electric vehicles. Similarly, chief sustainability officers – a designation virtually unknown before 2004 – have become ubiquitous in the corporate world.⁵

Importantly, this has not been mere pro bono work, but has delivered profits for companies and excess returns for sustainable investment funds. Affirming the early potential of win-win opportunities, there is increasing consensus for at least the weak hypothesis that investing sustainably won't harm returns, and many instances of sustainable funds having outperformed.⁶

All, it seems, is well.

The state of today's environment

Yet, 20 years after this major transition to market environmentalism, it is becoming evident that human culture cannot depend on this paradigm to secure a sustainable future.

Global CO₂ emissions are now 51 percent higher than in 1997, the year of the Kyoto meeting.⁷ Brief optimism over slower emissions growth between 2014 and 2016 has been dashed by renewed faster growth in the last two years. In March, the World Meteorological Organization noted that the physical signs and socioeconomic impacts of climate change are accelerating.⁸

The predominant threat of climate change can often obscure the bleak state of other environmental indicators. Global plastic production has more than doubled since 1997, with still more than half of plastic waste being discarded into the environment.⁹ Moreover, there is growing recognition that it is near-invisible and highly elusive microplastics – effectively “plastic particulate matter” – that pose the greatest risk to the natural environment and its food chains.

Our global ecosystem bears deepening scars of human activity. In May 2019, following the most comprehensive appraisal of biodiversity ever conducted, the United Nations reported that ecosystem health is declining at rates unprecedented in human history, and – here as

⁵ <http://weinrebgroup.com/wp-content/uploads/2011/09/CSO-Back-Story-by-Weinreb-Group.pdf>

⁶ Ann-Kathrin Blankenberg and Jonas F. A. Gottschalk, “Is Socially Responsible Investing (SRI) in Stocks a Competitive Capital Investment? A Comparative Analysis Based on the Performance of Sustainable Stocks”, *SSRN Electronic Journal*, 2018 <https://doi.org/10.2139/ssrn.3186094>. “There is already a vast range of literature about the competitiveness of SRI and most studies indicate that SRI seem to perform predominantly equal, sometimes even better or at least not worse than their conventional counterparts.”

⁷ Corinne Le Quéré and others, “Global Carbon Budget 2018”, *Earth System Science Data*, 10.4 (2018), 2141–94 <https://doi.org/10.5194/essd-10-2141-2018>.

⁸ World Meteorological Organization, “State of the Climate in 2018 Shows Accelerating Climate Change Impacts”, *World Meteorological Organization*, 2019 <https://public.wmo.int/en/media/press-release/state-of-climate-2018-shows-accelerating-climate-change-impacts> [accessed 20 November 2019].

⁹ Roland Geyer, Jenna R. Jambeck, and Kara Lavender Law, “Production, Use, and Fate of All Plastics Ever Made”, *Science Advances*, 3.7 (2017), e1700782 <https://doi.org/10.1126/sciadv.1700782>. Table S1; <https://ourworldindata.org/faq-on-plastics>.

well – that the rate of species extinctions is accelerating.¹⁰ Even as we customize our coffees and cars, we are homogenizing the planet.

Investor Jeremy Grantham argues we may need to worry as much about soil erosion as climate change. Iowa, the leading US corn-growing state, has seen topsoil shrink from 14 inches in 1850 to less than five inches today.¹¹ Crop growth requires four inches of topsoil, “three will get you by”. These shrinking margins are not easily restructured.

While global environmental indicators would surely be worse still without the CSR and SRI initiatives of the last 20 years, the fact that matters in 2019 is that these indicators are not much, much better. What has been termed the “Great Acceleration” of humanity’s environmental footprint shows no signs of slowing.¹²

So, 20 years after we recruited market forces as the principal means to secure a sustainable future, we confront a new reality: sustainable business is necessary for a sustainable culture but far from sufficient. It is not that there are not win-win opportunities nor good investment returns to be had from identifying them, only that the global metrics reveal today’s economic growth remains an overwhelmingly win-lose phenomenon, but one now granted inadvertent cover by the current form of sustainable business.

Moreover, though the focus of this essay is our ecological challenge, there is a parallel story of a fraying social fabric. To the Great Acceleration (dating from the 1950s) has been added a “Great Concentration” of wealth and market power (dating from the 1980s). In virtually all major economies, the top 10 percent, and especially the top 1 percent, of income earners have seen dramatic gains in their share of income.¹³

Taken together, there has been a troubling deterioration of many of the environmental and social metrics the sustainable business movement has explicitly sought to improve.

Three problems

I believe we have reached this point for three reasons:

The single greatest problem, which becomes clearer every day, is that the sustainable business movement has underappreciated the intractable influence of the half-baked profit measures that drive our market system. To use the vernacular, SRI has been trumped by SVM (shareholder value maximization).

¹⁰ United Nations, “UN Report: Nature’s Dangerous Decline “Unprecedented”; Species Extinction Rates “Accelerating””, *United Nations Sustainable Development*, 2019

<https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report> [accessed 20 November 2019].

¹¹ Jeremy Grantham, *The Race of Our Lives Revisited* (GMO, August 2018), p. 35 <https://www.gmo.com/europe/research-library/the-race-of-our-lives-revisited/> [accessed 19 November 2019].

¹² Will Steffen, Paul J. Crutzen, and John R. McNeill, “The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature”, *AMBIO: A Journal of the Human Environment*, 36.8 (2007), 614–21 [https://doi.org/10.1579/0044-7447\(2007\)36\[614:TAAHNO\]2.0.CO;2](https://doi.org/10.1579/0044-7447(2007)36[614:TAAHNO]2.0.CO;2); William J. Ripple and others, “World Scientists’ Warning to Humanity: A Second Notice”, *BioScience*, 67.12 (2017), pp. 1026–28 <https://doi.org/10.1093/biosci/bix125>.

¹³ World Inequality Lab, *World Inequality Report 2018* <https://wir2018.wid.world/files/download/wir2018-full-report-english.pdf> [accessed 19 November 2019].

Driven by commercial norms to sell solutions – and, frankly, out of the wish that it could be so – the sustainable business movement has inadvertently lent its voice to the unhelpful idea that achieving a sustainable culture will be a costless undertaking. Unfortunately, Earth charges rent, and it is not in our long-term interest to pretend otherwise.

In failing to take a systemic view of our ecological problem, the sustainable business movement has not yet identified that its greatest opportunity – becoming a responsibility – is not to persist with longstanding strategies that exhibit diminishing returns to effort, but instead to grasp the nettle of political involvement in order to secure the policy changes that are now urgently needed – and that provide the only means for business activity to become truly sustainable.

I elaborate on these three points in turn.

1. The half measure of modern profit

In the blink of an evolutionary eye, we have become a profit-coordinated species. We are still catching up to this fact.

Though markets and trading have a very long history, the rise of the market as the pre-eminent mechanism for social coordination arose only from the momentous cultural upheaval of 18th-century Western Europe.¹⁴ First slowly, and then quickly, market forces have since spread both deeper into society and further across the globe, with an important acceleration in the last 40 years, in which a neoliberal model was first developed in the US and UK and then propagated globally via a “Washington Consensus”. This has seen market forces slowly but surely displace – “crowd out”, no less – the influence of pre-market social institutions, such as government, community, religion and family.

Though there is a tendency to perceive growth as the key dynamic of the market system, it is the pursuit of profit that spurs and shapes growth. Sure, there is plenty of economic growth that proves profitless, but business models always leave the station expecting to be profitable. Hence, profit is the animating force of the market system.

Importantly, the idea of profit is not the problem at all. Trying to solve our environmental problems by dismantling the market mechanism is unlikely to achieve much, and history makes clear the huge advances profit has enabled. As economic historian Deirdre McCloskey has convincingly argued, it was Western Europe’s cultural accommodation of the profit motive – more than any technological advance or mineral discovery – that proved the critical catalyst for what she dubs the “Great Enrichment” of the last two centuries, which has seen unprecedented and widespread improvement in living standards and provided the basis for enhanced individual freedoms.¹⁵

¹⁴ There was no definitive opening bell for our modern “Market Era”, though Adam Smith’s *Wealth of Nations* (1776) is often invoked as a convenient starting date. However, Smith’s work came more than 60 years after Bernard de Mandeville documented the early signs of a marketizing society in his *Fable of the Bees*, written as early as 1714. Hence, the dawn of our market culture is more of an early- rather than late-18th-century phenomenon.

¹⁵ Deirdre N. McCloskey, *Bourgeois Dignity: Why Economics Can’t Explain the Modern World* (University of Chicago Press, 2011).

The dropped stitch of 20th-century economics

So, the problem – and it is a growing problem – is not profit per se, but the incomplete nature of today's profit calculations. Three hundred years into the Market Era, our pricing system remains a work in progress, and the profit calculations it elicits consequently remain incomplete. Fundamentally, our sustainability predicament arises from the fact that we have increasingly organized society around a half-baked measure of profit, and then behaved as if it were the real thing.

I refer, of course, to the notion of negative externalities, or external costs – those actions and exchanges in the economy that create harm, but for which no market price is paid.¹⁶ Arthur Pigou formally described this flaw in market systems as early as 1920, only for Economics to fatefully downplay its significance for most of the 20th century.¹⁷ For a long time, this was a tolerable neglect as markets were more robustly counterbalanced by pre-market institutions that upheld unpriced values, and as the environment was able to absorb the fewer demands of a smaller, less consumptive population. Unfortunately, with every year that passes, market forces assume ever-greater cultural primacy, the environment comes under increasing stress and the conceptual gap that has always existed within the market system matters more and more. Consequently, the failure of Economics to fully incorporate externalities in its 20th-century theorizing now appears to be the dropped stitch that defines the whole discipline.¹⁸

Even this may understate the situation. The “externalities” terminology encourages a perception of unpriced damages as being mere residuals to the centrepiece of a priced economy. Yet, estimates of the monetary value of unmarketed ecosystem services are well in excess of global GDP.¹⁹ Hence, far from externalities being peripheral, they may be the main event! In other words, more of the environmental and social exchanges that shape our wellbeing may be unpriced than priced, yet we increasingly steer by the priced exchanges only.

As its cultural influence grows, we must evaluate the market not only by what it makes possible (as we do routinely with measures of gross domestic product) but also by what it

¹⁶ There are positive externalities, too, but these “free gifts” do not pose the systemic threat of negative externalities.

¹⁷ A. C. Pigou, *The Economics of Welfare* (Palgrave Macmillan, 2013 (1920)).

¹⁸ It is an unfortunate story. A landmark economics paper in the mid-20th century by Arrow-Debreu (1954) – recognized by Nobel Prizes, no less – found that, under certain unrealistic assumptions, “complete markets” offered a superior means to any political mechanism in allocating scarce resources. The prominence accorded to this theory amounted to a “sliding door” moment for Economics; most economists interpreted it as a green light to proceed as if markets were complete (i.e. that all things of value to human beings indeed had prices), rather than a caution to reflect on the inherent limits of what Economics might ever be able to say, given the implausible assumptions. The assumption of perfect competition alone invalidates the idea. It is easy to criticize now, but at the time, the social sciences in general – and Economics in particular – were in the grip of a reductionist mindset encouraged by the stunning earlier advances in Physics and Chemistry. Alas, these were sciences of dead things, not living things, so the erroneous application of reductionist approaches to living systems, which arguably reached its apogee in 20th-century Economics, is the fundamental driver of many of our contemporary social and ecological problems. Fortunately, the deep reworking of Economics – essentially to become more like Biology than Physics – is now underway but will take many years.

¹⁹ Two major studies in 1997 and 2014 estimated the global value of ecosystem services at between 1.7 and 1.8 times contemporary global GDP. Such estimates obviously rest on many assumptions and these are central case figures. See: Robert Costanza, Ralph d'Arge, and others, “The Value of the World's Ecosystem Services and Natural Capital”, *Nature*, 387.6630 (1997), p. 253 <https://doi.org/10.1038/387253a0>; and Robert Costanza, Rudolf de Groot, and others, “Changes in the Global Value of Ecosystem Services”, *Global Environmental Change*, 26 (2014), pp. 152–58 <https://doi.org/10.1016/j.gloenvcha.2014.04.002>.

omits – the things we value of which the market has no grasp. It is because of its omissions that the market is the conceptual apparatus that causes both a Great Enrichment and the Great Acceleration in environmental damage. Neither market supporters nor market critics can claim just one without acknowledging the other.

Empty margins

Where this conceptual flaw changes today's world – where the rubber meets the road – is in decision-making based on corporate financial statements. The profit and loss (P&L), balance sheet and cashflow statements serve as the principal documents for discussion in meetings of investors and corporations – with investors duty-bound to back financial statements that promise the greatest returns and corporate executives incentivized to deliver financial statements of maximum appeal to investors.

To be clear, the numbers in these statements are important, and it is vital we defend their integrity with the legal and accounting rules developed for that purpose. The frequent instances of corporate fraud are a reminder that manipulating financial statements causes real harm.

And yet, there is a bigger – and perfectly legal – deception occurring. Even in the clean statements of a respectable company, the larger subterfuge is the unspoken convention and daily practice of interpreting financial figures as the full measure of a company's worth. Sure, financial statements tell us something about a company, just as a stranger's bank statement would tell you something about them. But not nearly as much as you would imagine. And not nearly enough about certain things that are really starting to matter.

For example, energy and manufacturing companies have no line items reflecting the damage caused by their greenhouse gas emissions. Agricultural companies have no bills recorded for soil erosion, nor chemical companies for mounting pesticide resistance and toxic runoffs into our lakes and rivers. The food industry shows no financial outflows for the obesity crisis prompted by the profit-fortifying combination of their sugar, salt and fat offerings of the past few decades. Certain social costs are also absent; the tech industry's accounts seem to be missing cost entries for the adverse mental health and privacy consequences of algorithmically optimizing their business models to promote users' screen time.

Yes, there is certainly a tax line intended as a contribution to society, but this is an indiscriminate catch-all – florists and mining companies face the same basic rate. Moreover, contemporary corporate attitudes to paying tax leave much to be desired – financial markets reward companies for defying, as much as possible, the spirit of tax legislation to which they are subject.

Ponder these issues for long enough and eventually one's eye is drawn from the profit margins within the income statement to the empty margins of the surrounding page. Those empty margins are a curiously eloquent expression of everything that is missing – the deforestation and species loss not paid for, the animal cruelty not fully compensated, the screen addiction not charged, the contribution to climate change not reimbursed, the plastic pollution not indemnified. They are all there in the empty margins if you look closely enough, but – be warned – once you start looking, empty margins might become all you see.

A major strategy of the sustainable business movement has been (metaphorically) to fill these empty margins with supplementary information about non-priced values and to persuade

business to give this information equal weight in their deliberations. As early as 1994, John Elkington coined a triple bottom line to inspire business to grant equivalence to environmental, social and economic factors. In 1997, the Global Reporting Initiative launched the first of many initiatives to encourage standardized corporate reporting of such metrics. In 1999, by launching its Sustainability Index based on this nascent data, Dow Jones indicated it was starting to pay attention.

Alas, while this effort played an important early role in prodding companies to look at sustainability factors (often for the first time), the increasing quantity of environmental and social metrics is of decreasing consequence. This is because market environmentalism found itself contending with another major corporate development over the same period – the rise of shareholder value maximization (SVM), a concept forcefully opposed to the idea that companies and investors pay attention to anything but financial numbers. SRI found itself pitted against SVM, and the results continue to be unfavourable for the planet.

The profit enforcement industry

To comprehend the difficulty, one must recognize that the global finance industry effectively acts as an international profit-enforcement agency.

Many investors may balk at this depiction. I admit that I have never met an investor who identified as a profit-enforcement officer and it is a perspective that has only occurred to me upon stepping back from the industry. After all, the finance sector has no overt aspiration in this regard, and it lacks the centralized organization that characterizes law-enforcement bodies. Yet its profit-enforcement nature nonetheless arises as the unplanned outcome of tens of thousands of investment firms simply going about their business. The multitude of individual return-maximizing efforts of competitive and incentivized investors combines to ensure all the economy's tradeable assets are inexorably driven towards their profit-maximizing use.

Indeed, in the variety of investment strategies, one can discern some familiar stereotypes. There are the “good cop” SRI funds and the “bad cop” short sellers. There are the automated CCTV cameras of passive funds, suddenly everywhere. There are even self-appointed SWAT teams of activist investors – ostensibly the good guys, but strangely unnerving when they arrive unannounced.²⁰

More importantly, in the overall effect of law enforcement and profit enforcement, there seems to be a clear parallel: law enforcement serves to keep the general public in line; profit enforcement to ensure companies don't lose sight of the bottom line. Markets work because of market discipline, and it is investors who constitute the thin black line.

Make no mistake, as citizens, we affirm profit enforcement to be socially valuable work. Just as not everybody has to be in law enforcement to enjoy its benefits, so the same is true of profit enforcement. Investors comprise less than 1 percent of the overall workforce, but the fruits of their labour run through the economy. That's why we are only too happy to fund them – indeed, willing to pay direct rather than via taxes. With every bank deposit and pension

²⁰ For an accessible description of the activist business model and the manner in which it may be executed, see: Sheelah Kolhatkar, “Paul Singer, Doomsday Investor”, 20 August 2018 <https://www.newyorker.com/magazine/2018/08/27/paul-singer-doomsday-investor> [accessed 8 July 2019].

allocation, we commit funds to the industry's safekeeping, granting them a small fee in return for their efforts. Inevitably, some years the service doesn't quite live up to advertised promises, but even so, in willing the industry to do well for our own sake, our actions reveal most of us to be good profit-abiding citizens.

Because profit is such a deep shaping force of today's human culture – acknowledged or not – it is of paramount importance that the last four decades have witnessed a major modernisation of profit policing. Principles, procedures and equipment have all been notably upgraded to ensure profit enforcement is executed with unprecedented rigour.

The SVM era

A critical milestone was the 1970s reframing of corporate purpose – from a broad sense of corporate citizenship to a narrower proscription of profit maximization. Milton Friedman's much-cited 1970 op-ed, declaring “the social responsibility of business is to increase its profits”, represented the culmination of a Chicago School doctrine that epitomized 20th-century economics' disregard of external costs.²¹ It marked the sanctioning of corporate self-interest.

This paved the way for the theoretical articulation of SVM, again implicitly premised on the notion that financial statements embodied a full accounting of a company's value creation or destruction. These ideas gained real-world traction via the political platforms of Margaret Thatcher and Ronald Reagan in the early 1980s – both of whom commanded considerable public support for most of their tenure.

Technological developments added further impetus. A landmark development was the mid-1990s innovation and rapid dissemination of spreadsheet software, which suddenly provided a tool for near-effortless transmission and analysis of financial statements. Fast forward to today: investors have desktop access to comprehensive electronic databases and can readily summon real-time transcripts of corporate pronouncements. In these developments, SVM, which had been gestating through the 1980s, found the technological means to go viral.

Its adoption was bolstered by the convergence of business-school teaching around related techniques of financial analysis that distilled and codified the hard-won lessons of celebrated investment pioneers. This produced a growing pool of bright recruits steeped in SVM principles and methods, if not a richer appreciation of finance's role within society.

Today, though, SVM rides new waves of automation and artificial intelligence, causing “slow” and “biased” human analysts to be extracted from the ever-accelerating clock cycles of profit enforcement as passive and high-frequency strategies take over. Fewer cops are needed to walk the beat.

²¹ Friedman's op-ed was deftly constructed. It effectively argued that *either* financial statements already reflected all of a company's value-creation or -destruction actions *or* the government had sufficient authority to ensure this was so, *while simultaneously* offering a justification for companies to resist government efforts to impose new regulations that might harm profits. For, if the expected return on expenditures committed to resisting regulatory changes is greater than the weighted average cost of capital, and if lobbying against regulations is within the “rules of the game”, Friedman's contention that companies have a social responsibility to maximize profits equates to firms *having a social responsibility to resist any regulation that appears costly*. Somewhere in all this, the meaning of “social responsibility” was transformed into the exact opposite of its common interpretation.

If I am guilty of stretching a metaphor, it may be to avoid confronting an uncomfortable truth: an initially beneficial notion of introducing the profit motive alongside other mechanisms of social coordination 300 years ago is in danger of being taken to a detrimental extreme, as it is enthusiastically pursued to its logical conclusion. Profit enforcement is increasingly being passed over to artificial intelligence or, which is becoming worryingly similar, to human investors ever more incentivized to suppress so-called “cognitive biases” and to habituate their thinking to the market’s partial calculus. This rapidly automating tail of profit enforcement wags the dog of economy and society more vigorously than ever before, based all the while on stubbornly incomplete measures of profit.

And it is into this tide that SRI has striven to make way.

Second thoughts

The dissonance between the two-decade rise of market environmentalism and the continued worsening of major sustainability indicators has prompted some long-time observers to question whether market-led strategies for sustainability can be effective.

Last Summer, Elkington marked the 25th anniversary of his triple bottom line concept by issuing a “product recall” for the whole idea, conceding that environmental and social factors had not attained parity with financial metrics.²² Pitting values with prices against values without prices was not proving a fair fight.

In a similar vein, in the arena of corporate governance, Leo Strine, Chief Justice of the Supreme Court of Delaware, has also taken up the thankless task of challenging well-intended friends.²³ While sympathetic to the intentions underlying initiatives to expand corporate purpose beyond narrow profit maximization, he nonetheless argues that such efforts fail by their voluntary nature. In the crucible of court proceedings – Delaware is the legal home of 65 percent of Fortune 500 companies – constitutional protections are all on the side of SVM.

Strine concludes that “corporate power is corporate purpose”. No matter the broader mission written into a new corporate charter, the actual purpose of a company is merely what those who hold effective power over the company deem it to be. And, in public equity markets – whether they currently own shares or not – that power is effectively wielded by short-term activist investors, who may suddenly appear as owners tomorrow, in so-called wolf-pack

²² John Elkington, “25 Years Ago I Coined the Phrase ‘Triple Bottom Line.’ Here’s Why It’s Time to Rethink It.”, *Harvard Business Review*, 25 June 2018 <https://hbr.org/2018/06/25-years-ago-i-coined-the-phrase-triple-bottom-line-heres-why-im-giving-up-on-it> [accessed 4 February 2019]. “Fundamentally, we have a hard-wired cultural problem in business, finance and markets. Whereas CEOs, CFOs, and other corporate leaders move heaven and earth to ensure that they hit their profit targets, the same is very rarely true of their people and planet targets. Clearly, the Triple Bottom Line has failed to bury the single bottom line paradigm.”

²³ Leo E. Strine, *Corporate Power Is Corporate Purpose i: Evidence from My Hometown* (Rochester, NY: Social Science Research Network, 9 December 2016) <https://papers.ssrn.com/abstract=2906875> [accessed 5 February 2019]. “By continuing to suggest that corporate boards themselves are empowered to treat the best interests of other corporate constituencies as ends in themselves, scholars and commentators obscure the need for legal protections for other constituencies and other legal reforms that empower these constituencies and give them the means to more effectively protect themselves”; “shareholders are the only corporate constituency with power under our prevailing system of corporate governance.”

fashion.²⁴ The activists' knock on the door is the latent threat that hangs over corporate decision-making. As with law enforcement, profit enforcement achieves much more by deterrence than by actual prosecution.

The unwelcome message, which I suspect neither Elkington nor Strine particularly relished communicating – and with which I concur – is that we delude ourselves in thinking voluntary measures and non-price metrics can challenge the primacy of an SVM mentality applied ever more rigorously to partial P&Ls. Worse, there is increasing opportunity cost to this delusion, in terms of the energy and commitment diverted from initiatives that might make a real difference. In such reflections, the early enthusiasm for the win-win potential of market environmentalism is fading into an uneasy sense that neoliberalism has simply captured environmentalism.

So, 20 years after the dawn of sustainable business, we appear to have reached a crossroads. Paradoxically, even as more and more investors adopt sustainability principles, finally convinced that sustainable investing has financial merit, there may be diminishing returns to SRI as a strategy that can deliver a sustainable human culture. Unfortunately, the “good cop” inclinations of sustainable investors are offset by their broader profit-enforcement duties, which see them reinforcing the validity of the incomplete P&Ls at the heart of our economic system. Even as they build outperforming portfolios that are more sustainable than benchmarks, ESG investors uphold the very price system which other investors can exploit – legitimately and profitably, actively or passively – for directly opposing ends.

To underscore, the problem is not the idea of SVM so much as the application of SVM to today's menu of prices. The value of SVM as a mechanism of social coordination is as great as the prices in our economy are complete.

2. Wishful thinking

To this challenging dynamic, the CSR and SRI movement inadvertently adds unhelpful messaging.

The nature of competitive markets is that companies must talk up their goods and services; lackadaisical marketing rarely works. Hence, while it is not really their fault, commercial norms nonetheless trap sustainable business into portraying its initiatives and products as greater solutions than they often are. Unfortunately, the many individual pitches for more-sustainable products aggregate into a loud, confident signal that business has got environmental protection covered.

Possibly worse is the addendum: “... and it won't cost a thing”. Again, this has sincere roots. As noted, sustainable business has landed on many new innovations and investments that have yielded good profits and returns. Yet, the individual claims mask the aggregate reality. One way to grasp this is that it is nigh-on impossible to make a functioning economy from the companies held in a typical sustainable investment portfolio; too much necessary economic activity is routinely screened out. Similarly, many sustainable businesses continue to depend on input goods and services that wouldn't meet their own sustainability aspirations. Yes, this

²⁴ John C. Coffee and Darius Palia, “The Wolf at the Door: The Impact of Hedge Fund Activism on Corporate Governance” (Rochester, NY: Social Science Research Network, 4 September 2015) <https://papers.ssrn.com/abstract=2656325> [accessed 22 June 2019].

is changing slowly – and the goal is that both these things will one day be possible – but the gap remains formidably large.

The real message, of course, is that business alone cannot solve our ecological problems, and that transitioning to a sustainable economy from here will require Herculean – and expensive – effort. The CSR and SRI movements emerged in a period when it had become impossible to state this truth. Shamefully, certain large corporations committed financial and organizational resources to obfuscate scientific research and prevent implementation of sensible policy responses – which, had they been implemented 20 years ago, would see us on a much more cost-effective trajectory to solving major environmental issues today.

The politics of the time cornered the sustainable business movement into its optimistic win-win framing of the problem, which unfortunately has now bloomed into a broader greenwash – a sort of greenwash gone meta, fuelled mainly by good intentions but characterized by a tendency to let a thin layer of sustainable advances distract attention from the unsustainability of most of the economy.

Fritjof Capra, the long-time systems thinker, frames the challenge for humanity as our need to become ecoliterate – that is, for the entirety of our behaviour to demonstrate full understanding of the natural systems upon which civilization rests.²⁵ Collectively, we have become much more ecologically aware, but full ecoliteracy still feels a long way distant.

A key success – possibly the key success – of the sustainable business movement is that a new generation of business leadership, having been prompted to think deeply about these issues, now knows the innate truth of what was so vociferously denied: living on Earth, like living in any home, incurs maintenance costs – and we are not paying the bills. Our environmental problems are not yielding to a strategy of merely elevating good intentions within corporate structures bound by commercial imperatives. We will become ecoliterate only when we acknowledge and accept our dependence on natural ecosystems, and when this understanding has infused all our decision-making processes.

3. A systems view

The problems described above arise from system dynamics – whether those be the unplanned outcomes of profit enforcement or the unintended consequences of individual marketing efforts – that counteract the intentions of sustainable business. It is a common characteristic of complex systems that, as they develop, higher-level behaviours emerge that differ from, or even oppose, underlying behaviours. Indeed, if one reviews the historical development of our market system, one starts to discern that our environmental problems may be lagged responses to cultural and systemic changes that date back to (at least) the 18th century. It may be that we can only truly resolve our environmental challenges when we accept their deep roots.

²⁵ Fritjof Capra, *The Web of Life: A New Scientific Understanding of Living Systems* (Anchor Books, 1997). David Orr may have been first to the term: David W. Orr, *Ecological Literacy: Education and the Transition to a Postmodern World* (SUNY Press, 1992).

An 18th-century problem with a lag

As mentioned, our Enriching yet damage-Accelerating market system only became culturally significant from the 18th century onwards. We must remember that, for all Adam Smith's genuine insight, the only market he ever witnessed was an embryonic force cutting its teeth against much older institutions. Just as 1990s financial analysts extolled the promise of nascent internet businesses like Google and Amazon, but could not foresee the problems that would arise with their scale and eventual dominance, so Smith wrote of an 18th-century market system emerging under the protective canopy of family, community, clan life, religion and government, concealing the market's incipient flaws. Smith's market was a peripheral phenomenon. The killer app of his day? Shoes. (Sort of like when Amazon just sold books.)

Though the market's incomplete grasp of human values would gradually become evident, the 20th-century case for the market as a public choice mechanism superior to all other alternatives relied on an unrealistic model of complete markets. This alluring vision provided the intellectual justification both for the neoliberal programme to make markets matter more and, consistently, for an SVM philosophy to make the market domain more efficient. The case for market primacy was unquestionably bolstered by the disasters of Socialist and Communist experiments, which amply demonstrated the hazards of too little market or none at all, though these examples were transmuted into an equal-and-opposite stance of "as much market as possible", which doesn't necessarily follow, but which condoned the dismantling of regulatory, redistributive and anti-trust buttresses for the market's real vulnerabilities. In all of this lay the fervent hope that the eternal political dilemma of how to organize society had finally been revealed to be no more than a maths problem; but this was a Pyrrhic victory of rational thinking over reasonable thinking – indeed, a victory so decisive that our discourse has lost sense of the distinction.

The elevation of market principles to the centre of our culture's decision-making processes unavoidably brought with it the market's blind eye to broader social and environmental values. Sustainable business's noble intention has been to fill the gaps – but it has been uphill sledding. Today's pervasive neoliberalism has subverted the role of government as the appropriate domain for resolving public goods problems, while modern profit-enforcement strictures have removed corporations' ability to make the social and civic contributions of yesteryear.

Today, companies can only pursue sustainable behaviours that are profitable. This rules out many sustainability actions that corporations are uniquely positioned to offer – and used to provide – though certain initiatives can make the grade as long-term investments, with characteristic extended payback periods. Yet, corporate pronouncements of such long-term investment plans are precisely the klaxon calls that bring activist investors running to restore short-term profit-maximizing order.²⁶

Properly understood, then, our 21st-century environmental problems are 18th-century problems with a lag, given a late 20th-century booster. This is not to suggest we simplistically roll back the clock; only that resolving our environmental problems will require both massive

²⁶ Several recent developments have both lowered the costs of activist intervention and increased the likelihood of success. Key changes include the trend to stagger boards from 2005 onwards (reversing prior best practice), the rise of proxy advisers and the willingness of large passive investors to follow activists' lead on governance matters because it suits their low-cost business model (Coffee & Palia, 2015; Gilson & Gordon, 2013). Combined, these developments have structurally nudged public equity markets towards greater short-termism.

deployment of the technology that markets have enabled and a more honest acceptance of what was unknowingly jettisoned in the major cultural realignments of those periods – principally, certain norms and reciprocal obligations that now appear vital for societal health, but which can only be upheld by non-market institutions.

At almost the same time that economist Friedman was advocating his narrow frame for social responsibility, Gregory Bateson, one of the 20th century's great systems thinkers, offered a broader perspective on the human predicament. "The unit of survival," he wrote in 1972, "is the organism plus environment. We are learning by bitter experience that the organism which destroys its environment destroys itself."²⁷

Bateson's was an early articulation of the now widely accepted interdependency of species and ecosystems, overturning the perception, dominant since Darwin's time, of species as separable units of survival. Though Bateson was contemplating the physical environment, his idea extends to each individual's dependence on society – of which there is indeed such a thing.

Bateson's insight was born of the sort of systemic appreciation of the world from which 20th-century Economics had sealed itself off. It is because we have elevated Friedman's reductionist-inspired frame of "social responsibility" to the heart of today's decision-making process that we are struggling to respond to Bateson's systemically informed warning.

Forced to ride these deeper tides, today's sustainable business movement amounts to sincere and increasingly vigorous effort, nonetheless applied at the wrong level of our complex social system to be as effective as hoped. Fifty years after Friedman argued for diminished obligations for business, well-intended corporations are trying to make a difference from within straitjackets of self-interest.

Diminishing returns to reporting

One of the signal indicators of ensuing struggle is the ongoing allocation of energy to reporting and disclosing companies' individual environmental and social performances. Unfortunately, this strategy is now 20 years long in the tooth, and exhibits diminishing returns to detail and effort.

When reporting frameworks first appeared in the late 1990s, they served the invaluable role of forcing companies to regard their business in a brand-new light, fostering a new ecological awareness and teasing out new areas of innovation that, now discovered, are propelled by market forces as conventional business opportunities – no special treatment required. In contrast, where reporting dutifully flags environmental problems that still challenge profitability, such metrics evidently struggle to earn parity with financial numbers.

There is perennial hope that the next iteration of metrics might finally crack the code and earn equivalence, yet it starts to feel as though we are engaged in a continual cycle of generating more and more detailed numbers destined for second class status when push comes to shove. They are metrics investors consider but, unlike profit numbers, rarely lose sleep over. Even the logical development of integrated reporting – literally putting profit and ESG data on the same pages – cannot overcome the fact that financial and non-financial figures constitute

²⁷ Gregory Bateson, *Steps to an Ecology of Mind* (Ballantine Books, 1972) , p. 491.

two different castes of number. While the disclosure of ESG metrics remains an important discipline for sustainable business, its original power as a novel stimulus has inevitably diminished with time.

A Systemic Response

The enthusiasm for reporting and disclosure strategies epitomizes a broader challenge: sustainable corporations are directed by business norms towards showcasing, and seeking credit for, their own piecemeal efforts rather than towards collaborating for the system change now required. At the planet-level – the system level that matters – it is evident that we need to make more progress more quickly than individualist approaches permit. Regarding the overall shape of the system challenge, we are like Robert Frost's traveller, faced with two divergent roads – but we must take both at the same time.

More and less market

On the one hand, we must use market mechanisms much more than we are – in a sense, push on with the task of “completing” our 300-year-young market. Above all, we must use price signals – whether from direct taxes and charges on environmental damage or regulations placing an implicit price on such damage – to begin to close the gap between the effective-zero pricing of our environment and the high value it provides. This is to transfer values from the empty margins into the profit margins that count. Our 300-year experience of the market plainly demonstrates the power of prices to steer innovation and we must now ensure we have prices in place that guide us away from harming our ecosystem.

At the same time, we must ease market logic from the primacy it has abruptly assumed within our overall decision-making space, which will require disavowing some of its claims to superiority. Even though we can use the market more, the market can never feasibly be complete; yet most of the arguments made for its primacy implicitly assume so.²⁸ A systems view recognizes that we each live amid a complex web of interactions and exchanges that extends far beyond the relatively few first-order exchanges the market system can grasp. In the absence of complete pricing of these interactions, the claims for the superior efficiency of market outcomes are vacuous. If not everything can be priced, how can the efficiency of any outcome be determined? There is nothing efficient about two centuries of Enrichment that comes at the cost of a stable atmosphere.

²⁸ There are several technical barriers to arriving at a complete market, in practice. For example, Geoffrey Hodgson, the institutional economist, points out that a complete forward market for labour would be tantamount to legitimizing slavery (Geoffrey M. Hodgson, *Conceptualizing Capitalism: Institutions, Evolution, Future* (University of Chicago Press, 2015)). Another example is that, while much information is routinely traded, it is generally impossible to charge a price to disclose the price of something! There is a nice irony that, for markets to work, price must be free. A broader problem is that markets can only track exchanges, not the development of capacities (friendships, community relations etc.) not subject to exchange. It is interesting that Mathematics and Law – older fields that had the same aspiration for an all-encompassing self-consistency – are both long reconciled to the innate “incompleteness” of their systems; e.g., Godel's “incompleteness theorem” and Durkheim's observation: “for in a contract, not everything is contractual”. I am unaware of any similar, widely accepted statement of the necessary incompleteness of markets, though such a formulation might beneficially crystallize that economics' claims are bounded. Effectively, it would be reinterpreting Arrow-Debreu's model as an incompleteness theorem.

In addition, while free market advocates rightly point to the many benefits that have coincided with the market's long ascendancy – such as enhanced freedoms, technological advances and higher standards of living – these have been over-attributed to the market alone, when history makes clear such benefits have arisen from markets co-existing with, and being underpinned by, vibrant non-market institutions. Indeed, the strong free market case that has been so influential in this recent period of human history depends on a curious combination of an idealized vision that can't exist and over-appropriation of cultural advances for which the market has been a partial, not sole, cause. These claims are then bizarrely deployed by those well-served by current price structures both to justify today's market scope and to argue against new price signals they perceive to be detrimental. The incoherent assertion is often that today's markets have emerged naturally, whereas any further extension would amount to government interference. Yet, rule of profit has always been wholly dependent on rule of law.

Unfortunately, a dangerous asymmetry has evolved in our political discourse, wherein market failures are deemed tolerable while government failures are ruinous. Our terminology captures the double standard: markets “creatively destruct”; governments just fail. Instead, it seems more likely that all our social coordinating mechanisms succeed and fail in their own particular, yet often complementary, ways.

How to reconcile the seemingly counterintuitive notion of more and less market at the same time? Effectively, human culture must come into a new and different relation to markets, recognizing that the market mechanism is a potent tool – but still only a tool. Like fire or electricity, the profit motive is most beneficial to human culture when safely harnessed and appropriately directed, in which form it can be deployed more and more widely. In a sense, the story of the last 300 years is that we have discovered the awesome power of the profit motive but not yet fully harnessed it. It is unquestionably a fine balance to strike, but we must err on the side of shaping markets, not being shaped by them.

Systemic intervention

Fortunately, my critique suggests the opportunity – the low-hanging fruit for meaningful corporate action now lies firmly on the side of systemic intervention. As ecological pressures rise, so, too, does the bar for private-sector leadership on sustainability. It is no longer about what individual companies can do; it is about what the private sector can do, together, to drive systemic change.

The disclosure now required is not more detail about a company's own greenhouse gas emissions or water use, but rather what companies publicly stand for regarding the changes in rules and prices needed for a more sustainable world – and what, exactly, they are doing about it. This is the critical question we must now ask our portfolio managers and corporations.

Of course, many businesses will protest that they are not constituted as political organizations. Yet, this seems a poor depiction of reality; corporations are heavily involved in political issues, as the coordinated obstruction of environmental policies in the 1990s testifies and as everyday lobbying confirms.

The bigger obstacle is whether we have now bound companies so tightly to the mast of self-interest that they cannot support policy measures to protect the planet for fear of harming short-term profits. Indeed, for me to suggest that companies can overcome the diminishing

effectiveness of voluntary efforts by now advocating for systemic change may just be to swap one form of wishful thinking for another.

Hence, it may have to be up to the human beings that work in corporations to reflect on whether the sustainable potential of their organizations is ever thwarted by commercial imperatives, and, if so, what that implies about our market system. Those people genuinely motivated by the original intentions of SRI and CSR may now achieve more by encouraging their businesses away from further individual effort and towards collaboration that can make a bigger difference. Just as the early years of sustainable business saw individual “champions” introducing ecological awareness into the C-suite, so a new generation of champions must now promote greater systemic understanding and action within business.

If nothing else, we must formulate as soon as possible a new minimum standard of social responsibility by which corporations pledge not to compromise societal efforts to protect our collective home. This would hardly constitute ecoliteracy, but it would be a small step towards unpicking the eco-illiteracy of our current system. A public pledge to not obstruct environmental protection policies could conceivably even be audited and verified by third parties.

Conclusion

My comments may upset or dishearten members of the sustainable business community, but in many respects, that community has successfully laid the foundations for future efforts. Sustainable business remains a necessary but not sufficient element of a sustainable culture, yet there is increasing risk that, in its enthusiastic embrace, we deem it sufficient. This is no fault of those who have propelled sustainable business to its current point – indeed, it is much more a case of successful execution of a genuine opportunity that unfortunately now appears more limited as an ecological strategy than we had all first hoped.

What would be a mistake is for the sustainable business community – and society more broadly – to deny the crossroads we have reached. Today, our rapidly deteriorating environmental situation prompts repeated and justified calls for urgent response. The sustainable business movement must avoid falling into the trap of responding simply by pursuing existing strategies with more urgency, and instead urgently adopt new strategies that the moment demands. As the sustainable business paradigm reveals its limits, businesspeople collaborating to demand sustainable policies might now achieve more.

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An evolutionary theory of resource distribution

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Abstract

This paper explores how the evolution of human sociality can help us understand how we distribute resources. Using ideas from sociobiology, I argue that resource distribution is marked by a tension between two levels of natural selection. At the group level, selfless behavior is advantageous. But at the individual level, selfish behavior is advantageous. I explore how this tension affects the distribution of resources.

The biologist Theodosius Dobzhansky famously wrote that “nothing in biology makes sense except in the light of evolution” (1973). I propose a corollary in economics: *nothing in economics makes sense except in the light of human social evolution*.

This paper explores how the evolution of human sociality can help us understand how we distribute resources. Although economists like to deny it, humans are social animals. And it is our evolved sociality, I argue, that explains how we divide the resource pie. This paper offers a sketch of what an evolutionary theory of resource distribution might look like, and what its basic principles should be.

In Part I, I discuss how the evolution of human sociality relates to resource distribution. I argue that resource distribution is marked by a tension between two levels of natural selection. At the group level, *selfless* behavior is advantageous. But at the individual level, *selfish* behavior is advantageous. Resource distribution, then, is driven by a tension between competition and cooperation. Groups compete for resources with each other (often violently), but suppress competition internally.

In Part II, I look at the building block of groups – the human relation. To cooperate, humans form bonds with each other. Often, these bonds are asymmetric, meaning one person has more power than the other. When this happens, the person with more power can use their influence to get a bigger share of the resource pie. The result, I argue, is that when groups use power relations to organize, the “power ethos” will prevail: *to each according to their social influence*.

In Part III, I look for evidence for the power ethos inside modern firms. I show that the income of US CEOs tends to increase with “hierarchical power” (control over subordinates within the firm). Case-study evidence suggests that the same is true for all employees within firms.

Given these results, I argue that it is time to treat income as a social phenomenon, and to ground the study of income distribution in an evolutionary framework.

Part I: Human sociality and resource distribution

Is it obvious to you that humans are evolved social animals? Is it also obvious that our sociality is central to how we distribute resources? If you think so, you’re probably not an economist.

Through years of schooling, mainstream economists are trained to ignore the obvious facts about human nature. The theories that economists learn make it impossible for them to understand human sociality. Economists are trained that humans are asocial “globules of desire”. This is Thorstein Veblen’s satirical term for “homo economicus”, the economic model of man. Here’s Veblen describing homo economicus:

“The hedonistic conception of man is that of a lightning calculator of pleasures and pains, who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact. He has neither antecedent nor consequent. He is an isolated, definitive human datum, in stable equilibrium except for the buffets of the impinging forces that displace him in one direction or another. Self-poised in elemental space, he spins symmetrically about his own spiritual axis until the parallelogram of forces bears down upon him, whereupon he follows the line of the resultant. When the force of the impact is spent, he comes to rest, a self-contained globule of desire as before” (Veblen, 1898).

As Veblen makes clear, economists’ model of human behavior is bizarre. Indeed, the assumptions are so far-fetched that one wonders how this “theory” ever gained acceptance. I have spent years trying to make sense of homo economicus as a scientific theory. I have concluded that this is a waste of time. Economists’ selfish model of humanity is best treated not as science, but as *ideology*.

Unlike scientific theories, ideologies are not about the search for “truth”. Instead, they are about rationalizing a certain worldview – usually the worldview of the powerful. Economists’ selfish model of humanity is a textbook example.

The discipline of economics emerged during the transition from feudalism to capitalism. During this period of social upheaval, business owners battled to wrench power from the landed aristocracy. To supplant the aristocracy, business owners needed to frame their power as legitimate (and the power of aristocrats as illegitimate). Their solution was devilishly clever. The new business class appealed to *autonomy* – the mirror opposite of the ideals of feudalism.

Feudalism was based on ideals of servitude and obligation. Serfs were obligated to perform free work for feudal lords. And these lords, in return, were obligated to protect serfs from outside attackers. This web of obligation was rationalized by religion – it was a natural order ordained by God.

To upend this order, business owners championed the ideals of autonomy and freedom. Business owners claimed to want nothing but to be left alone – to pursue profit unfettered by government or aristocratic power. From this world view, the autonomous model of man was born. It had nothing to do with how humans actually behaved. It was about rationalizing the goals of business owners. They wanted power, but they framed it as the pursuit of freedom and autonomy. “Power in the name of freedom” is how Jonathan Nitzan puts it (in conversation with me).

The ideals of autonomy, championed by business owners, became enshrined in the new discipline of economics.¹ Every individual was modeled as a selfish globule of desire – an aspiring capitalist.

Resource distribution explained?

The crowning achievement of the new discipline of economics was its explanation of resource distribution. In a competitive market, economists claimed that the distribution of resources was completely fair. Every autonomous individual got exactly what they produced. Workers got what they produced. And business owners got what their property produced.

First proposed in the 1890s, this “marginal productivity” theory of distribution has weathered the 20th century unchanged. But unlike other static theories (Newtonian physics, for instance), this stasis is not due to overwhelming empirical support. In fact, most critics agree that marginal productivity theory can’t be tested (Pullen, 2009). Its basic ingredients are unmeasurable. When economists claim to test the theory (and find empirical support), they actually resort to circular reasoning (Fix, 2018b). Marginal productivity theory does not persist because of its scientific merit. It persists because it is an ideology that justifies the prevailing social order.

Economists, of course, will never admit that their theory is an ideology. Even many non-economists cannot see marginal productivity theory for what it is. Why? Because we are steeped in our own culture, blind to the ideologies that surround us. This is a problem universal to all societies.

Ancient Hawaiians, for instance, had an ideology very similar to marginal productivity theory. But to Hawaiians, their beliefs were not an “ideology”. Their beliefs were the sacred truth. Here is how Peter Turchin describes Hawaiian beliefs:

“The Hawaiian chiefly elite were different from commoners ... because they were the vessels of mana—spiritual energy flowing from the gods that was necessary for the wellbeing of the overall society. The higher the rank of a chief, the more mana was concentrated in him, with the king as the central node in the “mana distribution network” (Peter Turchin, 2016).

To the modern observer, these ancient Hawaiian beliefs are easily recognizable for what they are – an ideology that justifies the social order. But before we (modern observers) become too smug, let’s turn the camera on ourselves. Our own ideology of marginal productivity is virtually the same as this Hawaiian superstition. Replace “mana” with “productivity”, “chiefly elite” with “business leaders”, and you get the following:

“Business leaders are different from workers because they own productive property, and this property is necessary for the wellbeing of the overall

¹ Were economists aware that they were serving the interests of business owners? Some definitely were. Others were probably not. My guess is that progenitors of ideologies are often unaware of what they are doing. Church clergy, for instance, were probably not aware that their faith justified the power of feudal lords. For the clergy, their faith was simply the way the world worked. And so it is with many economists. The world “is” how their theory imagines it. That their ideas justify the power of business owners is not on (most) economists’ radar.

society. The more property a business leader owns, the more productivity is concentrated in him” (paraphrasing Turchin’s description of Hawaiian mana).

Hopefully scientists of the future will look at marginal productivity theory the same way we look at the Hawaiian “mana”. Both are ideologies that justify the social order. And both hamper the scientific study of resource distribution.

Economics awaits a Darwinian revolution

Modern economics, I have come to believe, resembles pre-Darwinian biology. By this, I mean that economics is captivated by an ideology that is stopping scientific progress. Let’s look at the parallels.

Before Darwin, biologists believed that life on Earth was created by God. This seductive idea stunted scientific progress for centuries. Much of the evidence for evolution – the fossil record, the similar anatomy of different species – was staring scientists in the face long before Darwin proposed his theory of evolution. But because life was viewed as God’s eternal creation, this evidence was mostly ignored.

Darwin’s “dangerous idea”² – evolution by natural selection – gave meaning to this evidence. Life was not an eternal order, Darwin proposed. Instead, it was an evolving system, driven by differential reproduction. The plethora of evidence for evolution suddenly made sense.

In hindsight, Darwin’s idea seems obvious, almost trivial. But it was not at the time. Most scientists were simply unable to imagine alternatives to their ideology of an unchanging cosmos. The situation is much the same in economics today.

Like biologists before Darwin, economists are captivated by an ideology that envisions a static cosmos. According to economic ideology, humans are selfish utility maximizers. In a perfectly competitive market, it follows from “natural law” that each person receives exactly what they produce. This is the eternal order.

Except it’s not.

Sitting before economists is a wealth of evidence for our evolved (and evolving) sociality. No more than 400 generations ago, humans lived in small tribes of a few dozen people. The first states formed 200 generations ago. The first empires appeared 120 generations ago. Nation states appeared a mere 10 generations ago. Now we live in states with millions (sometimes billions) of people.

Like pre-Darwinian biologists who ignored the evidence for evolution, economists mostly ignore the evidence for the evolution of human culture. It simply does not fit with their static worldview. Economics awaits its Darwinian revolution.

What’s needed is a theory that gives meaning to the evidence for human cultural evolution, and applies this evidence to the study of resource distribution. Fortunately, evolutionary-minded economists don’t have to start from scratch. Sociobiologists have done most of the work already.

² *Darwin’s Dangerous Idea* is the title of a book by philosopher Daniel Dennett.

What puzzles sociobiologists is the capability of some animals (like humans) to behave both selfishly and cooperatively. This dual nature needs an evolutionary explanation. Sociobiologists think they have one. They call it *group selection* (or multilevel selection). I propose we use this theory of group selection to create an evolutionary theory of resource distribution.

The duality of human nature

Humans can behave both selfishly and altruistically – a duality that escapes almost no one (except mainstream economists). This duality fills our daily lives and our imaginations. It is what makes fictional characters believable. Characters that are too selfish feel like cartoon villains (sorry Mr. Burns). Characters that are too altruistic feel like superheros (sorry Superman).

This selfish/altruistic duality should be at the center of an evolutionary theory of income distribution. So what explains our tendency to be both selfish and selfless?

Economists have one idea. Altruism, they say, is just masked selfishness. When I help my wife, for instance, this just *appears* altruistic from the outside. On the *inside*, I am still acting selfishly. I help my wife, economists say, because it maximizes my utility. The logic here is that because altruism is pleasurable, there is really no such thing as a selfless act. Every good Samaritan is just a masked hedonist – a utility maximizer in disguise.

On first pass, this seems like a clever argument. But after further thought, it misses something important. It does not tell us *why* altruism is pleasurable. Economists take the emotion of pleasure for granted. They simply assume that we seek it. But this is like a biologist saying that animals eat because they are hungry. Of course they do! The more important question is – why do animals get hungry?

Biologists realize that hunger is just a *proximate* explanation for why animals eat. To find the *ultimate* cause of a behavior, we must explain why it has been selected by evolution. Hunger is a mechanism that prevents animals from voluntarily starving to death. Since you can't reproduce when you are dead, it is not hard to see how hunger would evolve.

So here is the question that economists don't ask – why do humans find both selfish and altruistic behavior pleasurable? The answer, presumably, is that both behaviors can lead to reproductive success.

Like hunger, the pleasure of acting selfishly is easy to understand. If acting selfishly increases your chance to reproduce, it will be selected over time. Unsurprisingly, selfishness is hardwired into most animals – a byproduct of individual competition and survival of the fittest. Think of the female spider that eats its mate. Or the spider offspring that eat their own mother. Nature, as Tennyson said, is red in tooth and claw.

But in some animals (like humans), this selfish instinct is accompanied by a social instinct – a tendency to cooperate in groups. How did this social instinct evolve? The evolutionary biologist E.O. Wilson (2012) thinks it came from *group selection*.

The idea behind “group selection” is that when organisms live in groups, the benefit of selfish behavior is sometimes trumped by the benefit of altruistic behavior. If groups compete with

each other, there can be strong selective pressure for sociality. Wilson thinks this is how humans became eusocial (ultra-social) animals. We competed with each other in groups.

The paradox here – explored further by Peter Turchin in his book *Ultrasociety* – is that the evolution of our altruistic tendencies may have been driven by our most violent impulses. Warfare, Turchin argues, is what drove group selection among humans.

Let's think about how this could happen. In warfare, altruism is extremely advantageous. Imagine that an altruistic group battles a selfish group. The altruistic group charges boldly as a cohesive whole. Faced with this onslaught, the selfish group collapses as individuals flee their posts. The altruistic group triumphs and exterminates the selfish group. (Yes, human history is that violent.) Altruistic genes get propagated. Selfish genes die out. That is group selection in action.

If altruistic groups beat selfish groups, we might naively think that humans should be purely altruistic. But we are not. The catch is that *within* groups, individuals can still benefit from being selfish. Here's how. Imagine that you belong to an altruistic group that charges boldly into battle. It's in your interest to shirk your duty and run from the fight. The group is no less likely to win, but you're far less likely to die. If your strategy works, then selfishness gets selected.

E.O. Wilson thinks this tension between group benefit and individual benefit is what explains the duality of human nature. Altruism benefits groups. Selfishness benefits individuals within groups. In motto form, E.O. Wilson and David Sloan Wilson state this tension as:

“Selfishness beats altruism within groups. Altruistic groups beat selfish groups. Everything else is commentary” (Wilson and Wilson, 2007).

I find this a persuasive explanation of our dual instincts as humans. I propose we use it to build an evolutionary theory of resource distribution.

A war of all against all?

In *Leviathan*, Thomas Hobbes argued that humanity's natural state was a “war of all against all”. The subtext to Hobbes's argument is that humans are asocial. Rather than cooperate, our natural state is to compete with all fellow humans.

To explain how humans distribute resources, economists have adopted Hobbes' vision. But instead of calling this a “war of all against all”, economists use the Orwellian term “perfect competition”. In a perfectly competitive economy, every individual battles every other individual (through the market) to maximize their consumption of resources. The result, economists propose, is that every individual gets what they produce.

Tidy as it appears, this theory leads to some paradoxes. First, if humans compete in a war of all against all (perfect competition), why do we have institutions? Why do firms, governments and nation-states exist? Second, why is our war of all against all limited to the market? Why don't we just *take* the resources we want from our competitors?

These paradoxes arise because economists treat humans as asocial. But we are not. We are social animals whose instinct is to organize in groups. Our natural state is not, as Hobbes

thought, a war of all against all. Instead, our natural state is a war of *group against group*. This is the central insight of group selection theory. Humans form groups that compete with each other, often violently.

The existence of groups, so paradoxical in economic theory, should be our default hypothesis in an evolutionary theory of resource distribution. In every human society, we expect to find groups that violently compete with one another – be they tribes, fiefdoms, or states. In other words, theft and plunder *between groups* is the default way that humans distribute resources. To remind us of our violent past, Peter Turchin (2016) quotes the sordid texts left by ancient kings. Here, for instance, is an ancient Assyrian ruler boasting of his conquest of neighbouring states:

“Then I went into the country of Comukha, which was disobedient and withheld the tribute and offerings due to Ashur my Lord: I conquered the whole country of Comukha. I plundered their movables, their wealth, and their valuables. Their cities I burnt with fire, I destroyed and ruined. . . . I crossed the Tigris and took the city of Sherisha their stronghold. Their fighting men, in the middle of the forests, like wild beasts, I smote. Their carcasses filled the Tigris, and the tops of the mountains ...

The ranks of their fighting men I levelled like grass. I bore away their gods; their movables, their wealth, and their valuables I carried off. Their cities I burnt with fire, I destroyed and overthrew, and converted into heaps and mounds. The heavy yoke of my empire I imposed on them” (quoted in Turchin, 2016).

This level of violence, Turchin thinks, is typical of archaic rulers. Other ancient texts, like the Old Testament, give similar accounts of violent conquests. With this in mind, we should treat violent conflict *between groups* as the default mode of human competition. It is how we distribute resources in the absence of other mechanisms.

Markets suppress competition

Our thesis is that *between* human groups there is a war of all against all. But *within* groups, things are different. To be stable, groups must foster cooperation among members. Put another way, stable groups must *suppress* competition.

Markets, I propose, are a cultural tool for suppressing competition within groups. When they function well, markets restrict competition to the rules of private property. Resources can't be taken by force. They must be bought and sold. In other words, markets suppress outright theft and plunder. (I say “outright”, because I still have Pierre-Joseph Proudhon's slogan “*Property is theft!*” ringing in my ear).

The main insight from group selection theory is that this suppression of competition must occur *within a group*. In other words, property rights do not just come from nowhere (although it appears that way in economic theory). Instead, property rights are culturally evolved. They developed within groups as a way to suppress competition.

It is nation-states, for instance, that enforce modern property rights regimes. And when these regimes break down (when states “fail”), competition doesn’t disappear. Instead, it takes a more severe form. Think civil war. Think roaming bands of mercenaries. Think warlords. Think terrorism. Think outright war. Markets maintain the stability of a group by suppressing violent competition within it. When markets fail, groups fail.

As an example of this process, think of Europe. Two centuries ago, European states were almost constantly at war with one another. This group conflict culminated in two world wars – the most violent events in human history. After World War II, European states finally managed to integrate into a larger group. The Eurozone market was born, and peace prevailed. Violent competition was suppressed, and war gave way to market competition.

Markets are, of course, one of many cultural tools for suppressing competition. But within modern states, they are probably the most important.

Firms suppress the market

Markets suppress violent competition within states. But this is just the first of a series of tools for limiting competition. Within states, there are subgroups we call “firms”. Their main role is to *suppress the market*.

This is, of course, not how economists treat firms. In fact, the existence of firms comes as a shock to economic theory. This is because economists assume that “perfect competition” (a market war of all against all) is the optimal way to organize society. To explain why firms exist, economists have to add auxiliary assumptions. The most popular auxiliary assumption was proposed by Ronald Coase (1937). He argued that firms minimize “transaction costs” – the cost of organizing using the market. But much like marginal productivity, transaction costs are unobservable (Nitzan and Bichler, 2009).

In contrast, an evolutionary theory does not need auxiliary assumptions to explain why firms exist. Our hypothesis is that humans are social animals who compete as groups. To be stable, these groups suppress internal competition. Firms, then, are subnational groups that compete within the confines of the market. And just as expected, firms *suppress* market competition internally.

How do firms suppress the market? They use *hierarchy*.

Inside firms, there is no bartering, no bidding, and no auctioning. Instead, firms have a *chain of command*. Superiors command subordinates, who command their own subordinates, and so on. Like property rights, this chain of command is a set of rules that limit competition. Employees, for instance, can compete for promotions within the corporate hierarchy. But once the position is filled, the competition is over. If the chain of command works well, subordinates will obey the newly promoted person. No such rule exists on the open market.

To each according to ...

Ever since Marx (1875), economists have put theories of distribution in ethos form. I'll join the bandwagon here. In our evolutionary theory, resource distribution is marked by a tension between two ethoses:

The red-claw ethos: "*To each according to his ability to take.*"³

The communist ethos: "*To each according to his needs*"

The red-claw ethos is the ethos of *selfish competition*. It is survival of the fittest – nature, red in tooth and claw. For most organisms, this is the ethos that dominates. Individuals compete for resources with little or no regard for others.

The communist ethos is Marx's famous slogan for the ideals of a communist society. In evolutionary language, it is the ethos of *altruism*. If humans were completely altruistic, we would divide the resource pie with perfect equity. We would give every person what they need. Obviously, we fall short of this ideal.

Among animals, the social insects like ants and bees probably come closest to the communist ethos. To find pure altruism, however, we need to look *inside* animals. The human body, for instance, is a marvel of cooperation. It is an amalgamation of trillions of cells that function together. If your body is healthy, each cell gets exactly the resources it needs. No more, no less. The cells of the body are a purely altruistic group.

In human societies, resource distribution lies between the extremes of both the red-claw and communist ethos. We form groups that compete with each other, and this competition leans towards the red-claw ethos. Groups take what they can from other groups. At the largest level of organization, theft and plunder (from other groups) rule the day.

But *within* groups, the red-claw ethos gets suppressed. Inside our group, we have an instinct to cooperate, and share resources equitably. We also have cultural tools that amplify this altruistic instinct. These tools suppress competition, and bring us closer to the communist ethos.

To understand resource distribution, we must understand this balance between the red-claw and communist ethos – selfishness and altruism. It's no small task. As cultural evolution makes clear, humans can live in many different types of societies. The task for an evolutionary theory is to understand how these differences came to be. We need to study how existing groups beat those that went extinct.

Resource distribution in an evolutionary context

Darwin's theory of evolution put humans in our place. Humans are not, as religion suggested, chosen beings set apart from the rest of creation. Instead, humans are a twig on the tree of life.

³ Yes, the pronoun "his" is awkward here. Substitute the word "its" if you like: "To each according to its ability to take". I've kept the word "his" to mirror Marx's language.

The rest of science took note of Darwin's discovery. But economists missed the memo. As practised today, economics is an isolated discipline – an island of anthropocentrism. Economists devise models and theories with no regard for how they fit with the rest of science.

Case in point is economists' theory of resource distribution. It proposes that in a competitive economy, each individual receives what they produce. How bizarre this theory looks when compared to the rest of science. Natural scientists understand that organisms don't *produce* resources. Organisms *capture* and *transform* resources. To say that an organism gets what it produces is nonsensical – meaningless even.

Our evolutionary theory attempts to bring economics back into the scientific fold. Our theory takes Darwin's memo, and applies it to economics. It puts humans into the grander scheme of life on Earth. What is this scheme? The physicist Ludwig Boltzmann once said that life is a "struggle for free energy". But this is not entirely true. Life is both a struggle and a *collaboration* for free energy. It's a tapestry of competition and cooperation.

Let's look at this tapestry as a whole. Life, we presume, began as a struggle between replicating molecules. But soon, some of these molecules banded together. Although the steps remain murky, groups of cooperating molecules somehow formed cells. These cells then competed with each other for resources, but cooperated internally.

After billions of years of single-celled life, another collaboration occurred. A bacterium merged with an archaeon (another single-celled organism), eventually forming the eukaryotic cell (Lane, 2015). In this symbiosis, the bacterium became the mitochondria – the energy workhorse of the cell. The archaeon became the cytoplasm and nucleus. This new collaborative cell competed with other cells, and suppressed competition internally.

Millions of years later, eukaryotic cells began to band together in groups, forming multicellular organisms. So advantageous was this symbiosis that it appears to have happened multiple times (Grosberg and Strathmann, 2007). These multicellular organisms then competed with each other and suppressed competition internally. (We have a name for the failure to suppress competition within multicellular organisms. It is called *cancer*.)

The trend towards collaboration did not stop there. Eventually social organisms evolved that organized in groups. These groups competed for resources, and suppressed competition internally. Some social animals, like ants and bees, are so collaborative that scientists call them "superorganisms" (Wilson and Sober, 1989; Seeley, 1989).

Humans have continued this evolutionary story. But instead of genetic evolution, most changes in human society occur through cultural evolution. In other words, it is our *ideas* that evolve, not our genes. In our ancestral state, humans were probably much like other primates. We organized in small troops of related individuals. We shared resources within this group, and battled other groups for food and territory. Gradually troops gave way to organizing in tribes. After many millennia, these tribes began to merge into larger chiefdoms. Chiefdoms eventually merged into states. And states merged into empires. At every stage, competition raged *between* groups and was suppressed *within* groups.

Humans are part of a grand pattern of life on earth – a struggle and collaboration for resources. Our evolutionary theory embraces this duality. It gives a framework for studying the richness, diversity, and contradictions of how humans distribute resources.

What our evolutionary theory does not do is give simple answers. It does not say exactly how resources are distributed at any point in time. In fact, the theory makes clear why such exact answers (like the ones economists give) are foolhardy.

Human society is part of a much larger tapestry of life on earth – a tapestry of struggle and collaboration. The whole point of an evolutionary theory is to admit that this tapestry *changes* with time. The way resources are distributed in an apex forest, for instance, is completely different than how they were distributed in primordial soup. And so too with humans. Resource distribution in industrial societies is nothing like it was among hunter gatherers. Only when economists start thinking about resource distribution in this grand context will economics be an evolutionary science.

Part II: Social relations and resource distribution

A 25% *chance*. That's the likelihood that when I tell someone I am searching for a job, they will say:

Remember, Blair ... to land a job, it's not what you know that matters. It's who you know.

While I may be exaggerating this chance, it's an open secret that when it comes to landing a job, it matters who you know. Many people, it seems, like to remind me of this fact.

A 0% *chance*. That's the likelihood that when I tell someone I research income distribution, they will say:

Remember, Blair ... when it comes to income, it's not what you know that matters. It's who you know.

Does this discrepancy strike you as weird? It should. It highlights a blind spot in how we think about the distribution of resources. We all know that our social network matters for landing a job. But once we've got the gig, we don't think about how our relationships determine our income.

But what if we did think about the social nature of income? What would the resulting theory of resource distribution look like? I have argued that this theory must wrestle with our dual nature as humans – our tendency to be both selfish and selfless. In Part 1, I explored this tension by looking at how groups compete with each other and suppress competition internally. Here, I look at the same tension from the opposite angle. I discuss how individuals cooperate to build groups, and how this cooperation gets used by individuals for selfish gain.

The neoclassical bartender

When we study resource distribution, neoclassical economics is always the elephant in the room. It is the lumbering theory that, despite many bullet wounds, refuses to die. I have

previously called the neoclassical theory of distribution an ideology (in Part I) and a thought virus (Fix, 2018b). Here, I will treat it as the punchline to a joke.

A janitor and a CEO walk into a neoclassical bar. Envious of the CEO's exorbitant income, the janitor hits the CEO. A brawl ensues. What does the neoclassical bartender say to stop the fight?

"Stop fighting. *You both get paid what you produce.*"

This punchline is not very funny, but it is the line delivered by neoclassical economist John Bates Clark. At the end of the 19th century, social ferment was in the air. In response to this ferment, Clark developed a theory of income distribution that essentially said to society: "Stop fighting. Everyone gets paid what they produce". Here is how Clark put his bartender punchline:

"It is the purpose of this work to show that the distribution of the income of society is controlled by a natural law, and that this law, if it worked without friction, would give to every agent of production the amount of wealth which that agent creates" (Clark, 1899).

In one of the great ironies of history, Clark's punchline managed to become a respectable scientific theory (at least among economists). The punchline goes by the name of "marginal productivity theory". It proposes that in a competitive market, every person receives exactly what they produce.

When he delivered his punchline, Clark's main interest was the income split between workers and capitalists. Clark wanted to show that capitalists got what their property produced, and hence deserved their income. Only later did neoclassical economists focus on income differences between workers. In the late 1950s and early 1960s, theorists like Jacob Mincer (1958) and Gary Becker (1962) proposed that workers' income was proportional to their "human capital". This human capital was a stock of skills that made workers more productive. Soon after it was proposed, however, human capital theory ran into trouble. Ironically, it was human capital pioneer Jacob Mincer who revealed the problem. In his initial work in 1958, Mincer defined human capital restrictively as an individual's years of formal schooling. But Mincer soon found that formal schooling explained very little about individual income. Here is Mincer admitting the problem:

"Simple correlations between earnings and years of schooling are quite weak. Moreover, in multiple regressions when variables correlated with schooling are added, the regression coefficient of schooling is very small" (Mincer, 1974).

In response to this empirical failure, many economists doubled down. Instead of abandoning their theory, they broadened their definition of human capital so that it could explain everything and anything about income.

Take, for example, Gregory Mankiw's bestselling economics textbook, *Principles of Microeconomics*. In it, Mankiw defines human capital as "the accumulation of investments in people". With vague definitions like this, human capital theory became immune to evidence. Sadly, neoclassical economists did not see this as a problem.

Neoclassical Robinson Crusoe

When it comes to explaining resource distribution, neoclassical theory is missing something obvious. To see what is missing, we will tell another joke.

A neoclassical version of Robinson Crusoe gets stranded on a desert island.
How much does his standard of living decrease from before he was stranded?
None. Crusoe took his human capital with him!

Again, this punchline is not very funny. But it's a true representation of human capital theory, which assumes that people carry their income-earning potential around with them. All that matters for workers' income is their stock of human capital. The rest of society is irrelevant. In a competitive market, neoclassical theory says that we all get what we produce.⁴ If some people produce more than others, it is because they have more human capital, or own more physical capital. The social context, in other words, is irrelevant to one's income. Put Robinson Crusoe in London or strand him on an island ... it doesn't matter. His skills stay the same, so his income stays the same.

The message of neoclassical economics is that we are all self-sufficient Robinson Crusoes – islands unto ourselves. Economists have built a towering theoretical edifice on the idea that there is no such thing as society.

Evolutionary microfoundations

To build a more realistic theory of resource distribution, we need a new “microfoundation” for economics. This is the term economists use to describe their assumptions about human behavior. Most economists assume that humans are purely selfish. But this idea has outlived its usefulness.

A better approach, I believe, is to assume that humans are both selfish and selfless. And we should take a hint from biologists and ground this duality in an evolutionary framework. I argue that the principles of evolutionary biology should form the microfoundation of economics.

I have based my approach on a theory called group selection (sometimes called multilevel selection). According to this theory, the duality of human nature stems from an evolutionary conflict between two “levels” of natural selection. Selfishness stems from selection at the *individual* level. Altruism stems from selection at the *group* level. E.O. Wilson and David Sloan Wilson summarize this tension between individuals and groups in a succinct motto:

“Selfishness beats altruism within groups. Altruistic groups beat selfish groups. Everything else is commentary” (Wilson and Wilson, 2007).

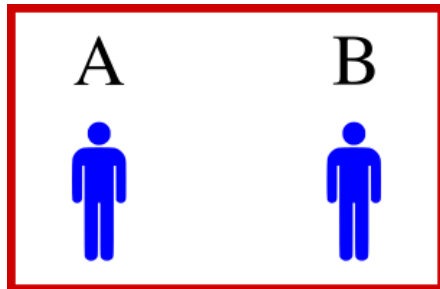
⁴ In the real world, very few people literally consume what they produce (subsistence farmers aside). Musicians don't exclusively consume their music. And bakers don't exclusively consume their bread. In the real world, we exchange many different commodities with one another. Not so in neoclassical theory. Clark's theory of marginal productivity only works in a world with one commodity. Think of it as the widget world. Everybody makes widgets. And everybody consumes widgets. In this world, everyone literally consumes what they produce, because they all produce the same thing.

I propose that we use this principle as the “microfoundation” of economics. Out with the old assumption that individuals are selfish utility maximizers. In with the evolutionary hypothesis that humans are both selfish and selfless – a duality shaped by the tension between individual versus group benefit.

Relations: the building block of groups

The building block of our evolutionary theory should be the human relation. By forming networks of relations, humans are able to form groups. These relations then determine how resources are distributed within groups.

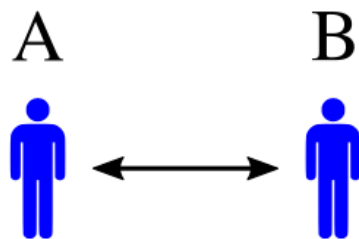
Figure 1 *A group of two people, Alice and Bob*



To develop our ideas, we will look at a group of two people (Figure 1). We'll call them Alice (A) and Bob (B). We ask ourselves – what kind of relation do Alice and Bob have?

One possibility is that they have a *purely altruistic relation*. This means that Alice and Bob respect each other's will. They do not do anything as a group unless they can both agree on it. We will represent this purely altruistic relation using a double-headed arrow. The two heads indicate that influence is symmetrical. Alice influences Bob as much as Bob influences Alice.

Figure 2 *A purely altruistic relation*



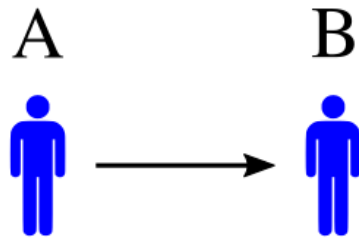
In the real-world, the closest we get to a purely altruistic relation is probably the bond between two people who are “in love”. While we should celebrate love, we should also realize that most human relations are not purely altruistic. Instead, pure altruism is an ideal. It is one end of the spectrum of human relations.

So what is the opposite end of the spectrum? It is tempting to say that the opposite of the purely altruistic relation would be the *purely selfish relation*. But the problem with this response is that a purely selfish relation is actually no relation at all. If two people pursue only their own selfish ends, we can hardly call this a relationship. It is just an aggregate of selfish individuals.

No, the opposite of a purely altruistic relation is not a purely selfish relation. It is a *pure power relation*. In such a relation, one person acts selfishly while the other person acts altruistically. But in power relations, “altruism” takes a special form. We call it *submission*. The altruistic person submits to the will of the dominant person.

We will represent a pure power relation using a single-headed arrow. The direction of the arrow indicates the direction of influence – the flow of power. In the relation below, Alice has power over Bob.

Figure 3 *A pure power relation*



In a pure power relation, power is absolute. If Alice says “jump off a cliff”, Bob jumps off a cliff. Like pure altruism, pure power is an ideal. In the real world, the closest thing to a pure power relation is probably the bond between a master and slave. A slave must obey their master, even to their own detriment.

Pure altruism and pure power, then, are idealized relations that define the spectrum of human bonds. We will use this spectrum to think about how groups distribute resources.

Dividing the pie

To explore how groups distribute resources, we'll return to Alice and Bob. Imagine that Alice and Bob are a group that together exploits resources. One day, the two of them find an apple pie. How do they divide it up?

The answer depends on Alice and Bob's relation.

Let's first imagine that Alice and Bob treat each other as equals. They have a purely altruistic relation. In this case, the two of them will likely divide the pie equally. Why? Because every decision depends on consensus. If Alice wants to take more resources than Bob, she must convince Bob to give up his share. That's a hard sell if Bob thinks himself equal to Alice.

The only convincing reason for Alice to take more resources than Bob is if she *needs* more. Suppose Alice is an endurance athlete and Bob is a couch potato. In this case, Alice needs more food, and Bob is likely to let her have it. So in purely altruistic relations, resource distribution will follow the communist ethos: *to each according to their need*.

Now let's imagine that Alice and Bob have a pure power relation. Alice has absolute power over Bob. Now how do they divide the pie?

It is tempting to say that Alice and Bob would follow what I have called the red-claw ethos: *to each according to their ability to take* (see Part 1). But there is a problem here. The red-claw ethos is about individual competition – a war of all against all. It is how resources are

distributed in purely selfish relations. But this mutual competition is not how power relations work. Instead, in power relations only one person acts selfishly. The other person acts altruistically by submitting to the will of their dominant partner.

In our example, Bob submits to Alice's will. This submission is key to understanding how resources get distributed. When Bob submits to Alice, he gives her complete control over the resource pie. Alice could be a despot and hoard everything. Or she could be a benevolent dictator and give Bob his fair share. The choice is hers.

In pure power relations, then, resource distribution is determined by the whim of the dominant individual. Still, there is a regularity to how those with power distribute resources. Even the most selfless individuals inevitably use their influence for personal gain. *Power*, as they say, *corrupts*.

Here is how it happens. Suppose that Alice has absolute power over Bob. Suppose also that Alice is a fervent Marxist, and believes in the communist ethos. So she initially shares resources equally with Bob. But as time goes by, Alice's power goes to her head. She starts to feel that she is not like Bob. Because of her power, Alice starts to believe that she is special. She has innate abilities that Bob doesn't have – abilities that Bob could *never* have. And because she has these abilities, Alice thinks to herself, "I deserve more resources than Bob". And so she *takes* more resources – a little at first but more over time. Slowly Alice turns from a benevolent dictator to a gluttonous despot. It is a story as old as time.

The power ethos

The moral of our Alice and Bob story is that people inevitably use their power to enrich themselves. In power relations, then, resource distribution has its own ethos. We'll call it the power ethos:

The power ethos: *To each according to their social influence.*

When I have discussed the power ethos with mainstream economists, they've reacted with bewilderment. The problem, I have realized, is that economists reject the idea of a *social cause*. Instead, they insist that resource distribution must be tied to characteristics of individuals or their property. Philosophers have a name for this thinking. They call it methodological individualism. Geoffrey Brennan and Gordon Tullock summarize how the philosophy works in economics:

"[I]n modern economics... the ultimate unit of analysis is always the individual; more aggregative analysis must be regarded as only provisionally legitimate" (Brennan and Tullock, 1982).

Economists are bewildered by the power ethos because power is not a property of the individual. Instead, power is a social relation between people. And trying to understand social relations, it seems, produces error messages in the brains of economists. So to them, the power ethos is incoherent.

But while incoherent to mainstream economists, the power ethos makes perfect sense in our evolutionary theory. In fact, the essence of our theory is that there is a conflict between social

(group) goals and individual goals. Let's look at the power ethos through this evolutionary lens.

Power is a social relation shared by both groups and individuals. At the group level, power is a mode of organization – a way to coordinate human activity. At the individual level, power is a tool for selfish gain – something to be accumulated for personal enrichment.

This duality of power creates a tension between levels of natural selection. Concentrating power may be good for the group but not good for (some) individuals within the group. Likewise, when individuals use their power to enrich themselves, this is good for (some) individuals within the group, but not good for the group as a whole.

Power is a double-edged sword that cuts to the core of our dual nature as humans

How does centralized power benefit groups?

So why might centralized power benefit groups? Peter Turchin thinks it is because centralized power allows groups to get bigger (Turchin and Gavrilets, 2009). When power has a nested structure (a hierarchical chain of command), it limits the need for social interaction. In a hierarchy, you need to interact only with your direct superior and direct subordinates. This structure, Turchin argues, allows humans to sidestep biological limits in our ability to organize. Centralized power allows group size to grow without increasing the need for social interaction. If Turchin is correct, it still begs a question. Why are bigger groups better? Turchin's answer is that big groups have a military advantage over small groups. "Providence", the saying goes, "is always on the side of the big battalions". Turchin (2016) argues that over the last 10,000 years, large hierarchical groups tended to defeat small egalitarian groups. With each defeat, concentrated power spread as an organizing principle.

Centralized power as convergent evolution?

Humans' use of centralized power as a coordination tool is not unique in nature. In fact, it may be an example of convergent evolution. Think of the evolution of multicellular animals. As they have gotten bigger, animals have all evolved centralized control as an organizing principle inside their bodies.

The human body, for instance, is not an aggregate of autonomous cells. Instead, it is a network of cooperating cells that are controlled by the central nervous system. The cells of the brain, in effect, have power over other cells. When brain cells say "jump", muscle cells say "how high".

There is, however, a fundamental difference between cells in the body and individual humans in groups. Body cells do not use their power for selfish gain. We never catch brain cells using their control of the nervous system to take resources from muscle cells. (If we do, it signals that something has gone very wrong in the body). We don't see this because body cells are altruistic. So even though the body is centrally controlled, the communist ethos prevails. Each cell gets exactly the resources it needs.

In contrast to the cells in our body, individual humans are not purely altruistic. We may be social animals, but we still have a strong selfish streak. (On the ladder of sociality, humans rank far below the cells in our own bodies). So when human groups centralize power,

individuals predictably use their power for personal gain. Instead of the communist ethos, then, we get the power ethos. Each person gets what their social influence allows them to take.

This is why power is a double-edged sword.

The double-edged sword

Concentrated power is no panacea for groups. If it were, we would all be living in totalitarian regimes. Yes, power is a tool for coordination. But it is also a tool for despotism. And this despotism can easily undermine the coordinating benefits of power.

Here's an example. Imagine two large armies meet to do battle. Both armies are the same size and have the same weapons. And both armies are organized using concentrated power. On the surface, these armies appear equally matched. But below the surface, there is a gaping difference. One army is commanded by a gluttonous despot who keeps his subordinates in rags. We will call this the "slave army". The other army is commanded by a benevolent dictator who shares resources equally with his soldiers. We will call this the "professional army".

Which army wins the battle?

I would wager on the professional army. The problem for the slave army is that the leader's despotism undermines his chain of command. Think about it. Would you put your life on the line for a commander who kept you in rags? I wouldn't. But I might put my life on the line for a commander who shared resources with me.

The professional army probably has better morale than the slave army, and thus a stronger chain of command. The professional army fights as a unit, keeping the group advantage of centralized power. In contrast, the slave army has a tenuous chain of command. At the first sign of misfortune, the slaves will abandon their despotic leader to whom their allegiance is thin. As the battle rages, the slave army collapses and gets slaughtered.

This is a hypothetical example. But there is real-world evidence that inequality undermines groups' ability to compete. The evidence comes, not surprisingly, from sports – the modern surrogate for violent conflict. In his book *Ultrasociety*, Peter Turchin notes that sports teams with more equal pay tend to win more games. Here is Turchin describing work by Frederick Wiseman and Sangit Chatterjee:

"Frederick Wiseman and Sangit Chatterjee sorted the Major League Baseball teams into four payroll classes, ranging from those with the biggest disparities to those with the smallest. Between 1992 and 2001, teams in the most equal class won an average of eight more games per season than those in the most unequal class. The corrosive effect of inequality on cooperation is not limited to baseball. The same effect was observed when researchers analyzed the performance records of soccer teams in Italy and Japan" (Peter Turchin, 2016).

If inequality undermines sports teams' performance, we expect it to do the same among warring groups. The lesson is that when groups concentrate power, they must walk a fine line. They must reap the coordinative benefits of power while avoiding the perils of despotism.

Pathways to power

While power is a double-edged sword for groups, it is a panacea for the individuals who accumulate it (until their group collapses because of their despotism). Amassing power is a proven way to increase reproductive success (Betzig, 1986). So it is no wonder that humans have an urge to seek power. If a behavior leads to reproductive success, organisms will develop an urge to do it.

But what exactly do we mean when we say that an individual "accumulates power"? Ultimately, my goal here is to develop a quantitative theory of resource distribution. To do this, we need to measure the accumulation of power. With this measurement in mind, I am going to discuss three "pathways to power"⁵. These are ways that individuals can increase their social influence within a group.

Pathway to Power 1: Make your subordinates more submissive

One way to increase your power is to make your existing subordinates more submissive. By doing so, you make your power more absolute. An obvious way to do this is to coerce your subordinates. If I hold a gun to your head, you will immediately become more submissive. As totalitarian regimes have discovered, coercion is a good way to make people more obedient. But while potent, coercion is an expensive way to increase your power. The more you coerce someone, the more they will dream of killing you. This is the fear of every despot – that their subordinates will turn on them. So while coercion can exact obedience, it requires constant vigilance. Ignore your coerced subordinates for a moment and you may find a dagger in your back.

A less expensive way to make your subordinates more submissive is to turn to the power of *ideas*. Convince your subordinates that you have the legitimate right to command them and you immediately increase your power. What kind of ideas work? Convincing your subordinates that you speak for God seems to do the trick. Convincing your subordinates that you are a God is even better. Regardless of the content of your ideology, what matters is its *virulence*. To work, your ideology must infect the minds of your subordinates. It must convince them that your power is legitimate.

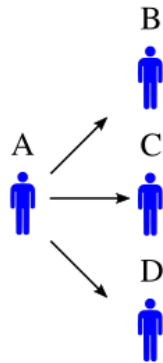
Whether you use coercion or ideology (or both), making your subordinates more submissive can increase your power. That being said, this approach is not an effective way to *accumulate* power. Why? Because having absolute power over a few subordinates hardly makes you Napoleon. To achieve great power, you need to become the master of many. You need to accumulate subordinates.

⁵ I'm borrowing the term "pathways to power" from Brian Hayden (1995), who used it as the title of a paper about the origin of inequality. Douglas Price and Gary Feinman (2010) later used the phrase as the title of their book on the same topic.

Pathway to Power 2: Accumulate direct subordinates

With Napoleon as your inspiration, you set out to accumulate subordinates. How do you do it? One way is to accumulate *direct* subordinates. A direct subordinate is someone who is directly under your control. They listen to you and no one else. Figure 4 shows an example of this pathway to power. Here, our budding despot Alice has accumulated 3 subordinates – Bob (B), Charlotte (C) and David (D). In idealized form Bob, Charlotte and David obey Alice and ignore each other.

Figure 4 *Accumulating direct subordinates*



While simple, there are obvious limits to this pathway to power. Even the most charismatic person will find it hard to maintain direct power relations with hundreds of people. Yet to be powerful like Napoleon, you need *hundreds of thousands* of subordinates.

Pathway to Power 3: Accumulate indirect subordinates

If you are not satisfied with the number of subordinates you can control directly, the next step is to encourage your subordinates to find their own subordinates. By doing so, you accumulate *indirect* subordinates. Figure 5 shows an example. Here Alice controls Bob, who controls Charlotte, who controls David.

Figure 5 *Accumulating indirect subordinates*



We assume here that power is “transitive”. So if Bob controls Charlotte and Alice controls Bob, then Alice also controls Charlotte. When power is transitive, it forms a chain of command. By virtue of this chain of command, Alice has 3 subordinates (1 direct and 2 indirect).

The advantage of accumulating indirect subordinates is that you don’t need to manage relations with many people. In our example, Alice directly commands only one person – Bob. To wield power, she gives orders to Bob, who then passes these orders down the chain of command. This is far easier than giving orders to hundreds of people.

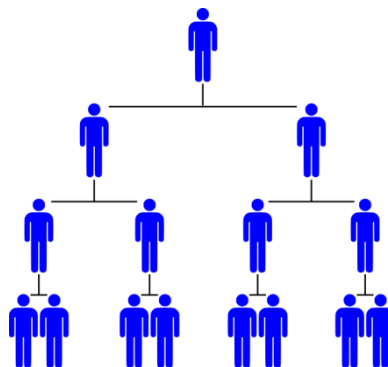
The disadvantage of having indirect subordinates, however, is that power is not perfectly transitive. Power gets diluted as it is passed down the chain of command. So when Alice says “jump”, there is no guarantee that David will get the message. The intermediaries in the chain of command (Bob and Charlotte) have their own agendas which may be different from Alice’s. So having indirect subordinates still requires work. You have to maintain the chain of command so that power flows smoothly.

The road to hierarchy

If you are a budding Napoleon, you have likely realized that the best way to accumulate power is to use all three pathways: make your subordinates extremely submissive, accumulate direct subordinates, and encourage your subordinates to accumulate subordinates. When you pursue all three pathways to power, what do you get? In a word, *hierarchy*.

A hierarchy is a network in which every relation is a power relation. To maintain the hierarchy, you must make sure your subordinates are submissive (pathway 1). Next, you encourage all of your subordinates to command *multiple* subordinates of their own. This combines pathways 2 and 3, and leads to the quintessential feature of a hierarchy – the branching chain of command.

Figure 6 *The branching chain of command in a hierarchy*



It is by commanding a growing hierarchy that you can accumulate power that rivals Napoleon’s. Think about the structure of hierarchy. As each new layer of hierarchy is added, the number of subordinates you command grows *exponentially*.

Suppose you start out as a bit player who controls 4 subordinates. But as a budding Napoleon, you soon attract more people to your cause. You convince each of your subordinates to get 4 subordinates of their own. Now you have 20 subordinates (4 direct + 16 indirect). Repeat this process again and you have 84 subordinates (4 + 16 + 64). Repeat again and you have 340 subordinates (4 + 16 + 64 + 256). It doesn’t take long (about 10 levels of hierarchy) before you have *millions* of subordinates.

Now you have power that rivals Napoleon’s. And our evolutionary theory predicts that you will use it to your advantage. You will use your immense power to take an exceptional share of the resource pie.

It's not what you know that matters

I began Part II by noting that when I discuss my research with friends, they don't comment that one's income is about "who you know". This, I argued, is a sign that most people don't think about the social nature of income. Most of us prefer to believe that our income is about our *skill*, not our place in society.

But with a bit of evolutionary reasoning, it becomes clear that our relations must be what drives the distribution of income inside groups. Moreover, when groups organize using power relations, we have a clear prediction for how income should be distributed. I have called this prediction the power ethos: *to each according to their social influence*.

Hierarchies, I have argued, are the quintessential tool for concentrating power. In them, the power ethos should dominate. In other words, in a hierarchy it's not what you know that shapes your income. It's who you *control*.

Part III: Evidence for the Power Ethos

Having proposed that the power ethos should prevail within hierarchies, I now put this idea to the test. I look for evidence of the power ethos inside modern firms.

Measuring power

To test for the power ethos, we need to quantify power. It is at this point that my colleagues protest. "How can you quantify power?" they ask. "It has so many different forms!" My colleagues are correct to point out this problem. The multifaceted nature of power has long been a thorn in social scientists' side. Many social scientists have argued that concentrated power leads to inequality.⁶ But because power is difficult to quantify, this idea has rarely been tested.

As a consequence, a promising theory of resource distribution has languished. There are compelling reasons to think that income (within hierarchies) grows with power (see Part 2). But without quantitative evidence, why should anyone believe this theory?

They shouldn't.

And there is the crux of the problem. Yes, power has many forms. And yes, this makes it difficult to measure. But unless we quantify power, we cannot test the power ethos. The solution is to bite the bullet and try to quantify power. We admit that power is complex. But we forge ahead anyway.

⁶ Many people have proposed that income stems from power. Gerhard Lenski wrote a book about it (*Power and Privilege*). It's a major part of Jonathan Nitzan and Shimshon Bichler's research in *Capital as Power*. It is also a popular idea among institutional economists like Thorstein Veblen (1923), John Rogers Commons (1924), Christopher Brown (2005), and Marc Tool and Warren Samuels (1989). And it has been proposed by sociologists like Max Weber (1978) and Erik Olin Wright (1979).

The two dimensions of power

To measure power, I propose that we break it down into two dimensions. We will distinguish between the *number* of people one influences and the *strength* of this influence. The purpose of doing so is to distinguish between qualitative and quantitative aspects of power.

The *strength* of one's influence over others is a qualitative aspect of power. It is determined by the obedience of one's followers, which is difficult to quantify. This obedience, I think, is what most people mean when they speak of different "forms" of power. Having thousands of Twitter followers, for instance, is not the same as having thousands of slaves. Slaves are far more obedient than Twitter followers. So these two forms of social influence are qualitatively different.

In contrast, the *number* of people one influences is easy to quantify. We just count people! The problem, though, is that comparing the number of people one influences isn't useful unless the "forms" of power are equivalent. So we have a dilemma.

Here is where our two dimensions of power are useful. While we may not be able to (easily) quantify the obedience of followers, we can probably agree on a rough ranking. We can agree that social media followers are less obedient than employees in a corporate hierarchy. And these employees, in turn, are less obedient than cult members.

Once we rank obedience, I argue that we can reduce power to a single dimension. As long as we stay within the same "zone of obedience", we can measure power in terms of the number of followers. With this in mind, let's look at Figure 7.

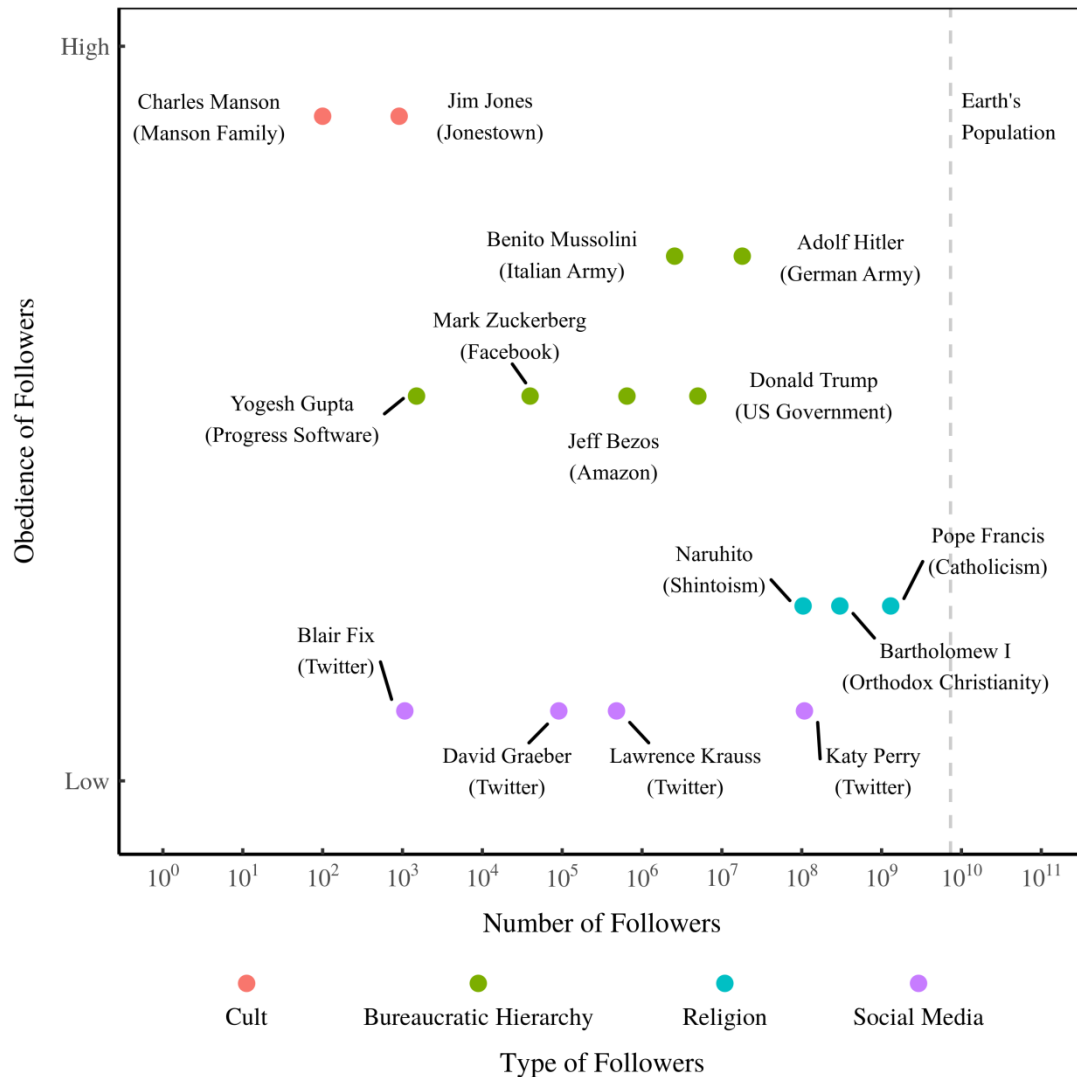
In Figure 7, I have chosen a handful of individuals and split their power into two dimensions. The x-axis shows the number of followers of each individual. (Note the log scale. Each tick mark indicates a factor of 10). On the y-axis, I rank these forms of power by the obedience of followers. *Full disclosure*: this obedience ranking is based on my intuition about different forms of social influence. It has no empirical basis.

Let's first go through this obedience ranking. Then we will discuss why it is relevant for measuring power. We will start at the low end of obedience with social media followers. When you follow someone on Facebook or Twitter, you are not pledging allegiance to them. You probably just think this person is interesting. So your level of obedience to the person you follow is low (or non-existent).

Religious followers are a little bit more obedient. The average religious person listens to their religious leader, but chooses which doctrines they will obey. For instance, many people who profess to be Catholics ignore most of the Pope's decrees.

Still more obedient are members of bureaucratic hierarchies. These people are obedient because their job depends on it. In totalitarian regimes, even more is on the line. For this reason, I've ranked dictators (like Mussolini and Hitler) higher on the obedience scale. At the upper end of obedience are cult followers, who can be so devoted to their leaders that they are effectively slaves. The members of Jim Jones' cult are the most extreme example. Jones convinced hundreds of his followers to kill themselves in a mass suicide (Conroy, 2018). It's hard to think of a higher form of obedience.

Figure 7 *The Two Dimensions of Power*. The y-axis ranks different forms of power in terms of the obedience of followers. The x-axis shows the number of followers of the given individual. For religious leaders, this is the number of people of the given faith. For CEOs, it is the size of the firm they command. For government leaders, it is the size of the government (or the military). For cult leaders, it is the cult size.



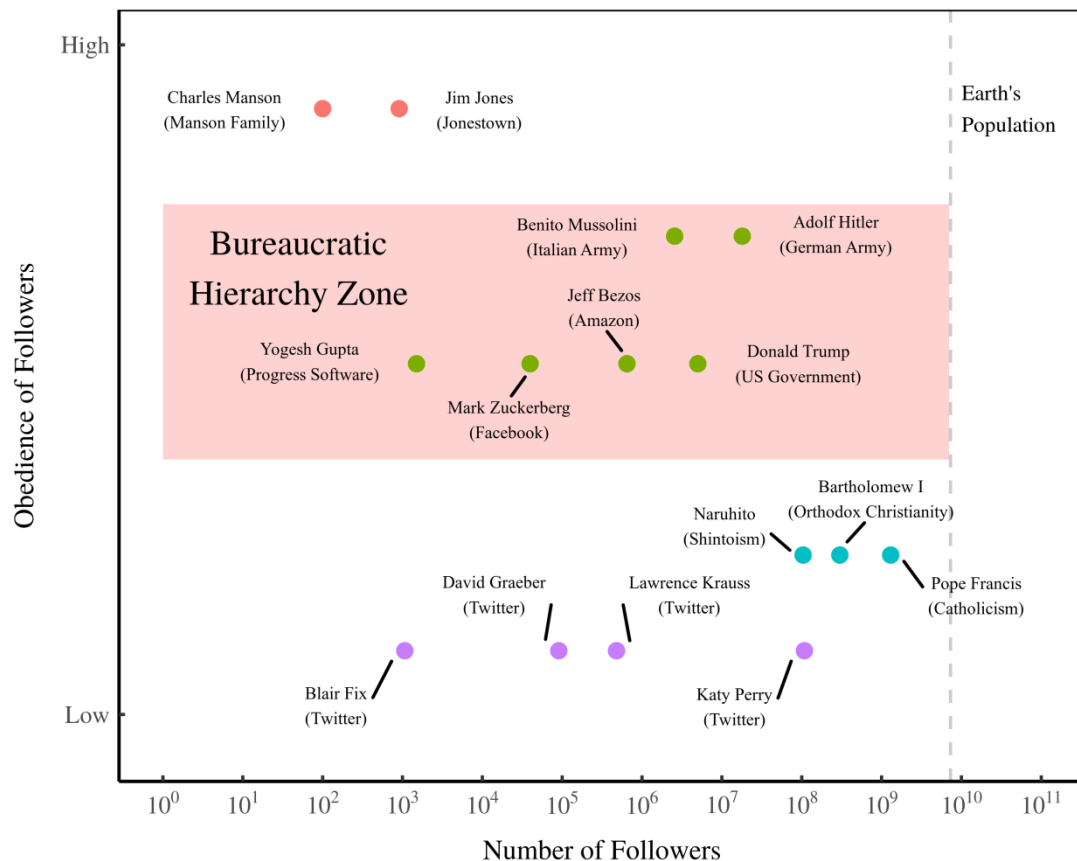
Zones of obedience

The point of ranking obedience is to remind us that power has different forms. We shouldn't compare Twitter followers with cult followers. But we can compare power within the same "zone of obedience". Within this zone, we assume that everyone's followers have the same obedience. We then reduce power to a single dimension: the number of followers.

On Twitter, Katy Perry is about 100,000 times more powerful than me. She has 100 million followers, I have about 1000. And within corporate hierarchies, Jeff Bezos is about 400 times more powerful than Yogesh Gupta. Bezos commands about 650,000 Amazon employees. Yogesh Gupta commands a small tech firm with 1500 employees.

In this paper, I am going to stay inside the bureaucratic hierarchy zone of obedience, visualized in Figure 8. Inside the bureaucratic hierarchy zone, obedience is institutionalized. This means that obedience does not depend on personal characteristics. Instead, it depends on institutional position. Amazon employees don't obey Jeff Bezos because he's Jeff Bezos. They obey him because he's the CEO of Amazon. If I replaced Bezos as Amazon CEO, Amazon employees would then obey me.

Figure 8 *The Bureaucratic Hierarchy Zone of Obedience*



The other important aspect of bureaucratic hierarchy is that obedience is mostly *indirect*. Amazon employees don't directly obey Jeff Bezos. Instead, Bezo passes commands down the chain of command. Each Amazon employee then obeys their direct superior, who relays Bezos' commands. Contrast this with power on Twitter, which is *direct*. Katy Perry has 100 million Twitter followers who listen to her directly (albeit flippantly).

The bureaucratic hierarchy zone is where the institutions of capitalism live. Bureaucratic hierarchy is how firms and governments are organized. More broadly, I would guess that it is how *all* large institutions in human history are organized. But here, I will focus on modern firms.

When we are inside the bureaucratic hierarchy zone, we will ignore variation in the obedience of followers. We will pretend that Mark Zuckerberg's employees are as obedient as Jeff Bezos' employees. By doing so, we can reduce power to a single dimension. Power is proportional to the *number of subordinates one controls*.

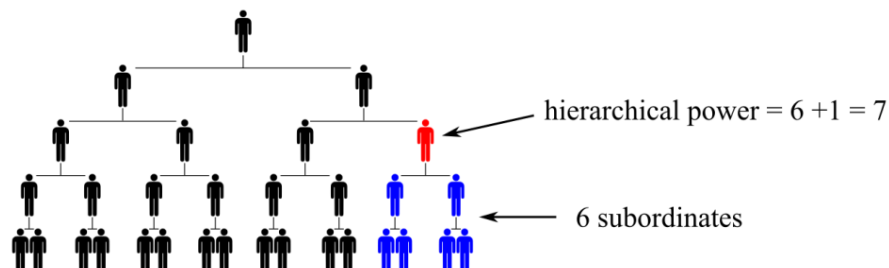
Hierarchical power

Within a hierarchy, I define an individual's "hierarchical power" as the number of subordinates plus one:

$$\text{hierarchical power} = \text{number of subordinates} + 1$$

I add 1 to the number of subordinates to signal that each person has control of themselves. To count the number of subordinates, we add both direct and indirect subordinates. Figure 9 shows an example. Here, the red person has 6 subordinates, so their hierarchical power is $6 + 1 = 7$.

Figure 9 *Measuring Hierarchical Power*



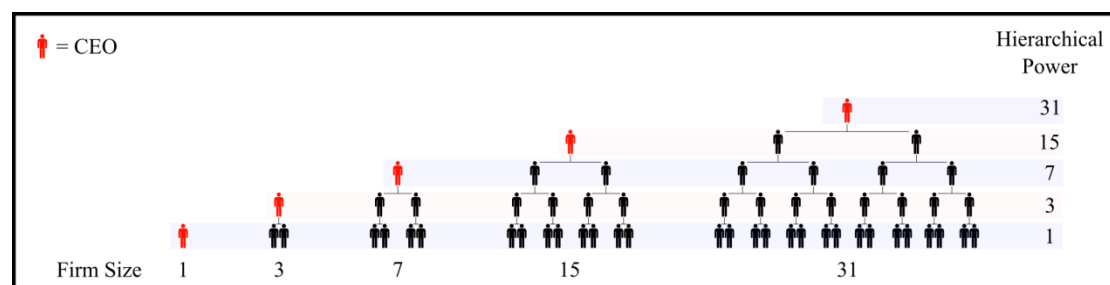
With our measure of hierarchical power in hand, we will test for the power ethos inside firms. We will see if individual income grows with hierarchical power.

The power ethos among US CEOs

We will look first for the power ethos among US CEOs. I study CEOs because it is easy to estimate their hierarchical power.

Because CEOs command the corporate hierarchy, their hierarchical power is equal to the size of their firm. Here is an example. If a firm has 100 employees, 99 of them are subordinate to the CEO. So the CEO has a hierarchical power of $99 + 1 = 100$. Figure 10 shows this equivalence between firm size and the hierarchical power of the CEO.

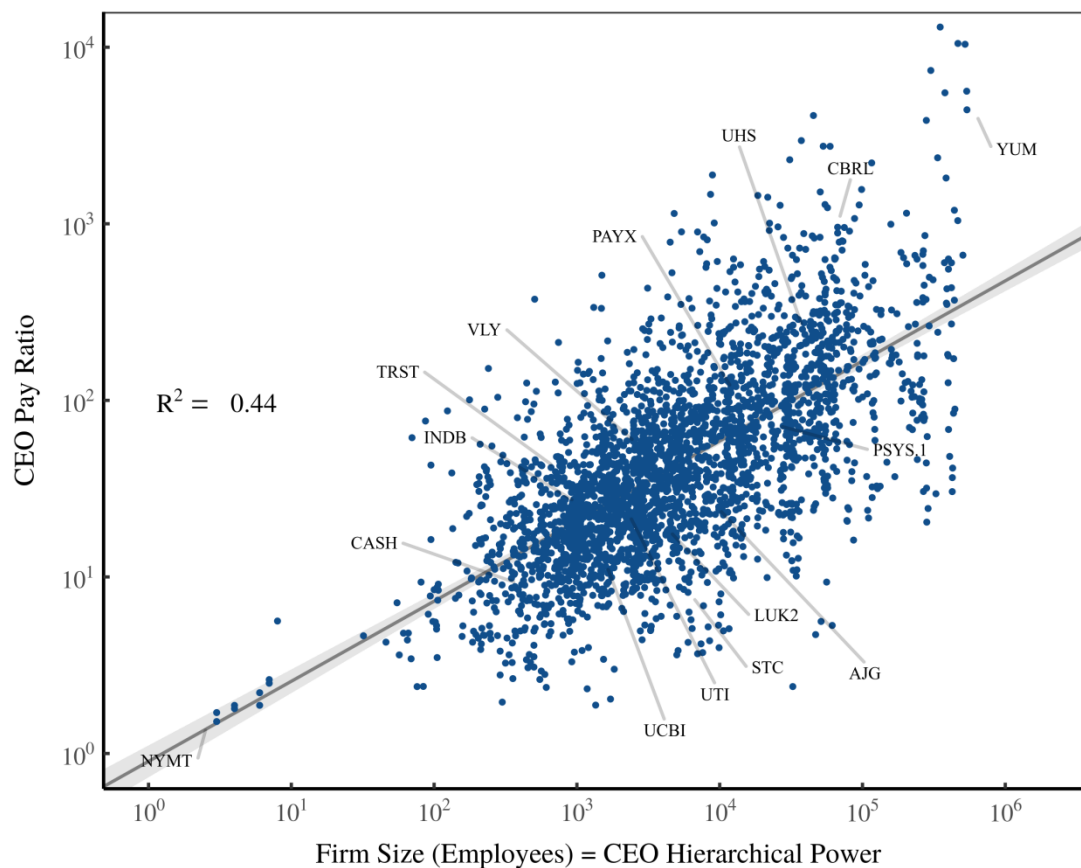
Figure 10 *The Hierarchical Power of CEOs*



We will use this equivalence to see if the relative income of CEOs grows with hierarchical power. To measure relative income, we will divide CEO pay by the income of the average worker. We will call this the "CEO pay ratio".

Figure 11 shows how the CEO pay ratio grows with hierarchical power among US CEOs. Among these CEOs, it seems that the power ethos prevails. Relative income grows with hierarchical power.

Figure 11 *Evidence for the power ethos among US CEOs.* Data is for roughly 3000 US CEOs covering the years 2006 to 2014. I have shown stock market tickers for a few of the firms. For sources and methods, see Fix (2019).

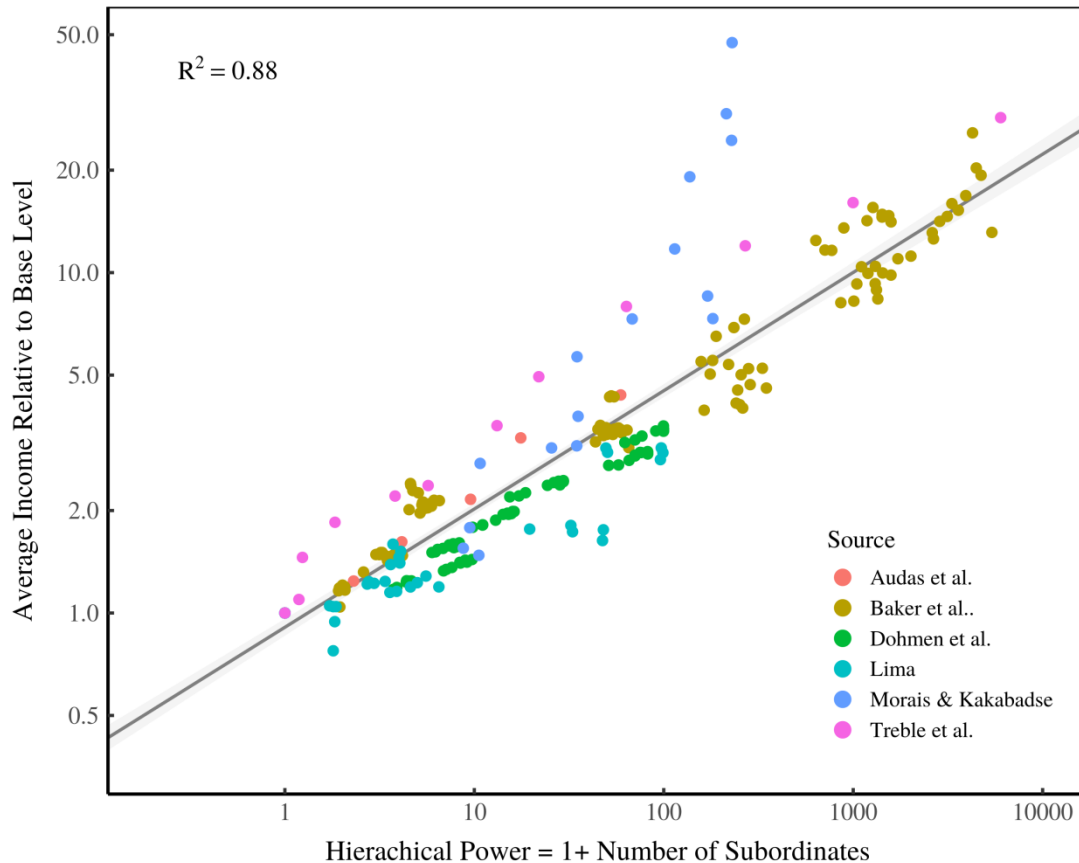


The power ethos within firms

Next, I will look at the income of *all* employees within firms. To do this, we need to relax our standards for data. The problem is that few social scientists have studied the structure of firm hierarchies. I have scoured the literature for years and found only a handful of quantitative studies. And these studies use differing methods to classify employees in the firm hierarchy.

Despite inconsistencies in the empirical work, I will forge ahead and analyze the trends within these case-study firms. Figure 12 shows the results. In these firms, it seems that the power ethos prevails. Average income within hierarchical ranks is strongly proportional to hierarchical power.

Figure 12 *Evidence for the power ethos within firms* The vertical axis shows average income relative to the bottom hierarchical rank of each firm. The horizontal axis shows average hierarchical power for individuals in each rank of the firm. Points indicate a hierarchical rank in a firm in a given year. For sources and methods, see Fix (2018a).



Hidden skill?

When I show the above evidence to mainstream economists, I get a common response. “This isn’t evidence against human capital theory,” they claim. Instead, they argue that individuals with more hierarchical power are actually more *skilled*. And it’s this (unmeasured) skill that explains the returns to hierarchical power. The lesson is clear. Human capital theory is still correct. I am just not measuring the right things.

Mainstream economists Daron Acemoglu and David Autor (2011) have a name for this type of thinking. They call it the “unobserved heterogeneity issue”. Economists tend to assume that all pay differences stem from skill, even when these skills are unobserved. Acemoglu and Autor argue that this assumption is “not a bad place to start”. I disagree.

Acemoglu and Autor are effectively saying that economists should barricade their theory from falsifying evidence. So if you find that measurable skills don’t explain income, don’t worry. Human capital theory is still correct. You just have not yet measured the “right” skills. And if you find a variable that explains income better than skill, don’t worry. This variable is actually a proxy for some hidden skill.

This thinking is why human capital theory survives. And it is why the evidence above does not convince mainstream economists to abandon their theory. It is impossible to disprove that an unmeasured skill causes the returns to hierarchical power. The best we can do is show that *measured* skill does not explain these returns. In Fix (2018b), I show that common measures of skill (like education and firm experience) cannot explain the returns to hierarchical rank.

Still, the spectre of hidden skill haunts us. Is there a way to show that the hidden skills hypothesis is unreasonable? I think there is. To do it, we have to introduce *time*. Time is important because there is a mismatch between how we learn skills and how we acquire hierarchical power. We learn skills *gradually*. But we acquire hierarchical power in *lumps*.

This mismatch boils down to differences between the two traits. Skills are an *individual* trait. To learn a new skill, you must forge new pathways in your brain. This takes time. Like all animals, our ability to learn has physiological limits. But accumulating hierarchical power has no such limits. That is because hierarchical power is a *social* trait. When you gain more hierarchical power, it's your social position that changes (not you). And this change can happen literally overnight. You can leave work as a middle manager and return the next day as the CEO. All it takes is a promotion, and you immediately gain more hierarchical power.

So skills grow gradually, while hierarchical power grows in lumps. Here is why this difference is important. Suppose we find that during a promotion, income changes with hierarchical power. This would be a problem for the hidden skills hypothesis. Why? Because skills don't change when you get promoted. The timing is too short. So in this scenario, it's unreasonable to insist that hierarchical power is a proxy for skill.

With this in mind, let's look at how income and hierarchical power change during promotions. I will use data provided by George Baker, Michael Gibbs and Bengt Holmstrom (1993). This dataset tracks, over two decades, the pay and rank of employees within an anonymous American firm. I will call it the "BGH firm", after the study authors.

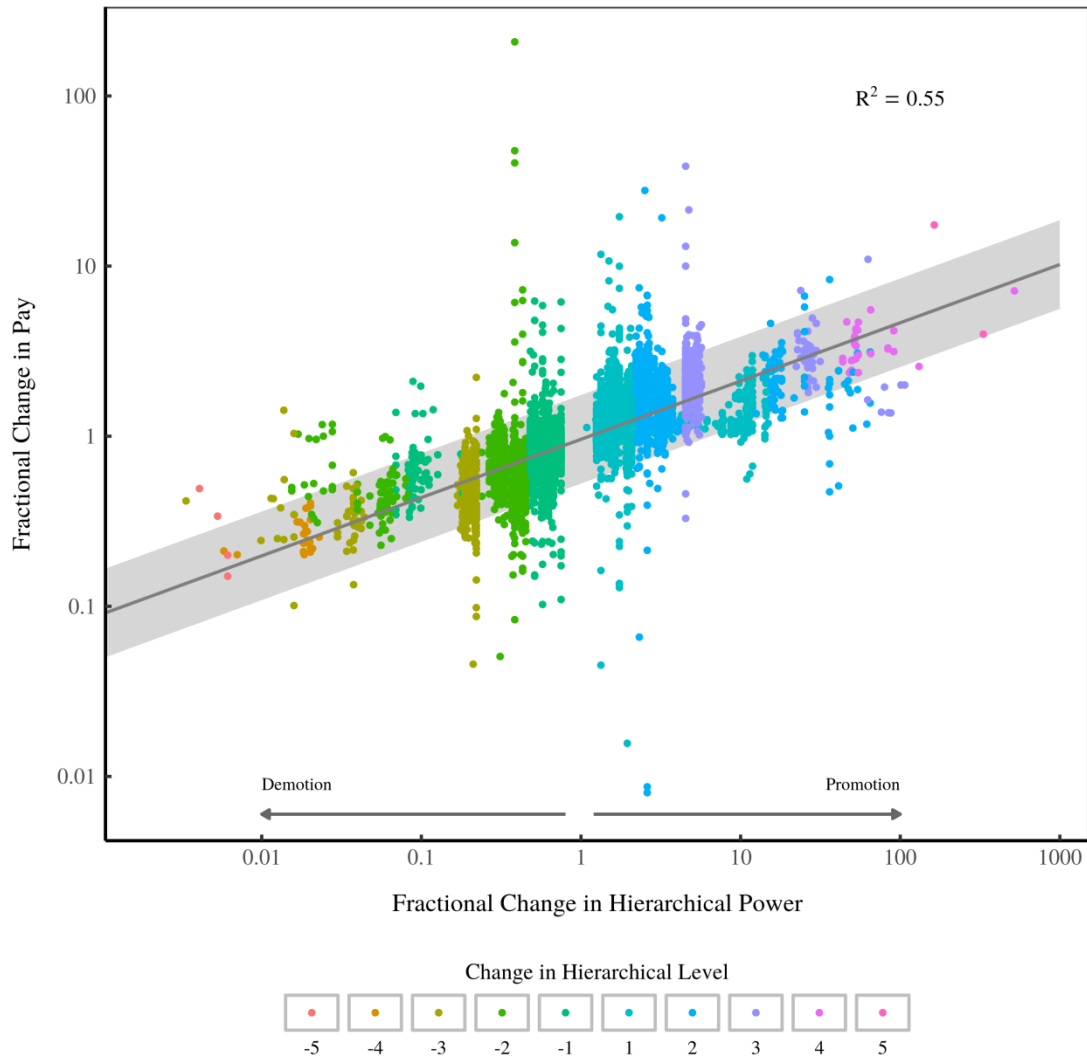
Figure 13 shows promotion data from the BGH firm. For each promotion (or demotion), I plot changes in pay against changes in hierarchical power. You can see, in this figure, data for about 16,000 promotions and demotions.

The trend is clear. The more hierarchical power someone gains during a promotion, the more their income increases. For demotions, the reverse is true. The more hierarchical power someone loses, the more their pay decreases.

It is hard to square these results with the hidden skills hypothesis. During a promotion, income and hierarchical power change suddenly. But skills do not change like this. Moreover, skills rarely *decline* over time (until old age). Yet in the BGH data, we have many observations of a sudden loss of income after a demotion. Did these people suddenly become less skilled? Doubtful.

A more likely explanation is that income in this firm is attached to rank. As individuals move up or down the corporate hierarchy, their income changes accordingly. Behind this movement of individuals, there is a connection between rank and hierarchical power. The result is that changes in income correlate strongly with changes in hierarchical power.

Figure 13 *Power ethos during promotions or demotions in the BGH firm.* Each point represents an individual promotion/demotion. Color indicates the individual's change in hierarchical rank within the firm. The y-axis shows fractional changes in individual pay. The x-axis shows fractional changes in hierarchical power. For methods, see Fix (2018a).



A universal ethos?

I have shown you evidence that the power ethos prevails in a sample of modern firms. But how general is this relation? Does income always grow with hierarchical power inside hierarchies? I predict that it does.

Whenever we find institutional hierarchy, I predict we will find the power ethos. It doesn't matter if we are studying a feudal fiefdom, an archaic kingdom, a totalitarian regime, a democratic state, or a modern corporation. If there is hierarchy, I predict that access to resources will grow with hierarchical power.

Having made a bold prediction, I will admit that we know very little about resource distribution within hierarchies. And that's odd. It's as though we (social scientists) have ignored the thing that most dominates our lives. Think about where social scientists work. We spend our lives in

universities, which are large hierarchical institutions. And yet when we study income, we ignore this hierarchy. This is not an accident. It's happened because researchers have been driven by a bad theory – a theory that thinks income stems from characteristics of the individual.

It is time to put this approach behind us. Income is a *social* phenomenon. To understand it, we need to understand social relations. And there is no better place to start than to study the power relations that dominate our working lives.

Conclusions

My goal in this paper has been to sketch a new theory of resource distribution that takes seriously our evolved nature. I have argued that the principles of group selection should form the “microfoundation” on which to build this theory.

The key idea is that resource distribution is marked by a tension between two levels of natural selection. At the group level, selfless behavior is advantageous. But at the individual level, selfish behavior is advantageous. The result is that groups compete with one another for resources, but suppress competition internally.

Because so much depends on the environment (both social and natural) in which humans live, this theory offers few general predictions. But when we find hierarchy, I have argued that the “power ethos” should prevail: to each according to their social influence. The evidence reviewed here suggests that the power ethos prevails in modern firms.

While these results are promising, I will end with a note of caution. When developing a new theory, the impulse is to use it to explain everything. Many Marxists, for instance, marvel at the explanatory scope of their framework. So do neoclassical economists, who think that utility maximization can explain everything about human behavior. What these theorists forget is that a theory's explanatory scope can be a liability. A theory may appear to explain everything not because it is true, but because it cannot be tested. The physicist Wolfgang Pauli had a fitting name for this type of theory – *not even wrong*.

Being “not even wrong” is perhaps the worst thing that can be said of a theory. And evolutionary theories are not immune to this fate. Stephen J. Gould and Richard Lewontin (1979) famously chastised fellow biologists for telling “just-so stories” – simple narratives (about the evolution of a trait) that are difficult to test.

So having proposed an evolutionary theory of resource distribution, I will be the first to urge that we shouldn't use it to explain everything. To do so is to fall into the same trap as mainstream economists. We must use the proposed framework to make specific predictions. To test the theory, we need new types of evidence. For a century, the study of resource distribution has focused on traits of individuals. But if resource distribution is a social phenomenon, as our evolutionary theory proposes, then we need to study the structure of groups. That means doing the unglamorous work of gathering new data.

It is time for a revolution in economics. It is time to study resource distribution as a social phenomenon, and to ground this study in an evolutionary framework.

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The case for the ontology of money as credit: money as bearer or basis of “value”

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Abstract

Although we acknowledge that, throughout history, commodities have been used as money “things” or money “signifiers”, *commodities have never been money itself*. We believe that the conflation of money with money “things” (commodities) in this way constitutes an ontological or category error. Austrian School economists and their Anglo-American neo-classical cousins favour a “conjectural” history of money where it is conceptualised as a cost-saving development of barter. Such a story supports their ethics. We reject any conjectural history which places the origin of money in the context of commodity exchange and instead support credit and state theories, and argue that in its essential nature, *money is credit and nothing but credit*.

Key Words: commodity money, universal equivalent, unit of account, credit and state theories of money

JEL classification: B4, E4, B1, B2

1. Introduction

This paper discusses the nature of money and contends that money is credit and nothing but credit (Innes, 1913; 1914; Wray, 1998; 2004). Although we acknowledge that, throughout history, commodities have been used as money “things” (Keynes (1930, Vol. 1, p. 14) or money “signifiers”, *commodities have never been money itself*. We believe that the conflation of money with money “things” in this way constitutes an ontological or category error.

The argument that commodity money evolved as a cost-saving invention designed to improve the efficiency of trade is closely associated with economists who emphasise the presumed innate desire of man to “truck and barter” (Smith, 1776) and the importance of market forces (notably the Austrian and the neoclassical schools) as opposed to other groups who focus upon history, institutions and importantly, social relationships and their associated power and inequality (for example, Post-Keynesians, sociologists, anthropologists, numismatists and even those who study law²) and propose alternative explanations of money’s nature and origins.

Neo-classical economists derive little or no comfort from a study of the historical development of money. When forced to consider money’s history their usual response is to produce a “plausible” story for its development based around its supposed appearance as a cost-saving alternative to barter. Kevin Dowd uses the phrase “conjectural history” (Dowd, 2000, p. 139) when considering the development of money. From his perspective, it is unimportant if the

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² Notable advocates of alternative versions to conjectural histories from a range of disciplines; Goodhart (1998), Ingham (2004a; 2004b), Polanyi, (1966; 1968) Grierson (1977) and Desan (2014).

conjectural history is different from actual history; all that is necessary is the plausibility of the story.

“A conjectural history provides a benchmark to assess the world we live in, but it is important to appreciate that it is *not* meant to provide an accurate description of how the world actually evolved. The conjectural history is a useful myth, and it is no criticism of a conjectural history to say that the world failed to evolve in the way it postulates” (Dowd; 2000; p. 139, emphasis in the original).

In other words, for Austrian (and neo-classical economists), it is *as if* the world developed this way.

Conjectural histories have been around for a long time and although there is some variation in the story they tend to follow a similar pattern. Wray (1998, p. 39) considers, justifiably, that a succinct analysis of early conjectural histories can be found in Alfred Mitchell Innes (1913). Before providing a thorough critique of the story and discussing the credit theory of money, Innes provides an excellent summary. According to Innes, the story goes as follows; in “primitive” economies exchange was based on barter but as societies developed, efficiency was improved by the introduction of one commodity as a means of exchange. This commodity also served as a unit of value. A wide range of different commodities have been used in different societies at different times but eventually precious metals emerged as the most efficient variant. A fixed quantity of a metal (typically gold or silver) of known purity became a standard of value³ and this standard should have been guaranteed by rulers. However, when the “authorities” took control of the system they exploited it to their own ends by debasing the currency. Eventually credit was introduced as a substitute for gold, requiring less direct use of metal and improving efficiency.

In what follows we provide (though not in precisely this order) a critique of mainstream orthodox theory (neo-classical in form but Austrian in some of its origins), the Marxian position as a commodity theory variant, and set out by contrast key components of state theory and credit theory in order to make the case that the latter two accord more with history and conceptual coherence.

Mainstream orthodoxy: a critique

For Ingham, “Menger’s (1892) seminal analysis based upon rational individual choice still underpins the current neo-classical story of the origin of money” (Ingham, 2004a, p. 19) as exemplified in Dowd (2000) and Klein and Selgin (2000).⁴ Menger’s ontology is deeply rooted in the presupposition “that the individual enters the world equipped with rights to the free disposal of his property and the pursuit of his economic self-interest, and that these rights are

³ Goodhart (1998, p. 448) argues that the role of precious metals is seen as critical in the orthodox view, associated with neoclassical and Austrian economists whereas support for the chartalist (or nominalist) alternative comes from post-Keynesians and those in different disciplines, notably anthropologists, numismatists and historians.

⁴ Wray notes that according to the orthodox neo-classical view money “reduces transaction costs, simplifying ‘economic life’ by lubricating the market mechanism (Friedman, 1968). Indeed, this is the unifying theme in virtually all orthodox approaches to banking, finance, and money: banks, financial instruments, and even money itself originate to improve market efficiency (Klein and Selgin, 2000)” (Wray, 2006, p. 2).

anterior to, and independent of, any service that he may render” (Tawney, 1920, p. 23). Menger’s theorising is based on an approach that characterises the approach of the Austrian School; “antiempiricist deductivism” founded upon the axiom that individual agents seek to achieve the subjective goal of maximising utility (Hands, 2001, p. 39). Given the “*a priori* truth” of his presuppositions and his impeccably logical deductive reasoning the need for empirical testing disappears for Menger; the “conjectural history” is given a green light. Menger contends that the origin of money “can be understood as following from a spontaneous process whereby individuals have discriminated between alternative commodities by degree of ‘saleability’ and eventually arrived at the most efficient option” (Menger, 1892, p. 245).

For neo-classical economists the conjectural history serves a very useful purpose; it supports their ethics. It is most helpful to specify a system where money develops as a “natural” response to changing circumstances by individuals maximising expected utility. Neo-classical theorists contend that money is merely a “veil”; its introduction into a barter economy improves efficiency but leaves quantities produced and relative prices unchanged. Ingham considers that “all orthodox economic accounts of money are *commodity exchange* theories. Both money’s historical origins and logical conditions of existence are explained as the outcome of economic exchange in the market that evolves as a result of individual utility maximisation” (Ingham, 2004a, p. 19, emphasis in the original).

We are not suggesting that money only plays the role of medium of exchange in orthodox theory; rather that it is this function which gives money its distinctive character. Its importance as a unit of account and store of value, although acknowledged in established theory, is not stressed. A conjectural history approach fits well with this perspective. According to the neoclassical view there is no role for the state in the genesis of money. The state is seen as a late arrival on the scene and a corrupting force, taking an unjustified share of national wealth by exercising control of a monetary system⁵ which had developed from the actions of individuals rightly pursuing “optimising” behaviour. In contrast, heterodox economists stress the role of money as providing a unit of account, an approach which tends to be compatible with a focus on the importance of the role of a central authority in the genesis of money, as opposed to market forces.

Ingham takes issue with the orthodox view on both logical and historical grounds and finds significant support for his critique in the evidence (Ingham, 2004b, pp. 181-182). He contends that discrete truck and barter would lead to the production of a vast array of bilateral exchange ratios, rather than the enduring unit of account required for the measurement of relative prices critical to the operation of the market (Ingham 2004b, p. 181). Rather than arising from a spontaneous process, for Ingham, a stable unit of account is required *before* a market can function. If this is the case we need to consider how and why this stable unit of account would emerge. Ingham notes that

“In Menger’s conjectural history, money evolves from the rational use of the most tradeable commodity as a medium of exchange that maximises trading options. However, he realised that base metal coins and inconvertible paper money broke this link. Why, Menger (1892) asked, should individuals be

⁵ Authorities “controlled minting, established coin’s count, enforced its use to pay debts, and policed its exclusivity as a medium. They also charged for it at the mint: individuals paid in extra amounts of bullion and came away with coin” (Desan, 2014). Critics perceived the authorities actions in centralising control and forcing private individuals to accept a lower amount of bullion in the form of coin than they provided in metal as reprehensible.

ready to exchange goods for ‘worthless’ little metal discs or paper symbols?”
(Ingham, 2004a, pp. 22-23).

Ingham (2004a, p. 23) considers the attempts at producing a resolution by later neo-classical economists and stresses that the arguments expressed by Jones (1976), Dowd (2000) and Klein and Selgin (2000) – which contend that non-commodity, intrinsically valueless money can be used as a means to reduce transactions costs- fail to deliver a convincing answer and cannot explain the existence of money. He notes that Hahn had already observed that “It is only advantageous for any given agent to mediate his transactions by money *provided that all other agents do likewise*” (Hahn, 1987, p. 26, emphasis in the original).

Ingham concludes his point with the *coup-de-gras*. “To state the sociologically obvious; the advantages of money for the individual presuppose the existence of money as an *institution in which its ‘moneyness’* is established” (Ingham, 2004a, p. 23, emphasis in the original).

In a typical case of a conjectural history or “money-developing-from-barter” story, one commodity, such as grain, exchanges directly for many other commodities; for example, grain may be exchanged for salt, meat and other products. The quantitative worth of grain is expressed in specific quantities of different commodities. Under such a system, the grain has many different exchange ratios with different commodities, which are accepted by the societies involved in exchanges. The grain becomes a representative commodity, generally used in exchange for a wide range of others (Messori, 1997). Following the “conjectural” history narrative, grain might be expected to be (eventually) replaced by something which might to be more “saleable” making a more efficient form of money. By virtue of its relative scarcity, portability, durability, uniformity and divisibility, precious metal of a given purity seems to fit the bill.

The use of quantities of grain as money – or at least as a unit of account – is well documented (Wray, 1998, pp. 47-8). However, from a post-Keynesian perspective, drawing directly from Keynes’s work, this use is founded on state action rather than being a market outcome. The units of account used in early empires⁶ were almost without exception based on grain quantities and led to the establishment of precious metal standards (Keynes, 1982, pp. 236-7). If we refer to “a mina, shekel or pound, all the early money units weight unit based on either wheat or barley grains, with the nominal value of gold usually measured in wheat units, and the nominal value of silver measured in barley units” (Wray, 1998, p. 48).

Wray notes that a king would be able establish a monetary unit by setting it equal to a particular quantity of grains of gold, but the relative value of gold represented by its market price could change *without the need to change the standard* (Wray, 1998, p. 48, emphasis added). Thus the value of, for example, a shekel weight of gold could rise or (less frequently) fall against the abstract standard of the shekel.⁷ Such a situation can easily be illustrated in a modern context. The \$US is officially defined as 0.0231 ounces of gold (Tobin, 1998, p. 27) but, despite the fact that the market value of gold in \$US is far higher today, the *definition of the dollar* remains the same; the \$US has become an abstract standard, divorced from its original definition.

⁶ Particularly Babylonia, the Mediterranean basin and Europe (Wray, 1998, p. 48).

⁷ The Gold Standard represents an unusual period in history, where the monetary authorities exerted control over the market price of gold by agreeing to buy and sell unlimited quantities in order to maintain the official price (Armstrong, 2015).

Clearly the relative value of commodities could change against the standard. The state exerts influence on relative prices by the value it ascribes to the commodities it accepts in settlement of debt from the private sector via taxes or tribute. It may publish “price lists” in a unit of account. However, the value of commodities determined in private markets, although influenced by “official” prices, would in no way be fixed.⁸ “Libertarians” who contend that market forces determine both the choice of the “representative commodity”, and the structure of relative prices denominated using that commodity, claim that the observation of historic variable prices disproves the contention that the state decides on the standard and is able to provide official price lists.⁹ From a post-Keynesian and, indeed, an anthropological perspective, such criticism is misplaced. Importantly, as noted above, the libertarian critique provides no compelling explanation of the origin of the unit of account itself.

Orthodox, neo-classical economists, consider the use of cowrie shells as an example of “primitive” commodity money replacing barter before – eventually – being superseded by precious metal currency. For hundreds of years, cowrie shells were used as a means of payment in India, China, the Middle East and West Africa. Quiggin (1949, p. 25) argues that “cowries had been in circulation as a means of payment by traders from, ‘India, China, eastward to the Pacific Islands... across and encircling Africa to the West Coast... and penetrating into the New World’, both before and, in some areas, even after precious metal currency had become generally accepted” (Shaikh, 2016, pp. 170-171).

Cowry shells satisfy most of the characteristics of money (in the form of currency), being portable, countable, recognisable and difficult to counterfeit. In Nigeria, cowries were used widely even until the first half of the 20th century, especially for small transactions. The story of cowrie currency is rich and there is far more to it than a “conjectural” view of it replacing barter (or an earlier form of commodity money) by virtue of possessing features allowing it to function efficiently as money. Cowry was used as money in Dahomey despite the fact it was not produced domestically. It needed to be imported and was then issued by the monarch. Without this state-directed process it could not have been used as currency (Polanyi, 1968, pp. 280-305). Rather than being an aspect of a market-based evolutionary process it was an aspect of state activity. “Cowrie ...gained the status of a currency by virtue of state policy, which regulated its use and guarded against its proliferation by preventing shiploads from being freely imported” (Polanyi, 1968, p. 299).

In addition to neo-classical economists overlooking the role of the state in determining the monetary standard, their tendency to conflate the unit of account with the means of payment

⁸ For example, a modern state might fix an official exchange rate which determines the price it will buy and sell foreign currency, however, this will not necessarily mean that private trades will occur at these prices.

⁹ Nowrasteh (2013) contends that the observed variable prices, “based on supply and demand” contradict “Polanyi’s fixed-price theory of trade” (see Polanyi, 1957, pp. 12-26; see also Oppenheim 1957, pp. 27-37). Nowrasteh notes that, for example, “the price of tin rose 20 percent in a short period” and that “texts in Babylonia from merchants to their agents order them to sell ‘according to the market’ – odd texts in a regime of supposed fixed prices.” Nowrasteh also asserts that, “within grain markets with prices changes based on...supply and demand...prices in a ‘good year’ fall and prices in a ‘bad year’ rise, according to the size of the harvest. That behavior is difficult to explain if prices are not determined through the interaction of profit-maximizing buyers and sellers.” Nowrasteh fails to distinguish between official prices, set by the state at which it will both accept and disperse commodities and private trades at market prices and attempts to find evidence contradictory to Polanyi’s analysis where none exists in a futile attempt to find support for ideological dogma, namely the priority of markets over the state (Nowrasteh, 2013).

is another important source of error (as pointed out by Innes, above, this is a typical feature of conjectural histories of money). There is a distinct difference between the unit of account and the money “things” used to make payments denominated in that unit. Such a distinction is an ancient one, as noted by Grierson who considers Homeric Greece and points out that, although the ox was the standard or unit of account, the means of settlement was usually in other forms such as gold or commodities whose value was measured in oxen (Grierson, 1977, pp. 9-10).

With respect to coins, Wray contends that the relationship of the nominal value of a coin to the unit of account in which it was dominated was not based upon precious metal content and could often vary in relation to the unit of account;¹⁰ it was determined by authority. He writes, “coins, even though they may contain precious metal, do not necessarily carry a nominal value that is fixed relative to either the nominal value of the embodied gold or even to the money of account” (Wray, 1998, p. 49). Polanyi notes that the “once” (the French equivalent of the “ounce”; the standard in English ounce trade) provides the unit of account for the French slave trade; traded items – including cowrie – were thus given a relative value (Polanyi, 1966, pp. 162-3).

Keynes notes the distinction between a commodity which is disconnected from a unit of account and merely used in a way to improve spot transactions and a money “thing” which by virtue of its relationship to a standard or money of account becomes “money proper”, “something which is merely used as a convenient medium of exchange on the spot may approach to being Money, inasmuch as it may represent a means of holding General Purchasing Power. But if this is all that is involved, we have scarcely emerged from the stage of Barter. Money-Proper in the full sense of the term can only exist in relation to a ‘Money-of-Account’” (Keynes, Vol. 1, p. 3). This point is stressed by Grierson,

“For my part, I would insist on the test of money being a measure of value. Unless the commodities used for exchange bear some fixed relation to a standard we are still dealing with barter, or, where unilateral payments of a redistributive character are concerned, with payments in kind. The distinction seems to me to be fundamental one” (Grierson, 1977, p. 9).

We would also point out that, despite the widespread existence of barter, anthropological analysis (Humphrey and Hugh-Jones, 1992) is instrumental in supporting Graeber’s (2011) contention that *barter could not have had a role to play in the development of money*. The reason for this conclusion is that, despite extensive study, no society based on the use of barter has yet been found. “No example of a *barter economy*, pure and simple, has ever been described, let alone the emergence from it of money all available ethnography suggests that there never has been such a thing” (Humphrey, 1992, quoted in Graeber, 2011, p. 29, emphasis added).

Although, we may never know the full story of the development of money we can surely at least develop theories which provide a compelling explanation of the nature of money and underpin an understanding of the history of its development. For this reason, we believe credit

¹⁰ Wray (1998, pp. 52-3) notes how kings might “cry down” the value of the currency by reducing the value of a coin relative to the unit of account. “The king would not change the monetary unit, but would only change the monetary value of his ‘tokens’, thereby avoiding disruption in private markets (which for the most part were carried out using tallies, bills of exchange or other debts denominated in the money of account).”

and state theories are complementary and superior to the orthodox theory. In contrast to the neo-classical theory which finds its roots in the optimising behaviour of individuals, the state theory, which we shall discuss below, contends that the origins of money are rooted in social relationships and the development of power and inequality. Traditional tribal societies were essentially egalitarian and had no need for money. According to Polanyi, they were based upon reciprocity, redistribution and householding (Polanyi, 1944). However, with the development of inequality, a *raison d'être* for money emerged. Henry finds the essential origins of money to lie in power and inequality rather than exchange.

“Those who see money as a social relationship stress the significance of money as a unit of account in which obligations are both created and extinguished. Money, then, represents a relation between those who claim these obligations and those who must service those claims” (Henry, 2004, p. 79).

He goes on to suggest that the role of exchange in the genesis of money is of minor significance, especially since the existence of markets is in no way a necessary condition for the evolution of money.

The state theory of money

Ingham (2004a, p. 47) discusses the *Methodenstreit* and the division of opinion between the German Historical School and the Austrian School and its heirs in Anglo-American neo-classicism. The latter conceptualised money's origins and development as a commodity in market exchange, whereas as the latter instead saw money as a means of accounting for and settling debts and regarded an approach to analysing money without a foundational role for the state as absurd.

In the *State Theory of Money* (1924), Knapp argues that it is the state that decides on the unit of account and the “money things” that are to be used in settlement of debts denominated in this unit. Initially, the unit of account may be a weight of precious metal of given fineness. However, the state may choose to change the unit to a different metal by decree. Thus the choice of unit is in the hands of the state rather than springing from a process involving individuals searching for the most efficient way of reducing the costs of barter. If the state decided that a different metal was to be used as a standard of value then it held the power to change the unit of account (Knapp, 1924, p. 13).

Knapp analyses the process of monetary development from the starting point of a monetary unit expressed as a weight of metal of given fineness. The use of stamped coins whose weight determines value is seen as a later development. This point is highlighted by Davies (2002, pp. 61-2). A further and final stage widespread in the modern world was reached when the coins were given a nominal value by the authorities not based upon weight or precious metal content (Knapp, 1924, p. 15). The state has the power to choose the “money things” i.e. what may be used to settle debts in the designated unit of account (Knapp, 1924, p. 15). “In modern monetary systems proclamation is always supreme” (Knapp, 1924, p. 31).

The role of the state is dominant in each of the stages. The state decides the timings, not individuals maximising expected utility. The state is not a late arrival on the scene, hijacking a monetary system- which is progressing efficiently driven by optimising incentives – for its own

purposes; rather it always directs the process, for good or ill.¹¹ As we noted above, once the unit is chosen it may continue to be defined historically as a particular weight of metal of given fineness. However, over time its nominal value would change in relation to the metal which underpinned its original definition (Knapp, 1924, p. 15).

The state theory of money shows how ancient authorities would use their power to move resources from the private sector to themselves. Control of the monetary system provides a highly effective means for this aim to be achieved (Siddiqui and Armstrong, 2018). By way of illustration, we suggest a highly stylised story based upon the use of stamped metal might go as follows; a ruler might decide what she desires, for example, palaces, amphitheatres and an army of conquest. She could utilise her monopoly power over the monetary system to obtain what she desires. She would first define the unit of account and then decide upon the money things acceptable in payment of debts denominated in this unit, say, stamped metal discs clearly marked with her head. The disc may contain precious metal. This precious metal content (if any) would be decided upon by the state (the mint standard). The use of precious metal may help prevent counterfeiting and raise the prestige of the issuer but the intrinsic value of the coins provides only a floor value for the currency. The nominal value would be higher and determined by decree.

She would then impose a tax on her or his subjects denominated in its chosen standard, payable by the surrender of the stamped discs. The ruler decides the nominal value of the coins and how many each person must pay to satisfy their tax bill. This process gives the coins value. They are tokens showing the holder had a credit on the state. They are really “tax credits”. The ruler can now spend these tokens on whatever she wishes as long as it is available in her own domain – or “monetary space”. The private sector suppliers of goods accept the tokens, not because they are made of precious metal but rather because the population needs them to pay taxes. The ruler then pays her soldiers with the stamped metal discs and the soldiers, in turn, are able to go to the villages and buy whatever they wish, provided it is available. The populace sell the soldiers real goods to obtain the discs to meet tax liabilities. Clearly, the empress has to spend before she can collect. Any private agent minting discs with the ruler’s head on without her permission in order to enrich themselves might be expected to face severe punishment. Thus a ruler does not need to raise taxation revenue before spending. The imposition of the tax liability comes first, followed by the spending of the currency which is required to settle it. Logically and practically the emission of state money is anterior to its collection.

From this perspective, following the logic of Knapp’s approach, taxation serves, not to fund spending as is mistakenly believed by most economists and nearly all the population, but to create a demand for the currency and to reduce the spending capacity of the private sector. If the private sector is spending less its command of resources is correspondingly lowered, allowing the state “room to spend” without causing inflation. Thus the state’s ability to impose and collect taxes enables it to act as a currency issuer within its sovereign monetary space and transfer resources from the private sector to itself. The ultimate “value” of a tax-driven currency is determined by the amount of effort required by the issuer in order to obtain it. The significance of the power of the state is noted succinctly by Knapp, “Within a state the validity of the kinds of money is not a trade phenomenon but rests on authority” (Knapp, 1924, p. 217).

¹¹ Although it is the state that decides upon the unit of account, the private sector is able to issue its own debt denominated in this unit (Armstrong, 2015).

However, what if the state wishes to obtain goods and services from outside this space- from a foreign country? Clearly, it cannot levy a tax on foreign independent nations so it becomes a currency-user with respect to that country's currency. It must obtain that nation's currency to make the purchase or find a foreign producer prepared to accept its own currency. Knapp notes that the amount of foreign currency that may be obtained for each unit of domestic currency is not subject to the control of the authorities, rather it is the result of action of buyers and sellers on the foreign exchange market or "Bourse" (Knapp, 1924, pp. 217-218).

The credit theory of money

With respect to the credit theory of we focus our attention on the work of Innes and his two famous articles from the *The Banking Law Journal*, "What is Money?" in 1913 and "The Credit Theory of Money" in 1914. As we noted earlier, for Innes, the nature of money is founded upon the credit and debt relationship and money should not be seen as a development of barter.

Innes is highly critical of the contention that more efficient direct exchange was facilitated by the use of commodity "money". He considers both an apparent mistake made by Adam Smith in this context and its unwanted legacy. He notes that Smith referred to "the two most generally quoted instances of the use of commodities as money in modern times, namely that of nails in a Scotch [sic] village and that of dried cod in Newfoundland" (Innes, 1913, parentheses added).

Innes notes that, rather than nails being used as commodity money in Scottish villages, the nails were merely accepted as (part) payment of debt which was denominated in the unit of account applying at the time. "In the Scotch [sic] village the dealers sold materials and food to the nail makers and bought from them the finished nails the value of which was charged off against the debt" (Innes, 1913, parentheses added).

Referring to the supposed use of dried cod as commodity money, Innes is equally scathing. Innes then contends that Smith thought he had found commodity money but had really "discovered" credit and highlighted examples of how the law and convention existing at the time had permitted particular debtors to settle their debt when it was due using specific commodities. However, these commodities were merely permitted "signifiers", given a value in terms of the unit of account (pounds) and were not a means of measuring value or indeed a medium of exchange in the sense of being a circulating medium which was used to settle debts in general. They were merely accepted at their money value when the (uncommon) circumstances required it (Innes, 1913).

The supposed used of tobacco as money offers us an interesting example of the relationship between money (or money of account) and "money things". Peacock¹² (2017, p. 1481) notes how tobacco was used as "money" in colonial Virginia, Maryland and North Carolina, including payment for purchases and for paying fines and taxes. Indeed, a number of items in addition to tobacco, such as corn, wheat, tallow, leather and beaver skins fulfilled monetary functions in North Carolina (Rabushka, 2008, p. 235) and corn was recognised as legal tender in 1631 by Massachusetts (Sylla, 1982, p. 24). "In Virginia, which like Maryland relied

¹² Peacock (2017) gives a thought-provoking summary and critique of Lawson (2018) and Lawson's approach to the ontology of money. Ingham (2018) contributes to the debate with a further critique.

on tobacco cultivation for its economic livelihood, tobacco was used in market exchange and payment of taxes (Breen, 1985, p. 41). By legislative act of 1619, Virginia designated tobacco a means of payment and value were assigned to quantities of tobacco (three shillings per pound of highest grade, 18 pence per pound of low grade tobacco.” (Peacock, 2017, p. 1481). Thus tobacco acquired the legal status of a money “thing” (or a “commodity money”) and became acceptable as a means to settle debt; in other words, the holders of such commodities held a credit, valued in terms of the unit of account. Rather than being money itself, we would argue that the tobacco (and other commodities) were merely signifiers of credit.¹³

In order to facilitate a critique of the traditional story popularised by Smith, Innes posits a question, “If we assume that in pre-historic ages man lived by barter, what is the development that would naturally have taken place, whereby he grew to his present knowledge of the methods of commerce?” He then looks deeper into the issue, stressing the importance of *credit*. “There is absolutely no reason for assuming the existence of so clumsy a device as a medium of exchange when so simple a system [as credit] would do all that was required” (Innes, 1913, parentheses added). Innes (1913) contends that, “What we have to prove is not a strange general agreement to accept gold and silver; but a general sense of the sanctity of an obligation. In other words, the present theory is based on the antiquity of the law of debt”.

He then notes that the historical evidence overwhelmingly supports the credit theory of money, regarding the idea of barter as the origin of money as “without foundation’. He concludes across history in a wide range of locations “debts and credits are equally familiar to all, and the breaking of the pledged word, or the refusal to carry out an obligation is held equally disgraceful” (Innes 1913). Innes clarifies the meaning of credit.

“It is here necessary to explain the primitive and the only true commercial or economic meaning of the word ‘credit’. It is simply the correlative of debt. What A owes to B is A’s debt to B and B’s credit on A. A is B’s debtor and B is A’s creditor. The words ‘credit’ and ‘debt’ express a legal relationship between two parties, and they express the same legal relationship seen from two opposite sides. A will speak of this relationship as a debt, while B will speak of it as a credit” (Innes, 1913).

He is then able to define money as credit, “Credit is the purchasing power so often mentioned in economic works as being one of the principal attributes of money, and... *credit and credit alone is money*” (Innes, 1913, emphasis added). He follows this by explaining the nature of credit, “A first class credit is the most valuable kind of property. Having no corporeal existence, it has no weight and takes no room. It can easily be transferred, often without any formality whatever” (Innes, 1913). He then explains the relationship between credit and debt and in so doing describes the nature of money,

“Whether...the word credit or debt is used, the thing spoken of is precisely the same in both cases, the one or the other word being used according as the situation is being looked at from the point of view of the creditor or of the debtor” (Innes 1913).

¹³ Peacock (2017; 1481-6) provides a detailed analysis of the arguments surrounding the status (or otherwise) of tobacco as money.

“Money, then, is credit and nothing but credit. A’s money is B’s debt to him, and when B pays his debt, A’s money disappears. This is the whole theory of money” (Innes 1913).

In his second article, Innes defined state money as credit, “Every time a coin or certificate is issued... A credit on the public treasury is opened, a public debt incurred” (Innes, 1914). Innes recognised that a debt to the state or tax liability can be paid by the return of the government’s own debt instrument; in other words there exists “the right of the holder of the credit (the creditor) to hand back to the issuer of the debt (the debtor) the latter’s acknowledgement or obligation, when the former becomes debtor and the latter creditor” (Innes, 1914).

Innes’s work is significant inasmuch as it provides a powerful critique of orthodox theory concerning the ontology of money. It highlights the weaknesses in the latter approach and provides a persuasive alternative perspective; namely *money as credit in its essential nature*.

We would argue that it is possible to develop a structure which illustrates the relationship between the credit theory of Innes and the state theory developed by Knapp. Smithin (2018, pp. 194-95) contends that the study of money and monetary issues should follow a four stage “schema” beginning with a realist social ontology, followed by economic sociology, monetary macroeconomics and, finally, political economy. Applying this structure allows us to see credit theory as foundational and forming part of the first stage, seeking to explain the ontology of money itself. The state theory applies to the second stratum; the economic sociology which explains what is acceptable in payment of debt in the specific society in which we live.¹⁴

The Marxian (commodity variant) theory of money

At this point we might consider Marx’s analysis of money which is complex and does not fit neatly in with either the orthodox or heterodox approach discussed above. Marx saw the role of money as acting as a *general equivalent* fulfilling a unique role (Brunhoff and Foley, 2007) and notes the importance credit money, although undeveloped in the second half of the 19th century when he was writing *Capital*, viewing the credit system as simply a form or development of a monetary economy. Marx emphasises that money is embedded in the social relations underlying commodity exchange and that money mediates between capital and labour (and also between financial and industrial capital). This gives money a crucial role in determining the way the contradictions embedded in social relations manifest themselves over time (Marx, 1981).

¹⁴ Smithin argues that the third stage of monetary macroeconomics deals with the technical issue of explaining the operation of a monetary economy and that the final stage of political economy deals with questions of policy, governance and equity (Smithin, 2018, pp. 194-95). Smithin is critical of the approach of mainstream economics which stands opposed to his schema and notes that the advocacy of an *individualist ethical position* underpins the practice of mainstream economics. Smithin (2010) contends that, “...most economists as well as political or social scientists, essentially form their *ethical* views first. The views then expressed or more likely only implicitly formed, on ontology and epistemology, then follow directly from this, and the political stance that emerges is simply that deriving from the original ethical judgement” (Smithin, 2010, p. 36, emphasis in the original). Smithin (2010; 2018) rejects this approach and believes that investigation should *begin with ontology*, which should be followed by epistemology then ethics and finally politics. He argues that this philosophy-informed structure corresponds with his four-stage schema outlined earlier (Smithin, 2018, pp. 194-95).

Lapavitsas (2003, p. 2) notes that there are notable commonalities between the Marxist and Post-Keynesian approaches (the latter drawing inspiration from state and credit theories). Marxian economics provides insights into the development of the monetary system under capitalism and Marx's association with the perspective of the Banking School and rejection of the claims of the Currency School¹⁵ is an interesting case in point. However, Lapavitsas and Itoh (1999) retain faith in a version of the "commodity money" story, albeit a different one to the Austrian school, and reject alternative theories which are based upon anthropology.

"Marx's analysis is...incompatible with the anthropological claim that money was originally an ideal unit of account without a corporeal means of exchange. Insofar as past societies sought a unit of account to express the equivalence of disparate use values, they were forced to do so by their external relations. It is highly unlikely that economic relations among pre-capitalist societies rested on trust, mutual obligation or reciprocity, requiring money only as an abstract numeraire. A corporeal money was also necessary to effect the exchange of commodities" (Itoh and Lapavitsas, 1999, p. 55).

In marked contrast to Ingham (2004a) and Wray (1998), Lapavitsas (2003)¹⁶ concludes that the origins of money are to be found in commodity exchange, where "foreignness" is significant especially between communities and the belief that once money has been derived as a "universal equivalent," its corrosive power (Itoh and Lapavitsas 1999) then permeates society and, in the case of capitalism, becomes a dominant social relation (Lapavitsas, 2003, pp. 14-15).

At this stage a more detailed examination of the nature and importance of barter is required in order to shed light upon the Marxian version of the origins of money; an anthropological perspective is provided by Chapman (1980). "Barter is not embedded in society. It stands out by itself as a purely economic transaction.¹⁷ What then is its role in history, in process? If barter is not an institution it might be termed a cultural or behavioural pattern" (Chapman 1980, p. 49).

Importantly, Chapman stresses that barter is a behaviour pattern that is separate from money and exists in all societies. "Barter exists with or without money" (Chapman, 1980, p. 57) Chapman notes the apparent existence of barter in all types of societies; however, in capitalism it is marginal, with the exception of periods of crisis. (Chapman, 1980) Crucially, barter *should not be understood as a forerunner of money*. Chapman's (1980) assessment of

¹⁵ 'Marx agreed with Banking School on its anti-Quantity theory stance, but went beyond it in providing theoretical foundations for the view that determination runs from prices to money and not vice versa.' (Lapavitsas, 1994, p. 460)

¹⁶ ¹⁶ Itoh and Lapavitsas (1999, pp. 229-234) attempt to refute the arguments expressed by Wray (1990) and the evidence for state and credit theories in general in order to add credence their own approach. They provide some thought-provoking analysis but ultimately, from our perspective, their arguments remain wholly unconvincing and, importantly, are not in accord with the evidence.

¹⁷ In describing barter in this way, Chapman is establishing a "universal model of barter...suggesting that barter as an ideal type is not embedded in society" (Humphrey and Hugh-Jones, 1992). Chapman states that in her study she "postulates 'pure' barter as a logical category, which, as such, exists only in theory, only abstractly. The model is not applicable to, or representative of, any given case of real ('impure') barter. In the world barter is a transaction between two living human beings, or groups; it always occurs in a social or psychological situation. The context however never (or rarely) distorts the prime motivation of the act of barter, which is the exchange of objects. The contexts, too numerous to define, presuppose two individuals or two groups, who need or desire to acquire each other's objects" (Chapman, 1980, p. 36, parentheses in the original).

Marx's explanation of the exegesis of money is in broad agreement with that of Lapavistas (2003).

"Marx states that exchange originated in the context of trade of products having use-values between two communities on their shared border, and that, as the volume of trade increased, the products were transformed from objects having use-value (a concept which here includes direct labour) into objects having value (abstract labour time) as well as use value. The labor necessary to produce the object has now passed from the use-value concept to the value concept. In this process of the transformation of products into commodities, money first emerges, as the measure of the exchange value of the commodities. The causal incidence of this momentous development is the result of exchange between communities, that is, *not* an internal transformation in the mode of production within the community or communities involved" (Chapman, 1980, emphasis in original).

Anthropologists Humphrey and Hugh-Jones (1992) support this interpretation of Marx's views of barter and add insight to it,

"The idea that barter is 'beyond society' was clearly expressed by Marx in *Capital*, volume I (1954[2013], p. 91) where he opposed barter to transactions within society and based on communal property rights. He located the origin of barter in exchanges between primitive societies, on the grounds that only in the absence of communal rights to property was it possible for people to alienate their goods...Marx went on immediately to add that as soon as people got the idea of alienated exchange of goods this spread inside society too, because of man's inherent desire for individual acquisition" (Humphrey and Hugh-Jones, 1992, p. 12).

Chapman develops her analysis by specifying four causal factors in Marx's theory of direct exchange, "(1) accident or chance; (2) events exterior to the community; (3) gradual increase in exchange or trade; (4) creation of surplus products. These factors are axiomatic; they are given, assumed as reasonable and illustrated by random examples from pre-capitalist societies" (Chapman, 1980, p. 68). Chapman then comments on each in turn,

"(1) By proposing the genesis and early development of barter (and of exchange in general) as accidental, Marx assumes that it is not the result of any process; that it might have 'happened' or not. Therefore this factor cannot be structured into a theory of this nature.

(2) By situating the origin and initial development of exchange as exterior to the community, Marx implies that in its origin the process is not the result of (or part of) forces which operate in terms of dialectic relations.

(3) By describing the process which leads to the transformation (of primitive society due to the insertion of commodity production in it) as gradual, further analysis is eluded in this context.

(4) What is surplus product? Surplus over and above what? Assuming that a normal or average consumption can be determined for a given society the surplus is the amount of products exceeding it. Among some hunting, fishing, and gathering people, for instance, food which is set aside for future

consumption is not necessarily bartered or exchanged” (Chapman, 1980, p. 69, parentheses in the original).

Chapman then provides a range of examples of “surplus” and places them in specific societal contexts before concluding, “the creation of surplus may be due to such various types of economic behaviour, that surplus of itself cannot be assumed to represent a given causal factor.” (Chapman, 1980, p. 69) Chapman goes on to argue that Marx’s story of the origin of the commodity is strangely incongruous with the rest of his analysis. The causal factors Marx brings into play in his theory of direct exchange and the origin of the commodity are amazingly weak and strangely contradictory to the theory of history (historical materialism) he applied to capitalism and so resolutely defended” (Chapman, 1980, p. 70, parentheses in the original).

Having considered the key arguments contained in the literature it seems reasonable to suggest that the credit/debt relationship existing within society forms the basis for the development of money as a social institution. Barter however, although it might exist, is *not embedded within societies* as a foundational social phenomenon. No society has yet been found with an economy based upon barter (Humphrey and Hugh-Jones, 1992). Rather barter comes into its own when “foreignness” (Lapavistas, 2003) is significant. It is therefore important when trade occurs *between communities* (although it does still occur within communities). It is an appropriate way of allowing spot transactions to occur between the representatives of different social groups.

The nature and history of barter are separate from the nature and history of money; barter trades and monetary transactions apply in different situations. The key element is that distinguishes the nature of barter from that of money is that *barter involves only two parties in the exchange* whereas a *monetary transaction, in contrast, involves three*. When a purchase is made the buyer provides the seller with a credit on a third party. This credit is money. There is no money in direct exchange; barter cannot provide the origins of money although it seems that barter exists alongside money.

The superiority of state and credit theories

“Money was invented as a social, and governmental, phenomenon, not as a means of reducing transactions costs in markets. The invention of money probably predated the development of formal markets; thus money facilitated the rise of markets, rather than vice versa” (Goodhart, 1998, p. 16).

The argument that money’s origins are found in the social relationships embedded within communities which allow states to provision themselves and for credit transactions to become widespread is much more convincing than the argument that it exegesis can be found in commodity exchange (whether this be the neo-classical or Marxist version of the story).

Commodity theory typically entails the logical derivation of money as a universal equivalent resulting from the development of commodity exchange and often where “foreignness” is significant (such as in an inter-community extent, allowing “spot” transactions to take place). This is followed by the claim (implicit or explicit) that, once established, this universal equivalent forms the basis of the monetisation of society. However, this *conflates the introduction of a precious metal “universal equivalent” into international trade with the origins*

of money itself. Such thinking is not new and certainly predates Marx, being apparent in the writings of John Locke (1695).

“Locke offered a cohesive definition of money, one that broke with tradition. According to Locke, money was the same as traders’ silver, the commodity that travelled in international exchange. This traditional view was that coined money was given ‘extrinsic’ value by sovereign authority, produced for public as well as private ends, and intended to nurture a domestic community” (Desan, 2014, pp. 345-46).

Desan notes how Locke believed that the intrinsic value of precious metal (in this case, silver) allowed it to act as a universal instrument in exchange. In fact Locke defined money as “a commodity with intrinsic (metallic) value, engendered as a medium by the consensus of traders, for their use in international exchange” (Desan, 2014, p. 346). Desan observes that Locke considered that “Silver worked ‘as money’ because it offered ‘intrinsic value’. That value attached by the ‘common consent’ of those using silver as an instrument of the ‘universal barter or exchange’” (Desan, 2014, p. 346, quoting Locke 1695).

Desan also points to the following statement made by Locke “I have spoken of silver coin alone because that makes the money of account, and measure of trade, all through the world.” (Desan, 2014, p. 346, quoting Locke 1695, p. 422) and argues, following Lowndes (1695), “Foreign trade ran ‘at par’ when the currencies of each country traded for each other in the amount that reflected the quantity of silver they contained” Desan (2014, p. 347). However, it is significant that

“[t]he reason coins travelled across foreign borders according to their silver content was that, in precisely that circumstance, they were *not* ‘money’. Money was a domestic affair, a political project based on the institutions of minting, spending, taxing adjudicating, and enforcing that made it work as way to count value, settle debts and circulate value at home. Stripped of that infrastructure – outside of the engineering that made it circulate *as money* – coin was, in fact, bullion. European polities had long settled accounts in silver or gold, given the value those metals held for money-making within their bounds.

But conflating the shared content of moneys- bullion- with the domestic measure itself was not hard to do. After all, silver and gold *did* move between countries as a means of lubricating trade. That point of reference was enormously attractive, especially for those unfamiliar with the way communities engineered money internally” (Desan, 2014, p. 347, emphasis in the original).

This attraction exerted a powerful influence on Locke,

“As he summarized his argument for defining money, it was silver that ‘mankind’ had agreed to give and take and give ‘for all other commodities as an equivalent’. Locke invoked a universal in order to set the standard for local practice... Locke did attend to the domestic situation, but he did so by extrapolating from his model. Having described bullion but called it money,

Locke then assimilated the latter to the former” (Desan, 2014, p. 347, quoting Locke, 1695, p. 423).

The similarities between Locke’s approach and that expressed by Lapavistas (2003) are remarkable. In the same way as Locke (and Marx) before him, Lapavistas explains the establishment of a “universal” commodity for use in international exchange – silver or gold – but then makes the same mistake as Locke by conflating this with *money*. Money does not derive from a “universal equivalent” which appears in international trade; rather “money” is a domestic invention, embedded in a particular society by forces generated within that society. In summary, we might contend that there is no proven link between inter-community or international trade and the introduction of money into communities. Locke manifests this error which is found in both neo-classical economics and Marxism. Instead, we would argue that it is state and credit theories which provide much more powerful explanations of the development of money within communities and, as we shall see below, receive significant support from the evidence. The origin of money should not be understood as some side-effect of the development of inter-community or international trade but rather as a development which springs directly from the development of social relationships within communities.

All money is credit but not all credit is money (Wray, 2004). If a seller provides goods and services but is prepared to wait for payment she is granting credit. If the credit she holds on the buyer becomes transferable and allows her to settle her own debts with others it effectively becomes money. Money then is merely transferable debt. It is a fictitious commodity in a Polanyian¹⁸ sense. It has no corporeal existence and intrinsically has a zero cost of production. It is not a produced commodity, it is merely an entry on a ledger. We might even suggest that in a world where trust and memory were perfect, money could exist purely in spoken form. A seller could receive a spoken credit and could pass this on to her own creditors in settlement of her debts using only language.

However, in the real world where trust and memory are not perfect, monetary systems have utilised tokens or “money things” such as coins, tallies or banknotes to symbolise the debt. A seller, rather than acquiring merely a spoken credit or even a book credit, receives a physical token to show that they hold credit on the debtor (the state or on a private individual or institution). The tokens may at first glance appear to be money itself but on reflection it is clear they are only symbols indicating that the holder holds the debt of another agent. The nature of the tokens as only symbols of money can be illustrated by referring to Knapp. The state could demonetise one token and monetise another.

The choice of token by different communities can have far-reaching consequences. This is especially true of “commodity money”. Historically coins containing precious metal have become a common form of tokens. These coins are really metal discs monetised by the

¹⁸ Polanyi notes the nature of fictitious commodities, “labour, land and money are essential elements of industry; they must also be organised in markets; in fact, these markets form an absolutely vital part of the economic system. But labour, land and money are obviously not commodities; the postulate that anything that is bought and sold must have been produced for sale is emphatically untrue in regard to them. In other words, according to the empirical definition of a commodity they are not commodities. Labour is only another name for a human activity which goes with life itself, which in turn is not produced for sale but for entirely different reasons, nor can that activity be detached from the rest of life, be stored or mobilized; land is another name for nature, which is not produced by man; actual money, finally, is merely a token of purchasing power which, as a rule, is not produced at all, but comes into being through the mechanism of banking or state finance. None of them is produced for sale. The commodity description of labour, land and money is entirely fictitious” (Polanyi, 1944, pp. 75-76).

stamp of the issuer. Their nature as commodity money tokens results from being declared as acceptable in payment of taxes by the state (Knapp, 1924). From a modern standpoint it might seem wasteful to manufacture tokens or money things from precious metals with high intrinsic value and multiple uses instead of something with zero or close to zero intrinsic value. Why use precious metal? As Minsky said “anyone can create money, the trick is getting it accepted” (Minsky, 1986, p. 228). We suggest that in a world of uncertainty about the future, issuing debt by using precious metal tokens would have had several advantages. First, it would raise the prestige of the issuer. Any state that can access gold or silver and use it to manufacture money tokens should be worthy of at least some respect. Second, the scarcity of precious metals would give the tokens a “floor value”. If the current monetary system broke down and the tokens were no longer acceptable in payment of taxes then at least they would have some residual value. Third, this scarcity would add to the acceptability of the tokens from those who might fear that the possibility of irresponsible issue of tokens by the state in the future was a real threat and might lead, in turn to a reduced value of their monetary wealth. Lack of availability of precious metal would constrain the state from such actions. Fourth, fraudsters would find it hard to find precious metal relative to, say, a common material which would reduce (although not eliminate) the chance of counterfeiting.

In principle, though, materials with little or no intrinsic value could have been (and indeed, were) chosen as money tokens, notably hazel wood tallies (Wray, 1998; Desan, 2014). However, the common choice of precious metal tokens has been the source of a great deal of confusion as category errors have proliferated in economics. Unfortunately, economists have committed an ontological error (or category error) when considering *the actual nature of money* and have confused “money things” or “signifiers” (more generally, tokens) which are producible commodities with the money itself, which is not a produced commodity (Ingham, 2001).

The evidence in support of state and credit theories is wide-ranging and comprehensive. The impressive work done by Ingham (1996; 1999; 2000; 2001; 2004a; 2004b), Wray (1998; 2006), Grierson (1977) and Goodhart (1998; 2009) – amongst others – is important and, from our perspective, ultimately convincing; we have already referred to Wray et al. (2004) who provides a detailed analysis and critique of Innes’ work and a wide-ranging survey of evidence concerning the development of money.

In the case of Egypt John Henry considers that, “Egypt was not a monetary economy; production was not undertaken to ‘make’ money. But it certainly had money and money was not a medium of exchange, but a social relationship. It was bound up with the transition from egalitarian to class society” (Henry, 2004, p. 96). He continues in support of Innes’s credit theory of money, “A. Mitchell-Innes’s theoretical account, developed nearly a century ago and long ignored by economists, is in accord with the historical facts of the development of money in Egypt” (Henry, 2004, p. 97).

We might also consider the case of Mesopotamia, Hudson¹⁹ contends that, in general,

“The power to create money and expand the credit supply historically has tended to be in the hands of public bodies. Ever since its Bronze Age inception, money’s power has been established by the public sector’s

¹⁹ See also Goodhart and Hudson (2018, pp. 6-15) for an analysis of jubilee debt cancellations. Their work highlights further evidence in support of the argument that state power and authority are at the root of the development of money.

willingness to accept it in payment for public fees and taxes” (Hudson, 2004, p. 121).

He goes on to conclude, in the specific case of ancient Mesopotamia,

“rather than originating with private individuals trucking and bartering, money was created as a medium to denominate and pay obligations to the large public institutions. The Mesopotamian breakthrough lay in creating a system of price equivalencies that gave a sense of proportion.²⁰ The value dimension was provided by the accounting formalities that enabled temples and palaces to coordinate their internal resource flows and dealings with the rest of the economy” (Hudson, 2004, p. 123).

Third, we might consider ancient Greece. According to Keynes, “The Solonic reform of the Athenian currency in the sixth century B.C. was an exercise of the chartalist prerogative which was contemporary with, but in no way dependent upon, the existence of coined money. It was just a change of standard” (Keynes, 1930, vol. 1, p. 13).

The evidence supports the contention that money is always credit and should be analysed as a development from the credit/debt relationship and that the state has a critical role in the introduction and use of money. Examination of ancient empires confirms this. Even today, states and would-be states are issuing or intending to issue their own currency. In 2014, Isis announced plans to introduce its own currency; this, in a sense, is an affirmation of its view of itself as a “state”.

“Isis said it would reinstate an ancient Islamic dinar currency using gold and silver coins. There is a modern form of the dinar still in use in some countries, but these use fewer precious metals for coins. Isis’s announcement did not state when the currency would come into circulation” (*The Independent*, 13, November, 2014).

Conclusion

When discussed in isolation what money “is” may seem an esoteric matter of concern only to historians and a select few disciplinary specialists. This opinion, however, would be a profound error. The nature of money bears directly on the nature of the socio-economic processes that are core to the way we live. The nature of money bears directly on the ideational significance and veracity of finance and on whether in fact we live in money economies where financing is core to the scope and potential of societies. Money is a vital *relational* social technology. If we get what money “is” wrong, then we commit errors all the way up the theory chain.

It seems clear that we cannot *afford* to get the nature of money wrong as our experience of financial crises and the ill-constructed response represented by austerity reveals.²¹ We would further argue that it is no coincidence that the most effective critics of the failures of finance

²⁰ As we have noted, Hudson (2004) describes how the Mesopotamians created a bi-monetary price ratio (barley and silver) which enabled the relative values of products, land rents, trade and services, debt and its interest charges to be coordinated into a single overall value system.

²¹ Armstrong (2019).

have been credit theorists, such as Michael Hudson²² and L. Randall Wray (or, indeed, Hyman Minsky from whom Wray draws inspiration).²³

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²² Although Hudson draws insight from Marx he differs from many Marxists by focusing on the particular significance of rent-seeking in capitalism, especially how it underpins the parasitic role of the financial sector.

²³ Wray (2016, pp. 2-11).

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Cross-current, or change in the direction of the mainstream?*

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Abstract

Economic history was the source of Schumpeter's insight that creative destruction is the essential fact about entrepreneurial capitalism. Since Schumpeter's death, the mandated formalism of economic method has constrained the depth and breadth of understanding of creative destruction among economists, policymakers, and citizens. Ironically, Schumpeter himself enabled, and later partly regretted, the mandated formalism. Although in recent decades there have been calls for a more tolerant pluralism, they have remained only cross-currents. But Schumpeter's success in enabling the formalist revolution, is a proof-of-concept that major changes in method and ideas can occur; which in turn provides a flicker of hope that James Heckman's recent defense of pluralism could help shift the direction of the mainstream.

1. Introduction

My Wabash College mentor Ben Rogge was a good friend of George Stigler and Milton Friedman. But the economist he admired most was Joseph Schumpeter. Like Schumpeter, Rogge was a friend of entrepreneurial capitalism, but a pessimist about its future. He would quote with approval Schumpeter's admonition that even when you are sure that the ship is going to sink, it is still noble to run for the pumps (Rogge, 1979, p. 35; Schumpeter, 1950, p. xi). I was never fully convinced – if you are sure the ship is sinking, maybe you should run for a good bottle of brandy and start sipping?

What I most wanted was to part the clouds of gloom with some ray of hope. When I thought I had found such a ray, I would take it triumphantly to Rogge. He would always look at me with his sad smile, gently shake his head, and say something like: "Diamond, every river has its cross-currents and eddies; but you must never mistake them for the main direction the water is flowing" (see also: Rogge, 1979, p. 35).

Much evidence supports Schumpeter's claim that creative destruction is the essential fact of capitalism (Schumpeter, 1950, p. 83; Diamond, 2006, 2019). And yet 70 years later, the profession still mainly ignores this fact. Creative destruction was originally generalized from Schumpeter's careful reading of economic history. The process of creative destruction cannot be understood without understanding the goals, thought-processes, actions, and obstacles of the innovative entrepreneurs who are the key agents of creative destruction. Although attempts have been made to formally model creative destruction (e.g., Aghion and Howitt 1992), they generally do not provide new, sound, policy relevant knowledge (Diamond 2009a). At best, they summarize in a stylized way the aspects of creative destruction that the modeler chooses to emphasize.

The knowledge that can inform and persuade economists and citizens of the truth and importance of creative destruction is most often the empirically richer knowledge that can be

* Part of the penultimate section of this paper makes use of unpublished research I presented at the History of Economics Society meetings in 2009, in which I discuss some illuminating Schumpeter letters in the Harvard University Archives.

found in economic history, in business case-studies, and in the biographies of entrepreneurs. The same richer knowledge that can persuade, also contains the details that support policies to unbind and enable the entrepreneur.

If the ship of entrepreneurial capitalism is to be saved, it will only be through economists, policymakers, and citizens better understanding how the process of creative destruction results in human betterment. That understanding, in turn, crucially depends on acceptance of a methodological pluralism that warrants the truths that can be generalized from the stories of innovative entrepreneurs.

Although respecting Rogge's tough-minded pessimism, I still seek rays of hope. In the remainder of this essay, I begin by discussing past rays that so far have remained cross-currents. I proceed to discuss how the flow of economic methods and ideas can change direction, looking especially at the formalist revolution as a proof-of-concept. I end by discussing a recent defense of pluralism that can give us hope that a future change in direction is still possible.

2. Past rays of hope

Past rays of hope consisted of the growing number of economists and business practitioners who found the process of creative destruction to be useful in understanding how capitalism works. In 1983, on the 100th anniversary of the birth of both J.M. Keynes and Joseph Schumpeter, the highly-respected management expert Peter Drucker penned a cover story for *Forbes* in which he argued that a majority of academics and policy makers placed far greater value on the theories and policy advice of Keynes than Schumpeter. The *Forbes* cover shows a portrait of Keynes well-illuminated by many large, medium, and small candles, next to a darker portrait of Schumpeter lit by a single modest candle. But, Drucker argued, as is often the case in life, the majority had gotten it wrong. Schumpeter, much more than Keynes, asked the right questions – questions about innovation, and dynamic economic growth (Drucker 1999a [1st published in *Forbes* in 1983]).

Drucker's 1983 article has been given credit (and he himself gave it credit) for the Schumpeter revival that some date from the mid or late 1980s.¹ Whether that is the case, it is true that in recent decades, distinguished mainstream economists occasionally have been acknowledging the limitations of the static, equilibrium-based model of competition, and are suggesting that more attention needs to be given to entrepreneurship and creative destruction.

¹ Steve Forbes attributes the increased attention to Schumpeter largely to Drucker's article: "Almost everyone today is aware of the phrase of another Austrian-born economist, Joseph Schumpeter: 'creative destruction', which describes the process in a capitalist economy whereby new technology and new companies messily supplant the old. Nearly 20 years ago Laury realized that 1983 would mark the centennial birthday of not only the towering John Maynard Keynes but also the obscure Joseph Schumpeter. The result was *Forbes*' commissioning Peter Drucker to write about these two extraordinary men. The landmark cover story started the process of bringing Schumpeter out of the shadows" (Forbes, 2001).

Drucker himself seemed to share Forbes's view of the article's impact: "Of all my essays this may have had the greatest impact – and where I least expected it, that is among economists. Schumpeter was of course, all along a very big name in economics. Economists bowed their heads when his name was mentioned. But few actually read him. This essay touched off a 'Schumpeter boom'" (Drucker, 1999b, p. ix).

I have documented elsewhere that in the last few decades several major mainstream economists have advocated less focus on equilibrium models and more focus on the innovative entrepreneur (Diamond, 2009a). These included Martin Neil Baily (2001), William Baumol (e.g., 2001, 2002, 2006), Gary Becker (1998), Zvi Griliches (2000), Paul Krugman (2003), Sherwin Rosen (1997), and George Stigler (1988, p. 101). Mainstream economists Bradford DeLong and Lawrence Summers went so far as to predict: “if we call the economy of the last two centuries primarily ‘Smithian,’ the economy of the future is likely to be primarily ‘Schumpeterian’” (DeLong and Summers, 2001, p. 33).

To these we can add Edmund Phelps whose 2006 Nobel Prize lecture (Phelps, 2007) is said to have included more uses of the word “entrepreneur” than the sum total of uses in all previous Nobel Prize lectures (Hubbard, 2008, p. 598). Besides individual examples of the sort just mentioned, there is also some broader crude evidence of growing serious attention given to creative destruction. In the literature of the social sciences, as measured in the *Social Sciences Citation Index*, citations to Schumpeter’s main book (the main source of his account of creative destruction) continued to grow after its publication and finally surpassed citations to Keynes’s main book for the first time in the mid-1990s (Diamond, 2009b).²

McCraw has observed that “creative destruction” has become a “byword” in business (2007, p. 497). Several business experts could be cited in support of McCraw’s observation, including Andy Grove, the former CEO of Intel, who made use of Schumpeter’s central ideas in his business best-seller *Only the Paranoid Survive* (1999). The use of “creative destruction” by practitioners is discussed at greater length in Diamond 2007.

3. What causes major changes in ideas and methods?

Major changes in ideas and methods can occur in three ways. The first is through some change in the economy that demands explanation or action. The second is through some change in the funding, or availability of research materials, for economists. The third is through a major figure in the current mainstream who shifts positions to defend the new direction.

The first way can be illustrated by several changes in the external economy that re-directed the channel of economic ideas.

1. The Phillips Curve posits a trade-off between inflation and unemployment. Economists gave the curve much more skeptical scrutiny only after the stagflation of the 1960s and 1970s in the United Kingdom and the United States when, instead of trading off, inflation and unemployment both rose at the same time.
2. Economists wrote several papers explaining the reasons for the “Great Moderation” in the business cycle, which some expected would persist. These papers became much less common after the economic Crisis of 2008.

² When citations are restricted to those from economics journals, the gap between Keynes and Schumpeter closes, starting roughly in the early 1990s, but with Keynes’s *General Theory* still usually receiving more citations. A new study updating the comparison up to 2016, finds the *General Theory* regaining a more substantial lead roughly following the economic Crisis of 2008 (Dalton and Gaeto, 2019).

3. Venture capital and private equity firms were not created at the suggestion of economists. Rather economists studied them only *after* they were well-established and widely reported in the business press.
4. Milton Friedman said his floating exchange rate research was not given much attention until a crisis left policy makers more open to a new solution (Friedman and Friedman, 1998, pp. 376-377).

The second way that ideas and methods can change is through changes in the funding for different kinds of research, and in the availability of different kinds of research inputs. Milton Friedman argued that the growth in National Science Foundation funding for economics, made economics too mathematical and less innovative (Friedman, 1981). Nobel laureate Robert Solow thinks the growth in econometrics was mainly due to an increase in the amount of data available for analysis (Solow, 1997, p. 47).

4. How Schumpeter enabled and regretted the formalist revolution

The third way the channel of ideas can change course is when a major economist changes his mind and convinces others to change their minds. A major economist who has an epiphany that leads them to change sides, can have a big effect. Nobel laureate George Stigler reports that when fellow Nobel laureate Ronald Coase first presented to the distinguished economists at the University of Chicago what came to be known as the Coase Theorem, they all began by rejecting it as “heresy” (Stigler, 1988, p. 76). But as the night progressed, Nobel laureate Milton Friedman started asking questions and pondering out loud. He changed his mind, and by the end of the evening, everyone there accepted the Coase Theorem as a major discovery. Stigler says this “exhilarating” evening was the only “Eureka!” experience of his professional life (Stigler, 1988, pp. 73, 76). Stigler himself changed his mind (perhaps gradually) on antitrust policy in part as a result of reading Schumpeter’s *Capitalism, Socialism and Democracy*. Stigler said “we economists mostly rebelled against such heresy, but it left its mark” (Stigler, 1988, p. 101).

Schumpeter was depressed late in life because he had not changed the direction of ideas (McGraw, 2007, p. 403). But he was wrong, and not just because of Stigler. The third way the channel of ideas change, can be illustrated by what happened in the formalist revolution in economics. Schumpeter blessed it, enabled it, and eventually partly regretted it. The economist Paul Samuelson, and the journal *Econometrica*, played key roles in what Hutchison (2000) and Blaug (2003) have called the “formalist revolution” in economics. Schumpeter was important in the success of both Samuelson and *Econometrica*, and so he was an enabler of the revolution.

Throughout his career, Schumpeter was a methodological pluralist, believing that economic knowledge could come from theory, econometrics, and history. The superficial appearance that Schumpeter shifted from one methodology to another, may be due to his vocally defending whichever branch of a balanced methodology was currently under attack. In the Schumpeter archives at Harvard, one can find several letters from Schumpeter to colleagues, trying to support the career of the young Paul Samuelson. Schumpeter defends Samuelson as a brilliant mathematician, and fears that, given the then-current state of the profession, Samuelson might not be able to find a job. Other evidence would be Schumpeter’s early support of the Econometric Society, including begging the Rockefeller Foundation to save

Econometrica from bankruptcy. Early on, the practice of mathematical methods received fragile support in the profession, so Schumpeter defended mathematical methods.

Near the end of his career, Schumpeter delivered a lecture at the National Bureau of Economic Research (NBER) in which he outraged many distinguished econometricians by arguing that they needed to take economic history more seriously. There was even a claim that Schumpeter had gone senile, a claim that Paul Samuelson much later rebutted (Samuelson, 2003, pp. 465-466). Late in Schumpeter's career, the practice of economic history received fragile support in the profession, so Schumpeter defended economic history, perhaps partially regretting his role in empowering the econometricians.

Revolutions in academic institutions are rare, because the incumbents within the institutions have an interest in preserving them. For those who believe that another change in method would lead economics to be more sound, more useful, and to progress more quickly, it is of interest how such a revolution could come about. Thomas Mayer (1993) points out that the formalist revolution should provide hope for the possibility of such a change. If so, then one lesson from the formalist revolution, is that major change can occur when a powerful incumbent of the currently dominant school (Schumpeter, in this case) endorses and defends the change; and helps provide resources (fellowships, faculty positions, publication outlets) to those willing to join him.

5. A current ray of hope

So are there any figures today whose epiphanies, or evolving views, could result in a major change in economic method? A highly distinguished Nobel Prize recipient, celebrated for his application of mathematics to economics, recently has co-authored an article that may give hope. James Heckman's paper with Burton Singer argues for the use in economics of philosopher C.S. Peirce's method of "abduction" (Heckman and Singer, 2017). The more familiar concept of "induction" had been discredited within philosophy on the grounds that no matter how many observations inductively support the proposition "all swans are white," you never have certainty, because the next observation could always be a black swan. In "abduction" we learn from observations, but never claim to reach certainty.

"The abductive approach to empirical economics... privileges no source of data, style of research, or mode of inference for learning about the economy provided the analyst produces useful knowledge that survives critical public scrutiny. It values factually-rich descriptions as major sources of knowledge" (Heckman and Singer, 2017, p. 301).

Heckman and Singer see the abductive method as a reform of the methodology of economics. The method would allow the rich, fine-grained empirical case-studies and biographies that most reveal how the process of creative destruction works.

The question is whether Heckman's proposed reforms will remain cross-currents, or might they grow to become changes in the direction of the mainstream? What happens will depend on some factors that Heckman can influence and some that are beyond his control. Changes in the economy can matter and are beyond Heckman's control. Changes in how economics is funded can matter and are likewise beyond his control.

One factor that Heckman can control is whether he makes his proposed reforms a central message or an ephemeral aside. Don Patinkin long ago noted that credit mainly is due to those who emphasize and repeat a central message, not to those who briefly and obscurely mention an idea once (Patinkin, 1983). So what are Heckman and we to do? We do our research on problems that matter. We seek the truth wherever it can be found. When we find important truth, we argue for it professionally and publicly, knowing that it *can* matter, but not knowing if it *will*.

If it is possible that the ship can be saved, we rush for the pumps.

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Negative natural interest rates and secular stagnation: much ado about nothing? A note

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Abstract

This note is critical of the concept of a natural interest rate and doubts the relevance of claims about the “natural” interest rates becoming negative recently.

JEL Codes E13, E31

Keywords natural interest rates, secular stagnation, zero lower bound, DSGE

“There is a certain rate of interest on loans which is neutral in respect to commodity prices, and tends neither to raise nor to lower them. This is necessarily the same as the rate of interest which would be determined by supply and demand if no use were made of money and all lending were effected in the form of real capital goods...” (Knut Wicksell, 1936 [1898], p. 102.

Secular stagnation and the negative natural rates of interest

Like other key variables of mainstream macroeconomics (potential output and output gap) the “natural” (or “neutral”) interest rate is unobservable – and thus not subject to measurement.¹ (Actually, the key mainstream “unobservable variables” are intimately related to one another.) Despite its ghostly appearance the natural interest rate (commonly denoted as r^*) plays quite a prominent role in the mainstream monetary theories – and, apparently, also for the practice of monetary policy making. The size of r^* is often claimed to be an essential benchmark for monetary policy – and the research departments at central banks busy themselves with attempts at “guesstimating” its numerical values.

Not long ago the concept of the natural interest rate was invoked while attempting to rationalise anaemic recovery (“secular stagnation”) following the 2009 Great Recession. Specifically, it is claimed that r^* must have turned negative (see e.g. Summers, 2014; ECB, 2018) thus activating the “zero lower bound” and hence becoming directly responsible for “secular stagnation”.²

* Thanks are due to Jamie Morgan for insightful addenda to the first version of this note.

¹ NAIRU, another notorious unobservable, belongs to an older version of the mainstream. Its applicability is now questioned (e.g. Blanchard, 2018). In the state of the art macro (epitomised by the DSGE models) there is no place for any unemployment at all (but only for a free, utility-maximising, choice between work/consumption and leisure).

² Zero lower bound interest rates have become an issue for multiple reasons in recent months. Many countries central banks are pursuing a negative interest rate policy and several nations have in any case negative real interest rates. In mainstream theory, this tends to be associated with numerous adverse effects, many of which have not yet been observed in recent cases: negative rates imply retail banks are being charged to hold deposits with the central bank causing problems with reserve systems; depositors at commercial banks continue to experience low or no returns on those deposits and the monetary system under an intermediation of loanable funds (ILF) understanding seems to be increasingly dysfunctional. This, of course, brings into question ILF.

The reasons why r^* should have at last become negative (following its presumed long-term decline) have not been convincingly explained while its “estimates” are more than problematic.³ In particular it is not satisfactory to suggest that falling/negative r^* follows, one way or another, from “a significant shift in the natural balance between savings and investment” (see e.g. Summers, 2014, p. 69).

Are “excessive” savings responsible for falling (negative) r^* ?

The sums of money invested by any firm augmenting its stock of fixed assets may depend on (or even be determined by) the stock of money savings *accumulated* by that firm (or by its willing lenders) in the past, or even during the investment period. It is however an elementary mistake to suppose that the magnitude of *aggregate* national investment in a given period is determined by the aggregate of sums of money (or some other financial assets) saved *during* that period, or before it.⁴

Rudimentary macroeconomics identifies savings with investment (of course, for simplicity here we are ignoring the foreign balance, a GDP component). At the *macro* level savings and investments are two sides of the same coin. No imbalance between the two items is then possible. With investment identically equal to saving the interest rate (natural or any other) cannot be determined by their equality. In practice it is possible to draw conclusions from the imbalances between saving and investment only when the term “saving” is somehow misinterpreted.

Observe that at the macro level causality runs (logically but not temporarily) from current investments to current savings – with the latter mirroring the former instantaneously.⁵ The suggestion that investments may be too low because so are savings is thus doubly absurd (because it suggests a possibility of imbalance between the two and presumes the causality running from savings to investment). The same qualification applies to the idea of the “global saving glut” – income unspent (and yet non-invested) aimlessly “vagabonding” around the globe.

The natural interest rate in the basic DSGE model

The existence of potentially harmful effects of negative r^* could be squared with the following form of the Investment–Saving (IS) function featuring in the basic version of the New Keynesian Dynamic Stochastic General Equilibrium (DSGE) model⁶:

³ The leading “estimation methodology” (Laubach and Williams, 2003) assumes that r^* must stand in a certain relation to the output gap. A logical circularity of this approach would seem quite obvious. The output gap is not only unobservable itself, but also conceptually dependent on r^* (see the IS formula below).

⁴ There is also the issue of dynamic changes in money balances created through the activity of retail bank lending; since this activity is not in accordance with ILF (gathering of capital as savings to lend out) it adds complexity to the savings investment identity and also tends to accord with the claim that investment drives savings, so any identity between the two is (as suggested later) the reverse of that assumed by standard mainstream economics.

⁵ Most Central European countries emerged from WWII without any financial, or monetary, “savings” whatsoever. And yet very high investments (reconstruction and industrialisation) started right away in most of them. Those investments turned out to represent national savings.

⁶ See e.g. Galí (2008, p. 49), or Woodford (2003, p. 243). Woodford invokes Wicksell’s characterisation of r^* while Galí does not. Of course it is a misnomer to name the DSGE equation relating the output gap

$$y_t = E_t y_{t+1} - \sigma(i_t - E_t \pi_{t+1} - r_t^*) + \text{"shock"}$$

where: y is the output gap, t indexes time, E is the (rational) expectation (of output gap, inflation) by the "representative agent", σ is a parameter ($0 < \sigma < 1$) related to the representative agent's preference for consumption, i is the central bank's nominal policy interest rate, π is the inflation rate, r^* is the natural interest rate and "shock" is yet another unobservable (in addition to the output gap and the "expected" items on the right-hand side of the IS equation). It is worth observing that the term $E_t y_{t+1}$ must be interpreted as the "representative agent" (rational) expectation of the future output gap. Thus such an "agent" is endowed not only with a rational foresight, but also with the way of assessing an *unobservable* item.

The term $(i_t - E_t \pi_{t+1})$ should represent the central bank's interest rate (in real terms). Under stable (and predictable) inflation $E_t \pi_{t+1}$ can be approximated by current observed inflation: π_t . Even if i_t is small (as it usually is under low inflation or deflation) a negative r_t^* would result in the whole term $(i_t - \pi_t - r_t^*)$ being positive. Thus this term's impact on y_t may only be negative. If that negative impact is sufficiently large (in absolute terms) it could make much of the right-hand side of the IS formula $(E_t y_{t+1} - \sigma(i_t - E_t \pi_{t+1} - r_t^*))$ negative as well. Absent positive shocks, a perpetually negative output gap ($y_t < 0$) would emerge under such conditions.

Arithmetically, the term $(i_t - \pi_t - r_t^*)$ could here be negative (and thus its impact on y_t positive) only with a sufficiently negative nominal policy rate (i_t). Because (as seems quite obvious) the nominal policy interest rates cannot be pushed too much below zero (the "zero lower bound bites") this is not considered a realistic option for ending a permanently negative output gap (or "secular stagnation"). What remains – if one accepts this version of the IS story – is to "stay patient" – wait for some positive "shocks" (perhaps in the form of a fiscal impulse, or the emergence of some asset bubbles) or some inexplicable (exogenous) changes in expectations.

A digression: isn't the natural interest rate an economic unicorn?

Judging the magnitude of an unobservable variable (such as the natural interest rate) by reference to another unobservable variable (or collection of such variables) is obviously not a very sane approach. Moreover, it may create the impression that such a variable – even if unobservable – does actually exist. But in fact such a variable may be pure fiction, a kind of economic unicorn – or an item with mutually excluding characteristics.

Wicksell's original claim that "***There is a certain rate of interest on loans which is neutral in respect to commodity prices, and tends neither to raise nor to lower them***" presumes the existence of such an equilibrium rate. But what guarantees the existence of such a rate (and/or its stability and uniqueness)?

to the interest rate **The Investment-Saving** schedule (or function). The model ignores investment spending. All output produced is consumed momentarily (thus there are no savings). Galí (2008) develops a succession of DSGE models – none of them allows for investment in fixed assets.

The rather curious aspect of the natural interest rate concept is its reference to inflation (“*raising or falling commodity prices*”) under “counterfactual” conditions (absence of money, frictions, shocks and other nuisance factors). But, under the absence of money, the price level remains indeterminate – and so is inflation. At best (under a unique barter-exchange general equilibrium) only the *relative* prices are determinate and can rise and fall – but only vs. one another!

Wicksell’s logical error (making reference to inflation in a moneyless economy) has not been corrected by the Neo-Wicksellians. Actually, Woodford (2003, pp. 62-4) dodges the problem. On the one hand it is claimed that the “price level in a cashless economy is in principle determinate”. But then money is introduced through the back door – in the form of “central bank liability which may or may not have any physical existence”.⁷

That the DSGE models lack realism (e.g. by ruling out involuntary unemployment or introducing a “representative agent” amalgamating workers with their employers) and are failing miserably as forecasting tools does not seem to trouble their proponents. But at least they should try to get rid of ambiguous concepts and self-contradictory definitions behind their key variables.

Real short-term interest rates have followed declining trends

Perhaps it may be more acceptable to try to gauge the trends in the natural interest rates (assuming they exist, though not necessarily reflecting the conditions obtaining under “counterfactual conditions”) by direct reference to the observed tendencies with respect to observed inflation and real-interest rates.

Inflation (at least in the leading industrial countries) has been downwards trending since at least the early 1990s. This is an aspect of the “great moderation” which ended in 2009 (and was then followed, as far as price levels go, by deflationary tendencies).

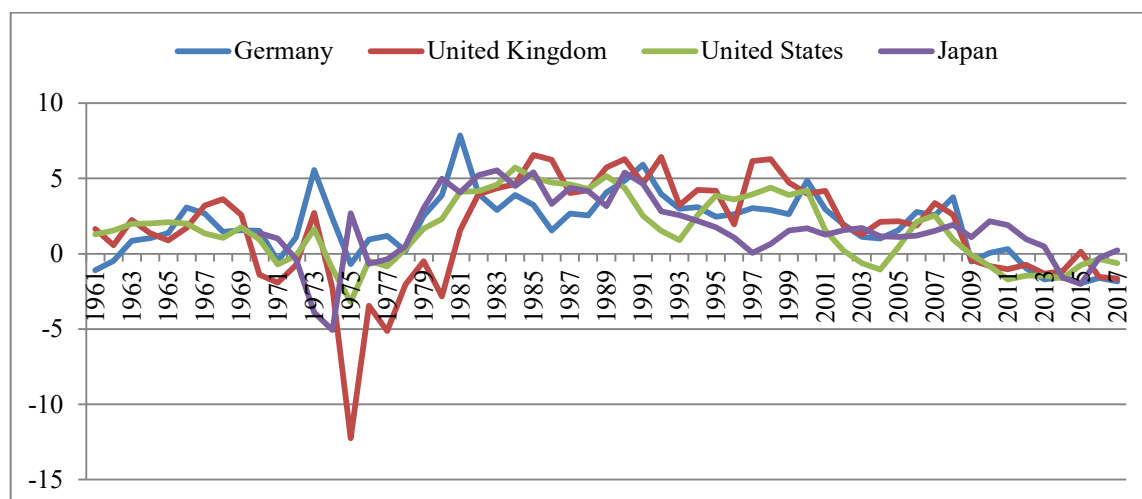
Under generally low and fairly stable inflation prevailing since 2009, real interest rates (long since following declining trends) have eventually turned negative (see Figure 1 showing short-term interest rates in major industrial countries since 1961). This seems to support the conviction that the “natural” interest rates must have followed similarly declining trajectories and ended up in negative territory.

Of course this conviction is not literally consistent with Wicksell’s original (or Woodford’s newer) definition which required that the economy in question is not only perfectly competitive, but also moneyless. Neither condition is satisfied in the really existing industrial (and almost all other) countries.⁸

⁷ Arguably, Wicksell might have assumed that all prices were relative – with gold being the (then) obvious (and immutable) numeraire. Perhaps it was unimaginable to express prices of any commodity (rising or falling) in relation to anything else but gold – without clearly realising the fact that gold was then money after all – as well as yet another commodity.

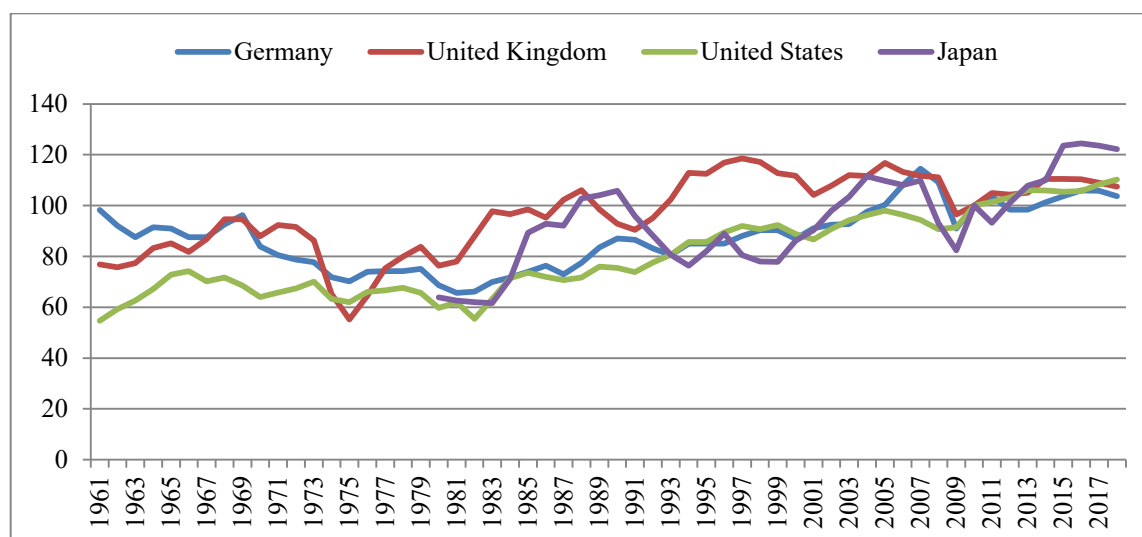
⁸ The *models* of perfectly competitive and moneyless (barter) economies (e.g. in the Walrasian tradition) can work excellently (in the learned treatises). But could one really imagine a moneyless (barter-based) developed market economy to function competitively – or at all?

Figure 1 Real short-term real interest rates (deflator GDP), 1961–2017



Source: AMECO. “Real short-term interest rate” (AMECO item ISRV) is, essentially, the nominal 3-month money market rate divided by the GDP price deflator.

Figure 2 Net returns on net capital stock, 1961– 2018 (2010=100)



Source: AMECO. “Net returns on net capital stock” (AMECO item APNDK) is the ratio of net domestic income less employees compensation over net capital stock (at current prices).

The natural interest rates radically divorced from capital profitability?

“... It comes to much the same thing to describe it [the natural interest rate] as the current value of the natural rate of interest on capital” (Wicksell, 1936 (1898), p. 102).

Under Wicksell’s alternative characterisation of the natural interest rate (as the rate of return on capital⁹) the factual developments observed since the late 1970s through early 2000s (and

⁹ Again, let us gloss over the issue of existence/uniqueness of the *natural rate of interest on capital* and of its measurability under “counterfactual” conditions (absence of money etc.).

then again since 2009) could suggest that the natural interest rate has been *increasing* (see Figure 2).

As can be seen, two apparently equivalent definitions of the natural interest rate suggest qualitatively divergent interpretations of the factual developments. The first suggests that the natural interest rate may have been falling while the second that it may have been rising. The conclusion to be drawn from this is that one does not really know. The natural interest rate may have become negative recently – but it is equally legitimate to claim that it has become pretty large – and positive. Perhaps the most important conclusion would be that its eventual sign and size may not matter at all.

The irrelevance of interest rates (natural or otherwise)

It is not a problem to “derive” a simpler “approximate” formula for IS. Actually such an IS form *not* featuring r^* comes first while developing the canonical log-linearized New Keynesian DSGE model (see e.g. Galí, 2008, p. 46). To arrive at the form featuring r^* some semantic effort is required (to redefine the variables and parameters of the resulting benchmark DSGE model¹⁰).

The ease with which one can manipulate, in the DSGE models, the attributes of the mythical “representative worker-employer” (or of the monetary authority, “firms”, “technology”, “shocks”, etc.) is as disquieting as the arbitrariness in “calibrating” the models’ parameters. It may seem advisable to consider as irrelevant and *unfortunately useless* “most state of the art academic monetary economics” (Buiter, 2009). The same applies not only to the concept of a natural micro-founded interest rate but also to the old (Hicks’) idea of a negatively-sloping IS schedule. Of course this is not to claim that the IS must be positively-sloping - though this eventuality cannot be ruled out in some circumstances (Podkaminer, 1997). Instead, it would seem legitimate to take it for granted that the impacts of moderately¹¹ changing interest rates on output tend to be rather unsystematic, dependent also on the real developments, and actually too difficult to model.¹² In any case, in the real world the effects of moderate interest rate variations seem to be of the second order of importance – in contrast to fiscal and other aggregate demand-side impulses which the current mainstream tends to treat as “exogenous shocks”.

Understanding “secular stagnation” may require the study of real forces behind historically evolving global consumption and investment trajectories. One of these forces was the overall economic paradigm change of the late 1970s and early 1980s – the rise of neoliberalism as the ruling principle behind economic and social policy making (see e.g. Podkaminer, 2015; Palley, 2018).

¹⁰ The benchmark 3-equation DSGE model has – in addition to an IS formula – the equations for the “new” Phillips curve and the Taylor Rule.

¹¹ Because the DSGE models work with *local* (log-linearized) approximations around the presumed steady state trajectories, they cannot say anything about the effects of larger changes, or shocks, to the variables or parameters considered.

¹² There are multiple issues here. For example, activity according to the ambiguities of Keynes’s marginal efficiency of capital, and the balance in a modern economy between ownership and production and trading of financial assets and productive investment (since a financialized economy may have more activity at higher interest rates, since this benefits rentiers, though it harms debtors – in any case, the relation to interest rates may contrast with that for productive investment, even if it is expected return that matters – as such the outcome of interest rate movements is conditional and complex though not arbitrary).

Economic “science” played a role in the paradigm change. It is perhaps not a sheer coincidence that the rise of neoliberalism as the basis of policy practice coincided with the emergence and then a long era of absolute dominance of the “micro-founded equilibrium” macroeconomics obligingly refuting the (“old”) Keynesian ideas on which the practical economic policies during the golden era of capitalism (1950–70) had been founded.¹³

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¹³ Shortly before the outbreak of the global financial crisis it could be claimed that “The worldwide progress in monetary policy is a great achievement that, especially when viewed from the perspective of 30 years ago, is a remarkable success story. Today, academics, central bank economists, and policymakers around the world work together on monetary policy as never before” (Goodfriend, 2007, p. 65).

BOOK REVIEW

John Komlos's ***Foundations of Real-World Economics: What every economics student needs to know***

London: Routledge, *2nd Edition*, 2019, 292 pp. PB \$30. ISBN 978-1-138-29654-1

Alan Freeman [University of Manitoba, Canada]

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John Komlos is Professor Emeritus of Economics and Economic History at University of Munich, Germany.¹ Komlos has a respectful following of heterodox economists who warm to two essential correctives which he provides to the outpourings of the mainstream. These are, a firm grasp of the way to approach facts, and an informative and readable critique of the daunting educational material facing the modern economics undergraduate. Both aspects of his approach are woven into this text, making it a highly accessible introduction. It is primarily positioned as an alternative to introductory Econ 101 “principles” type textbooks, but can serve as an introduction for undergraduate students at any level, to critical thinking in economics. We cannot do better than him in presenting why the text is needed:

“This textbook offers students a valuable introductory text with insights into the workings of real markets, not just imaginary ones formulated by blackboard economists.”

Though it is not intended as a comprehensive introduction to economic theory, it nevertheless covers most of the terrain dealt with in, say, a standard micro and standard macro text. The whole comprises fifteen chapters that state and constructively critique most of the major concepts in economics. As such, it could serve well as required reading for introductory economics courses delivered by heterodox and/or pluralist economics departments, in order to develop in students a capacity to think critically and, especially, to reason inductively.

Komlos founded the discipline he named “anthropometric history” and has published extensively on historical, statistical and economic aspects of human stature, human biology and their relation to well-being.² Komlos’s research background may be part of the reason for his endorsement of “humanistic economics” which, he explains:

“[I]mply the vision that a kinder and more just economic system is possible, one that is embedded in a truly democratic society that not only empowers people but enables them to live their daily lives with less uncertainty, less manipulation, less taking advantage of people’s weaknesses, and less fear that their lives could collapse like a house of cards. This capitalism with a human face envisions an economy with zero unemployment, zero inflation, zero trade deficits, and zero government deficit over the business cycle” (Komlos, 2019, p. 5).

¹ For background on Professor Komlos: https://en.wikipedia.org/wiki/John_Komlos.

² Anthropometrics explores the relationship between measurable human attributes and socio-economic development.

Humanistic economics embodies a concept of a meaningful life, which “goes well beyond consumption and production. Since human beings are not simply ‘economic agents’ – the values promulgated by the mainstream – the emphasis on money often conflicts with human values”.

Komlos’s attention to issues of measurement and definition gives rise to the title of his book: his welcome focus is on “Real-World” economics. He thereby puts flesh on a yearning widely expressed by students in revolt against the arid, mathematical, and abstract theories to which a modern neoclassical education subjects them, which gained especial strength in the wake of the 2008 crash.

The phrase (“Real-World”), though popular, is in itself somewhat vague, and can mean different things to different people. It may just mean less math, which quite a few students would rejoice at; however, it’s perfectly possible to promote wrong ideas without using mathematics, as Komlos shows carefully, with minimal math and impeccable logic: for example, the idea that markets are optimal, or that free trade works. Delving more deeply, the idea that modern markets “adjust supply to demand” assumes, Komlos notes, that we live in a society of shortage rather than one of drastic oversupply, and that demand is determined “exogenously”, by our innate desires, and is unaffected by our upbringing or by advertising.

Another way of thinking about “Real-world” economics arises from the disjuncture between the predictions of economics and the actual results. This came glaringly to light in the crash of 2008, but it has been evident in many areas of social and political life, not least the huge discrepancies between incomes in the global South and those in the global North. Komlos provides an excellent critique of Ricardo’s theory of comparative advantage, the standard justification for the policies of structural adjustment imposed by the IMF, which has reduced billions of people – a clear democratic majority in the world – to conditions of abject misery which, in the light of the conditions of generalised oversupply in the North that Komlos records, are as unnecessary as they are immoral.

Komlos adds a further dimension to these two aspects of “Real-worldness”, which is arguably the most important of all. He shows that the underlying *assumptions* of mainstream economics – exogenous demand, rational consumer choice, perfect competition, efficient markets, the invisible hand, comparative advantage, and the entire panoply of thinking required of the modern undergraduate – just do not correspond to what we can observe.

These assumptions, he points out, are justified as “simplifications”. But actually, they form the basis of a doctrine – an ideological set of beliefs. It simply is not true, as anyone can individually verify, that consumers make rational choices on what to buy based on an internalised set of psychological preferences. This has not only been refuted empirically in psychological experiments, logically in Arrow’s analyses of the paradoxes of choice, and practically in the study of asymmetric information, but stands in flat contradiction to the very fact that businesses spend money on advertising. If the economics taught to its novitiates were true, they should not even have found the departments that run their courses.

Komlos exhaustively studies these basic assumptions and, in each case, demonstrates the empirical objections to accepting them as true. This requires undergraduates to re-ground the way they think about economic *facts*. It seeks to root the practice of economics in the methods of science, which are characterised primarily, as the astronomer Carl Sagan has

noted, in systematic scepticism. Komlos restates the need for an inductive approach to truth. Never has it been more necessary.

Why are undergraduates required to learn, as the basis of their craft, false assumptions? Why are they tested as “qualified” economists depending on whether or not they understand how these false assumptions give rise to a coherent system of reasoning? Because, it is traditionally argued, the *results* predicted by using the false assumptions are the true test of whether the assumptions are correct.

The problem is that, at first sight, the methods of the natural sciences are quite comparable. Any student of physics has to grapple with the theory of rigid bodies and perfect spheres, even though these are never found in nature.

There are two tiny difficulties: first, the *results* of physics conform to experience. The results of economics do not. Second, physics students are not taught that rigid bodies and perfect spheres really exist, but that these simplified assumptions abstract from, rather than distort, reality. They form, in Hegelian terms, part of its essence. The student is *taught* how to relax these assumptions and an understanding of the limitations they impose is part of her education. In economics, relaxing the assumptions is a punishable crime: a student who denies that price formation may be modelled mathematically as a constrained optimization problem is setting herself up to fail.

The process begins when false assumptions are presented to undergraduates as “simplifications”, and it is these simplifications that constitute Komlos’s target. He thus begins, explaining the method of his book, thus:

“This textbook demonstrates how misleading it can be to apply oversimplified models of perfect competition to the real world. The math works well on college blackboards but not so well on the Main Streets of America. This volume explores the realities of oligopolies, the real impact of the minimum wage, the double-edged sword of free trade, and other ways in which powerful institutions cause distortions in the mainstream models. Bringing together the work of key scholars, such as Kahneman, Minsky, and Schumpeter, this book demonstrates how we should take into account the inefficiencies that arise due to asymmetric information, mental biases, unequal distribution of wealth and power, and the manipulation of demand” (Komlos, 2019, *precis*).

The models are not merely simplified but *oversimplified* to the point of simplistic (however complicated the maths subsequently becomes). They don’t work, not just because the assumptions are false, but because the results are false too. As a textbook, then, the intention is to ensure that students grasp from the beginning that economics involves values, and that models and methods are not neutral: what we assume has consequences for how we think, and some ways of viewing the world involve mismatches with how the world is. Economics 101 should, therefore be an introduction to methods of critical enquiry, not an act of indoctrination. This is more compatible with the spirit of scientific method whose pedagogical significance Komlos (2019: 12) aptly summarises:

1. Half-truths hardly belong in academia at any time.
2. It is much more efficient to learn a discipline correctly the first time than to have to unlearn it and correct it subsequently.
3. The more sophisticated idea of imperfect markets (rather than fantasy models such as perfect competition) are not so complicated and can be explained easily at the 101 level.
4. Most students of Econ 101 do not continue to study economics, so they are never exposed to the more nuanced version of the discipline and are therefore indoctrinated for the rest of their lives with a picture of how markets work that is essentially no more than a catechism.

Since the contrast is with standard mainstream principles textbooks, Komlos's point is that, however diverse state of the art economics becomes (behavioural etc.), at root mainstream economic theory, as now taught, is more or less a bunch of hokum: it uses demonstrably false assumptions, incorporated into demonstrably logically deficient models, to produce demonstrably false conclusions. And yet for capitalism to have a "human face" the imperfections of the real-world must be addressed (Komlos, 2019, p. 272). The modern generation of sapient economics students is painfully aware of this and demands something better. Komlos's second economics book is an excellent start.

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INTERVIEW

The importance of ecological economics: An interview with Herman Daly

Herman Daly and Jamie Morgan [University of Maryland, USA; Leeds Beckett University, UK]

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Professor Herman Daly is, in his field, amongst the best known and influential economists of the twentieth century and early twenty-first century. After the fashion of Keynes's comments regarding what makes a great carrier of the title, he is *more than* rather than merely an economist (Keynes, 1924, pp. 321-322). Since the late 1960s he has been a consistent and high-profile critic of the lack of attention paid in mainstream economics to the environmental consequences of economic activity and the real limits to economic growth (see for an early example of the contrast: Solow, 1974; Daly, 1974 and then collected Daly, 1999, 2007). Beginning with a set of selected works by contributing thinkers (Daly, 1973; updated 1980, and Daly and Townsend, 1993), Herman is closely associated with the idea of a "steady-state" economy systemic alternative (Daly, 1977 [1991]; 1996; 2014). After working at Louisiana State University for twenty years he moved on to become a Senior Economist in the Environment Department for the World Bank, before working at and finally becoming Emeritus from the School of Public Policy, University of Maryland. Herman has made significant contributions in research, teaching and to social and economic policy and activism (see, for example, Daly and Cobb, 1989 [1994]; Daly and Farley, 2003 [2011]). He has been the recipient of numerous awards, visiting professorships and honorary positions, and is co-founder of the journal *Ecological Economics* (for example, Daly, 1992).

Herman's *Essays Against Growthism* (2015) is published by the World Economics Association. For information on and access to Herman's work and related activity visit:¹

<https://publicpolicy.umd.edu/faculty/herman-daly>

He is interviewed by Jamie Morgan for *RWER*

Jamie: Given that *RWER* has a large lay and general readership who may not be familiar with disciplinary terminology, it might be worthwhile to start with some commentary that creates proper context for informed discussion. The press is full of reports on "the environment" and there is a sub-discipline of economics categorized as "environmental economics". You, however, are one of the early contributors to "ecological economics". It might be helpful to briefly distinguish between the two, and explain in general why you think ecological economics is superior.

Herman: Yes, thanks for the opportunity to discuss ecological economics with you. As for overall context, ecological economics focuses on three issues with special emphasis on the third: the allocation of resources among commodity uses, the distribution of income among people, and the physical scale of the economy relative to the containing biosphere. A good allocation of resources is efficient; a good distribution of income or wealth is just; a good scale is at least ecologically sustainable. Allocation and distribution are familiar concepts from

¹ See also: Centre for the Advancement of the Steady State Economy:

<https://steadystate.org/category/herman-daly/>

The Great Transition Initiative: <https://www.greattransition.org/publication/economics-for-a-full-world>

standard neoclassical economics – for every given distribution of income, there is a different Pareto optimal allocation of resources with its corresponding optimal set of prices. Standard neoclassical economics focuses primarily on the allocation issue, paying secondary attention to distribution. It does so first because a given distribution is logically necessary for defining efficient allocation, and second because distributive fairness is, of course, important in its own right.

Crucially, the third issue, the scale or physical size of the economy relative to the containing ecosystem, is *not recognized* in standard neoclassical economics and has, therefore, become the differentiating focus of ecological economics.

Jamie: Yes, for anyone not familiar with economics and for many of those coming to it for the first time as students this third issue is striking – like discovering that cosmologists were not interested in gravity. The very idea that our primary source of understanding and explanation of an economy can take this form is (and increasingly so) weird. This is not least because economics in general has a self-image as a science and more than any other area of inquiry into the form and consequence of societies focuses on quantities, measurement, metrics, hypothesis testing and data. This, of course, is framed by key concepts, orientations and methods that influence the emphasis *on* quantification and the form *of* that quantification – not least neoclassical economics (whose concerns have and continue to have great influence on mainstream economics more generally). It is astonishing to think that a social science of quantities is not fundamentally focused on and defined in terms of its own (an economy's) uses and consequences in a material sense – though, of course, there is a great deal more to say about in what sense it is *not* focused and defined in terms of uses and consequences – since it can ostensibly seem that it is. I expect we will come back to this. Could you say a bit more about what is key to ecological economics?

Herman: Regarding quantification ecological economists distinguish growth from development. Growth is increase in size by assimilation or accretion of matter – it is quantitative. Development is qualitative improvement in design, priorities, or purpose. Growth is easier to measure than development, but development is more important for the future. Sustainable development, so-called, is qualitative improvement without quantitative growth in scale beyond ecosystem capacities for waste absorption and resource regeneration. By accepting ecological limits, we force the path of progress away from quantitative growth and on to qualitative development. Some argue that because economics deals with growth in value (GDP), it does not really encounter physical limits. While it is true that value cannot be expressed in simple physical units, it is also true that value of production is measured in units of “dollar's worth”, not dollars, and a dollar's worth of anything is a physical quantity, namely that quantity that can be purchased for one dollar. Aggregating many diverse “dollar's worth” quantities into GDP does not erase the physical dimensions. The eagerness to defend “growthism” gives rise to many lame arguments.

The key to understanding ecological economics is its pre-analytic vision of the economy as an open subsystem of a larger ecosystem that is finite, non-growing, and materially closed (though open with respect to solar energy). This immediately suggests three analytical questions that *do not arise* in standard neoclassical economics:

1. How large is the economic subsystem relative to the containing ecosystem?
2. How large can it be?
3. How large should it be?

These lead to the further question:

4. Is there an optimal scale beyond which physical growth in the economic subsystem begins to reduce total welfare by diminishing the sources of ecological services faster than it increases the sources of production services?

Jamie: The very obvious answer to this fourth question based on any sane consideration of the first three, an answer that would be intuitive to anyone giving it proper consideration, assuming they had not first been socialized in ways that distorted the capacity to answer question four, is surely yes.

Herman: And ecological economics' answer is "yes". But for standard neoclassical economics the question cannot arise since the concepts of scale and "throughput" are absent.

Jamie: Which makes this issue of primary points of departure vital because...

Herman:because if the economy grew into the void, it would encroach on nothing, and its growth would have no opportunity cost. But since the economy in fact grows into and encroaches upon the finite and non-growing ecosystem, there is an opportunity cost to growth in scale, as well as a benefit. The costs arise from the fact that the physical economy, like an animal, is a "dissipative structure" sustained by a metabolic flow from and back to the environment. This flow, which we have called "throughput" (adopting the term from engineers) begins with the depletion of low-entropy useful resources from the environment. It is conformed to or followed by the processes of production and consumption, which, despite the connotations of the words, are only physical transformations of existing matter. The flow ends with the return of an equal quantity of high-entropy polluting wastes. Depletion and pollution are costs.

Not only does the growing economy encroach spatially and quantitatively on the ecosystem, it also qualitatively degrades the environmental sources and sinks of the metabolic throughput by which it is maintained. I can't stress enough just how important it is to understand that this forces a continual co-evolutionary adaptation between the economy and the ecosystem. If that adaptation is made in such a way that the throughput remains within the natural capacity of the ecosystem to absorb wastes and regenerate resources for a very long time, then the scale of the economy is considered "sustainable."

The main concerns of standard neoclassical economics contrast with this because it lacks the third issue. Optimal allocative prices *do not* guarantee a sustainable scale any more than they guarantee a just distribution of income. Attaining a sustainable scale, a just distribution, and an efficient allocation are three *distinct* problems. They are certainly not isolated, but solving one does not solve the others. Ecological economics leads to an important insight here, achieving three different goals generally requires three different policy instruments. This is illustrated by the cap-auction-trade system, a favored policy of ecological economists. Three policy actions are required in proper sequence. First, a quantitative limit is set, reflecting judgments of sustainable scale. That is, a previously unlimited or free good is recognized as scarce and the scale of its use is quantitatively limited. Second, the newly scarce good or right is now a valuable asset – who owns it? Deciding who owns it is a question of distributive justice. Third, once scale and distribution decisions have been collectively decided, we can then have individualistic market trading and efficient allocation, at least for most rival and excludable resources.

Jamie: But limits are of vital concern...

Herman: Right, as growth pushes us from an empty world to a full world, the limiting factor in production increasingly becomes remaining natural capital, not manmade capital. For example, the fish catch today is no longer limited by manmade capital of fishing boats but by the complementary natural capital of fish populations in the sea. As we move into a “full world” (in relation to our activity and consequences), economic logic remains the same – to economize on and invest in the limiting factor. But the identity of the limiting factor changes from manmade to remaining natural capital, and our economizing efforts and policies must change accordingly. Therefore, it becomes more important to study the nature of environmental goods and services in both their stock-flow and fund-service dimensions – and to determine if they are rival or non-rival, and excludable or non-excludable – in order to know if they are market goods or public goods.

Jamie: So, from your point of view as one of the first ecological economists, ecological economics is not just a different point of departure than standard neoclassical economics it also absorbs what is potentially insightful from it?

Herman: Yes, ecological economics draws mainly from *classical* economics (e.g. the stationary state of J.S. Mill), but draws on some neoclassical concepts as well. Indeed, our initial aim was to reform neoclassical economics, not to trash it. But we discovered that neoclassical economists, as represented by their most prestigious journals, totally resisted any reform that was the least bit unfriendly to their ideology of growthism. That led to a more confrontational relation, and to the establishment of our own journal and society. How close a relation should exist between standard neoclassical economics and ecological economics remains a divisive issue. Ecological economics accepts the standard analysis of allocative efficiency, given prior social determination of the scale and distribution questions, and given that the resources in question are rival and excludable. Under these conditions it considers market allocation preferable to central planning. Scale and distribution limits already make large demands on our capacity for central command and control, and render the market more fit for the limited job of allocation. Some critics consider that to somehow be a complete “surrender” to neoclassical economics, although it seems to me a very big reform of neoclassical economics, so big that the neoclassicals have not been willing to make it. Although the main difference has been the focus on scale, that difference has entailed more attention to often neglected dimensions of distribution – namely, intergenerational distribution of the resource base, and distribution of places in the sun among humans and all other species (biodiversity). Also, as more vital resources cease being free goods as a result of growth in scale, and are allocated by the market, the fairness of the distribution underlying market allocation becomes ever more critical. Once growth in scale has become uneconomic, and there is evidence that in some countries it has, it can no longer be appealed to as the macroeconomic solution to poverty. Poverty reduction requires increased sharing. And the big motivation for growthism in the first place has been to avoid the need to share.

Jamie: Clearly, ecological economics because it takes limits seriously must also take the constitution of ethics seriously. However, since our initial purpose is to give a clear sense of what makes ecological economics different than environmental economics is there anything else that it might be important to clarify?

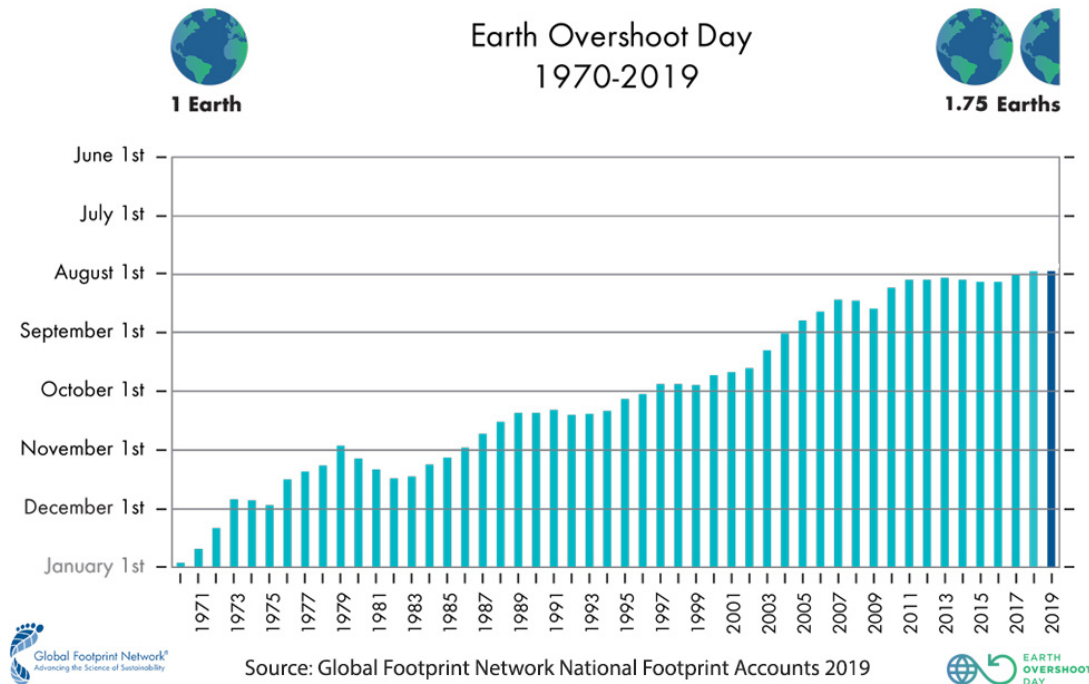
Herman: There are a lot of technical issues. Debates between standard and ecological economics include whether natural and manmade capital are primarily substitutes or

complements, the degree of coupling between physical throughput and GDP, and the degree of coupling between GDP and welfare. Ecological economics sees manmade and natural capital as fundamentally complementary, with natural capital providing limits; whereas standard economics sees them as substitutes and consequently with neither factor limiting. Standard neoclassical economics sees a tight coupling between GDP and welfare and a loose coupling between GDP and throughput. Ecological economics sees a tight coupling between GDP and throughput, with a loose coupling between GDP and welfare beyond basic sufficiency. Standard neoclassical economics puts growth in first place, ecological economics aims for a steady state to avoid uneconomic growth.

More generally, students are sure to ask: What is the relationship between ecological economics and courses in “resource economics” or “environmental economics” that are often taught in economics departments? The difference is that the latter two are both subfields of standard neoclassical economics; they do not consider scale an issue, have no concept of throughput, and are focused on efficiency of allocation. Resource economics deals with the efficiency of allocation of labor and capital devoted to extractive industries. It develops many useful concepts, such as scarcity rent and user cost. Likewise, environmental economics also focuses on efficiency of allocation and how it is disrupted by pollution externalities. Concepts of internalizing externalities by Pigouvian taxes or well-defined and enforceable property rights (Coase Theorem) are studied as solutions.² Nevertheless, the aim of both resource and environmental economics is allocative efficiency via right prices, *not sustainable scale*. For this reason, in the standard textbooks, resource and environmental economics chapters have to be tacked on at the end of the book because they do not fit the isolated system paradigm, which perforce omits both resource inputs and pollution outputs.

Jamie: And to return to something we previously noted, the very idea of a focus on the environment as a specialist sub-discipline of economics, as though only some need be concerned by the issue of resource use and consequences when thinking about an economy is odd. Surely one of the most important insights of ecological economics is that its concerns ought to be fundamental to economics not compartmentalized as “sometimes” an area of concern when problems arise. Would it be fair to say that one of the main differences is that ecological economics positions its concerns as Chapter One, rather than the environmental economics chapter tacked on in general textbooks? Concomitantly, its focus is economies in which environmental problems would, in principle, be avoided rather than retrospectively recognized for resolution (as though subsequent damage limitation was a rational solution in the aggregate and as a trajectory for the way we live collectively on a finite planet)? That, of course, opens up many issues in terms of what a “problem” is and, in any case, we are not in an original position – we are where we are. According to the Global Footprint Network, “Earth overshoot day” (the day in the year on which humanity’s demand for ecological resources and services exceeds the annual regenerative capacity of the Earth – an indicative and interesting if contestable approach to natural systems) this year (2019) was July 29th. This is two months faster than twenty years ago and requires 1.75 equivalent Earths:

² Note from Jamie: Pigouvian tax refers to taxes on negative externalities (the social marginal costs of a good or service exceeds the private marginal cost and is not currently included in the pricing, the tax is intended to close the difference reducing output and consumption of that good, subject to elasticity). Pigou followed Marshall at Cambridge, but was then one of the chief focuses of criticism by Keynes leading to the *General Theory*.



<https://www.overshootday.org/newsroom/press-release-july-2019-english/>

Again, this seems a stark reminder of just how important ecological economics is and the difference its difference makes.

Herman: Yes, ecological economics would not be surprised by “unexpected” externalities of depletion and pollution, since it connects resource and environmental economics by recognizing from the beginning the real-world connection between depletion and pollution via the concept of throughput. Joshua Farley and I have written a textbook which aims to do what you suggest (Daly and Farley, 2003 [2011]). To reiterate, the connection between the input and output ends of the throughput, its scale and entropic nature, are *unrecognized* by standard neoclassical economics, as is the fact that the effective limit on throughput may stem from either end, and may change over time (e.g. peak oil depletion versus “peak” greenhouse gas emissions). The metabolic throughput brings the first and second laws of thermodynamics into the center of economic theory, greatly increasing our recognition of scarcity, and limiting the devotion to “growthism”. This is an important concept. Currently, scarcity is at the root of economics, but the *physical* root of scarcity is omitted. The laws of thermodynamics are the main physical root of scarcity. The constraint that the laws of thermodynamics and scarcity place on growthism is hard to deny, so consequently the challenge tends to be ignored or countered by techno-fantasies. A very good response to the challenge, however, is the Global Ecological Footprint analysis (see Wackernagel and Rees, 1996) that you alluded to.³ In my opinion, it is far more deserving of the so-called Nobel Prize in economics than many of the contributions for which the Prize has been given.⁴

³ See: <http://environment-ecology.com/ecology-writings/598-ecological-footprint.html>

⁴ Note from Jamie: The Swedish Bank Prize, established 1968, was *not* envisaged by Nobel in his will that initiated the prize system, but it is administered by the Nobel Foundation. William Nordhaus received the prize in 2018. However, as Nordhaus (1991) and other interventions indicate his contribution includes specific arguments reducing the sense of urgency and need for action regarding

Jamie: And yet in ignoring this an informed ignorance threatens our future. Ed Conway, the well-respected economics editor of Sky News wrote the following in a recent op-ed in *The Times* newspaper:

Instead of seeking economic growth, they say governments should be attempting to constrain it. It is hard to know where to begin with this madness... [Regarding GDP and growth] the more we moan about its deficiencies, the more likely we are to forget that there are few phenomena in the world as magical as economic growth. Growth makes us healthier, it lengthens our lives, it (mostly) makes us happier, it diminishes poverty and narrows the gaps between countries, it expands opportunities and frequently liberates those who are oppressed. Even bearing in mind its faults, it remains one of the world's great miracles... So by all means let's measure economic growth better. Let's ensure our growth is even cleaner. Let's share it out more equally. But for heaven's sake let's not actively try to stop it (Conway, 2019).

This was published just over a day after the IPCC Special Report on *Climate Change and Land* (IPCC, 2019), a report intended to contribute to the IPCC's work in analyzing the scope to achieve the UNFCCC COP 21 Paris agreement targets (see, including an essay by Herman, Fullbrook and Morgan, 2019; Morgan, 2016). The new report garnered significant publicity (not least because it emphasizes the unsustainable nature of current trajectories and the need for major shifts in land use and food consumption patterns).⁵ Conway's op-ed makes no mention of real limits, or current and future consequences of economic activity (beyond we could be "even cleaner"). His specific target here is degrowth rather than a steady-state economy, but the basic lack of understanding of the very idea of limits and the many confluences his statements involve are glaring. They are rooted in an economics education and framework that see economies as places that create and solve their own problems in a general process of dynamic progress of perpetual expansion. A situation where one need only nudge or steer markets whilst growth delivers more of what we want (even if we don't know what that is yet). Much of what he says touches on concerns you have addressed under various arguments and based on contesting evidence. But before we turn specifically to some of those could you just bring together this first part of our discussion by clarifying just what is typical in textbook representations of an economy and how something like a production function, which to some may *seem* to be about physical things is not adequate as a way to articulate the real nature of an economy?

Herman: Yes. First, regarding Conway – no one is against being truly richer. The question is, does growth in real GDP any longer make us richer as it did in the "empty world", or is it now in the "full world" making us poorer? That is, once we count the expanding, but heretofore uncounted, costs of growth, such as climate change, biodiversity decline, depletion, toxic substance and radiation release, water and land use conflicts, etc.

environmental harm in general and climate change specifically. For a trenchant critique see Hickel (2018)

⁵ Agricultural land use is a major cause of emissions and climate change: noting the significant increase in the global population; that human use directly affects about 70% of the ice-free land surface; agriculture accounts for 70% of freshwater use; since 1961 per capita supply of meat and vegetable oils has doubled, 2 billion people are overweight (compared to 821 million undernourished) and 25-30% of total food produced is wasted; dryland (desertification) area has increased by average 1% per year since 1961.

If we are thinking about how frameworks affect our thinking, consider the neoclassical-Keynesian synthesis presented in nearly all introductory textbooks. It starts with the basic circular flow diagram. Firms supply products to households (national product) and households supply factors to firms (national income). Money circulates in the opposite direction. The diagram nicely combines supply and demand and prices in the products market with supply and demand and prices in the factors market, with the flow of money, and with the determination of aggregate national income and national product. Later chapters add leakages and injections from the circular flow: savings return as investment through finance; taxes return as government spending through public finance; imports are balanced by exports through international finance.

This can be a very useful and unifying vision, but it has a major defect – nothing *enters* from the outside, nothing *exits* to the outside. It is an isolated system that just keeps going without running down or wearing out. There is no outflow of waste to the environment, nor any replenishing inflow of resources from the environment. An isolated system has no environment. The economy is depicted as a perpetual motion machine in disregard of the Second Law of Thermodynamics. The economy has no digestive tract tying it to the external world – only an internal circulatory system. The metabolic throughput of matter/energy is abstracted from, probably because it was not considered scarce in the “empty world”. But devotion to exponential growth quickly brought us to the “full world” in which the scale of throughput has generated uncounted externalities and “illth” to an extent that overwhelms the counted wealth also generated by the economy.

Ignoring the metabolic throughput in the basic pre-analytic vision has the further consequences that in our national income accounts resources in the ground and natural waste absorption capacities are valued at zero. Also, resources are omitted from the neoclassical production function that contains *only* labor and capital. And if resource flows are sometimes plugged into the usual Cobb-Douglas function, to be incongruously multiplied times labor and capital funds, the result is a contradiction to the First Law of Thermodynamics – the cook can bake a ten pound cake with only a few ounces of ingredients simply by increasing labor and capital – by stirring harder and baking in a bigger oven. To be clear then, standard economics ignores the contribution of the metabolic throughput of resources both in its microeconomic production function and in its macroeconomic national accounting – two massive errors that at least are consistent with each other.

Jamie: Ok, let's start to pick up issues that bear on specific concepts and then move to matters that affect policy and contemporary issues. You mention the term “illth”. Could you say a little more about what you mean by this and how it informs your thinking on the norms that can, could or should inform the way we structure our economies?

Herman: In the index of standard neoclassical textbooks you will find entries under “goods” and “wealth”, but no entries under “bads” and “illth”. Bads are the opposite of goods and illth is the opposite of wealth. The production flow of goods accumulates into a stock of wealth, and the production flow of bads accumulates into a stock of illth. The term illth comes from John Ruskin and the term bads probably was introduced by Kenneth Boulding. Bads are undesired joint products with goods. Producing a car inevitably also produces pollution, depletion, tired laborers, depreciated capital equipment, and accidents. Our national accounts (GDP) measure only goods. They do not count bads because there is no demand for bads, and therefore no market or prices for them. Instead they count “anti-bads” – the defensive expenditures to protect ourselves against the bads, treating them as if they were net goods.

And depletion of natural capital is treated as if it were current income. Ecological economists have developed alternative national accounts that seek to rectify these and many other anomalies. (See for example the Index of Sustainable Economic Welfare, and the Genuine Progress Indicator.) These indicators show that after about 1970 in many developed countries illth was growing faster than wealth. There is always debate about the accuracy of empirical measures, but the big question is, why was the need for these theoretical corrections not also recognized and attempted by mainstream economists? Anything that is even potentially unfriendly to growthism is selected against in the present struggle for survival of growth as usual. Imagine if we should discover that growth at the present margin created more illth than wealth! What would we do then? Safer not to measure illth, or even talk about it.

Jamie: Yes, there is a certain degree of “I told you so” about this now, but still resistance at a basic level – almost like a kind of cognitive dissonance. Illth follows from the general consequences of pursuit of quantity, not just over quality but with consequences for quality – excess etc. Your own background work on this goes back decades and there are, of course, numerous other early interventions – empirical, conceptual, forecasting etc (for example, Meadows et al., 1972; Schumacher, (1973) [1993]; Porritt, 1984). This seems an important reminder that social science is often not neutral. New ideas enter into a given world of knowledge formation. Objectively, if I was to simply suggest any adequate social science ought to have a concept that accounted for potentially counterproductive or harmful consequences from the processes of change it studies – since it is manifestly the case that not all change can be expected to be beneficial – few would baulk at this; and yet when specified in regard of an existing economic framework of theory and practice and stated with descriptive accuracy (“illth”) the connotations have proven unpalatable. Equally, of course, it is because there is a glaring and *cumulative* problem hiding in plain sight that critique of fundamental problems of the direction of travel of our economies has increased. Degrowth, what this might mean, whether it is desirable, necessary, achievable etc is a concept that has occupied similar territory. A degrowth movement has become one of the main sources of critique of growthism and it is this that Conway had in mind in the previous quote. Perhaps you might comment on how a steady-state approach sits in terms of current debates regarding degrowth?

Herman: Basically I think degrowth and steady-state advocates are allies against the neoclassical-Keynesian ideology of growthism.⁶ There are a few differences, however, that we might discuss. Serge Latouche (2010) one of the degrowth founders, referred to degrowth as a “slogan in search of a program”. Some might consider steady-state economics as a program in search of a slogan. I am not sure that degrowth is an apt slogan (consider Conway’s reaction), but it would be nice to have one. Ecological economics and steady-state economics developed together out of dissatisfaction with neoclassical growth economics felt by some academic economists and ecologists. The starting point was theoretical and the aim was policies that *do not* require growth, that are consistent with the classical stationary state of population and capital as defended by J.S. Mill.

Degrowth has its origins more in social activism than in the history of economic thought, and is impatient with theory and specific policy. As some degrowthists put it, degrowth is a “missile word” aimed at blowing up conventional discussion and creating a vocabulary for new ideas. I can see the logic of their approach, and maybe they were understandably impatient with the

⁶ Note from Jamie: For the post-Keynesian response and dialogue with ecological economics see Holt et al., 2009.

slowness of steady-state economics to gain adherents, but I personally wish that they would advocate some specific policies around which we might cohere, or lend their support to steady-state policies. They have not always done so and I believe their reason for not doing so is the fact that at current scale the economy is too large to be maintained as a steady state. It is well beyond optimum or even sustainable scale. However, this was recognized from the beginning in steady-state economics – the optimal scale is smaller than the present scale, so an initial period of negative growth is called for. But, before we can degrow we *must stop* growing. Furthermore, degrowth as a policy norm is at least as unsustainable as growth (it too cannot last forever). Indeed, even the steady-state economy cannot last forever, but it can provide longevity with sufficiency to a much greater extent than either growth or degrowth. Also, I am surprised by many degrowthists' apparent unwillingness to consider population as a part of the scale issue. But the degrowth movement is young, and I am old. The future belongs to the young, so I am hopeful that they will both develop conceptually and grow in numbers.⁷ A strong alliance would seem logical and mutually beneficial.

Jamie: So, you seem to be suggesting that there is at root an affinity between steady-state economics and degrowth as a movement, at least based on purpose and perspective? This is in so far as a steady-state approach specifically references scale, and given the current state of affairs and direction of travel of economies, its mechanisms should be positioned to achieve an appropriate scale following not just a halt to growth but necessary negative growth. There is, of course, an additional commonality, ecological economics in general and both degrowth and steady-state economics, continue to be marginalized by mainstream economics. Discourse, debate, the potential for dialogue seem to be undermined by training and socialization that remain entrenched in core concepts, frames of reference, and methods rooted in the legacy of neoclassicism – even as the field diversifies. This marginalization is both readily comprehensible in terms of the selective processes of the sociology of knowledge (insiders-outsiders where fundamental critique is involved), and deeply disturbing because this is a subject where the stakes could not be higher.

The mainstream continues to act as though environmental economics (informed by mainstream concerns) had appropriate concepts from which solutions have and continue to emerge in a *timely fashion*. Environmental economics has focused on discount rates, marginal abatement, externalities, etc. Its concepts are rooted in time but the weight of conceptual argument has been towards minimal intervention and maximum delay – anything but *timely*. As such, the consequences of our economic activity have accumulated as evidence to the contrary regarding the adequacy of dominant ways of conceiving an economy (each successive UN Global Environmental Outlook report has confirmed this).⁸ Permissive and misdirected seem to be reasonable judgements regarding theory and policy: A basic premise that it makes sense to do harm and then seek to fix it, as though a sane society is one that ducks *after* it is punched. From this point of view, standard economics and environmental economics as a sub-discipline have been part of the problem and not ready sources of solutions. Given the environmental damage done and still being done the position of mainstream economics seems deeply irrational (if only as evidence refusal), ironic perhaps since the whole of mainstream economics begins from concepts of appropriately calculative

⁷ For good discussions, see Perez-Carmona (2013), Kerschner (2010). Note from Jamie: for useful additional insight on steady state issues see Dietz and O'Neill (2012); and see also Part X in the *Routledge Handbook of Ecological Economics*, which has essays on post-growth, degrowth, the steady state etc. that any student will find informative (Spash, 2017).

⁸ GEO 6 was published 2019 and is available: <https://www.unenvironment.org/resources/global-environment-outlook-6>

self-interested rational conduct. You more than most have experienced this complacency over the decades. What do you make of it?

Herman: I make of it that standard economics is a very sick discipline. I first saw this in the way that they treated my teacher, Nicholas Georgescu-Roegen, who had been a darling of the mathematical economists until he wrote *The Entropy Law and the Economic Process* (1972), which criticized the isolated system vision and the neglect of the metabolic flow of resources from and back to the environment, as we have already discussed. From then on Georgescu was considered a non-economist – a very smart guy who had studied economics under Joseph Schumpeter and statistics under Karl Pearson, and used to be a good economist, but then went off into physics, biology, and philosophy. Too bad, but since he is not really “an economist” any more we need not pay attention to his criticisms. And so, in 1997, some 25 years after the publication of the *Entropy Law*, and having seen no effect on standard economics, I decided to push the issue rather aggressively in an article and related symposium in *Ecological Economics* on “Georgescu-Roegen vs Solow/Stiglitz” (Daly, 1997). I restated the critique that Georgescu (by then deceased) had made of the neoclassical production function, and specifically his criticism of Solow and Stiglitz for their continued adherence to a theory that effectively denied the importance of natural resources. The editors of *Ecological Economics* invited replies from Solow and Stiglitz. The replies were brief and condescending restatements of their own positions, without engaging Georgescu’s criticisms at all, and indeed without even mentioning his name. I could give other examples of stonewalling complacency, but let this one suffice since it can be easily looked up. Complacent arrogance of leaders is only half the problem – the other half is the unwillingness of the rest of us to challenge complacent error when we see it, especially in leaders who in other ways deserve respect.

Jamie: This last point brings us to contemporary policy and activism. It seems to me that there are grounds for optimism and pessimism. Divisive and punitive variants of populism, strident ethno-nationalism and conflict seem to be on the rise (see, for example, the World Economics Association edited collection on Trump, including an essay by Herman; Fullbrook and Morgan, 2017). It seems that every other week some new calamity is reported and as the IPCC and UNEP reports of late 2018 indicate, the timescale to achieve necessary structural transformations to prevent catastrophic climate change is now short (net zero by 2040 to 2050, subject to hothouse Earth scenarios etc.). One might be overwhelmed. And yet there are also signs of positive change.

I am not sure what the situation in the USA is like, but in the UK, the positioning of climate change in the media seems to have undergone a shift – especially at the BBC. Until recently there was a kind of punctuated publicity – a flood somewhere, another instance of erratic weather, another record temperature; but there was no cumulative narrative structure or thread. Rather there was dissipation. Items just came and went and were lost in the news-cycle. And there was a concomitant reporting of events whose format often involved a talking heads situation: drawing on a climate change sceptic (typically not a climate scientist) who was given equal footing with an actual expert (from the Tyndall Centre or some equivalent). This commitment to “balance” conveyed the impression that there was undecidability between two positions despite the basic asymmetry of evidence and the underlying call to prudential action versus complacency as tacit recklessness. What the climate scientists wanted to convey was caution regarding precision of findings, where so many natural processes that could be affected were involved, not reasons to delay: uncertainty *between* models that all

showed the same overall direction of travel in terms of the actual data (subject to this or that possible temporary offsetting factor).

This dissipation seems to no longer be the case – events still come and go in the news-cycle, but each event is now introduced or concluded with statements that emphasize that this is *another* instance of climate change; a consequence etc. So, the shift seems to be towards a narrative structure or thread that accepts climate change is real, climate change is here, it is one instance of a set of environmental consequences of the way our economies are constructed and we (increasingly) need to recognize and deal with the real problems that are beginning to manifest. This, at least, seems (tentatively) positive, despite Trump, Bolsonaro etc. Moreover, increasing numbers of ordinary people – especially the young are becoming impatient with the lack of action and political parties and governments do seem to now be thinking about basic solutions – they are beginning to be on the agenda, and it seems increasingly possible that some serious disaster may compel this. Some places are more down the road than others, of course, and real commitment is hard to assess (in a world where “greenwash” has been a default mentality for some). With this in mind, perhaps you might comment on the Green New Deal as well as new campaigning organizations of civil dissent, such as Extinction Rebellion?

Herman: The Green New Deal and Extinction Rebellion are encouraging signs of an awakening to the urgency of the problems that growthism has created. But there is still an unwillingness to identify growth as *the* root cause. What is the root cause of climate change? Not growth it is assumed, but just the fact that we are too dependent on non-renewable fossil fuels – we just need to shift to renewable sources of energy, it is said. A reasonable suggestion within limits, but when growth leads to exploitation of renewables beyond their sustainable yield they effectively become non-renewables. And unlike fossil fuels which come from underground, renewables come from the surface of the earth where their cultivation directly competes with food production. And when burned renewables too emit carbon. And even solar collectors take up space, and their material structure wears out and must be replaced by newly mined materials, an activity that after years of depletion could require most of the energy they collected over their lifetime. Never mind, some say, soon fusion power will give us energy so abundant that it will be “too cheap to meter,” to recall the false promise of nuclear fission advocates. That didn’t happen. But suppose we *do* achieve free energy by fusion or some other unknown “backstop energy source” – that will simply enable the growth economy to more quickly cut the last tree, catch the last fish, and strip mine the last mountain.⁹ In a steady-state economy free energy would be a boon, in a growth economy it would be a curse.

The Green New Deal cannot be a new way to keep on growing. It has to be a new recognition of limits and willingness to live within them by sharing, and cutting waste and extravagance. The Green New Dealers in the US, to their credit, show considerable willingness to share, by their advocacy of expansion of the welfare state and tax increases for the wealthy. However, their simultaneous implicit advocacy of open borders, undercuts welfare state expansion in the absence of either further growth, or unlikely transfer payments from foreign governments

⁹ Note from Jamie: this invokes a variant of the Jevon’s paradox – some forms of efficiency enhancement lead to net increases in exploitation of resources or further systemic consequences based on scale etc. Note also, “backstop resource” is a concept invoked over the decades by Solow, Nordhaus and various others to ground the claim that there is always an exit strategy to some other (imaginary) resolving technology and activity; a mindset that tacitly positions the present – not having to solve the problem we can observe being created now. See Herman’s comment on the Jevon’s effect later.

to meet the extra welfare costs imposed by their emigrating poor. The fact that some of Trump's immigration policies are bad ones does not make open borders a good policy. The US *de facto* cheap-labor policy of lax enforcement of our immigration laws (greatly aided by off-shoring and automation) was what got Trump elected in the first place, and the Green New Deal Democrats really should worry about handing him the same issue again. It is common sense that, like rain, some immigration is good and too much is bad – one should not have to advocate open borders to “prove” to the politically correct that one is not a racist! The “progressive” media is often unwilling to do the work necessary to understand and explain the complex immigration debate, and so they treat it as simply another manifestation of racism for which they have a ready-made vocabulary, and which requires no further effort to understand and explain to their viewers. Yes, there really is such a thing as racism, but default appeal to such *ad hominem* explanation simply provokes understandable resentment and populist reaction in the working class.

Jamie: There is, of course, a great deal more that might be said on this subject regarding the positive impact culturally, economically and socially of immigrants (the discursive positioning of the issue that leads to the *construction* of race as a matter of division) and also more that might be said regarding the contemporary politicized conflation of immigration and economics with asylum-seeking and universal human rights and responsibility. But your point is well taken, the scope for the Green New Deal cannot evade issues of scale and so from an ecological economics point of view population size is a key issue – not least once growth is curtailed and distributions become a main focus, so policy here has multiple and differing considerations, some of which perhaps advocates have not yet considered. We, meanwhile, have considered the basic worldview of ecological economics and how it differs from the neoclassical-Keynesian growth synthesis whose policies have led us to near collapse. To conclude our discussion, it seems pertinent to ask what are the policies suggested by ecological economics?

Herman: Yes, indeed. To do this let us go back to the three goals we started with, and in the same necessary sequence, namely: sustainable scale, just distribution, and efficient allocation. Briefly, what policies correspond to each goal?

First, *Sustainable scale* is defined by a population and a per capita stock of wealth maintained by a metabolic throughput that is within nature's capacity for waste absorption and resource regeneration. One way forward here are cap-auction-trade systems for key resources. These auctions could mainly start with energy. They would limit throughput in a gross way, and raise considerable revenue. Resource severance taxes could be used as a substitute or supplement. As a general rule, the tax base should be shifted away from value added and on to that to which value is added, namely the depletion-pollution throughput. We want more value added, so stop taxing it. We want less depletion-pollution, so tax it.¹⁰ Higher resource prices induce resource-saving technical progress. Taxes are easier to administer, but quotas are environmentally safer. Quotas block the Jevons effect and convey the message that there is a limited amount that must be *rationed*, not the message that we can have as much as we want as long as we pay the price plus tax. Of course, we do not know the optimal scale in advance, but we know that it is smaller than at present, and by trial and error could approximate an optimal, or at least sustainable scale. We already have some experience with cap-auction-trade and with severance taxes. Population is also a major determinant of scale.

¹⁰ Note from Jamie: bearing in mind that, according to IMF research, energy including oil receive massive global subsidies, even though we think of oil as something that is taxed as a negative externality (Coady et al., 2015).

Policies limiting population range from China's one-child family to laissez faire reliance on the "automatic demographic transition," with all sorts of incentive programs in between.

Curiously, the logic of the cap-auction-trade system just advocated for basic resources was first imagined by Kenneth Boulding (1965) in the context of population. That is, limiting aggregate births by establishing quota rights to reproduce, in an aggregate amount corresponding to replacement fertility. The rights would be distributed equally rather than auctioned, but could then be voluntarily re-allocated among individuals by sale or gift in the interest of efficiency. Sustainability would be served by setting the aggregate quota at replacement fertility; justice served by distributing the individual quotas equally; efficiency respected by allowing subsequent exchange to better meet individual preferences. Needless to say, the quota plan has no political support when applied to limiting human reproduction, but does find support as a way to limit, distribute, and allocate the yield of renewable resources at a sustainable level, in addition to limiting the rate of depletion of non-renewable resources. For all its difficulties, the Boulding plan would be far less drastic than the Chinese one-child policy, but more drastic than voluntary family planning with financial incentives.

Jamie: In the societies we live in the idea of auctions for fertility rights seems shocking (and the concept of efficiency applied to people carries connotations that would make many uncomfortable). But it is worth emphasizing here that the whole issue is motivated by pragmatic recognition that there is a problem to be addressed: the population of the world has risen from 1.6 billion in 1900 to over 7.5 billion now; global GDP has risen from \$1.1 trillion to over \$80 trillion; we are now a planet of consumers (planetary consumers, literally eaters of worlds); which is no more than to say there are many more of us living lives that once few did. The consequences are now manifesting (1.75 Earths). It is not punitively or callously Malthusian to recognize that numbers are a factor we must think about. As Lester Brown and others concur, what is viable is contingent, but that there are consequences is undeniable. Since we cannot negotiate with the planet only amongst ourselves it makes sense to rationally collectively agree to limit ourselves on a finite planet. Contingency though speaks to your prior point regarding coevolution of societies and the environment, which brings us to other aspects of scale you have considered.

Herman: Yes. Scale could also be maintained constant with a growing population by proportionate reduction in per capita resource use, but that too is currently politically non-viable. Although world population has twice doubled in my lifetime I doubt that it will ever double again. But if it does, the birth quota plan might then become politically viable. While Boulding's plan is viewed with horror (misunderstood as buying and selling babies), the public seems strangely willing to accept the buying and selling of ova from healthy young women at elite universities, and sperm from young men, or from Nobel Laureate sperm banks, along with rent-a-womb services from surrogate mothers. Little objection is raised to the implicit embrace of eugenics entailed by the marketization of actual biological reproduction – yet simple exchange of reproduction quota rights is considered abhorrent. At the same time, transhumanist billionaires are planning to increase population by living forever once the "Singularity" arrives, and their cryogenically preserved brains can be thawed and their information content resurrected in silicon "bodies". This techno-fantasy is widely admired as "death defying". Lest I be misunderstood, I should say that I think more people are better than fewer – as long as they are not all alive at the same time! Let's strive to maximize the cumulative number of lives ever lived over time at a level of per capita resource consumption sufficient for a good life. That is a better approximation to responsible stewardship and

sustainability than is a world of declining carrying capacity provoked by an excess of current people and their excessive possessions.

Jamie: Yes, it would be unfortunate if a reader were to get the impression that you harbored anti-egalitarian and authoritarian proclivities (the Dr Strangelove of eugenics).

Herman: Which brings us to the issue of *Just Distribution*. This requires fairness in the initial ownership of the limited depletion rights to be auctioned. Fairness suggests collective ownership by the government. The revenue from the auction, or from the severance taxes, goes first into the general treasury. Various redistributions have been suggested. Some favor a revenue neutral equal social dividend to all citizens. Others favor a revenue neutral reduction in other taxes, specifically the most regressive taxes so as to benefit the poor. Alternatively, and more radically simple, is the suggestion of a limited range of income inequality bounded by a minimum and a maximum – say for example an annual minimum of \$20,000 and maximum of \$2,000,000. A factor of 100 difference should give ample space for incentives and differential reward for different contribution, and yet significantly reduce the extreme inequality generated by our present system. Plato thought the richest citizen should be four times as wealthy as the poorest. For now the important thing is to establish the principle of limits to inequality. Over time, and on the basis of experience the range could be reduced or expanded. There is considerable political support for a guaranteed minimum income, but not for a maximum. This may well change given the outrageous size of incomes at the top today, and the job-reducing consequence of automation.¹¹

Jamie: And you and others have argued for this as not just necessary but also desirable: an antidote to the negative aspects of consumption-focused societies where identity and status are imbued into what one has (and the act of getting it) rather than the meaningful things one does or pursues – something that Wilkinson and Pickett (2010) and others establish does not necessarily make us happier and in some ways can make us ill (invoking such classical contrasts as internal and external goods, praise and praise worthiness etc).

Herman: Yes, though to be clear this is not at the expense of economic reasoning. The third issue is *Efficient Allocation*. Once sustainable scale and just distribution have been collectively set, then, for resources that are rival and excludable, the individualistic market can be relied on to allocate them efficiently – that is, in accordance with preferences and ability to pay. Within these constraints, the market seems better than a central planner. Considerable burden has already been placed on the central government to set and administer scale and distributional limits, as well as to allocate public goods and break up monopolies, so we should be grateful for some help from the market in the important task of allocating private goods.

Jamie: This brings us to a final point. Not so much a critique of your stance than it is an unavoidable problem of transitions irrespective of what route is taken. It strikes me that the existential ecological challenge invokes a variant of Rousseau's classic social contract dilemma – and this time not as a retrospective thought experiment regarding how we got to where we are, more as a how can we get to where we need to go. That is, what individual freedoms are we going to be prepared to forego to create grounds for others?¹² Policy proposals such as auctions and quotas and high levels of taxation on some activities

¹¹ See, for example, Brynjolfsson and McAfee (2014); Ford, (2015); Morgan (2019).

¹² Note from Jamie: Rousseau thought of these as higher (rational) freedoms, critics, however, focus on the tyranny of the general will that can also follow.

seemingly require strong rule systems and a shift in attitudes toward law and regulation (our socialization acting as the software of institutions – what we are prepared to engage with and how). It seems likely we will have to vote for prohibitions on some kinds of conduct – a broader public sphere of what we *cannot* do. What do you think about this as a problem for societies like the US, which adhere to the mythic rugged individualism ideal (despite much of the reality of life in the US)? It seems that there is a great deal more to say about what kind of individualism we will be comfortable with in the future. This surely extends also to your point about markets. Markets are rooted in institutions and can have many different qualities. For example, a reasonable question to ask in the context of ecological economics and the steady-state is what forms of ownership are *least* likely to encourage subversion of our collective interest in a steady-state at an appropriate scale; which type is most likely to provide the required information to make the whole work and which type is most likely to act in the spirit of the system rather than based on other mechanisms?

Herman: As you say, this is a fundamental question, and was well stated by Edmund Burke: *“society cannot exist unless a controlling power upon will and appetite be placed somewhere, and the less of it there is within, the more there must be without....Men of intemperate minds cannot be free. Their passions forge their fetters.”*¹³ The less voluntary self-control there is, the more coercive police control there must be. If we want less police coercion, then we must have more voluntary self-control and discipline by conscience. Conscience and self-control require a commitment to value as the motive of action. Not preferences, but value. Value is objective and as such must elicit basic consensus; preference is subjective and varies widely among individuals. Standard neoclassical economics serves preferences, and by its doctrine of consumer sovereignty reduces value to the level of preference. Without objective value, what controlling power on will and appetite (preferences) can there be? Only external police power, or the Malthusian positive constraints of nature’s coercion. In C. S. Lewis’s words, *“A dogmatic belief in objective value is necessary to the very idea of a rule which is not tyranny or an obedience which is not slavery.”* This sounds extreme, but is logic itself. If you and I disagree on a policy, and both of us deny objective value, then there is nothing for either of us to appeal to in an effort to persuade the other, or to accede to in being persuaded. Your preferences mean little to me, and mine mean little to you. And a “fair compromise” requires appeal to the objective value of fairness. What then prevents resort to force or deceit (tyranny) to settle the issue?

But where does our knowledge of objective value come from? I would say from religious insight, specifically in the West from the Judeo-Christian tradition whose historical dominance has been greatly weakened by attacks from the secular intelligentsia, and by its own internal failures and worldly corruptions. At the same time Scientism has taken the cultural place of religion, but promotes a materialist world view productive of power, but devoid of purpose or value. I think growth economics has stepped into this void arguing that even in the absence of objective value and right purpose we still have our preferences, and we should agree that *growth* in the satisfaction of those preferences, however uninstructed they may be, is the glue that will hold society together. At least until consequent ecological ruin tears it apart!

Jamie: A great deal to do then in terms of public action, discourse and deliberation in order to produce future societies we can live in, though of course the very act of producing them would

¹³ Note from Jamie: this is from Burke’s A Letter to a Member of the National Assembly and is typically taken to refer to our reflexive acceptance of moral chains, rationally accepted to exchange baser instincts for higher goods (justice etc.).

be to exercise one of the chief characteristics of the human in a good society. How optimistic are you right now?

Herman: Well, I am hopeful, but not optimistic. The policy suggestions sketched above are far from a detailed blueprint, but should convey the general policy thrust. They aim for necessary macro control of scale and distribution, with the minimum sacrifice of individual freedom of choice at the micro or market level. They are hopeful, flickering candles to try to light the darkness just described. The need for such policies is *urgent*. But the neoclassical-Keynesian growth synthesis taught in nearly all economics faculties wants scale to increase faster, and sees inequality in distribution of income mainly as a source of investment funds and incentives to push growth. It insists on straining out gnats of inefficient allocation while swallowing camels of unsustainable scale and unjust distribution. It is past time for a big reform in economics!

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